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ABSTRACT BOOK

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Designed and edited by

Gaia Tamaro
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456 - Ultra-high frequency ultrasound of bowel wall *ex-vivo* – a promising method to facilitate delineation of aganglionosis and ganglionosis in Hirschprung's disease

Tebin Hawez[1,2], Christina Graneli[1,2], Tobias Erlöv[3], Maria Evertsson[4], Kristine Hagelsteen[1,2], Louise Tofft[1,2], Tomas Jansson[4,5], Magnus Cinthio[3], Pernilla Stenström[1,2]

[1]Lund University, Lund, Sweden. [2]Department of Pediatric surgery, Skane University Hospital, Lund, Sweden. [3]Department of Biomedical Engineering, The Faculty of Engineering, Lund University, Lund, Sweden. [4]Department of Clinical Sciences/Biomedical Engineering Lund University, Lund, Sweden. [5]Clinical Engineering Skåne, Digitalisering IT/MT, Region Skåne, Lund, Sweden

Background: Today's intraoperative frozen-biopsy method during surgery of Hirschsprung's disease (HD) implies prolonged anaesthesia times while waiting for analyses. An instant, safe diagnostic method to identify ganglionic bowel at an exact level is warranted. Ultra-high frequency ultrasound (UHFUS) has recently been proven to reproduce histoanatomy in bowel wall, suggesting its use in HD diagnostics.

Aim: To explore if UHFUS could distinguish between aganglionic and ganglionic bowel segments.

Method: Bowel specimens of 23 children, 4-10 kg, consecutively operated for rectosigmoid HD at a national center for HD, were examined *ex-vivo*. Histoanatomic features were assessed using the UHF70(MHz) probe on the Vevo MD scanner (Fujifilm VisualSonics Inc, Canada) delivering resolution of 30 µm. Patients served as their own controls, allowing paired statistical tests. Ethical approval was obtained.

Results: In ganglionic compared to aganglionic bowel wall *ex-vivo* the thickness of muscularis interna (Ti) was significantly greater (0.512 vs 0.317 mm; $p<0.001$; confidence interval (CI) 0.148 to 0.289), the ratio thickness muscularis interna/externa (RTi/e) was higher (1.196 vs 0.762; $p=0.011$; CI 0.085 to 0.596), and the submucosa's amplitude (whiteness) (ASm) was lower (100.5 vs 114; $p<0.001$; CI -21.8 to -8.7). In a proposed algorithm including Ti+RTi/e+Asm, sensitivity and specificity of aganglionosis was 100%, respectively.

Conclusion: These *ex-vivo* results show that delineation between aganglionosis and ganglionosis might be facilitated by UHFUS, supporting further *in-vivo* research. To confirm/reject if the identified histoanatomic differences are typical for HD or normal anatomic variations, histoanatomy of normal bowel is being explored.

399 - ARTIFICIAL INTELLIGENCE FOR THE DIAGNOSIS OF NEC: HOW DO MEDICAL PROFESSIONALS COMPARE?

Jayaram Sivaraj[1], KaWai Yung[2], Lodovico Di Giura[3], Rohan Ganvir[4], Joe Davidson[1], Maria Chalia[4], Simon Hannam[4], Susan Shelmeridine[5,6], Simon Eaton[1,6], Danail Stoyanov[2], Joe Curry[7], Paolo De Coppi[1,6,7], Evangelos Mazomenos[2], Stavros Loukogeorgakis[1,6,7]

[1]UCL Great Ormond Street Institute of Child Health, London, United Kingdom. [2]2. UCL Wellcome / EPSRC Centre for Interventional and Surgical Sciences, London, United Kingdom. [3]UCL Medical School, London, United Kingdom. [4]4. Department of Neonatology, Great Ormond Street Hospital NHS Foundation Trust, London, United Kingdom. [5]5. Department of Radiology, Great Ormond Street Hospital NHS Foundation Trust, London, United Kingdom. [6]6. NIHR Biomedical Research Centre, Great Ormond Street Hospital, London, United Kingdom. [7]7. Department of Specialist Neonatal and Paediatric Surgery, Great Ormond Street Hospital NHS Foundation Trust, London, United Kingdom

Aim of the Study

Abdominal X-ray (AXR) diagnosis of Necrotising Enterocolitis (NEC) can be challenging. Our aim was to develop an Artificial Intelligence (AI) Algorithm to detect NEC on AXR and compare performance with different grades and specialties of clinicians.

Methods

AXRs were obtained from infants with NEC treated from 2010-2020 (139 surgically treated [SN]; 191 medically treated [MN]) and from 160 age-matched infants with no abdominal pathology (NP). 1614 AXRs were used for training and validation (80:20 split) of a custom transformer algorithm (AIDNEC) which underwent 10 test runs. 12 AXRs (SN=3, MN=3, NP=6) were selected for testing and clinician performance was assessed by circulating a survey with the test AXRs. Performance was measured by F1 score (harmonic mean of precision and recall; 1=perfect score) and reported as median [IQR] or mean ± SD as appropriate.

Main Results

Consultant/Attending grade clinicians demonstrated superior ability to correctly classify all diagnostic classes compared to other grades (Figure 1). Radiologists were superior at identifying SN and NP, but Paediatric Surgeons were superior at identifying MN. AIDNEC outperformed all junior grades of clinicians and was inferior to senior clinicians, Paediatric Surgeons and Radiologists at detecting SN (F1=0.8[0]) but superior at detecting MN (F1=0.72±0.04) and NP (F1=0.85±0.10).

Conclusion

AI is capable of performing on par with consultant/attending grade clinicians and radiologists. It is superior to junior clinicians for AXR based diagnosis of NEC. AI therefore can potentially support junior clinicians with clinical diagnosis, particularly when senior support is unavailable.

236 - AN INTERVENTIONAL STUDY OF ANTI-MICROFIBRILLAR-ASSOCIATED PROTEIN'S (ANTI-MFAP4'S) POSSIBLE EFFECTS IN INDUCING POST SURGERY INTESTINAL ANASTOMOTIC TENSILE STRENGTH

Rasmus Christian Andresen[1,2], Jesper Brandt Pedersen[1,2], Grith Lykke Sørensen[2], Anders Grønnegaard Schlosser[2], Mie Dilling Kjær[1], Mark Bremholm Ellebæk[1,2]

[1]Odense University Hospital, Odense, Denmark. [2]University of Southern Denmark, Odense, Denmark

Aim of the study

The aim is to investigate dose-response and effect of locally administered anti-MFAP4, an experimental biological therapy, on chemically induced fibrosis in small intestinal anastomosis on piglet models. Primary outcomes are maximal anastomotic tensile strength (MATS). Secondary outcome is local deposition of MFAP4

Methods

In two consecutive RCT-studies including 38 female piglets, two intestinal anastomoses were performed in each piglet. Fibrosis was established in the anastomoses using locally administered aethoxysclerol. All piglets were randomized to either a local dose of anti-MFAP4 or placebo (histidine-buffer). In the first study the doses were administered on the day of surgery, and effects were evaluated on postsurgical day 10. In the second study doses were administered on postsurgical day 14, and effects were evaluated on postsurgical day 28. The Danish Animal Experiments Inspectorate has approved all procedures

Results

The first study showed a significant increase in MATS 1, force at visual tear in the serous membrane, ($p=0.05$). The second study showed a significant increase in MATS 2, force at visual transmural tear, ($p<0.001$), and increase in MATS 3, maximal force measured, ($p<0.001$). No anastomotic leakage or macroscopic stenosis occurred in any of the studies.

MATS values are shown in table 1:

Study\Group	Histidine	10mg/ml	20mg/ml	40mg/ml
RCT 1				
MATS 1	6.9 ± 1.7 N	7.2 ± 3.7 N	8.2 ± 2.3 N*	-
MATS 2	9.1 ± 3.1 N	9.4 ± 4.5 N	9.9 ± 3.3 N	-
MATS 3	9.6 ± 3.7 N	10.0 ± 4.4 N	10.2 ± 3.4 N	-
RCT 2				
MATS 1	4.54 ± 1.53 N	-	-	6.24 ± 1.82 N
MATS 2	11.97 ± 6.58 N	-	-	17.78 ± 4.82 N*
MATS 3	9.67 ± 6.6 N	-	-	18.2 ± 4.68 N*

*Table 1 *P-value<0,05*

Conclusion

Anti-MFAP4 was shown to increase the tissue strength in piglets when administered locally in small intestinal anastomoses and using two doses. Following, the effect of locally administered higher dose anti-MFAP4 was shown to increase the tissue-strength further, as evaluated by increased anastomotic tensile strength.

325 - EXPLORING CONGENITAL ANOMALIES USING INNOVATIVE IMAGING TECHNIQUES: APPLICABILITY OF MICRO-CT IMAGING IN PEDIATRIC SURGICAL RESEARCH

Daniël Docter, Bernadette de Bakker, Joris Roelofs, Joep Derikx, Matthijs Oomen, Sjoerd de Beer, Justin de Jong, Ernst van Heurn, Ramon Gorter

AUMC, Amsterdam, Netherlands

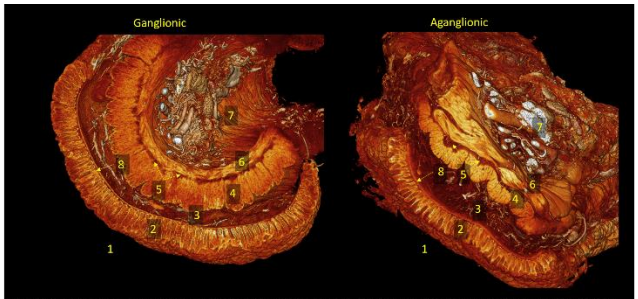


Fig 1. Micro-CT scan of ganglionic and Aganglionic parts of the colon of the same patient. Stained using 3,75% B-Lugol and scanned using a Phoenix Nanotom M micro-CT unit. Voxel size of 3,5 µm. Within the myenteric plexus of the ganglionic part of the colon, circular structures can be appreciated that appear as ganglions. Histologic confirmation is pending.
1. Lumen 2. Epithelia (crypts with goblet cells) 3. Submucosa 4. Circular muscle layer. 5. Myenteric plexus (Auerbach). 6. longitudinal muscle layer. 7. vasculature and glandular tissue in the mesocolon. 8. mucosa muscularis

Aim

The exact pathogenesis of rare and complex congenital anomalies is still not fully understood. Through micro-CT imaging, we have found vital structures in anorectal malformation (ARM) fistulas. This has led to new pilot studies in other conditions. The aim of these studies is to re-investigate pathogenesis in ultra-high 3D resolution.

Methods

Patients undergoing surgical reconstruction for rare and complex congenital anomalies (esophageal atresia (EA), Hirschsprung disease (HD), pediatric pseudo-obstruction syndrome (PIPO) or intractable severe constipation (ISC)) are eligible for inclusion since 01-02-2023. After informed consent is obtained, resected material is fixed in 4% paraformaldehyde right after resection for 48 hours. Material is than stained using 3,75% B-lugol for 48 hours. Scans were performed on a Phoenix-Nanotom-M micro-CT. After scanning, samples are de-stained, paraffin embedded and cut in 4-µm thick sections which are H&E stained for complimentary histopathologic evaluation.

Results

At time of submission, 4 HD samples, 7 EA samples and 1 ISC colon have been collected. Of these, 2 patients with EA and 2 patients with HD have been scanned. In the HD samples, clear differentiation between affected and non-affected segments of the bowel could be observed. Analyses revealed a lack of ganglion cells, an abnormal morphology of muscle fibers and epithelial changes. With respect to EA, an abnormal additional muscular layer was observed in both samples.

Conclusion

Micro CT imaging produces ultra-high 3D resolution imaging of surgical samples from congenital anomalies and is capable of identifying crucial anatomical structures. We investigate this promising technique for pediatric research.

596 - eHealth in home after reconstructive surgery for anorectal malformations – impact on access to care and postoperative complications

Matilda Wester Fleur[1,2,3], Charlotte Castor[2], Björn A. Johnsson[4], Pernilla Stenström[1,3]

[1]Department of Pediatrics, Institution of Clinical Sciences, Lund University, Lund, Sweden. [2]Department of Health Sciences, Faculty of Medicine, Lund University, Lund, Sweden. [3]Department of Pediatric surgery, Skåne University Hospital, Lund, Sweden. [4]Department of Computer Science, Faculty of Engineering, Lund University, Lund, Sweden

Background: Swedish health authorities centralized pediatric surgery, implying longer travel distances for patients. European Reference Networks suggest E-health for easy expert-access. With the purpose to bridge between experts and home after reconstructive surgery, a digital eHealth device with highest safety was invented, offering bilateral communication through chat, photo and video-calls.

Aim: To explore if digital communication after discharge after reconstructive surgery for anorectal malformations (ARM) impacted: 1. Timing/frequencies of expert contacts; 2. Complication frequency; 3. Changes in treatment or self-management.

Method: Interventional prospective case control study comparing postoperative care 30 days after discharge for children reconstructed for ARM using the eHealth device versus conventional care, between July 2018 (centralization)-July 2023. Non-parametric statistic methods; median. Ethical approval was obtained.

Results: After exclusions, 64/95 families were included. The eHealth device was used by 47 (73%) vs 17 (27%) with conventional care. Background data did not differ while distance to the expert-center was 230km vs. 95km (p=0.04). The first contact after discharge was after 5 days, respectively (ns). The first follow-up visit took place after 9 vs. 6 days (p=0.02). The total number of follow-up visits were two (device) vs. three (p=0.04). The number of contacts was four, respectively (ns). Days with digital contacts were 6. Treated complications were two (4%) vs two (12%) (ns). Changes in treatments and self-management were two respectively (ns).

Conclusion: Use of eHealth after ARM reconstructions implied more frequent postoperative counseling, fewer in-person follow-ups but no difference in complications or self-management actions compared to conventional care.

231 - ROLE OF ROBOTIC SIMULATION IN PEDIATRIC SURGERY: A FRENCH NATIONAL SURVEY AND SCOPING REVIEW.

Berenice Tulelli[1,2], Emanuela Gallo[1,3], Valeska Bidault[1], Delphine Demede[1], Frederic Hameury[1]

[1]Department of Pediatric Surgery and Transplantation, 59 Boulevard Pinel, 69500 Bron, Hospital Femme Mere Enfant, Hospices Civils de Lyon, Lyon, France. [2]Claude Bernard Lyon 1 University, Villerubanne, France. [3]University of Genoa, DINOGMI, Genova, Italy

Aim

Multiple indications, rare diseases, variable exposure to robotic surgery make simulation essential for mastering pediatric robotic surgery. This study provides an overview of the current state of robotic simulation in pediatrics by reporting a French national survey and literature review.

Methods

French pediatric robotic surgery teams participated in an online survey on their activity, training and simulation. A PRISMA-ScR based review was carried out. Search terms: robotic surgery, pediatric, simulation, training, surgical education, cognitive, metacognition, robotic set-up, virtual reality. Inclusion criteria: articles published between 2000-2023. A qualitative analysis was performed.

Results

The national survey recruited 13 centers; two had robot exclusive access, the others shared access with adult teams. Robot was used 4.2days/month, with a mean of 37.5 interventions per year/center.

Overall, 80% of participants trained by the industrial brand would prefer a dedicated pediatric simulation. 72% had other simulation programs: 94% concluded for simulation's essential role in daily practice; 86% felt confident to perform robotic interventions; 79% found it helpful in managing adverse events. Only 3 participants held evaluation specific tools.

Five articles out of 221 were selected, showing the role of simulation in shorter learning curve, trocar placement, team training. Key features to promote simulation program emerged from the review. No published article concerning the non-procedural pediatric robotic surgery simulation was found.

Conclusions

This is the first nationwide survey with literature review highlighting the need for specific procedural and non-procedural simulation in pediatric robotic surgery. Development of these simulations should include evaluations at high Kirkpatrick levels.

153 - SIMIL-EXIT: A MINIMALLY INVASIVE TECHNIQUE FOR GASTROSCHISIS THAT AVOIDS MECHANICAL VENTILATION AND PROMOTES A SHORTER LENGTH OF STAY

Romina Ammann[1,2], Sandra Montedónico[1,3], Alejandra Elton[1,2], Amparo Moreno[3], Carmen Gloria Ibañez[2]

[1]Universidad de Valparaíso, Valparaíso, Chile. [2]Dr Gustavo Fricke Hospital, Viña del Mar, Chile. [3]Carlos Van Buren Hospital, Valparaíso, Chile

Aim of the Study:

The simil-exit technique is a minimally invasive procedure that consists in reducing the abdominal viscera and closing the abdominal defect before cutting the umbilical cord, maintaining fetoplacental blood support similar to the EXIT technique (EX – trauterine Intrapartum Treatment) with no need of general anesthesia. The aim of this study was to compare post-operative outcomes of simil-exit with the classical surgical technique in preterm newborn with gastroschisis.

Methods:

Observational, analytical, retrospective cohort study including patients diagnosed with gastroschisis between 2008 and 2020. The patients were divided into: **Group 1:** 34 weeks newborns that underwent primary closure or Silo and **Group 2:** 34 weeks newborns that underwent a simil-exit surgical treatment.

Main results:

A total of 57 patients were included. Group 1=24 and Group 2= 33 patients. 22/ 24 (91%) in group 1 and 33/33 patients in group 2 achieved primary closure (p=ns).

Patients in group 1 had 5 ± 9 days of mechanical ventilation whereas patients in group 2 had 1.5± 7 days (p=0.0000).

The time to full enteral feeding was 23 ± 9 days in Group 1 and 18 ± 5 days in Group 2 (p=0.026).

The length of hospital stay was 30 ± 15 days in Group 1 and 24± 8 days in Group 2 (p= 0.045).

Conclusions

The Simil-Exit technique is a novel minimally invasive technique that presents similar surgical results to the classical technique while avoiding mechanical ventilation and achieving full enteral feeding in fewer days, which ultimately results in fewer days of hospitalization.

283 - PEDIATRIC ENDOSCOPIC PILONIDAL SINUS TREATMENT (PEPSiT) IS THE NEW STANDARD OF CARE OF PILONIDAL SINUS DISEASE. A MULTICENTRIC CASE SERIES.

Ciro Esposito[1], Sonia Pérez-Bertólez[2], Xavier Tarrado[2], Mariapina Cerulo[1], Oriol Martín-Solé[2], Fulvia Del Conte[1], Claudia Di Mento[1], Annalisa Chiodi[1], Francesca Carraturo[1], Maria Escolino[1]

[1]Federico II University Hospital, Naples, Italy. [2]Sant Joan de Déu Hospital, Barcelona, Spain

Aim of the Study: This study aimed to investigate the status and long-term outcomes of pediatric endoscopic pilonidal sinus treatment (PEPSiT).

Methods: The medical records of 556 patients (384 boys), with median age of 14.3 years (range 11-18), who underwent PEPSIT in 2 pediatric surgical centers in the period 2018-2023, were retrospectively analyzed. Forty-one/556 (7.3%) had recurrent PSD after previous open surgery. Study data were patient demographics, disease severity, complications, and follow-up information.

Main results: The median operative time was 25.5 minutes (range 15-45). No intra-operative complications occurred. The median pain score, assessed using Visual Analogue Scale (VAS) during the first 48 postoperative hours, was 2.8 (range 2-5). The median time of analgesic intake was 22 hours (range 16-28). The median hospital stay was 7.5 hours (range 5-27). Postoperative ozonide oil-based dressing was adopted in 355/556 (63.8%). Pre- and postoperative laser epilation was done in only 294/556 (52.8%). The median healing time was 5.8 weeks (range 3.5-12.2). Postoperative wound infections (Clavien 2) occurred in 22/556 (3.9%). At long-term follow up (5 years), 43/556 (7.7%) recurrences were observed, of which 37/556 (6.6.%) were re-operated using PEPSiT. Thirty-three out of 43 (76.7%) recurrences didn't perform pre- and postoperative laser epilation.

Conclusions: PEPSiT is the new standard of care for surgical treatment of PSD in pediatric patients. It is technically easy, time saving, with fast and painless postoperative course. Recurrence rate was just 7.7% in our series. Our data showed that the recurrence rate was significantly higher in patients not performing laser epilation.

755 - THE ROLE OF NEUTROPHYL-TO-LYMPHOCYTE RATIO AS A PREDICTOR OF OVARIAN TORSION IN CHILDREN. RESULTS OF A MULTICENTRIC STUDY.

Carlos Delgado-Miguel[1,2], Javier Arredondo[3], Julio Moreno[4], María San Basilio[5], Noela Carrera[6], Ricardo Díez[1]

[1]Fundación Jiménez Díaz University Hospital, Madrid, Spain. [2]Institute for Health Research IdiPAZ, La Paz University Hospital, Madrid, Spain. [3]University Hospital of León, León, Spain. [4]University Hospital of Navarra, Pamplona, Spain. [5]La Paz University Hospital, Madrid, Spain. [6]University Hospital of Toledo, Toledo, Spain

Introduction

Pediatric ovarian torsion (OT) is an emergency condition that remains challenging to diagnose because of its overall unspecific clinical presentation. The aim of this study was to determine the diagnostic value of clinical, ultrasound and inflammatory laboratory markers in pediatric OT.

Methods

We performed a retrospective multicentric case-control study in patients with clinical and ultrasound suspicion of OT, in whom surgical examination was performed between 2016-2022 in seven pediatric hospitals. Patients were divided into two groups according to intraoperative findings: OT group (ovarian torsion), defined as torsion of the ovarian axis at least 360°, and non-OT group (no torsion). Demographics, clinical, ultrasound and laboratory features at admission were analyzed. Sensitivity and specificity were determined by the area under the curve (AUC) represented on the receiver operating characteristic (ROC) curves.

Results

We included 110 patients (75 in OT-group; 35 in non-OT group), with no demographic or clinical differences between them. OT-group patients had shorter time from symptom onset (8 vs. 12 hours; p=0.023), higher ultrasound ovarian volume (354±52 vs. 127±34 ml; p<0.001), and a significant increase in inflammatory markers (leukocytes, neutrophils, neutrophil-to-lymphocyte ratio, C-reactive protein) when compared to the non-OT group. In the ROC curve analysis, the neutrophil-to-lymphocyte ratio (NLR) presented the highest AUC (0.918), with maximum sensitivity (90.4%) and specificity (92.4%) at the cut-off point NLR=2.4.

Conclusions

NLR can be considered as a good predictor of pediatric OT in cases with ultrasound suspicion. Values above 2.4 may help to anticipate urgent surgical treatment in these patients.

175 - UNPLANNED SURGICAL REOPERATION IS A BETTER QUALITY INDICATOR THAN UNPLANNED HOSPITAL READMISSION RATE FOR A PEDIATRIC SURGICAL UNIT

Margarita Galindo[1], Catalina Contreras[1], Ana Benavente[2], Bélgica Cancino[2], Sandra Montedónico[1]

[1]Valparaíso University, Valparaíso, Chile. [2]Carlos Van Buren Hospital, Valparaíso, Chile

Introduction:

Unplanned surgical reoperation (USR) and unplanned hospital readmission (UHR) are quality indicators which study serves for healthcare quality improvement cycle. The aim of this study was to analyze both indicators and validate their use in a pediatric surgical unit.

Methodology:

Observational study reviewing medical records of pediatric patients undergoing USR and UHR over a 6 years period in a pediatric surgical unit. The incidence, indication and cause of both quality indicators were studied.

Results:

6.376 surgeries were performed in a 6 years period. There were a total of 37/6.376 (0,58%) USR and 20/6.376 (0,31%) UHR ($p<0,05$). 2.437 out of 6.376 were emergency surgeries and 3.939 out of 6376 were elective surgeries. There were 23/2.437 (0,94%) USR and 14/2.437 (0,57%) UHR when the initial surgery was an emergency one and there were 14/3.939 (0,35%) USR and 6/3.939 (0,15%) UHR when the initial surgery was an elective one ($p<0,05$ respectively). There were 1570 appendectomies during the study period. 8/1570 (0,5%) patients in each group required either a USR or a UHR. The main cause of USR was a technical error during surgery (70%) and the main cause of UHR was an error in treatment (35%).

Conclusion:

USR are more frequent tan UHR in pediatric surgery. Emergency surgeries are at a higher risk for an USR or a UHR. Acute appendicitis is the most frequent diagnosis in need for a USR or UHR. Most USR are due to technical errors during surgery.

481 - HOW DOES ONLINE COACHING USING ZOOM ANNOTATION TOOLS ALONG WITH A DISEASE-SPECIFIC SIMULATOR FOR LAPAROSCOPIC HEPATICOJEJUNOSTOMY IMPROVE INEXPERIENCED PEDIATRIC SURGEON?

Kina Miyoshi[1], Takeshi Shirai[1], Masakazu Murakami[2], Koshiro Sugita[2], Shun Onishi[2], Satoshi Ieiri[2]

[1]Department of Pediatric Surgery, Miyazaki Prefectural Miyazaki Hospital, Miyazaki, Japan.
[2]Department of Pediatric Surgery, Research Field in Medical and Health Sciences, Medical and Dental Area, Research and Education Assembly, Kagoshima University, Kagoshima, Japan

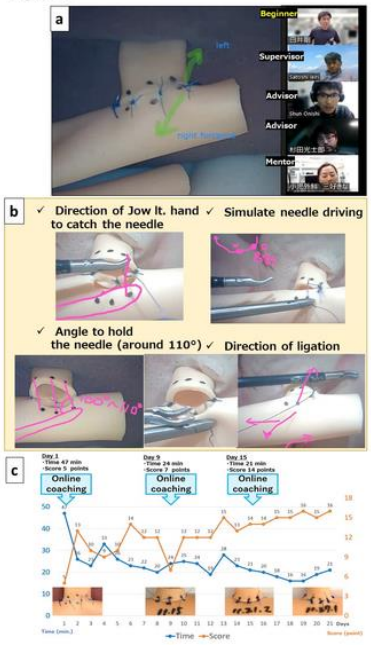
Aim of the Study: Laparoscopic surgery has gained wide popularity among pediatric surgeons, however, it is difficult for individual pediatric surgeon to achieve sufficient skills before their first experience. Thus, we conducted online coaching sessions using Zoom and the disease-specific simulator to improve the inexperienced surgeon's intracorporeal technique.

Methods: A set of infant-sized laparoscopic hepaticojejunostomy simulator was provided by the coaching organizer. The online session was held remotely between two institutions 90km apart. The training task was a sequence of 3 interrupted sutures imitating the hepaticojejunostomy(Fig.1a). The procedure was scored by 1) the accuracy of needle driving aiming at dots marked on jejunum and hepatic bile duct, 2) the liability of ligations, and 3) the time to complete the procedure. The online session was held 3 times.

Main results: The result of the trainee's procedure in the first session was 47 minutes and scored 5 points. The Supervisors gave advice using annotation tools on Zoom and the expert surgeon demonstrated the ideal procedure with the same type of simulator installed in their institution(Fig.1b). The sequential session results were 24 min./7 points and 21 min./14 points, respectively, showing trainee's remarkable improvement(Fig.1c). The surgery was performed 2 months later from the first online session and the patient was discharged from hospital on the 9th postoperative day without any complications.

Conclusions: The online coaching utilization with annotation tools and the disease-specific simulator enables the trainee to gain visuospatial cognition and reliability of the intracorporeal technique prior to the surgery.

Figure 1



373 - Influence of diet on bowel function & abdominal wellbeing in Hirschsprungs patients- a multinational patient reported survey by the OASIS network

Judith Lindert[1,2], Hannah Day[2], Marta de Andres Crespo[3], Eva Amerstorfer[4], Sabine Alexander[5], Manouk Bakes[6], Carlotta de Filippo[7], Andrzej Golebiewski[8], Paola Midrio[9], Mazeena Mohideen[10], Anna Modrzyk[11], Annette Lemli[5], Roxana Rassouli-Kirchmeier[6], Marijke Pfaff-Jongmann[12], Karolina Staszkiewicz[13], Pernilla Stenström[14], Lovisa Telborn[14], Karolin Holmgren[15], Stefanie Märzheuser[1], Stavros Loukogeorgakis[2,3], Joseph Davidson[3]

[1]Department of Paediatric Surgery, University Rostock, Rostock, Germany. [2]Specialist Neonatal and Paediatric Surgery Department, Great Ormond Street Hospital, London, United Kingdom. [3]University College London, London, United Kingdom. [4]University Hospital Graz, Paediatric Surgery, Graz, Austria. [5]SoMA e.V., German patient organisation for anorectal malformations and Hirschsprung's Disease, Munich, Germany. [6]Radbound Njemwege, Njemwege, Netherlands. [7]Amhori-University of Florence, Italian Patient's Organization for Hirschsprung Disease, Florenz, Italy. [8]University Hospital Gdanks, Paediatric Surgery, Gdansk, Poland. [9]Pediatric Surgery Unit, Ca'Foncello Hospital, Treviso, Italy, Treviso, Italy. [10]SoMA Austria – Selbsthilfeorganisation für Betroffene von Morbus Hirschsprung und Anorektal-Fehlbildungen, Wien, Austria. [11]Department of Children's Developmental Defects Surgery and Traumatology, Zabrze, Poland. [12]Dutch Patient Association for Hirschsprungs, Amsterdam, Netherlands. [13]Polish Facebook Group Hirschsprungs, Gdansk, Poland. [14]Department of Pediatric Surgery, Skåne University Hospital, SE-221 85 Lund, Lund, Sweden. [15]Hirschsprungs sjukdom patientförening-Swedish Patient Association Hirschsprungs Disease, Lund, Sweden

Aim

The effect of diet and nutrition in the symptomatology of Hirschsprung disease is largely unknown and a patient-declared priority for research.

Methods

A 78-item questionnaire on Nutrition and Bowel Function was designed by the Holistic Care in Hirschsprung's Network (OASIS). This was translated into 6 languages and distributed among national patient associations. Information on demographics and disease characteristics were obtained, along with current dietary modifications and the symptom burden of different food items.

Main Results

563 questionnaires were returned; median patient age was 6 years [IQR 3-11]. Respondents with rectosigmoid disease were under-represented (33%).

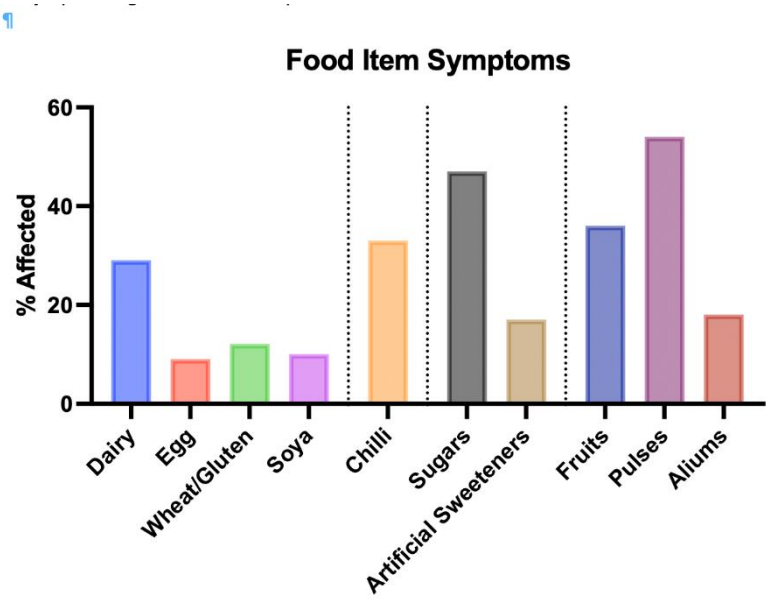
61% felt their Hirschsprung affected the way they chose to eat and 70% had established food items that worsened symptoms. Among patients over 2 years, 7% followed a specific exclusion diet. Low-fiber diet was more commonly used by patients without their colon in situ (17% vs 35%; $p<0.0001$) while the reverse was true for high-fiber diet (13% vs 32%; $p<0.0001$).

Probiotic use was common (31%); more in patients without their colon in situ (46% vs 26%; p<0.0001).

The most common food items to produce symptoms were fruits, pulses, and sugars. While wheat, soy and egg products did not seem to be commonly problematic (Figure). Symptomatology varied considerably between different food items.

Conclusion

This study reports the influence of diet on gastrointestinal symptoms in a large, multi-national group of Hirschsprung patients. Specialist dietician input is recommended to support appropriate dietary modification, with the intention that symptom control should not jeopardize growth and developmental outcomes.



355 - INCLUDING PHYSICIAN ASSISTANTS IN A LARGE PEDIATRIC SURGERY DEPARTMENT INCREASES WORKFLOW EFFICIENCY AND PATIENT SATISFACTION - A COMPARATIVE INTERVENTIONAL TRIAL

Elena Johanna Weigl[1], Anna Hoebarth[1], Ingeborg Eberl[2], Jan Goedeke[1], Oliver Muensterer[1]

[1]Dr von Hauner Childrens Hospital, Department of Pediatric Surgery, Munich, Germany. [2]Department of Nursing Sciences, LMU Munich, Munich, Germany

Aim of the study

Pediatric surgeons spend an increasing amount of time on administrative, non-surgical activities. Physician assistants (PA) may help alleviate this burden, freeing up time for non-delegable tasks. Internationally, PAs are already integrated into the healthcare system. However, this is not the case in most European countries. We started employing PAs in our department in 2021. This study evaluates the impact of PAs on pediatric surgical workflow.

Methods

Discrete 4 month intervals in the year before and after hiring PAs in our department were compared in terms of patient, surgeon, and nursing satisfaction, as well as physician overtime and work efficacy, including discharge times, and the time of sign-out to the on-call team.

Main Results

A total of 165 questionnaires on employee satisfaction (85 prePA) and 170 questionnaires on patient satisfaction (76 prePA) were analysed. After introduction of the PAs, patient satisfaction improved from 85% to 88% (p=0.01) and annual inpatient cases increased from 1550 to 1734. Hand-over to the on-call team occurred earlier (17:22 ± 0:46h versus 18:21h ± 1:14h, p<0.001), and residents observed breaks required by labour laws more frequently (88% versus 55%, p=0.001; Figure 1). Time until discharge was reduced significantly (1:38 ± 1:15h versus 2:17 ± 1:44h, p=0.001).

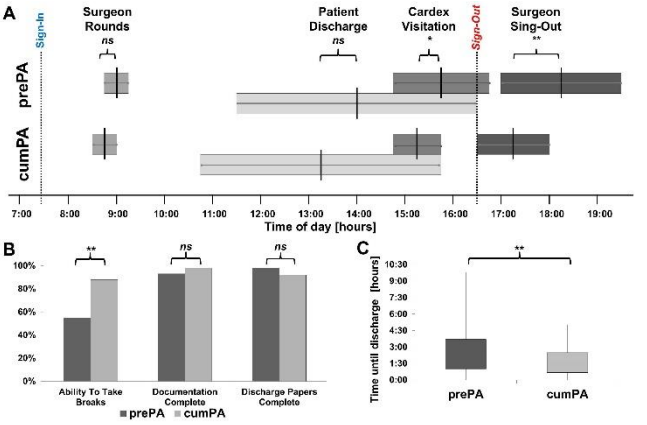


Figure 1: Workflow and work efficacy in a pediatric surgery department before (prePA) and after (cumPA) integration of Physician Assistants into the team. **A)** Overtime was reduced significantly **B)** Breaks were observed more frequently, while documentation stayed equally complete. **C)** Time until discharge was reduced significantly . (*p<0.05; **p<0.001; ns= not significant)

Conclusions

The addition of PAs to our pediatric surgical team increased patient satisfaction and work efficacy, leading to earlier sign-outs, improved compliance with physician labour laws, less overtime, and earlier patient discharge. These changes may translate into substantial economic healthcare savings, as well as more efficient and better patient care.

503 - PHOTOIMMUNOTHERAPY AS A NOVEL INTRAOPERATIVE TREATMENT TARGETING GANGLIOSIDE GD2 IN NEUROBLASTOMA

Catarina S Lobo[1], Chiara Da Pieve[1], Laura Privitera[2], Ricardo Sainz[1], Eric Wennerberg[1], Fabio Schaberle[3], Luis Arnaut[3], John Anderson[2], Gabriela Kramer-Marek[1], Stefano Giuliani[2,4]

[1]Division of Radiotherapy and Imaging, The Institute of Cancer Research, London, United Kingdom. [2]Cancer Section, Developmental Biology and Cancer Programme, UCL Great Ormond Street Institute of Child Health, London, United Kingdom. [3]Chemistry Department, CQC-IMS, University of Coimbra, Coimbra, United Kingdom. [4]Department of Specialist Neonatal and Paediatric Surgery, NHS Foundation Trust, Great Ormond Street Hospital for Children, London, United Kingdom

Aim of the Study

Neuroblastoma (NB) accounts for 15% of paediatric oncology deaths. Key challenges include precise tumour identification and complete loco-regional clearance. Given high ganglioside GD2 expression in NB, we propose GD2-targeted fluorescence-guided surgery for margin delineation and photoimmunotherapy (PIT) to eliminate residual NB cells.

Methods

Dinutiximab beta was conjugated to IR700 for fluorescence imaging and PIT. The conjugate's specificity of binding, generation of reactive oxygen species (ROS), and phototoxicity post-PIT were evaluated in NB cells *in vitro*. Biodistribution of GD2-IR700 was assessed by fluorescence imaging and the response to GD2-IR700-PIT was investigated up to 96 h in NB mice models (Home Office project licence PP347237). Tumour samples were analysed *ex vivo* using immunohistochemistry and flow cytometry (FC).

Main results

In vitro, GD2-specific binding of the conjugate was confirmed (Fig.1A). GD2-IR700-PIT induced ROS, significantly reducing cell viability by 73.17 % ±13.61 ($p<0.0001$) (Fig.1B). There was high accumulation of GD2-IR700 *in vivo* (Fig.1C). PIT-treated tumours showed extensive oedema 6 h after the treatment. FC of lymph nodes post-PIT showed immune activation, with increased innate and adaptive immune cells (NK cells ($p=0.0004$) and Neutrophils ($p=0.0007$). Tumour sections displayed reduced proliferation (27.95 % ±6.69 of Ki-67 reduction, $p=0.0095$), extensive necrosis, and microhemorrhages at 72 h post-PIT (Fig.1D).

Conclusions

We demonstrated the capability of a single novel molecular probe to visualise NB with fluorescence and deliver a GD2-specific PIT to effectively kill cancer cells left by the surgeon. Further development of this novel image-guided therapeutic may improve NB survival.

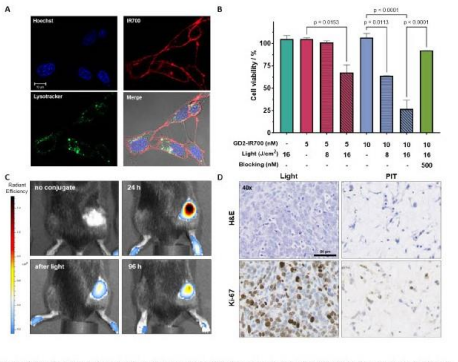


Fig. 1. A) Specific binding of GD2-IR700 to 9464D-GD2 NB cells 1 h post-incubation. B) 9464D-GD2 cells were incubated for 1 h with GD2-IR700 and cell viability was assessed 24 h after illumination. C) Fluorescence imaging before conjugate administration, 24 h post-injection, shortly after tumour illumination and 96 h post injection. D) H&E and Ki-67 staining of tumours resected 72 h after PIT.

908 - MIRNA-193 AND MIRNA-664 ARE KEY MODULATORS OF INFLAMMASOME CASCADE DOWNREGULATION INDUCED BY STEM CELL EXTRACELLULAR VESICLE ADMINISTRATION IN EXPERIMENTAL GASTROSCHISIS

Elke Zani-Ruttenstock[1,2], Lina Antounians[2], Giuseppe Speziale[2], Rebeca Figueira[2], Fabian Doktor[2], Kasra Khalaj[2], Augusto Zani[1,2,3]

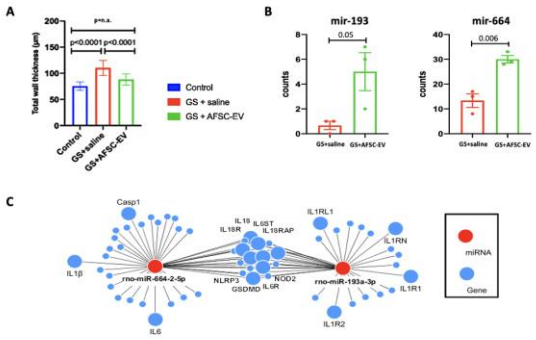
[1]Division of General and Thoracic Surgery, The Hospital for Sick Children, Toronto, Canada.
[2]Developmental and Stem Biology Program, The Hospital for Sick Children, Toronto, Canada.
[3]Department of Surgery, University of Toronto, Toronto, Canada

AIM OF THE STUDY: The morbidity of babies with gastroschisis (GS) is directly related to bowel inflammation severity. It has been shown that antenatal administration of amniotic fluid stem cell extracellular vesicles (AFSC-EVs) improves intestinal architecture and downregulates inflammasome cascade. Herein, we explored AFSC-EV mechanism of action in experimental GS.

METHODS: Following approval (AUP#64117), on E18.5 rat fetuses underwent surgical creation of GS and received intra-amniotic injection of AFSC-EVs (GS+AFSC-EV) or saline (GS+saline). Fetuses that did not receive surgery served as control. On E21.5, fetal bowel was harvested and stained for hematoxylin/eosin to assess wall thickness. RNA was extracted for sequencing from AFSC-EV cargo (NextSeq) and intestinal samples (Illumina-NovaSeq2).

MAIN RESULTS: Bowel wall thickness was greater in GS+saline fetuses compared to controls, and was restored to normal in GS+AFSC-EV fetuses (**Fig.1A**). Of several small RNA species, miRNAs were the most abundant in the AFSC-EV cargo. Of the miRNAs detected in the cargo, 38 were found in the intestine of GS+AFSC-EV fetuses. Of the 38, mir-193 and mir-664 were differentially expressed between GS+saline and GS+AFSC-EV groups (**Fig.1B**). MirWalk analysis revealed that mir-193 and mir-664 regulate most of the key inflammasome genes that we detected to be upregulated in GS intestine (**Fig.1C**).

CONCLUSIONS: This study shows for the first time that antenatal administration of AFSC-EVs reduces inflammasome activation in GS intestine at least in part through miRNAs. We identified specific miRNAs that could be potential biomarkers of disease severity and response to treatment.



443 - MECHANICAL CHANGES DRIVE YAP-MEDIATED NF-KB HYPERACTIVITY AND EPITHELIAL DIFFERENTIATION DEFECTS IN CONGENITAL DIAPHRAGMATIC HERNIA

Ophelia Aubert[1,2,3], Gaurang M. Amonkar[2,3], Xaralabos Varelsas[4], Brian Varisco[5], Mario Marotta[6], Patricia K. Donahoe[3], Paul Lerou[2], Jose P. Ibanez[6], Xingbin Ai[2]

[1]Department of Pediatric Surgery, University Hospital Leipzig, Leipzig, Germany. [2]Division of Newborn Medicine, Department of Pediatrics, Massachussetts General Hospital, Boston, USA. [3]Pediatric Surgical Research Laboratories, Harvard Medical School, Boston, USA. [4]Department of Biochemistry, Boston University School of Medicine, Boston, USA. [5]Cincinnati Children's Hospital Medical Center Division of Critical Care Medicine, Cincinnati, USA. [6]The Center for Fetal and Placental Research, Cincinnati Children's Hospital Medical Center, Cincinnati, USA

Aim of the Study: To uncover pathomechanisms caused by changes in mechanical forces in congenital diaphragmatic hernia (CDH) and their role in inflammation and epithelial differentiation defects.

Methods: We use the surgical sheep model of CDH and tracheal occlusion (TO) to characterize mechanotransductive YAP-signaling pathway, epithelial differentiation and proinflammatory nuclear Nf-κB signaling. Basal stem cells (BSCs) from CDH newborns were derived and analyzed by bulk RNA-sequencing, western blot, air-liquid interface differentiation and subjected to therapeutics testing. Lung sections from CDH subjects were assessed histologically.

Main results: Surgically induced hernia is sufficient to induce loss of YAP activity and hyperactive nuclear Nf-κB signaling. CDH sheep show impairment of alveolar space development with significantly worsened morphometric parameters and epithelial differentiation defects with a reduction of type I (HOPX+) and an increase in type II (SPC+) pneumocytes ($p<0.05$), findings partially recapitulated in human CDH samples. Additionally, CDH sheep exhibit intermediate HOPX+SPC+-double positive cells known to contribute to fibrosis. Importantly, TO fully normalizes YAP activity, alveolar differentiation phenotypes and Nf-κB signaling. CDH BSCs equally show loss of YAP activity, hyperactive nuclear Nf-κB and epithelial differentiation defects. Activation of the YAP-pathway restores cell differentiation and Nf-κB activity in vitro. Conclusion: Our findings reveal that changes in mechanical forces mediated by the YAP-pathway are sufficient to induce proinflammatory epithelial defects in CDH. For the first time we identify alveolar differentiation defects in CDH and highlight the benefits and underlying molecular pathways of TO in restoring the lung phenotype.

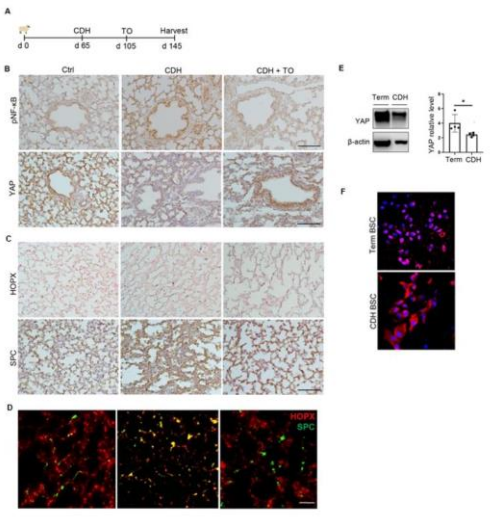


Figure: Schematic depicting the surgical sheep model of CDH and TO (A). Representative immunohistochemical images of staining of pNf-κB & YAP (B). Representative images of RNAscope for HOPX and immunohistochemistry for SPC (C). Representative images of RNAscope for HOPX and SPC (D). Image of western blot and quantification for YAP in term and CDH BSC (E). Representative immunofluorescence images for YAP staining in Term and CDH BSC (F). Scale bar 100 µM.

418 - INSIGHTS FROM INTESTINAL ORGANOID TRANSPLANTATION IN NECROTIZING ENTEROCOLITIS TREATMENT

Bo Li[1], Carol Lee[1], Haitao Zhu[1,2], Felicia Balsamo[1], Agostino Pierro[1]

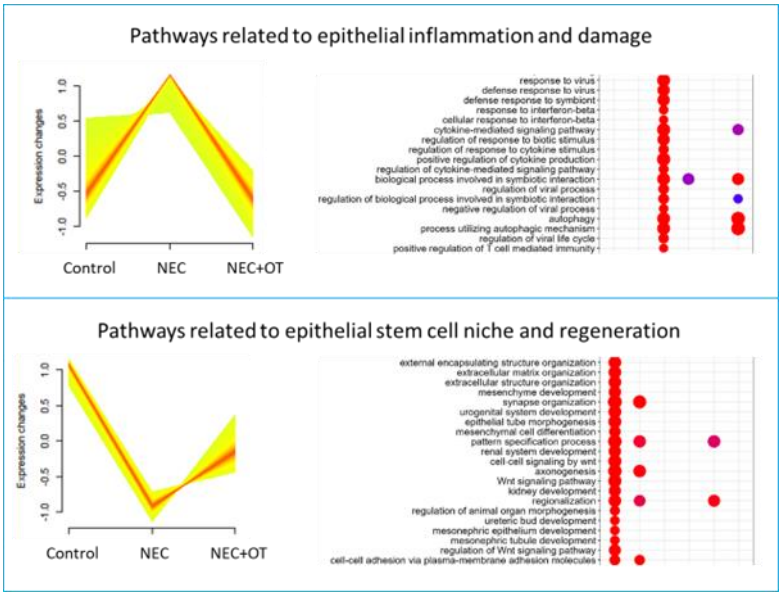
[1]The Hospital for Sick Children, Toronto, Canada. [2]Children's Hospital of Fudan University, Xiamen, China

Aim of the Study: Necrotizing enterocolitis (NEC) is a major gastrointestinal emergency and a leading cause of mortality in preterm infants. Regenerative therapy, particularly with the emergence of intestinal organoids, is a novel avenue for treatment. We aim to evaluate the reparative capabilities of intestinal organoid transplantation during NEC.

Methods: Experimental NEC was induced in mice using a combination of hyperosmolar formula, lipopolysaccharide, and hypoxia from postnatal days 5-9. Fluorescently tagged organoids from the healthy mouse ileum were transplanted via enema into 6-day-old recipient mice, and the outcome was evaluated at p9. RNA sequencing was conducted on Illumina HiSeq, mapped to the mouse genome using STAR. GO term enrichment analysis was performed using DAVID, and heat maps were generated with the R heatmap package.

Main Results: Organoids exhibited preferential migration and integration at the crypt base in the injured intestine at p9. Transplantation of organoids successfully mitigated intestinal injury and reduced mucosal inflammation. RNA sequencing revealed a significant reduction in genes associated with epithelial inflammation and damage. Enrichment analysis indicated that these positive effects were linked to the preservation of the intestinal stem cell niche and restoration of epithelial regenerative abilities **(Figure)**.

Conclusions: This study establishes (i) the efficacy of intestinal organoids in repairing damaged intestinal epithelium during NEC, and (ii) the mechanism of action through enhancing regenerative capacity and preserving the stem cell niche. These findings advocate for further clinical exploration of organoid transplantation as a novel treatment strategy to improve outcomes associated with NEC in neonates.



678 - EFFECT OF HYPERBARIC OXYGEN THERAPY ON THE INTESTINE AND BRAIN OF RATS IN EXPERIMENTAL NECROTIZING ENTEROCOLITIS.

Ana Laura Mársico Dalto[1], Stephanya da Silva[2], Pamella Beggiora Marques[3], Omar Feres[4], Luiza Lopes[5], Lourenço Sbragia[1]

[1]Division of Pediatric Surgery, Ribeirão Preto Medical School - University of São Paulo, Ribeirão Preto, Brazil. [2]Division of Anatomy, Department of Morphology and Pathology, Federal University of Sao Carlos, São Carlos, Brazil. [3]Division of Neuroanatomy, Ribeirao Preto Medical School - University of Sao Paulo, Ribeirão Preto, Brazil. [4]Division of Coloproctology Ribeirão Preto Medical School - University of São Paulo, Ribeirão Preto, Brazil. [5]Division of Neuroanatomy, Ribeirão Preto Medical School - University of Sao Paulo, Ribeirão Preto, Brazil

Aim: To evaluate the effect of hyperbaric oxygen therapy (HBOT) on the intestine and brain of an experimental necrotizing enterocolitis (NEC) model in rats.

Methods: Newborn pups of Sprague Dawley rats were divided into 6 groups: 1) Control (C), 2) Control + 1 day of HBOT (CHB1), 3) Control + 2 days of HBOT (CHB2), 4) Necrotizing enterocolitis (NEC), 5) NEC + 1 day of HBOT (NECHB1) and 6) NEC + 2 days of HBOT (NECHB2). For NEC induction, the groups received formula and were submitted to hypoxia and hypothermia. The HBOT sessions occurred twice a day at 3ATA, for 2 hours. Morphometric, histological, and immunohistochemical (IHC) analyses were performed in the intestine (iNOS, I-FABP, and SOD3) and in the brain (GFAP, NeuN, and SOD3). This experiment was approved by the Ethics Committee on Animal Experimentation of the Ribeirão Preto.

Results: mortality was NEC (30.8%), NECHB1 (15.8%), NECHB2 (14.3%), and no deaths in the others. The change in body weight (BW) was positive in the C groups and negative in the NEC groups, with no difference between groups. HBOT reduced the intestinal lesion score and preserved the brain cells' number and arrangement in the hippocampus. In the intestine, HBO increased the markers evaluated by IHC. In the hippocampus, HBOT led to an increase in SOD3.

Conclusion: HBOT reduced mortality and severity of intestinal and brain lesions in experimental NEC. It preserved intestinal cell integrity, demonstrated by the increase in I-FABP, and it fought oxidative stress through an increase in SOD3.

810 - EXPLORING THE IMPACT OF REMOTE ISCHEMIC CONDITIONING ON INTESTINAL ANASTOMOSIS

Masahiro Shimizu[1,2], Naho Fujiwara[1,2], Felicia Balsamo[2], George Biouss[2], Bo Li[2], Atsuyuki Yamataka[1], Agostino Pierro[2]

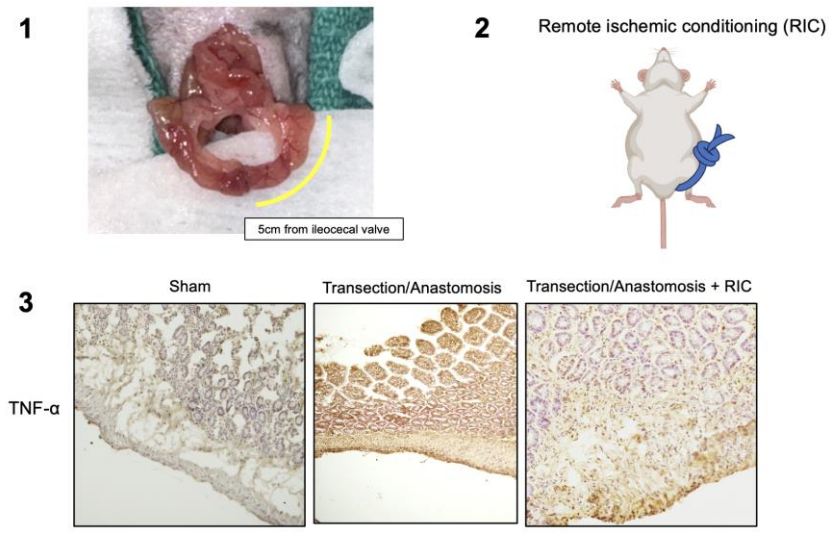
[1]Department of Pediatric General and Urogenital Surgery, Juntendo University School of Medicine, Tokyo, Japan. [2]Division of General and Thoracic Surgery, The Hospital for Sick Children, Toronto, Canada

Aim of the study: Intestinal anastomosis is a common procedure in pediatric surgery. Despite its necessity, it poses a risk of serious complications, such as leakage, with high morbidity and mortality rates. Remote ischemic conditioning (RIC) has been shown to reduce immune-mediated inflammation in a various organ, including the small intestine. However, the effects of RIC on postoperative anastomosis remains unclear. This study aims to investigate the effects of RIC following intestinal anastomosis in mice.

Methods: Mice aged 6 to 8 weeks (20-30 g) were divided into three groups: (A) sham-operated (sham) underwent laparotomy without intestinal transection (n=2), (B) transection and anastomosis (transection/anastomosis, n=3), and (C) transection and anastomosis with postoperative RIC (transection/anastomosis +RIC, n=3). Mice underwent transection and primary end-to end anastomosis of the ileum at approximately 5-cm proximal to the ileocecal valve (ethical approval #58124) (**Fig.1**). RIC involved four-cycles of 5 minutes of hindlimb ischemia followed by 5 minutes reperfusion (**FIg.2**). On postoperative day 2, mice were sacrificed, and the anastomotic site was harvested for histology and immunohistochemical staining for the pro-inflammatory cytokine TNF-α.

Main results: All mice tolerated the procedure without complications with all animals surviving until sacrifice. Compared to transection/anastomosis group, application of RIC reduced the expression of pro-inflammatory cytokine TNF-α intestine (**Fig.3**).

Conclusions: Our results suggested that post-anastomosis RIC reduces the inflammatory response, potentially providing a new clinical approach to improve the healing process of intestinal anastomosis.



425 - IMPAIRED STROMAL-EPITHELIAL CROSSTALK IN HIRSCHSPRUNG'S DISEASE

Bo Li[1], Carol Lee[1], Felicia Balsamo[1], Paolo De Coppi[2], Agostino Pierro[1]

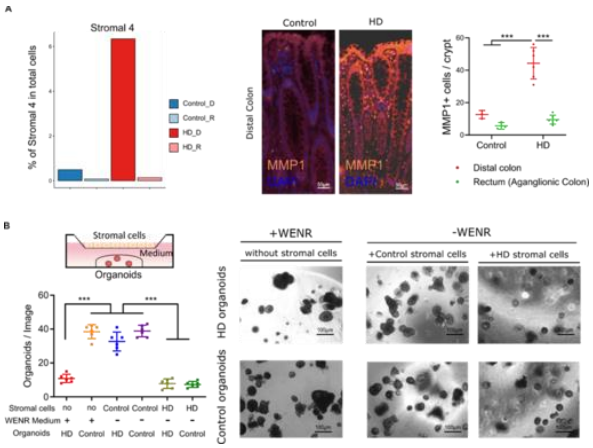
[1]The Hospital for Sick Children, Toronto, Canada. [2]UCL, Great Ormond Street Hospital for Children, London, United Kingdom

Aim of the Study: Hirschsprung's Disease (HD) is characterized by the improper migration of enteric neural cells, resulting in colonic aganglionosis, often developing Hirschsprung-associated enterocolitis (HAEC). This study aims to explore epithelial regeneration and stromal-epithelial crosstalk in children with HD, specifically focusing on the ganglionic colon, which carries a high risk of HAEC development.

Methods: We analyzed samples from five HD patients and two age-matched controls for single-cell transcriptomics. Additionally, human intestinal organoids and stromal cells were derived from the distal ganglionic colon of three HD and three non-HD children and were co-cultured together in the medium with or without recombinant growth factor (WENR: Wnt3a, EGF, Noggin, and Rspo1).

Main Results: In HD patients, the distal colon has impaired epithelial regeneration and alteration of intestinal stem cell dynamic. This was accompanied by changes in the distribution of stromal cell populations, with fewer primary sources of WNT signal-releasing stromal2 cells and the exclusive presence of inflammatory stromal4 cells in the distal colon (A). In addition, stromal cells derived from the distal ganglionic colon, which contained a pro-inflammatory stromal subtype, were unable to sustain the growth of colonic organoids originating from healthy controls (B). Notably, the application of ibuprofen demonstrated the inhibition of the pro-inflammatory stromal subtype, leading to the restoration of epithelial organoid growth.

Conclusions: The distal ganglionic colon in Hirschsprung's disease exhibits reduced intestinal regeneration and an inflammatory-related stromal cell signature. Ibuprofen administered by enema, is a potential therapy to enhance stromal-epithelium communication and to prevent epithelial damage such as HAEC.



630 - UMBILICO-PLACENTAL HEMODYNAMICS AND TRANSPLACENTAL O_2 EXCHANGES DURING INTACT CORD RESUSCITATION IN NEWBORN LAMBS WITH CONGENITAL DIAPHRAGMATIC HERNIA

Kevin Le Duc[1,2,3], Céline Rougraff[4,2], Florian Manoeuvrier[2], Capucine Besengez[2], Rony Sfeir[4], Sébastien Mur[1,2,3], Laurent Storme[1,2,3], Dyuti Sharma[4,2,3]

[1]CHU Lille, Clinique de néonatologie, hôpital Jeanne de Flandre, F-59000 Lille, France, Lille, France. [2]Univ. Lille, ULR2694 Metrics, Evaluation précoce, F- 59000 Lille, France, Lille, France. [3]Centre de Centre de Référence Maladie Rare HCD, CHU de Lille, 59000 Lille, Lille, France. [4]CHU Lille, Clinique de chirurgie pédiatrique, hôpital Jeanne de Flandre, F-59000 Lille, France, Lille, France

Introduction: At birth, delayed umbilical cord clamping increases blood transfusion from the placenta to the newborn infant which promotes cardiorespiratory adaptation. We investigated the changes in placental hemodynamics and gas exchanges during prolonged ICR in newborn lambs with or without CDH.

Methods: CDH was created in fetal lambs at mean age of 80 days (term 142 days). At term, through C-section, vascular catheters were advanced into fetal femoral vessels to measure aortic (AoP) and atrial pressure. A flow transducer around umbilical artery registered umbilico–placental blood flow (Qup). The lamb was then exteriorized from uterus. A catheter was introduced into one of tthe 2 umbilical veins to monitor umbilical vein pressure (Pv). The lambs were intubated and mechanically ventilated with target of 40–60 mmHg PCO_2. Umbilico–placental vascular resistance (Rup) was calculated as: (AoP-Pv/Qup). Blood gases were measured to assess arterial (CaO_2) and venous (CvO_2) O_2 content and transplacental O_2 transfer (VO2) through: Qu(CaO_2-CvO_2). The duration of ICR was 60 min.

Results: 5 CDH and 15 control lambs were included. Both AoP-Pv, Qup and Rup were similar in both groups and did not change significantly (respectively, 35±8mmHg, 30±18ml/kg/min and 0.50±0.05 mmHg.min.ml^{-1}). In CDH group, VO_2 did not change (2.8±1.2ml.kg^{-1}.min^{-1}), whereas VO_2 decreased steadily within the first 20 min to 0.4±0.5 ml.kg^{-1}.min^{-1} in control group.

Conclusion: Our results suggest that transplacental hemodynamics are stable for up to 1 hour after birth during ICR. The placenta may contribute to sustained oxygenation in the newborn with CDH.

206 - GENOMIC INSTABILITY IN CONGENITAL LUNG MALFORMATIONS IN CHILDREN

Federica Pederiva[1], Ronald Rodrigues de Moura[2], Sara Patrizi[3], Emmanouil Athanasakis[2], Adamo Pio d'Adamo[2,3]

[1]Pediatric Surgery, "F. Del Ponte" Hospital, ASST Settelaghi, Varese, Italy. [2]Institute for Maternal and Child Health, IRCCS "Burlo Garofolo", Trieste, Italy. [3]University of Trieste, Trieste, Italy

Aim of the study

The resection of congenital lung malformations (CLMs) in asymptomatic patients is recommended to avoid the potential risk of malignant transformation. However, the biological relationship between congenital lung malformations and malignancy is still undefined. We aimed to identify somatic or germinal genetic variants that predispose to tumor transformation in CLMs.

Methods

Biopsies of CPAM1, CPAM2, CPAM3, intralobar sequestrations (ILS), and extralobar sequestrations (ELS) were analyzed through whole-genome sequencing. Blood samples from patients were used to confirm or exclude somatic mosaicism. A comprehensive genomic examination of all identified variants was firstly performed, and biopsy's cells heterogeneity was also investigated. Secondly, we focused on the identification of known somatic or germline variants associated with tumor transformation.

Main results

All CLMs but one presented a signature of genomic instability by means of multiple clusters of cells with gene mutations. Genomic instability, which increases the likelihood of acquiring mutation in the DNA sequence of a cell is a hallmark of cancers, including lung cancers. MUC16 and MUC4 were among the 10 most frequently mutated genes. Interestingly, high cells heterogeneity was found. Moreover, 30% of CLMs presented gene variants in loci already linked to cancer susceptibility.

Conclusions

Genomic instability in 95% of CLMs and genetic variants known to be linked to tumor development in 30% of them, regardless of histopathological type, the age at surgery, and the presence or severity of symptoms, supports the precancerous nature of these malformations and the consideration that there are no 'safer' CLMs eligible form conservative management.

255 - ORGANOIDS AS A MODEL TO STUDY THE IMPACT OF KRAS MUTATIONS IN CPAM

C. van Horik[1], F. Benthem[1,2], M. Buscop-van Kempen[1,2], A. Boerema-de Munck[1,2], R.M.H. Wijnen[1], J.M. Schnater[1], R.J. Rottier[1,2]

[1]Department of Paediatric Surgery, Erasmus University Medical Centre, Sophia Children's Hospital, Rotterdam, Netherlands. [2]Department of Cell Biology, Erasmus University Medical Centre, Rotterdam, Netherlands

Abstract

Aim of the study Congenital Pulmonary Airway malformations (CPAM) might have a potential for malignant degeneration, therefore some surgeons resect CPAM in asymptomatic patients. Previously, we reported Kirsten rat sarcoma virus (KRAS)^{G12} mutations in a subset of CPAMs, which may result in (pre-)malignancy. We aimed to use an organoid-based model to study the molecular role of KRAS mutations in the putative malignancy of CPAM to stratify (asymptomatic) CPAM patients into a “high” and “low” risk group in need for surgical resection.

Methods Resected CPAM tissue (“cyst”) and adjacent lung tissue (“control”) were processed and cultured as 3D airway organoids. Immunofluorescence staining (IF) was performed with antibodies against FOXJ1, MUC5B, P63, SOX2, SOX9 and KI-67. Cyst and control organoids from the same KRAS negative patient where processed for single cell RNA sequencing (scRNAseq).

Main results Cyst and control organoids with and without a KRAS mutation (KRAS+ vs KRAS-) were successfully grown. Cyst organoids grow significantly larger than corresponding control organoids, with the KRAS+ cyst organoids being the largest which corresponded with more proliferative cells (KI-67+). Additionally, KRAS + cyst organoids appeared positive for the KRAS target gene SOX9 (Figure 1). Preliminary scRNAseq data showed differences in the number of cell populations with more mucus producing cells (SCGB3A1 positive) in the cyst.

Conclusions Organoids preserve CPAM-like characteristics in growth, proliferation and cellular landscape. KRAS mutations have impact on this in vitro model and therefore the KRAS positive CPAM patients might be used to further investigate the role of KRAS in malignancy of CPAM patients.

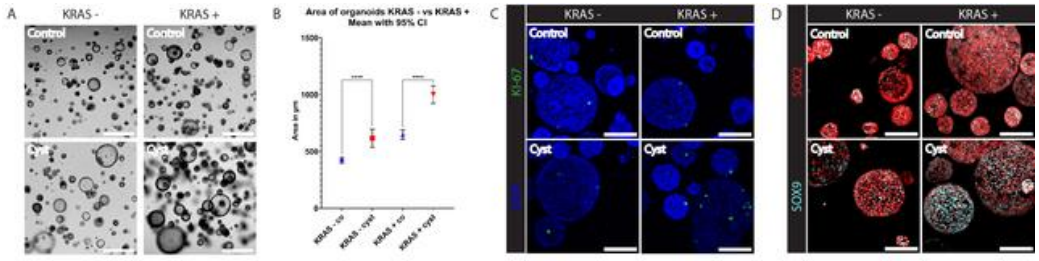


Figure 1. A. Bright field pictures of control and cyst organoids derived from a KRAS - and KRAS +) donor. Size bar 500 µm. B. Mean area with 95% CI of KRAS – and KRAS + organoids compared with their corresponding controls. (KRAS- control = 423.74, KRAS- cyst = 616.0, KRAS+ control =647.2, KRAS- cyst = 1000. **** P < 0.0001). C. Confocal images of KRAS – and KRAS + organoids and their corresponding controls showing the proliferating cells (KI-67, green) and a counterstain with DAPI to visualize the nucleus (DNA) of all cells. Size bar 100 µm. D. Confocal images of KRAS – and KRAS + organoids and their corresponding controls showing the presence of proximal (SOX2, red) and distal SOX9, blue) lung epithelial cells. Size bar 100 µm.

574 - Biodistribution of amniotic fluid stem cell extracellular vesicles following intratracheal injection and FETO in a congenital diaphragmatic hernia lamb model

Marianna Scuglia[1,2], Lina Antounians[3,4], Tomohiro Arai[1], Wasinee Tianthog[1], Emma Van den Eede[1], Catarina Azavedo[5], Mukaddes Izci[6], Filipa Roque Goncalves[6], Stefaan Soenen[6,7], Kasra Khalaj[3,4], Paolo De Coppi[1,2,8], Jan Deprest[1,9,10], Augusto Zani[3,4], Francesca Russo[1,9]

[1]Department of Development and Regeneration, Cluster Woman and Child, Group Biomedical Sciences, KU Leuven, Leuven, Belgium. [2]Stem Cell and Regenerative Medicine Section, Department of Developmental Biology and Cancer Research and Teaching, Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [3]Division of Thoracic and General Surgery, The Hospital for Sick Children, Toronto, Canada. [4]Developmental and Stem Cell Biology Program, The Hospital for Sick Children,, Toronto, Canada. [5]School of Medicine, University of Minho, Braga, Portugal. [6]NanoHealth and Optical Imaging Group, Department of Imaging and Pathology, KU Leuven, Leuven, Belgium. [7]Faculty of Medical Sciences, Leuven Cancer Research Institute, KU Leuven, Leuven, Belgium. [8]Department of Specialist Neonatal and Paediatric Surgery, Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [9]Department of Obstetrics and Gynecology, Division Woman and Child, University Hospitals Leuven, Leuven, Belgium. [10]Research Department of Maternal Fetal Medicine UCL Institute for Women's Health (IWH) University College London, London, United Kingdom

Objective: Fetoscopic endoluminal tracheal occlusion (FETO) is beneficial in the treatment of most severe cases of Congenital Diaphragmatic Hernia (CDH). Amniotic fluid stem cell extracellular vesicles (AFSC-EVs) further improved lung development in rodent CDH models. Before clinical translation, testing this therapy in a large animal model is imperative. We aim to determine the optimal intratracheal injection volume of AFSC-EVs and assess their distribution within lungs and off-target organs.

Methods: Human AFSC-EVs were isolated, characterized, and fluorescently labeled for tracking. CDH-lamb fetuses received intratracheal injections of 2 or 4 mL of AFSC-EVs at 95 gestation days, followed by FETO. After 24h, In Vivo Imaging System (IVIS) was employed to analyze the distribution of labeled AFSC-EVs in lungs and off-target organs. Fluorescence quantification identified the optimal injection volume, and AFSC-EV tracking was assessed through immunofluorescence and imaging-based flow cytometry.

Results: AFSC-EV intratracheal injection in six CDH-fetuses revealed that 2 mL volume optimally reached fetal lungs. Regardless of the volume used, AFSC-EVs were present in off-target organs, but their fluorescence intensity significantly decreased in comparison to the lungs with a 2 mL volume. Immunofluorescence confirmed EV presence in lungs and off-target organs. The analysis of fetal lung tissue showed predominant EV uptake in alveolar cells, followed by bronchial epithelium and endothelium.

Conclusion: Intratracheal injection of 2 mL of AFSC-EVs emerged as the optimal volume, efficiently reaching fetal lungs with limited off-target organ uptake. The preferential uptake in alveolar cells highlights the therapeutic potential of this intervention in combination with FETO.

387 - TRANSCRIPTOME ANALYSIS REVEALS INSIGHTS IN ABERRANT PROINFLAMMATORY RESPONSE OF COLONIC HIRSCHSPRUNG ORGANOIDS

Johanna Hagens, Pauline Schuppert, Malik Alawi, Konrad Reinshagen, Christian Tomuschat

University Medical Center Hamburg-Eppendorf, Hamburg, Germany

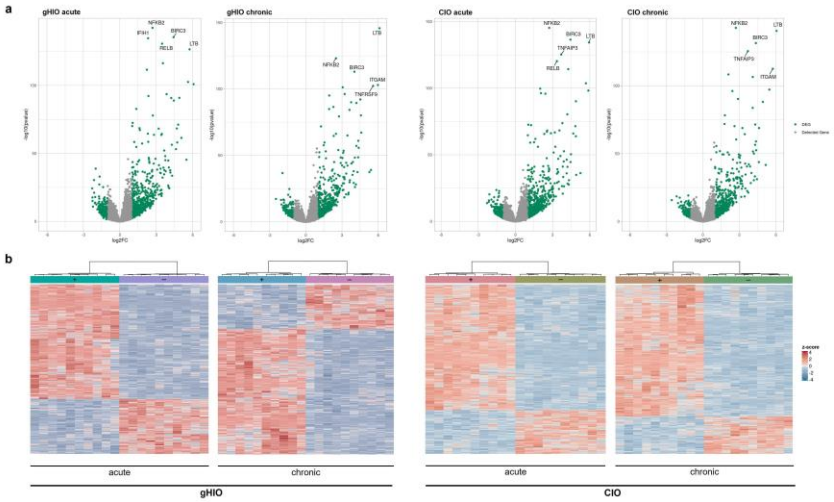
Abstract

Aim: Children suffering from Hirschsprung's Disease face various intestinal complications, including increased sensitivity towards inflammation, clinically resulting in enterocolitis. Underlying mechanisms remain unclear. Transcriptome analysis has become a new standard for deciphering the cellular metabolic state. Using whole mRNA transcriptomics, we aimed to identify potential differences in inflammatory response of enteroids derived from Hirschsprung patients.

Methods: Colonic organoids isolated from human Hirschsprung (gHIO, *n*=10) and healthy control samples (CIO, *n*=10) were stimulated with proinflammatory cytokines TNFα, IL-1β, and IL-6 to simulate acute or chronic intestinal inflammation. Enteroids were harvested for whole mRNA transcriptome analysis.

Results: Transcriptome analysis generated data for over 27,000 genes. After treatment, *n*=1016 and *n*=895 differentially expressed genes (DEGs) were detected following acute and *n*=775 and *n*=768 after chronic stimulation in gHIO and CIO, respectively. Gene set enrichment analysis (GSEA) revealed significant enrichment for proinflammatory pathways. Comparison revealed similarity in *n*=773 DEGs for acute and *n*=625 DEGs in chronic stimulation. *n*=299 genes (*n*=134 up; *n*=165 down) were exclusively expressed in gHIO after acute treatment, mainly addressing pathways for transmembrane receptor and transport organization. Chronic inflammation resulted in *n*=194 gHIO DEGs (*n*=104 up; *n*=90 down), matching with extracellular matrix and cytoskeleton organization, cytokine and chemokine regulation.

Conclusion: Although mucosal organoids from Hirschsprung patients share a wide genomic phenotype with healthy controls after proinflammatory stimulation, a notable number of genes was differentially expressed in gHIO exclusively, pointing out a possible context for the clinical aberrant inflammatory response in these patients, yet to be investigated further.



332 - PROTEOMICS REVEALS SIGNIFICANT PROTEOME ALTERATIONS IN HUMAN FETAL CDH LUNGS

Richard Wagner[1], Jan Riedel[1], Nicole Peukert[1], Martin Lacher[1], Jan-Hendrik Gosemann[1], Christopher Pascoe[2], Jelena Martinovic[3], Alexandra Benachi[3]

[1]University Hospital Leipzig, Leipzig, Germany. [2]University of Manitoba, Winnipeg, Canada. [3]Hôpital Antoine-Béclère, Paris, France

Aim of the study: Lung hypoplasia is the leading cause of death in CDH patients, but the pathoetiology in humans remains poorly understood. We have previously identified pro-inflammatory pathways (e.g., NF-kB) to be significantly enriched in nitrofen CDH and human tracheal aspirate derived lung stem cells from CDH patients. Here, we used proteomics to profile protein alterations in human fetal CDH lungs to further assess the pathophysiology of lung hypoplasia.

Methods: After ethical approval, fetal CDH (n=3) and control lungs (n=3) were harvested directly after death, and stored at -80°C until further analysis. Proteins were isolated and prepared for proteomic analysis via mass spectrometry. Data sets were analyzed using R-Studio packages for differential and pathway analysis.

Main results: Differential analysis showed significantly altered protein profiles between CDH and non-CDH control lungs with > 1000 proteins with altered abundance. PCA cluster analysis separated our data set into two independent groups (CDH vs. Control). Partial Least squares discriminant analysis identified 40 protein candidates, that are prominently different in CDH lungs (e.g.: Zinc Finger AN1-Type Containing 6; Cullin 4B). Pathways that were altered in CDH lungs on Gene Set Enrichment Analysis included RNA processing, structural chromatin associated pathways, antigen presentation and immune system related processes.

Conclusions: Our findings suggest again that human fetal CDH lungs are characterized by a significantly perturbed protein signature when compared to non-CDH control lungs. Especially pro-inflammatory pathways are abnormally enriched and thus a potential therapeutic target in human and nitrofen CDH.

288 - VALIDATION OF A 3-D PRINTED SIMULATOR FOR TRAINING IN ENDOSCOPIC INJECTION OF BULKING AGENT FOR VESICOURETERAL REFLUX: A PILOT STUDY.

Maria Escolino, Annalisa Chiodi, Claudia Di Mento, Fulvia Del Conte, Mariapina Cerulo, Francesca Carraturo, Vincenzo Coppola, Ciro Esposito

Federico II University Hospital, Naples, Italy

Aim of the Study: This study aimed to evaluate the face and content validities of a novel 3-D printed model as training tool for endoscopic injection of bulking agent.

Methods: Thirty attendees and ten teaching faculty members were invited to complete a post-hoc questionnaire after completing training sessions using 3-D printed Dx/HA simulation model (DSM). They completed a 7-question 5-point Likert scale to assess face validity and content validity of the model.

Main results: Regarding the training status, 16/40 (40%) participants were fellow and/or specialist in pediatric surgery and 24/40 (60%) were trainees. The level of confidence in endoscopic injection was defined as novice in 25/40 (62.5%), intermediate in 5/40 (12.5%) and expert in 10/40 (25%). Thirty-two/40 (80%) delegates strongly agreed/agreed that the DSM was realistic and mimicked actual bladder anatomy. Most participants strongly agreed/agreed that the DSM realistically mimicked some procedural aspects such as required depth of injection (87.5%), realistic difficulty to initiate the injection (85%), resistance encountered during the injection (82.5%), optimal pressure (72.5%), optimal volume of material (82.5%), creation of satisfactory mound (82.5%) and realistic difficulty to manage the needle (87.5%). The DSM was considered a good training tool for beginners by 34/40 (85%) and for pediatric surgeons/urologists by 30/40 (75%).

Conclusions: The 3D-printed Dx/HA simulation model proved to be valuable, high-fidelity, accessible, cost-effective training tool to improve the performance of pediatric surgeons/urologists. Further development is necessary to enhance the realism of the ureteral hiatus and reproduce more complex anatomy.

388 - THE EFFECT OF GENERAL ANESTHESIA EXPOSURE ON EARLY NEURODEVELOPMENTAL OUTCOME IN CHILDREN

Sanne Maat[1], Marsh Königs[1], Ingmar Visser[2], Sabine Hunnius[3], Markus Stevens[1], Jurgen de Graaff[4], Ernst van Heurn[1], Jaap Oosterlaand[1], Joep Derikx[1]

[1]Amsterdam UMC, Amsterdam, Netherlands. [2]University of Amsterdam, Amsterdam, Netherlands. [3]Radboud University, Nijmegen, Netherlands. [4]Erasmuc MC, Rotterdam, Netherlands

Abstract

Aim: The US Food and Drug Administration (FDA) released a warning regarding the potentially harmful impact of repeated and prolonged general anesthesia (GA) on young children. This highlights the importance of evaluating the relation between GA-exposure and neurodevelopment in a time of cerebral vulnerability. This study assesses the effect of GA-exposure on neurodevelopmental outcome in children of 12 months.

Methods: Children exposed to GA were compared to children without GA-exposure. Patients that underwent inguinal or abdominal surgery were eligible for inclusion. Participants were excluded if they had a comorbidity effecting the central nervous system. Neurodevelopmental outcome was measured at the age of 12 months using eye-tracking paradigms, Ages and Stages Questionnaire (ASQ) and cognitive subscale of Bayley Scale of Infant Development (BSID). Group comparisons were performed for mean exposure to GA.

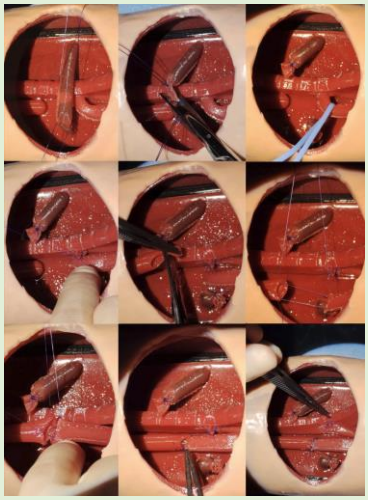
Results: Children exposed to GA(n=21) had a lower gestational age and birth weight compared to children without GA-exposure(n=32) (37.4 vs 39.8 weeks; 2857n vs 3534 grams). ASQ demonstrated no differences between study groups. BSID showed that children exposed to GA scored lower than children without GA-exposure (index score:101±19 vs 113±14). Eye-tracker measurements also revealed poorer performance for orienting and sustained attention. Children with greater exposure to GA (>180 minutes) also had poorer performance on orienting and sustained attention than children without GA-exposure as well as children with smaller exposure to GA.

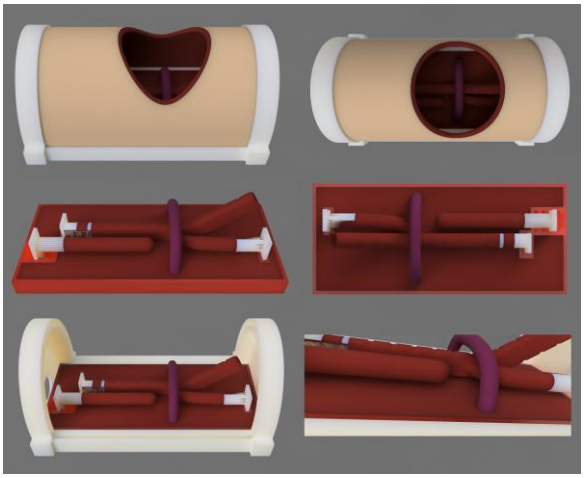
Conclusion: This preliminary evidence indicates that children exposed to GA have poorer neurodevelopmental outcome, particularly for children with exposure greater than 180 minutes.

751 - DEVELOPMENT AND VALIDATION OF A REALISTIC TYPE III ESOPHAGEAL ATRESIA SIMULATOR FOR THE TRAINING OF PEDIATRIC SURGEONS

Javier Arredondo Montero[1], Carlos Delgado-Miguel[2], Blanca Paola Pérez-Riveros[3], Oscar Emilio Bueso Asfura[3], Nerea Martín-Calvo[3], Francisco Javier Pueyo[4], Nicolás López de Aguileta Castaño[3]

[1]Complejo Asistencial Universitario de León, León, Spain. [2]Hospital Universitario La Paz, Madrid, Spain. [3]Universidad de Navarra, Pamplona, Spain. [4]Clinica Universidad de Navarra, Pamplona, Spain





Aim of the study: The technical complexity and limited casuistry of neonatal surgical pathology limit the possibilities of developing the necessary technical competencies by specialists in training. The aim of this study is to create a tool for the training of paediatric surgeons in the open correction of oesophageal atresia.

Methods: We conceptualized, designed, and produced an anatomically realistic model for the open correction of type III oesophageal atresia. We validated it with two groups of participants through face, construct, and content validity questionnaires.

Main results: The model was validated by 9 experts and 9 non-experts. The mean procedure time for the experts and non-experts groups was 34.0 and 38.4 minutes respectively. Two non-experts did not complete the procedure at the designed time (45 minutes). Regarding the face validity questionnaire, the mean rating of the model was 3.2 out of 4. Regarding the construct validity, we found statistically significant differences between groups for the equidistance between sutures, 100% correct in the expert group vs. 42.9% correct in the non-expert group (p=0.02), and for the item “Confirms that tracheoesophageal fistula closure is watertight before continuing the procedure”, correctly assessed by 66.7% of the experts vs. by 11.1% of non-experts (p=0.05). Concerning content validity, the mean score was 3.3 out of 4 for the experts and 3.3 out of 4 for the non-experts (p=0.32).

Conclusions: The present model is a cost-effective, simple to produce, and validated option for the training of open correction of type III oesophageal atresia.

597 - A BREAKTHROUGH FOR HISTOPATHOLOGICAL DIAGNOSIS OF HIRSCHSPRUNG'S DISEASE (HD): A DEEPFAKE AUGMENTED MACHINE LEARNING APPROACH

MIRIAM DUCI[1], Luisa Santoro[2], Angelo Paolo Dei Tos[2], Piergiorgio Gamba[1], Francesca Uccheddu[3], Francesco Fascetti-Leon[1]

[1]Division of Pediatric Surgery, Department of Women's and Children's Health, University of Padova,, Padova, Italy. [2]Surgical Pathology and Cytopathology Unit, Department of Medicine,University of Padova, Padova, Italy. [3]Department of Industrial Engineering,, University of Padova, Italy

Aim of the study: The definitive diagnosis of HD relies on histopathological examination of rectal biopsy. Manual analysis of histological slides is time-consuming and prone to human errors, highlighting the need for artificial intelligence as a decision support tool. Nevertheless, Machine Learning (ML) for digital pathology is hindered by the paucity of large dataset. We propose a novel approach involving an appropriate preprocessing technique and the generation of deepfake histological images to evaluate their effectiveness in enhancing the diagnostic capabilities of ML methods in HD.

Methods: Starting from formalin-fixed samples, manual annotations to identify ganglionic cells and nerves were conducted. Common preprocessing methods were applied before training a supervised U-Net (U-NET). Additionally, Generative Adversarial Networks (GANs) were developed to create a set of deepfake histological images.

Main results: The study included 108 annotated samples, which were divided into square parts matching the input dimension of the U-NET. Standard preprocessing methods, including spatial filtering techniques, color normalization,segmentation, were applied to enhance the main structures in the images. The resulting dataset was augmented using data augmentation techniques, yielding 19,600 images. GANs were employed to convert semantic segmentation masks into realistic images. Results indicated that the integration of synthetic images with real data, coupled with the development of an effective preprocessing method and segmentation model, significantly improved the performance of AI in diagnosing HD.

Conclusion: The presented ML approach, when integrated with proper preprocessing and synthetic images, holds the potential to expedite, enhance reliability, and improve the efficiency of diagnoses in HD.

891 - NAVIGATING THE NEW FRONTIER: PAEDIATRIC SURGERY RESIDENTS' PERSPECTIVES ON AI INTEGRATION IN CLINICAL PRACTICE

Tommaso Amato[1], Francesca Gigola[1], Marco Del Riccio[2], Antonino Morabito[1,3,4], Riccardo Coletta[1,3,4]

[1]Department of Paediatric Surgery, Meyer Children's Hospital IRCCS, Florence, Italy. [2]Department of Health Sciences, University of Florence, Florence, Italy. [3]Department of Neuroscience, Neurosurgery Clinic, Psychology, Pharmacology arch Child Health (NEUROFARBA), University of Florence, Florence, Italy. [4]School of Health and Society; University of Salford, Salford, United Kingdom

Aim of the Study:

This study assessed Paediatric Surgery residents' (PSRs) acceptance, perceptions, and readiness to integrate AI into clinical practice.

Material and Methods:

Twenty multiple-choice questions from established European paediatric surgery examinations were administered to PSRs and processed through ChatGPT versions 3.5 and 4. Participants' perceptions of AI were assessed before and after the test using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model, with results presented as mean scores.

Results:

Twelve PSRs participated. Results showed that ChatGPT 4.0 not only achieved an average score of 13.33 (73.3% accuracy), outperforming ChatGPT 3.5's 9.38 (57.5% accuracy), but also completed the test with remarkable swiftness, taking just 22.98 seconds, while ChatGPT 3.5 finished in 17.66 seconds. In contrast, the completion time for PSRs was 15.21 minutes, underscoring the efficiency of AI in processing clinical knowledge (PSRs vs ChatGPT 3.5 $p < 0.0001$; PSRs vs ChatGPT 4.0 $p < 0.0001$). Furthermore, AI performs significantly better in the test (PSRs vs ChatGPT 3.5 $p = 0.048$; PSRs vs ChatGPT 4.0 $p = 0.0001$). The UTAUT2 showed an increase in Performance Expectancy from 3.7/5 to 3.9/5, while Habit and Price Value remained low. Technology Trust was high, with Technology Fear decreasing post-study.

Conclusion:

PSRs are initially optimistic about AI's clinical application yet perceive potential economic constraints. Following the exercise, their appreciation for AI's capabilities grew, indicating a decrease in apprehension and a better understanding of AI's value. This reinforces the promise of AI as an educational aid in paediatric surgery.

278 - EXPERIENCE OF COMBINED TREATMENT OF INFANTILE HEMANGIOMAS

Gennadiy Khanes[1], Vasyl Rybalchenko[2], Tetiana Tymoshenko[3]

[1]National Special Pediatric Hospital OCHMATDYT, Kyiv, Ukraine. [2]PJSC SIC "Borshchahivskiy Chemical and Pharmaceusical PlantP", Kyiv, Ukraine. [3]National Special Pediatric Hospital OCHMATDyT, Kyiv, Ukraine

Aim of the Study.

Infantile haemangiomas, typical for preterm infants, are currently treated with beta-blockers for 1-2 years in 80% of cases.

However, taking therapeutic doses of the beta-blocker propranolol (2.5-3 mg/kg) is dangerous due to adverse reactions such as hypertension and hypoglycaemia. To reduce complications in such patients, we use a combination of oral B-blocker administration with topical treatment with alpha and beta-blocker gel.

Methods.

For the transcutaneous treatment of haemangiomas, we created a gel-combigel YKh (national patent 122476), which maintains the therapeutic effect for 12 hours.
Two groups of patients were treated:
-the first group was treated by mouth according to the protocol with propranolol doses ranging from 0.5mg to 2.5mg/kg x 3 times a day;

-The second group was treated with propranolol by mouth at a dose of up to 1.5 mg/kg x 3 times + topically lubricated the surface of the haemangioma with combigel ointment x 2 times a day.

The treatment was monitored by Doppler ultrasonography.

Main Results.

In the first group, a reduction in the size of haemangiomas occurred after 9 months.
In the second group, a significant reduction in the size of haemangiomas occurred in 4 months of combined treatment.
The effect was especially significant in the areas of skin-mucous contact (eyes, mouth, genitals) with a lesion depth of no more than 3 mm.

Conclusion.

For infantile haemangiomas of the face and genitals, the most effective combined treatment is the use of topical therapy.



19 - EARLY COLOPREP AND SALVAGE LAPAROSCOPIC APPENDECTOMY (ECSLA) - AN INNOVATIVE PROTOCOL FOR MANAGEMENT OF INGESTED EARTH MAGNETS

Ortal Schaffer, Adi Kenoshi, Osnat Zmora

Shamir Medical Center, Be'er Ya'acov, Israel

Aim of the study: To describe and evaluate a new protocol designed to reduce the need for surgery and simplify surgery in children who have ingested multiple earth magnets.

Methods: The Early Coloprep and Salvage Laparoscopic Appendectomy (ECSLA) protocol includes initiating colonoscopy preparation upon admission, and laparoscopic magnets retrieval via appendectomy if surgery is eventually needed. The full protocol was initiated in May 2023. A retrospective study of all cases of ingested multiple magnets in children in our institution during July 2020 – December 2023 was conducted to retrieve and analyze demographic, clinical, imaging, management, and outcome data.

Main Results: During the 3.5-year study period, we treated 10 cases of ingested multiple magnets with no complications. Early Coloprep resulted in spontaneous passage of magnets (one case) and successful colonocsopic removal (two cases), with a short length of stay (LOS) (1-2 days).

Conclusions: The ECSLA protocol may prevent surgical interventions and complications and shorten LOS in children who ingested multiple magnets.

367 - CHILDREN OBESITY SURGERY REGISTRY

Bekhan Khatsiev[1], Sergey Minaev[1], Igor Kirgizov[2], Jennifer Martinez[3], Ramiz Poluxov[4], Igor Gerasimenko[1], Nikolay Bykov[1]

[1]Stavropol State Medical University, Stavropol, Russian Federation. [2]Russian Medical Academy of Postgraduate Education, Stavropol, Russian Federation. [3]Saint-Petersburg State Pediatric Medical University, Saint-Petersburg, Russian Federation. [4]Azerbaijan Medical University, Baku, Azerbaijan

The aim of the Study was to create the Children Obesity Surgery Registry (COSR) and creation identify what dimensions of a position of vital activity and treatment are most closely associated with childhood obesity.

Methods. We developed an Obesity Surgery Registry with section COSR. The patient data included information on medical and family history, medications, clinical and local examination, laboratory findings, and surgery. We analyzed the medical records of 281 children 15.2±1.7 years old with obesity. The body mass index was 43.1±2.73 kg/m². Body weight - 114 ± 13.3 kg. Body length - 163±2.3 cm. There were 57(24%) boys, girls – 214(76%). Associated disorders: arterial hypertension - 21%, irregular menstruation (girls) - 57%.

Main results. Before surgery, children had conservative treatment for 2-4 years (health food, psychotherapy, psychological coding, et al.). On average (for all periods of observation), patients aged 12-18 years lost 81% of excess (EWL) and 32% of initial (TWL) weight, - 34 kg. At six months after surgery, the median excess weight loss (EWL) is 78%; at one year – 98%; at two years – 106%. One hundred sixty-nine patients underwent sleeve gastrectomy, 44 – MGB OAGB, 44 – banding, 14 – intragastric balloon, 7 – RnY gastric bypass, 2 of SADI, and two gastroplication, 1 – biliopancreatic bypass. Three (1.1%) manipulations were complicated: bleeding-1; local infection-1 and leak-1.

Conclusions. The gastric bypass results in significant improvements in the quality of life of children with obesity. The databases of COSR were essential for maintaining high-quality care and present a platform for multicenter research.

547 - Combined Porcine-Avian model: a novel animal tissue model for simulating retroperitoneoscopic pyeloplasty in children

Marianne Alam[1], Alessia Allasia[2], Peter Zimmermann[3], Oliver Sanchez[2], Enrico Broennimann[2]

[1]Division of Child and Adolescent Surgery, Department of Women, Child and Adolescent, Geneva University Hospitals, Department of Pediatrics, Gynecology and Obstetrics, University of Geneva, Geneva, Switzerland, University Center of Pediatric Surgery of Western Switzerland, Geneva, Switzerland. [2]Department of Pediatric Surgery, University of Lausanne, University Hospital of Lausanne (CHUV), University Center of Pediatric Surgery of Western Switzerland, Lausanne, Switzerland, Lausanne, Switzerland. [3]Department of Pediatric Surgery, University of Leipzig, Leipzig, Germany, Leipzig, Germany

Purpose:
Literature lacks validated models for training retroperitoneoscopic pyeloplasty in children. We introduce and validate an animal tissue model for retroperitoneoscopic pyeloplasty, which has been developed and utilized in our Minimally Access Surgery (MAS) paediatric course since 2018.

Materials and Methods:

An observational study was conducted during an international Minimally Access Surgery Skill Labs training in August 2023.

In the first phase of this training program, laparoscopic exercises were performed in the peritoneal cavity of fresh chicken cadavers (avian model). As a second phase, the crop and the oesophagus of the same chicken were connected to a piglet kidney and positioned on a semi-vertical surface, simulating the position of the renal pelvis during retroperitoneoscopy.

Subsequently, this model served as the basis for simulating dismembered retroperitoneoscopic pyeloplasty on a standard pelvic trainer, using instrumentation that mirrored the commonly practiced approach. Validation data were collected through an analysis using a 5-point Likert scale questionnaire rooted in the Michigan Standard Simulation Experience Scale (MiSSES).

Results:

Seventeen participants were recruited (11 females: 6 males). The mean perceived degree of retroperitoneoscopic pyeloplasty realism was 4.56. The perceived degree of acquiring knowledge of retroperitoneoscopic pyeloplasty was 4.41, and deploying practical skills was 4.65. The overall satisfaction with the avian model was 5. When performing regression analysis, the acquired knowledge and skills were statistically significant between groups of trainees (junior trainee, senior trainee and attending staff surgeon).

Conclusion:

The constructed model has the potential to function as a high-fidelity animal tissue model suitable for simulating retroperitoneoscopic pyeloplasty.

273 - ANTHROPOMETRIC COMPARISON OF ULTRASOUND AND INTRAOPERATIVE DIAMETER MEASUREMENT DURING APPENDECTOMY

Y.Doruk Bilgili[1], B.Haluk Güvenç[2]

[1]Balıkesir Bandırma Training and Research Hospital, Dept. of Pediatric Surgery, Balıkesir, Turkey.
[2]Zonguldak Bulent Ecevit University Health Application and Research Center, Dept. of Pediatric Surgery, Zonguldak, Turkey

Aim

Inherent limitations due to radiologists' experience may vary in frequency of visualization and contradictory results may occur between the described pathology and intraoperative anatomic judgements. In this study, anthropometric measurements of appendix by the radiologist and surgeon have been compared.

Methods

Thirty-six patients with a preliminary diagnosis of appendicitis operated between April 2022 – December 2023 were analyzed per se. The diameter of the appendix was measured at three different points by the help of preoperative ultrasound and intraoperative vernier caliper in 48 cases. Demographic characteristics of the cases and the widest diameter values of appendectomy materials based on obtained measurements were analyzed statistically in terms of diagnostic accuracy.

Results

Amongst the evaluated patients 50% were female, presenting an age median of 11.1 (9-15 year-old). Based on histopathological examination, 14.6% represented a negative appendectomy, 66.7% acute, and 18.8% complicated appendicitis. The measurement of the average appendiceal diameter median was found to be 7.5mm during ultrasonography, and 7mm by the caliper (p=0.631). In six cases, intraoperative measurement was much lesser when compared to US. Histopathological evaluation documented presence of a fecalith in seven cases (14.6%), however, denied three diagnosed by US. Intraoperative measurement of appendiceal diameters in seven cases diagnosed as negative appendectomy, were documented as 7mm and higher,

Conclusion

It is clear that diagnostic decision based on individual appendix diameter values higher than 6mm under ultrasound without clinical determination, is controversial. Comparison and reinterpretation of anthropometric measurements may aid in diminishing the frequency of negative appendectomies.

761 - DEVELOPMENT AND VALIDATION OF A REALISTIC JEJUNOILEAL ATRESIA SIMULATOR FOR THE TRAINING OF PEDIATRIC SURGEONS

Javier Arredondo Montero[1], Carlos Delgado-Miguel[2], Blanca Paola Pérez-Riveros[3], Oscar Emilio Bueso Asfura[3], Nerea Martin-Calvo[3], Francisco Javier Pueyo[4]

[1]Complejo Asistencial Universitario de León, León, Spain. [2]Hospital Universitario La Paz, Madrid, Spain. [3]Universidad de Navarra, Pamplona, Spain. [4]Clinica Universidad de Navarra, Pamplona, Spain

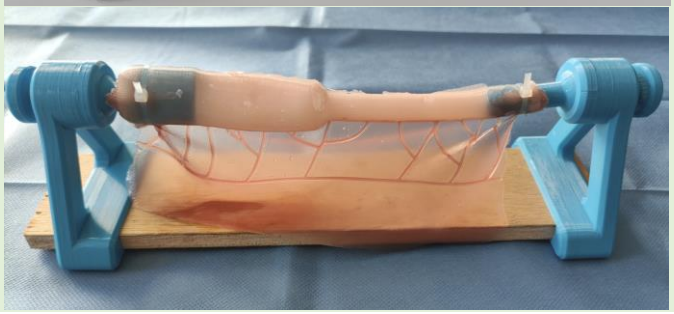
Aim of the study: The possibilities of performing neonatal surgical procedures for residents are limited, given the low volume of pathology and its complexity. Training with previous models is essential and contributes to increased patient safety. Our was is to develop a training model of jejunoileal atresia for open surgical correction.

Methods: We conceptualized, designed, and produced a realistic model of jejunoileal atresia. We validated it with two groups of participants (experts and non-experts) through face, construct, and content validity questionnaires.

Main results: The model was validated by 11 experts and 9 non-experts. The mean procedure time for the experts and non-experts groups was 41 and 42 minutes respectively. Six non-experts and one expert did not complete the procedure at the designed time (45 minutes) ($p=0.02$). Regarding the face validity questionnaire, the mean rating of the model was 3.1 out of 4. Regarding the construct validity, we found statistically significant differences between groups for the correct calculation of the section length of the antimesenteric border (Nixon's technique) ($p<0.01$). Concerning content validity, the mean score was 3.3 out of 4 for the experts and 3.4 out of 4 for the non-experts.

Conclusions: The present model is a realistic, economic and and validated option for the training of open correction of jejunoileal atresia. Future studies with larger sample sizes and blinded validators are needed before drawing definitive conclusions.





663 - LONG-TERM NEURODEVELOPMENTAL OUTCOME FOLLOWING OPEN REPAIR OF CONGENITAL DIAPHRAGMATIC HERNIA WITH AND WITHOUT ECMO-SUPPORT - A LONGITUDINAL STUDY OF 281 PATIENTS

Katrin Zahn[1], Thomas Schaible[2], Christel Weiss[3], Michael Boettcher[1], Rainer Kubiak[4]

[1]Department of Pediatric Surgery, Medical Faculty Mannheim (UMM), University of Heidelberg, Mannheim, Germany. [2]Department of Neonatolgy, Medical Faculty Mannheim (UMM), University of Heidelberg, Mannheim, Germany. [3]Department of Medical Statistics and Biomathematics, Medical Faculty Mannheim (UMM), University of Heidelberg, Mannheim, Germany. [4]Department of Pediatric Surgery, Ostschweizer Kinderspital, St. Gallen, Switzerland

Aim of the study:

Extracorporeal membrane oxygenation (ECMO) is an invasive method for the treatment of pulmonary hypertension in neonates with congenital diaphragmatic hernia (CDH). There is an ongoing discussion about its benefits and the possible risk of long-term neurological sequelae. This longitudinal cohort-study aims to identify the incidence and possible risk factors for neurodevelopmental delay after open CDH repair with and without ECMO.

Methods:

Data were collected prospectively after ethical approval with standardized neurological tests applied from six months to six years of age. 281 surviving patients were analyzed.

Main results:

There was no significant difference regarding gender, gestational age and birth weight between groups. The ECMO-cohort included more severe CDH with significant differences concerning intraoperative findings and postoperative treatment as well as the necessity for re-operations. Cognitive deficits were observed significantly more often following ECMO at almost any age. There was no significant difference in language or motor development between ECMO- and non-ECMO patients. Long-term follow-up until school-age revealed a declining incidence of neurodevelopmental delay over time. In multiple regression analysis different independent risk-factors for neurodevelopmental delay at different time-points of follow-up were identified, with re-operation within the first year of life being the most frequent one (e.g. OR 3.52 [1.264 – 9.799], p=0.016 regarding deficits in action strategies at 4 years).

Conclusions:

Deficits of ECMO-patients regarding action strategies may rather reflect the severity of the disease itself than exposure to ECMO. The majority of ECMO- as well as non-ECMO-patients have a normal neurological outcome at school-age.

797 - Long-Term Assessment of Recurrence in CDH: A Study of 1,250 Consecutive Cases at a Single Institution.

Julia Elrod[1], Richard Martel[1], Michaela Klinke-Petrowsky[1], Katrin Zahn[1], Meike Weis[2], Alba Perez Ortiz[3], Thomas Schaible[3], Michael Boettcher[1]

[1]Department of Pediatric Surgery, University Medical Center Mannheim, Heidelberg University, Theodor-Kutzer-Ufer 1-3, 68167 Mannheim, Germany, Mannheim, Germany. [2]Department of Clinical Radiology and Nuclear Medicine, University Medical Center Mannheim, Heidelberg University, Theodor-Kutzer-Ufer 1-3, 68167 Mannheim, Germany, Mannheim, Germany. [3]Department of Neonatology, University Medical Center Mannheim, Heidelberg University, Theodor-Kutzer-Ufer 1-3, 68167 Mannheim, Germany, Mannheim, Germany

Aims of the Study: This report covers a comprehensive single-center series on the recurrence of congenital diaphragmatic hernia (CDH), examining prenatal factors and postnatal treatment-related variables. A key focus is whether minimally invasive surgery contributes to increased recurrence rates.

Methods: The study was approved by the responsible ethics committee. From 2000 to 2022, 1,250 CDH patients were treated at this center. The significance of independent variables was determined using various statistical tests in survivors. Logistic regression identified independent recurrence predictors, supplemented by AI for additional risk factor identification. Recurrence timing and frequency were analyzed.

Main Results: Among 964 survivors, 118 recurrences occurred in 107 children (11.1%), with an average diagnosis age of 29.8 ± 42.4 months. Multiple recurrences were found in 8 children (0.8%), mostly detected during routine follow-up. Logistic regression highlighted birth weight, defect size, and hernia laterality (left side) as significant recurrence predictors. Surgical method—primary closure, patch use, minimally invasive versus open surgery—did not impact recurrence rates, although data on larger defects (C and D) is limited.

Conclusion: Certain prenatal conditions significantly affect recurrence. Minimally invasive surgery does not appear to raise recurrence risk for small to medium defects (A, B), nor does patch use.

199 - THORACOTOMY VS THORACOSCOPY FOR ESOPHAGEAL ATRESIA WITH TRACHEOESOPHAGEAL FISTULA REPAIR: IS THERE A DIFFERENCE IN QUALITY OF LIFE?

Donatella Di Fabrizio[1], Mastroberti Francesca[1], Cruccetti Alba[1], Bindi Edoardo[1,2], Cobellis Giovanni[1,2]

[1]Pediatric Surgery Unit, Salesi Children's Hospital, Ancona, Italy. [2]University Politecnica of Marche, Ancona, Italy

Aim:

Esophageal atresia (EA) is the most common congenital esophageal malformation. Thoracoscopic repair is gaining popularity, but controversy persist regarding the ideal surgical approach for this challenging anomaly.

Study's aim is to analyze outcomes in terms of quality of life (QoL) of children undergoing thoracotomy and thoracoscopy for type III EA repair

Methods:

Perinatal characteristics, malformations, surgical procedures, complications, gastrointestinal and respiratory current symptoms were collected. QoL were investigated through Esophageal-Atresia-QoL(EAQoL) and Pediatric-QoL(PedsQL)4.0 standardized and validated questionnaires. Statical Mann-Whitney test with significance level $p < 0.05$ was carried out

Main results:

A total of 32 patients undergoing type III EA primary repair answered the questionnaire, including 17 thoracotomy and 15 thoracoscopy. Median birth weight was not significantly different between two groups (median[2.385;2.475], p=.3529) while gestational age showed statistically difference (median[36;38], p=.0063). Thirty-five associated malformations (15 thoracotomy, 20 thoracoscopy) were observed.

Postoperative complications occurred in 9 patients in thoracotomy group and in 6 patients in thoracoscopic group. Analyzing EAQoL we found statistically significant difference in physical health between two groups (median[83;96], p=0.0119), while there was no difference in social relations, eating and total score (median[100;100], p=0.3473)(median[91;97], p=0.5749)(median[91;96], p=0.1710). Investigating PedsQL, psychosocial-health score (median[88;98], p=0.0069) and total score (median [91;99], p=0.0043) were statically significant different between the groups, whereas there was no difference for physical-health score (median[91;100], p=0.0706)

Conclusions:

Thoracoscopic EA repair is safe and feasible, allowing patient to have a better QoL in terms of physical and psychosocial health score.

594 - VIDEO-ASSISTED THORACOSCOPIC SURGERY *VERSUS* TUBE THORACOSTOMY WITH FIBRINOLYTIC FOR TREATMENT OF EMPYEMA IN CHILDREN: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS.

Giuseppe Lauriti[1,2], Maria Enrica Miscia[1,2], Dacia Di Renzo[2], Cascini Valentina[2], Gabriele Lisi[1,2]

[1]Department of Medicine and Aging Science, "G. d'Annunzio" University of Chieti-Pescara, Chieti-Pescara, Italy. [2]Pediatric Surgery Unit, Spirito Santo" Hospital of Pescara, Pescara, Italy

Aim of the Study. The British Thoracic Society in 2005 recommended tube thoracostomy plus intra-pleural fibrinolytic as treatment for empyema in children. However, many comparative studies suggested Video-Assisted Thoracoscopic Surgery (VATS) as first-line of treatment because of better outcomes. We aimed to assess: 1. the length of post-operative hospital stay (LOS) comparing VATS *versus* Fibrinolytic; 2. secondary post-operative outcomes between the two procedures.

Methods. Using a defined search strategy, two independent investigators identified all the studies regarding the management of empyema in children. The study was conducted according to PRISMA guidelines. A meta-analysis on randomized controlled trials (RCTs) was performed using RevMan 5.3. Data are expressed as mean±SD.

Main results. Of 1,374 abstracts screened, 102 full-text were analyzed, and 5 RCTs were included in the meta-analysis (294 patients). LOS was similar between VATS and Fibrinolytic (**Table**). The length of post-operative fever was significantly reduced in VATS *versus* Fibrinolytic (**Table**). No significant differences were found with regards other secondary post-operative outcomes (**Table**).

Conclusions. Children with empyema seem not to benefit better outcomes when treated with VATS compared to tube thoracostomy plus intra-pleural fibrinolytic. Further RCTs would be needed to corroborate these results.

Post-operative outcomes	VATS	Fibrinolytic	p value
Length hospital stay (days)	8.5±1.2	9.5±1.8	ns
Fever (days)	3.8±0.6	5.4±2.3	0.006
0_2 support (days)	2.2±0.2	2.3±0.2	ns
Analgesia (doses)	24.2±10.9	21.8±1.8	ns
Chest tube (days)	5.0±0.7	6.6±1.4	ns
Complications (%)	9.1±8.2	11.8±6.9	ns
Failure (%)	14.2±8.4	13.0±10.0	ns
Abnormal Chest X-ray at follow up (%)	41.2±44.2	42.2±45.1	ns

14 - PARENTAL EVALUATION IN CHILDREN WITH ESOPHAGEAL ATRESIA: POSTURE, PHYSICAL ACTIVITY AND QUALITY OF LIFE

YAĞMUR ELMALI İPEK[1], Tutku Soyer[2], Numan Demir[1], Selen Serel Arslan[1]

[1]1 Hacettepe University, Faculty of Physical Therapy and Rehabilitation, Ankara, Turkey. [2]1 Hacettepe University, Faculty of Medicine Department of Pediatric Surgery, Ankara, Turkey

Purpose: To evaluate posture, physical activity level, and quality of life (QOL) of parents of children with EA by comparing with parents of healthy children (HC).

Methods: Twenty children with EA and their parents as study group (SG), and 20 parents of HC as control group (CG) were included. Children were evaluated with PEDI-EAT-10 to determine dysphagia severity and Neurological Sensory, Motor, Developmental Assessment (NSMDA) to define motor development. As parental assessments, New York Posture Rating Test for posture assessment, International Physical Activity Questionnaire-Short Form (IPAQ-SF) to determine physical activity level, Short Form-36 (SF-36) to assess general QOL and Turkish Feeding-Swallowing Impact Survey to evaluate swallowing related QOL were used.

Results: Children in groups were similar in terms of age and gender ($p>0.05$), and different in terms of PEDI-EAT-10 and NSMDA in favor of HC ($p<0.01$). Parents were similar in terms of age, height, weight, marital, educational and economic status ($p>0.05$). Parents in SG had worse posture than CG ($p=0.01$). No significant difference was detected between parents in terms of IPAQ-SF ($p>0.05$), but 70% of parents in SG were determined to be inactive, while this rate was 35% in CG. There was no significant difference in terms of SF-36 between parents ($p>0.05$), however swallowing related QOL of parents in SG was lower than CG ($p<0.05$).

Conclusion: Parents of children with EA had worse posture, higher physical inactivity, and worse swallowing related QOL indicating that they may be more prone to musculoskeletal problems and sedentary lifestyle, which may affect their QOL.

452 - FERTILITY AND PREGNANCY IN CONGENITAL DIAPHRAGMATIC HERNIA (CDH) SURVIVORS: A PATIENT-TARGETED EUROPEAN SURVEY.

Rebecca Pulvirenti[1,2], Louise Montalva[3], Hanneke IJsselstijn[1], Lieke Kamphuis[4], Alexandra Benachi[5]

[1]Department of Pediatric Surgery, Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands. [2]Pediatric Surgery Unit, Department of Women's and Children's Health, Padua University Hospital, Padua, Italy. [3]Department of Pediatric and Neonatal Surgery, University Hospital Armand Trousseau, Paris, France. [4]Department of Pulmonology, Erasmus Medical Center, Rotterdam, Netherlands. [5]Division of Obstetrics and Gynecology, "Antoine-Béclère" Hospital, Paris-Saclay University Hospitals, Clamart, France

Aim of the study Standardized lifelong follow-up programs aim to assess the impact of CDH on patients' health. However, a substantial evaluation of the reproductive experiences of female CDH patients is lacking, impeding the development of recommendations for optimal gynecological care. To address this, we implemented a patient-focused survey targeting female CDH patients seeking pregnancy or those who have already undergone childbirth.

MethodsWe designed a questionnaire covering clinical history, current health, and gynecological/pregnancy experiences for CDH females >18 years of age. The questionnaire was translated into various European languages, and all versions were accessible on the EUSurvey portal. Patient organizations and websites for thoracic/abdominal abnormalities are still used for dissemination.

ResultsTo date, 24 CDH patients from four European countries (mean age 33 years) completed the questionnaire. Seventeen women (71%) expressed pregnancy fears due to their CDH. Three patients (13%) required stimulation, and one (4%) oocyte donation to achieve pregnancy. Two respondents (8%) were pregnant at the time of questionnaire completion, while ten (42%) gave birth to one child and four (17%) to two children. During pregnancy, 6/14 (43%) women experienced respiratory symptoms, with three (21%) requiring medication. One patient (8%) had CDH recurrence after delivery. 8/18 (44%) pregnancies necessitated a c-section before labor. 3/18 babies (17%) were born prematurely, and one (6%) had CDH itself.

ConclusionsThese preliminary findings highlight the necessity of lifelong follow-up for CDH patients, possibly including gynecological and psychological counseling. Ongoing survey distribution aims to deepen our understanding of the pregnancy experiences of these patients.

562 - MAGNAMOSIS IN LONG GAP ESOPHAGEAL ATRESIA. LESSON LEARNED AFTER THORACOSCOPIC RE-DO ANASTOMOSIS.

Maria Luisa Conighi, Cosimo Bleve, Giulia Brooks, Marina Andreetta, Elisa Zolpi, Salvatore Fabio Chiarenza

Pediatric Surgery Unit, Regional Center of Pediatric Urology and Minimally Invasive Surgery and New Technologies San Bortolo Hospital, Vicenza, Italy

BACKGROUND: magnetic compression anastomosis (MCA) aim to preserve native esophagus in LGEA, making easier anastomosis. Nevertheless, it is known that almost all patients developed severe strictures.

MATERIAL AND METHODS: two 2.5y old girls, undergone MCA in another institution, referred to us because of severe strictures. They both presented type A EA undergone gastrostomy at birth and MCA at 2 months. Severe strictures were unresponsive to multiple endoscopic dilations. Indwelling nasogastric tube and feeding supplementation by gastrostomy were needed.

RESULTS: thoracoscopic re-do anastomosis demonstrate: tenacious adhesions involving thickened parietal pleura, great vessels, trachea, esophagus; not aligned upper and lower esophagus; extended perianastomotic esophageal fibrosis affecting a 5-6cm tract; not detectable thoracic duct; vagus nerve partially involved and interrupted in the anastomosis. Dissection was difficult, resection extended over anastomosis because of fibrosis, wide “pouches” mobilization was needed, re-do anastomosis was under tension. Histology: full thickness esophageal fibrosis. Intubation and curarization were maintained 7days. A light anastomotic leak was conservatively treated. Within 6 months oral feeding was achieved and gastrostomies closed.

CONCLUSIONS: MCA is an interesting idea for LGEA minimally invasive correction but, according to our experience and literature, we highlight: blind anastomosis (pouches not aligned; compromise of adjacent structures - nerves, thoracic duct-); massive tissue compression (poor vascularization causing extended esophageal fibrosis); healing process create tissue necrosis and local massive inflammation (tenacious adhesions). So, to avoid patient a perinatal complicated surgery, we risk to postpone the problem, increasing future technical difficulties and prolonging patient’s discomfort, is that a real advantage?

846 - LONG TERM EFFECTIVENESS OF TRANSVERSUS ABDOMINIS SINGLE MUSCLE FLAP REPAIR FOR LARGE CONGENITAL DIAPHRAGMATIC HERNIA

Camille Duchesne[1], Emmanuelle Verdier[2], Alain Beuchee[1], Teophile Gaillot[1], Olivier Azzis[1], Benjamin Fremond[1], Edouard Habonimana[1], Alexis Arnaud[1]

[1]CHU Rennes, Rennes, France. [2]CHU Poitiers, Poitiers, France

Aim: Surgical repair of large congenital diaphragmatic (CDH) defects remains a challenge. Although many different procedures are described, none has become a 'gold standard'. This study aimed to evaluate long-term results of the single muscle flap repair to avoid using a prosthetic patch.

Methods: After Institutional ethical approval (#15.92), we performed a retrospective review of all patients who underwent a muscle flap repair for CDH between 1995 and 2023. The diaphragmatic defect was repaired using a well-vascularized transversus abdominis muscle flap as previously described in the literature. Survivors were assessed clinically for growth (standard deviation score [SDS] for weight and height), hernia recurrence, surgical complications, abdominal deformities. Data are median (range).

Results: Twenty-eight patients underwent the procedure at 32 hours (4;96) and 1 at 13 months for recurrence after initial Goretex patch repair. All were antenatally diagnosed and 26 left sided. Birth weight was 2.887kg (1.30;3.45) at 37.6 WG (29;39). Twenty-three survived to discharge from intensive care and were analyzed. At 9.8 years (0.2;19.1), there was no recurrence, weight SDS was -1.3 (-3.6;1.4) and height SDS was -0.91 (-3.43;3.05). Six patients required surgery for adhesive bowel obstruction. Six patients had a slight left abdominal wall weakness without true hernia.

Conclusion: The transversus abdominis single muscle flap repair is effective and has a low morbidity rate, in particular no hernia recurrence. Outcomes are favorable compared with surgical alternatives including complex muscle flaps and patch repair. We believe this technique is suitable for large congenital diaphragmatic defects.

297 - Thoracoscopic versus open repair of esophageal atresia : one year morbidity

Celine Rougraff, Rony Sfeir, Frederic Gottrand, Dyuti Sharla

CHRU, Lille, France

Benefits and advantages of mini-invasive techniques in the field of esophageal atresia (EA) are now well known yet the challenge to maintain the same excellent results obtained by open surgery seems to decrease the widespread of his technique. Based on our national population based register, our aim was to compare early outcomes in this two groups

Methods: All patients included in the national population-based register from January 2018 till Dec 2019 were analyzed. Demographic neonatal and surgical data and 1-year outcomes were recorded and analyzed comparing the group of “thoracotomy” and the group of “intent-to-treat thoracoscopy” (including the converted thoracoscopy into thoracotomy).

Results: A total of 1423 patients were included and divided into 2 groups: “thoracotomy” group (n=1179) and “intent-to-treat thoracoscopy” group (n=244). No diference was found regarding the ventilation duration, the oral feeding autonomy, the length of initial hospital stay and the cumulative length of total hospitalizations during the first year of life. More postoperative complications were found in “the intent-to-treat thoracoscopy” group compared to the “thoracotomy” group, before (OR 1.54 (IC95% 1.11 to 2.13), p=0.009) and after adjustment (OR 1.50 (IC95% 1.08 to 2.08), p=0.015).

Conclusion: In our population-based study, thoracoscopy approach presented significantly more postoperative complications compared to the thoracotomy procedure without an impact on the length of initial stay or the cumulative length of total hospitalization during the first year of life. Moreover, no statistical difference was found regarding the oral feeding autonomy and the Z score weight/height at one year of life.

212 - PATCH REPAIRS IN CONGENITAL DIAPHRAGMATIC HERNIA: SYSTEMATIC REVIEW

Romilly Hayward[1], Amulya Saxena[1,2]

[1]Imperial College London, London, United Kingdom. [2]Department of Pediatric and Neonatal Surgery, Chelsea Children's Hospital, Chelsea and Westminster NHS Foundation Trust, London, United Kingdom

Background

Various biomaterials are employed in patch repair of large size congenital diaphragmatic hernia (CDH). This systematic review evaluates choice in practice and outcomes of biomaterials.

Methods

Literature search was performed across Embase, Medline, Scopus, and Web of Science. Publications explicitly reporting CDH patch repair, material used and recurrences were selected.

Results

Sixty-three papers (1990-2023) were included, presenting data on 4598 patients of which 1810 (39.4%) were managed using 19 patch types: Goretex (GTX) (n=1269), small intestinal submucosa (SIS) (n=164), Dualmesh (n=104), Marlex/GTX (n=56), lyophilized dura (n=40), Dacron (n=34), Dacron/GTX (n=32), Permacol (n=24), Teflon (n=24), SIS/GTX (n=15), Sauvage Filamentous Fabric (n=13), Marlex (n=9), Alloderm (n=8), Silastic (n=4), Collagen coated vicryl mesh (n=1), Mersilene (n=1), Porcine bladder extracellular matrix (n=1)

Biomaterials were subgrouped: Synthetic non-resorbable (SNOR) (n=1458), Natural-resorbable (NR) (n=248), Combined natural and synthetic non-resorbable (NSNOR) (n=103), Combined natural and synthetic resorbable (NSR) (n=1).

Recurrence rate following patch repair was 17.2% (n=312). For patch types with n>20, recurrence rate was lowest in GTX/Marlex (3.6%), followed by Teflon (4.2%), Dacron (5.9%), GTX (14.3%), Permacol (16.7%), lyophilized Dura (17.5%), Dualmesh (22.1%), SIS/GTX (26.7%), SIS (36.6%), and Dacron/GTX (37.5%).

When analysed by biomaterial group, recurrence was highest in NSR (100%), followed by NR (33.1%), NSNOR (17.5) and SNOR the least (14.5%)

Conclusion

To date, 19 patch types/variations have been employed for CDH closure. GTX is the most popular, used in 70%; however, GTX/Marlex has the lowest recurrence rate. SNOR was the material type least associated with recurrence.

620 - OPTIMIZING OUTCOMES: SURGICAL MANAGEMENT PROTOCOL FOR DISK BATTERY (DB) INGESTION

Arianna Roggero, Michele Torre, Vittorio Guerriero, Federica Lena, Serena Arrigo, Francesco Santoro, Roberto D'Agostino, Maria Beatrice Damasio, Girolamo Mattioli

Istituto Giannina Gaslini, Genoa, Italy

Aim of the study: DB ingestion is a well known potential cause of mortality in pediatrics and may represents a clinical and surgical challenge. Our aim is to present our experience in management of DB ingestion and complications related.

Methods: In all patients treated in our Hospital for DB ingestion from June 2010 to January 2024, we retrieved: clinical data, diagnostic investigations, and surgical approach. An institutional protocol was introduced in 2010, which indicates an angio-CT scan in all cases of esophageal DB, and a multidisciplinary approach, including, depending on the single case, evaluation by the following specialists: gastroenterologist, otolaryngologists, pediatric and airway surgeon, cardiac surgeon.

Main results: 14 patients were included; 1 more patient with unknown DB ingestion died for aortoesophageal fistula after the arrival at the emergency department in June 2010. After this event, the protocol was created and afterwards used in all cases. The DB was always removed endoscopically. In 4 of them, additional surgery was required: in 2 patients, a large tracheoesophageal fistula was repaired with a tracheal resection and esophageal repair; 1 patient required aortic wall reinforcement with a patch; in 1, endoscopic removal was performed with a sternal split to explore the aortic arch. All 14 patients were followed by a multidisciplinary team, are alive and clinically recovered. One of them presented as sequela a bilateral vocal cord palsy.

Conclusion: Effectively managing complications from DB ingestion requires a nuanced, collaborative, multidisciplinary approach. Our institutional protocol was effective to optimize management strategies and improve outcomes.

501 - SIMULATING THE AGE-DEPENDENT SUSCEPTIBILITY OF INTESTINAL EPITHELIAL CELLS TO ENDOTOXINS – A MURINE IN-VITRO MODEL FOR HUMAN NEC

Thomas Wiemers, Jan Riedel, Niklas Dressler, Xiaoyan Feng, Nicole Peukert, Martin Lacher, Steffi Mayer

Department of Pediatric Surgery, Leipzig, Germany

Aim of the study

Exaggerated intestinal inflammation is associated with necrotizing enterocolitis (NEC) but cell culture-based models comparing specific developmental stages are limited. To gain insides into cellular function we analyzed the lipopolysaccharide (LPS) induced response of murine intestinal epithelial cells (IECs) and intraepithelial lymphocytes (IELs) at distinct ages reflecting human intestinal maturation.

Methods

IECs and IELs from small intestine samples of C57BL/6J mice aged 1, 2, 4, and 8 weeks mimicking the intestinal maturation of fetal, preterm, term born, and adult humans were stimulated with 1µg/mL LPS. Gene expression level of inflammation markers were determined by RT-PCR. Phosphorylation status of p65 illustrating LPS mediated signaling was detected by Western Blot.

Results

LPS treatment induced a significant increase in *Tnf-α* and *Il-1b* expression in IECs of 1- and 2-week old mice and also a rapid phosphorylation of p65 from 2-week old animals. At 4 weeks, this activation diminished. In contrast, IELs showed a significant response in *Tnf-α* and *Il-1b* expression at older ages and an increased phosphorylation of p65 in 4-week old mice after LPS stimulation.

Conclusion

IECs are characterized by a high degree of endotoxin sensitivity that decreases with age. The inflammatory response of IELs behaves opposite. The contrastive response of IECs and IELs to LPS correlates with an increased susceptibility of preterm neonates to NEC. Our model provides an effective way to study this NEC-like inflammation *in vitro*.

580 - Exploring the potential of sacral neural crest cells in aganglionic mouse gut

Nana Nakazawa-Tanaka[1], Katsumi Miyahara[2], Naho Fujiwara[3], Masahiko Urao[1], Atsuyuki Yamataka[3]

[1]Pediatric Surgery, Juntendo University Nerima Hospital, Tokyo, Japan. [2]Laboratory of Morphology and Image Analysis, Biomedical Research Core Facilities, Juntendo University, Tokyo, Japan. [3]Pediatric Surgery, Juntendo University School of Medicine, Tokyo, Japan

Aim

Sacral neural crest cells (NCC) contribute to the development of the enteric nervous system, however, their behavior is not well understood. The aim of this study was to compare the behavior and differentiation of sacral NCC in the aganglionic region of a surgical model versus endothelin receptor B (*Ednrb*) knockout (KO) mice.

Methods

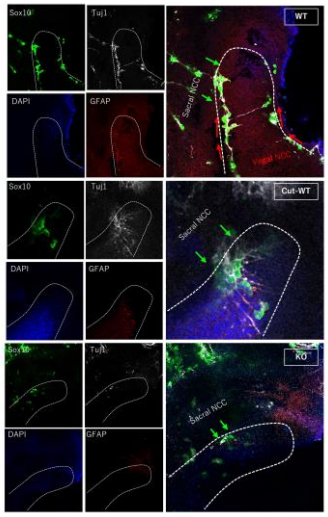
Fetuses of *Sox10*-Venus (+) *Ednrb* KO or *Ednrb* wild type (WT) mice were harvested on embryonic day 10.5. The gut of WT mice was transected distal to the wavefront of the vagal NCC to obtain aganglionic hindgut (cut-WT). The hindgut along with sacrum were cultured for 72 hours and the differentiation of sacral NCC was compared between KO, cut-WT and WT specimens (n =3 each) using wholemount immunohistochemistry with the neuronal marker, TUJ-1, and glial marker, GFAP.

Results

In all groups, Sox10-positive sacral NCC cells migrated into the hindgut (Figure). Of the three groups, sacral NCC migration was most advanced in cut-WT mice, and the presence of both Tuj1- and GFAP-positive cells in the gut indicated sacral NCC had differentiated into both neurons and glia. Moreover, ganglia were evident in cut-WT but not in KO mice.

Conclusions

This surgical model can be used to assess the potential of sacral NCC migration and differentiation in the absence of a vagal NCC component. By identifying differences from the KO model, it is possible to determine whether the events are secondary to the effects of vagal NCC or related to the etiology of HD.



427 - THE HYBRID BIODEGRADABLE NANOCOMPOSIT POROUS IMPLANT AS A NEW POSSIBILITY OF BONE DEFECT REPLACEMENT

Ladislav Planka[1,2], Milan Krticka[1,2], Daniel Ira[1,2]

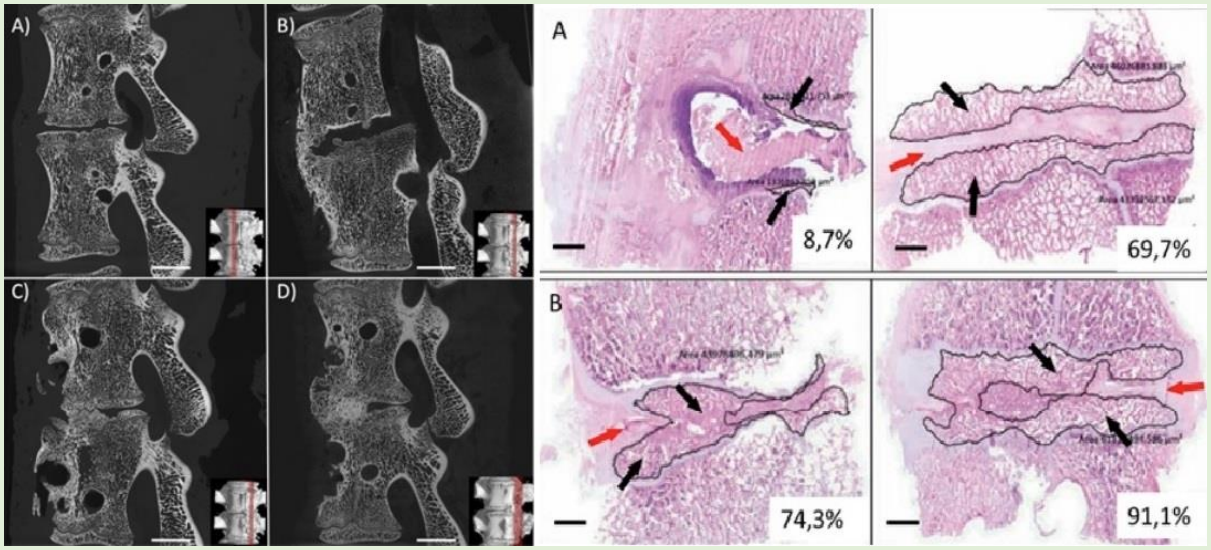
[1]Faculty Hospital Brno, Brno, Czech Republic. [2]Masaryk University Faculty of Medicine, Brno, Czech Republic

Aim of the Study: The most frequent indications for lumbar fusion involve degenerative spinal diseases, comminuted fractures, congenital malformations, and bone defects after tumour resection. Autografting has been considered the gold standard for bone graft, but is associated with short and long-term morbidity as well as deformity, scarring and other surgical risks. Main goal of this experimental study was to compare newly developed hybrid biodegradable nanocomposit porous implant (HBNPI) against bone craft from iliac crest as a new possibility of bone defect replacement.

Methods: The 24 small male pigs 4 months old were included, two groups depending on fusion method. A group – 12 pigs underwent lateral lumbar interbody fusion (L2/3) with implantation of iliac crest bone graft. B group - 12 pigs underwent same procedure with newly developed HBNPI. After sacrifice, the lumbar spines were taking out and micro-CT, biomechanical testing and histomorphological analysis in all groups were performed to evaluate a quality of intervertebral fusion.

Main results: Biomechanics evaluation showed much higher flexural stiffness [Nm/deg] of lumbar spine after 16 weeks in pigs treated with HBNPI (B16) compared with pigs treated only 8 weeks (B8) and with autologous iliac crest bone graft insertion (A8,A16) and native lumbar spine (N). Biomechanical evaluation supported findings on micro CT and histological specimens (Figure), both adjacent vertebrae were completely fused in groups B, unlike in group A.

Conclusions: New HBNPI represents new possibility how to treat the bone defects and could improve and accelerate bone healing process against standard procedures.



394 - BEYOND THE COLON: ASSESSING EPITHELIAL BARRIER FUNCTION IN ORGANOIDS OF THE SMALL INTESTINE FROM PATIENTS WITH HIRSCHSPRUNG'S DISEASE

Pauline Schuppert, Johanna Hagens, Hans Christian Schmidt, Laia Pagerols Raluy, Magdalena Trochimiuk, Konrad Reinshagen, Christian Tomuschat

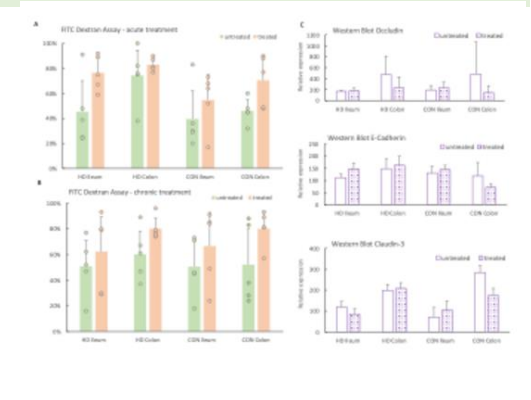
University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Aim: Hirschsprung-associated enterocolitis (HAEC) is the leading cause of morbidity and mortality in patients with Hirschsprung's disease (HD). This suggests that the currently unknown etiology of HAEC might not be confined to the aganglionic segment of the gut. In a previous study, epithelial barrier function of ganglionic colon-derived organoids was found to be altered in patients with HD, hinting towards an involvement in their heightened proinflammatory vulnerability. This study aims to assess whether epithelial barrier dysfunction in patients with HD extends beyond the colon by looking at ileum-derived organoids.

Methods: Following ethical approval, intestinal organoids were cultivated from intestinal mucosal tissue of patients with HD and controls (n=5 per group). Cultures were treated with a proinflammatory cocktail containing Interleukin-1ß, Interleukin-6 and TNF-a, simulating acute or chronic stress. The epithelial barrier was assessed by FITC dextran assay and Western Blot. Additionally, immunofluorescence staining was performed.

Results: FITC dextran assay after chronic treatment revealed only small differences between ileum-HD and ileum-controls (62.2% vs. 66.6%). Acute treatment resulted in a higher percentage of organoids displaying barrier dysfunction for ileum-HD compared to ileum-controls (76.4% vs. 54.8%, p=0,11). This trend is partially supported by the downregulation of Claudin-3 in ileum-HD after acute treatment compared to an upregulation in ileum-controls (-33.77RE vs. +32.72RE, p=0.06).

Conclusion: Although further data is needed, the intestinal barrier of ileum-derived organoids from patients with HD appears to be altered upon acute treatment, strengthening previous data on the potential involvement in the heightened proinflammatory vulnerability of the intestine in patients with HD.



250 - AUTOLOGOUS MICROGRAFTING IMPROVES TISSUE-ENGINEERED URINARY CONDUITS IN VIVO

Nikolai Juul[1,2], Mahboobeh Amoushahi[1], Oliver Willacy[1,2], Micki Ji[3], Chiara Villa[3], Fatemeh Ajalloueian[4], Clara Chamorro[1,5], Magdalena Fossum[1,2,5]

[1]Laboratory of Tissue Engineering, Rigshospitalet, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark. [2]Division of Pediatric Surgery, Department of Surgery and Transplantation, Rigshospitalet Copenhagen University Hospital - Rigshospitalet, Copenhagen, Denmark. [3]Department of Forensic Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark. [4]Department of Health Technology, Technical University of Denmark, Kgs. Lyngby, Denmark. [5]Laboratory of Tissue Engineering, Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden

Aim of the Study

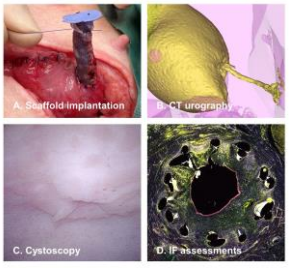
Tissue-engineered scaffolds can be tailored to meet organ-specific characteristics, potentially improving clinical outcomes after reconstructive malformation surgery. Micrografting allows for single-staged scaffold cellularization and implantation. This study aimed to assess the safety and technical feasibility of implanting tubular scaffolds intended for urinary diversion and compared the short-term regenerative outcomes of micrografted versus acellular scaffolds.

Methods

A collagen-based scaffold reinforced with biodegradable mesh and a stent was implanted in ten female minipigs. Half of the scaffolds (n=5) were embedded with autologous urothelial micrografts, harvested perioperatively from the site of bladder anastomosis. All animals were observed six weeks postoperatively and assessed post-mortem by: cystoscopy, CT-urography, and immunofluorescent histology from the resected scaffolds.

Main results

The procedure proved technically feasible within the confines of a regular surgical theater (mean operative duration 2.41±0.5 hours). No animals experienced postoperative complications, and all implanted conduits were patent and unobstructed at follow-up. Tendencies favoring regeneration in micrografted conduits compared to controls, specifically in the distal conduit segments, were observed: Increased luminal epithelium (35413±20517 uroplakin2-positive cells/mm^2 vs. 15668±7851, p=0.11), increased proliferation (35915±8530 ki67-positive cells/mm^2 vs. 12320±6843, p<0.01), decreased apoptosis (27687±14057 TdT-positive cells/mm^2 vs. 82339±15687, p<0.001), and increased vascularization (386±219 mean vessels/mm^2 vs. 85±54, p=0.13).



Conclusions

Single-staged on-site construction and implantation of tissue-engineered urinary conduits proved feasible and safe during a six-week study period. Micrografted scaffolds demonstrated superior regenerative potentials compared to acellular controls. This study merits further efforts advancing the technique towards clinical translation.

644 - NOVEL APPROACH: RECTAL ENTERIC NEURAL CREST-DERIVED CELLS INJECTION IN EXPERIMENTAL HIRSCHSPRUNG'S DISEASE

Naho Fujiwara[1,2], Dorothy Lee[2], George Biouss[2], Bo Li[2], Katsumi Miyahara[3], Nana Nakazawa-Tanaka[4], Masahiro Shimizu[1,2], Atsuyuki Yamataka[1], Agostino Pierro[2]

[1]Department of Pediatric General and Urogenital Surgery, Juntendo University, Tokyo, Japan. [2]Division of General and Thoracic Surgery, The Hospital for Sick Children, Toronto, Canada. [3]Laboratory of Morphology and Image Analysis, Biomedical Research Core Facilities, Juntendo University School of Medicine,, Tokyo, Japan. [4]Department of Pediatric Surgery, Juntendo University Nerima Hospital, Tokyo, Japan

Aim of the Study: Hirschsprung's disease (HD) results from the inadequate colonization of the enteric nervous system by enteric neural crest-derived cells (ENCCs) during embryonic development. Cell transplantation therapy shows promise for HD and related neurocristopathies. However, effectively delivering cells to the postnatal colon remains challenging. It has been shown that injecting enteric neurospheres into the rectal submucosa of adult mice can regenerate enteric ganglia. This is relevant to rectosigmoid aganglionosis which affects 75-80% of patients with HD. This study aims to demonstrate the feasibility and efficacy of rectal injection as an alternative to open surgical or endoscopic ENCC transplantation in mouse pups.

Methods: ENCCs from SOX10-GFP positive mouse embryos (E13.5) were cultured into neurospheres in vitro and injected into the rectal submucosa of postnatal day 14 (P14) mouse pups. After 7 days, recipient colons were examined to detect transplanted cells in whole mount tissue using two-photon laser scanning microscopy and to study differentiation on tissue sections using immunohistochemical staining for neuronal markers (GFAP, HuC/D).

Main results: Recipient mouse pups underwent rectal prolapse, allowing successful injection of dissociated neurospheres into the rectal submucosa without complications(Fig.1). Seven days post-transplantation, SOX10-GFP positive cells were observed circumferentially in the submucosal and myenteric plexuses of the rectal colon (Fig.2). Immuno-staining confirmed differentiation into glia cells (GFAP) and neurons (HuC/D) (Fig.3).

Conclusions: This study demonstrated that injecting ENCCs into the rectal submucosa is a safe and reliable method for cell delivery. This novel approach holds potential for future HD patient cell therapy.

Fig. 1



Fig. 2

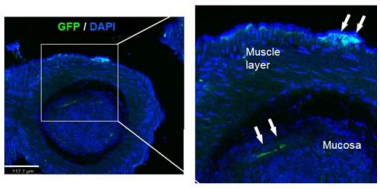
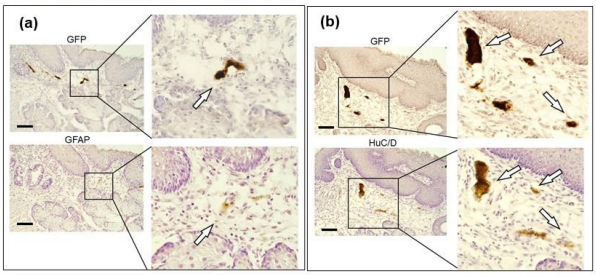


Fig. 3



462 - circRNA EXPRESSION PROFILE TO IDENTIFY NOVEL MARKERS FOR ABNORMAL LUNG DEVELOPMENT IN THE NITROFEN MODEL OF CONGENITAL DIAPHRAGMATIC HERNIA

Marietta Jank[1,2], Muntahi Mourin[1], Nolan De Leon[1], Richard Wagner[3], Shana Kahnamoui[1], Yuichiro Miyake[1,4], Arzu Ozturk Aptekmann[1], Daywin Patel[1], Wai Hei Tse[1], Michael Boettcher[2], Richard Keijzer[1]

[1]Department of Surgery, Division of Pediatric Surgery, Rady Faculty of Health Sciences, Max Rady College of Medicine, University of Manitoba, and Children's Hospital Research Institute of Manitoba, Winnipeg, Canada. [2]Department of Pediatric Surgery, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany. [3]Department of Pediatric Surgery, University of Leipzig, Leipzig, Germany. [4]Department of Pediatric General and Urogenital Surgery, Juntendo University School of Medicine, Tokyo, Japan

Introduction:

Circular RNAs (circRNAs) are highly stable non-coding RNA and show a tissue- and developmental stage-specific expression; making them ideal biomarkers for congenital anomalies. Previously, we showed a specific circRNA profile in congenital diaphragmatic hernia (CDH) non-survivors. Hence, we hypothesized that circRNA expression may also be altered during abnormal lung development in the nitrofen model of CDH.

Method:

circRNA profiles of nitrofen-induced and control fetal lungs were compared at embryonic day (E)15 and E21 using Arraystar microarray and bioinformatic tools. The results were validated with conventional PCR, amplicon sequencing, RT-qPCR and BaseScope™ *in situ* hybridization.

Results:

A total of 59 circRNAs were significantly altered between nitrofen-induced and control lungs: 11 candidates were down-regulated and 29 up-regulated at E15, while 8 circRNAs were decreased and 11 increased at E21. Two candidates were common in E15 and E21. Among them, a circRNA derived from the parental gene Anp32e showed an increased expression at E15 and a decreased expression at E21. The data suggest a sex-specific expression of this circRNA with a more pronounced difference between female nitrofen and control lungs. Bioinformatic analysis provide further insight into the mechanisms of circRNA regulation in abnormal lung development. Alignment of human genomic DNA shows more structural variations in the Anp32e gene of CDH patients compared to controls.

Conclusion:

The circRNA profile is dysregulated in nitrofen-induced fetal lungs and is specific for early and late stages of abnormal lung development. Hence, this circRNA biosignature warrants further investigation as a biomarker for prognostication in CDH.

352 - ROLE OF INTRAPERITONEAL CANNABIDIOL IN AN EXPERIMENTAL MODEL OF NECROTIZING ENTEROCOLITIS

Manuel Gomez Cervantes, Nerea Huertos Soto, Felipe Avila Ramirez, Jaime Rodriguez de Alarcon, Eva Dominguez Amillo, Pilar Guillen Redondo, Maria Jesus Fernandez Aceñero, Carmen Soto Beauregard

H Clinico San Carlos, Madrid, Spain

AIM OF THE STUDY

Necrotizing enterocolitis (NEC) is a devastating intestinal disease that afflicts neonatal patients. Our group has deeply studied the protective factor of cannabidiol (CBD) in neonatal hypoxic-ischemic encephalopathy, because of its capacity of reducing inflammation and oxidative stress.

We aimed to investigate the role of intraperitoneal CBD (iCBD) in an experimental model of NEC, utilizing breastmilk-deprived newborn rats (NBR) by administering oral lipopolysaccharides and submitting them to stress (hypoxia).

MATERIAL AND METHODS

We used 78 Wistar NBR for this study. They were divided into three groups: the SHAM group (17.5%) remained with the mother after birth, the CBD group (35%) underwent experimental induction of NEC and received a single dose of iCBD at a dosage of 10 mg/kg, and the VEH group (47.5%) underwent NEC induction but received intraperitoneal saline fluid instead. On day 4, we sacrificed the NBR and collected their intestines for macroscopic and microscopic analysis using H&E stain and TUNEL assay. The assessment of NEC-like gut damage was conducted using Nadler's modified scoring system.

RESULTS

Histologic damage (GIII 47% vs GII 29%), intestinal apoptosis (through colorimetric TUNEL system) and NEC-induced mortality (92% vs 68%) were significantly lower on CBD group compared to VEH ($p<0.05$). The CBD played a protective role against NEC (OR=0.0255; 95%IC= 0.0015-0.4460).

CONCLUSION

On an experimental basis, iCBD demonstrates a protective role against NEC, as it reduces the apoptotic rate and leads to a lower grade of histologic intestinal damage in NBR.

161 - DISTAL PART OF THE FISTULA IN ANORECTAL MALFORMATIONS: TO PRESERVE OR NOT TO PRESERVE?

Daniël Docter, Bernadette de Bakker, Joris Roelofs, Sjoerd de Beer, Justin de Jong, Joep Derikx, Ernst van Heurn, Ramon Gorter

AUMC, Amsterdam, Netherlands

Aim

During surgical reconstruction of anorectal malformations (ARM), a small part of the bowel (fistula) is usually resected. However, vital structures, such as the internal anal sphincter (IAS), could be present in this fistula. Micro-CT imaging, capable of imaging samples in ultra-high 3D resolution, was employed to study this fistula to evaluate its morphology.

Methods

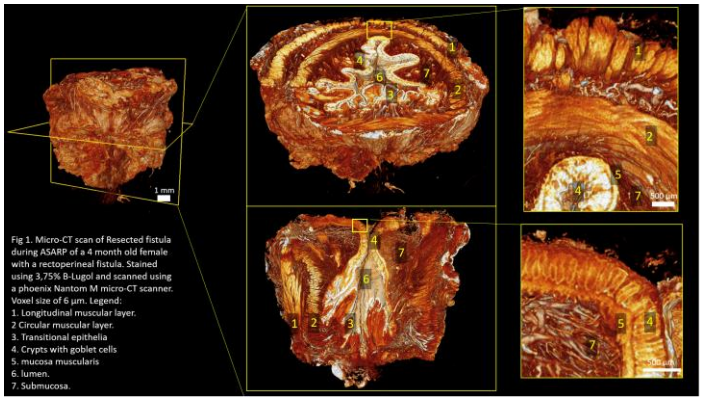
Patients undergoing surgical reconstruction for ARM between 01-09-2022 and 01-09-2023 were eligible for inclusion. After informed consent, resected fistulas were fixed within 3 hours using 4% paraformaldehyde(PFA). All samples were stained using 3,75% B-Lugol for 48 hours. Scans were performed on a Phoenix-Nanotom-M micro-CT. Samples were de-stained, paraffin embedded and 4-µm thick sections were H&E stained for histopathologic examination. Outcomes were presence of vital structures like the IAS, epithelial transition zone and innervation. ARM fistulas were compared with 3 fetal anal canal samples, derived from the Dutch Fetal Biobank.

Results

11 samples from patients were included. All patients had either a recto-perineal or recto-vestibular fistula. All samples showed evidence of the IAS, demonstrated by the presence of circularly arranged muscle fibres that widened towards the distal end of the fistula. Columnar epithelia, transitioning towards stratified squamous epithelium distally, was observed. Histology is pending at time of submission, however preliminary results show innervation of the muscle.

Conclusion

the Distal part of fistulae, currently resected during surgical reconstruction for ARM, contain vital structures like IAS, normal epithelial transitions zone and innervations. This might indicate that the distal part of the fistula should be preserved.



219 - IN VITRO MODELLING OF HIRSCHSPRUNG DISEASE: POTENTIAL OF GENERATION AND CHARACTERISATION OF ENTERIC NERVOUS SYSTEM PROGENITORS

Giulia Mottadelli[1,2], Benjamin Jevans[1], Massimo Signore[3], Alessio Pini Prato[2], Paolo De Coppi[4], Conor J McCann[1]

[1]Stem Cells and Regenerative Medicine, UCL Great Ormond Street Institute of Child Health, London, United Kingdom. [2]Pediatric Surgery Unit, The Children Hospital, Azienda Ospedaliera Universitaria SS. Antonio e Biagio e Cesare Arrigo, Alessandria, Italy. [3]Developmental Biology and Cancer Programme, Birth Defects Research Centre, UCL Institute of Child Health, London, United Kingdom. [4]GOSICH Zayed Centre for Research into Rare Disease in Children, University College London, London, United Kingdom

Aim of the Study

The enteric nervous system (ENS) derives from vagal neural crest cells. Hirschsprung disease (HSCR) is an enteric neuropathy caused by anomalies in migration and differentiation of ENS. Surgery is a therapeutic option for most of these patients but could present long-term impairments. Cell-replacement therapy can represent an option and pluripotent stem cells (PSCs) can be used for in vitro disease modelling and regenerative medicine.

Methods

A control and a mutant (*Ednrb*$^{-/-}$) murine PSC clones underwent a differentiation process to obtain ENS progenitors. At the end both clones were assessed and characterized for their ability to produce ENS progenitors, neurospheres and enteric neurons. Genes expressed by ENS progenitors and mature components were evaluated with qRT-PCR and their expression data were analysed with "fold gene expression" method. Statistical significance was assessed with ordinary one-way ANOVA.

Main results

Ednrb$^{-/-}$ clone was able to differentiate in vagal neural crest cells expressing higher levels of neural crest genes than control clone. Afterwards, mutant clone formed neurospheres, mature neurons and glia cells. *Ednrb*$^{-/-}$ clone was less efficient in forming neurospheres and expressed lower levels of markers of mature components of the ENS.

Conclusions

The results demonstrated that *Ednrb*$^{-/-}$ mPSCs can produce ENS progenitors in vitro. EDNRB mutation might affects the clone's efficiency in neurosphere and further neuronal formation in vitro. Further research to better understand EDNRB mutation effect in vitro and in vivo will increase the knowledge on HSCR pathogenesis and feasibility of autologous stem-cells transplant.

829 - mTOR Pathway Substrates Present High Activation in Vascular Malformations and Significantly Decrease with Age

Jakub Kopeć, Elżbieta Sałacińska-Łoś, Magdalena Orzechowska, Monika Sokolnicka, Aleksandra Gawłowska-Marciniak, Przemysław Przewratil

Medical University of Lodz, Lodz, Poland

Background: Vascular anomalies often impair the quality of life. They require challenging treatments that frequently do not provide the desired results. The mammalian target of rapamycin (mTOR) is directly involved in the development of these malformations. However, the exact mechanism behind mTOR dysregulation has not been unambiguously defined. The purpose of this study is to investigate the activation of selected substrates of mTOR to partially assess its involvement in the process.

Methods: We analyzed tissue samples collected from patients with vascular anomalies treated in our department. We included patients with histopathological diagnoses of vascular malformations (VM) and a control group of healthy skin samples. We stained the samples using H&E and immunohistochemistry. We used primary antibodies against p70 S6 Kinase, 4EBP1, and p-4EBP1. We graded their color reactions. The statistical analyses were performed using the FactoMineR and factoextra R v.4.1 packages. p-values < 0.05 were considered statistically significant.

Results: The analysis of 82 patients showed that healthy tissue vessels expressed lower levels of tested mTOR substrates compared to high activation in VMs. Elevated substrate expression in a comparison between sexes revealed higher P-4EBP1 expression in the female malformation group. We observed a decrease in mTOR substrate expression with age.

Conclusion: The higher expression of mTOR substrates in VMs compared to healthy tissue confirms their involvement in abnormal vascular development. Age-related changes in mTOR substrate expression highlight the need for timely intervention. Our study contributes to the understanding of the mTOR pathway in VMs.

628 - COMBINED RIGHT HEPATECTOMY, PANCREATICODUODENECTOMY, AND PORTA VEIN RESECTION IN A 12-YEAR-OLD BOY WITH HEPATOBLASTOMA

Pari Khalilova[1], DENİZCAN İNAL[1], Fırat Sertturk[2], Onur Kırımker[3], Ergun Ergun[1], Ozlem Selvi Can[4], Volkan Hazar[5], Meltem Kologlu[1]

[1]Ankara University Faculty of Medicine Department of Pediatric Surgery, Ankara, Turkey. [2]Ankara Etlik City Hospital, Ankara, Turkey. [3]Ankara University Faculty of Medicine Department of General Surgery, Ankara, Turkey. [4]Ankara University Faculty of Medicine Department of Anesthesia and Reanimation, Ankara, Turkey. [5]department of pediatric oncology, medical park göztepe hospital, İstanbul, Turkey



Aim of the Study: Hepatoblastoma is common primary malignant pediatric liver tumor, and complete resection is crucial for the cure. In this case, we aimed to present a combined right hepatectomy, pancreaticoduodenectomy, and portal vein(PV) resection in a boy with advanced hepatoblastoma.

Case description: A 12-year-old male patient with a two-month history of abdominal pain, weight loss, and two weeks of vomiting and jaundice was admitted to another hospital. Imaging studies showed 96X67X56mm lobulated, irregular mass arising from segments 5-6 of the liver with encasement of the main PV and obliteration of right PV with tumor thrombus and invasion of the common bile duct, pancreatic head, and second part of duodenum. Tru-cut biopsy showed hepatoblastoma with small cell undifferentiated histology. The patient received high-risk protocol chemotherapy. The patient was referred to our clinic for surgery. The preoperative MRI showed invasion to the PV bifurcation, the second part of the duodenum, and the pancreatic head, although the tumor was regressed by 50%. During surgery, dissecting the tumor from PV, pancreas, and duodenum was impossible. Therefore, the distal PV with tumor involvement was resected, and PV anastomosis between the main PV and left PV was done. Then, pancreaticoduodenectomy and right hepatectomy were performed. There were no intraoperative or postoperative complications. The patient received adjuvant chemotherapy and was doing well during the six-month follow-up.

Conclusions: Rarely cases of hepatoblastoma warrant radical resections to achieve complete tumor clearance. These advanced surgeries should be carried out in experienced pediatric liver surgery and transplantation centers.

667 - TREATMENT OF UNDIFFERENTIATED EMBRYONAL SARCOMA OF THE LIVER IN CHILDREN—SINGLE CENTER EXPERIENCE

DENİZCAN İNAL[1], Ege Ekiyor[1], Ergun Ergun[1], Suat Fitoz[2], Meltem Kologlu[1]

[1]Ankara University Faculty of Medicine Department of Pediatric Surgery, Ankara, Turkey. [2]Ankara University Faculty of Medicine Department of Radiology, Ankara, Turkey

Aim of the study: Undifferentiated embryonal sarcoma of the liver (UESL) represents less than 5% of all malignant hepatic tumors in childhood. It is considered an aggressive neoplasm with an unfavorable prognosis. This report aims to present a single-center experience in managing children with UESL.

Case description: Four children(Male:2 Female:2) with UESL were treated between 2016 and 2023. Age at diagnosis ranged from 9-11 years (median age, ten years). The mean initial tumor size was 14cm. Surgery after neoadjuvant chemotherapy was performed in 3 patients, and one patient with a progressively growing tumor, primary surgery was done. After the estimation of the future residual liver remnant, extended right hepatectomy was done in all patients, and additional caudate lobectomy was done in two patients. All patients are alive and without signs of recurrent disease during 41 months of follow-up.

Conclusions: Excellent results with long-term survival can be achieved in children with UESL with radical hepatectomy and multimodal therapy. Extended liver resections should be considered for complete resection with free tumor margins

674 - RARE CASE OF NEONATAL CIRCULAR AMNIOTIC BAND OF THE ABDOMEN: SUCCESSFUL TREATMENT WITH DURA PATCH

Dilek Basar[1], Esma Sehovic Kecik[2], Aydin Unal[1], Berna Hekimoglu[1]

[1]Trabzon Kanuni Training and Research Hospital, Trabzon, Turkey. [2]Istinye University Medical Park Gaziosmanpasa Hospital, Istanbul, Turkey

Aim: Aim of this study is to present an exceptional case involving a newborn with a circular amniotic band and the innovative use of a dura patch for successful repair.

Case: In this unique case, the full term female twin newborn presented with a visibly circular band and tissue defect above the level of umbilicus. The baby did not require resuscitation, and other systemic examinations were within normal limits. Due to the size and thin nature of the defect, particularly on the left side, and the absence of skin granulation, a surgical intervention was necessary for the repair. The decision to use a dura patch was based on its design, which offers a barrier and reinforcement for soft tissues, and gradual absorption by the body over time; making it a suitable choice for this case. After releasing the skin and resecting subcutaneous tissues, we conducted primary repair of the defect on the right while a dura patch was utilized for the defect on the left. However, increased intraabdominal pressure during closure resulted in desaturation thus additional releasing incisions were incorporated.The postoperative period was uneventful. Follow-ups revealed the use of a silicone sheet to manage hypertrophic healing of the scar.

Conclusion: Circular amniotic band of the abdomen is a rare congenital malformation and a rare form of amniotic band syndrome with challenging both diagnosis and treatment. This case report highlights the importance of tailored approaches in addressing rare congenital anomalies and showcases the potential of unconventional materials in pediatric surgical interventions.

876 - SURGICAL MANAGEMENT OF HEPATİC ARTERIOVENOUS MALFORMATION WITH PULMONARY HYPERTENSION IN AN INFANT

Duygu Gürel[1], Turan Kanmaz[2]

[1]Istanbul Prof. Dr. Cemil Taşcıoğlu City Hospital, İstanbul, Turkey. [2]Koç University Hospital, İstanbul, Turkey

Aim of the study: Hepatic arteriovenous malformations (HAVM) are congenital vascular anomalies and rarely present with pulmonary hypertension. We aimed to report the case of a 1 month old girl who developed severe pulmonary hypertension due to a hepatic arteriovenous malformation.

Case description: A 1 month old female baby admitted to intensive care unit due to bruising and bad respiratory condition. An echocardiogram showed an atrial septal defect, enlargement of the right heart chambers and severe pulmonary hypertension. Due to pulmonary hypertension did not respond to the medical treatment, a contrast-enhanced computed tomography scan was performed and showed an an arteriovenous malformation in the left lobe of the liver. Transcatheteral embolization couldn't be performed due to possible intrahepatic bile duct related complications. We performed non-anatomical extended left lateral segmentectomy. During operation an arteriovenous malformation was seen in the left lobe of the the liver. After the operation patient's respiratory condition improved and the severity of pulmonary hypertension decreased. A follow-up examinations did not show any abnormalities.

Conclusion: HAVM induced pulmonary hypertension is rare and there is no standardized treatment recommendations for HAVM. Hepatectomy is sometimes the only treatment for cases who unresponsive to medical treatment.

346 - GIANT NON-GIANT OMPHALOCELE CLOSURE WITH THE FASCIOTENS® PEDIATRIC DEVICE

Monika Glass, Sandra Heck, Sabrin Zaghbouni, Jerome Jean, Sebastien Mesureur, Cindy Gomes, Mani Siddiqui, Paul Philippe, Jerry Kieffer

Centre Hospitalier de Luxembourg, Luxembourg, Luxembourg

Congenital abdominal wall defects can be a challenge to close, especially when it comes to good functional results of the abdominal wall.

We report the case of giant non-giant omphalocele in a newborn girl (35+4 weeks GA, 2290 g BW), successfully closed after 23 days of external traction (Fasciotens®). Mechanical ventilation at high settings was required for more than the first two weeks. We chose not to tan the sac containing a part of the stomach, liver and spleen, almost the entire small bowel and caecum because of an only 4 cm abdominal wall defect.

After fixation of the Fasciotens® Pediatric device on the abdominal wall including the skin and the fascia border through two Goretex® strips, leaving the omphalocele sac in place, traction was applied up to 2/3 of the patient's body weight for 13 days. A first closure attempt was unsuccessful, probably due to the long dissection of the sac and underlying adhesions. We applied a preformed silicone bag and new Goretex® patches back to the abdominal wall. Traction was resumed 3 days later. Sedation and pain management with a peridural catheter for ten days were necessary. Closure was successful after another 7 days with no signs of abdominal compartment syndrome and excellent abdominal wall results at 4 and 8 months, though the child still has difficulties with the orality and gastro-esophageal reflux.

External traction with the Fasciotens® Pediatric device offers an alternative to restore the integrity of the abdominal wall.



478 - A CASE OF CONGENITAL IMMATURE THYROID TERATOMA

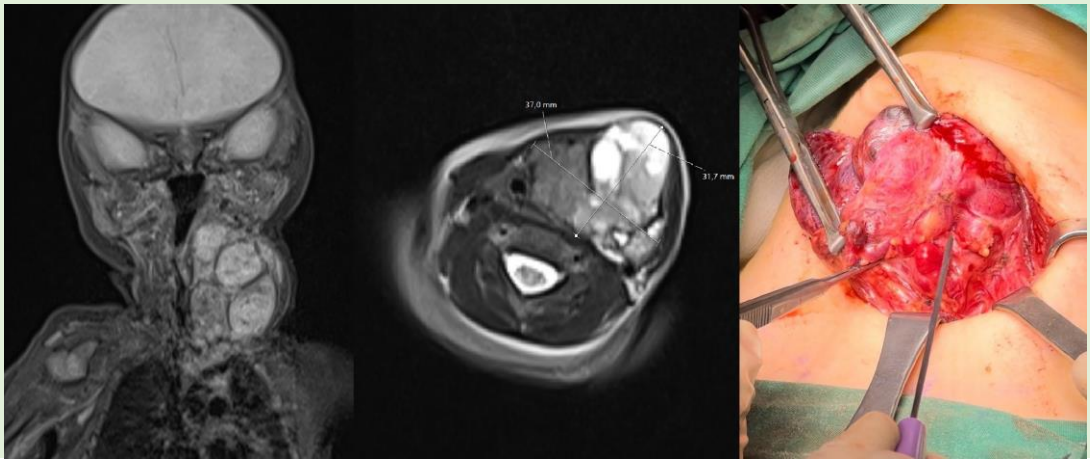
Selin Ural, Kutay Bahadir, Javid Abdullayev, Ayse Keven, Inanc Elif Gurer, Kiymet Celik, Gungor Karaguzel

Akdeniz University, Antalya, Turkey

AIM OF THE STUDY: Thyroid teratoma (TT) is a rarely seen cervical mass in children and the majority are mature teratomas. Herein, we aimed to present a newborn patient who was diagnosed with immature TT and succesfully treated with thyroid-sparing surgery.

CASE DESCRIPTION: The patient was born in another center at the 40th week of gestation with mild respiratory distress and a neck mass. She was transferred to our NICU on postnatal day nine and physical examination revealed a left-sided, multilobular, solid neck mass and moderate respiratory distress (stridor), requiring non-invasive oxygen support. The patient's thyroid function tests, AFP and β-hCG values were in normal range. Ultrasonography revealed a mass originating from left mid-cervical field, containing both cystic and solid components with intense vascular signals. MRI showed a large mass (47x33x30 mm) with intense contrast enhancement in the left thyroid lobe and a suppressed right lobe. Heterogeneous and sporadic microcalcifications containing solid and cystic components were concurrent with TT. On postnatal day 22, the patient underwent left hemithyroidectomy under intraoperative nerve monitoring and magnification while the right lobe was spared. Pathological examination resulted as immature TT. The patient was extubated on the first postoperative day and discharged on the seventh day. One-year postoperative follow up was uneventful and there was no need for hormone replacement.

CONCLUSION: Even though rare, congenital immature TT should be considered in the differential diagnosis of neonatal cervical masses. Thyroid-sparing surgery in one lobe involvement can be applied without any complication with the aid of new technologies.



517 - APPROACH TO PANCREATIC PSEUDOPAPILLARY TUMOR: DUODENUM PRESERVİNG PANCREATECTOMY

DENİZCAN İNAL, Fırat Sertturk, Ege Ekiyor, Ergun Ergun, Meltem Kologlu

Ankara University School of Medicine Department of Pediatric Surgery, Ankara, Turkey



Aim of the study: Solid pseudopapillary neoplasm is a rare pancreatic tumor. Although it has low malignant potential, its primary treatment is surgery. Even though the condition may require an aggressive surgical approach such as the Whipple procedure, preserving the duodenum and avoiding the Whipple procedure may be possible in selected cases.

Case description: A 17-year-old female patient presented with abdominal pain, and ultrasound showed a large mass in the pancreatic head. MRI revealed a 100x80x72 mm exophytic mass extending from the head of the pancreas, oval-round shaped, fairly well-circumscribed, heterogeneous, predominantly multiloculated, cystic in appearance, with solid component and capsular calcification. The body and tail of the pancreas were atrophic, but the uncinate process was preserved with normal appearing pancreatic tissue. During surgery, a thin rim of pancreatic head tissue between the second part of the duodenum and well-circumscribed mass was noted. It was possible to separate the mass from the thin rim of the pancreatic head and uncinate the process. The mass and distal pancreas were excised by preserving the duodenum and uncinate process. The histology of the specimen showed a solid pseudopapillary tumor without a malign component. The postoperative course was uneventful. The patient is doing well during nine months of follow-up.

Conclusions: Solid pseudopapillary tumors of the pancreas are extremely rare. Compared with pancreaticoduodenectomy, duodenum-preserving pancreatectomy is technically more challenging but preserves more functional pancreatic tissue. Because of the prophylactic nature, surgeons need to stratify greater importance to surgical morbidity and sparing pancreatic parenchyma.

525 - DELAYED PRESENTATION OF CONGENITAL BRONCHOBILIARY FISTULA IN AN ADOLESCENT WITH CYSTIC FIBROSIS

Ozge Kilic Bayar[1], Almala Pinar Ergenekon[2], Seyda Karabulut[2], Gursu Kiyan[1]

[1]Marmara University Faculty of Medicine Department of Pediatric Surgery, Istanbul, Turkey.
[2]Marmara University Faculty of Medicine Department of Pediatric Pulmonology, Istanbul, Turkey

Aim of the study: Congenital bronchobiliary fistula (CBB) is an extremely rare malformation presenting with an abnormal connection of the respiratory and biliary tract. The aim of this report is to summarize the management of CBB in an adolescent cystic fibrosis (CF) patient.

Case description: A 13-year-old girl with CF was consulted with trifurcation view in flexible bronchoscopy done by pediatric pulmonologists. Control rigid bronchoscopy showed the green bile-like secretions in all tracheobronchial tree including the fistula between two main bronchus orifices. Rigid bronchoscopy through the fistula, hydrophilic guide instrumentation or radiopaque imaging with c-arm were unable to demonstrate the biliary involvement. Computerized tomography (CT) scan and magnetic resonance cholangiopancreatography (MRCP) showed normal biliary tract and a small protrusion of left liver lobe through the diaphragm. Right thoracoscopic exposure was limited describing the fistula on the diaphragm side. Surgical procedure was completed with right posterolateral thoracotomy. Right main bronchus and esophagus were preserved under direct vision, and fistula was ligated and sutured at the level of tracheal bifurcation and distal part at the level of diaphragm. The patient was discharged without any postoperative complications. No bile leakage was seen in chest tube drainage. Preoperative and postoperative liver function tests and bile levels were normal.

Conclusion: CBB is a congenital malformation may have late presentation in adolescent ages. Bronchoscopy, CT and MRCP are the tools to assess the unusual fistula between respiratory and biliary tract. Excision and ligation of the fistula is the safe technique if associated with the normal biliary tract.

546 - THE IMPORTANCE OF POST-TRAUMATIC SPLENIC PSEUDOANEURYSM TREATMENT IN A CHILD

Ugne Krunkaityte[1], Jurgita Gailiene[2], Dalius Malcius[3], Ausra Lukosiute-Urboniene[2]

[1]Department Resident of Pediatric Surgery, Department of Pediatric Surgery, Lithuanian University of Health Sciences of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania. [2]Pediatric Surgeon, Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania. [3]Pediatric Surgeon, Chairman of Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania

AIM OF THE STUDY: Although splenic traumas are the most frequent solid organ injuries in the pediatric population, post-traumatic splenic pseudoaneurysm (SPA) is a rare condition seen in up to 9% of cases. Regrettably, there are no guidelines addressing the optimal timing for SPA angioembolization in children. This case report aims to consider the importance of angioembolization, which could reduce the risk of fatal complications.

CASE DESCRIPTION: A 5-year-old boy was presented to the Emergency Department due to blunt abdominal trauma. Initial observation revealed a distended abdomen with tenderness on the left side. Ultrasound showed a spleen injury and a small amount of intraabdominal fluid, although there were no signs of anemia. Abdominal CT confirmed a III° laceration of the spleen (Image 1). Non-operative management was chosen and the patient's general condition improved. On 6th day, the patient was symptom-free and ready for discharge; however, the ultrasound revealed a pseudoaneurysm in an inferior pole of the spleen. Later that day, the boy suddenly experienced severe abdominal pain, hypotension, and collapse, prompting a bedside ultrasound that identified an increased volume of intraabdominal fluid, along with a decreased hemoglobin level in a blood test. The patient underwent urgent laparotomy and splenectomy due to a rupture of splenic pseudoaneurysm. The post-operative period was uneventful, and the patient was discharged on the 9th day.

CONCLUSION: While this case resulted in a successful outcome it emphasizes the current lack of clear guidelines for the timely consideration of angioembolization of SPA - potentially a lifesaving decision.



837 - PANCREATIC LYMPHANGIOMA IN A THREE-MONTH-OLD INFANT PRESENTING AS ACUTE ABDOMEN: A CASE REPORT

Maria Rita Caputo[1,2], Chiara Marchetto[1,2], Marta Serpentino[1,2], Francesca Poluzzi[1,2], Hassan Alhellani[1,2], Francesco De Leo[1,2], simona vinardi[2], Riccardo Guanà[2], Maria Grazia Cortese[2], Fabrizio Gennari[2], Federico Scottoni[2]

[1]U.O.C. Chirurgia Pediatrica, Dipartimento di Salute della Donna e del Bambino, Università di Padova, Padua, Italy. [2]U.O.C Chirurgia Pediatrica, OIRM Ospedale Regina Margherita, Turin, Italy

Aim of the study: Lymphangiomas are benign anomalies of the lymphatic system, common in the paediatric age, usually found in the trunk and neck, with a 5-15% prevalence in the abdomen, and less than 1% in the pancreas. Typical presentation of pancreatic lymphangioma is non-specific, making the diagnosis challenging.

Case description: We present a case of pancreatic lymphangioma in a three-month old female, who was referred to our Center for recurring bilious vomiting, lack of appetite and blood-stained stool. Abdominal X-rays and ultrasound (US) showed signs of intestinal occlusion with free abdominal fluid, leading to emergency laparotomy for suspected volvulus. Intraoperatively whitish ascites was found without intestinal abnormality. Post-operatively the patient developed acute pancreatitis, revealed by clinical signs of acute abdomen and increased level of serum amylase and lipase. Another US was performed, revealing a cystic pancreatic lesion. CT scan and MRI were subsequently performed confirming the presence of a pancreatic cystic lesion (1.9 x 2.6cm). A percutaneous US-guided drainage of the cyst was performed with no benefit. Finally, the patient underwent a second laparotomy, and a distal pancreatectomy was performed, including the cystic lesion in the pancreatic body, with spleen rescue. The histological diagnosis was pancreatic lymphangioma.

Conclusions: To our knowledge this is the second case of a pancreatic lymphangioma in an infant, presenting as an acute abdomen and successfully treated with pancreatectomy.



515 - CILIATED HEPATIC FOREGUT CYSTS IN TWO SIBLINGS

Pari Khalilova, Ege Ekiyor, Ergun Ergun, Meltem Kologlu, Suat Fitoz, Berna Savas

Ankra University School of Medicine Department of Pediatric Surgery, Ankara, Turkey

Aim of the study:

Ciliated hepatic foregut cyst(CHFC) is a rare cystic lesion that arises from the embryonic foregut, with approximately 100 cases reported. Although it was initially thought to be a benign lesion but development of squamous cell carcinoma(SCC) has been reported. Herein we report two siblings with CHFC.

Case Description:

A 9-year-old male patient with history of recurrent abdominal pain was detected to have a centrally located,multilobular and calcified 78X56mm cystic mass suggesting biliary cystadenoma by ultrasound(US). Magnetic resonance imaging(MRI) revealed a 79x65x55mm lobular, cystic lesion involving segments 4, 5, and 8, The patient underwent central hepatectomy. Histology showed multilocular cystic mass lined with ciliated pseudostratified epithelium with extensive CK19 staining, consistent with CHFC. The other patient was an 18-month-old male and the younger brother of the first patient. He had been followed for an antenatally diagnosed liver cyst. Postnatal US revealed two cystic masses with 30X20mm diameter in the portal hilum. MRI at the age of 20 months revealed a multilobular cystic mass with a 40x30mm diameter located in the caudate lobe, suggesting CHFC. The patient underwent a caudate lobectomy. Histology confirmed the diagnosis of CHFC. Both patients are during 38months and nine months of follow-up.

Conclusions:

CHFC is a rare diagnostic entity that should be considered in the differential diagnosis for cystic hepatic lesions. The fact that it occurred in two siblings suggests that genetic factors have a role in the embryonal development of CHFC.

378 - CLINICAL APPROACH TO CONGENITAL ANTERIOR URETHRAL OBSTRUCTION: EXPERIENCE AND RESULTS IN OUR CENTRE

Paulina Vargova, Marina Gonzalez Herrero, Yurema González Ruiz, Maria Reyes Delgado Alvira, Javier Pison Chacon

Hospital Universitario Miguel Servet, Zaragoza, Spain

Aim of the study:

Congenital obstruction of the anterior urethra is a rare malformation involving the anterior urethral valves as an isolated entity or in association with a proximal diverticulum. We present the clinical approach to the diagnosis and management of these anomalies.

We present patients with congenital anterior urethral obstruction treated in our center.

Case report

The first patient was diagnosed prenatally with suspected posterior urethral valves, with normal ultrasound and adequate voiding stream in the neonatal age. At 4 months of age, he presented with a urinary tract infection (UTI) and progressive weakness of the voiding stream. Ultrasonography revealed bilateral grade II ureterohydronephrosis and cystourethrography (CUMS) showed anterior urethral valves (AUV). Cystoscopy and resection of the AUVs was performed at 5 months with good follow-up and normal calibre urethra on CUMS.

The second patient, with normal prenatal ultrasound, developed a UTI at 6 days of age. CUMS confirmed a proximal urethral diverticulum. Cystoscopy at 28 days allowed resection of the SUVs and identified the urethral diverticulum. At 5 months, resection of the diverticulum and urethroplasty were performed, with a favourable outcome, although the decrease in left renal function was observed.

Conclusions

Congenital anomalies of the anterior urethra should be considered in the differential diagnosis of obstructive lesions of the lower urinary tract. It is suggested that the valves cause proximal dilatation which eventually leads to a saccular diverticulum forming a spectrum of the same disease.

655 - LATE-PRESENTING POSTERIOR URETHRAL VALVES IN LOW-INCOME COUNTRIES: A SYSTEMATIC REVIEW OF THE LITERATURE

Ugo Maria Pierucci[1], Irene Paraboschi[1], Sara Costanzo[1], Giorgio Selvaggio[2], Gloria Pelizzo[1,3], Massimo Garriboli[4]

[1]Children's Hospital Buzzi, Department of Pediatric Surgery, Milan, Italy. [2]Children's Hospital Buzzi, Pediatric Urology Unit, Milan, Italy. [3]Department of Biomedical and Clinical Science, University of Milan, Milan, Italy. [4]Evelina London Children's Hospital, Paediatric Urology, London, United Kingdom

Introduction stating the aim of the study: to systematically review clinical, biochemical, and imaging findings of late-presenting PUV patients in low-income countries.

Material and methods: A systematic review of patients diagnosed with PUV≥3years-old was performed according to the PRISMA statement using various combinations of keyworks as "posterior urethralvalves"[AllFields]AND"late"[AllFields]AND"diagnosis"[AllFields]".Only studies performed in low-income-countries were included.

Results: Out of 82 studies initially identified, 15(12%) were included in the systematic review for a total of 245 patients. The mean age at presentation was 7.6(4-16) years. The most frequent presenting symptoms were voiding dysfunctions (n=98;40%), followed by recurrent UTI(n=78; 32%). In 90%(n=220) of cases, the initial suspect was made by ultrasound scan and MCUG. Only in one case it was performed by CT scan. Most patients(n=223;91%) were initially treated with endoscopic PUV resection alone, 15(6%) with vesicostomy, 7(2.6%) with cutaneous ureterostomy. Pretreatment serum creatinine was elevated (≥1.5mg/dl) in 85(35%) patients and CKD stage 5 was diagnosed in 25(10%) of cases at diagnosis. Most patients(n=103;42%) presented significant PVR after surgery as defined per ICCS guidelines. The mortality rate was 10% of cases, due to sepsis or end-stage CKD.

Conclusion: Late-presenting-PUV should be suspected in male children presenting with a long-term history of recurrent UTI and voiding difficulties. Efforts should be made to improve awareness and early diagnosis of this condition to maximize long-term renal and bladder function and prevent potentially devastating morbidities, such as end-stage CKD.

691 - Utility of the TWIST Scale in Testicular Torsion: A Prospective Study.

Luz Emigdia Zelaya Contreras, María Rosa Ibarra Rodríguez, Jesús González Cayón, Ana Ramírez Calazanz, María Ruiz Medina, Rosa María Paredes Estebán

Hospital Universitario Reina Sofía, Córdoba, Spain

Introduction: Testicular torsion (TT) is a surgical emergency that requires immediate intervention. Due to the absence of a specific clinical presentation, diagnosis is challenging, and prognosis depends on time. The TWIST score (evaluates the presence of nausea/vomiting, testicular size increase, induration, cremasteric reflex, and testicular elevation) stratifies patients as low risk (0-2), intermediate (3-4), and high (5-7), serving as a diagnostic tool to reduce ischemic time in TT and avoid unnecessary tests.

Objective: Evaluate the validity and applicability of the TWIST score in our hospital.

Materials and Methods: Prospective observational study from January 2022 to December 2023, including children aged 0-14 years that presented scrotal pain or acute scrotum and those who underwent testicular ultrasound.

Results: Among 121 patients who underwent Doppler ultrasound due to acute scrotal symptoms, 14 were diagnosed with TT, with a mean age of 12.7 years (vs. 10.7 years in the non-torsion group). Sensitivity for TT with scores ≥5 was 90.9% with a positive predictive value (PPV) of 100%; for scores <2, sensitivity and specificity were 90.9%, with a negative predictive value (NPV) of 100%. For intermediate scores, PPV and NPV were 14% and 93.2%.

Conclusions: In our experience, the TWIST score proves to be a valuable screening tool for TT, exhibiting excellent negative predictive values for low scores and positive predictive values for high scores. It can facilitate and shorten pre-surgical times in TT cases and prevent unnecessary explorations in patients with highly improbable TT.

625- POINT OF CARE ULTRASOUND (POCUS) IN THE MANAGEMENT OF ACUTE SCROTUM BY PEDIATRIC SURGEONS

Eva Sousa[1], Sofia Martinho[2,1], Inês Braga[2,1], Andreia Felizes[2], Ana Raquel Silva[2], Ruben Lamas-Pinheiro[2], Péter Etlinger[2,1], Jorge Correia-Pinto[2,1], Catarina Barroso[2,1]

[1]School of Medicine, Minho University, Braga, Portugal. [2]Pediatric Surgery Department, Hospital de Braga, Braga, Portugal

Introduction: Management of acute scrotum can be challenging, namely in the presence of confusing signs and symptoms. Standard diagnostic approach involves clinical evaluation and ultrasound performed by a Radiologist. The emerging Point Of Care UltraSound(POCUS) technique refers to the ultrasound performed by the clinician, at the patients' bedside, aiming to address practical clinical questions guiding the therapeutic course. Despite being a rising approach, there is a lack of guiding protocols and opportunities for the familiarity of Paediatric Surgeons(PS) with this technique. We aimed to determine the accuracy of POCUS technique performed by PS in the diagnostic approach of acute scrotum.

Methods: A prospective interventional study was conducted on a sample of 20 boys with acute scrotum urgently evaluated by PS and prospectively submitted to POCUS assessment. Parameters collected with POCUS were compared with Radiology formal ultrasound reports and/or surgical findings. (Ethics Committee approval reference: CEICVS142/2023)

Results: Seven surgeons (63.6%) adhered to the proposed POCUS protocol, with up to 8 scans by each surgeon (previous experience in POCUS heterogeneous). The accuracy rate per evaluated parameter ranged from 55.6% to 100%. Final diagnosis had 95.0% of scans correctly classified. Sensitivity was 100% for all diagnoses. Specificity was 100% in most cases, except for two diagnostic categories. All surgical decisions based on POCUS assessment were accurate.

Conclusions: POCUS technique in the management of acute scrotum by PS showed high accuracy, with significant agreement with standard methods, reinforcing its reliability to support decision-guiding for surgical indication.

3 - LONG TERM FOLLOW UP ON COSMETIC AND SEXUAL OUTCOMES IN PATIENTS AFTER HYPOSPADIAS REPAIR PERFORMED IN CHILDHOOD

Adrian Chi Heng Fung[1], Ada Cheuk Man Lam[1,2], Jessie Ling Leung[1], Ivy Hau Yee Chan[1], Kenneth Kak Yuen Wong[1]

[1]Department of Surgery, The University of Hong Kong, Hong Kong, Hong Kong. [2]School of Clinical Medicine, University of Cambridge, Cambridge, United Kingdom

Aim

Hypospadias repair is associated with significant early complications and potential long-term voiding and psychosexual sequelae. Our study aimed to evaluate the long-term outcomes of hypospadias surgery relating to penile appearance, sexual function, and sexual satisfaction.

Methods

We identified adult patients who had hypospadias repair performed in childhood between January 1, 1997 and December 31, 2000. At the same time, age-matched normal controls were also recruited. 22 of 42 (52%) patients and 19 normal controls responded to questionnaires on penile appearance satisfaction, Male Sexual Health Questionnaire Ejaculatory Domain (MSHQ-EjD) and shortened 5-item version of International Index of Erectile Function (IIEF-5).

Results

Mean age of patients was 24±4.6 years old. 68.2% (n=15) had proximal hypospadias and 54.5% (n=17) received Snodgrass urethroplasty. Two patients denied any sexual exposure nor masturbation. Only one third of patients (n=7) was satisfied with their penile appearance. The mean IIEF-5 score was 22.4±2.3 out of 25. The mean MSHQ-EjD satisfaction and anxiety score were 12.8±3.5 out of 15 and 0.5±0.8 out of 5 respectively. Comparison with age-matched controls revealed similar exposure to sexual activity and no significant difference in the sexual outcome scores.

Conclusion

Majority of adult patients after hypospadias repair performed in childhood were not satisfied with their penile appearance. However, the long-term sexual function and satisfaction was fair and comparable to age-matched normal controls. The above information can provide long term result for counselling on the long-term sexual function.

459 - OUTCOMES OF THE ROBOTIC VASCULAR HITCH PROCEDURE FOR PELVIURETRIC JUNCTION OBSTRUCTION SECONDARY TO LOWER POLE CROSSING VESSELS

Ahmed Hassan[1], Ramnath SUBRAMANIAM[1], Delphine Demede[2]

[1]Leeds Teaching Hospital, Leeds, United Kingdom. [2]Hospices Civils de Lyon, Lyon, France

Aim of the study

A consecutive series of robotic vascular hitch procedure (RVH) in paediatric patients with pelvi-ureteric junction obstruction (PUJO) secondary to lower pole crossing vessels (LPCV) was prospectively evaluated.

Materials and Methods

All children who underwent RVH for PUJO since January 2018 under the care of a single surgeon were identified. LPCV were confirmed intraoperatively before proceeding with RVH. Data collected included patients' demographics, age at diagnosis, preoperative ultrasound anteroposterior diameter (APD), preoperative Mercaptoacetyltriglycine (MAG3), Magnetic Resonance Urography (MRU) findings, postoperative hospital stay, complications, secondary intervention, and post-operative APD on ultrasound scan. Endpoint of RVH was visualisation of adequate peristalsis across the PUJ following cranial displacement of the LPCV and if needed a fluid challenge +/- diuretic was given to assess the drainage.

Results

In total, 8 children had vascular hitch procedure successfully completed by the robotic approach. The median age at diagnosis was 8.5 (6-15) years. MAG3 confirmed an obstructive curve in all cases with a median split function of 47 (34-51%). The median preoperative APD was 27 (25-34) mm, while postoperatively, it was 10 (4-12) mm. The median time for follow-up ultrasound scan was 11 (1-41) months. All the patients were discharged day 1 postoperatively; none experienced complications, or required secondary intervention such as pyeloplasty. They remain asymptomatic during follow-up.

Conclusion

RVH is successful in targeted cases with in PUJO secondary to LPCV.

873 - EVALUATING SURGICAL TECHNIQUES IN INGUINAL HERNIA REPAIR: A COMPARATIVE ANALYSIS OF CONVENTIONAL, PIRS, MODIFIED PIRS, AND CIRCUMCISION-INCISED METHODS

Mustafa Azizoğlu[1,2], Mehmet Hanifi Okur[3], Tahsin Onat Kamçı[3], Cafer Kılıç[3], Yusuf Azad Gülsever[3]

[1]Istanbul Esenyurt State Hospital, Pediatric Surgery, Istanbul, Turkey. [2]Istinye university, Health Sciences Institute, Stem Cell and Tissue Engineering Department, Istanbul, Turkey. [3]Dicle University Medical School Department of Pediatric Surgery, Diyarbakır, Turkey

Aim of the study: The aim of this study was to compare three different surgical techniques applied to inguinal hernia patients and evaluate the results.

Methods: The patients were divided into three groups. Group 1 (open): conventional inguinal hernia repair, Group 2 (laparoscopic): [Group 2A: PIRS technique and Group 2B: Modified PIRS: see fig 1A], Group 3 (open): inguinal hernia repaired from the circumcision incision see fig 1B]. The operation time (OT), total complications rate (TCR), LOS, recurrence rate (RR), and cosmetic results (CR) were assessed.

Results: A total of 130 patients were included (G1:30, G2A:30, G2B:40, G3:30). The OT (28, 22, 16, and 32 min respectively) LOS (mean: 1 day for each), and RR (n=0, n=1, n=1, and n=1, respectively) were similar between all groups ($p<0.05$, $p<0.05$, and $p<0.05$, respectively). G2B had lower OT (16 min vs 22 min) and TCR than G2A (1 vs 5) ($p<0.05$, $p<0.05$, respectively). G2A, G2B, and G3 had better CR than G1 ($p<0.05$). Patent processus vaginalis on the contralateral side was addressed and repaired in both Group 2A and Group 2B patients, but not in G1 and G3.

Conclusion: The Modified PIRS technique (Group 2B) appears to offer a balance between efficiency, safety, and aesthetic outcomes, making it a potentially preferable option in inguinal hernia surgeries. However, it's important to consider the individual patient's condition and specific medical needs when choosing the most appropriate surgical approach.

Ethical approval number: E-10840098-772.02-7215



Figure 1a: Modified PIRS technique

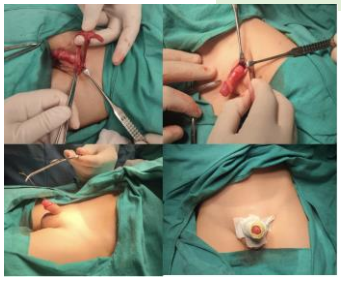


Figure 1b: Circumcision-incised inguinal hernia repair

96 - LONG TERM FOLLOW UP OF EQUIVOCAL CURVES ON DIURETIC RENOGRAM: IS SURGERY A MATTER OF TIME?

Fadi Atwan, Ibraheem ABDELRAHEEM, Mohamed AL AGTAL, David Coyle, Salvatore Cascio

CHI at Crumlin Hospital, Dublin, Ireland

Introduction:

The Diuretic Renogram (DR) are classified into three curve types based on radiotracer washout halftime (t½): Type 1 (Normal) with a (t½) < 10 minutes, Type 2 (Obstructive) with a (t½) > 20 minutes, and Type 3 (Equivocal) with (t½) between 10 and 20 minutes. The aim of this study was to assess the long term outcome of patients with an equivocal curve on DR.

Methods:

All DRs from January 2013 to December 2021 were reviewed by three independent assessors. Data collected encompassed patient demographics, differential renal function, ultrasound scans following the Society for Fetal Urology (SFU) grade, and the outcomes for underlying obstructive uropathy.

Results:

A total of 809 dynamic renograms (DR) were conducted, with 438 cases showing isolated hydronephrosis suspected to have PUJ (Pelvi-Ureteric Junction) obstruction. Of these, 80 had normal renogram curves, 310 had obstructive curves, and 48 had equivocal curves. These cases included 11 females, 21 on the right side, one bilateral, with an average age of 10.95 years ranging (4-17 years). Pyeloplasty was performed on 7 patients for various reasons, including recurrent UTIs, pyonephrosis, dilatation with cortical thinning, and late diagnoses with pain and reduced kidney function. The average follow-up period for these patients was 143 months, with a standard deviation of ±59.4 months. **Conclusion**, this study shows that only a small percentage (14%) of children with an equivocal curve on DR may require a pyeloplasty during follow-up.

304 - RECONSIDERATION OF GONADECTOMY AS A NEOPLASM PREVENTION IN GIRLS WITH TURNER SYNDROME AND Y-CHROMOSOME – A SINGLE CLINICAL CENTRE EXPERIENCE

Agnieszka Wiernik[1], Ewa Jambor[1], Ewa Błaszczyk[2], Aneta Gawlik[2], Tomasz Koszutski[1], Grzegorz Kudela[1]

[1]Department of Pediatric Surgery and Urology, Medical University of Silesia, Katowice, Poland.
[2]Pediatric Endocrinology and Diabetes, Department of Pediatrics, Medical University of Silesia, Katowice, Poland

Aim of study: Turner syndrome patients typically have a 45,X karyotype. However, up to 45% may have a 45,X/46,XY mosaic karyotype, with more than 10% containing a Y chromosome. Due to the increased risk of gonadoblastoma, preventive gonadectomy is recommended. However, reports of pregnancies with Turner syndrome mosaic karyotype raise questions about the need for preventive gonadectomy. We aimed to analyze the incidence of malignancies in women with Turner syndrome and a mosaic karyotype who underwent preventive gonadectomy at our center in the last two decades.

Methods: We analyzed patients with Turner syndrome treated between 2001 and 2023. Moreover, a thorough review of the literature on reproductive potential and gonadoblastoma risk in Turner syndrome with karyotype 45,X/46,XY was conducted.

Main results: During this period, 15 of the 153 Turner syndrome patients had presented a mosaic karyotype (9,8%). 14 patients underwent laparoscopic gonadectomy, in 2 cases (one bilateral) a gonadoblastoma was histopathologically confirmed in 3 gonads. One patient's parents declined to consent to the surgery despite being informed. The literature review outlined 3 successful deliveries in 2 women with Turner syndrome and mosaic karyotype. However, complications and miscarriages are prevalent, and the risk of gonadoblastoma is significant (15-30%).

Conclusions: The increased risk of gonadoblastoma in dysgenetic gonads in Turner syndrome with mosaic karyotype justifies the continued recommendation for preventive gonadectomy despite possible pregnancy. The final decision is made by the parents, who have been thoroughly informed about the benefits and limitations of the procedure while respecting the patient's autonomy.

563 - BENEFITS OF LYMPHATIC SPARING LAPAROSCOPIC PALOMO: A COMPARATIVE STUDY

Sara Monje Fuente, Beatriz Fernández Bautista, Rubén Ortíz Rodríguez, Laura Burgos Lucena, Juan Carlos De Agustín Asensio, José María Angulo Madero

Hospital General Universitario Gregorio Marañón, Madrid, Spain

Aim of the study:

To determine whether the use of indocyanine green for lymphatic sparing laparoscopic Palomo procedure significantly reduces the incidence of postoperative hydrocele.

Methods:

A comparative historical cohort study was performed including patients treated for varicocele by laparoscopic Palomo between 2008 and 2023. Patients were divided into 2 groups according to the performance of fluorescence lymphography (intratesticular indocyanine green). Epidemiological, surgical, clinical and complication data were collected. A contrast hypothesis analysis was performed using SPSS software.

Main results:

Thirty patients treated for varicocele by laparoscopic Palomo were included. Mean age at the time of surgery was 14 years.

Lymphatic preservation was performed in 13 patients and ligation of spermatic vessels without lymphatic preservation in 15.

In all cases, preoperative ultrasonography showed a left volume decrease of more than 20% compared to the contralateral teste.

Five cases of postoperative hydrocele were identified in the group without lymphatic preservation. One required surgical intervention to treat the hydrocele. No cases of hydrocele were identified in the lymphography group. Difference was statistically significant, p=0.032.

There were no recurrences, post-surgical testicular atrophy or complications associated with the use of indocyanine green.

Conclusions:

Lymphatic sparing laparoscopic Palomo improves the surgical outcomes in the treatment of varicocele by reducing the incidence of postoperative hydrocele.

568 - EXPERIENCES IN 19 CASES WITH BLADDER EXSTROPHY EPISPADIAS COMPLEX IN 19 YEARS

MUHAMMED HAMİDULLAH ÇAKMAK, AYŞENUR CELAYİR, SABRİ CANSARAN, OLGA DEVRİM AYVAZ

University of Health Sciences, Turkey. İstanbul Zeynep Kamil Maternity and Children Diseases Health Training and Research Center, Department of the Pediatric Surgery, Istanbul, Turkey

Aim of the Study: Bladder exstrophy epispadias is a complex malformation; despite many corrective operations, urinary continence isn't fully satisfactory. Here, it was aimed to evaluate the results of 19-cases operated on over a 19-year period.

Methods: All records of patients undergoing surgical repair of bladder exstrophy epispadias at our department between January 2005-2024 were revieved.

Main results: In 19-case (10-female, 9-male) with bladder exstrophy epispadias, the median operation age was 2-day (1day-3years). Primary bladder repair in 3-male, bladder+bladder neck repair in 4-male, and bladder+bladder neck+epispadias repair in 10-female and 2-male underwent. The median bladder size was 3.5cm diameter sphere (3.5cm in females; 4cm in males) after the first surgery. One-female had anal atresia and one had omphalocel; two case had left dublex collector system.

Early wound dehiscence progressed in 2-female and 1-male. Bladder stone removed in 1-female and 1-male. Two bladder and 3-uretral fistulas observed in males. Anterior pelvic osteotomy was performed in 14-case in the median age of 4-year (1 year, 9 year). Mitrofanoff and bladder augmentation were performed in three.

Median fallow-up time is 6-year (5months-18years); currently median age is 8-year (13-year in females, 7-year in males), their median bladder capacity is 52ml (20ml-300ml) and the median dry time in 13-cases over 6-years of age is 60-minute (30-minute, 3-hour).

Conclusions: In our cases with bladder exstrophy epispadias, bladder size at birth was related to complication rates and continence duration. Urinary continence/dryness can often be achieved due to multiple interventions, bladder augmentation, and self-catheterization.

900 - POSTOPERATIVE EVOLUTION OF PATIENTS WITH FIBROSTENOSING CROHN'S DISEASE UNDERGOING LAPAROSCOPIC INTESTINAL RESECTION: EXPERIENCE AT OUR CENTER

Clara Massaguer, Laura Saura García, Pedro Palazón, Oriol Martín-Solé, Xavier Tarrado

Hospital Sant Joan de Déu, Barcelona, Spain

Aim of the study

The intestinal involvement in Crohn's disease requires a multidisciplinary approach that includes medical and surgical treatment. Our objective was to analyze the postoperative evolution of patients undergoing surgery at our center.

Materials and methods

Retrospective cohort study of patients with intestinal Crohn's disease operated on from 2012 to 2023. Demographic, clinical, endoscopic, and surgical variables were analyzed. Wilcoxon's T-test and multivariate logistic regression were used for statistical analysis. Values of $p<0.05$ were considered statistically significant.

Results

Fifty patients were included, 56% were male. The median age was 14.17 years (IQR 13.01 to 16.96) with a follow-up of 2.17 years (IQR 1.35 to 3.96). All surgeries were performed laparoscopically (52% intracorporeal suturing, 48% extracorporeal). After surgery, the body mass index (BMI) increased by 3.25 points (IQR 0.5 to 4.95), and the Pediatric Crohn's Disease Activity Index (PCDAI) decreased by 25 points (IQR -37.5 to -5.5), and fecal calprotectin (FC) decreased by 1017.5mg/kg (IQR -3669 to -302). No risk factors for clinical or endoscopic remission were identified, although the length of resection tended ($p<0.085$) to be a factor for recurrence. Thirteen postoperative complications were recorded: 1 intestinal obstruction, 1 suture dehiscence, 3 intra-abdominal collections, 3 wound infections, 3 self-limiting rectal bleeding episodes, 1 Clostridium enteritis, and 1 postoperative scarlet fever. Three patients required reoperation.

Conclusions

Surgery in fibrostenosing intestinal Crohn's disease improves BMI, FC, and PCDAI. The length of resection tends to be a factor for recurrence in our series.

234 - NORDIC STUDY OF FERTILITY AND SEXUAL FUNCTION IN MALES WITH HIRSCHSPRUNG'S DISEASE

Linnea Söderström[1], Pernilla Stenström[2,3], Johan Danielson[4], Helena Borg[5], Mikko Pakarinen[6], Annika Mutanen[6], Niels Qvist[7], Tomas Wester[1,8], Anna Löf Granström[1,8]

[1]Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden. [2]Department of Pediatrics, Clinical Sciences, Lund University, Lund, Sweden. [3]Department of Pediatric Surgery, Skåne University Hospital Lund, Lund, Sweden. [4]Department of Pediatric Surgery, Institution of Women's and Children's Health, Akademiska Sjukhuset, Uppsala University, Uppsala, Sweden. [5]Department of Pediatric Surgery, Drottning Silvia's Children's Hospital, Gothenburg, Sweden. [6]Department of Pediatric Surgery, The New Children's Hospital, University of Helsinki and Helsinki University Hospital, Helsinki, Finland. [7]Research Unit for Surgery, and Centre of Excellence in Gastrointestinal Diseases and Malformations in Infancy and Childhood (GAIN), Odense University Hospital, Odense, Denmark. [8]Unit of Pediatric Surgery, Karolinska University Hospital, Stockholm, Sweden

Aim

There are limited data about fertility and sexual function in males with Hirschsprung's disease (HSCR). The aim of this study was to assess fertility and sexual function in males with HSCR in the Nordic countries using self-reported validated questionnaires.

Methods

This cross-sectional multi-center study included all males born between 1970-2003 who underwent pull-through surgery at a pediatric surgery center in Sweden, Denmark, or Finland. Participants completed a multi-domain questionnaire. Demographic data was collected retrospectively through review of medical records. Patients with trisomy 21 were excluded. Main outcomes were fertility, sexual function (IIEF-5) and sexual quality of life (SQoL-M).

Main results

A total of 187 patients (18-50 years, median=31) were included. Of 61 males attempting to father a biological child, 54 (87.1%) were successful. Eight (13.1%) reported failure to conceive after 1 year of regular unprotected intercourse, 10 (16.4%) had undergone fertility investigation and 5 (8.2%) required medical assistance to conceive. Twenty-nine males (15.5%) reported any form of erectile dysfunction (mild to severe) and mean SQoL-M score was 83.01±23.07. Impaired bowel function was found associated with lower total IIEF-5 scores (p=0.005) but not lower total SQoL-M scores.

Conclusion

Males with HSCR that have undergone pull through surgery do not seem to report an overall reduced fertility, sexual functioning or reduced sexual quality of life compared to estimates from the general population. Impaired bowel function may correlate with erectile dysfunction in affected individuals.

HSCR patients	n=187
Age median (range)	31.00 (18-50)
Marital status n (%)	
Married/living together	78 (41.7)
Divorced	3 (1.6)
In a relationship	30 (16.0)
Single	40 (21.4)
Unknown/other	36 (19.3)
Bowel Function Score total mean (SD)	17.26 (2.21)
Poor bowel function* n (%)	40 (21.4)
IIEF-5** mean (SD)	22.45 (3.72)
No ED n (%)	110 (58.8)
Mild ED n (%)	19 (10.2)
Moderate ED n (%)	9 (4.8)
Severe ED n (%)	1 (0.5)
Missing n (%)	48 (25.7)
SQOL-M mean (SD)	83.01 (23.07)

Abbreviations: HSCR: Hirschsprung's Disease. SD: Standard deviation. ED: Erectile Dysfunction

* Defined as bowel function score (BFS) <17

** No ED 21-25, mild ED 16-20, moderate ED 11-15, severe ED 5-10

Table 1: Outcomes of fertility and sexual function in male HSCR patients

790 - Quality of life in Adult Patients with Hirschsprung Disease: A Systematic Review, Meta-analysis and Patient-level Meta-regression

Cornelia Byström[1], Marta de Andres Crespo[2], Athanasios Tyraskis[3], Simon Eaton[2], Annika Mutanen[4], Esther Hartman[5], Johan Danielsson[6], Paolo De Coppi[2,3], Joe Curry[3], Mikko Pakarinen[4], Tomas Wester[1], Stavros Loukogeorgakis[2,3], Anna Löf Granström[1], Joe Davidson[2]

[1]Karolinska institutet, Stockholm, Sweden. [2]University College London, London, United Kingdom. [3]Great Ormond Street Hospital for Children, London, United Kingdom. [4]New Children's Hospital, Helsinki, Finland. [5]Tilburg University, Tillburg, Netherlands. [6]Uppsala University, Uppsala, Sweden

Aim

Functional outcomes in Hirschsprung disease (HD) are known to impact quality of life into adulthood, measured by both disease specific and general instruments. We aimed to systematically review the literature on quality-of-life outcomes (QoL) in adult HD patients with an accompanyting meta-analysis and patient level regression to asses factors influencing QoL.

Methods

A PROSPERO-registered systematic review identified studies reporting QoL in HD patients ≥16 years. Centres who reported GastroIntestinal Quality of life index (GIQLI) and/or SF-36 were individually contacted for patient-level data on QoL. A multivariable regression model assessed patient factors associated with poorer QoL outcomes.

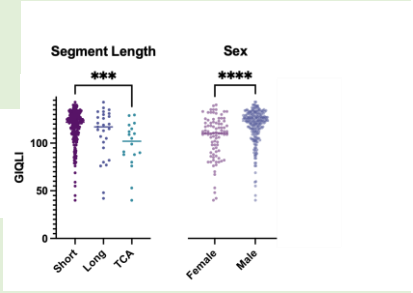
Results

Of 17 studies evaluating QoL outcomes in adult patients, 6 studies (n=467) were included in meta-analysis. HD patients scored slightly lower on GIQLI compared to controls, mean difference (MD [95% CI]) -5.21[-9.53, -0.89], p=0.08. There were no significant difference in SF-36 subscores except for Physical Role: MD -4.76 [-8.58, -0.93], p=0.01.

Data were collected for patient level analysis for SF-36 (5 studies, n=447), and GIQLI (4 studies, n=327). SF-36 scores were lower in female patients across 6 of 8 domains. GIQLI scores were lower in female patients (median diff. 11 [7 - 15]; p<0.0001) and in those with longer segment disease (Kruskal-Wallis statistic: 14.06; p=0.0009). These both remained significant on multivariable analysis of factors associated with lower GIQLI subdomain scores (p<0.0003 for both).

Conclusions

Patients with more severe disease may be at risk of poorer QoL outcomes, in keeping with their expected functional impairments.



69 - CROSS-SECTIONAL STUDY: LONG-TERM FUNCTIONAL OUTCOME IN PATIENTS OPERATED FOR HIRSCHSPRUNG'S DISEASE EVALUATED BY SCINTIGRAPHIC DEFECOGRAPHY AND QUALITY OF LIFE QUESTIONNAIRE

Aishah Nour-Eldine Jamil[1,2], Nour Al Houda Ayoub[1,2]

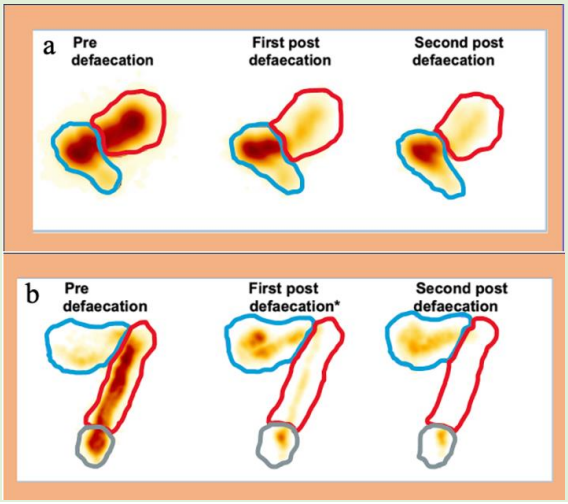
[1]Odense University Hospital, Odense, Denmark. [2]University of Southern Denmark, Odense, Denmark

Introduction: This study aimed to assess bowel evacuation capacity in Hirschsprung's disease (HD) patients and explore the potential impact of surgical techniques on long-term functional outcomes. The evaluation utilized contemporary three-dimensional (3D) scintigraphic defecography and furthermore the patients long-term quality of life was assesed with the Hirschsprung's Disease and Anorectal malformation Quality of Life questionnaire (HAQL).

Materials and methods: Patients who were surgically treated for HD between 1977 and 2014 were identified and HAQL questionnaires sent out. Patients above the age of 15 were invited to undergo Single-Photon Emission Computed Tomography (SPECT) defecography. A control population was established from healthy individuals invited after normal colonoscopy for colorectal bleeding. HAQL data and defecography results were described and analyzed statistically. Defecography data ware analyzed using evacuation fraction (EvF) as the main parameter.

Results: The patient population that consisted of 18 patiens, had a significantly lower EvF1 and EvF2 compared to the control group, consisting of five participants, at 35.6 (5.2;66.1)% and 33.5 (62.2;4.9)% respectively. However, no significant differences were observed in HAQL scores among patients with different surgical procedures.

Conclusion: Our study supports the claim that Hirschsprung's disease, even post-surgery, manifests as a condition with chronic consequences, as indicated by lower defecography scores in the patient group compared to controls. It remains inconclusive whether there is intervariability between different surgically treated groups, emphasizing the need for optimization in future treatments. Additionally, our findings highlight that SPECT defecography may be a suitable method for assessing bowel function.



673 - A COMPLICATED MATTER: THE POSTOPERATIVE COURSE AFTER BOWEL RESECTION IN PEDIATRIC INFLAMMATORY BOWEL DISEASE.

Hendt Versteegh, D Huijgen, C Meeussen, J Escher, C Sloots

Erasmus MC - Sophia Children's Hospital, Rotterdam, Netherlands

Aim of the study

Children with inflammatory bowel disease (IBD) need surgery whenever medical therapy fails. The postoperative course is frequently accompanied by symptoms suggestive of infection, such as fever. The aim of our study was to analyze the postoperative course after bowel resection in pediatric IBD patients in relation to infectious complications.

Methods

All our pediatric IBD patients who underwent a bowel resection between 2012 and 2022 were reviewed. Clinical data regarding surgery and the postoperative course were analyzed. The primary outcomes were the presence of infectious complications and indicative signs of infectious symptoms, such as fever.

Main results

One hundred patients underwent an IBD-related resection, of which 69 for Crohn’s disease. A total of 42 infectious complications occurred in 26 patients, most commonly a superficial surgical site infection(38%). Out of 48 patients who experienced postoperative fever, 52% had an infectious complication, compared to 2% of those without fever ($p<0.001$). Preoperative use of TNF-α blockers did not lead to higher complication rates. In patients who had their C-reactive protein measured on postoperative day three, there was no significant difference in levels between patients with and without a complication (286±74mg/L versus 212±140mg/L, $p=0.167$)

Conclusions

Occurring in over a quarter of patients, postoperative infectious complications are common in children after undergoing IBD-related bowel resection. Postoperative fever is accompanied by a complication in half of the patients. Laboratory tests, such as C-reactive protein, do not seem to contribute to differentiating between complicated and non-complicated postoperative courses.

653 - CONSENSUS-DRIVEN DELPHI STUDY FOR STEM CELL THERAPY TRIAL IN NECROTIZING ENTEROCOLITIS

Niloofar Ganji[1,2], Martin Offringa[1], Brian Kalish[1,2], Agostino Pierro[1]

[1]The Hospital for Sick Children, Toronto, Canada. [2]University of Toronto, Toronto, Canada

Aim: To establish a consensus among clinical trial stakeholders on critical aspects of a proposed Phase I, multicenter, open label, interventional, single group clinical trial evaluating stem cells in the treatment of necrotizing enterocolitis (NEC).

Methods: A "*Delphi study*" consisting of 35 questions organized into 4 blocks was conducted in one round to distill collective wisdom into a consensus (defined as ≥85% agreement) on NEC diagnostic criteria, trial inclusion/exclusion criteria, and safety and clinical outcomes in the proposed trial.

Main Results: Survey responses were collected from 27 participants including neonatologists, pediatric surgeons, nurse practitioners, clinical fellows, academics, and patient families from different countries/continents. Consensus was achieved on the following **(Table)**: (1) NEC diagnosis criteria requiring both clinical and radiological signs; (2) inclusion of preterm and term infants of all gestational ages diagnosed with NEC irrespective of treatment (medical or surgical); (3) safety outcomes and infusion-associated adverse events including immediate and short-term mortality, acute cardiac events and anaphylaxis within 6h of intervention, and evidence of local or systemic infection; and (4) clinical outcomes including timing and cause of death, survival without NEC-related intestinal complications (perforation, necrosis, stricture), type and number of abdominal operations performed, length of hospital stay, duration of total parenteral nutrition, development of chronic lung disease or retinopathy of prematurity requiring treatment, and neurodevelopmental outcomes at 24 months.

Conclusions: The Delphi study achieved consensus among experts on crucial aspects of the proposed phase I trial, providing a solid foundation for the design and execution of the trial.

		Consensus (≥85 %)
NEC Diagnosis		
Signs		- Both clinical and radiological signs required.
	Clinical Signs	≥2 signs present: - Abdominal distension - Abdominal discoloration - abdominal tenderness - blood in stool
	Radiological/sonographic	≥1 signs present: - Pneumatosis - Pneumatoperitoneum - Lack of perfusion in bowel loop(s) - Portal venous gas
Trial Inclusion criteria		
Age		- All gestational ages (term and preterm)
NEC Diagnosis		- Both medical and surgical
Trial Exclusion criteria		
Comorbidities		- gastrointestinal anomalies (gastroschisis or congenital diaphragmatic hernia) - major congenital metabolic or chromosomal anomalies.
Other		- moribund state or anticipation of having intensive care withdrawn
Safety outcomes		
Mortality		- immediate (<24 hours) - shorter-term mortality (24 hours – 1 week)
Infusion-associated events post-intervention		- acute cardiac events within 6 hours - anaphylaxis within 6 hours
Vital signs before and during stem cell infusion, and at 48h and 96h post-infusion		- blood pressure - heart rate
Evidence or suspicion of infection		- localized or systemic indicated by blood, cerebrospinal fluid, or urine tests
Clinical Outcomes at 1 month, 3 months, and 1-year post-enrollment		
Survival		- timing and cause of death - survival without NEC-related intestinal complications (perforation, necrosis, or stricture)
Abdominal operations		- type of operations (including insertion of peritoneal drain or laparotomy) - number of operations
Intestinal function		- duration of total parenteral nutrition
Severe neurological injury using head ultrasound findings		- intraventricular hemorrhage - ventricular enlargement - parenchymal echogenicity - periventricular leukomalacia
Complications of prematurity		- chronic lung disease - retinopathy of prematurity
Long-term outcome		- neurodevelopmental outcome at 24 months

307 - EXPERIENCES OF TRAINEES AND YOUNG PEDIATRIC SURGEONS WITH PEDIATRIC COLORECTAL TRAINING: PRELIMINARY RESULTS OF A TEPS / EUPSA SURVEY

Jonathan Hencke[1], Ophelia Aubert[2], Anders Telle Hoel[3], Marta Gazzaneo[4], Hilmican Ulman[5], Hanna Garnier[6], Ramon Gorter[7], Judith Lindert[8]

[1]Department of Pediatric Surgery, Olgahospital, Klinikum Stuttgart, Stuttgart, Germany. [2]Department of Pediatric Surgery, University Hospital Leipzig, Leipzig, Germany. [3]Department of Pediatric Surgery, Oslo University Hospital, Oslo, Norway. [4]Fondazione IRCCS Policlinico San Matteo, Pediatric Surgery, Pavia, Italy. [5]Department of Pediatric Surgery, Bakircay University Cigli Regional Education Hospital, Izmir, Turkey. [6]Department of Surgery and Urology for Children and Adolescents, Medical University of Gdansk, Gdansk, Poland. [7]Department of Paediatric Surgery, Emma Children's Hospital, Amsterdam University Medical Center (UMC), University of Amsterdam & Vrije Universiteit Amsterdam, Amsterdam, Netherlands. [8]Department of Pediatric Surgery, Universitätsmedizin Rostock, Rostock, Germany

Aim of the study:

Main aim was to discern variations in training in the field of pediatric colorectal surgery across countries and centers, and secondly identify contributing factors.

Methods:

A questionnaire with 28 questions on gender, hospital type, training level, involvement in surgical and non-operative colorectal care, subjective opinions about participants' training and perceived obstacles, was distributed via Trainees of European Pediatric Surgery (TEPS) and EUPSA mailing lists. Anonymous answers obtained between 11/29/2023 – 1/23/2024 were analyzed. Significance level was set to 0.05 at Spearman's rank test.

Main results: 73/104 participants from 32 countries completed the questionnaire.

Female participants (45%) felt less positive about their training (ø2.6 vs. ø3.5 on 1-5 Likert scale). Only 6% female and 24% male participants encountered no obstacles to their training, while 77% of females and 68% of males named at least one perceived obstacle; most commonly low case load and restriction of colorectal cases to consultants.

Surgical involvement increased with advancing training ($r(82)=.64$, $p<.001$), but was not associated with the status as colorectal center, case load and gender. Satisfaction with training correlated positively with case number per center combined with engagement in non-operative colorectal care ($r(74)=.36$, $p<.001$). 39% desired to undergo colorectal subspecialization, the majority (63%) would rotate to different hospitals.

Conclusion:

Trainees and young pediatric surgeons largely experience some obstacles in their colorectal training. Training at larger centers seems to be subjectively advantageous. The results also highlight an – at least perceived – gender gap in pediatric colorectal surgery training.

262 - RISK FACTORS FOR 30-DAY MORTALITY AND NEC TOTALIS IN SURGICALLY TREATED NEC PATIENTS – A MULTICENTER RETROSPECTIVE STUDY OF 401 PATIENTS.

Adinda Pijpers[1], Ceren Imren[2], Otis Van Varsseveld[3], Laurens Eeftinck Schattenkerk[1], Claudia Keyzer-Dekker[2], Jan Hulscher[3], Elisabeth Kooi[3], Chris van den Akker[1], Joost Van Schuppen[1], Jos Twisk[4], Joep Derikx[1], Marijn Vermeulen[2]

[1]Emma Children's Hospital, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands. [2]Sophia Children's Hospital, Erasmus MC, Rotterdam, Rotterdam, Netherlands. [3]Beatrix Children's Hospital, University Medical Center Groningen, Groningen, Netherlands. [4]Department of Epidemiology and Biostatistics, Amsterdam, Netherlands

Aim of the study

The specific preoperative risk factors contributing to mortality among surgical necrotizing enterocolitis (NEC) patients remain unknown. An aggressive variant of surgical NEC is NEC totalis (NEC-T), with swift onset and often fatal outcome. This study aims to elucidate preoperative risk factors associated with 30-day mortality, NEC-T, and mortality in patients without NEC-T (NEC-non-T).

Methods

A retrospective multi-center cohort study spanning the years 2008 to 2022 was conducted, involving surgical NEC patients. NEC-T was defined as extensive small intestine necrosis without viable treatment options, resulting in an 'open-close' procedure. The risk factors associated with 30-day mortality, NEC-T and NEC-non-T were explored using multivariable logistic regression analyses.

Main results

Data of 401 patients were analyzed. The 30-day mortality rate was 34.2% (N=137/401), with 54.7% exhibiting NEC-T (N=75/137) and 45.3% NEC non-T (N=62/137). Statistically significant preoperative risk factors for both 30-day mortality and NEC-T were male sex (OR: 1.47; 95%-CI:1.47-3.82), lower birthweight (p/gram higher OR: 0.99; 95%-CI:0.98–0.99), need for inotropic support (OR: 2.93; 95%-CI:1.87–4.61) and the presence of portal gas (OR: 1.81; 95%-CI:1.10–2.99). Regarding NEC-non-T, the sole significant risk factor was need for inotropic support (OR: 2.32; 95%-CI:1.33–4.04).

Conclusion

Preoperative risk factors for 30-day mortality and NEC-T included male sex, lower birthweight, inotropic support, and the presence of portal gas. Preoperative need for inotropic support was the sole risk factor for mortality in NEC-non-T. These preoperative risk factors should be taken into during parental counseling and surgical decision–making processes.

484 - Interleukin-6 As A Discriminatory Biomarker For Sepsis And Necrotizing Enterocolitis In Preterm Neonates

Ceren Imren[1], Vivian De Groot[2], Claudia M.G. Keyzer-Dekker[1], Marijn J. Vermeulen[2], H. Rob Taal[2]

[1]Erasmus MC Sophia Children's Hospital, department of Pediatric Surgery, Rotterdam, Netherlands. [2]Erasmus MC Sophia Children's Hospital, department of Neonatal and Pediatric Intensive Care, division of Neonatology, Rotterdam, Netherlands

Background:

Interleukin-6 (IL-6) serves as an early biomarker for sepsis and necrotizing enterocolitis (NEC) Our objective was to assess the as-yet unknown ability of IL-6 in distinguishing between sepsis and NEC, and between medical and surgical NEC.

Methods:

This retrospective cohort study over the years 2018 to 2022involved 366 preterm infants (birth weight <1500g, gestational age <32 weeks) with suspected late-onset sepsis (sLONS). Sepsis was defined based on the criteria of the NICHD Neonatal Research Network. Plasma IL-6 levels were analyzed at the moment of suspicion for sepsis and/or NEC suspicion (Bell grade ≥2). All statistical analyses were adjusted for gestational age, sex, and birthweight.

Results:

Out of 605 sLONS episodes, 314 were classified as sepsis (52%), 51 as NEC (8 %), and 240 as controls (no sepsis or NEC, 40%). LogIL-6 demonstrated a positive association with the likelihood of having sepsis compared to controls (adjusted odds ratio (aOR): 2.52; 95%CI: 2.12-2.99; p<0.001), NEC compared to controls (aOR:3.01; 95%CI 2.43-3.72; p<0.001), and NEC compared to sepsis (aOR:1.20; 95%CI: 1.04-1.37; p=0.011). LogIL-6 demonstrated limited discriminative ability in distinguishing between NEC and sepsis (AUC 0.539, 95%CI: 0.498-0.687). No association was found between logIL-6 and surgical NEC in comparison to medical NEC (aOR 0.84; 95%CI: 0.46-1.54; p=0.568).

Conclusions:

IL-6 proves to be a usable biomarker for predicting sepsis and NEC in sLONS patients. Although elevated IL-6 levels are associated with higher odds for NEC compared to sepsis, its usability in distinguishing between these conditions and between medical and surgical NEC is limited.

796 - DIFFERENT STAGED STRATEGIES AND EVENTUAL LENGTHENING PROCEDURE IN NEAR TOTAL INTESTINAL AGANGLIONOSIS

Carlotta Plessi, Dominique Hermans, Sonia Kourieh, Isabelle Scheers, Xavier Stephenne, Catherine De Magnée, Raymond Reding, Roberto Tambucci

Pediatric Intestinal Rehabilitation Program, Saint-Luc University Clinics, Université catholique de Louvain, Brussels, Belgium

Aim of the study:

Description of our single-center experience with autologous intestinal reconstructive surgery (AIRS) in the management of near total intestinal aganglionosis (NTIA).

Methods:

Retrospective review of clinical files of three patients followed for NTIA since 2008. Data collection focused on surgical history and functional outcome.

Main results:

One female and two male patients were early referred to our Institution for NTIA. During neonatal age, they underwent several surgeries to create a functional stoma. Aganglionosis level was, respectively, at 15, 18, and 20 cm from Treitz. Thereafter, dilatation of normoganglionic bowel was induced by different strategies, including controlled tissue expansion technique, and transposition of aganglionic and/or transitional segments with Ziegler myotomy. Eventually, they underwent a lengthening procedure at 4, 4 and 8 years-old: two patients underwent longitudinal intestinal lengthening and tapering (LILT); one underwent simultaneous LILT and spiral intestinal lengthening and tailoring (SILT). Those surgeries allowed to gain 35, 40 and 45% of normoganglionic bowel length. Currently, all patients have a permanent stoma, aganglionic in two cases. Any of them has been weaned from parenteral nutrition 6, 24, and 36 months after lengthening surgery, with acceptable outcome in terms of z-scores for growth, liver function and stoma output.

Conclusions:

Despite the relevant initial shortness of normal bowel and the need for a permanent stoma, a multistage and multimodal approach, including the use of aganglionic segments, allowed to enhance residual bowel function and achieve enteral autonomy. Further steps for complex perineal reconstruction and stoma reversal might be speculated.

815 - A NEW ENDOSCOPIC DEVICE TO MANAGE ACUTE GASTROINTESTINAL BLEEDING IN CHILDREN

Giovanni Parente, Giuseppe Floramo, Beatrice Montanaro, Elisa Siano, Fabiola Colombini, Mara Colusso, Maurizio Cheli

ASST Papa Giovanni XIII Hospital, Bergamo, Italy

Introduction:

Acute gastrointestinal bleeding in children may take advantage of endoscopic treatments. Nevertheless, hemostasis may be technically difficult to achieve in cases of diffuse mucosal injury. In literature there few reports of a new endoscopic hemostatic agent recently adopted in pediatrics: the Hemospray. It is a mineral powder that can be administered endoscopically and promotes hemostasis. The powder, inorganic and inert, forms an adhesive layer when it encounters fluid.

We present a case of massive rectosigmoid bleeding successfully treated with Hemospray.

Methods:

We retrospectively reviewed case treated with this device in our center. Clinical data, duration of procedure, need for blood transfusion were recorded.

Results:

We treated an 8 years-old patient who underwent subtotal sigmoid colectomy, stoma opening and rectosigmoid stump closure for toxic megacolon resulted in sigmoid necrosis. From 10th postoperative day (POD) the patient presented rectorrhagia with severe anemia requiring several blood transfusions. On 13thPOD we performed a proctosigmoidoscopy that showed a diffuse ischemic proctitis. We then endoscopically applied the Hemospray on the walls of the rectosigmoid stump. The procedure lasted about 30 minutes. The patient did not present rectorrhagia anymore and hemoglobin values stabilized. Seven days after the procedure a new episode of rectorrhagia was recorded, we performed another proctosigmoidoscopy but the bleeding self-limited and we observed a partial rectal healing.

Conclusions:

The Hemospray proved to be effective to treat even a massive bleeding and easy to apply. Though, more experience is needed to define the best field of application of Hemospray in pediatrics.

336 - LONG TERM GASTROINTESTINAL OUTCOMES IN PATIENTS WHO UNDERWENT SURGERY FOR CONGENITAL DUODENAL OBSTRUCTION COMPARED TO HEALTHY CHILDREN.

Adinda Pijpers, Fenne Van Den Bunder, Ilan Koppen, Ernest Van Heurn, Ramon Gorter, Joep Derikx

Emma Children's Hospital, Amsterdam UMC, location University of Amsterdam, Amsterdam, Netherlands

Aim of the study

Duodenal obstruction (DO) is a congenital anomaly which requires surgery in the first days of life. Long-term gastrointestinal (GI) outcomes in these patients remain unknown. Therefore, the aim of this study is to determine the long-term GI outcomes using the Pediatric Quality of Life Inventory™ (PedsQL™) GI module in DO patients and compare these to healthy controls.

Methods

We performed a prospective cohort study between September and December 2023. The PedsQL™ GI module questionnaire was sent to all patients who underwent DO surgery between 2007 and 2022. This data were compared with scores of a published healthy control group of 384 patients.

Main results

In total, 24/55 patients completed the PedsQL™ GI module questionnaire. The majority of the patients was female (N=13/24) with a mean age of 10.0 years (±3.8). Trisomy 21 was diagnosed in 5/24 patients. The mean total score was 84.3 (±10.5) which was significantly lower than the healthy controls (88.0±13.7). Mean scores for constipation (78.1±23.9 vs 86.9±17.2), diarrhea (87.9 ±17.6 vs 93.7±12.7) and worry about when going to poop (87.7±23.5 vs 94.1±13.6) were all significantly lower compared to the healthy control group, whilst all other scales in the PedsQL™ GI module were similar between groups. Three patients were using laxatives.

Conclusion

The results showed that long-term GI outcomes were lower in patients who underwent DO surgery early in life compared to healthy controls. Notably, scores related to defecation were lower in the DO group, emphasizing the need for attention during follow-up.

741 - TIMING AND INDICATION FOR FIRST OESOPHAGOSCOPY AFTER OESOPHAGEAL ATRESIA REPAIR: RESULTS FROM A NATIONAL PATIENT REGISTRY

Tatjana T. König[1,2], Anke Widenmann[3], Sabine Fencel[4], Rim Kiblawi[1], Juila Brendel[1], Emilio Gianicolo[4], Oliver J. Muensterer[5]

[1]Medizinische Hochschule Hannover, Klinik für Kinderchirurgie, Hannover, Germany. [2]Johannes Gutenberg-University, Universitätsmedizin, Mainz, Germany. [3]KEKS e.V. Patient Oragnisation, Stuttgart, Germany. [4]Institute of Medical Biostatistics, Epidemiology and Informatics, Mainz, Germany. [5]Dr. von Haunersches Kinderspital, LMU, München, Germany

Aim of the study

Timing and indication for endoscopy after oesophageal atresia (EA) repair have been a matter of debate. ERNICA and ESPGHAN-NASPGHAN recommend endoscopy at the age of 12 months in asymptomatic patients, while some centres prefer pre-emptive endoscopy at a younger age. The aim of this study is to describe age, frequency of symptoms and need for dilatation at the initial endoscopy.

Methods

Data from the German national patient organisation registry (2012-2022, 521 patients) was reviewed. Patients aged 0-60 months with a minimum of two years follow-up were included. Descriptive statistical analysis was performed. Age at first endoscopy and dilatation were visualized via Kaplan-Meier estimator.

Main results

Data of 204 EA patients was included. The mean birth weight was 2578gr (SD 781gr), mean gestational age 37.1 weeks (SD 3.5 weeks). The mean age at the time of repair was 2.4 days (0-8 days). The median age at first postoperative oesophagoscopy was 210 days (n=124). In 59%, there were no symptoms (dysphagia or bolus obstruction) or need for dilatation at this time. Dilatation was performed in 34% of patients. Patients who had no dilatation by the age of one year have a low probability of needing dilatation later during follow-up (Figure).

Conclusions

Our data show that many patients undergo earlier planned endoscopy than recommended in international guidelines. On the other hand, first dilatation is frequently performed during the first year of life. Oesophagoscopy within the first year of life after oesophageal atresia repair should be reserved for symptomatic patients.

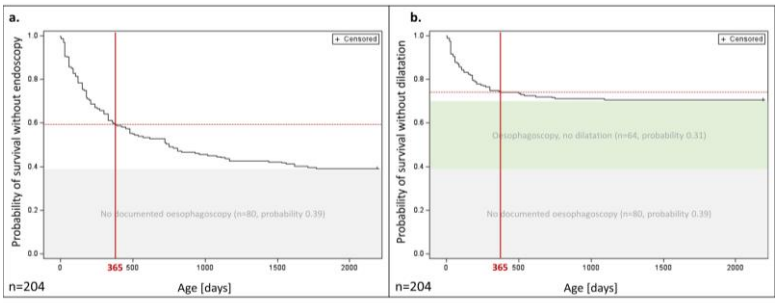


Figure Kaplan-Meier estimator of event-free survival for **a.** oesophagoscopy and **b.** dilatation (no information on esophagoscopy or dilatation in n=80 cases). Over 60% of oesophageal atresia patients, who had an oesophagoscopy had their first examination by the age of one year. A dilatation was performed in less than 50% of these cases, the vast majority before the age of one year.

645 - USE OF SİLDENAFİL İN AN EXPERİMENTAL RAT MODEL FOR THE PREVENTİON OF NEONATAL NECROTİZİNG ENTEROCOLİTİS

şenay kurtuluş, Rahime Özlem Öztopuz

Çanakkale Onsekiz Mart University Medical Faculty, Çanakkale, Turkey

The aim

Necrotising enterocolitis (NEC) is the most common cause of death in NICU, and 5–12% of low birth weight preterms are affected. This study aimed to evaluate the effects of sildenafil on preventing NEC.

Methods

15-day-old Wistar Albino rat pups were subjected to hypoxia under a 100% N2 atmosphere for 60 s, then hypothermia (4 °C for 10 min) twice a day for 4 days. Seventy-five rats were divided into six groups: control (n = 7), Sham (n = 8), SF+DMSO (n = 15), Sildenafil 1mg (n = 15), Sildenafil 5mg (n = 15), and Sildenafil 10mg (n = 15). The terminal ileum was removed for gene expression. The expression levels of HIF1-α, TNF-α, BCL-2, BAX, CASPASE 3, and CASPASE 8 genes were analyzed by qRT-PCR. This study was approved by the Animal Experiments Local Ethics Committee (2022/01-05). A one-way ANOVA and the Tukey HSD test were used, and P≤0.05 was considered statistically significant.

Results

HIF1-α, Caspase 3, and Caspase 8 gene expressions were found to be closest to the control in the Sildenafil 10 mg. Bax gene expression decreased in Sildenafil 5 mg and 10 mg. However, the opposite was determined in the anti-apoptotic Bcl-2 gene, and the HIF-1A gene increased 4-fold in the Sildenafil 10 mg compared to the sham group.

Conclusions

As a result, we observed that sildenafil at a dose of 10 mg/kg/day is effective in protecting against intestinal injury.

397 - PARENTAL ASSESSMENT OF CONDITION-SPECIFIC QUALITY OF LIFE IN PEDIATRIC PATIENTS WITH ESOPHAGEAL ATRESIA: PRELIMINARY RESULTS OF A CROATIAN COHORT

Dorotea Sinjeri[1], Lucija Duvnjak[1], Michaela Dellenmark Blom[2], Dora Škrljak Šoša[1], Marina Stilinović[1], Miram Pasini[1], Tomislav Vlahek[1], Dorian Tješić Drinković[1], Lana Omerza[1], Stanko Ćavar[1], Dino Papeš[1], Ivan Jelčić[1], Ana Špoljarić[1], Tomislav Luetić[1], Ivana Sabolić[1]

[1]University Hospital Centre Zagreb, Zagreb, Croatia. [2]Department of Pediatric Surgery, The Queen Silvia Children's Hospital SU/Östra, Gothenburg, Sweden

Aim of the Study: to assess health related quality of life (HRQoL) in children born with esophageal atresia (EA) using a parent-reported condition-specific questionnaire.

Methods: Croatian versions of the EA-QOL©- questionnaire for EA patients aged 2-7yrs and 8-17yrs was used to assess HRQoL (parent-report). Item responses were converted to 0(worst)–100(best) scale. Clinical data was obtained from medical records. Statistical analyses involved Mann-Whitney U-test and linear regression analysis ($p<0.05$).

Main Results: Sixty-two parents of EA patients were included in the study (52% of 2–7year-olds and 48% of 8–17-year-olds). Overall mean EA-QOL score was 71 (range 29 – 97). 2-7-year-olds had lower overall score than 8-17-year-olds (mean 61 vs. 83 respectively, $p<0.001$). Higher overall scores were related to increased child age and increased body mass index (BMI) ($p=.001$). Lower Eating-QOL was related to feeding difficulties ($p=0.017$) and prior gastrostomy insertion ($p=0.014$) in both age groups and with increased number of esophageal dilatations in 2-7-year-olds ($p<0.05$). Social Isolation and Stress dimension was negatively associated with higher number of associated anomalies among 2-7-year-olds ($p<0.05$). In 8-17-year-olds, Social Relationship dimension was negatively associated with number of esophageal dilatations ($p<0.05$), and lower Body Perception score with preterm birth and increased child age ($p<0.05$).

Conclusion: This first Croatian study of condition-specific HRQoL in children with EA suggest that according to parent-reports, young child age, feeding difficulties, prior gastrostomy, number of esophageal dilatations, preterm birth, associated anomalies and BMI are clinical risk factors for worse condition-specific HRQoL, which should be considered in follow-up care.

328 - Laparoscopic repair of duodenal atresia: Systematic review and meta-analysis after consistent implementation of the technique in the past decade

Laura Martou, Amulya Saxena

Department of Pediatric and Neonatal Surgery, Chelsea Children's Hospital, Chelsea and Westminster NHS Fdn Trust, Imperial College London, London, United Kingdom

Aims

To assess the safety and efficacy of LRDA, this study performed a systematic review of techniques and material for LRDA and a meta-analysis comparing outcomes with open repair (OR).

Methods

EMBASSE, PubMed, and Cochrane were searched (2000-2023) for studies comparing LRDA with OR. Outcomes extracted: operative time, time to enteral feeds, length of hospitalisation, anastomotic leaks and strictures, and total complications. $\chi 2$ was used to assess complications and conversions rates between LRDA approaches. Comprehensive meta-analysis was used for Meta-analysis.

Results

Twelve studies were identified and 1731 patients were enrolled (398 [LRDA] and 1325 [OR]). Total rate of complications and conversion for LRDA was 15.58% and 18.84%, respectively. Complication rates were not significantly affected by operative and suturing technique. Conversion rates were not significantly affected operative technique; using a combination of interrupted and running suturing was significantly higher than using running or interrupted ($\chi 2= 7.45$, $p<0.05$). Anastomotic leaks, strictures and total complications were equivocal between LRDA and OR (OR: 1.672, 95% CI: 0.796-3.514; OR: 2.010, 95% CI: 0.758-5.333; OR:1.172, 95% CI:0.195-7.03, respectively). Operative time was significantly greater for LRDA (SDM: 1.035, 95% CI: 0.574-1.495, $P<0.001$). Time to initial and full enteral feeds and length of hospitalisation was shorter in the LRDA group (SDM: -0.493, 95% CI: -2.166-1.752, P=0.466; SDM: -0.207, 95% CI: -1.807-0.822, P=0.019; SDM: -0.111, 95% CI: -1.101-0.880, P=0.466, respectively).

Conclusion

LRDA showed equivalent complication rates compared to OR with an additional benefit of quicker establishment of feeds. No significant difference in complication and conversion rates between laparoscopic techniques.

421 - ASSESSING, MANTAINING AND SUSTAINING DATA QUALITY: A FOUR YEAR OVERVIEW ON COMPLETENESS AND ACCURACY IN THE DUTCH PEDIATRIC SURGICAL AUDIT

Nadine Teunissen[1,2], Daniel Rossi[1,2], Marlinde van den Kamp[1], Ivo de Blaauw[3], Ernest van Heurn[4], Jan Hulscher[5], Wim van Gemert[6], Maud Lindeboom[7], René Wijnen[1]

[1]Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands. [2]Dutch Institute for Clinical Auditing, Leiden, Netherlands. [3]Radboudumc-Amalia Children's Hospital, Nijmegen, Netherlands. [4]Amsterdam University Medical Center, Amsterdam, Netherlands. [5]University Medical Center Groningen, Groningen, Netherlands. [6]University Medical Centre Maastricht, Maastricht, Netherlands. [7]Wilhelmina Children's Hospital, University Medical Center Utrecht, Utrecht, Netherlands

Aim:

For a decade, the six Dutch Pediatric Surgery departments have contributed to the European Pediatric Surgical Audit (EPSA) by registering patients with congenital malformations. This integration was enhanced significantly by adopting EPSA within ERNICA (European Reference Network for Inherited and Congenital Anomalies). This study evaluated data completeness and accuracy, assessing its utility for quality of care, benchmarking, and research.

Methods:

The quality of data registered in the Netherlands between 2018 and 2021 was assessed through peer visitations of all six centers by committees comprising senior and junior specialists from different participating centers. Case completeness was evaluated by comparing EPSA records with each hospital's financial reimbursement data. To assess data point agreement and completeness, a 10% patient sample was used to compare EPSA records against re-collected data.

Results:

Completeness of cases ranged from 84% (omphalocele) to 96% (CDH) across hospitals. Data accuracy was 74% for patient-specific variables (unique to each case) and 83% for universally applicable variables (consistent across all cases), varying by condition. Median completeness and accuracy rates were 88% and 100% for each variable, respectively. These outcomes were analyzed in meetings with all participating centers' representatives, stimulating discussions on potential improvements.

Conclusions:

While the EPSA data quality is currently acceptable, it necessitates further enhancement. We highlight the need for structured approaches to maintain high data quality and the importance of regularly evaluating its usability. Future initiatives will focus on dataset development and establishing feasible data verification methods in international contexts, essential for improving auditing in rare congenital malformations.

509 - NISSEN FUNDOPLICATION AND ESOPHAGEAL ATRESIA: AN UNRESOLVED AND VEXING ISSUE

Raquel Mena, Carles Giné, Laura García, Ana Laín, María Díaz, Ana Gabriela Barría, Melissa Torres, Manuel López

Hospital Universitari Vall d'Hebron, Barcelona, Spain

AIM OF THE STUDY

Gastroesophageal reflux (GER) is a significant complication of esophageal atresia (EA), with nearly half of the patients requiring an antireflux procedure (ARP). However, outcomes often fall short of optimal, and ARP indications in EA remain controversial. This study aims to report outcomes of ARP in EA patients and analyze potential predictors of failure.

METHODS

A retrospective review was conducted on patients who underwent ARP for EA at our center between July 2008 and December 2023. Data on GER presentation, anatomical aspects, surgical timing, technical details, and postoperative complications were collected. Complications included migration, GER recurrence, need for redo procedures, and postoperative symptoms. Fisher's exact test was used to evaluate preoperative and intraoperative risk factors.

RESULTS

Among 188 ARP procedures, 26 were for EA, with 2 excluded due to unavailable records. Severe GER was observed in 79.2% of swallow tests and 85.7% of pHmetries. Nissen fundoplication was performed at a median age of 3.5 years and 14.9kg. GER recurrence was observed in 39.1% of patients, migration in 30.4%, and redo procedures were required in 20.8%. No significant pre- or intraoperative factors were associated with complications. However, severe GERD in pHmetry was statistically tending to associate with migration (ρ=0.18), as well as age under 1 year with postoperative stenosis (ρ=0.18).

CONCLUSIONS

Nissen fundoplication in EA patients continues to yield high failure rates, and no effective counter management strategies have been identified. The underlying causes of failure remain elusive, highlighting the need for further investigations to enhance patient outcomes and improve the overall quality of life.

235 - "*Toussen*" laparoscopic fundoplication for pediatric gastroesophageal reflux disease: gentle as Toupet and solid as Nissen

Emanuela Gallo[1,2], Angelo Zarfati[3,1], Frederic Hameury[1], Thomas Gelas[1], Remi Dubois[1], Berenice Tulelli[1,4]

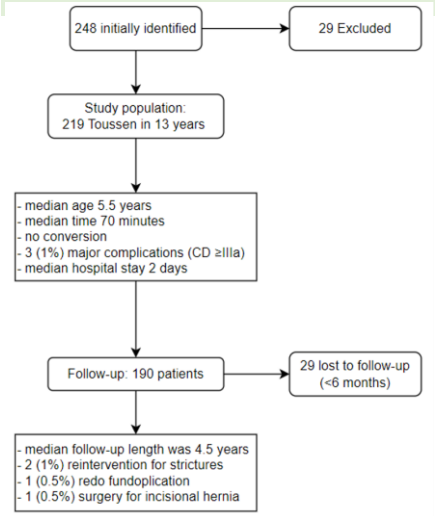
[1]Department of Pediatric Surgery and Transplantation, 59 Boulevard Pinel, 69500 Bron, Hospital Femme Mere Enfant, Hospices Civils de Lyon, Lyon, France. [2]University of Genoa, DINOGMI, Genova, Italy. [3]Department of Systems Medicine, University of Tor Vergata, Roma, Italy. [4]Claude Bernard Lyon 1 University, Lyon, France

AIMS: We present our experience with the undescribed Laparoscopic *Toussen* (TOUpet-niSSEN) Fundoplication (LTF) technique, to define its role, safety, and feasibility in the management of pediatric gastroesophageal reflux disease (GERD).

METHODS: retrospective analysis of medical records, surgical indication and follow-up of a cohort of consecutive patients who underwent TLF at our tertiary care center between 2010 and 2023. LTF consists of a 270° valve at the upper edge and 360° at the lower edge (video). Exclusion criteria were age>18 years-old, other techniques, patients referred for redo.

RESULTS: a total of 219 patients in 13 years (16.8 LTF/year), among them 49 (22%) neurological impairment and 13 (6%) esophageal atresia. (Fig.1) Surgical indication was based on symptoms, pathological upper GI series, PH-metry, and validated by a multi-disciplinary discussion. Median age at surgery was 5.5 years (range: 1.1-17.5years) and median weight 18.2 kg (range: 5.5-80 kg). Gastrostomy associated in 33 cases (15%). The median operative time was 70 minutes (range: 44-177minutes). Intraoperative complications occurred in 0.4% of patients, postoperative complications in 7%, Clavien-Dindo ≥IIIa in 1%. Median hospital stay was 2 days (range: 1-45days). Overall, 190 patients were followed >6 months (median follow-up 4.5 years, range: 0.6-11years). Four patients (2%) needed further surgery: 2 laparoscopic partial release of the valve, 1 redo-fundoplication, 1 surgery for incisional hernia.

CONCLUSIONS: LTF is feasible, safe, and effective. Intraoperative and long-term outcomes of the technique seem non-inferior to those reported in the literature for Nissen and Toupet fundoplications. Our preliminary results need further validation by prospective studies.



275 - LONG TERM GASTROINTESTINAL SEQUELAE IN CHILDREN WHO UNDERWENT PYLOROMYOTOMY FOR INFANTILE HYPERTROPHIC PYLORIC STENOSIS

Fenne A.I.M. van den Bunder[1], Adinda G.H. Pijpers[1], L.W. Ernest van Heurn[1], Ilan J.N. Koppen[2], Joep P.M. Derikx[1]

[1]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands. [2]Department of Pediatric Gastroenterology and Nutrition, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands

Aim of the study Pyloromyotomy, the treatment for infantile hypertrophic pyloric stenosis (IHPS), is a procedure with a low risk of complications and quick recovery. However, at a later age, gastrointestinal (GI) symptoms are commonly reported and recently we even described a fatal case of adhesive small bowel obstruction years after pyloromyotomy. Therefore, the aim of this study was to systematically evaluate long-term gastrointestinal sequelae of pyloromyotomy.

Methods All children who underwent open or laparoscopic pyloromyotomy between 2007-2017 (n=450) in two pediatric surgical centers, were invited to complete a questionnaire, which included the PedsQL™-GI Module. Outcomes were compared to published healthy controls (n=587) and between type of procedure by using an unpaired t-test.

Main results In total, 196 respondents completed the questionnaire. The majority (n=169, 86.2%) was male with a mean age of 11.4 (±3.1) years. One hundred three children underwent laparoscopic pyloromyotomy (52.6%) and 93 (47.4%) open pyloromyotomy. The mean total score of all children who underwent pyloromyotomy was 88.6 (±11.0), which is comparable to healthy controls (88.6 (±12.9)). All subtopics were similar for children who underwent pyloromyotomy compared to healthy controls (Table 1). There were no significant differences in scores between the open and laparoscopic subgroup.

Conclusions We showed that the scores of the PedsQL™-GI module do not differ between children who underwent pyloromyotomy during infancy and healthy controls. Long-term gastrointestinal outcomes of children with IHPS who underwent pyloromyotomy are good. This evidence can be used during parental counseling. It also suggests that there is no need for long-term follow-up.

Table 1. PedsQL™ GI Symptoms Scales and Worry Scales scores for children who underwent pyloromyotomy during infancy and healthy controls[2]

		IHPS (n = 196)		Healthy controls[3] (n = 587)		
GI symptoms Scales and Worry scales	Items	Mean	Standard deviation	Mean	Standard deviation	p-value
Symptoms total score	58	88.6	11.0	88.6	12.9	>0,9999
Stomach Pain and Hurt	6	82.3	18.6	81.1	17.8	0,4193
Stomach discomfort when eating	5	91.3	14.5	89.6	16.2	0,1923
Food and drink limits	6	93.2	15.6	89.7	17.0	0,0111
Trouble swallowing	3	95.7	9.6	95.6	10.9	0,9089
Heartburn and reflux	4	89.4	14.1	90.6	14.3	0,3077
Nausea and vomiting	4	93.2	12.3	91.6	14.7	0,1705
Gas and bloating	7	81.5	19.7	83.3	20.1	0,2756
Constipation	14	86.4	16.7	86.9	17.6	0,7274
Blood in poop	2	97.4	8.1	96.3	12.0	0,2323
Diarrhea	7	92.2	11.7	94.3	11.5	0,0278
Worry about going poop	5	94.9	11.0	94.2	12.4	0,4821
Worry about stomach aches	2	92.8	14.0	91.2	16.4	0,2210

Legend SD means standard deviation. p<.001 is considered significant for group differences.
[3]Varni et al. Interpretability of the PedsQL™ gastrointestinal symptoms scales and gastrointestinal worry scales in pediatric patients with functional and organic gastrointestinal diseases. J Pediatr Psychol. 2015;40(6):591-601.
*Lower scores demonstrate more (worse) gastrointestinal symptoms and hence lower (worse) gastrointestinal-specific HRQOL.

820 - MENTAL HEALTH AND BEHAVIORAL DIFFICULTIES IN CHILDREN WITH ABDOMINAL WALL DEFECTS: A SYSTEMATIC LITERATURE REVIEW

Julia Brendel[1], Carmen Mesas Burgos[2,3], Jens Dingemann[1], Sara Persson[4,5], Colin Reilly[5], Helene Engstrand Lilja[2,3], Elin Öst[2,3], Anastasia Fourtaka[6], Anna Löf Granström[2,3], Tomas Wester[2,3], Andre Rietman[7], Vuokko Wallace[8,9], Julia Quitmann[10,11], Stefanie Witt[11], Graham Slater[8], Michaela Dellenmark-Blom[2,4,5]

[1]Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany. [2]Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden. [3]Department of Paediatric Surgery, Astrid Lindgren Children's Hospital, Karolinska University Hospital, Stockholm, Sweden. [4]Department of Pediatric Surgery, Queen Silvia Children's Hospital, Sahlgrenska University Hospital, Gothenburg, Sweden. [5]Department of Pediatrics, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden. [6]Centre Hospitalier Universitaire Hôpital Jeanne de Flandre Pôle Enfant 2 avenue Oscar Lambret - 59037 Lille Cedex, Lille, France. [7]Department of Pediatric Surgery, Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands. [8]EAT (Esophageal Atresia Global Support Groups), Stuttgart, Germany. [9]Department of Psychology, University of Bath, Bath, United Kingdom. [10]Hamburg University of Applied Sciences (HAW Hamburg), Faculty of Business and Social Sciences, Hamburg, Germany. [11]Department of Medical Psychology, Center for Psychosocial Medicine, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Aim of the study

Many children with abdominal wall defects (AWD) experience morbidity in early life, potentially affecting mental health. This study presents a systematic literature review on mental health and behavioural difficulties in children with gastroschisis(GS) and omphalocele(OC) and their relationship to QoL.

Methods

Using PRISMA-guidelines (PROSPERO CRD42023443731), a literature search was conducted for studies of mental health in children with AWD/GS/OC (Figure 1).

Main Results

Literature search identified 689 articles (Figure 1), 10 articles (published 1990-2023) of which were included (GS=4, OC=3, GS/OC=3). All were single-center cohort studies and included 177 GS and 129 OC patients (age range 0,5-17 years). Two studies did not distinguish between both conditions when reporting on 44 children with AWD. A wide range of instruments were used to assess mental health and behavioural difficulties, the Strengths and Difficulties Questionnaire (SDQ) was the most common (n=3/10). All studies addressed mental health problems, with varying reports on severity (none to substantial internalizing/externalizing difficulties), eight of which compared their findings to matched controls or populations norms. Autism Spectrum Disorders were examined in four studies with up to 20% prevalence rate reported in AWD patients. Two studies also investigated QoL, but did not address the relationship between QoL and mental health difficulties.

Conclusions

A subgroup of children with AWD encounter mental health difficulties. However, studies are heterogeneous in terms of assessment methods, making definite conclusions difficult to draw. Mental health and behavioral aspects need to be addressed in follow-up care and future research of AWD patients.

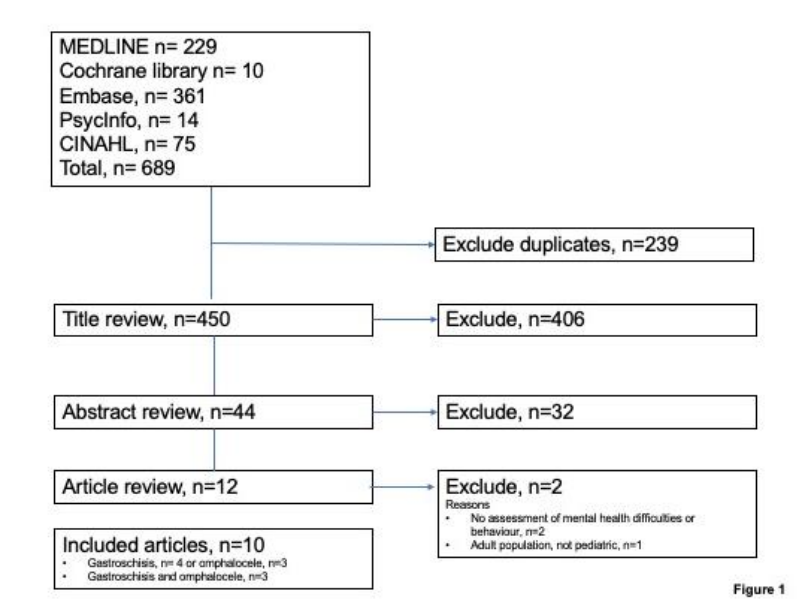


Figure 1

135 - SINGLE-INCISION LAPAROSCOPIC APPENDECTOMY ANALGESIA: WHAT IS THE BEST MODALITY?

Jeanne Goulin[1], Boulleys Robert[1], Jade Wateaux[2], Joanna Neveu[2], Perrine Frémont[2], Quitterie Sandeau[2], Guillaume Podevin[1], Françoise Schmitt[1]

[1]University hospital of Angers, Angers, France. [2]Angers University, Angers, France

Aim of the study: to evaluate the effect of different peri-operative analgesia modalities used for Single-Incision Laparoscopic Appendectomy (SILAP).

Methods: Retrospective monocentric study on surgical and anaesthetic data of all patients operated on by SILAP between 2012 and 2022. Description and comparative analysis of their outcomes for the different modalities of analgesia, with focus on the use of postoperative opioid and the scored intensity of pain (institutional agreement; ClinicalTrial registration (NCT05773521)).

Main results: Among the 132 patients included, 41 (31.1%) had only general anaesthesia, 33 (25.0%) had naropein instillations through port incisions, 44 (33.3%) had a transversus abdominis plane block (TAP block) and 16 (12.1%) a quadratus lumborum block (QLB).

Pre-incision local analgesia reduced per-operative median sufentanil doses from 0.31 to 0.24 mg/kg ($p<0.03$) and ketamine administration (18.2% vs 38.3%, $p<0.04$). Patients with a loco-regional analgesia received less opioid medication during recovery room monitoring (57.1% vs 87.8%, $p<0.01$). There was no difference between groups on pain scores and opioid analgesia requirement during the next 24 postoperative hours.

Comparison of very painful patients (cumulative dose of morphin > 0.05 mg/Kg, n=60) and little painful ones (n=72) showed that absence of pre-incision local analgesia and age greater than 11 years were predictive for acute pain, whereas the use of TAP block or QLB was protective.

Conclusions: Pre incision loco-regional analgesia for SILAP appears to be effective for decreasing per- and postoperative opioid use. TAP blocks may be the more effective but the place of QLB remains to be determined.

821 - Innovative use of Suprathel for the treatment of complex skin conditions

María San Basilio[1], Carla Ramírez-Amorós[1], María López-Canelada[1], Alejandro Madurga[1], María del Carmen Sarmiento[1], Carlos Delgado-Miguel[2], Mercedes Diaz-González[1], Miriam Miguel-Ferrero[1]

[1]Hospital Infantil La Paz, Madrid, Spain. [2]Hospital Fundación Jiménez Diaz, Madrid, Spain

Aim of the study:

The improvement in treatment and survival of patients with complex skin conditions, such as cutaneous graft-versus-host disease (CGVHD) or toxic epidermal necrolysis (TEN), has arisen the need to provide these patients with adequate wound coverage. Suprathel, an alloplastic skin substitute, has proven effective for the treatment of children with extensive burns, but reports in the literature regarding its use in other skin conditions are scarce. We present our results with Suprathel for the treatment of complex skin conditions in children.

Methods:

Prospective, descriptive study of children with complex skin conditions treated with Suprathel at our institution (2017-2023). We recorded demographic and clinical variables, wound bleeding and exudation, infection rates, pain, dressing changes and time to healing.

Results:

We present 7 patients (4 boys; median age: 6 years) with the following medical conditions: CGVHD (n=2), TEN with >60% TBSA (n=2), deep soft tissue injury (n=2) and 1 toddler with staphylococceal-scalded skin syndrome (25%TBSA). All wounds showed minimal or no bleeding nor exudation; no infections occurred. Patients presented with mild pain. During the course of treatment, 2 patients with CGVHD died due to their underlying condition. The remaining 5 patients presented complete wound healing within 9-28 days, requiring 1-4 dressing changes. Suprathel was easy to use and highly adaptable.

Conclusions:

Suprathel is an efficient alternative for the treatment of complex skin lesions in children, providing a safe wound healing environment, preventing infection, reducing pain and providing great comfort to patients in a delicate medical condition.



392 - COMBINED USE OF SIROLIMUS AND SURGICAL EXCISION IN A LOW-FLOW VENOUS MALFORMATION OF THE LOWER LIP

Wenceslao M. Calonge, Alexander Rodríguez-Castaneda, Francesc Peralta, Marta Ivars, Miguel Bejarano

Hospital Sant Joan de Déu, Barcelona, Spain

Sirolimus (rapamycin) is an inhibitor of Mechanistic Target of Rapamycin (mTOR). As an antiproliferative drug, it is used in inappropriate activation of the PI3K/AKT/mTOR pathway in vascular proliferative conditions. Due to adverse effects, there is widespread caution about simultaneity of sirolimus and surgery.

After normal 39-week carriage and eutocic delivery, a newborn female baby showed a bluish lesion of her lower lip. On referral, the lesion had a discreet involution since birth without bleeding nor ulceration. It hindered breastfeeding.

On Doppler ultrasound a nodular, heterogenous 44 x 24 x 23 mm amass of venous vascular structures and phleboliths encompassed more than 80% of the lower lip. Early therapy consisted of topical anaesthetic.

At the age of 4 months bleeding episodes and a sudden swelling prompted a MRI that showed a vascular low-flux lesion with haematome areas and slight growth (6 x 6 x 4 cm). Local pain became more frequent and weight seemed to stagnate in the next following weeks. Bleeding episodes began to happen more than twice a week. Compression did not normalise the overall appearance. We decided on the off-label administration of sirolimus. Possible benefits and adverse effects were carefully explained.

Sirolimus levels, D-dimer and clotting tests were regularly scheduled. Bleeding episodes stopped from the very beginning of sirolimus administration. No side effects were observed. Under general anesthesia, without discontinuing the maintenance dose of sirolimus, we performed a partial resection of the lower lip. Postoperatory period was uneventful. Pain and edema were absent 2 weeks after surgical operation.

717 - INNOVATIVE APPROACHES WITH REGENERATIVE TECHNIQUES – MANAGEMENT OF A PEDIATRIC SCAR AND EVALUATION WITH POSAS SCALE: CASE REPORT

Arianna Roggero, Maria Stella Cipriani, Maria Victoria Romanini

Istituto Giannina Gaslini, Genoa, Italy

Aim of the study:

to evaluate the effect of nanofat grafting in a pediatric case of burn scars.

Case description:

We assessed an 11-year-old boy for a hypertrophic burn scar after 12 months of standard treatments (silicone mask, pressure garment therapy, sterocorticoid intralesional injections and lasertherapy). The burn was of second and third-degree and involved 20% of total body surface area (TBSA). We performed regenerative surgery treatments involving autologous adipose tissue, fat grafting sized of fat grafts-milifat (parcel size 2.0-2.5 mm), microfat (1,0 mm), and nanofat (<500 micron), injection with micro-needling (MN) and sharp-needle-intradermal-fat (SNIF) techniques. Scars were evaluated using POSAS 2.0 one-year post-trauma (time 0), 1-month post-initial surgical treatment (time 1), 3 months post-second regenerative treatment (time 2). POSAS 2.0 assessments by the surgeon showed improvements in vascularity, relief/texture, pigmentation, thickness, elasticity, and surface. Patient assessments revealed subjective improvements in pain, itching, pigmentation, stiffness, thickness, and irregularities.

Conclusion:

Modern burn treatments with stem cells injection can improve all the features of a scar. The combined use of these techniques can yield even more satisfactory results compared to employing them individually. POSAS 2.0 scale is a reliable evaluation tool of the results even in pediatrics.

126 - PERCUTANEOUS BLEOMYCIN ELECTROSCLEROTHERAPY IN THE TREATMENT OF PERIPHERAL LOW-FLOW VENOUS MALFORMATIONS: PRELIMINARY EXPERIENCE OF A TERTIARY PEDIATRIC SURGICAL CENTER

Alessandro Boscarelli[1], Elena Madonia[2], Elena Sofia Marcandella[2], Matea Peric-Anicic[3], Daniela Codrich[1], Silvia Perin[2], Marianna Iaquinto[1], Jurgen Schleef[1], Edoardo Guida[1]

[1]Department of Pediatric Surgery and Urology, Institute for Maternal and Child Health - IRCCS "Burlo Garofolo", Trieste, Italy. [2]Pediatric Surgery Division, Women's and Children's Health Department, University of Padua, Padua, Italy. [3]Department of Surgery, University Hospital of Mostar, Mostar, Bosnia and Herzegovina

Aim of the study:

Congenital venous malformations are the most common low-flow vascular anomalies secondary to defective vascular development, resulting in venous stasis and pain. This study aimed to report our preliminary experience with bleomycin electrosclerotherapy for peripheral low-flow venous malformations in children.

Methods:

All pediatric patients presenting a peripheral low-flow venous malformation from May 2022 were prospectively enrolled in our study. To evaluate the efficacy of the treatment, clinical and ultrasonographic follow-ups were performed 1, 3, and 6 months after surgery.

Main Results:

To date, four patients (aged 5–15 years) have been included in our study. All low-flow anomalies were treated with application of electric pulses after percutaneous ultrasound-guided infusion of 3 mg of bleomycin diluted with contrast medium (ratio 1:3) to enhance the effectiveness of the drug. The procedure was well tolerated by all the patients, and no postoperative complications were observed. During the follow-up period, clinical evaluation and ultrasound scans documented progressive regression of vascular anomalies in all patients. Aesthetic outcomes were referred as satisfactory in all cases.

Conclusions:

Percutaneous bleomycin electrosclerotherapy appears to be a safe and effective option for the treatment of peripheral low-flow venous malformations in the pediatric population, avoiding complex surgeries and related complications.

685 - RESULTS OF SIMULTANEOUS UMBILICOPLASTY DURING PRIMARY REPAIR OF BLADDER EXSTROPHY AND EPISPADIAS

MUHAMMED HAMİDULLAH ÇAKMAK, AYŞENUR CELAYİR, SABRİ CANSARAN, OLGA DEVRİM AYVAZ

University of Health Sciences, Turkey. Istanbul Zeynep Kamil Maternity and Children Diseases Health Training and Research Center, Department of the Pediatric Surgery, Istanbul, Turkey

Aim of the Study:

The umbilicus is an important aesthetic feature of the abdomen for patients and family. In neonates born with bladder exstrophy epispadias, the umblicus is attached to the upper edge of the bladder and the umbilicus is usually removed. The families of many patients without a navel complain about this deformity. Here, we aimed to evaluate our umbilicoplasty results in newborns with bladder exstrophy epispadias, who underwent a new umbilicoplasty technique with the umbilical cord described by us.

Methods:

Umbilicoplasty results of cases who underwent simultaneous umbilicoplasty with the technique we described during primary bladder exstrophy repair between January 2018 and 2024 were evaluated. In this tecnique, the umbilical cord is separated from the bladder but not from the abdominal wall. The umbilical vein is preserved, arterias are ligated. A skin incision is made where the designated new umbilical pit. Umbilicoplasty is completed by passing the umbilical cord retrogradely through the tunnel prepared between the linea alba and the peritoneum.

Main results:

The median age at surgery was 1.5 days (1day-2days) in 5-neonate (3-male, 2-female) who underwent simultaneous umbilical reconstruction with this newly defined technique. Median follow-up period was 4.5 years (3years-6years) and an excellent cosmetic result was achieved after umbilicoplasty with adequate localization, good morphology and sufficient depth.

Conclusions:

This new described umbilicoplasty technique is easy to perform without complications, and has good cosmetic results; in addition to reducing the number of invasive procedures. On the other hand, it makes the patient and family psychologically stronger.

686 - INFANTILE FIBROSARCOMA OVERLYING A CONGENITAL MELANOCYTIC NEVUS – A CHALLENGING TUMOUR IN AN INFANT: CASE REPORT AND REVIEW OF THE LITERATURE

Dimitrios Dionyssiou[1], Marianna Polydorides[2], Christos Voskidis[2], Katerina Okeke[2], Maria Petridou[2], Ismini Dimitri[2], Athanasios Pegios[2], Georgios Papouis[2], Efterpi Demiri[1], Ioannis Galanis[2]

[1]Papageorgiou General Hospital, Thessaloniki, Greece. [2]Hippokratio General Hospital, Thessaloniki, Greece

Aim of the study:

Infantile fibrosarcoma (IFS) is the most common soft tissue tumour in children under the age of two, characterised by a localised, painless, rapidly growing mass. The prognosis, while relatively favourable, largely depends on the resectability of the lesion. We present the management of a rare case of IFS that required a multidisciplinary approach.

Case description:

A male infant was born with a dorsal trunk giant congenital melanocytic nevus (GCMN) with an overlying 4,5 cm raised, soft, red-coloured lesion, resembling a haemangioma, and multiple other congenital melanocytic nevi covering the head, trunk and limbs. Within ten days the mass had ulcerated, and the patient was referred to a Plastic surgeon. Punch biopsies revealed IFS, while MRI imaging identified a 7,5 x 5,7 x 2,2 cm subcutaneous lesion, not infiltrating the underlying muscles, without distant metastases or pathologic lymph nodes.

At 60 days of age, Paediatric and Plastic surgeons cooperated to excise the GCMN and IFS en-bloc at the level of the muscle fascia, leaving a 12x12 cm defect. A synthetic biodegradable polyurethane dermal matrix and vacuum-assisted closure were used as a first reconstructive stage, followed by final reconstruction with a meshed split-thickness skin graft four weeks later. Histopathology revealed complete IFS resection.

Conclusions:

Most of IFS tumours are unresectable upon diagnosis and thus require cytoreductive treatment prior to surgical excision to avoid mutilating surgery. In this case cooperation between Paediatric and Plastic surgeons achieved the complete excision of a giant tumour with a satisfactory cosmetic outcome.

879 - BLEOMYCIN INJECTION BY LAPAROSCOPIC METHOD IN PELVIC LYMPHATIC MALFORMATION

MEHMET SARIKAYA[1], FATMA ÖZCAN SIKI[1], GAMZE KAYGISIZ BAYINDIR[1], METİN GÜNDÜZ[1], TAMER SEKMENLİ[1], MEHMET ÖZTÜRK[2], YAVUZ KÖKSAL[3], İLHAN ÇİFTCİ[1]

[1]SELÇUK UNIVERSITY FACULTY OF MEDICINE HOSPITAL DEPARTMENT OF PEDIATRIC SURGERY, KONYA, Turkey. [2]SELÇUK UNIVERSITY FACULTY OF MEDICINE HOSPITAL DEPARTMENT OF RADIOLOGY, KONYA, Turkey. [3]SELÇUK UNIVERSITY FACULTY OF MEDICINE HOSPITAL DEPARTMENT OF PEDIATRIC ONCOLOGY, KONYA, Turkey

Introduction: Lymphatic malformations (LM) are rare congenital anomalies.We present our case, which occurred in the pelvic region and in which we applied laparoscopic sclerosing agent (Bleomycin) injection.

Case:

Pelvic mass was detected in the abdominal ultrasonography performed during hospital admission at the age of 3.5 due to color change in the left gluteal region.LM?pelvic magnetic resonance imaging (MRI);The 101x82 mm multiseptated cystic lesion,which was located on the left side of the midline of the pelvic region,filling the left pararectal and left ischioanal regions,partially extending into the soft tissue between the left gluteal muscles,was evaluated with LM.The patient was treated with intralesional Bleomycin injection(0.1-0.4 mg/kg) was administered laparoscopy assisted.No complications were observed in the patient after the surgery.In the ultrasonographic imaging performed during the post-operation follow-up, it was observed that the size of the LM decreased to 32x35x18 mm.

Discussion:

LMs are benign and rare diseases.Sclerotherapy is an alternative treatment method to surgery.Bleomycin is one of the sclerosing agents that can be used safely in sclerotherapy.No significant side effects are expected due to bleomycin, except for local temperature increase at the injection site and skin findings.No systemic side effects were observed in our case.

Conclusion:

Intralesional bleomycin sclerotherapy is a safe treatment for LM and should be the first choice among treatment options. Macrocystic LMs can be treated in a single session. Sclerotherapy should be considered as the first treatment option in selected macrocystic LM cases.

567 - COMPARING SURGICAL TECHNIQUES FOR PILONIDAL SINUS DISEASE: A MULTICENTRIC STUDY

SILVIA PERIN[1,2,3], Elena Ruggiero[1,3], Riccardo Guanà[3], Alessandro Boscarelli[2], Piergiorgio Gamba[1], Fabrizio Gennari[3], Jurgen Schleef[2], Alberto Sgrò[1]

[1]Pediatric Surgery Unit, Women's and Children's Health Department, University of Padua, Padua, Italy. [2]Department of Pediatric and Urology, Institute of Maternal and Child Health-IRCCS "Burlo Garofalo", Trieste, Italy. [3]Pediatric Surgery Unit, Regina Margherita Children's Hospital, Turin, Italy

Aim of the study

Pilonidal Sinus Disease (PSD) is an acquired chronic inflammatory disorder. We evaluated surgery outcomes of three different approaches used in three different Centres.

Methods

All operated patients over a six-year period (7/2017 – 7/2023) were included. Three surgical procedures were considered: Group 1: Excision with skin closure (ExSC), Group 2: Excision without skin closure (Ex), Group 3: Endoscopic Pilonidal Sinus Treatment (EpSIT). Different parameters were evaluated and compared.

Main results

In total, 113 patients with median age 14.8 years and sex ratio 1:1, were included (ExSC: n=63; Ex: n=18; EpSIT n=32). Median age at surgery of ExSC was significantly higher than others. EpSIT showed longer surgical times (average ~50 min vs ~35 min for both techniques). In contrast, EpSIT showed less in-patient time (mean: EpSIT =1.2 vs ExSC and Ex =2 days), and significantly lower number of post-operative medications (mean: EpSIT =3 v ExSC =6.6 and Ex =13.6). No statistical difference was evidenced for recurrences (Fisher's Exact test: p-val =0.34), with recurrences rate ranging from 11% (Ex) to 28% (EpSIT).

Conclusion

PSD represent a severe disease burden, with socio-economic impact. No clear superiority of one surgical technique over the others has so far been proven. Our study showed that all surgical techniques are prone to recurrences, however EpSIT could provide a better quality of life for patients, with a lower in-patient time and a significantly lower number of out-patient visits.

584 - NEW PHENOTYPE OF CONGENITAL VASCULAR HEPATIC TUMOR

MARIA DEL CARMEN SARMIENTO CALDAS, LUCAS MORATILLA-LAPEÑA, MANUEL PARRON PAJARES, TRIANA JUNCO PALOMA, JUAN CARLOS LOPEZ GUTIERREZ

Hospital Infantil La Paz, Madrid, Spain

AIM OF STUDY

Congenital hepatic hemangioma (CHH) is the most frequent congenital liver tumor. CHH of large size usually presents shunts and developed acute cardiac failure. Our objective is to describe two cases with a postnatal clinical behavior that does not correspond to any reported previously in the literature.

CASE DESCRIPTION

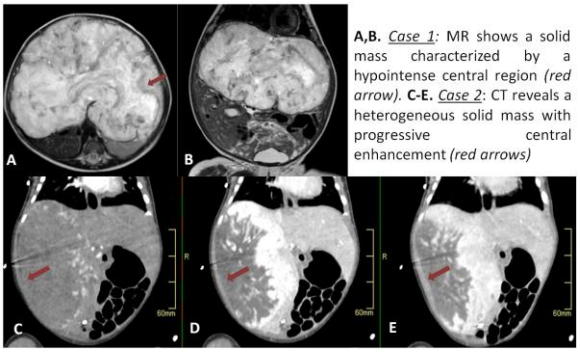
4-month-old infant diagnosed with a gigant hepatic vascular tumor (14x11x9cm) during a sepsis episode. Hemodynamic stability allowed treatment with propranolol and embolization without response. Due to the unfeasibility to perform a safe percutaneous biopsy for diagnosis, a laparotomy with left-extended hepatectomy was performed. Pathology showed a CHH glu-1 negative. Currently she has 8 years-old and remains asymptomatic.

Newborn diagnosed with a big hepatic vascular tumor (7x6x10cm) while transient tachypnea without other symptoms. He received oral treatment with propranolol and sirolimus with no complications. Currently he has 4 month-old, is clinically stable and tumor has reduced to half of its size.

Both cases revealed in imaging a heterogeneous solid mass due to presence of necrosis or calcification, with a progressive central enhancement without shunts or cardiac failure despite the substantial size.

CONCLUSIONS

Asymptomatic presentation without cardiac failure in a congenital hepatic tumor with a significant size show us that despite of the magnitude of the lesion, we can establish new therapeutic protocols that are less aggressive and with good outcomes.



A,B. *Case 1*: MR shows a solid mass characterized by a hypointense central region *(red arrow)*. **C-E.** *Case 2*: CT reveals a heterogeneous solid mass with progressive central enhancement *(red arrows)*

842 - LASER ABLATION FOR PILONIDAL SINUS TREATMENT IN ADOLESCENTS

Jakub Matuszczyk[1], Michał Bobrowicz[1], Katarzyna Szymak[1], Tomasz Janowicz[1,2]

[1]Regional Children's Hospital, Olsztyn, Poland. [2]University of Warmia and Mazury, Olsztyn, Poland

Aim of the study: In 2016, laser ablation was introduced as a treatment method for pilonidal sinus disease. The aim of this study is to present the preliminary results of pilonidal sinus treatment in children at our center.

Methods:

We retrospectively analyzed the records of patients treated for pilonidal sinus in our department from April 2021 to April 2023. We evaluated the effectiveness of the method, healing time, the need for another procedure and the time since the last ablation.

Main results:

In a group of 36 patients, 44 procedures were performed, 29 (80.6%) patients required one procedure, the average wound healing time in this group was 7 weeks. 6 (17.1%) patients required 2 procedures, 1 (2.9%) patient required three procedures. Repeated procedures were performed due to lack of adequate wound healing or another episode after the sinus had fully healed. The time from the last ablation to the repeat procedure was 4-8 months (median 6 months).

Conclusions:

Laser ablation of pilonidal sinus disease using a 1470nm radial diode laser produces good results. The procedure is minimally invasive, the average wound healing time is acceptable. Initial failures of the new method may be due to technical mistakes and lack of proper postoperative management.

601 - SURGICAL INTERVENTIONS IN PEDIATRIC PECTUS EXCAVATUM: A COMPREHENSIVE ANALYSYS OF OUTCOMES IN A SINGLE-CENTER EXPERIENCE

Elena Paoli[1,2], Sara Ugolini[3], Giorgia Libro[1,2], Lorenzo Tofani[4], Valentina Gatti[5], Zoe Pieracci[2], Alessandra Martin[2], Roberto Lo Piccolo[2], Flavio Facchini[2,6], Riccardo Coletta[2,7,8], Antonino Morabito[2,7,8]

[1]School of Pediatric Surgery, University of Florence,, Florence, Italy. [2]Department of Pediatric and Neonatal Surgery, Meyer Children's Hospital IRCSS, Florence, Italy. [3]Deparment of Cardiothoracic Surgery, Wythenshawe hospital, Manchester University NHS Foundation Trust,, Manchester, United Kingdom. [4]Department of Statistics, Computer Science, Applications, University of Florence, Florence, Italy. [5]Department of Anesthesiology and Intensive Care, AOU Careggi, Florence, Italy. [6]Department of Plastic Surgery, Meyer Children's Hospital IRCSS, Florence, Italy. [7]Department of Neuroscience, Psychology, Drug Research and Child Health (NEUROFARBA), University of Florence, Florence, Italy. [8]School of Health and Society, University of Salford, Salford, United Kingdom

AIM:

Standardizing pectus excavatum treatment pathways is challenging, with indications varying across healthcare trusts. Custom 3D-printed silicon prostheses (CmSP) offer a viable alternative for those with less compromised cardiopulmonary function. The aim was to assess, between Nuss procedure and CmSP, whether there were variations in outcomes for patients without cardiopulmonary issues, including morbidity and mortality.

METHOD:

All patients undergoing CmSP and Nuss procedures from 2019 to 2022 at our center were enrolled. Primary outcomes assessed included hospital stay, pain scale (day 1), antibiotic usage, reintervention, recurrence, and short/long-term complications based on the TM&M Ottawa system.

RESULTS:

43 CmSP patients were included. Median age was 17 years (15-25) and 81.4% (35/43) were male. 88.3% (33/43) had PE, 4,65% (2/43) pectus arcuatum, 9.3% (4/43) Poland syndrome. 14 Nuss patients with unimpacted CPF were included. No intraoperative complications, no need for transfusion, and no return to theatre within 30 days were encountered. No difference was found concerning pain score. The need for post-operative antibiotics was significantly higher for Nuss. TM&M registered a complication rate of 81,4% (35/43) and 92.8% (13/14) in CmSP and Nuss (p=0.42). 95.8% (46/48) of them were grade 1-2 (minor complications); Nuss group has apical pneumothorax, whereas all patients in the CmSP group have seroma requiring needle aspiration.

CONCLUSION:

CmPS and Nuss's procedures are commonly performed for PE. The TM&M reports fewer complications with Nuss, yet Nuss entails higher risks and potential reoperation. Custom prostheses may offer superior aesthetics; validated questionnaires will further assess patient satisfaction

852 - AUTOMATED APPROACH TO ANALYSIS OF HIGH-RESOLUTION COLONIC MANOMETRY IN CHILDREN WITH HIRSCHSPRUNG DISEASE USING A BAYESIAN FUNCTIONAL MIXED EFFECTS MODEL

Hannah Evans-Barns[1,2,3], Lukaz Wiklendt[4], John Hutson[1,2,3], Warwick Teague[1,2,3], Mark Safe[1], Sebastian King[1,2,3], Phil Dinning[4,5]

[1]The Royal Children's Hospital, Melbourne, Australia. [2]Murdoch Children's Research Institute, Melbourne, Australia. [3]University of Melbourne, Melbourne, Australia. [4]Flinders University, Adelaide, Australia. [5]Flinders Medical Centre, Adelaide, Australia

Aim: Post-operative bowel dysfunction is prevalent in children with Hirschsprung disease (HD). The aim of this study was to characterise the colonic meal response, recorded by high-resolution colonic manometry (HRCM), using a Bayesian functional mixed effects model, and compare findings with healthy controls.

Methods: A HRCM catheter was positioned in the colon with sensors spanning the caecum to anus. A one-hour baseline recording was followed by a meal challenge and a further one-hour recording. The control group consisted of 13 healthy young adults. Cross-wavelet analysis was used to compute the frequency and direction of all propagating pressure waves (PPW). A latent Gaussian Process model was used compare the effects of the meal on PPW within, and between, patients and controls. Ethical approval was obtained (HREC 64192).

Results: A meal was eaten by 13 children (12 male; 6.83±2.56 years; 9/13 short-segment). In the proximal colon, while the meal induced a significant increase in both antegrade and retrograde PPW across a range of frequencies (1/16 to 8 cycles per minute [cpm]), the effect was significantly reduced in HD. In the distal colon of controls, the meal induced a significant increase in all PPWs between 1/16 – 8 cpm. In HD, the meal did not increase PPW between 2-10cpm.

Conclusions: Compared with healthy controls, patients with HD demonstrated significantly reduced prevalence of propagating pressure waves throughout the entire colon, and a failed meal response in the distal colon. These data indicate dysmotility of the retained, ganglionic colon of children with HD.

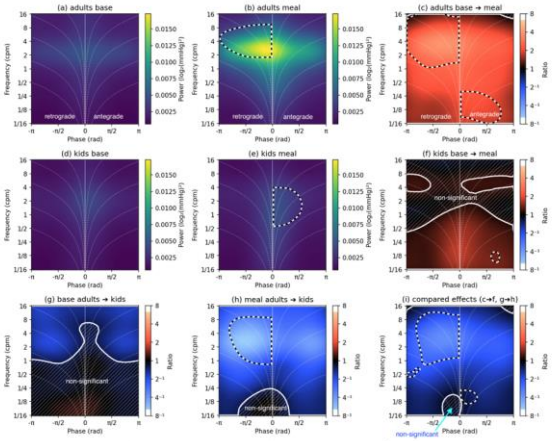


Fig 1: Automated analysis of PPWs in the distal colon at frequencies between 1/16th and 16 cpm. In each panel, the vertical line at 0 on the x-axis indicates synchronous (non-propagating) activity. Retrograde propagation is to the left of the midline, and antegrade to the right. In A, B, D, and E, green pixels represent increasing power. The bottom row compares power across the frequency range between HD and controls during pre-prandial (G) and post-prandial (H) periods. The blue regions demarcated by the solid white line indicate frequencies that are significantly reduced in HD compared with controls. (C & F) compare power of PPW between pre-prandial and post-prandial periods, for controls and HD. The extensive orange/red regions in (C) demarcated by the solid white lines indicate a significant increase in PPW. This increase is seen in HD (F). (I) compares the meal effect between HD and controls, the blue regions indicating a significantly reduced meal response in HD.

789 - New variant of non-involuting congenital hemangioma?

Miriam Maestre-Martinez, Irene Diez Bartolomé, Mercedes Diaz Gonzalez, Miriam Miguel Ferrero, Paloma Triana Junco, Juan Carlos Lopez Gutierrez

Hospital Universitario la Paz, Madrid, Spain

Abstract

Aim of the Study

The classification of vascular tumors is still under revision and the genetic impact is still to be elucidated. Non-involuting congenital hemangiomas (NICH), in contrast to rapidly involuted ones, do not usually have a mass effect and present more frequently as erythematous plaques. Congenital hemangiomas are known to be due to somatic mutations of the GNAQ/GNA11 gene in exon 209. Our aim is to describe a new phenotype of NICH with clinical manifestations overlapping features of NICH and port-wine stains.

Methods

We reviewed 7 cases from our center that we subsequently expanded internationally identifying a total of 31 patients diagnosed with vascular anomalies with atypical features. All of them presenting lesions characterized by patches, plaques and vascular nodules with segmental distribution, intense purplish red color, geographic borders, variable thickening, central atrophy and episodic ulceration, a phenotype that does not fit the patterns of capillary malformations or typical congenital hemangiomas.

Main results

We present 31 patients, 13 were genetically studied, showing a postsomatic mutation in exon 209 of GNAQ/QNA11 gene.

Conclusions

The genetic study of previously undiagnosed and atypical malformations is helping us in their screening and classification. The borderline between tumors and malformations is no longer so clear, and recently described anomalies present hybridization between this two. Genetic advances in the study of vascular anomalies have allowed a better classification of these anomalies. We continue to find entities that are difficult to classify clinically but which, due to their genotypic characteristics, can be better studied and classified.

865 - EXPLORING THE ROLE OF BIOPROSTHESIS FOR CHEST WALL RECONSTRUCTION : AN ANALYSIS

Chiara Oreglio[1], Flavio Facchini[2], Roberto Lo Piccolo[2], Elisa Severi[2], Alessandro Gonfiotti[3], Chiara Grimaldi[2], Antonino Morabito[2,4,5]

[1]School of Paediatric Surgery, University of Florence, Florence, Italy. [2]Department of Pediatric and Neonatal Surgery, AOU Meyer IRCCS, Florence, Italy. [3]Thoracic Surgery Unit, AOU Careggi, Florence, Italy. [4]Department of Neurosciences, Psychology, Drug Research and Child Health (NEUROFARBA), University of Florence, Florence, Italy. [5]School of Health and Society, University of Salford, Salford, Italy

AIM OF THE STUDY

Investigating the possible role of resorbable prosthesis in the treatment of Chest Wall Ewing Sarcoma (CWES) after major chest wall resection in the paediatric population. The ongoing growth process in this population has led to significant controversy. This study presents the insights from a third referral center, encompassing the cases of the youngest CWES patients documented in the literature who have undergone major surgery.

METHODS

We collected all cases of Chest Wall Ewing Sarcoma (CWES) managed at our facility over a period of five years. Inclusions criteria were: diagnosis of CWES, multidisciplinary evaluation at the tumor board with pediatric, plastic, thoracic and orthopedic surgeons and pediatric oncologist, follow-up at our dedicated outpatient clinic.

MAIN RESULTS

3 patients were included in the study, 2 males and 1 female. Mean age at diagnosis was 11 years (range 1 – 19). 1 patient presented lung metastases at diagnosis. All patients underwent neoadjuvant chemotherapy regimen. Latissimus dorsi muscle pedicled flap was performed in all cases to cover and protect a porcine resorbable prosthesis (Permacol). Mean follow-up time was 9.3 months.

CONCLUSION

To our knowledge, our series includes the youngest patient ever documented in the literature to be treated with a resorbable prosthesis. Based on the follow-up observations, this approach appears to be both safe and effective for pediatric patients with Chest Wall Ewing Sarcoma CWES. A multidisciplinary approach remains essential.

414 - FAT GRAFTING IN PEDIATRICS: A SINGLE CENTER RETROSPECTIVE ANALYSIS OF 123 PROCEDURES

Maria Victoria Romanini[1], Ida Barretta[1,2], Luca Genova Gaia[1,2], Michele Torre[1,2]

[1]IRCCS Istituto Giannina Gaslini, Pediatric Surgery, Genoa, Italy. [2]University of Genoa, DINOGMI, Genoa, Italy

Abstract

Aim of the Study: Autologous fat grafting (AFG) is an emerging technique for cosmetics and functional treatments, not only for increase the volume of the tissue but also for its regenerative and skin texture improvement (nanofat). However, the experience in pediatric patients is still limited. This study aims to evaluate indications, procedure, outcome, and complications of AFG in a cohort of pediatric patients.

Methods: A retrospective analysis of AFG procedures in pediatric patients at our center from 2011 to December 2023 was conducted. Results were evaluated during outpatient appointments and scheduled periodic re-evaluations using 3D analysis pictures and the Posas scar scale.

Main Results: In 81 patients (8–18-year-old, 42 females and 39 males), 123 procedures were performed, with an average of 1.6 procedures per patient (range: 1-5) and a mean volume injected of 132 ml (range: 8-285 ml) per procedure. Most frequent indications were thoracic malformations, including Poland Syndrome, Pectus Excavatum, severe breast asymmetry, and scar sequelae, for which specifically nanofat was used. The mean follow-up was 42 months. In all cases, we observed an improvement of the thoracic condition and of the quality of the skin scar. As complication, we observed one case of abdominal hematoma at the donor site which required drainage.

Conclusion: Despite the challenge of limited fat tissue availability in children, our study demonstrates the safety and efficacy of AFG for pediatric conditions. The documented volume-restoring and tissue-regenerating potential suggest a need for further exploration to expand indications and establish best-practice guidelines for pediatric patients.

434 - ENHANCED RECOVERY AFTER UROLOGICAL RECONSTRUCTIVE SURGERY IN PEDIATRIC PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Giulia Maisano, Pietro Impellizzeri, Fabiola Cassaro, Gabriela Vallejo Chamorro, Angela Simona Montalto, Rosa Lorito, Carmelo Romeo, Salvatore Arena

University of Messina, Messina, Italy

Aim of the study:

Enhanced Recovery After Surgery (ERAS) is a protocol that include rules aimed to minimize surgical stress and reduce the post-operative period. The first time, it was applied in intestinal surgery of the adult and a recent meta-analysis sugged that ERAS is a valid also in pediatric gastrointestinal surgery. Aim of the study was to perform a systematic review and to assess a meta-analysis to evaluate the possible advantages of the ERAS protocol in pediatric urological reconstructive surgery.

Methods:

A search for studies was done on PubMed, including papers comparing ERAS and traditional protocol in children undergoing urological reconstructive surgery. Data on major and minor complications, hospital readmission and length of hospital stay were collected and analyzed. Analyses were performed using OR and CI 95%. A P-value<0.05 was considered significant.

Main results:

A total of 8 papers met the inclusion criteria, with 1183 included patients (356 subjected to ERAS protocol, 827 were not subjected to ERAS protocol). There were significant differences in major complication (p=0.011) and length of stay (p<0.001) favouring patients undergoing ERAS protocol; differently, there was no diffecence in incidence of minor complications (p=0.364) and hospital readmission (p=0.427).

Conclusions:

Our meta-analysis suggest that the ERAS protocol is safe and feasible for children undergoing reconstructive urological surgery, reducing the risks of major complications and the length of hospital stay, without causing an increase in the risk of readmission. ERAS should be a standardized procedure also in pediatric reconstructive urological surgery.

589 - MUSCLE REGENERATION AND CONTRACTILE FUNCTION IN TISSUE ENGINEERED OESOPHAGUS; ARE WE READY FOR PATIENTS?

Natalie Durkin[1], George Hall[2], Theodoros Xenakis[2], Marianna Scuglia[1], Roberto Lutman[1], Giulia Patera[1], Daniele Di Biagio[1], J Ciaran Hutchinson[3], Lucinda Tullie[1], Koji Yamada[1,4], Dominic Scaglioni[1], Sahira Khalaf[1], Tarek Saleh[1], Valerijia Karaluka[5], Mattia F M Gerli[1,6], Soichi Shibuya[7], Dominika Borselle[8], Matías Garrido Flores[9], Paola Bonfanti[9], Lei Wu[6], Xia Huang[6], Wenhui Song[10], Kornilia Nikaki[11], Osvaldo Borrelli[11], Conor McCann[1], Sergi Castellano[2], Simon Eaton[1], Paolo de Coppi[1,12], Marco Pellegrini[1]

[1]Stem Cell and Regenerative Medicine Section, Developmental Biology and Cancer Research, Zayed Centre for Research into Rare Disease in Children, Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [2]Genetics and Genomic Medicine Department, UCL Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [3]Department of Histopathology, Great Ormond Street Hospital for Children, London, United Kingdom. [4]Department of Paediatric Surgery, Research Field in Medicine and Health Sciences, Research and Education Assembly, Kagoshima University, Kagoshima, Japan. [5]NIHR GOSH Biomedical Research Centre, Great Ormond Street Hospital, London, United Kingdom. [6]Division of Surgery and Interventional Science, University College London, London, United Kingdom. [7]Department of Pediatric General and Urogenital Surgery, Juntendo University School of Medicine, Tokyo, Japan. [8]Department of Pediatric Surgery and Urology, Wroclaw Medical University, 50-367 Wroclaw, Wroclaw, Poland. [9]Epithelial Stem Cell Biology and Regenerative Medicine Laboratory, The Francis Crick Institute, London, United Kingdom. [10]Department of Surgical Biotechnology, University College London, London, United Kingdom. [11]Department of Gastroenterology, Great Ormond Street Hospital for Children, London, United Kingdom. [12]Department of Specialist Neonatal and Paediatric Surgery, Great Ormond Street Hospital for Children, London, United Kingdom

Aims

To evaluate recapitulation of autologous bioengineered grafts to native esophageal architecture and function in a pre-clinical model of long-gap esophageal atresia

Methods

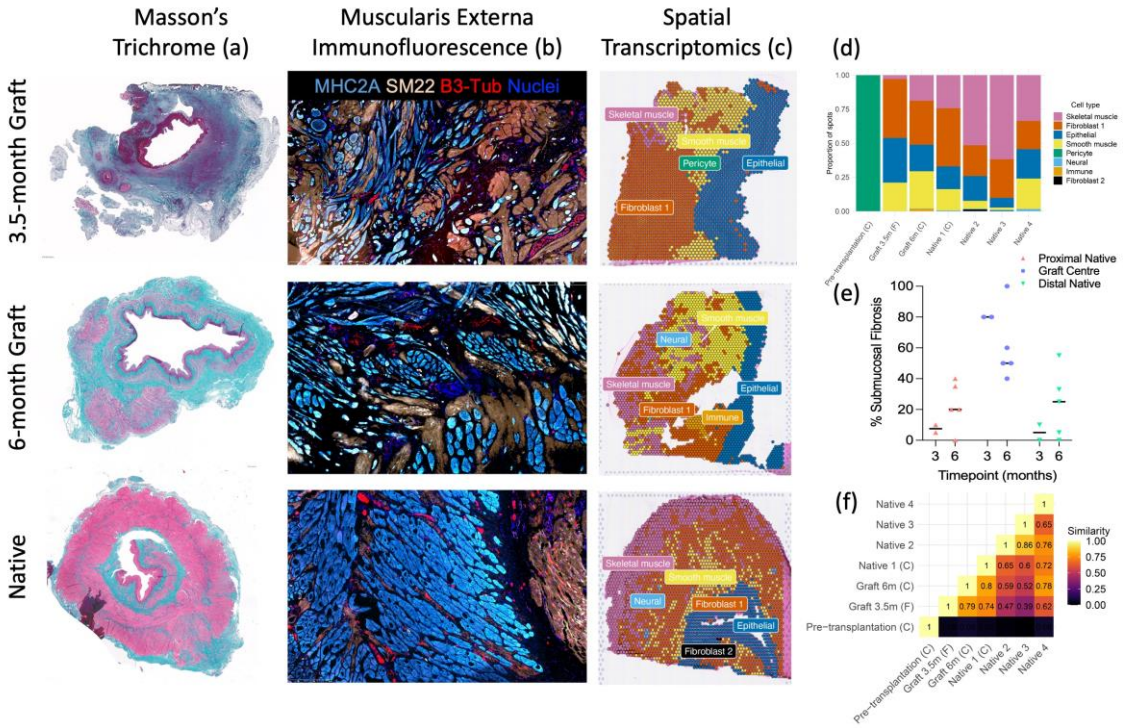
Autologous myogenic cells were injected into decellularised porcine scaffolds with 7-day bioreactor maturation prior to thoracic transplantation in mini-pigs with vascularizing pleural wraps (2.5cm, n=8). Intra-operative biodegradable stents were replaced endoscopically at 3 months (m) and impedance manometry performed at planned 6m endpoint (Licence:P43EF9FB6). Post-implantation grafts assessed by histological/immunofluorescent staining underwent spatial transcriptomic analysis (10XGenomics Visium) at two timepoints (n=2, 3.5vs.6m) with native oesophagus (n=4) and pre-transplantation graft (n=1) as controls. Expression of marker genes in low-resolution clustering identified dominant cell type/spot, then used to quantify inter-sample spatial similarity.

Results

Orthotopic graft transplantation is safe; 30-day survival was 100%, with 63% reaching the planned endpoint, stent-free. Functional graft muscle was confirmed by induction of secondary peristalsis on manometry and validated by ex-vivo contractility (n=5). Histology (a) and immunofluorescence (b) confirmed grafts recapitulate native architecture; mature squamous epithelium and innervated (B3-Tub) focal muscle (smooth (SM22) +/-skeletal (MHC2A)) was found in all animals by 6m. Spatial transcriptomics confirmed appropriate distribution of cell types (c). Increased proportions of smooth/skeletal muscle and fewer fibroblasts were found at 6vs.3m (d), validated by blinded histological assessment by consultant histopathologist (50(40-100) vs. 80(80-80)% fibrosis; p=ns, two-way ANOVA, e). Spatial similarity of grafts to native tissue increased over time (0.73 vs. 0.8, 3vs.6m, f).

Conclusions

Multi-modal assessment of post-implantation grafts shows excellent correlation with native esophageal anatomy and function, supporting future translation.



583 - ARGON INHALATION RESCUES SEPSIS-RELATED ORGAN INFLAMMATION THROUGH THE LIVER-GUT AXIS

Felicia Balsamo[1], Sinobol Chusilp[1], Dorothy Lee[1], Mina Yeganeh[1], George Biouss[1], Carol Lee[1], Bo Li[1], Jason Maynes[2], Agostino Pierro[1]

[1]Division for General and Thoracic Surgery, Hospital for Sick Children, Toronto, Canada. [2]Department of Anesthesia and Pain Medicine, Hospital for Sick Children, Toronto, Canada

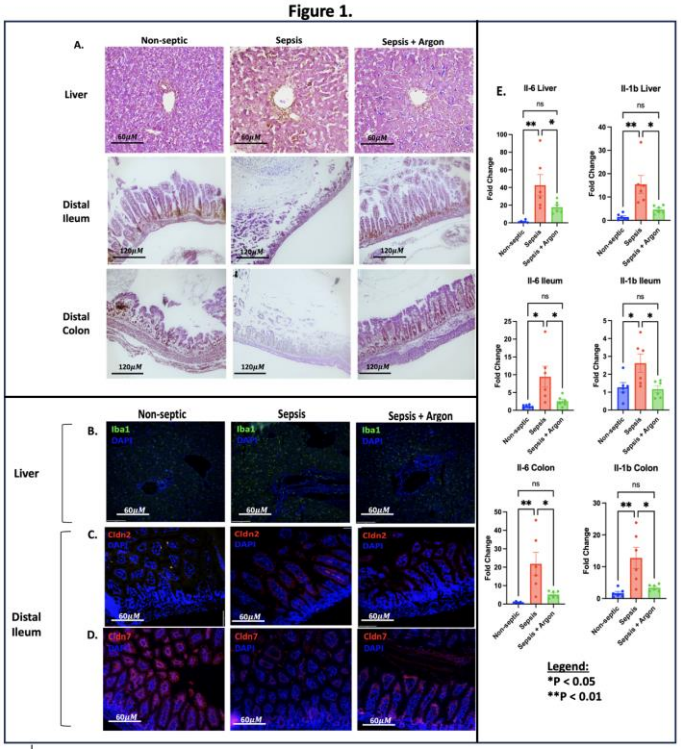
Background/Aim: Sepsis is a leading cause of mortality in neonates. The systemic inflammatory infection induces liver and gut inflammation, as well as dysfunction of the gut barrier, ultimately, exacerbating the systemic inflammatory response. Moreover, these neonates are frequently mechanically ventilated creating the opportunity for inhalation therapy. Argon inhalation reduces the systemic inflammatory phenotype during sepsis. We aim to investigate whether argon can diminish the inflammatory response in the liver and gut during experimental neonatal sepsis.

Methods: Sepsis was induced in C57BL/6 pup mice on postnatal day 9 by intraperitoneal injection of lipopolysaccharide (20mg/kg). Three groups of neonatal mice (non-septic, sepsis, sepsis+argon) were studied. In the argon group, septic pups received argon inhalation (70% argon, 30% oxygen) for 6 hours. After 6 hours, tissues were harvested from terminal ileum, colon, and liver.

Results: Argon inhalation rescued liver and gut morphology (**Fig. 1A**). Analysis by immunofluorescence staining of macrophage marker Iba1 in the liver (**Fig. 1B**) and intestinal permeability marker Cldn2 in the distal ileum (**Fig. 1C)** and colon were reduced in septic mice that received argon. In addition, expression of tight junction protein marker Cldn7 was increased in the distal ileum (**Fig. 1D**) and colon. mRNA expression of proinflammatory cytokines *IL-6* and *IL-1b* were significantly reduced in the argon group for liver, distal ileum, and colon (**Fig. 1E**).

Conclusions: Argon inhalation is a novel treatment in neonatal sepsis. It can revert sepsis-induced organ inflammation within the liver-gut axis, preserve gut barrier function, and may prevent the progression to multiple organ dysfunction.

Figure 1.



538 - PRENATAL MODELLING OF CONGENITAL DIAPHRAGMATIC HERNIA USING AMNIOTIC AND TRACHEAL FLUIDS-DERIVED LUNG ORGANOIDS

Giuseppe Calà[1], Max Beesley[1], Federica Michielin[1], Francesca M Russo[2], Anna Straatman-Iwanowska[3], Robert Hirst[3], Christopher O'Callaghan[1], Alessandro Olivo[1], Stavros Loukogeorgakis[1,4], Jan Deprest[2], Giovanni G Giobbe[1], Paolo De Coppi[1,4], Mattia FM Gerli[1]

[1]University College London, London, United Kingdom. [2]UZ Leuven, Leuven, Belgium. [3]University of Leicester, Leicester, United Kingdom. [4]Great Ormond Street Hospital, London, United Kingdom

Aim of the study: This work aims at testing a fetal lung organoid-based system to model and examine functional outcome of congenital diaphragmatic hernia (CDH), while allowing the continuation of pregnancy.

Methods: Human amniotic (AF) and tracheal fluids (TF) were collected from CDH pregnancies (n=20 AF 28-34 GA; n=17 TF 29-34 GA) pre- and post-Fetoscopic Endoluminal Tracheal Occlusion (FETO) and GA-matched healthy controls. Viable cells were cultured in 3D extracellular matrix and chemically defined medium. Lung organoids were expanded clonally and characterised by bulk and single-cell RNA sequencing, and immunofluorescence.

Main results: We generated AF-derived lung organoids (CDH LAFO) from 16/20 CDH fetuses and TF-derived lung organoids (CDH LTFO) from 7/17 CDH fetuses. CDH organoids expanded for multiple passages and expressed lung epithelial stem/progenitor cell markers NKX2-1, SOX2 and P63 along with proliferative marker Ki67. *SOX9* expression was downregulated in CDH organoids generated post-FETO, indicating enhanced tissue maturation. Notably, comparative analysis between CDH and control LAFO revealed reduction in differentially expressed genes (DEGs; $p<0.01$, $|LFC|>2$) between organoids generated before (380 DEGs) and after (102 DEGs) FETO. Additionally, single-cell RNA sequencing unveiled substantial differences in cellular composition between CDH and control lung organoids, highlighting the unique characteristics of organoids obtained from CDH patients.

Conclusions: Lung organoids can be successfully derived from CDH AF and TF collected before and after FETO, through minimally invasive sampling. Our data shows that this innovative 3D model could find potential use to model CDH disease progression, predict outcomes, and conduct personalised drug testing prenatally.

656 - LIPID NANOPARTICLE DELIVERY OF MIRNA-148A PRESERVES INTESTINAL EPITHELIAL PERMEABILITY DURING EXPERIMENTAL NECROTIZING ENTEROCOLITIS (NEC)

Mina Yeganeh[1], Jingan Chen[2], Felicia Balsamo[1], Naho Fujiwara[1], Bo Li[1], Carol Lee[1], Bowen Li[2], Agostino Pierro[1]

[1]Hospital for Sick Children, Toronto, Canada. [2]University of Toronto, Toronto, Canada

Aim

NF-κB signaling is a central inflammatory pathway that is overexpressed in experimental NEC. NF-κB pathway activation is linked with increased intestinal inflammation and epithelial permeability. miRNA-148a – the most abundant miRNA in milk extracellular vesicles – shows anti-inflammatory effects in experimental NEC. However, its underlying mechanisms remain unclear. Here, we investigate the effect of miRNA-148a on NF-κB signaling and its subsequent role on intestinal permeability. miRNA-148a was delivered *in vivo* using lipid nanoparticles (LNPs), the same technology employed in COVID-19 vaccines.

Methods

In vivo

NEC was established in neonatal C57BL/6 mice from postnatal day (P) 5-9. miRNA-148a (in LNPs) or PBS were administered via enema on P6-7. On P9, the distal ileum was harvested for analysis. Breast-fed mice served as control. Immunofluorescent staining was performed for Claudin-2, an intestinal permeability marker.

In vitro

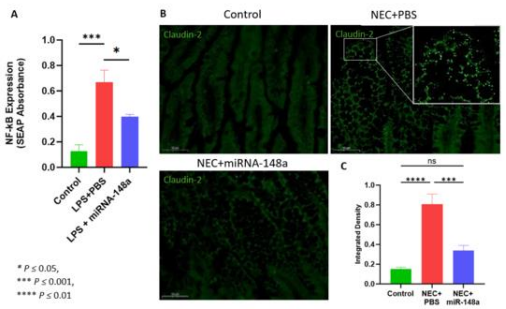
NF-κB/Seap Reporter Cells were treated with lipopolysaccharide (LPS) to induce NF-κB activity. Cells were then treated with either miRNA-148a or PBS. Untreated cells served as controls. These cells are engineered to express Seap (secreted alkaline phosphatase protein) upon activation of NF-κB. Therefore, NF-κB activation was assessed by measuring the absorbance of Seap protein.

Main Results

Administration of miRNA-148a *in vitro* inhibited NF-κB signaling (Figure 1A). In experimental NEC, miRNA-148a improved intestinal permeability, compared to untreated NEC (Figure 1B-C). Overall, by preventing inflammatory responses downstream of NF-κB, miRNA-148a improved epithelial permeability in experimental NEC.

Conclusions

miRNA-148a demonstrates a protective role in the intestine by preserving epithelial barrier integrity. These findings provide further insight into the protective mechanisms of miRNA-148a in NEC.



383 - TREATMENT WITH STEM CELL-DERIVED EXTRACELLULAR VESICLES IMPROVES AIRWAY BRANCHING MORPHOGENESIS VIA TGF-BETA MODULATION IN A RAT MODEL OF OLIGOHYDRAMNIOS

Fabian Doktor[1,2], Rebeca Lopes Figueira[1,2], Lina Antounians[1,2], Kasra Khalaj[1,2], Mikal Obed[1,2], Victoria Fortuna[1,2], Augusto Zani[1,2,3]

[1]Developmental and Stem Cell Biology Program, Peter Gilgan Centre for Research and Learning, The Hospital for Sick Children, Toronto, Canada. [2]Division of General and Thoracic Surgery, The Hospital for Sick Children, Toronto, Canada. [3]Department of Surgery, University of Toronto, Toronto, Canada

Purpose: Oligohydramnios-induced pulmonary hypoplasia is a severe condition associated with high morbidity and mortality, and with no effective treatment. It has been shown that antenatal administration of amniotic fluid stem cell extracellular vesicles (AFSC-EVs) promotes lung branching morphogenesis in experimental congenital diaphragmatic hernia (CDH). The aim of this study was to investigate the ability of AFSC-EV treatment to rescue lung development in a model of oligohydramnios.

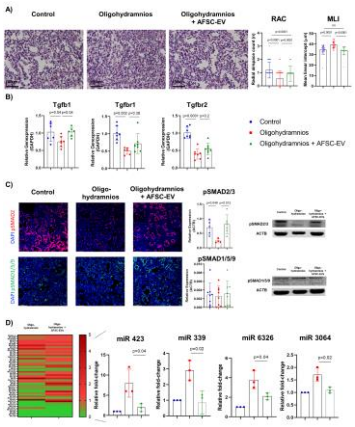
Methods: *AFSC-EVs*: isolated by ultracentrifugation and characterized by nanoparticle tracking analysis (size), electron microscopy (shape), and Western blotting (EV canonical-markers).

Animals: Oligohydramnios was induced by amniotic fluid drainage in rats at embryonic (E) day 16.5 (AUP#49892). Control dams underwent laparotomy without drainage. Lungs were harvested (E19.5), grown (24h), and treated with/without AFSC-EVs.

RNA sequencing: Three samples per group were used for library preparation (Ribo-ZeroPlus) and sequencing (Illumina-NovaSeq2). DESeq2/Reactome were employed for differential gene expression analysis.

Outcome measures: Lungs were compared for branching morphogenesis (mean linear intercept, radial airspace count; HE), gene expression (RNA-sequencing,RT-qPCR) and protein expression (Western Blot/immunofluorescence).

Statistics: ANOVA/Kruskal-Wallis.



Results: Compared to control, oligohydramnios lungs had reduced branching morphogenesis and impaired TGFb-signaling (Tgfb1,Tgfb receptors, pSMAD2/3), which is key for lung development (**Fig.1A-C**). AFSC-EV-treated lungs had increased airspace density, restored canonical TGFb-signaling, and decreased expression of miRNAs that regulate TGFb-signaling (**Fig.1A-D**).

Conclusions: This study reveals that antenatal treatment with AFSC-EVs improves lung development not only in CDH pulmonary hypoplasia but also in oligohydramnios-induced hypoplastic lungs. Further studies are underway to unravel AFSC-EV mechanism of action in oligohydramnios-induced pulmonary hypoplasia.

376 - PREVENTION OF EXCESSIVE SCARRING IN CHILDREN WITH BURN INJURY BY STIMULATING WOUND HEALING

Sergey Minaev[1], Oksana Vladimirova[1], Jennifer Martinez[2], Terekhin Anton[3], Vergasov Muradin[4], Igor Kirgizov[5], Irina Samoilina[1]

[1]Stavropol State Medical University, Stavropol, Russian Federation. [2]Saint-Petersburg State Pediatric Medical University, Saint-Petersburg, Russian Federation. [3]Regional Clinical Hospital N2, Tyumen, Russian Federation. [4]Stavropol Regional Clinical Hospital, Stavropol, Russian Federation. [5]Russian Medical Academy of Postgraduate Education, Moscow, Russian Federation

Abstract

The aim of the Study was to improve the results of burns treatment and reduce the risk of excessive scars developing in children.

Methods. A study was conducted on the effectiveness of perioperative treatment of wounds with a cold plasma steam and intraoperative use of platelet-rich autoplasma (PRAP) during autodermoplasty in the main group among 32 patients aged 12-18years of both sexes with deep burns up to 10% of the body mass. A control group consisted of 28 patients of identical age, where traditional surgery was performed. Assessment of scar healing and development was carried out using the author's rating scales and PC programs. Outpatient observation for at least seven months, including remotely utilizing the author's application for mobile devices "Scar Diary".

Main results. In patients of the main group, epithelization occurred on average 3.1 days earlier than in patients in the control group. The incidence of excess scar development in the control group was 4.9 times higher than in the main group (13.8% and 44.4%, $p<0.002$), and the differences in odds were statistically significant (95% CI:2.328 –10.455).

Conclusions. The use of PRA in combination with a cold plasma stream wound treatment improves healing in children with burn injuries. This was due to various growth factors and cytokines with a decrease in the intensity of inflammation. Also, stabilization of the synthesis of the extracellular matrix with stimulation of physiological vascularization of the wound led to rapid and physiological healing. It reduced the risk of developing excessive pathological scarring.

881 - IS TUBEROUS BREAST MORE FREQUENT IN POLAND SYNDROME? INCIDENCE AND TREATMENT IN FEMALE ADOLESCENTS

VALENTINA FORLINI[1,2], Franchelli Simonetta[3], Maria Victoria Romanini[1]

[1]Giannina Gaslini Children's Hospital, Genoa, Italy. [2]University of Genoa, DINOGMI, Genoa, Italy. [3]San Martino Hospital, Genoa, Italy

Aim of the study: Both Poland Syndrome (PS) and Tuberous breast (TB) are conditions affecting the breast, but they are considered mutually exclusive. Our aim was to determine the possible coexistence of PS and TB, which is relevant to define reconstructive surgical plans, and to discuss TB management when associated with PS.

Methods: 51 adolescent female PS patients were studied in our center between 2010 and 2022. Among these, we evaluated those who developed TB after puberty. PS diagnosis was made based on the hypoplasia or absence of pectoralis major muscle detected clinically and confirmed radiologically. Breast anomaly on PS side was classified with Thorax Breast and Nipple (TBN) classification: B1 correspond to breast hypoplasia, B2 to breast aplasia. TB diagnosis was made with a clinical evaluation after puberty. TB were classified according to Groulleau classification.

Main results: Among 51 post-pubertal PS females, we identified 23 cases (45%) who developed TB. In 3 cases (13%) TB was bilateral, in 20 (87%) contralateral to PS affected side. Age at time of the first surgical procedure was 16 years. Patients were treated with breast implants, fat grafting, local flaps or a combination. TB treatment was performed simultaneously with PS breast reconstruction when feasible, or after it

Conclusions: TB incidence in our series is almost twice than in general population. This is the first study demonstrating and quantifying this association. TB deformity must be considered while defining PS surgical path in girls. A multidisciplinary approach is needed to minimize number of surgeries and maximize cosmetic results.

727 - Vacuum-Assisted Closure of Congenital Abdominal Wall Defects

Elena Țarcă[1,2], Bogdan Savu[1,2], Dina Al Namat[2], Ana Maria Scurtu[2], Elena Hanganu[1,2], Viorel Tarca[3]

[1]University of Medicine and Pharmacy ”Gr.T.Popa”, Iasi, Romania. [2]“Saint Mary” Emergency Children Hospital, Iasi, Romania. [3]"Apollonia" University, Iasi (Iasi), Romania

Introduction:

Omphalocele and gastroschisis are among the most common congenital abnormalities, and still represent a treatment challenge for pediatric surgeons. Due to their lifelong impact on health and survival, abdominal wall defects (AWD) are recognized as a global neonatal health priority, new therapeutic solutions being proposed and debated.

The aim of our study is to demonstrate the effectiveness of closing AWD using negative pressure (VAC).

Methods and Results: In the last three years, 25 AWD newborns were treated in the neonatal intensive care unit of our tertiary emergency children's hospital. Nine patients (3 omphalocele and 6 gastroschisis) benefited from the integration of the intestinal loops or the liver in the peritoneal cavity and the closure of the AWD with the help of VAC. The demographic and clinical characteristics of the classically treated group were similar to those of the group treated with VAC, except for the size of the defect and the degree of viscero-abdominal disproportion. The survival rate in the VAC group was 77.7%, higher than the rate of 75% in the classically treated group. The rate of surgical wound infections was lower in the VAC group and the duration of hospitalization was similar for the two groups of patients.

Conclusion: Considering the fact that the VAC group included newborns that had the highest risk of developing abdominal compartment syndrome or surgical wound infections, this study shows evidence that VAC may be a good option for closure of AWD, minimizing associated comorbidities inherent to a prolonged hospitalization.

248 - SOMATOSTATIN ANALOGUE (OCTREOTIDE) AND SIROLIMUS IMMUNOSUPPRESSIVE THERAPY IN TREATMENT OF CHYLOPERITONEUM AND CHYLOTHORAX IN NEWBORNS AND INFANTS

Aleksandra Gurskaya[1], Mariya Sulavko[1], Sergei Zorkin[1], Rimir Baiazitov[1], Ekaterina Ekimovskaya[1], Oleg Nakovkin[1], Inna Karnuta[1], Anna Klepikova[1], Dinara Akhmedova[1], Ruslan Hagurov[2], Garik Sagoyan[3], Yelena Dyakonova[1]

[1]National Medical Research Center for Children's Health, Moscow, Russian Federation. [2]N.F. Filatov Children's City Hospital of Moscow Department of Health, Moscow, Russian Federation. [3]N.N. Blokhin National Medical Research Centre of Oncology of the Ministry of Health of Russia, Moscow, Russian Federation

Background. Chyloperitoneum (CP) and chylothorax (CT) are rare conditions with high mortality and unclear treatment.

Objective. To evaluate the outcomes of synthetic somatostatin analogue (octreotide) and sirolimus immunosuppressive therapy of CP/CT in newborns and infants.

Materials and methods. Our retrospective study included patients from 0 to 5,5 months with CP (n=7) and CT (n=3). All children received abdominal or chest drainage, parenteral feeding. Ultrasound examinations, blood and drainage fluid biochemical tests were performed. We started with octreotide at a dose of 5-10 mcg/kg/h and in case of no effect shifted to sirolimus. The initial dose was 0.05 mg/12h, further correction was based on sirolimus blood concentration checked every 10-14 days.

Results. Octreotide therapy was effective in 5 children after 10-18 days of treatment. The effect of sirolimus therapy (no drainage discharge) was observed on 8-14 days from its start. One patient with a history of a giant omphalocele primary closure had complications after 8 weeks of sirolimus intake: bilateral knee arthritis, leukopenia, lymphopenia. We had no lethal outcomes, the long-term follow-up was from 7 months to 4 years.

Conclusion. Sirolimus therapy proved to be effective in newborns with CP/CT. Octreotide therapy (used prior to sirolimus) is to be 7-10 days and if no effect is obtained, sirolimus should be prescribed. Long wait for effect in newborns can lead to severe protein losses and worsen the patients' condition. Due to the rarity of this pathology, our experience was based on a small cohort, so further multicenter research is needed.

263 - MICROTIA RECONSTRUCTION-SINGLE CENTER EXPERIENCE

Aleksandar Vlahović[1], Aleksandar Urošević[2]

[1]Institute for Mother ad Child Health Care, Belgrade, Serbia. [2]Atlas hospital, Belgrade, Serbia

Abstract

Aim of the Study

Microtia represents severe hypoplasia of external ear with variable incidence. There are several classifications of microtia (the most popular is presented by Nagata). Indications for surgical treatment are aesthetic, functional, and psychosocial. There are different treatment options for microtia. Autologous reconstruction is the most widely used approach. Dr Françoise Firmin presented her own surgical classification for microtia and developed a number of modifications to establish her own two-stage autologous technique of microtia reconstruction.

Methods

Here we present a retrospective analysis of 6-year experience in treatment of microtia using Firmin surgical classification and technique.

Main results

From 2017 to 2023 a total of forty children with microtia were treated. Thirty-eight children had unilateral microtia and two children had bilateral microtia. In total, forty-two auricular reconstructions for microtia were performed. According to Nagata 62% of patient had lobule type of microtia, 8% concha type, 25% small concha type, and 5% had anotia. There were 23 boys and 17 girls. Right side were involved in 54%, left side in 41% and bilateral microtia was noted in 5% of patients. Frame type, skin approach, number of ribs harvested and second stage approach were used and analyzed according to Dr Firmin classification. Complications were noted in 5 patients.

Conclusions

Dr. Firmin's surgical algorithm in ear reconstruction is applicable to all types of microtia. If applied adequately, gives very good results with few complications.

112 - MANAGEMENT AND LONG-TERM OUTCOMES OF PATIENTS WITH CERVICAL LYMPHATIC MALFORMATIONS

Hanna Hyvönen[1], Riikka Schultz[2], Johanna Aronniemi[3], Johanna Nokso-Koivisto[4], Päivi Salminen[1], Kristiina Kyrklund[1]

[1]New Children's Hospital, Department of Pediatric Surgery, Helsinki University Hospital and University of Helsinki, Helsinki, Finland. [2]HUS Diagnostic Center, Department of Radiology, Helsinki University Hospital and University of Helsinki, Helsinki, Finland. [3]HUS Diagnostic Center, Department of Radiology, New Children's Hospital, Helsinki University Hospital and University of Helsinki, Helsinki, Finland. [4]Department of Otorhinolaryngology - Head and Neck Surgery, Helsinki University Hospital and University of Helsinki, Helsinki, Finland

Aim of the Study

To describe the management and outcomes of patients with congenital cervical lymphatic malformations (LMs).

Methods

The clinical and imaging records of all patients diagnosed with cervical LMs at <1 month of age 2006–2023 at our tertiary center were cross-sectionally analyzed. Data are presented as median(range).

Main results

Of a total of 23 patients (12 female), 5 (22%) patients with airway comprising, extensive LMs had a prenatal diagnosis; all had undergone fetal MRI to determine extent and birth modality. They were delivered by EXIT procedure and intubated without complications. Tracheostomy was required in these and two other patients (7/23; 20%) at 0 (0–2) months of age due to airway compromise. Primary sclerotherapy to relieve airway obstruction was performed in 5 cases at 4 (0–22) months of age (4 (1–9) sessions/patient); surgical debulking of external macrocysts was additionally performed in one case after unsuccessful sclerotherapy. 8/23 (35%) patients with smaller LMs were followed up conservatively with spontaneous improvement in all. Somatic *PIK3CA* mutations were positive in 75%. All patients with tracheostomy have been decannulated at 2.8 (0.8–6.0) years of age, including two recent cases successfully managed with oral rapamycin alone (decannulation <2.3 years of age).

Conclusions

Cervical LMs are complex vascular malformations which may cause airway obstruction and prolonged tracheostomy requirement. Serial sclerotherapy reduces lesion size and improves the airway status. Primary treatment of *PIK3CA*-positive lesions with the mTOR inhibitor rapamycin may decrease the need for sclerotherapy and enable earlier decannulation.

298 - EAR KELOID SCARS IN CHILDREN: WHICH OPTION IS MORE SUITED TO SUCCESS?

Joana Mafalda Monteiro, Carolina Aquino, Domingas Atouguia, Pedro Reis, Norberto Estevinho

Centro Hospitalar Universitário de São João, Porto, Portugal

Abstract

Aim: Pediatric keloids scars (KS) are common and, despite numerous treatment options, there's no consensus on the best approach. We evaluated ear KS treatment with surgical excision (SE), triamcinolone injection (TI) and adjuvant radiotherapy (RT).

Methods: From 2012-2023, ear KS submitted to SE, TI or RT were reviewed. Patient's demographics, KS size, recurrence rates (RR), number of treatment-sessions, post-treatment complications and follow-up time were analyzed.

Results: Seventeen caucasian patients and 24 KS were treated. Mean KS diameter was 1.8±0.9cm and mean follow-up time was 41.0±25.9 months. Initially, ten (59%) patients were submited to TI, five (29%) to SE and two (11%) were treated with RT. Ten (59%) had KS recurrence and RR were significantly different between SE (100%), TI(50%) and RT(0), p=0.025. Six patients had another treatment. SE and TI had significantly higher RR than RT, and TI patients had a higher number of treatment sessions (Table1). The groups did not differ regarding other variables. Mild erithema occured in three RT patients, while two developed wound deiscence after TI.

Conclusion: Management of pediatric KS remains challenging. SE and TI are popular options, but their RR of 100% and 50% disencourage their use. RT presented lower recurrence rates and mild complications, becoming a promising option.

Table 1 - Recurrences, Treatment-sessions and follow-up time by treatment group.

	SE (n=5)	TI (n=13)	RT (n=5)	p
Recurrences	5 (100%)	8 (62%)	1 (20%)	0.049
Treatment Sessions	1.0 (1.0-1.5)	2.0 (1.0-3.5)	1.0 (1.0-1.0)	0.029
Follow-up	58.4±37.3	32.4±18.9	30.8±4.6	0.332

448 - A novel approach for treatment of extremity avulsion injuries in children

Safiullah Najem[1,2], Miriam Fattouh[1,2], Kristofer Wintges[1], Benjamin Schoof[1], Merle Körner[1,2], Konrad Reinshagen[1,2], Ingo Königs[1,2]

[1]University Medical Center Hamburg-Eppendorf, Hamburg, Germany. [2]Altona Children's Hospital, Hamburg, Germany

Background

In paediatric population, large soft tissue defects occur in avulsion injuries. To date, there is no fully satisfying solution for surgical treatment. In addition to the challenges of primary surgical therapy, elasticity, appearance and function of the scar in children are of crucial importance. In addition to various flap plasty and skin grafts, dermal substitutes have become established, although infections and skin shrinkage remain challenging. In 2020, a new skin substitute material - NovoSorb® Biogradable Temporising Matrix (BTM) - was introduced in Europe for temporary wound closure and tissue regeneration.

Methods

The study included all children treated with BTM after traumatic soft tissue defects following limb avulsion injuries between June 2021 and June 2023 at a university hospital.

Results

7 patients with limb avulsion injuries were treated with BTM, 4 boys, 3 girls. Mean age was 6.5 years (2-11 years) at the time of BTM placement. 4/7 had concomitant fractures. BTM was used successfully in all cases, infection did not occur, skin shrinkage was seen in one case. Split thickness skin graft (STSG) after BTM application was performed in average after 33 days (26 to 39 days). Overall, there were very satisfactory cosmetic results. The median follow-up is (at the time of abstract) 6 -28 months. Opportunities, advantages and disadvantages as well as limitations of BTM use are highlighted.

Conclusions

BTM is a promising alternative for reconstruction of complex trauma extremity wounds in children following avulsion injuries, even in cases of concomitant bone injuries.



Figure. Patient number 2: A 6-year-old male with traumatic defect affecting semicircular the anterior lateral aspect of the left arm: **1. image series:** Wound situation on admission, **2. image series:** BTM application. **3. image series:** Successful integration of BTM, definitive defect coverage with STSG. **4. image series:** Satisfactory scar pattern and skin elasticity in a 6-, 12- and 21-month follow-up.

101 - EVOLUTION OF ESOPHAGEAL ATRESIA ASSOCIATED BARRET'S ESOPHAGUS IN ADULTS – IS ROUTINE ENDOSCOPIC SURVEILLANCE WORTH IT?

Antti Koivusalo[1], Andrea Tenca[2], Mikko Pakarinen[1]

[1]New Children´s Hospital, Helsinki University Hospital, Helsinki, Finland. [2]Abdominal Center, Helsinki University Hospital, Helsinki, Finland

Aim of the study

Increased risk of Barrett´s esophagus (BE) and cancer may necessitate endoscopic surveillance in adults with esophageal atresia (EA). We assessed these risks by two successive endoscopies (E1 with manometry 2005-08 and E2 2019-23) for 69 patients with type C EA.

Methods

With ethical consent endoscopic Prague Classification (PC) for BE with multiple level mucosal biopsies were analyzed. The results were assessed in accordance with the current European Society of Gastrointestinal Endoscopy (ESGE) guidelines and risk factors by logistic regression.

Main results

Median (IQR) age at E1 was 31 (IQR 26–47) and 48 (IQR 38–62) years at E2. Endoscopic PC suggested BE (C0M1 to C3M6) in 10 (14%) patients at E1, and in 29 (42%) (C0M1 to C4M6) at E2 (p=0.001). With complementing histology, true BE (height >1cm with intestinal metaplasia) was diagnosed in 1 (1%) patient at E1, and in 8 (12%) at E2 (p=0.03). No dysplasia or cancer was detected. According to ESGE guidelines follow-up endoscopy was recommended for 5 patients (BE 3-10 cm) at 3 years and for 3 (BE <3 cm) at 5 years. Risk factors for endoscopic and true BE are outlined in Table.

Conclusions

Although the prevalence of BE increased from the age 30 to 50 years, no dysplasia or cancer was found. Development of true BE was predicted only by PC at first endoscopy. Only 12% of patients required further endoscopic follow-up. The rationale of endoscopic surveillance for type C EA patients aged <50 years is questionable.

Table Risk factors (logistic regression, univariate) of Endoscopic Barrett´s esophagus and True Barrett´s esophagus (BE) in 69 patients with C-type esophageal atresia

		Endoscopic BE at E2		True BE at E2	
Patients	69	29		8	
		HR (95 % CI)	p	HR (95 % CI)	p
Age, median IQR, years E1 E2	 31 (26–47) 48 (38–62)	 1.0 (0.9–1.1)	 0.10	 1.0 (1.0–1.1)	 0.32
Gender M:F	34:35	1.8 (0.7–4.7)	0.25	1.7 (0.4–7.9	0.48
Endoscopic BE at E1	10	2.7 (0.7 – 11)	0.15	19 (3.4 -102)	**0.007**
True BE at E1	1	0.1(0.0 –0.1)	0.98	0.1 (0.0 – 0.1)	0.97
Manometry E1 • Low (<25hgmm) distal wave amplitudes • Non-propagating peristalsis	 18 53	 3.8 (1.2–12) 4.2 (0.9–21)	 **0.02** 0.07	 3.1 (0.7–14) 0.1	 0.14 0.97
BMI median IQR kg/m² E2	25(23–26)	1.0 (0.9–1.1)	0.61	1.0 (0.9–1.2)	0.95
Smoking E2	12	1.2 (0.3–4.2)	0.79	4.3 (0.8–23)	0.08
Alcohol (weekly or more) E2	20	2.7 (0.9–7.9)	0.07	1.0 (0.2–5.4)	0.96
Fundoplication	9	2.2 (0.5–8.9)	0.29	2.6 (0.4–15)	0.30
Proton pump Inhibitors E2	13	1.4 (0.4–4.8)	0.57	1.5 (0.3–8.5)	0.64

E1/E2 = endoscopy 2005-08 / 2019-23, HR = Hazard ratio, CI= Confidence interval, IQR = interquartile range

864 - THORACOSCOPIC MANAGEMENT OF LONG GAP ESOPHAGEAL ATRESIA: ANALYSIS OF THE FRENCH COHORT

Camille Duchesne[1], Arnaud Bonnard[2], Frederic Hameury[3], Anne Dariel[4], Pierre Louis Verot[5], Lorraine De Marco[6], Consuelo Maldonado[7], Sabine Irtan[2], Audrey Guinot[8], Françoise Schmitt[9], Nicolas Vinit[2], Aurore HAFFREINGUE[10], Celine Grosos[11], Gauthier Jean Joucla[12], Daniela Carolina[13], Nadia Boudaoud[14], Frederic Gottrand[15], Rony Sfeir[15], Alexis Arnaud[1]

[1]CHU Rennes, Rennes, France. [2]APHP, Paris, France. [3]Hospices Civils de Lyon, Lyon, France. [4]APHM, Marseille, France. [5]CHU Grenoble, Grenoble, France. [6]CHU Saint Etienne, Saint Etienne, France. [7]CHU Strasbourg, Strasbourg, France. [8]CHU Nantes, Nantes, France. [9]CHU Angers, Angers, France. [10]CHU Caen, Caen, France. [11]CHU Limoges, Limoges, France. [12]CHU Rouen, Rouen, France. [13]CHU Amiens, Amiens, France. [14]CHU Reims, Reims, France. [15]CHU Lille, Lille, France

Aim :

Long-gap esophageal atresia (LGEA) represents a surgical challenge. Despite the rise of thoracoscopy over the past 20 years, its use in LGEAs remains confidential. This study aimed to evaluate the 1year-results of thoracoscopic management of LGEAs.

Material-Method:

Multicenter retrospective review (IRB #23.76) of all patients who underwent a thoracoscopic repair for LGEA (defined in ERNICA 2021 consensus) between 2010 and 2022 in France. Data collected related to the initial treatment and up to 1 year follow-up.

Results:

50 patients were included: 24 delayed primary anastomosis (DPA) and 26 tractions. Complications before anastomosis were comparable between the two groups. Traction group underwent 3,65 procedures per patient vs 2,75 for DPA (p=0,5). Overall post-anastomosis complications rate was 81%. The main initial post-anastomosis complications were anastomotic leaks (57%), prolonged drainage (43%), pneumothorax (20%), pneumonia (20%) and stenosis (16%) with no difference between DPA and traction. The traction method had a longer post-operative length of stay 88 vs 43 days (p=0,008) and longer post-operative reanimation stay 41 vs 21 days (p<0,02). Whole hospitalization length of stay was similar between the two groups. Long-term complications (GERD, stenosis, fistula and respiratory infections) were comparable. The nutritional evolution of tractions was poorer, with 31% exclusive oral nutrition at 1 year vs. 67% for DPA (p=0.02).

Conclusion:

This is the largest cohort of patients operated on for LGEA by thoracoscopy. Although thoracoscopic management of LGEAs has a high complication rate, DPA management appears superior with shorter post-operative stays and better mid-term nutritional outcomes.

133 - BARIATRIC SURGERY VERSUS MULITDISCIPLINAIRY LIFESTYLE INTERVENTION IN ADOLESCENTS WITH SEVERE OBESITY, EFFECTS ON QULAITY OF LIFE AND DEPRESSION; A RCT

Fien de Boom[1,2,3], Nicole Bouvy[2], Ernst van Heurn[4]

[1]Maastricht university, Maastricht, Netherlands. [2]Maastricht UMC, Maastricht, Netherlands. [3]NUTRIM School for Nutrition and Translational Research in Metabolism, Maastricht, Netherlands. [4]Department of Pediatric Surgery, Amsterdam University Medical Centers, amsterdam, Netherlands

Aim: Investigating the effect of bariatric surgery (BS) on health-related quality of life (Hr-QoL) and depression in severely obese adolescents, 12, and 24 months post-intervention, comparing them to their counterparts who underwent multidisciplinary lifestyle intervention (MLI) and study psychosocial features that may predict weight loss.

Methods: Adolescents with severe obesity were included and randomized into the intervention group (laparoscopic adjustable gastric banding and MLI) or the control group (MLI). Anthropometric measurements, assessments of Hr-QoL with the pediatric Quality of life inventory (Peds-QL), and depression with Becks depression inventory (BDI-2) were taken at baseline, 12 months, and 24 months. (NCT01172899)

Results: Of the 59 patients included, 80% was female; mean age was 15.76 (±1.00); mean BMI 44.11 (±5.56). Significant differences between the study groups in BMI, Hr-QoL, and depression at 12 months were observed. After 24 months this difference persisted for BMI but not for the Hr-QoL and depression. (Table 1) The Peds-QL social score was a predicting factor for weight loss 12 months after intervention (unstandardized regression coefficient (B)=-0.10 (95% confidence interval (CI) -0.16,-0.04). Nevertheless, it did not predict total weight loss after 24 months (B=-0.06 (95%CI -0.15,0.02).

Conclusion: BS was superior over MLI for the reduction of BMI, improvement in Hr-QoL, and depression score over 12 months. After 24 months this difference was not detectable for Hr-QoL and depression but sustained for BMI. The social domain of the Peds-QL was a predictor for weight loss after 12 months but did not predict weight loss 24 months after intervention.

Table 1. Mixed models for repeated measurements; Intervention effect through time is presented for BMI, Quality of life, and depression.

Variable	Group	N	Baseline	N	12 months	Treatment effect (95% CI)	P-value	N	24 months	Treatment effect (95% CI)	P-value
BMI	Control	30	44.29 (±1.02)	23	44.67 (±1.28)	-5.29 (-7.28,-3.30)	**<0.001**	20	42.45 (±1.27)	-3.43 (-6.78,-0.8)	**0.05**
	Surgery	29	43.92 (±1.04)	29	39,01 (±1.25)			24	38.68 (±1.18)		
PedsQL											
HrQoL total	Control	30	68.77 (±2.45)	22	67.15 (±2.91)	11.95 (3.13,20.76)	**0.009**	18	71.36 (±3.44)	-7.80 (-1.93,17.53)	0.11
	Surgery	29	70.04 (±2.39)	28	80.37 (±2.64)			21	80.43 (±3.20)		
HrQoL physical	Control	30	68.16 (±2.64)	22	69.10 (±3.05)	5.14 (-2.78,13.06)	0.20	19	75.67 (±3.20)	1.14 (-8.11,10.39)	0.81
	Surgery	29	72.77 (±2.68)	29	78.85 (±2.78)			23	81.42 (±2.93)		
HrQoL emotional	Control	30	65.03 (±3.60)	22	67.57 (±3.97)	9.54 (0.12,18.96)	**0.05**	19	70.59 (±4.85)	-0.56 (-12.45,11.33)	
	Surgery	29	70.35 (±3.66)	29	82.41 (±3.69)			23	75.35 (±4.52)		
HrQoL school	Control	30	66.60 (±3.27)	22	66.81 (±3.49)	9.01 (0.94,17.07)	**0.03**	18	71.79 (±3.56)	3.68 (-6.80,14.16)	0.48
	Surgery	29	68.97 (±3.33)	28	78.18 (±3.27)			21	77.85 (±3.34)		
HrQoL social	Control	30	62.93 (±3.37)	22	70.90 (±3.40)	1.69 (-7.33,10.71)	0.71	19	74.47 (±4.71)	-2.46 (-14.23,9.32)	0.68
BDI-2											
BDI total	Control	30	10.73 (±1.76)	22	11.10 (±1.72)	-6.10 (-10.64,-1.54)	**0.01**	18	11.40 (±2.60)	-4.18 (-11.68,3.31)	0.27
	Surgery	29	10.07 (±1.79)	29	4.35 (±1.58)			24	6.55 (±2.29)		
BDI affective	Control	30	1.63 (±0.44)	22	1.92 (±0.40)	-1.39 (-2.33,-0.45)	**0.005**	18	2.09 (±0.61)	-0.72 (-2.18,0.73)	0.32
	Surgery	29	1.62 (±0.44)	29	0.52 (±0.37)			24	1.35 (±0.56)		
BDI somatic	Control	30	5.30 (±0.82)	22	5.06 (±0.74)	-2.49 (-4.92,-0.06)	**0.05**	18	5.13 (±1.06)	-1.81 (-5.38,1.76)	0.31
	Surgery	29	5.17 (±0.83)	29	2.45 (±0.66)			24	3.19 (±0.92)		
BDI cognitive	Control	30	3.77 (±0.70)	22	4.13 (±0.75)	-2.33 (-4.31,-0.36)	**0.02**	18	4.16 (±1.05)	-1.81 (-4.67,1.05)	0.21
	Surgery	29	3.48 (±0.72)	29	1.52 (±0.68)			24	2.06 (±0.93)		

Data presented as mean (±SD) and intervention effect B (95% confidence interval)

BMI; Body mass index, Peds-QL; pediatric quality of life inventory, BDI; Becks depression inventory-2

Peds-QL cut-off values: 78,88,75,80,70, respectively

BDI cut-off values: 0-13 minimal depression, 14-19 light depression, 20-28 moderate depression, 29-63 severe depression.

203 - THE OCELOT STUDY: CORE OUTCOME SET (COS) DEVELOPMENT FOR THOSE AFFECTED BY OESOPHAGEAL ATRESIA AND/OR TRACHEO-OESOPHAGEAL FISTULA (OA/TOF)

Paul Cullis[1], Nigel Hall[2], Paul Losty[3], Nick Lansdale[4], Nadine Teunissen[5], Eniola Folaranmi[6], Anna-May Long[7], Adam Donne[8], Alex Adams[9], Laura Hopwood[8], Laura Baird[7], Julia Brendel[10], Victoria Gray[8], Lucy Bray[11], Graham Slater[12], Julia Faulkner[12], Sarah Gorst[3], Rebecca Thursfield[8]

[1]Royal Hospital for Children & Young People, Edinburgh, United Kingdom. [2]University of Southampton, Southampton, United Kingdom. [3]University of Liverpool, Liverpool, United Kingdom. [4]Royal Manchester Children's Hospital, Manchester, United Kingdom. [5]Erasmus MC, Rotterdam, Netherlands. [6]Noah's Ark Children's Hospital, Cardiff, United Kingdom. [7]Addenbrooke's Hospital, Cambridge, United Kingdom. [8]Alder Hey Children's NHS Trust, Liverpool, United Kingdom. [9]Leeds Children's Hospital, Leeds, United Kingdom. [10]Hannover Medical School, Hannover, Germany. [11]Edge Hill University, Liverpool, United Kingdom. [12]TOFS Patient Support Group, Nottingham, United Kingdom

Aim of the Study:
COS development improves research quality and patient care. Recent recommendations emphasise COS taxonomy in development. Many patients with OA/TOF experience lifelong morbidity, yet no COS exists. We aimed to produce a COS for OA/TOF, applicable to those affected worldwide.

Methods:

A multifaceted process was undertaken: 1) systematic review to identify published OA/TOF outcomes; 2) focus groups/interviews with children, adults and carers affected by OA/TOF, to identify outcomes unbeknownst to researchers; 3) two-stage Delphi survey to achieve international expert and patient consensus; 4) final consensus meeting to ratify the final COS, ensuring adherence to taxonomy recommendations; 5) expert consensus to finalise outcome definitions.

Main results:

The systematic review identified 44 outcomes, with eight additional outcomes identified through patient events (involving 21 participants affected by OA/TOF) and two outcomes added by experts. 54 items were voted on in Delphi stage one with 9 further outcomes proposed. 175 people completed both rounds (representing 26 countries and 13 disciplines). Following the Delphi process, 24 outcomes met inclusion criteria, however the steering group decided to condense the COS to encourage adoption. After final consensus meeting, 14 outcomes were ultimately included in the COS featuring all recommended taxonomy domains (Table). Expert consensus finalised outcome definitions for measurement.

Physiological / clinical
1. Recurrent, prolonged or severe respiratory tract infections
2. Chronic respiratory symptoms
3. Cyanotic episodes
4. Gastro-oesophageal reflux
5. Oesophagitis
6. Metaplasia / cancer
7. Dysphagia
8. Oral feeding issues/aversion
9. Ability to gain/maintain weight
Adverse events
10. Operative complications
Resource use
11. No. of dilatations
12. No. of surgeries
Function / quality of life
13. Quality of life
Mortality
14. Mortality

Conclusions: A COS for OA/TOF was produced, comprising 14 outcomes (12 relevant to all affected individuals, one to children and another adults only). Its adoption should improve the evidence base for this condition, and ultimately benefit patients.

548 - WORTH THE WHILE: DIAGNOSTIC AND THERAPEUTIC APPROACH FOR GASTROESOPHAGEAL REFLUX DISEASE AFTER PEDIATRIC LUNG TRANSPLANTATION

Elena Chiara Garrisi[1], Carsten Müller[2], Benno Ure[1], Julia Carlens[2], Jens Dingemann[1], Nagoud Schukfeh[1]

[1]Department of Pediatric Surgery, University Hannover Medical School, Hannover, Germany.
[2]Department of Pediatric Pulmonology and Pediatric Lung Transplantation, University Hannover Medical School, Hannover, Germany

Aim:

Gastroesophageal-reflux-disease (GERD) after lung-transplantation (LuTx) can lead to chronic-lung-allograft-dysfunction. Our aim is to assess the prevalence of GERD in pediatric LuTx-recipients and to investigate the role of medical and surgical GERD-treatment on lung-function.

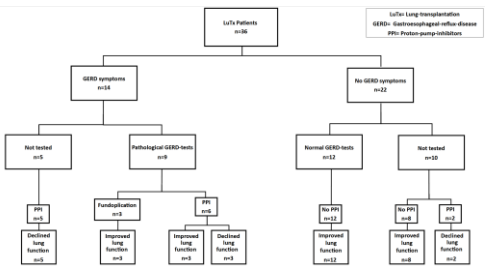
Methods:

Ethical approval was obtained. The data of all consecutive patients who underwent LuTx from2013-2023 and aged<18years at time of the study were prospectively collected. A GERD-diagnostic-algorithm was established, including assessment of symptoms (vomiting, heartburn, regurgitation, cough, recurrent-airway-infections), bronchoscopy, forced-expiratory-volume-in-1-second (FEV1) and pH-impedance. Patients with suspected GERD were referred for further investigations (upper-gastrointestinal-contrast-study, esophagogastroduodenoscopy, control-pH-study). Patients with GERD and lung-function-decline underwent medical treatment or fundoplication. Lung-function was monitored postoperatively.

Results:

36patients (2months-18years,47%male) were included. 29(80%) underwent spirometry, 16(45%) pH-impedance-study and 14(39%) esophagogastroduodenoscopy. 22(61%) had no GERD-symptoms and 12(33%) showed normal pH-impedance-study (22%) or no esophagitis (19%). 91%of the asymptomatics had improved lung-function. 14(39%) patients had GERD-symptoms and 9(25%) pathological GERD-specific diagnostics (pH-study, endoscopy). 3(8%) underwent fundoplication after a median of 1.6years (range1.1-5.7years) post-LuTx without surgical complications. After median follow-up of 2.3years (range1.3-2.8years) post-fundoplication, all (n=3) had complete remission of GERD-symptoms and lung-function-improvement. Lung-function-decline was observed in 50% (n=3) of the tested symptomatic patients on proton-pump-inhibitors(PPI)-treatment.

Conclusions: Over one-third of our patients presented with GERD-symptoms after LuTx. Given the high prevalence of GERD, we recommend a routine post-transplant-diagnostic-algorithm including pH-impedance-study. Symptoms and lung-function may be reliable GERD-indicators. 80% of all symptomatic patients had a lung-function-decline despite PPI. Fundoplication is safe and may improve long-term outcome in pediatric LuTx-recipients.



558 - ASSOCIATED RISK OF MAJOR CONGENITAL ANOMALIES OF THE THORAX, ABDOMEN AND GASTROINTESTINAL TRACT IN BABIES CONCEIVED UTILISING ASSISTED REPRODUCTIVE TECHNIQUES

Louise Murchison, Marta Gazzaneo, Simon Eaton, Paolo De Coppi

UCL Great Ormond Street Institute Of Child Health, 30 Guilford Street, London WC1N 1EH, London, United Kingdom

Aims:

Significant evidence exists regarding the association between ART and development of congenital abnormalities (CA). However, quantification of this risk remains unknown. We aimed to investigate the association between ART and birth with anorectal malformation (ARM), congenital diaphragmatic hernia (CDH), congenital pulmonary airway malformations, sequestrations, oesophageal atresia (OA), duodenal and small bowel atresias, biliary atresia, choledochal cyst, gastroschisis, omphalocele, pyloric stenosis(PS) and malrotation.

Method:

Systematic search was performed for studies relating to CA and ART published between 1st January 1980-1st January 2024. Papers were included if data available regarding presence of the anomaly in infants conceived via ART and in infants spontaneously conceived (SC). Data calculated as OR with 95% CI.

Results:

Babies conceived with ART have an increased association with development of ARM (fourteen studies; 12,957,492 births; OR 3.09, 95% CI 1.17-5.57; p= 0.0002) and OA (eleven studies; 7,592,074 births;OR 3.19, 95% CI 2.09-4.88; p=0.00001). Association with ART and CDH (eight studies; 1,248,754 births; OR 1.21, 95% CI 0.74- 1.96; p=0.45), omphalocele (eight studies; 12,407,805 births; OR 2.15, 95% CI 0.8-5.27; p=0.10), duodenal and small bowel atresia (seven studies; 707,826 births; OR 1.43, 95% CI 0.79-2.61; p=0.28), gastroschisis (six studies; 534,440 births, OR 1.55, 95% CI 0.50-4.76; p=0.89), PS (five studies; 706,771 births, OR 2.20, 95% CI 0.9-5.32; p=0.08) and malrotation (four studies; OR 2.33, 330,951 births, 95% CI 0.27-20.40; p=0.44) were also noted but did not meet statistical significance.

Conclusions:

ART is associated with a statically significant, three-fold increase in risk of ARM and OA.

323 - Button battery ingestion: Can commonly available beverages protect the esophageal mucosa in the interval to emergent endoscopy?

Nomin Krespach, Andreas Lindner, Charlotte Reich, Karina Khakim, Oliver Muensterer, Danielle Wendling-Keim

Department of Pediatric Surgery, Dr. von Hauner Children's Hospital, LMU University Hospital, LMU Munich, Munich, Germany

Aim of the Study:

Button battery (BB) retention in the esophagus is associated with high morbidity. The ESPGHAN and NASPGHAN guidelines recommend administration of honey or sucralfate. There is a lack of evidence regarding the benefits of other commonly available beverages. Therefore, the aim of our study was to test commonly available drinks after BB ingestion and to evaluate their protective potential using our new in-vitro esophagus model.

Methods:

Porcine esophagi were suspended in an environment simulating body temperature, peristalsis, and salivary flow. Fully charged 3-volt 20 mm diameter BBs or uncharged dummies were inserted into the esophagi. Various beverages were administered at specified intervals and compared to sham treatment. Mucosal erosion was quantified at the end of the experiment.

Main Results:

Administration of honey, agave syrup, and soy milk reduced the extent of battery-induced mucosal damage compared to untreated esophagus, whereas ketchup and sports drinks increased the ulceration. The mean pH was significantly lower ($p<0.05$) in samples exposed to honey, agave syrup, and soy milk than in untreated mucosa, whereas the pH of untreated esophagi was dangerously high In addition, we detected a significantly greater reduction in battery voltage ($p<0.05$) in untreated esophagi compared to measurements after application of protective drinks. Hematoxylin-Eosin staining confirmed the macroscopic findings.

Conclusion:

Preliminary data from our novel in vitro model suggest that honey as well as commonly available and infant-friendly beverages soy milk and agave syrup applied during the interval to endoscopic battery removal may protect the mucosa following esophageal BB ingestion.

257 - MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY IN PATIENTS WITH OESOPHAGEAL ATRESIA IS COMPARABLE TO PEERS WITH CONGENITAL HEART DISEASE: A MULTICENTRE CASE-CONTROL STUDY

Luisa M. Frankenbach[1], Anne-Sophie Holler[2], Christina Oetzmann von Sochaczewski[3], Lucas Wessel[4], Anke Widenmann[5], Paul C. Helm[6], Christian Apitz[7], Ulrike Bauer[6], Claudia Niessner[8], Jannos Siaplaouras[9], Tatjana T. König[10,1]

[1]Johannes Gutenberg-Universität, Universitätsmedizin, Klinik und Poliklinik für Kinderchirurgie, Mainz, Germany. [2]Dr. von Haunersches Kinderpital, LMU München, München, Germany. [3]Universitätsklinikum Bonn, Sektion Kinderchirurgie, Klinik und Poliklinik für Allgemein-, Viszeral-, Thorax- und Gefäßchirurgie, Bonn, Germany. [4]Universitätsmedizin Mannheim, Universitätsklinik für Kinder- und Jugendchirurgie, Mannheim, Germany. [5]Selbsthilfeorganisation für Speiseröhrenerkrankungen KEKS e.V., Stuttgart, Germany. [6]Nationales Register für angeborene Herzfehler e. V., Berlin, Germany. [7]Universitätsklinikum Ulm, Universitätsklinik für Kinder- und Jugendmedizin, Sektion Pädiatrische Kardiologie, Ulm, Germany. [8]Karlsruher Institut für Technologie, Institut für Sport und Sportwissenschaft, Karlsruhe, Germany. [9]Hochschule Fulda, Gesundheitswissenschaften, Pädiatrie und interprofessionelle Versorgung, Fulda, Germany. [10]Medizinische Hochschule Hannover, Klinik für Kinderchirurgie, Hannover, Germany

Aim of the study

Oesophageal atresia (EA) is associated with impaired motor development, cardiopulmonary function and physical activity. This fact is often attributed to associated congenital heart disease (CHD). The aim of this study is to compare physical activity levels of patients with isolated EA, isolated CHD and healthy controls.

Methods

In this multicentre study, a survey was conducted among EA patients (6-17 years) of the participating centres and members of a patient organisation. Physical activity was assessed using the standardised and validated questionnaire MoMo-PAQ. EA patients were randomly matched 1:4 for gender and age with patients with CHD (S-BAHn-Study, n=1262) and healthy controls (Motorik-Modul Longitudinal Study, 2009–2021, n=6233). Patients born with both EA and CHD were excluded. Moderate-to-vigorous physical activity (MVPA, minutes per week) was calculated. Wilcoxon-Rank-Test was performed. German Clinical Trials Register ID: DRKS00025276.

Main results

In total, 69 EA patients were matched with 276 CHD patients and 276 healthy controls, respectively (57% male, 43% female, mean age 10.3 years, SD 3.3). About two thirds in each group participated in extracurricular organised sports (EA 61%, CHD 64%, controls 68%). Mean MVPA was comparable in EA and CHD patients and lower compared to controls, but still in accordance with World Health Organization recommendations (Figure).

Conclusions

Physical activity in patients with EA was reduced compared to healthy peers, even without associated CHD. Activity levels in EA and CHD patients were comparable. Physical activity must be promoted in children with all chronic conditions in order to avoid additional morbidity.

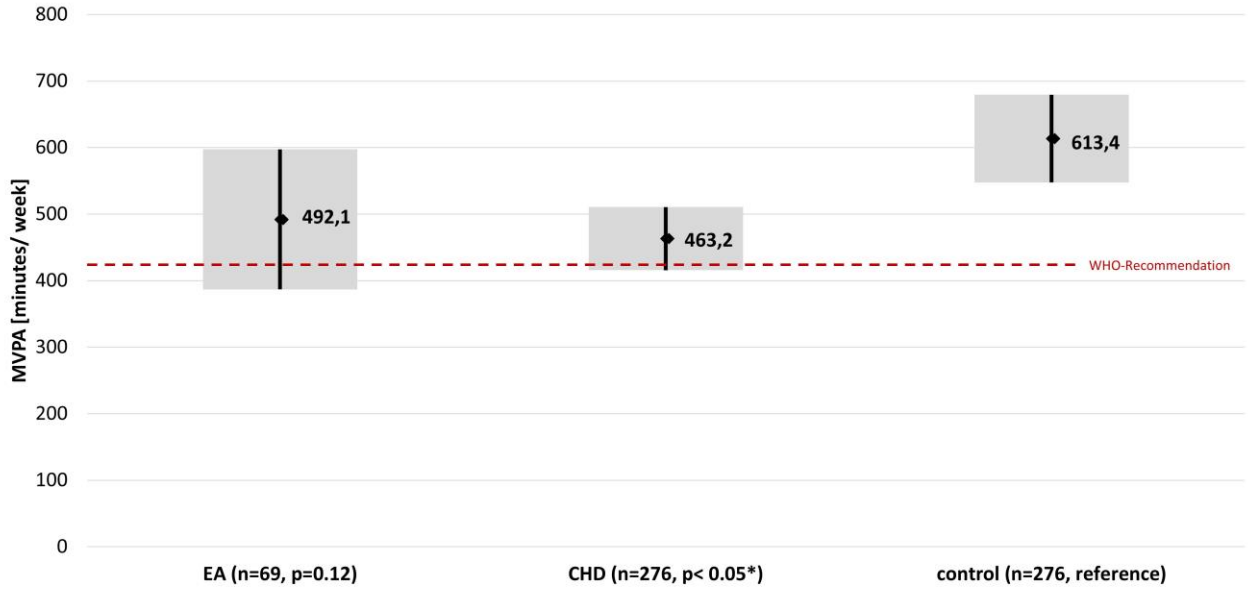


Figure Mean moderate-to-vigorous physical activity per week (MVPA) in patients with oesophageal atresia (EA), congenital heart disease (CHD) and healthy controls with 95%-confidence intervals. MVPA in CHD patients was significantly reduced compared to the general population (*). However, means for all groups are in accordance with the World Health Organization (WHO) recommendations of 60 minutes MVPA per day.

71 - OVERALL GOOD HEALTH-RELATED AND GASTROINTESTINAL QUALITY OF LIFE AFTER REPAIR OF CONGENITAL DUODENAL OBSTRUCTION

Martin Alavi Treider[1], Henrik Røkkum[1], Sturla Granheim[2], Thorstein Sæter[2], Kristin Bjørnland[1]

[1]Oslo University Hospital, Oslo, Norway. [2]St Olavs University Hospital, Trondeheim, Norway

Aim of study:

Evaluate long-term gastrointestinal quality of life (QoL), health-related QoL, and patient satisfaction with scar appearance after neonatal congenital duodenal obstruction (CDO) repair.

Methods:

All alive patients who underwent surgery for CDO in our country from 1995-2020 were invited to answer the validated questionnaires PedsQL and PedsQL gastrointestinal symptom scale, and two self-design questionnaires on general health and scar evaluation. Parent-proxy reports were used for patients <12 years and patients with cognitive impairment. Informed consent was obtained, and the study has ethical approval.

Results:

Of 186 eligible patients, eight were deceased, 25 had unretrievable contact information, and 79 did not respond. There were no significant differences between included (n=74) and not included (n=112) patients in terms of baseline data. The mean follow-up time was 13.3 years. Mean overall PedsQL was higher (84.4, p=0.009) and PedsQL gastrointestinal (85.9, p=0.449) was similar to healthy reference populations (1, 2). Patients reported reduced scores in PedsQL gastrointestinal domains “Stomach discomfort when eating” (83.5, p=0.023), “gas and bloating”(72.0, p<0.001), and “constipation”(78.9, p<0.001). Eleven (15%) were “bothered by the scar”, reported “the scar impacts which clothes they wear” and/or had undergone scar revision or incisional hernia surgery.

Conclusion:

Patients operated for CDO have a good overall health-related and gastrointestinal QoL. However, they report reduced scores for some domains of gastrointestinal QoL, and concerns about the scar are not uncommon.

1. Varni JW et al. J Pediatr Psychol. 2015;40(6):591-601.

2. Varni JW, et al Med Care. 2001;39(8):800-12.

699 - STEP VERSUS SILT: TWO-CENTER 'COMPETITION' ON WHICH PROCEDURE IS MORE BENEFICIAL FOR PATIENTS WITH SHORT BOWEL SYNDROME

Dionisiy Petrov[1,2], Olga Mokrushina[3], Aleksander Razumovsky[1,3]

[1]Pirogov Russian National Research Medical University, Moscow, Russian Federation. [2]Russian Children's Clinical Hospital, Moscow, Russian Federation. [3]N.F. Filatov Children's City Hospital, Moscow, Russian Federation

Aim:

to identify, which procedure serves patients with short bowel syndrome best in the future.

Methods:

the history of 66 patients with short bowel syndrome (SBS) from two institutions was evaluated. Thirty six patients (54,5%) met criteria for autologous intestinal reconstructions (AIR, main group). One center used STEP procedure (n=18) while another one performed SILT (n=18). Thirty patients (15 from each center, control) received standard SBS care without AIR. We evaluated all patients for survival rate, PN-dependency and frequency of SBS-related complications on different follow-up periods up to 24 months after AIR or start of treatment. Most importantly we looked at the patients residual bowel's redilation over time to see which procedure contributed more to the recurrence of bacterial overgrowth and the probability of re-do surgery.

Results:

there was no significant difference in survival between both operated groups (86%) and control (80%). Although, among operated patients the survival was lower if AIR was performed prior to 1 year of age (p=0,004). The number of central line infections among AIR patients reduced after surgery from 64% to 39%. SILT patients showed a higher probability to maintain reduced small bowel diameter postoperatively while STEP patients showed a noteble bowel redilation after surgery (p=0,031). That resulted in 4 cases of re-STEP procedures (22%, n=4) compared to no re-do surgery after SILT.

Conclusions:

with similar survival after both procedures the lesser risk of bowel redilation and its subsequent complications after SILT demonstrates that this procedure is associated with better quality of life long-term.

146 - MENTAL HEALTH AND BEHAVIOUR DIFFICULTIES IN CHILDREN FOLLOWING REPAIR OF ESOPHAGEAL ATRESIA: A SYSTEMATIC LITERATURE REVIEW

Michaela Dellenmark-Blom[1,2,3], Sara Persson[2], Colin Reilly[3], Helene Engstrand Lilja[1,4], Elin Öst[1,4], Carmen Mesas Burgos[1], Anastasia Fourtaka[5], Anna Löf Granström[1,4], Tomas Wester[1,4], André B Rietman[6], Vuokko Wallace[7,8], Julia H Quitmann[9,10], Stefanie Witt[10], Graham Slater[7], Julia Brendel[11], Jens Dingemann[11]

[1]Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden. [2]Department of Pediatric Surgery, Queen Silvia Children's Hospital, Sahlgrenska University Hospital, Gothenburg, Sweden. [3]Department of Pediatrics, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden. [4]Department of Paediatric Surgery, Astrid Lindgren Children's Hospital, Karolinska University Hospital, Stockholm, Sweden. [5]Pediatric Gastroenterology Unit, Hôpital Jeanne de Flandre, CHU Lille, Lille, France. [6]Department of Pediatric Surgery, Erasmus MC-Sophia Children's Hospital, Rotterdam, Netherlands. [7]EAT (Esophageal Atresia Global Support Groups), Sommerrainstr. 61, 70374, Stuttgart, Germany. [8]Department of Psychology, University of Bath, Bath, United Kingdom. [9]Hamburg University of Applied Sciences (HAW Hamburg), Faculty of Business and Social Sciences, Hamburg, Germany. [10]Department of Medical Psychology, Center for Psychosocial Medicine, University Medical Centre Hamburg-Eppendorf, Martinistraße 52, W26, 20246, Hamburg, Germany. [11]Centre of Pediatric Surgery, Hannover Medical School, Hannover, Germany

Aim of the Study

Children with repair of esophageal atresia (EA) risk facing aerodigestive morbidity and impaired quality of life (QoL). However, little is known about their mental health and behavioural difficulties. This study therefore aims to report a systematic literature review synthesizing knowledge on mental health and behavioural difficulties in these children and the relationship to QoL.

Methods

A literature search in five databases (Figure 1) and a meta-analysis were conducted utilizing a PRISMA-compliant protocol (PROSPERO CRD42023443731).

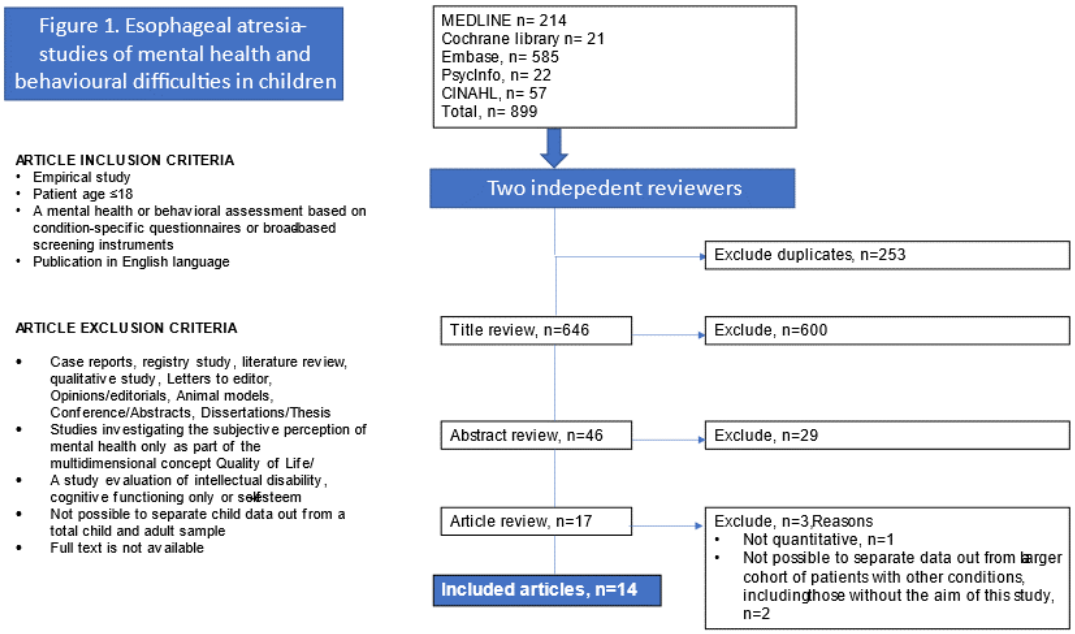
Main Results

Among 646 articles identified (Figure 1), 14 articles were included, encompassing 683 children (median sample size 39; range 20-143). The studies mostly originated from Europe (n=10) and were single-centre cross-sectional studies (n=12). Fifteen mental health and behavioural assessments were used: most commonly Child Behaviour Check List (n=5) and Strength and Difficulties Questionnaire (n=4). Eleven studies described mental health difficulties in a subset of children with EA. The pooled prevalence of elevated internalizing and externalizing symptoms in parent-reported screening instruments studies (n=6) was 29% (9-41%), and the prevalence was higher than in the general population. Heterogenous investigation revealed low birth weight (n=2), low IQ (n=2), associated anomalies (n=2) and digestive symptoms (n=2) as most frequently reported risk factors. Mental health difficulties had a negative relationship with QoL (2 studies).

Conclusions

A subgroup of children with EA encounter mental health and behavioural difficulties, which may be linked to clinical risk factors. This should be considered in follow-up care. However, current research leaves ample room for recommendations to conduct more robust future studies.

Figure 1. Esophageal atresia- studies of mental health and behavioural difficulties in children



542 - OUTCOMES OF SURGERY FOR ACHALASIA IN CHILDREN: A MULTICENTRE STUDY

Chiara Pelosi[1], Rebecca Roberts[2], Elisa Bassan[1], Rossella Angotti[1], Michael Singh[3], Giampiero Soccorso[3], Francesco Molinaro[1]

[1]Università degli studi di Siena, Siena, Italy. [2]Birmingham Children's hospital, Birmingham, United Kingdom. [3]Birmingham Children's hospital, Birmingham, Italy

Aim:

Diagnosis and optimal management of paediatric achalasia cardia (AC) remain challenging due to its rarity. This study aimed to review our combined experience focusing on the diagnostic and therapeutic challenges and outcomes.

Methods:

A prospectively maintained database was retrospectively analysed to identify all patients with AC who underwent treatment at two tertiary children's hospitals from 1997 to 2023. Data including demographics, diagnostic and operative approaches, complications, outcomes were collected.

Main Results:

Forty-five children (31 males) were diagnosed with AC at mean age 11 years (range 5-16). Mean length of symptoms to diagnosis was 20 months (range 1-60) and 18 children were initially treated for alternative conditions. All children had a radiological diagnosis but only 25 underwent manometry (10 type 1). 26.5% patients required nasogastric feeds pre-operatively and further 36.8% received nutritional support. 27 children underwent endoscopic management (dilatation or Botox) and 96.3% of those required subsequent Heller's cardiomyotomy (HC). Laparoscopic HC was performed in 42 (30 with fundoplication), while 2 underwent Robotic HC with fundoplication. 3 patients had mucosal perforation intra-operatively which was immediately repaired. 9 children (6 HC without fundoplication) had symptomatic gastro-oesophageal reflux. Overall, 9 (20.5%) patients had ongoing symptoms of AC requiring redo HC.

Conclusions:

Diagnosis of AC in children is challenging, often delayed whilst patients are treated for other conditions. Endoscopic treatment does not provide long term relief in the majority of children. HC is effective and should be considered early in the treatment algorithm for AC, even in pre-adolescent children.

872 - THORACOSCOPIC REPAIR OF OESOPHAGEAL ATRESIA IS POSSIBLE AFTER PREVIOUS THORACOTOMY

Caroline Pardy[1], Dominika Borselle[2], Ana Sofia Martinho[3], Stefano Giuliani[1], Stefaan Tytgat[4], Jose Correia-Pinto[3], Arnaud Bonnard[5], Dariusz Patkowski[2], Steve Rothenberg[6], Paolo De Coppi[1]

[1]Great Ormond Street Hospital, London, United Kingdom. [2]Wroclaw Medical University, Wroclaw, Poland. [3]Hospital de Braga, Braga, Portugal. [4]Universitair Medisch Centrum Utrecht, Utrecht, Netherlands. [5]Hôpital Universitaire Robert Debré, Paris, France. [6]The Rocky Mountain Hospital for Children, Denver, USA

Aim:

thoracoscopic repair of oesophageal atresia (OA) is gaining popularity, but its role after previous thoracotomy remains controversial. We present the experience of 6 international specialist centres of thoracoscopic OA repair in babies who have undergone a previous thoracotomy.

Methods:

retrospective data collection for babies born from 2018 to present who have undergone attempted thoracoscopic repair of OA, having had a previous thoracotomy.

Results:

21 babies were identified, median gestational age 34 (29-40), and birth weight 2.135kg (0.935-3.300). Median interval between thoracotomy and definitive thoracoscopic repair was 32 weeks (9-116). Patients had 1-3 previous thoracotomies, and 2 patients had an oesophagostomy. 4 patients had thoracoscopic traction sutures (1-4 procedures) prior to repair. Gap assessment ranged from 2-7 vertebral bodies (median 4). Definitive thoracoscopic repair included stricture resection in 3 patients. Thoracoscopic repair was achieved in 20/21 (95%) patients. Follow-up ranged from 0-64 months (median 25). 2 patients had a leak managed conservatively. 1 patient developed a recalcitrant stricture requiring thoracoscopic resection. 1 patient developed a broncho-oesophageal fistula requiring a thoracotomy.

Conclusions:

in a specialist centre, definitive OA repair could be successfully achieved thoracoscopically in the majority of complex patients despite having undergone a previous thoracotomy, and in two patients an oesophagostomy. Thoracoscopy can have a role in complex redo surgery of the oesophagus, and discussion with specialist centres with experience in thoracoscopic salvage procedures is recommended in challenging cases.

408 - ASSOCIATED ANOMALIES AND CHEST WALL DEFORMITY IMPAIR CONDITION-SPECIFIC QUALITY OF LIFE IN 8-17-YEAR-OLD PATIENTS BORN WITH ESOPHAGEAL ATRESIA

Ivana Sabolić[1], Dorotea Sinjer[1], Lucija Duvnjak[1], Dora Škrljak Šoša[1], Marina Stilinović[1], Miram Pasini[1], Tomislav Vlahek[1], Lana Omerza[1], Dino Papeš[1], Stanko Ćavar[1], Ivan Jelčić[1], Ana Špoljarić[1], Tomislav Luetić[1], Michaela Dellenmark-Blom[2]

[1]University Hospital Centre Zagreb, Zagreb, Croatia. [2]The Queen Silvia Children's Hospital SU/Östra, Gothenburg, Sweden

Aim of Study:

to identify clinical factors associated with health-related quality of life (HRQoL) among 8-17-year-old patients born with esophageal atresia (EA) using a condition-specific instrument.

Methods:

Croatian version of EA-QOL©-questionnaire for patients aged 8-17yrs was used to assess self-reported HRQoL. Item responses were converted to a 0(worst)-100(best) scoring scale, requiring at least 70% of item responses for score calculation. Clinical data was obtained from medical records. Statistical analyses involved Mann-Whitney U-test and linear regression analysis ($p<0.05$).

Main Results:

Twenty-six 8-17-year-old EA patients were included in the study, mean age 11.2 years. Fifteen (57.7%) EA patients were male and 11 (42.3%) female. Three patients (11.5%) had Gross A , 22 (84.6%) Gross C and one (3.8%) Gross E type of EA. Eight (30.8%) EA patients had associated anomalies ranging in number from 1-5. Total EA-QOL scores ranged from 43.8-100 (mean 82.9). Increased number of associated anomalies negatively correlated with total EA-QOL score ($p=0.04$), pertaining to Social Relationships dimension scores ($p=0.004$), Body Perception scores ($p=0.013$) and Health and Well-being scores ($p=0.014$). Presence of chest wall deformity (23.8%) was also related with poorer Health and Well-being dimension ($p=0.017$).

Conclusion:

This study sheds new light on clinical risk factors of condition-specific HRQoL in children with EA. In child self-report, condition-specific HRQoL in EA patients may overall and regarding specific dimensions be impaired by chest wall deformity and associated anomalies. Initial management and long-term follow-up of EA patients should include prevention of chest wall deformities and issues related to associated anomalies.

461 - EVALUATION OF MID - AND LONG -TERM QUALITY OF LIFE IN PATIENTS OPERATED ON FOR ESOPHAGEAL ATRESIA

Sinem Aydöner, Gürkan Erkoç, Ali ihsan Anadolulu, Çiğdem Ulukaya Durakbaşa

Istanbul Medeniyet University, Faculty of Medicine, Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Department of Pediatric Surgery, Istanbul, Turkey

Aim of the study: This study aimed to eveluated the general and condition-specific quality of life in esophageal atresia (EA) patients, identifying risk factors such as associated anomalies and chronic diseases, and examining their impact on life quality.

Methods: Ethical approval was obtained. Between October 2004 and October 2020, PedsQOL 4.0 and EA-QOL questionnaires were administered to parents of 2-7 years old EA-diagnosed children and both parents and 8-17 years old patients. Results of the PedsQOL 4.0 scale were compared with 43 healthy children.

Main results: The study included 66 patients (40 aged 2-7 years, 26 aged 8-17 years), with 45.5% females and 54.5% males. Mean age was 7 +/- 4.4 years. Quality of life showed no significant differences based on patient gender, gestational age, or anastomotic stricture in EA-QOL and PedsQOL 4.0 questionnaires. In the 8-17 age group, EA patients demonstrated significantly higher emotional scale quality of life than the healthy group (p=0.001) according to parent and child PedsQOL 4.0 questionnaire.

Conclusions: The better emotional functioning in the 8-17 age group supports their enhanced anxiety management. Gender, gestational age, or anastomotic stricture did not impact life quality. While differences existed between patient age groups in the administered questionnaires, factors like EA type, repair mode, low birth weight, tracheomalacia, frequent lung infections, VACTERL-H association, gastrostomy placement, and surgical interventions other than EA significantly influenced patients' life quality. These findings may guide implementing measures to enhance the life quality for EA patients.

Table 1. Results of EA-QOL and Peds QOL 4.0 questionnaires

Significant parameters creating differences	Evaluated categories
EA-QOL questionnaire	
Proxy report for ages 2-7	
Tracheomalacia	Lower physical health status (p=0.019), Social relationships (p=0.001), and total score (p=0.011)
Frequent respiratory infections	Lower physical health status (p=0.002)
Proxy report for ages 8-17	
Birth weight below 2500 grams	Lower nutritional status (p=0.038)
Isolated EA with replacement surgery	Lower nutritional status (p=0.018)
Gastrostomy placement	Lower nutritional status (p=0.048), body scar (p=0.048), and total score (p=0.019).
Frequent respiratory infections	Lower total score (p=0.035)
Child self-report for ages 8-17	
Patients who underwent surgeries other than EA	Lower physical health status (p=0.040) and total score (p=0.026).
Peds QOL 4.0 questionnaire	
Proxy report for ages 2-7	
Birth weight below 2500 grams	Lower physical functioning (p=0.005), social functioning (p=0.042), and total score (p=0.006)
Patients who underwent surgeries other than EA	Lower social functioning score (p=0.018)
Proxy report for ages 8-17	
VACTERL-H association	Lower physical functioning (p=0.010), social functioning (p=0.033), and total score (p=0.037)
Child self-report for ages 8-17	
VACTERL-H association	Lower emotional functioning (p=0.037), social functioning (p=0.049), and total score (p=0.042)

801 - ROLE OF EOSINOPHIL-DERIVED CELL INDICES IN THE DIAGNOSIS OF EOSINOPHILIC ESOPHAGITIS

Julio César Moreno-Alfonso[1,2], Esther Comajuncosas Pérez[1], Ada Molina Caballero[1], Sara Hernández Martín[1], Alberto Pérez Martínez[1], María Concepción Yárnoz Irazábal[1,2]

[1]Hospital Universitario de Navarra, Pamplona, Spain. [2]Universidad Pública de Navarra (UPNA), Pamplona, Spain

Aim of the study:

To investigate the usefulness of cellular indices in the diagnosis of eosinophilic esophagitis (EoE).

Methods:

Diagnostic study of pediatric patients undergoing esophagogastroduodenoscopy with biopsy for suspected EoE between 2015-2022 in a children's hospital. Patients with normal histological reports and those with a diagnosis of EoE were included. Using the area under the ROC curve, the eosinophil/lymphocyte ratio (ELR), eosinophil/neutrophil ratio (ENR) and lymphocyte/monocyte ratio (LMR), calculated as the ratio of the cells mentioned, were compared to establish their sensitivity, specificity, predictive values and Odds Ratio in the diagnosis of EoE.

Main results:

Twenty-four patients with eosinophilic esophagitis and 17 with normal histology were included. ELR and ENR values were significantly higher in patients with EoE ($p<0.05$). The sensitivity, specificity and positive predictive value of ELR, ENR and MRL for diagnosing EoE were 54%, 83% and 58%; 94%, 64% and 58%; 92%, 76% and 66%, respectively. The biomarker with the highest diagnostic accuracy was ELR with a cutoff point of 0.2431 and Odds Ratio of 18.9 (95%CI 2.1-166.2; $p= 0.008$).

Conclusions:

The ELR shows high specificity, positive predictive value and Odds Ratio in the pre-endoscopic diagnosis of EoE, which could be useful in the diagnostic-therapeutic approach of patients with esophageal symptomatology, allowing to prioritize the performance of endoscopic studies in patients with values by >0.2431 or to initially consider other etiologies in children with an ELR below this value.

136 - RESPIRATORY AND NUTRITIONAL STATUS IN A COHORT OF SCHOOL-AGED CHILDREN FOLLOWED FOR TYPE III ESOPHAGEAL ATRESIA: IS THERE A LINK?

Marie-Alix Chansou[1], Jeanne Goulin[1], Rony Sfeir[2], Edouard Habonimana[3], Anne Breton[4], Audrey Guinot[5], Arnaud Bonnard[6], Thomas Gelas[7], Nicoleta Panait[8], Aline Ranke[9], Véronique Rousseau[10], Sabine Irtan[11], Philippe Buisson[12], Catherine Jacquier[13], Frédéric Elbaz[14], Marc Margaryan[15], Isabelle Talon[16], Nicolas Kalfa[17], Virginie Fouquet[18], Thierry Lamireau[19], Aurélien Scalabre[20], Frédéric Aubert[21], Corinne Borderon[22], Céline Grosos[23], Guillaume Podevin[1], Françoise Schmitt[1]

[1]University Hospital of Angers, Angers, France. [2]Jeanne de Flandre Hospital, Lille, France. [3]University Hospital of Rennes, Rennes, France. [4]University Hospital of Toulouse, Toulouse, France. [5]University Hospital of Nantes, Nantes, France. [6]Robert Debré Hospital (AP-HP), Paris, France. [7]Lyon Civil Hospital, Bron, France. [8]University Hospital Marseille, Marseille, France. [9]University Hospital of Nancy, Nancy, France. [10]Necker Sick Children Hospital, Paris, France. [11]Trousseau Hospital, Paris, France. [12]University Hospital of Amiens, Amiens, France. [13]University Hospital of Grenoble, Grenoble, France. [14]University Hospital of Rouen, Rouen, France. [15]Le Mans Hospital, Le Mans, France. [16]Hautepierre Hospital, Strasbourg, France. [17]University Hospital of Montpellier, Montpellier, France. [18]Le Kremlin-Bicêtre Hospital, Paris, France. [19]University Hospital of Bordeaux, Bordeaux, France. [20]University Hospital of Saint Etienne, Saint Etienne, France. [21]University Hospital of Besançon, Besançon, France. [22]University Hospital of Clermont-Ferrand, Clermont-Ferrand, France. [23]University Hospital of Limoges, Limoges, France

Aim of the study: to evaluate the impact of under-nutrition in school-aged children born with type III esophageal atresia (EA), and to determine potential risk factors, including their respiratory history and status assessed by pulmonary function tests (PFTs).

Methods: Retrospective multicentre cohort study of patients born between 2008 and 2013 with type III EA, included in a national registry (NCT04136795), after local institutional review board agreement. Baseline data, surgical history and outcomes of patients with or without undernutrition (body mass index (BMI) z-score <-2SD) at the age of 6-9 years, were compared.

Main results: Among the 212 patients included, 20 (9.4%) presented with undernutrition, with a mean BMI z-score at -2.5 +/- 0.4. At baseline, 13 (65%) of them where premature, two times more than in the control group (34.9%, p = 0.013), but neonatal adjusted weights and associated malformations didn't differ between groups. Surgical treatments of EA and other intestinal pathologies, including gastrostomy feeding and fundoplication, did not differ either. On PFTs, 15 (75%) of these patients showed restriction, as compared to 38% in normal weight patients (n=73, p=0.002), and 60% of them required pulmonary treatments (vs 32%, p=0.02). On multivariate analysis, risk factors for undernutrition were an inborn birth (OR=6.0) and a restrictive syndrome (OR=3.3).

Conclusions: On the contrary to intestinal and esophageal other surgeries, the respiratory status seems to be strongly associated with nutritional outcomes in children born with type III EA.

713 - ACUTE KIDNEY INJURY BIOMARKERS BASED EVALUATION OF NEPHROPROTECTIVE THERAPY EFFECTIVENESS IN SHOCK WAVE LITHOTRIPSY IN CHILDREN.

Sergei ZORKIN, Oleg NIKULIN, Dmitry SHAKHNOVSKIY, Alexandra GALUZINSKAYA

National Medical Research Center for Children's Health, Moscow, Russian Federation

AIM: Shockwave lithotripsy (SWL) is the "gold standard" for treatment of kidney stones in children. Despite its minimal invasiveness SWL causes acute renal damage. Aim of the study was to evaluate the efficacy of prednisolone nephroprotection.

METHODS: 108 stone patients were treated with SWL. 54 children comprised a control and 54 – prednisolone treatment group. We sampled biomarkers concentration in urine (neutrophil gelatinase-associated lipocalin (NGAL), kidney injury molecule-1 (KIM-1), tissue inhibitor of metalloproteinase-2 (TIMP-2) and in serum (interleukin-18 (IL-18)) before SWL (point 1), 45 minutes after (point 2) and 24 hours after (point 3).

RESULTS: All biomarkers showed a significant increase after SWL. The highest concentrations were at point 2, for interleukin-18 - at point 3. NGAL level at point 2 in control group was 48.3 (24.5; 117.0) ng/mL - significantly higher (p=0.044) than in treatment group (28.4 (16.0; 71.8) ng/mL). KIM-1 concentration (0.57 (0.45; 0.70) ng/mL) in control group and in treatment group (0.48 (0.25; 0.91) ng/mL) was not statistically different (p=0.344). TIMP-2 level at point 2 in control group (12.3 (9.23;20.2) ng/mL) was significantly higher (p<0.001) than in treatment group (6.75 (5.2; 12.1) ng/mL). IL-18 level at point 3 in control group (164.7 (113.7; 217.1) pg/mL) was significantly higher (p=0.042), than in treatment group (130.3 (89.7;186.1) pg/mL).

CONCLUSIONS: We identified highly sensitive biomarkers for SWL-induced kidney injury and assessed their level changes in prednisolone treatment setting. According to our data prednisolone is effective for acute kidney injury prophylaxis during SWL in children.

485 - COMPARATIVE STUDY OF THE LEGAL FRAMEWORK FOR MEDICAL CARE OF PEOPLE WITH DIFFERENCES OF SEX DEVELOPMENT (DSD) ACROSS THE WORLD

Nicolas KALFA[1,2], Beth DRZEWIECKI[3], Luis BRAGA[4], Marco CASTAGNETTI[5], Jacques BIRRAUX[6], Magdalena FOSSUM[7], Alexander SPRINGER[8], Anka NIEUWHOF-LEPPINK[9], PJ LOPEZ[10], Abraham CHERIAN[11], Piet HOEBEKE[12], Clementine VIALLA[13], Francoise PARIS[1], Francois VIALLA[13]

[1]CHU Montpellier, MONTPELLIER, France. [2]IDESP - INSERM, MONTPELLIER, France. [3]MassGeneral Hospital for Children, BOSTON, USA. [4]McMaster University, HAMILTON, Canada. [5]Ospedale Pediatrico Bambino Gesù, ROMA, Italy. [6]Hôpitaux Universitaire de Genève, GENEVE, Switzerland. [7]Karolinska Institutet, STOCKHOLM, Sweden. [8]Medical University Vienna, VIENNA, Austria. [9]University Medical Center Utrecht, Utrecht, Netherlands. [10]Universidad De Chile Facultad De Medicina Division Sur, SAN MIGUEL, Chile. [11]Great Ormond Street Hospital for Children, LONDON, United Kingdom. [12]Ghent University Hospital, GHENT, Belgium. [13]Université de Droit de Montpellier, MONTPELLIER, France

Some countries have legislated on medical practices regarding DSD. We performed an international comparative law study to better understand how to integrate our medical decisions into these regulations.

With an international medical-law research unit we 1-extracted legislative texts, decrees, ministerial recommendations from different countries 2- sent a questionnaire to surgeons caring for DSD-children to understand the medical decision-making procedures.

Data from 19 countries and 8 US-states were analyzed. Legislation was enacted in only 6 countries and ministerial orders or case-law were issued in 4. Legislation is still in preparation in 11 countries while 6 have none. Laws range from ban on surgery (Malta, Iceland) to the establishment of a multidisciplinary decision-making circuit. The decision is made at the local level (n=14: Belgium, Italy, UK…), the national level (n=8: France, Nordic countries…) or after court decision (Germany, Australia). Most countries recognize the person’s consent as essential and the parents' decision cannot replace it (24/27). Age of consent varies (5-18y) but most texts don’t stipulate clear limits or defer to child's maturity. Risks of sanctions for practitioners are mostly unspecified, of professional medical-board nature (n=8) or rarely criminal (n=2). Posterior hypospadias are included in this process in 74% of cases, either systematically or when non-isolated (Switzerland, Australia, France).

Rarely has a medical activity been subject to such legislative framework while long-term studies remain sparse. This illustrates the position pediatric urologists occupy at the interface of society, law and scientific knowledge and profoundly changes the way we practice, think and make therapeutic decisions.

618 - VALIDATION OF PROGNOSTIC MODEL OF HIGH-PRESSURE BALLOON DILATATION EFFECTIVENESS FOR PRIMARY OBSTRUCTIVE MEGAURETER TREATMENT IN CHILDREN

Sergei ZORKIN, Alexandra GALUZINSKAYA, Evgeniy PETROV, Oleg NIKUILN, Dmitry SHAKHNOVSKIY

National Medical Research Center for Children's Health, Moscow, Russian Federation

AIM:

One of the minimally invasive treatment options for primary obstructive megaureter (POM) is endoscopic high pressure balloon dilatation (HPBD). It was shown to be effective, but there are no clear indications for its application and reliable prognostic effectiveness model was not developed. The aim of this study was to develop and validate a prognostic model of HPBD effectiveness.

METHODS:

200 children were treated by HPBD. Results were evaluated using ultrasonography and MAG-3 renogram. In all patients we assessed stenosis length, ureteral lumen diameter and area of stenosis before and after a procedure.

RESULTS:

Based on three obtained predictors, we developed a binomial logistic regression effectiveness model for intraoperative use. Depending on length of ureteral stenosis (x1), ureteral stenosis diameter (x2) and area of ureteral stenosis (x3) the equation for outcome was: P=1/1+e-(61,2237-1,4632x1+13,7686x2-0,6415x3). The chi-square of the model was 67.14, which corresponded to $p<0.0001$. Area under the ROC curve was 0.977 ($p<0.0001$). P value at the cut-off point was 0.9083. Positive outcome was predicted for P value higher than cut-off point. To proof increase in procedure efficiency we applied chi-square test with Yates correction. HPBD efficiency was significantly higher in clinical validation group ($\chi 2= 31.101$; $p<0,001$). HPBD efficiency increased from 92,5% to 96%.

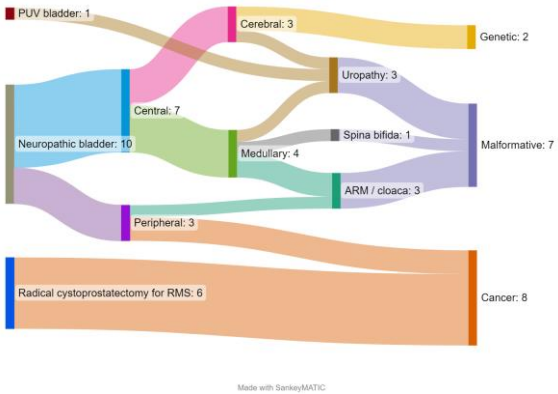
CONCLUSIONS:

Results of this study confirm that assessing of vesicoureteral segment during HPBD allows prediction of technique effectiveness. According to our model obtaining P value greater than or equal to 0.9083 predict a positive treatment result. In other cases we suggest to proceed with ureteral reimplantation

395 - BRICKER CONDUIT DIVERSION IN CHILDREN - A RARE BUT STILL ESSENTIAL INDICATION

Lauren DOVAL[1], Pauline CLERMIDI[1], Pauline LALLEMANT[2], Cyrielle PARMENTIER[3], Georges AUDRY[1]

[1]Department of Visceral and Neonatal Pediatric Surgery, AP-HP, Armand Trousseau Hospital, Paris, France. [2]Department of Physical Medicine and Rehabilitation, AP-HP, Armand Trousseau Hospital, Paris, France. [3]Department of pediatric nephrology, AP-HP, Armand Trousseau Hospital, Paris, France



Aim of the study. With the improvement of techniques for neurogenic bladders and bladder rhabdomyosarcoma, the indications for Bricker conduit diversion (BCD) have considerably decreased. We sought to determine what indications remained for BCD in children. Our second objective was to determine the BCD's complication rate and ability to protect the renal function.

Methods. A monocentric retrospective review of BCD performed on children was conducted between 1995 and 2022. Patients followed less than 3 months were excluded from the long-term analysis.

Results. 17 children underwent BCD: median age at surgery was 5.3 [range 2.8 to 8.6] years. Neurogenic bladder was the principle underlying condition (59%). Justifications for BCD was a deteriorating renal function with impossibility for bladder augmentation or CIC or radical cystectomy for rhabdomyosarcoma. With a median follow-up of 3.2 [2.4 to 7.4] years, the rate of pyelonephritis decreased significantly postoperatively in patients with neurogenic bladders (81.8% vs 12.5%, p=0.005). Hydronephrosis improved or remained stable in 92% of renal units and mean eGFR improved significantly between baseline and last follow up (61.6 vs 85.6mL/min/1.73m2 ; p = 0.03). Two complications required surgical intervention. Four patients died of cancer recurrence, bringing the survival rate to 75%. One patient underwent undiversion and fared well after almost 20 years of follow-up.

Conclusions. The BCD should still be considered in rare cases, mostly for children with neurogenic bladder fo whom a bladder augmentation is deemed too dangerous to preserve the renal function. Undiversion could be offered after stabilization of renal function in selected patients.

482 - HYPOSPADIAS IS LINKED TO GENETIC SUSCEPTIBILITY TO THE ENVIRONMENT THROUGH ONCOGENES AND ITS INCIDENCE IS GEOGRAPHICALLY CORRELATED TO CANCERS WORLDWIDE

Nicolas KALFA[1,2], Anne BERGOUGNOUX[3], Pascal PHILIBERT[1], Nadege SERVANT-FAUCONNET[1], Alice FAURE[4], Jean BREAUD[5], Laura GASPARI[1], Charles SULTAN[1], Francoise PARIS[1]

[1]CHU Montpellier, MONTPELLIER, France. [2]IDESP - INSERM, MONTPELLIER, France. [3]INSERM, MONTPELLIER, France. [4]AP-HM, MARSEILLE, France. [5]CHU Nice, NICE, France

The etiology of hypospadias may be at the crossroad of genetics and environment. Though the individual study of these factors failed to find an unequivocal explanation, their interactions have not yet been studied. We aimed to find a genetic susceptibility to the environment in hypospadias.

Multicenter prospective comparative study of 300 hypospadias and 300 controls evaluated by: 1-Questionnaire QLK4-1999-01422 to detect personal, environmental, professional exposures to pollutants. 2-Next-generation-sequencing of 336 genes implicated in genital and gonadal development and hypospadias. The interaction between genetics and environment was studied using logistic regression analysis.

Surprisingly, genes identified as potential interactors with environment were not only genes of steroidogenesis or chemical-sensor but also oncogenes: BRAF (rs3789806), AKR1C3 (rs10508293), AHR (rs2074113) and CITED2 (rs4076025). The in-silico predictions of these variants are to modify the transcription factor binding sites for proteins encoded by other oncogenes and genital development genes. We thus hypothesized a connection between hypospadias and cancers. To further evaluate this association, we used data from the International Birth-Defect Surveillance Systems and from the International Agency for Research on Cancer (WHO). We found a geographical correlation, across 17 countries, between incidence of hypospadias and overall incidence of cancers, especially urological tumors and leukemias, two cancers highly suspected to be linked to pollutants.

Hypospadias is at the crossroad of genetics and environment and is associated with oncogene variants. Its incidence is geographically correlated to that of cancers worldwide. Hypospadias may not be a simple defect of the urethra but a witness of the global health population.

458 - OUTCOME FROM A CONSECUTIVE SERIES OF ROBOTIC APPROACH TO URETERIC REIMPLANTATION IN CHILDREN

Ahmed Hassan, Sarah Vecchione, Ramnath SUBRAMANIAM

Leeds Teaching Hospital, Leeds, United Kingdom

Aim of the Study:

To present the outcomes from Robotic approach to ureteric reimplantation (RUR) in children

Method:

Children who underwent RUR from 2016 until 2022 were included. The primary pathology in these cases were of dilating vesicoureteral reflux (VUR) and primary obstructed megaureter (OM) including duplex systems and solitary kidneys. Data was collected prospectively in this consecutive series.

Results:

A total of 51 extravesical RUR procedures were conducted without requiring a conversion to an open approach. These included 23 bilateral and 28 unilateral reimplantations (left 17: right 11) with a mean age of 6 years (1.7-17.1) and a mean weight of 16.6 kg (9-39.8). The reimplantation procedures were dismembered in the OM group (4 cases required excisional tapering with JJ stent insertion) and membered in the VUR group. The mean duration of the procedure was 107 minutes overall, much higher in the OM group (164 mins) compared to the VUR group (94 mins). Postoperatively, all children were discharged next day after catheter removal. None of the cases developed urinary retention in the immediate postoperative period. or required a secondary intervention for the same pathology through the follow up . The mean follow-up period was 38 months (6-70) with no need for secondary intervention for the same pathology.

Conclusion:

Extravesical RUR approach including tapering can provide excellent outcomes with minimal morbidity, thanks to enhanced optics facilitating targeted approach to the vesicoureteral junction.

579 - OHVIRA SYNDROME: EXPERIENCE, OUTCOMES AND MINIMALLY INVASIVE SURGICAL APPROACH FROM A PAEDIATRIC UROLOGY CENTRE IN THE UK

Sarah Vecchione[1], Ahmed Hassan[1], Salahuddin Syed[1], Anna Radford[2,1], Alexander Turner[1], Ramnath Subramaniam[1]

[1]Leeds Children's Hospital - Department of Paediatric Urology, Leeds, United Kingdom. [2]Hull University Teaching Hospitals - Department of Paediatric Surgery and Urology, Hull, United Kingdom

Aim of the Study:

OHVIRA syndrome is a rare Müllerian duct abnormality characterised by uterus didelphys, obstructed hemi-vagina, and ipsilateral renal agenesis. The literature is scarce with various single case reports or small series available. We aim to present our experience in the clinical presentation, management, and outcomes of patients with this rare pathology.

Methods:

A retrospective review of all patients with uterine/vaginal anomalies was performed. Patients with anorectal malformation, cloaca and other Müllerian duct anomalies were excluded. Patient clinical notes and investigations were reviewed.

Main Results:

Total of 11 patients were collected. Median age at presentation was 13 (0-15) years, 3 cases were diagnosed during infancy because of enlarging abdominal cyst. Most patients (n=8) presented with cyclic abdominal pain. Diagnosis was confirmed with USS in all cases, complementary MRI was performed in 7 cases.

Management varied: 4 patients had vaginal septostomy, 4 underwent robotic hemi-hysterectomy and 3 patients were conservatively managed with contraceptive pills.There were no surgical complications recorded postoperatively and through follow up. Median follow up was 2.4 years (0.6-14.2). 8 patients are asymptomatic, 1 was lost at follow up, 1 has hypertension and 1 had recurrent episodes of abdominal pain.

Conclusions:

This represents one of the largest case series of OHVIRA in the paediatric population and the first report of experience of robotic hemihysterectomy. Our experience confirms that vaginal septostomy in selected patients provides good outcomes. When indicated, robotic hemihysterectomy is safe, feasible and ensures excellent results in terms of postoperative recovery time and cosmetic outcomes.

384 - A TEPS SURVEY ON THE MANAGEMENT OF TESTICULAR TORSION: PRE-, PERI- AND POSTOPERATIVE PERSPECTIVES

Amit Beher[1], Julio César Moreno Alfonso[2], Hanna Garnier[3], Dogus Darici[4], Martin Salö[5,6], Ophelia Aubert[7]

[1]Department of Pediatric Surgery and Center for Severely Burned Children, Klinikum Kassel, Kassel, Germany. [2]Department of Pediatric Surgery, Hospital Universitario de Navarra, Pamplona, Spain. [3]Department of Surgery and Urology for Children and Adolescents, Medical University of Gdansk, Gdansk, Poland. [4]Institute for Anatomy and Molecular Neurobiology, University of Muenster, Muenster, Germany. [5]Department of Clinical Sciences, Pediatrics, Lund University, Lund, Sweden. [6]Department of Pediatric Surgery, Skåne University Hospital, Lund, Sweden. [7]Department of Pediatric Surgery, University Hospital Leipzig, Leipzig, Germany

Introduction: Management of testicular torsion varies between specialties resulting in lack of standardization. The aim of this survey was to assess pre-, peri- and postoperative differences.

Methods:An online questionnaire was distributed in 2023 to general and pediatric surgeons, pediatric urologists and urologists by the Trainees of European Pediatric Surgery (TEPS).

Main Results: Among 88 respondents (92% tertiary referral hospital), 38% always or usually perform sonography in case of suspected torsion respectively. 15% always attempt manual detorsion and 44% depending on the clinical presentation. Most surgeons (93%) favor a scrotal approach. Interestingly, pediatric surgeons more often choose a transscrotal while other specialties opt for midline incision (p=0.002). The majority (57%) employ a three-point fixation, while 42% opt for a two-point fixation. In case of necrotic testis, 61% puncture the testis with 52% opting for surgical removal, while 33% perform orchiectomy and 6% leave it in situ. Regarding necrotic or borderline-appearing testis 54% take a biopsy. 82% perform prophylactic orchidopexy of the contralateral side during the same session. Postoperative antibiotics are always administered by 12% while 52% do so sometimes. Most perform sonographic (58%) or clinical (57%) follow-up three months postoperatively. Notably, pediatrics surgeons and pediatric urologists perform follow-up more frequently themselves, while general surgeons/urologists recommend follow-up by pediatricians (p=0.002). 76% of responders affirm adhering to EAU guidelines. Unawareness of guidelines and institutional practices are reasons most commonly cited for non-adherence.

Conclusion: Our study reveals significant disparities in the pre-, peri- and postoperative management of testicular torsion underscoring the need for establishing standardized practices.

256 - CHILDHOOD INGUINAL HERNIA REPAIR AND SEMEN QUALITY IN HEALTY ADULT MEN FROM THE GENERAL DANISH POPULATION

Nikolai Juul[1], Lærke Priskorn[2], Kolja Kvist[1], Niels Jørgensen[2]

[1]Division of Pediatric Surgery, Department of Surgery and Transplantation, Copenhagen University Hospital - Rigshospitalet, Copenhagen, Denmark. [2]Department of Growth and Reproduction, Copenhagen University Hospital - Rigshospitalet, Copenhagen, Denmark

Aim of the Study

Inguinal hernia occurs in upwards 5% of Danish boys <18 years, and surgery is advised to anticipate hernial strangulation. Hernia repair involves intricate dissection of the funicular structures, and, furthermore, a common underlying etiology with other developmental conditions (e.g., cryptorchidism) has been proposed; altogether potentially influencing adult semen quality. Yet, the current knowledge on adult outcomes in these patients is sparse.

Methods

A cohort of healthy men (age 18-25 years) were included between 2002-2022. Upon inclusion, participants delivered a semen sample, and the cohort was linked to nationwide registries on previous healthcare interactions. A cross-sectional comparison between men who had undergone inguinal hernia repair at <5 years of age and non-operated controls was performed by logistic regression models adjusting for BMI, sample analysis delay, and sexual abstinence time.

Main results

We included 129 men with childhood inguinal hernia and 4915 non-operated controls. Hernia repair was associated with higher odds of semen values below WHO (2021) reference ranges: Semen volume (OR 1.8, 95%CI 0.954-3.384, p=0.07), total sperm count (OR 1.7, 95%CI 1.094-2.544, p=0.017), and normal sperm morphology (OR 1.5, 95%CI 0.995-2.122, p=0.053). The groups were comparable on age, BMI, and testicular size.

Conclusions

In this cohort of healthy men, childhood inguinal hernia repair was negatively associated with semen parameters in adulthood. Whether these associations rely on surgical trauma or underlying embryological mechanisms remains uncertain, and interpretation of the current results warrants caution. Additional analyses to further distinguish the surgical characteristics and hormonal profiles of participants are ongoing.

102 - IS STAGING NECESSARY FOR FOWLER-STEPHENS LAPAROSCOPIC ORCHIDOPEXY FOR INTRA-ABDOMINAL TESTIS? A SYSTEMATIC REVIEW AND META-ANALYSIS

Adrian Chi Heng Fung, Jaime Tsz Wing Tsang, Jessie Ling Leung, Ivy Hau Yee Chan, Kenneth Kak Yuen Wong

Division of Paediatric Surgery, Department of Surgery, School of Clinical Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong, Hong Kong

Introduction

Intra-abdominal testis remains a challenging and controversial subset within the management of cryptorchidism. While Fowler-Stephens operation (FSO) is still being advocated as the gold standard for the treatment of this entity, there is new and conflicting evidence on the comparative outcomes between single- or two-stage laparoscopic FSO. The aim of the study is to investigate whether staging has benefits in children receiving laparoscopic FSO.

Methods

We searched PubMed, Medline, Embase, and Cochrane Trials databases for studies comparing single- with two-stage laparoscopic FSO in children from 1-Jan-1995 to 31-December-2023. We performed a systematic review and meta-analysis in accordance with PRISMA. The main outcome measures examined were success rate (in terms of scrotal position of testis) and testicular atrophy, which were analysed using fixed effect models.

Results

We included 16 eligible studies that had involved a total of 458 operated testes. The overall success rates of single- and two-stage laparoscopic FSO were 81% and 89.9% respectively; and the overall testicular atrophy rates were 16.7% and 11% respectively. Fixed effect model analysis showed that two-stage laparoscopic FSO is significantly superior to single-stage laparoscopic FSO in overall success rate (OR 2.19; 95% CI 1.25 to 3.83, p=0.006) and testicular atrophy rate (OR 0.48; 95% CI 0.28 to 0.83, p=0.008). There is no heterogeneity in the reports and the funnel plot showed no publication bias.

Conclusion

Two-stage laparoscopic Fowler-Stephens orchidopexy remains the first choice of operation for children with high intra-abdominal testis with significantly higher success rate and lower testicular atrophy rate.

Figure 1. Forest plot comparing success rates of 1-stage and 2-stage FSO.

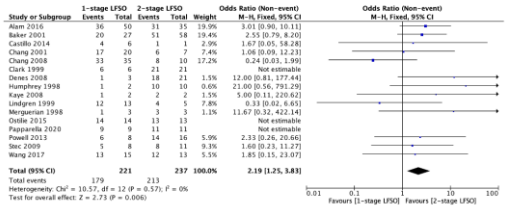
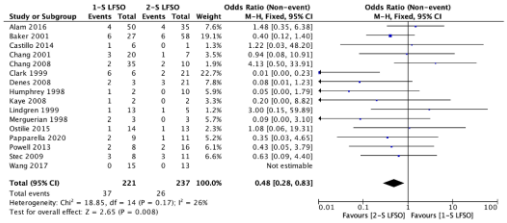


Figure 2. Forest plot comparing testicular atrophy rates of 1-stage and 2-stage FSO.



725 - COMPARISON OF FIVE CLASSIFICATION SYSTEMS AND THE COMPREHENSIVE COMPLICATION INDEX (CCI®) FOR UNEXPECTED EVENTS IN PEDIATRIC UROLOGY

Chris Kossak, Julia Brendel, Omid Madadi-Sanjani, Jens Dingemann, Alejandro Hofmann

Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany

Aim of the study:

Numerous grading systems for severity of unexpected events exist to standardize reporting of incidents and complications in surgical patients. Up to date, the optimal scoring system in pediatric urology has yet to be defined. We aimed to evaluate unexpected events in our pediatric urological cohort by comparing five grading systems using prospectively collected data and additionally assessed cumulative morbidity for patients with multiple events using the Comprehensive-Complication-Index (CCI®).

Methods:

Following ethical approval (2739-2015), all unexpected events were assessed daily 02/2017-12/2022. Events were graded according to Clavien-Dindo, T92, Contracted Accordion, Expanded Accordion, MSKCC and CCI®.

Main results:

2123 procedures were performed within the study period. 479 unexpected events were identified, 307 (64.1%) were associated with surgical/medical interventions, 172 (35.9%) included organizational/management problems. The different grading systems demonstrated high overall correlation (r_{pears} = 0.9).

270 CCI® scores were calculated for all detected events. A CCI® of 8.7-33.6 was identified in 120 cases (44%), a score of 33.7-46.1 in 99 cases (37%), a score >46.2 in 51 cases (19%). Five patients died due to their underlying disease unrelated to surgery. CCI® scores were correlated with other grading systems (r_{pears} = 0.8) and were useful in analyzing multiple events within individual patients.

Conclusions:

Existing grading systems for unexpected events showed similar scoring patterns in pediatric urology. However, none of these classification systems reflects the specific needs of children and the ideal score has yet to be defined. The CCI® is a useful tool to assess overall morbidity in pediatric urological patients with multiple events.

816 - FOR WHOM THE BELL TOLLS: TESTICULAR TORSION MISDIAGNOSIS IN PEDIATRIC PATIENTS. A SYSTEMATIC LITERATURE REVIEW

Javier Jimenez-Gomez, Angy C. Moore-Olalla, Paula Jimenez Arribas, Javier R. Güizzo Tobares, Clara Esteva Miro, Saioa Santiago-Martinez, Josue Betancourth Alvarenga, Begoña San Vicente Vela, Begoña Sanchez Vazquez, Mireia Gaspar Perez, Natalia Alvarez Garcia, Bernardo Nuñez Garcia

Hospital Universitari Parc Taulí, Sabadell, Spain

Aim: Pediatric testicular torsion (TT) is an urological emergency that requires prompt identification. However, reasons leading to TT misdiagnosis are scarcely discussed in the literature. We aim to review the contemporary reasons behind TT misdiagnosis.

Methods: A systematic review of the literature was performed on Pubmed, from 2012 to 2023 using “testicular torsion” AND “children” AND “misdiagnosis” OR “diagnostic error” as search terms. After abstract screening, selected articles were critically reviewed in order to confirm if they met the inclusion criteria (1-18 years old patients with TT misdiagnosis) and reference lists were checked for additional studies.

Results: A total of 14 studies were eligible for review encompassing 532 cases of TT misdiagnosis. Articles stemmed from 3 disciplines: Pediatric surgery/urology (10), Legal medicine (3) and Quality & Patient Safety (1). Median misdiagnosis rate was 23% (12-31%) and median testicle survival was 0% (0-15,6%). The most frequent incorrect diagnosis reported was orchioepididymitis and genitourinary physical exam was lacking in 71 patients. Neurodevelopmental and socioeconomic factors were related to misdiagnosis in 132 patients while error was attributed to lack of staff training in all of them. Only Doppler but not high-resolution Doppler ultrasound was described in 5 studies.

Conclusions: TT misdiagnosis is more common than previously thought. Orchioepididymitis and non-specific abdominal pain are the most frequent diagnostic mistakes. High-resolution Doppler Ultrasound use for TT diagnosis is still not widespread. Albeit patient factors can hinder the correct diagnosis, physicians’ knowledge gaps seem to be the main targets for intervention.

64 - HORMONAL TREATMENT MAY HARM THE TESTES OF YOUNG INFANTS WITH CRYPTORCHIDISM AND HYPERGONADOTROPIC HYPOGONADISM

Jorgen Thorup[1,2], Jonas Baastrup[1], Simone Hildorf[1], Andrea Hildorf[1], Tina Olsen[1], Dina Cortes[3,2]

[1]Rigshospitalet, Copenhagen, Denmark. [2]University of Copenhagen, Copenhagen, Denmark. [3]Hvidovre Hospital, Copenhagen, Denmark

Aim:

A Journal of Urology paper from 2000 warned about harming germ cells by hormonal treatment to infant cryptorchid boys. ESPU/EAU-2023 guidelines recommend treatment with GnRH analogues to bilateral cryptorchid boys to preserve fertility potential. In a recent study of 453 bilateral cryptorchid boys <5-years old; 45% had *hypo*gonadotropic hypogonadism and 41% had *hyper*gonadotropic hypogonadism with elevated gonadotropins. The aim of this pilot study was to relate the effect on germ cells after orchidopexy and adjuvant GnRH treatment to function of the hypothalamic-pituitary-gonadal axis.

Methods:

We included 22 bilateral cryptorchid boys (median 15 months old), who at orchidopexy had hormone-profile (FSH, LH, and inhibin-B), testicular biopsies with estimation of A-dark spermatogonia (AdS/T) and total germ cell number per tubular cross section (G/T). Nine boys had GnRH 4 months postoperatively and 13 boys had surgery only. Median 15 months after orchidopexy, all had repeat hormone-profile and testicular biopsies with G/T and AdS/T estimation.

Results:

Thirteen boys with surgery only had hypogonadotropic hypogonadism, whereof 6 improved G/T from median 0.30-to-0.55 and AdS/T from median 0.02-to-0.08. The rest were unchanged. Of the 9 boys who had adjuvant GnRH, 7 had hypogonadotropic hypogonadism, whereof 4 improved G/T from median 0.29-to-0.57 and AdS/T from median 0.01-to-0.02. The rest were unchanged. The last 2 boys had *hyper*gonadotropic hypogonadism and deteriorated germ cells after GnRH: G/T from median 0.57-to-0.31 and AdS/T from median 0.01-to-0.01.

Conclusion:

Adjuvant GnRH may harm testes of infants with cryptorchidism and *hyper*gonadotropic hypogonadism.

76 - Novel Experience with the First Application of a Cadaveric Animal Model in High-Fidelity Simulated Training for Hypospadias Surgery

Mahmoud Marei Marei, Sherif Nabhan Mohamad Tawfic Kaddah

Paediatric Surgery Section/Unit, Cairo University Hospitals (Cairo University Specialized Paediatric Hospital [CUSPH] & Cairo University Children's Hospital [Abu El-Reesh El-Mounira]), Department of Surgery, Faculty of Medicine, Cairo University., Cairo, Egypt

Aim:

We present a novel cadaveric animal model of isolated calf penis, offering high-fidelity simulation for hypospadias training, to enhance simulated surgical skills transfer and acquisition.

Methods:

Ethical approval was obtained. Alongside annual hands-on courses, trainees from different countries participated, with expert instructors supervising. A seminar and video were delivered to demonstrate specimen preparation and differences to human anatomy; and key steps of the procedure, including a Matthieu (meatal-based) flap, Thiersch-Duplay technique, tubularised incised plate (TIP), over a 6-8Fr urethral stent, formation of a Dartos waterproofing second-layer, and finally a glans-plasty/glanuloplasty. Trainees rated their satisfaction performing the above steps, whilst instructors additionally evaluated the model for (a)-needle penetrability (b)-suture holding of tissues; (c)-achievable coaptation of edges; and (d)-evenness of sutures, on (1-5) Likert scales.

Results:

Trainees (n=35) varied with level of specialist training, including residents (45%); and advanced trainees (fellows - 55%). All instructors (n=12) were consultant surgeons, with ≥ 5-years post-certification experience. Trainees and instructors similarly judged the animal model (after preparation) to satisfactorily resemble hypospadias surgery and human tissue handling. All instructors (100%) rated the model fidelity for each of above 4 characteristics ≥3/5, with 50-75% rating it 5/5 (excellent) for individual items. The model enabled transferring several key skills including, urethroplasty featuring a sub-urothelial, tension-free, inverted suture line.

Conclusion:

This isolated cadaveric calf penis model allows high-fidelity training on the main principles for distal hypospadias repair. Trainees reported satisfactory skill acquisition, and all instructors consistently reported that it facilitated skill transfer to the trainees.

172 - TOTAL ENDOSCOPIC MANAGEMENT OF VESICOURETERAL REFLUX IN CHILDREN WITH NEUROGENIC BLADDER: A TWO CENTRE STUDY

SALVATORE CASCIO[1], MIRIAM DOYLE[2], CHIARA PELLEGRINO[3], GIOVANNI MOSIELLO[3]

[1]SCHOOL OF MEDICINE UNIVERSITY COLLEGE DUBLIN AND CHILDRENS HEALTH IRELAND, DUBLIN, Ireland. [2]CHILDRENS HEALTH IRELAND AT TEMPLE STREET, DUBLIN, Ireland. [3]DIVISION OF NEURO-UROLOGY, BAMBINO GESU CHILDREN'S HOSPITAL, ROME, Italy

Aim of Study:

Total Endoscopic Management (TEM) has been described as the combination of submucosal injection of botulinum A toxin (BTX-A) and endoscopic treatment of vesicoureteral reflux (VUR). Aim of this study is to evaluate the efficacy and safety of TEM in the management of VUR in children with NB secondary to spina bifida (SB) who have failed conservative treatment.

Methods:

All data on renal investigations and management of children with SB and NB from January 2005 to December 2022 were collected in our database. Patients were regularly followed up in our spina bifida clinics with clinical examination, ultrasound of the urinary tract and video-urodynamics (VUD).

Main Results:

A total of 481 patients from birth were included in our database. VUR was identified in 87 (18%) patients. 21 patients underwent TEM due to either breakthrough urinary tract infections or worsening VUDs at a median age of 38 months. VUR was unilateral in 8 and bilateral in 13 (34 ureters). VUR completely resolved in 14 patients after TEM, in 4 VUR was downgraded. In 3 patients TEM failed, and 1 underwent detrusorectomy, 1 augmentation, 1 augmentation and reimplantation. No complications have been reported, majority of patients required repeated BTX-A injections.

Conclusions:

TEM is a safe and effective way of treating VUR in patients with neurogenic bladders who failed conservative treatment. Larger series and a long term follow-up are required to define a correct timing for repeating BTX-A injections and confirm long-term efficacy.

404 - TRAUMATIC RUPTURE OF THE URETEROPELVIC JUNCTION: HOW TO REDUCE THE DELAY IN DIAGNOSIS AND TREATMENT

Maria Stella Cipriani[1], Cécile Lozach[2], Klervie LOISELET[2,3], Henri LOTTMANN[1], Nathalie BOTTO[4], Thomas Blanc[1,3]

[1]Hôpital Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Department of Pediatric Surgery and Urology, Paris, France. [2]Hôpital Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Department of Pediatric Radiology, Paris, France. [3]Université Paris Cité, Paris, France. [4]Hôpital Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Department of Pediatric Surgery and Urology, Paris, France

AIM OF THE STUDY

Ureteropelvic junction (UPJ) disruption secondary to trauma is rare and delay in diagnos is common. The aim of the study was to analyse the management of children with traumatic rupture of the UPJ.

METHODS

Retrospective case series (n=7) of traumatic rupture of the UPJ managed in a single polytrauma centre over 17 years (2006-2023), reviewing epidemiology, diagnosis, treatment, and follow-up.

MAIN RESULTS

Mean age was 6.3-year-old (1-13). The mechanism of injury was blunt trauma in all cases. In five cases (71%) caused by sudden deceleration in the context of severe polytrauma and in two cases by direct abdominal trauma. One child had an unknown pre-existing kidney malformation. All children underwent abdominal CT with contrast on arrival, but only 2 had a late excretory phase on the first CT, allowing timely diagnosis. The other five (71%) children had a delay in diagnosis from 5 to 32 days. Four children had associated renal parenchymal lesions.

The initial surgical treatment consisted of nephrostomy (n=2), ureteral stent placement (n=4), and/or abdominal drain placement (n=2), followed by reconstructive surgery (pyeloplasty or calico-ureteral anastomosis). One child was conservatively managed. At last follow-up, three children had a low functioning kidney on DMSA renal scan (<10%) and one had high blood pressure.

CONCLUSIONS

Traumatic rupture of the UPJ is a very rare situation. Delayed diagnosis can lead to severe morbidity and poor outcomes. Contrast-enhanced CT on arrival with delayed phases should allow timely diagnosis to avoid delay in surgical management.

440 - TREATMENT MODALITIES FOR PEDIATRIC URETHRAL STRICTURES

Marko Marjanovic[1], Vladimir Kojovic[1,2], Predrag Ilic[1,2], Slobodan Dzambasanovic[1], Mirjana Jankovic[1], Ana Cvetinovic[1], Sava Cvetinovic[1]

[1]Mother and Child Health Care Institute of Serbia, Belgrade, Serbia. [2]School of Medicine, University of Belgrade, Belgrade, Serbia

Aim

Pediatric urethral strictures (US) are rare conditions, and published studies usually involve a small number of patients with a short follow-up. This study aims to present the surgical approaches used to treat pediatric US.

Methods

Between January 2007 and December 2023, 19 boys aged between 2 and 18 years who had US were treated. Ten patients had US due to trauma, seven had undergone harmful iatrogenic procedures, and two had a stricture of unknown cause. The patients were treated with endoscopic intervention (2), augmentation using buccal mucosa graft (BMG) (10), or urethrorrhaphy (7). The very short bulbar urethra strictures were treated endoscopically (internal urethrotomy). More extensive bulbar strictures and obliterative posterior urethral disruption were treated by excision and primary anastomosis. The treatment method for the anterior US was urethral augmentation with BMG.

Results

The patients were followed up for 12 to 160 months (mean 42 months), and their quality of urinary stream and presence of urinary tract infections or dysuria were recorded. Seventeen patients (89.5%) had a good outcome, while two patients (10.5%) underwent a redo procedure; one had an endoscopic incision, and another had BMG augmentation. No complications, such as penile curvature, urethral fistula, or diverticulum, were reported.

Conclusions

Pediatric US can be successfully treated with open surgery. Repeated dilatation and endoscopic treatment should not be preferred as the treatment method due to their low success rate, possibility of additional injuries, and non-compliance of pediatric patients. An individualized approach is required for US surgery to have successful outcome.

754 - VESICOSCOPIC VS. OPEN URETERAL REIMPLANTATION APPLYING THE COHEN AND THE LEADBETTER-POLITANO TECHNIQUE IN VESICOURETERAL REFLUX

Alexandra Wilke, Katrin Schuchardt, Carola Hörz, Thomas Kosk, Tina Hörz, Guido Fitze, Christian Kruppa

Department of pediatric surgery, University hospital Dresden, Dresden, Germany

Aim of the study: Minimally invasive surgery in vesicoureteral reflux has proven to be successful in terms of feasibility and safety. This study investigates possible benefits from vesicoscopy in pediatric patients.

Methods: Between 2010 and 2022, 224 children underwent ureteral reimplantation for vesicoureteral reflux in our clinic. 190 patients were operated applying the COHEN technique (vesicoscopy: 151; open: 39) and 34 patients using the LEADBETTER-POLITANO procedure (vesicoscopy: 5; open: 29). Open and vesicoscopic groups were compared with regards to peri- and postoperative data.

Main results: All procedures showed a success rate of at least 96% without any significant difference in the recurrence rate. The mean operating time was longer for vesicoscopy (COHEN: 149 vs. 99 min, $p < 0.001$; LEADBETTER-POLITANO: 196 vs. 161 min, $p = 0.135$). In the postoperative course, vesicoscopic patients had a shorter hospital stay (COHEN: 4.1 vs. 7.9 days, $p < 0.001$; LEADBETTER-POLITANO: 5.6 vs. 9.2 days, $p < 0.001$), as well as a lower need for continuous analgesic administration (COHEN: 0.8 vs. 3.7 days, $p < 0.001$; LEADBETTER-POLITANO: 0.8 vs. 3.8 days, $p < 0.001$). In addition, the time of bladder drainage was significantly shorter in vesicoscopic techniques (COHEN: 1.9 vs. 7.2 days, $p < 0.001$; LEADBETTER-POLITANO 3 vs. 8.7 days, $p < 0.001$).

Conclusions: Vesicoscopy is a safe form of therapy when indicated in vesicoureteral reflux, even if bilateral, in one session. Patients benefit significantly in the postoperative course with less need for analgesics, a shorter bladder drainage and a reduced hospital stay, compared with their open counterparts.

814 - OVARIAN TORSION IN PRE-PUBERTAL GIRLS : RETROSPECTIVE STUDY IN 30 FRENCH TERTIARY CENTERS.

Coralie Defert[1], Aurore Haffreingue[2], Adèle Olland[3], Elodie Haraux[4], Françoise Schmitt[5], Ianis Cousin[6], Olivier Hild[7], Thomas Deleforterie[8], Sandy Jochault-Ritz[9], Pierre-Louis Vérot[10], Hélène François-Coridon[11], Alexis Belgacem[12], Melina Bourezma[13], Yanis Bonnin[14], Marie Bousquet[15], Manon Zislin[16], Aurélien Scalabre[17], Marie Bey[18], Alexis Lubet[19], Charlène Messelod[20], Agate Bourg[21], Pauline Clermidi[22], Mathilde Glenisson[23], Chloé Lefébure[24], Alexis Arnaud[25]

[1]University Hospital of Nantes, Nantes, France. [2]University Hospital of Caen, Caen, France. [3]University Hospital of Lille, Lille, France. [4]University Hospital of Amien, Amiens, France. [5]University Hospital of Angers, Angers, France. [6]University Hospital of Brest, Brest, France. [7]University Hospital of Besançon, Besançon, France. [8]University Hospital of Bordeaux, Bordeaux, France. [9]Hospital of Colmar, Colmar, France. [10]University Hospital of Grenoble, Grenoble, France. [11]University Hospital of La Martinique, La Martinique, France. [12]University Hospital of Limoges, Limoges, France. [13]University Hospital of Lyon, Lyon, France. [14]University Hospital of Montpellier, Montpellier, France. [15]University Hospital of Tours, Tours, France. [16]University Hospital of Strasbourg, Strasbourg, France. [17]University Hospital of Saint-Etienne, Saint-Etienne, France. [18]Hospital of Saint-Brieuc, Saint-Brieuc, France. [19]University Hospital of Rouen, Rouen, France. [20]University Hospital of Reims, Reims, France. [21]University Hospital of Poitiers, Poitiers, France. [22]University Hospital of Trousseau, Paris, Paris, France. [23]University Hospital of Robert Debré, Paris, France. [24]Necker-Enfants Malades, Paris, France. [25]University Hospital of Rennes, Rennes, France

The diagnosis of ovarian torsion is made with delay among pre-pubertal girls and the management after the first surgery is poorly codified. We interested in the French experience during the last two decades.

Retrospective study in French pediatric surgery centers from January 2000 to December 2022 concerning girls who presented with at least 1 episode of ovarian torsion in the prepubertal period. Data collected included patient history, symptomatology, biological and imaging assessment at first episode, emergency surgery, follow-up including relapse.

Thirty centers participated with 503 girls included. None had a history of ovarian transposition. The girls had a mean age of 7.9 years (± 2.8) and a median age of 8.3 years (Q1 5.97; Q3 10.12) at the time of the first episode of torsion. Nausea or vomiting was present in 71% of cases. Fever was present in 23% of cases and was more displayed 24 hours after the onset of abdominal pain ($p < 0.0001$). Surgery was performed by laparoscopy (71%), laparotomy (15%) or laparoscopy converted to laparotomy (71 cases, 14%). Mean follow-up was 2.1 (± 2.61) years. Sixty-seven girls (13% of the cohort) were referred to the endocrinologist after the first episode of torsion. 42/142 (30%) of girls with oversized ovaries were referred to the endocrinologist. There was at least one recurrence in 75/503 girls (17.5%). Among them: 10 (7.5%) had an ovarian mass and 42 (55%) oversized ovaries.

Symptoms of ovarian torsion in pre-pubertal girls are not specific and clinicians should be aware of this insidious presentation in this group.

202 - PILOT IMPLEMENTATION STUDY INVESTIGATING THE INFLUENCE OF GENE POLYMORPHISM ON PEDIATRIC UROLITHIASIS IN A LOCAL COMMUNITY

Mohammed Aboud[1], Manal Kadhim[2]

[1]Ministry of Health -The Maternity and Child Teaching Hospital, AL Diwaniya - AL Qadisiya, Iraq.
[2]College of Medicine - University of AL Qadisiya, Al Qadisiya, Iraq

PURPOSE

The study sheds light on the genetic basis of urolithiasis by understanding the molecular basis and Identifying the genotypic and allelic frequency of gene polymorphism providing crucial preliminary insights into personalized prevention and management strategies for affected children.

MATERIAL AND METHODS

This study was conducted on 45 nephrolithiasis patients, the others consisted of 45 healthy individuals without any history of systemic disease also enrolled as a control group. Genomic DNA samples were collected, and ARMS PCR for genotyping of PCRCSF-1 gene polymorphism was designed in this study using the NCBI SNP database and ARMS PCR primer1 design online. Statistical analysis is carried out with the (SPSS v 0.23). The significance level is considered when a P value is less than 0.05 (≤ 0.05). Our health authorities approved the study.

RESULTS

Regarding the CSF-1gene, the heterozygous genotype CA was more frequent in the patients group compared to the control group, and the difference was highly significant (P = 0.006). Therefore, genotype CA was a risk factor for renal stones. The homozygous genotype CC was more frequent in the patients group compared to the control group, and the difference was highly significant (P < 0.001). Therefore, genotype CC was a risk factor for renal stones.

CONCLUSIONS

Multiple risk alleles with pediatric nephrolithiasis susceptibility have a synergistic effect, especially when they are frequently found within the same family. This pilot study marked a significant step in unraveling the genetic underpinnings of pediatric urolithiasis within a local community.

435 - VARIATION IN PRACTICE AND OUTCOMES OF EXTRACORPOREAL LIFE SUPPORT (ECLS) IN CONGENITAL DIAPHAGMATIC HERNIA BETWEEN NORTH AMERICAN AND EUROPEAN CENTRES

George Bethell[1], Iain Yardley[2], Timothy Bradnock[3], Neil Patel[3], Augusto Zani[4], Vanessa Stanley[5], Nigel Hall[1]

[1]University of Southampton, Southampton, United Kingdom. [2]Evelina Children's Hospital, London, United Kingdom. [3]Royal Hospital for Children Glasgow, Glasgow, United Kingdom. [4]The Hospital for Sick Children (SickKids), Toronto, Canada. [5]University Hospital Southampton, Southampton, United Kingdom

Aim

To compare management and outcomes of infants with congenital diaphragmatic hernia(CDH) between North American(NA) and European(EU) centres.

Methods

ECLS organisation (ELSO) prospective registry study (#2694) including infants with CDH receiving ECLS over an 11-year period**.** Outcomes were centre caseload and ECLS outcomes. Data are median(IQR).

Main results

There were 3,251 ECLS runs on 3,124 infants (NA:2,471[77%], EU:707[23%]). Infant characteristics were similar between NA and EU centres, except major cardiac anomaly was more common in NA centres (Table). CDH repair on-ECLS was more frequent in NA compared to EU centres (1175[50.4%] *vs* 248[35.8%] infants, p<0.001) and duration of ECLS was longer (11.1[6.6-18.1] *vs* 8.8[5.9-12.8] days, p<0.001).

Caseload-per-centre was greater in EU compared to NA (3.8[2.0 to 19.3) *vs* 2.6[1.5 to 5.5] cases/year, p<0.001). Mortality (1,161 [48.0%] vs 280 [39.6%] infants, p<0.001) and any ECLS complication (1,823 [75.4%] *vs* 449[63.5%] infants, p<0.001) were more frequent in NA versus EU centres. In survivors, inpatient stay was also greater in NA centres (86[59-131] *vs* 46[23-79] days, p<0.001). Severe neurological injury occurrence was similar between NA and EU centres (190[7.9%] *vs* 45[6.4%] infants, p=0.19).

Conclusion

ELSO registry data suggest that infants with CDH selected for ECLS have similar characteristics in both NA and EU centres with greater caseload in EU centres. Further exploration of patient selection criteria and physiological variables is required to understand reasons for observed differences in outcomes as we strive to improve care for babies born with CDH.

		North America (n=2,417)	Europe (n=707)	p value
Male		1,350 (56.8%)	388 (55.6%)	0.57
Birthweight, kg		3.00 (2.68 to 3.32)	3.00 (2.70 to 3.39)	0.34
Gestation age, weeks		38.00 (37.00 to 39.00)	38.00 (37.00 to 39.00)	0.19
Major cardiac anomaly		809 (33.5%)	178 (25.2%)	<0.001
Antenatal CDH diagnosis		2,009 (84.4%)	594 (84.9%)	0.76
Pre-ECLS arrest		187 (7.8%)	46 (6.6%)	0.28
CDH laterality	Left	1,804 (75.7%)	537 (76.9%)	0.31
	Right	516 (21.7%)	137 (19.6%)	
	Bilateral	63 (2.6%)	24 (3.4%)	
n (%) or median (inter-quartile range)				

Table – infant characteristics comparing North American to European centres.

450 - FETAL MRI DEFECT-DIAPHRAGMATIC RATIO (FMRI-DDR) AS A PRENATAL PROGNOSTIC INDEX IN CONGENITAL DIAPHRAGMATIC HERNIA.

Camilla Pagliara[1,2], Andrea Garnero[3], Fabrizio Gennari[4], Jurgen Schleef[2], Piergiorgio Gamba[1], Alberto Sgro[1], Elisa Zambaiti[4]

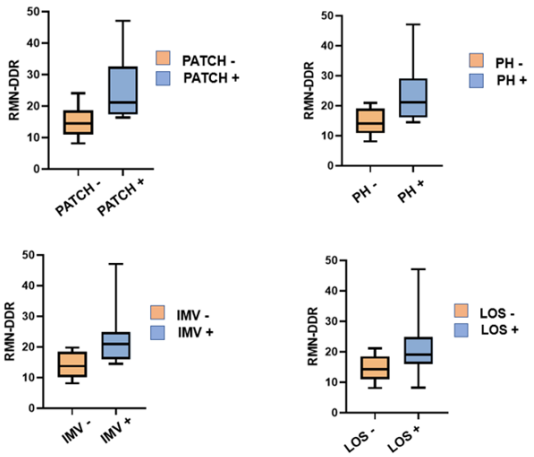
[1]Pediatric Surgery, Department of Women's and Children's Health, Padova, Italy. [2]Pediatric Surgery, IRCSS Burlo Garofolo, Trieste, Italy. [3]Neuroradiology, Città della Salute, Torino, Italy. [4]Pediatric Surgery, Regina Margherita Children's Hospital, Torino, Italy

The role of fetal-MRI (fMRI) in prenatal assessment of CDH has evolved. While fMRI-derived predicted parameters have always been focused on the definition of pulmonary hypoplasia, studies on the use of fMRI to evaluate prenatally the diaphragmatic defect size are still lacking. Aim of the study is to correlate fMRI percentage of diaphragmatic defect (fMRI Defect-Diaphragmatic-Ratio, fMRI-DDR) with postnatal outcomes.

A multicentric retrospective study including 21 CDH fetuses underwent fMRI between 2015 and 2023 has been conducted. Manual segmentation of the diaphragm has been obtained. Based on 3D-images, fMRI-DDR has been calculated and correlated with main post-operative outcomes: length of invasive mechanical ventilation (IMV), patch use, pulmonary hypertension (PH), 30-days need for oxygen supply, survival and length of stay (LOS).

Median fMRI-DDR was 17.3% (13.8 – 22.5). fMRI-DDR was significantly higher in patients needing a patch [14.5 (IQR 11.0 – 18.5) vs 21.1 (IQR 17.3 – 32.6);p<0.05], in neonates with PH-treatment at birth [14.0 (IQR 10.9 – 19.0) vs 21.1 (IQR 16.1 – 29.1);p<0.05] and in patients needing IMV longer than one week [13.8 (IQR 10.2 – 18.3) vs 20.9 (IQR 16.0 – 24.8);p<0.05]. Regarding LOS, fMRI-DDR appears to be lower among patients discharged within the first four weeks, although without significant association [14.3 (IQR 11.0 – 18.5) vs 19.0 (IQR 16.0 – 24.8);p=0.08].

Our preliminary data support that fMRI-DDR, calculated on fMRI-based diaphragmatic models, correlates with the need of a patch repair, PH and length of IVM. Additional data is necessary to further confirm the present findings and to identify other possible correlations.



145 - Long-term longitudinal study of nutritional status in patients born with esophageal atresia

Suzanne Depoortere, Madeleine Aumar, Delphine Ley, Audrey Nicolas, Stephanie Coopman, Dominique Guimber, Rony Sfeir, Maxime Leroy, Melanie Leroy, Frederic Gottrand

CHRU, Lille, France

Background

Previous studies reported undernutrition and growth delay in patients with esophageal atresia (EA). Our goal was to assess their long-term nutritional status.

Methods

We longitudinally studied 204 patients with EA (91% with esotracheal fistula, 64% associated with other malformation).We searched for neonatal factors associated with cumulative incidence of undernutrition and stunting through the 16 years of follow-up by using univariable and multivariable proportional hazards regression models for interval-censored data.

Results

Mean z-BMI and z-HFA were lower than the normal population from birth to 16 years old. At 12 years of age, the z-BMI increased and get closer to the normal ranges, while the z-HFA still diverged. In our study, 7% *95% CI [5-12]* of the 1-year-old population were undernourished, and 25% *95% CI [19-31]* of the population were undernourished at least once between 1 and 16-year of age. Undernutrition was significantly associated with congenital heart malformation (HR 2.6[1.4–4.8]), antenatal EA diagnosis (HR 2.4 [1.3 – 4.6]) and antenatal EA diagnosis (HR 2.44 [1.3 – 4.6]).The cumulative incidence of stunting was high but remained stable over time: 26% (95% CI [20-32]) at 1 year and 33% (95% CI [27-40]) between 1 and 16 year-old. Stunting was significantly associated with genetic anomalies (HR 5.5[2.7–11.6]), prematurity (HR 1.9 [1.1-3.3]), VACTERL malformation (HR 2.0 [1.2-3.5]) and intra uterine growth retardation (IUGR) (size wise) (HR 2.6 [1.2-5.5]).

Conclusions

Nutritional follow-up and intervention of these patients need to be intensified in cases of congenital heart disease, VACTERL malformation, prematurity and IUGR.

23 - EVALUATION OF SWALLOWING FUNCTION IN PATIENTS WITH H-TYPE TRACHEOESOPHAGEAL FISTULA

Mehmet Furkan Yalabık[1], Selen Serel Arslan[2], Özlem Boybeyi[1], Numan Demir[2], Tutku Soyer[1]

[1]Hacettepe University Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey.
[2]Hacettepe University, Faculty of Physical Therapy and Rehabilitation, Ankara, Turkey

Aim:

Despite EA patients had mild to severe dysfunction in oral, pharyngeal, and esophageal phases of swallow, swallowing functions have not been examined in patients with H-TEF before. Therefore, a retrospective study was carried out to evaluate the swallowing function of patients with H-TEF.

Methods:

Children operated for H-TEF with videoflueroscopic swallowing evaluation (VFSE) were included. Penetration-aspiration score (PAS), oral phase efficacy (OPE), delay in swallowing reflex (DSR), velopharyngeal closure (VFC), and esophageal dysmotility (ED) were assessed by using VFSE recordings. PAS scores <6 was considered as no aspiration, whereas scores ≥ 6 was assessed as aspiration. OPE, DSR and ED were scored as 0 (normal) to 3 (severe problem) and DSR was ranged from 0 (no delay) to 3 (severe delayed, > 5 seconds).

Results:

Ten patients with a mean age of 3.4 years (1-9 year) were included. Two (20%) patients had aspiration in liquids and none of them had in solids. One patient had minimum and the other one has mild problem in OFE (n=2, 20%). None of the patients had gastroesophageal reflux. DSR and VFC were normal in all patients. In five of the patients (50%), there was mild (n=1) to severe (n=4) ED.

Conclusion:

Children with H-TEF have modest swallowing impairment in all phases. Although, it is not as severe as in EA patients, evaluation of the swallowing function should be part of the clinical practice of patients with H-TEF.

446 - CONGENITAL DIAPHRAGMATIC HERNIA (CDH) RECURRENCE IN YOUNG ADULTS: A SURGICAL DILEMMA

Rebecca Pulvirenti[1,2], Ulrike Kraemer[3], Lieke Kamphuis[4], Rene Wijnen[1], Hanneke IJsseltijn[1], Pierluigi Ciet[5], Marco Schnater[1]

[1]Department of Pediatric Surgery, Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands. [2]Pediatric Surgery Unit, Department of Women's and Children's Health, Padua University Hospital, Padua, Italy. [3]Division of Pediatric Intensive Care, Department of Neonatal & Pediatric Intensive Care; ErasmusMC Sophia Children's Hospital, Rotterdam, Netherlands. [4]Department of Pulmonology, Erasmus Medical Center, Rotterdam, Netherlands. [5]Radiology and Nuclear Medicine, Erasmus Medical Center, Rotterdam, Netherlands

Aim of the study

CDH recurrences present diverse clinical manifestations. The asymptomatic subgroup poses challenges in determining re-intervention indications, with no established consensus/guidelines about this topic. Available reports predominantly focus on symptomatic short to mid-term recurrences, with limited mention of adults facing this condition. Therefore, we present a clinical and radiological evaluation of a cohort of adult CDH survivors.

Methods

We conducted a prospective cross-sectional observational study, recruiting CDH patients born between 1989-2001 (Kraemer et al, Pediatrics 2023). Participants underwent cardiorespiratory tests and spirometry-controlled CT scans. A certified thoracic radiologist systematically reviewed the CT scans, assessing possible CDH recurrence characteristics.

Results

Among the 68 included patients (median age 23years IQR 19-31; 56% males), CT scans revealed recurrences in 36 (53%). 31 (86%) had left-CDH, and 27 (75%) initially underwent patch repair. At the time of evaluation, 4/36 (11%) reported symptoms. Herniated content included abdominal fat in 26 (72%), solid organs in 18 (50%), and hollow organs in three (8%). The diaphragmatic defect was dorsal in 27 (75%) and the mean three-dimensional defect size was 48.5mm. Neonatal patch repair ($p<0.001$) and Extracorporeal Membrane Oxygenation ($p=0.01$) were identified as recurrence risk factors.

Conclusions

We report a high incidence of long-term CDH recurrences, mainly clinically asymptomatic, emphasizing the need for careful re-intervention indications. Considerations should include sex, symptoms, defect characteristics, and herniated content. Our findings may have implications for pregnancies in females with CDH and for counseling patients themselves and their clinicians. A multidisciplinary approach involving pediatric and adult teams is advisable in managing these patients.

385 - TRANSITIONAL CARE FOR PATIENTS WITH ESOPHAGEAL ATRESIA AND CONGENITAL DIAPHRAGMATIC HERNIA: A EUROPEAN INVENTORY INITIATIVE

Cunera de Beaufort[1], Dalia Aminoff[2], Ivo de Blaauw[3], Célia Crétolle[4], Jens Dingemann[5], Natalie Durkin[6], Wout Feitz[7], JoAnne Fruithof[8], Caterina Grano[9], Carmen Mesas Burgos[10], Nicole Schwarzer[11], Graham Slater[12], Tutku Soyer[13], Cristiano Violani[14], Rene Wijnen[15], Paolo de Coppi[6], Ramon Gorter[1]

[1]Emma Children's Hospital Amsterdam UMC, location University of Amsterdam, Department of Pediatric Surgery, Amsterdam, Netherlands. [2]Italian Patient's Organization for ARM (AIMAR) - Patient Organization, Via Nomentana, Roma, Italy. [3]Department of Surgery - Division of Pediatric Surgery, Radboudumc Amalia Children's Hospital, Nijmegen, Netherlands. [4]Necker-Enfants Malades University Hospital, Paris, France. [5]Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany. [6]Stem Cell and Regenerative Medicine, DBC and BRC NIHR, Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [7]Department of Urology-Division of Pediatric Urology, Radboudumc Amalia Children's Hospital, Nijmegen, Netherlands. [8]EAT - Esophageal Atresia Global Support Groups, Stuttgart, Germany; VOKS - Vereniging voor Ouderen en Kinderen met een Slokdarmafsluiting, Hellendoorn, Netherlands. [9]Department of Psychology, Faculty of Medicine and Psychology, University of Rome Sapienza, Roma, Italy. [10]Department of Pediatric Surgery, Karolinska University Hospital, Stockholm, Sweden. [11]SoMA, The German patient support organization for anorectal malformations and Hirschsprung Disease, Munich, Germany. [12]EAT - Esophageal Atresia Global Support Groups, Stuttgart, Germany; Lead ePAG (Patient Representative), ERN ERNICA, Stuttgart, Germany. [13]Department of Pediatric Surgery, Hacettepe University, Ankara, Turkey. [14]Sapienza University of Rome, Roma, Italy. [15]Department of Pediatric Surgery, Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands

Aim of the study

Patients with esophageal atresia (EA) and congenital diaphragmatic hernia (CDH) are subdue to long-term morbidity. European data about access to transition of care (TOC) for these conditions is limited. The aim of this international study was to assess the current status of TOC and adult care (AC) programs for EA and CDH patients.

Methods

A survey was developed by EUPSA/ERNICA/eUROGEN/ePAG members, comprising of four domains: general information, general questions about transition to adulthood, and disease-specific questions regarding TOC and AC programs. Recruitment of centers was done by the ERNs and EUPSA, using mailing lists and social media accounts. Only one survey could be filled out by each participating center. Descriptive statistics were reported.

Main results

Eighty-two centers participated. Seventy-two centers (87.8%) had a self-reported area of expertise for EA and CDH. TOC programs were installed in 45.8% of the centers (EA n=32, CDH n=13), and AC programs in 29.2% (EA n=20, CDH n=12). Adult gastroenterologists and pulmonologists were most often responsible for care of respectively EA and CDH patients. When comparing centers, wide variation was observed in the content of the programs.

Conclusions

Despite awareness of the importance of TOC and AC programs for EA and CDH patients, these programs were installed in less than 50% of the participating centers. Various programs for EA and CDH were applied, with considerable heterogeneity in content and involved responsible caregivers. Future research should aim to improve TOC and AC programs for patients with EA and CDH.

227 - IS ROUTINE PYLOROPLASTY NECESSARY DURING GASTRIC PULL-UP IN CHILDREN?

Samir Hasan, Ulgen Celtik, Gozde Sakul, Zafer Dokumcu, Coskun Ozcan

Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey

Aim:

To investigate the necessity of routine pyloroplasty during pediatric gastric pull-up (GPU) procedures.

Table-1		Retrosternal with pyloroplasty	Posterior mediastinal with pyloroplasty	Retrosternal without pyloroplasty	Posterior mediastinal without pyloroplasty	P
Indication: CES/EA		11/7	6/0	20/6	6/3	0,27
Age at operation (month)		38,8(10-116)	29,6(16-61)	38,7(10-165)	42,1(11-185)	0,36
Oral feeding initiation (day)		8,1(5-29)	7,5(5-14)	9(5-29)	9,6(5-29)	0,23
Full-dose oral feeding (day)		20,5(6-95)	16,5(7-45)	16,6(6-65)	13(6-34)	0,16
Dumping symptoms		9	4	3	1	0,004
Pylor dilation		0	0	8	3	0,02
Pyloroplasty		0	0	2	1	0,50
Hospital stay (day)		22,5(11-60)	24,8(11-58)	22,9(7-90)	25,5(10-45)	0,13
Follow-up period (month)		105,3(49-124)	113(94-130)	59,8(24-94)	66,4(40-91)	0,07
Gastric emptying	Normal	14	5	17	5	0,12
	Prolonged	1	1	6	4	
	Rapid	2	0	0	0	

Methods:

Hospital records of patients who underwent GPU with a minimum follow-up 2 years between 2012-2023 retrospectively reviewed. Patients were divided into 4 groups according to addition of pyloroplasty during GPU and the route for conduit (retrosternal-posterior mediastinum). Groups were evaluated and compared in terms of indication, age at operation, oral feeding initiation and full-dose feeding days, 6th-month scopic gastric emptying, development of dumping symptoms, necessity of pylor dilation or pyloroplasty, length of hospital stay, and follow-up periods.

Results:

Fifty-nine patients were included in the study. The groups were homogeneous for demographics and indications. The independent variables for the groups are summarized in Table 1. In pyloroplasty groups, frequency of dumping symptoms was 54%, while need for pyloric dilation/pyloroplasty was 31% in non-pyloroplasty group ($p<0.05$). In patients who did not undergo pyloroplasty, there was a significantly higher need for pyloric dilation; however, there was no significant requirement for pyloroplasty in these patients. Sixth month fluoroscopic gastric emptying was similar between groups.

Conclusion:

In GPU surgeries, the inclusion of pyloroplasty may likely result in dumping symptoms, whereas its exclusion rarely needs pyloric dilation. Omitting pyloroplasty during GPU can minimize the unnecessary occurrence of dumping symptoms.

268 - LIFE THREATING SPONTANEOUS PNEUMOTHORAX AFTER PECTUS EXCAVATUM REPAIR DUE TO BUFFALO CHEST: ARE CONGENITAL BLEBS AN UNDERSTIMATED RISK FACTOR?

Marco Agamennone[1], Vittorio Guerriero[2,3], Michele Torre[1,2,3]

[1]Department of Pediatric Surgery, UNIGE DiNOGMI, Genova, Italy. [2]Department of Pediatric Surgery Unit, IRCCS Istituto Giannina Gaslini, Genova, Italy. [3]Department of Pediatric Thoracic and Airway Surgery Unit, IRCCS Istituto Giannina Gaslini, Genova, Italy

Aim:

With mini-invasive repair of pectus excavatum (MIRPE), a communication between the two pleural cavities is created, known as “buffalo chest”, which is a risk factor for bilateral spontaneous pneumothorax (SP). Few papers report an increased incidence of congenital blebs associated with Pectus excavatum (PE), which can be expected, as both PE and SP patients tend to share a Marfanoid habitus. Our aim is to analyze the incidence and clinical presentation of SP after MIRPE, discussing the role of congenital blebs in PE patients

Methods:

We investigated retrospectively the incidence of SP (not related to surgery) at least one month after MIRPE in our patients operated from 2005 to January 2024: clinical presentation, treatment, and outcomes were evaluated

Results:

Among 795 patients undergoing MIRPE, 6 (0.75%) experienced SP, 4 cases unilateral (2, 12, 28 and 36 months after MIRPE) and 2 bilateral (1 and 19 months after MIRPE). In 5 cases, blebs were demonstrated as the cause of SP. All 4 unilateral SP had blebs treated with thoracoscopic bullectomy/pleurodesis. Both patients with bilateral SP experienced cardiac arrest: one was promptly treated at our institution's emergency department with bilateral drain and underwent bilateral thoracoscopic bullectomy/pleurodesis. The other patient passed away at a peripheral hospital and the presence of blebs was suspected but not demonstrated

Conclusions:

After MIRPE, bilateral SP due to the presence of iatrogenic buffalo chest may represent a life-threatening emergency. Our results could indicate the need of investigating (and treating) the presence of apical blebs before MIRPE.

201 - INCREASE OF BLOOD METAL LEVELS AFTER MINIMALLY INVASIVE REPAIR OF PECTUS EXCAVATUM (MIRPE)

Luca Genova Gaia[1,2], Federica Lena[1,2], Maria Grazia Calevo[3], Maria Raso[4], Sebastiano Barco[5], Francesca Di Gaudio[6], Giuliana Cangemi[5], Michele Torre[7,1]

[1]Università di Genova, Genova, Italy. [2]Department of Pediatric Surgery, IRCCS G. Gaslini, Genova, Italy. [3]Epidemiology and Biostatistics Unit, IRCCS G. Gaslini, Genova, Italy. [4]Chromatography and Mass Spectrometry Section, Quality Control and Chemical Risk (CQRC), Department PROMISE, Università di Palermo, Palermo, Italy. [5]Chromatography and Mass Spectrometry Section, Central Laboratory of Analyses, IRCCS G. Gaslini, Genova, Italy. [6]Chromatography and Mass Spectrometry Section, Quality Control and Chemical Risk (CQRC), Department PROMISE, Palermo, Italy. [7]Pediatric Thoracic and Airway Surgery Unit, IRCCS G. Gaslini, Genova, Italy

Aim of the Study

Minimally Invasive Repair of Pectus Excavatum (MIRPE) is the most popular technique to repair pectus excavatum in young patients. One or more metallic bars are inserted and maintained for at least 2-3 years. Few reports about possible metal release in these patients were published recently. Our aim was to search for increased blood metal levels in patients after MIRPE and to investigate if surgical details (number of bars and stabilizers) were correlated with metal release.

Methods

We have prospectively studied blood levels of chromium, nickel, molybdenum and manganese before bar implant in a group of patients undergoing MIRPE between 2017 and 2019 and, in the same patients, at the moment of bar removals between 2020 and 2022. All our patients had the same stainless-steel bar. Blood samples were analysed using inductively coupled plasma mass spectrometry.

Main results

We enrolled a total of 53 (10 females) patients. Median age at MIRPE was 15.4 years. After a bar maintenance median time of 3.1 years, we found significant ($p < .05$) higher mean levels of chromium (2.43 versus 0.52 µg/l) and molybdenum (1.87 versus 0.35 µg/l), and higher mean levels of nickel (4.24 vs 80.80 µg/l) and manganese (12.69 vs 19.81 µg/l) without statistical significance. No differences were found regarding the number of bars, stabilizers implanted or gender. No patients had clinical symptoms of metallosis.

Conclusions

We demonstrated that metal blood levels increase in patients with retrosternal bars after MIRPE. Clinical implication of our finding is still unknown.

311 - SURGICAL CORRECTION OF CONGENITAL TRACHEAL STENOSIS USING CARDIOPULMONARY BYPASS AND ECMO

Yevhen Rudenko[1,2], Danylo Krivchenya[1], Oleksandr Metlenko[2], Yaroslav Truba[3], Andrij Vysotskij[2]

[1]Bogomolets National Medical University, Kyiv, Ukraine. [2]National Specialized Children Hospital "OHMATDYT", Kyiv, Ukraine. [3]Amosov National Institute of Cardiovascular Surgery, Kyiv, Ukraine

Aim of the Study

Congenital tracheal stenosis (CTS) remains a challenging entity considering its rarity, severity, and potential lethality. Associated abnormalities significantly increase the risks of surgery. The aim was to optimize surgical correction of CTS using extracorporeal life support technologies.

Methods

Ten patients aged 2 months to 12 years (mean 23.3±12.8) underwent surgical correction of CTS using cardiopulmonary bypass (n=6) or ECMO (n=4). Surgeries were the following: segmental resection (n=5) including reconstruction of tracheal bifurcation (n=3), slide tracheoplasty (n=4), balloon dilation, and stenting (n=1). Simultaneous ventricular septal defect (VSD) closure (n=2) and left pulmonary artery reimplantation (n=4) were performed in 5 patients.

Main results

The length and grade of narrowing of CTS were 0.7-6.0 cm, mean 2.6±0.5 cm (10-83%, mean 38.8±8.4%), and 60-90%, mean 70.0±3.0%, respectively. Types of CTS: segmental (n=4), long segment (n=3), and bridging bronchus stenosis (n=3). Eight (80%) patients had associated malformations: pulmonary artery sling (n=4), VSD (n=2), right lung agenesis (n=1) or hypoplasia (n=1), aberrant right subclavian artery (n=1), innominate artery tracheal compression (n=1), laryngomalacia (n=1), duodenal atresia and persistent cloaca (n=1). Eight (80%) patients survived simultaneous surgeries and had good follow-up results for 1-12 years. There were 2 (20%) early postop deaths due to acute respiratory distress.

Conclusions

CTS has a severe course and is often associated with cardiac, great vessels, and pulmonary malformations. Simultaneous surgical correction of CTS and associated defects is possible with the use of extracorporeal life support. ECMO has advantages in patients without associated heart defects.

445 - FETAL MRI DIAPHRAGMATIC RECONSTRUCTION: SURVEY ON THE INTERPRETATION OF THE 3D RECONSTRUCTION AND ITS CORRELATION WITH POST-NATAL FINDING

Camilla Pagliara[1,2], Alberto Sgrò[1], Jurgen Schleef[2], Fabrizio Gennari[3], Piergiorgio Gamba[1], Elisa Zambaiti[3]

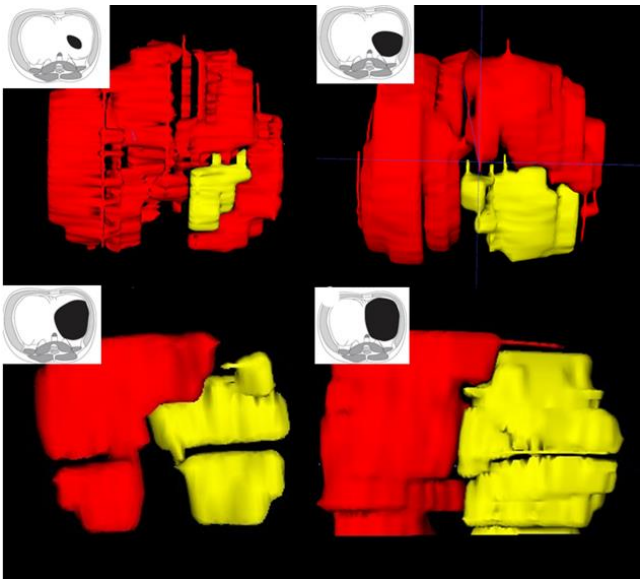
[1]Pediatric Surgery, Department of Women's and Children's Health, Padova, Italy. [2]Pediatric Surgery, IRCSS Burlo Garofolo, Trieste, Italy. [3]Pediatric Surgery, Regina Margherita Children's Hospital, Torino, Italy

Fetal-MRI (fMRI) is increasingly becoming a valuable tool in the prenatal assessment of CDH. Although fMRI plays a key role in the definition of pulmonary hypoplasia, studies on the accuracy of fMRI in predicting the diaphragmatic defect size are still lacking. Moreover, the CDHSG staging system, that relies on the intra-operative finding, is based on a subjective and extemporaneous evaluation. The aim of the present study is to correlate the accuracy of fMRI diaphragmatic reconstruction with the CDHSG staging system and the post-natal extent of diaphragmatic defect.

A multicentric retrospective study including 22 CDH fetuses underwent fMRI between 2015 and 2023 has been conducted. Based on manual segmentation of the fMRI, 3D-images of the fetal diaphragm have been obtained. Experts in the field were asked to interpret the images for CDHSG staging system through a proper questionnaire (figure). The concordance between prenatal image and the anatomic intraoperative classification has finally been validated.

Based on the 3D-models, twenty left CDH and two right CDH were classified by 15 Pediatric Surgeons from five Centers. For all 3D-recostructions, the main response at the survey (type of the defect according to CDHSG staging system in A, B, C, or D defect) corresponded to intraoperative or autoptic finding of the defect.

fMRI-based 3D-reconstruction of the fetal diaphragm in CDH has been demonstrated to be easily interpreted by surgeons and correlate well with the anatomic intraoperative finding.



83 - THORACOSCOPIC ANATOMICAL SEGMENTECTOMIES FOR THE TREATMENT OF INTRAPARENCHYMAL CONGENITAL LUNG MALFORMATIONS IN CHILDREN: A MONOCENTRIC EXPERIENCE

Federico Rebosio[1], Erik Hervieux[1], Nadia Nathan[2], Guillaume Thouvenin[2], Blandine Prevost[2], Sabine Irtan[1]

[1]Pediatric and Neonatal Surgery Department, Armand-Trousseau Hospital, AP-HP, Paris, France.
[2]Pediatric Pulmonology Department, Armand-Trousseau Hospital, AP-HP, Paris, France

Aim of the Study.

To investigate if thoracoscopic anatomical segmentectomy (TAS) can be safe and feasible compared to thoracoscopic lobectomy (TL), for the prophylactic treatment of intraparenchymal congenital lung malformations (ICLM).

Methods.

Retrospective review of all consecutive patients operated for an ICLM at our Institution from January 2017 to June 2023. Patients were divided in TL and TAS group. Conversion rate and postoperative air leakage duration were evaluated as primary outcomes. Operating room (OR) occupancy time, operative time, necessity of chest tube insertion at the end of the surgery and length of postoperative hospital stay were analyzed as secondary outcomes. This study complies with the Declaration of Helsinki.

Main results.

Forty-four patients were included, 25 TL and 19 TAS (57% vs 43%). Median age (7 months vs 10 months;p = 0.263), median weight at surgery (8.00 kg vs 8.90 kg;p = 0.281), median OR occupancy time (284 minutes vs 293 minutes; p = 0.658) and median operative time (195 minutes vs 187 minutes;p = 0.684) were similar. A postoperative chest tube was more often left in place in TAS patients (40% vs 79%; p = 0.014), but median postoperative chest tube duration (2 days vs 2 days;p = 0.344) and hospital stay (3 days vs 3 days; p = 0.694) resulted similar. Early (16% vs 11%; p = 0.684) and late complication rates (8% vs 21%;p = 0.378) were comparable.

Conclusions.

TAS is a safe and feasible alternative, non-inferior to TL, for selected type of ICLM.

340 - IMPACT OF CENTRALIZATION OF CARE FOR PATIENTS WITH CONGENITAL DIAPHRAGMATIC HERNIA IN SWEDEN

Carmen Mesas Burgos[1], Vladimir Gatzinsky[2], Petra Nord[1], Hans Winberg[3], Elisabet Gustafson[4], Tomas Wester[1]

[1]Karolinska University Hospital, Stockholm, Sweden. [2]Queen Silvia´s Children Hospital, Gothenburg, Sweden. [3]Skåne University Hospital, Lund, Sweden. [4]Akademiska Hospital, Uppsala, Sweden

Aim

There is very limited data regarding the impact of centralization of care of patients with congenital diaphragmatic hernia (CDH). The National Board of Health and Welfare in Sweden decided to centralized the care of CDH from July 2018.

The aim of this study was to assess the short-term impact of centralization in patient outcomes and quality of care.

Methods

Retrospective observational study, including all centers in Sweden managing CDH before and after centralization. All patients born with CDH who were managed from 1st of July 2013 to 30th of June 2018 (before centralization) were compared with patients managed 1st of July 2018 to 30th of June 2023 (after centralization). Fisher's exact test was used to compared differences between the two time periods, $p<0.05$ was considered statistically significant. The study was approved by the Swedish Ethical Review Authority (**2023-02650-01)**

Main results

A total of 239 patients with CDH were managed at any of the centers during the study period, 104 before and 135 after centralization. The rates of prenatal diagnosis, side of the defect, need of patch or mortality did not differ significantly during the study period. The need for ECMO decresed significantly in the second period (18% vs 7%, $p<0.01$).

Conclusions

Even though the time since centralization occurred is short, this prelimirary data shows that concentration of complex cases in specialized centers might have a positive impact on patient's management and short-term outcomes, despite the longer travel distances for families.

381 - IPSILATERAL URETERO-URETEROSTOMY FOR PEDIATRIC ECTOPIC URETERAL INCONTINENCE

Paulina Vargova, María Reyes Delgado Alvira, Marina González Herrero, Yurema Gonzalez Ruiz, Javier Pison Chacon

Hospital Universitario Miguel Servet, Zaragoza, Spain

Objective:

Urinary incontinence due to ureteral ectopia of the upper hemirenal kidney in double renal systems has traditionally been treated by heminephrectomy or uretero-ureterostomy (UU). We present the long-term follow-up and complications of patients who underwent UU.

Methods:

Retrospective study of four patients with ectopic ureter treated by UU. Indications for UU were: persistent urinary incontinence, absence of vesicoureteral reflux (VUR) in lower moety, preserved function of the upper moety and absence of previous urinary tract infection (UTI).

Results:

We present four patients with prenatal diagnosis of ureteropyelocaliceal dilatation and duplex renal system. One patient was followed from the neonatal age, the others were referred to urology because of continuous dribbling, with a mean age of 2.4 years. Preoperative evaluation included voiding cystourethrography and magnetic resonance imaging. Cystoscopy and vaginoscopy revealed an ectopic ureteral tract in other two patients, and no evidence of an ectopic orifice in the other two. UU was performed by inguinotomy unilaterally in three patients and bilaterally in one patient.

At a mean follow-up of 3.96 years, one patient developed urinary tract infections and urinary incontinence due to uninhibited detrusor contractions, which did not improve with anticholinergics. Another patient developed pyelonephritis requiring hospitalization. Two patients showed thinning of the upper moety on control ultrasound scans, without UTI or voiding abnormalities.

Conclusions

Ureteroureterostomy (UU) is an effective and minimally invasive procedure for correction of ectopic ureters. However, the possibility of heminephrectomy of the upper moety due to UTI highlights the importance of selective criteria in its application.

794 - OBSTRUCTIVE OR NON-OBSTRUCTIVE MEGACYSTIS: A PRENATAL DILEMMA

Martina Mandaletti[1,2], Elisa Cerchia[1], Elena Ruggiero[1,3], Elisabetta Teruzzi[1], Simona Bastonero[4], Annasilvia Pertusio[5], Marcello Della Corte[1,2], Andrea Sciarrone[4], Simona Gerocarni Nappo[1]

[1]Pediatric Urology Unit, Department of Public Health and Pediatric Sciences, Regina Margherita Children's Hospital, Turin, Italy. [2]Division of Urology, Department of Oncology, School of Medicine, San Luigi Gonzaga Hospital, University of Turin, Orbassano, Italy. [3]Pediatric Surgery Unit, Department of Women's and Children's Health, University of Padua, Padua, Italy. [4]Obstetrics-Gynecological Ultrasound and Prenatal Diagnosis Unit, Department of Obstetrics and Gynecology, AOU Città della Salute e della Scienza, Turin, Italy. [5]Obstetrics-Gynecological Ultrasound and Prenatal Diagnosis Unit, Department of Obstetrics and Gynecology, AOU Città della Salute e della Scienza, turin, Italy

Prenatal megacystis has a significant impact on pregnancy, as it may adversely affect the fetus in terms of survival, renal and pulmonary function.The aim of the study is to investigate natural history of fetal megacystis, trying to differentiate in utero congenital lower urinary tract obstruction (LUTO) from non-obstructive megacystis, and possibly predict postnatal outcome.

A retrospective single center observational study was conducted on patients referred for fetal megacystis from July 2015 to November 2023. Inclusion criteria was a longitudinal bladder diameter > 7 mm in the first trimester or a overdistended/thickened walled bladder failing to empty in the second and third trimester. According to diagnosis patients were divided in: LUTO (G1), urogenital anomalies other than LUTO (G2), normal urinary tract (G3).

Twentyseven fetuses are included. Diagnosis of megacystis occurred in the second and third trimester in 92% of cases. 3/27 underwent termination of pregnancy. Associated anomalies were detected in 10/27. 85% newborns were live births. Genetics was normal in all live births. 2 patients died postnatally due to severe associated malformations. At an average follow-up of 34 months 5/23 patients have a CKD.Prenatal parameters were evaluated to differentiate patients with LUTO from non-LUTO, including severity of upper tract dilatation, keyhole sign, oligohydramnios, LBD and GA at diagnosis however none proved predictive of the postnatal diagnosis or postnatal renal function.

Megacystis is a prenatal misunderstood sign which could hide a wide spectrum of diagnoses with different prognosis and not just an increased risk of adverse outcome for renal and respiratory function.

284 - ROBOT-ASSISTED EXTRAVESICAL URETERAL REIMPLANTATION (REVUR) IN CHILDREN WITH COMPLEX OBTRUCTIVE MEGAURETER NEEDING URETERAL DISMEMBERING AND/OR TAILORING: A SINGLE-CENTER EXPERIENCE.

Ciro Esposito[1], Lorenzo Masieri[2], Mariapina Cerulo[1], Vincenzo Coppola[1], Francesca Carraturo[1], Annalisa Chiodi[1], Claudia Di Mento[1], Fulvia Del Conte[1], Maria Escolino[1]

[1]Federico II University Hospital, Naples, Italy. [2]Meyer Children Hospital, Florence, Italy

Introduction: Robot-assisted extravesical ureteral reimplantation (REVUR) has been described as valuable alternative to open reimplantation in the pediatric population. This study aimed to report the outcome of REVUR in children with complex obstructive megaureter (COM) needing ureteral tailoring and dismembering.

Patients and Methods: The records of patients with COM, who received REVUR with ureteral dismembering and/or tapering in our unit over the last 3 years (2020-2023), were retrospectively reviewed. Inclusion criteria for COM included previous surgery, paraureteral diverticula or ectopic megaureter.

Results: Sixteen patients (10 boys), with median age of 7.8 years (range 2-16), were treated over the study period. COM was associated with paraureteral diverticula (n=6), previous failed endoscopic balloon dilation (n=4), ectopic megaureter (n=2) and previous bulking agent endoscopic injection causing iatrogenic ureteral obstruction (n=4). Presentation symptoms included breakthrough febrile UTIs (n=8), flank pain (n=4), hematuria (n=2), pseudo-incontinence (n=2). All surgical procedures were accomplished robotically, without conversions or intra-operative complications. Ureteral tailoring was performed in 7/16 (43.7%). The median operative time (including robot docking) was 183 min (range 155-270). The median length of stay was 3.8 days (range 3-7). The indwelling double J stent was removed 4-6 weeks postoperatively. Clavien 2 grade complications occurred postoperatively in 2/16 (12.5%). At longest follow-up of 36 months, all patients were asymptomatic and showed improved hydronephrosis on US and improved drainage on diuretic renogram.

Conclusion: REVUR was safe and effective for management of COM needing ureteral tailoring and dismembering. This technique was versatile and provided excellent outcomes with minimal post-operative morbidity.

319 - LONG-TERM QUALITY OF LIFE AND SURGICAL OUTCOME OF FEMALE CONGENITAL ADRENAL HYPERPLASIA PATIENTS

Ling LEUNG, Candace LI, Ka Li CHEUNG, Hau Yee Ivy CHAN, Kak Yuen Kenneth WONG

Department of Surgery, School of Clinical Medicine, The University of Hong Kong, Queen Mary Hospital, Hong Kong, Hong Kong

Aim:
To investigate the long-term quality of life and surgical outcome of female patients with congenital adrenal hyperplasia (CAH).
Methods:
Questionnaires for health-related quality of life (HRQoL) outcome (WHO-5, PedsQL-4.0-SF15-Generic-Core-Scales) and lower urinary tract symptoms (ICIQ-CLUTS) were administered to paediatric CAH patients and their parents. Adult CAH patients were invited to complete WHO-5, SF-36, ICIQ-FLUTS and ICIQ-FLUTSsex.
Results:
Thirteen CAH patients raised as female (age-range 8-53 years) were recruited (Response rate 50%). Two patients had deliveries.

Table1. HRQoL, urological and sexual outcomes

	Paediatric patients (n=7)	Paediatric controls (n=71)	*p value*	Adult Patients (n=6)	Adult controls (n=55)	*p value*
WHO-5	78.3 ± 9.8	71.0 ± 17.2	*0.28*	66.0 ± 12.0	64.6 ± 14.5	*0.83*
PedsQL4.0						
Physical	95.0 ± 7.1	96.4 ± 7.2	*0.62*			
Psychosocial	89.6 ± 9.7	95.1 ± 8.1	*0.10*			
ICIQ-CLUTS	2.4 ± 0.8	2.7 ± 1.8	*0.68*			
SF-36						
Physical functioning				85.0 ± 27.6	81.4 ± 20.6	*0.69*
Emotional wellbeing				67.0 ± 14.5	67.1 ± 16.6	*0.99*
Social functioning				87.5 ± 11.2	76.1 ± 22.1	*0.22*
ICIQ-FLUTS						
F score				2.5 ± 2.1	2.1± 1.7	*0.64*
V score				1.3 ± 1.5	1.4 ± 1.5	*0.96*
I score				3.0 ± 3.2	2.1 ± 2.7	*0.44*
ICIQ-FLUTSsex				7.3 ± 2.9	2.9 ± 3.4	*0.06*
Scores are presented as mean ± SD						

Parent's report showed a statistically significant difference in school functioning (73.8 ± 18.9 vs 91.2 ± 18.7, *p = 0.02*) and emotional functioning (80.3 ± 15.9 vs 94.7 ± 12.7, *p = 0.007).* Mean ICIQ-FLUTSsex was worse in adult patients.

Conclusions:

Our data did not show an impaired HRQoL nor long-term lower urinary tract symptoms in CAH patients' self-reports. Healthcare team should pay more attention to adult patient's sexual function.

107 - EFFICIENCY AND SAFETY OF TRANSVESICOSCOPIC COHEN URETERAL REIMPLANTATION IN INFANTS

Sergei Zorkin, Sergei Karpachev, Rimir Baiazitov, Aleksandra Gurskaya

National Medical Research Center for Children's Health, Moscow, Russian Federation

Introduction.

Transvesicoscopic Cohen ureteral reimplantation (TVUR-Cohen) has proven itself to be a highly effective and safe method, not inferior to the results of open reimplantation. However, most researchers limit the indications for surgery to those over 1 years of age or a bladder volume greater than 130 ml.

Aim of the Study.

To evaluate the effectiveness and safety of TVUR-Cohen in infants.

Methods.

Retrospective analysis of operative outcomes of TVUR-Cohen performed in children from 2 months up to 1 year from 2019 to 2023. The analyzed operative outcomes included patient demographics, operative times, intra- and postoperative complications, hospital length of stay, and treatment success.

Results.

TVUR-Cohen was performed successfully on the 33 patients with 40 ureteral units. Amongst our patients, 16 underwent surgery for primary obstructive megaureter, 12 for a paraureteral bladder diverticulum with high grade vesicoureteral reflux (VUR), 5 for ectopic ureter. Mean operative time was 95 minutes for one-sided reimplants, 160 minutes for bilateral reimplants. Mean hospital stay was 5.3 days. Urinary catheter was kept in place for a mean time of 4.5 days. Grade 1-2 Clavien-Dindo complications occurred in 2 patients (6.0%). Follow-up was achieved for at least 6 months with regular clinic visits, urinalysis, ultrasound, and voiding cystourethrogram. The success rate was 95.7% Two patients (4.3%) had signs of recurrent VUR I-II grade; endoscopic correction was subsequently performed successfully.

Conclusion.

TVUR-Cohen technique is a safe and effective minimally invasive surgical treatment option for infants with congenital ureteral anomalies

186 - EVALUATION OF SMOOTH MUSCLE MYOSIN HEAVY CHAIN ISOFORM EXPRESSIONS IN PREPISIUM IN CHILDREN WITH AN BURIED PENIS

şenay kurtuluş[1], alev süzen[2], fatma sılan[3]

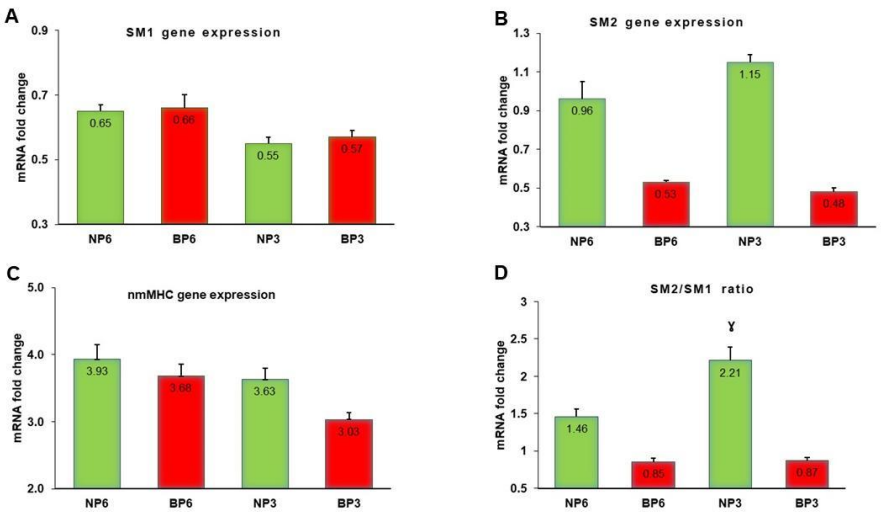
[1]çanakkale onsekiz mart University Faculty of Medicine, Department of Pediatric Surgery, çanakkale, Turkey. [2]Muğla Sıtkı KOçman University Faculty of Medicine, muğla, Turkey. [3]çanakkale onsekiz mart University Faculty of Medicine, Department of Medical Genetics, çanakkale, Turkey

INTRODUCTİON: In this study, the effect of smooth muscle myosin heavy chain (smMHC) isoform expression differences in the buried penis (BP) was evaluated.

MATERIAL METHOD: A total of 82 children, 41 of whom had a BP, applied for circumcision Patients with a history of penile or inguinoscrotal surgery and anomalies were excluded. Demographic data such as age, height, and weight were collected, and unstretched (FPL), stretched penile length (SPL), and glans length (GL) were measured. Those with normal penile appearance were classified as NP groups (≥6 years NP6, ≤3 years NP3), and those with BP were classified as BP groups (≥6 years BP6, ≤3 years BP3). RT-PCR performed mRNA gene expression analyses in the circumcised prepuce.

RESULTS: SM1 mRNA was more expressed in BP. The levels of SM2 mRNA expressed in BP were lower. nmMHC expression was significantly lower in the BP3 group. While the SM2/SM1 ratio was 0.85 in the BP6 group, it was 1.46 in the NP6 group and was statistically significant (p = 0.006).

DİSCUSSİON AND CONCLUSİON: In a buried penis, there is a difference in the expression of SMMHC isoforms. SM1 is highly expressed, while SM2 decreases, increasing the SM2/SM1 ratio. This causes increased contractility in the smooth muscle, leading to retraction of the penile body. The dartos fascia surrounding it resembles aberrant muscle tissue in boys with a BP.



Poster walk 9, Urology 2

743 - TESTICULAR ATROPHY AND ASSOCIATED FACTORS FOLLOWING TESTICULAR TORSION

Ozgun Erincin[1], Bade Toker Kurtmen[1], Begum Ergin[2], Fatma Ceren Sarioglu[2], Emine Burcu Cigsar Kuzu[1]

[1]Department of Pediatric Surgery, Tepecik Education and Research Hospital, Izmir, Turkey.
[2]Department of Radiology, Tepecik Education and Research Hospital, Izmir, Turkey

Aim of the Study:

This study assesses the prognosis of patients undergoing detorsion after testicular torsion based on the Testicular Atrophy Index (TAI).

Methods:

We included 30 children treated for testicular torsion with detorsion and orchiopexy at our center from 2014 to 2023. Demographic details, symptom duration, and follow-up ultrasound findings were examined.

Main Results:

The median age was 14.9 years (2.3-17.2), with a median presentation time of 12 hours (2-72). The median follow-up duration was 29 months (1-90). Group A (no atrophy, n=18) and Group B (significant atrophy, n=12) were categorized based on TAI. No significant difference existed in mean follow-up duration between groups (33.34 ± 5.6 months/24.8 ± 7.3 months) (p=0.361). Median TAI in Group A was 0.5% (0-34) and in Group B was 93.5% (73-100). Only the median presentation time in Group A (7h; 2h-35h) was significantly lower than in Group B (36h; 10h-72h) (p=0.004). Median torsion degree in Group A (6300; 1800-14400) did not significantly differ from Group B (6300; 3600-14400) (p=0.760).

Conclusions:

The majority of patients undergoing detorsion for testicular torsion did not develop atrophy during long-term follow-up. Atrophy risk was unrelated to torsion degree but significantly increased with delayed medical attention. Early intervention is crucial for minimizing atrophy risk in these cases.

Poster walk 9, Urology 2

535 - VASCULAR HITCH RESULTS AS FIRST CHOICE TECHNIQUE FOR EXTRINSIC PYELOURETERAL STENOSIS

Sara Monje Fuente, Beatriz Fernández Bautista, Rubén Ortíz Rodríguez, Laura Burgos Lucena, Juan Carlos De Agustín, José María Angulo Madero

Hospital General Universitario Gregorio Marañón, Madrid, Spain

Aim of the study:

To evaluate the results of laparoscopic vascular hitch for the treatment of extrinsic pyeloureteral stenosis secondary to polar vessel in a tertiary pediatric centre.

Methods:

We conducted a retrospective, analytical and descriptive study including patients treated by laparoscopic vascular-hitch between 2014 and 2024. Epidemiological data, symptoms, surgical technique, ultrasound evaluation (anteroposterior diameter of the renal pelvis before and after treatment) and complications were collected.

Data were analysed using SPSS.

Main results:

Sixteen patients were included, with a median age at diagnosis of 9 years (5-15).

All patients had symptoms (pain and vomiting) that resolved after surgery. Diagnosis was made by CT angiography.

Pelvic diameter decreased from 34.11 to 12.40 on average (p=0.00) and the degree of hydronephrosis according to the radiological scale (1-5) decreased from 4 to 1.5 after surgery.

Two patients had grade I and III complications according to the Clavien-Dindo classification, one had pain and vomiting postoperatively and another patient had an accidental opening of the renal pelvis that required placement of a double J stent.

Mean length of stay was 1.63 days and mean follow-up 27.56 months (minimum 12 months).

Conclusions:

Laparoscopic vascular hitch represents an effective surgical alternative in the management of patients with extrinsic pyeloureteral stenosis secondary to a polar vessel that offers satisfactory results. In our centre it has become the first surgical option for these patients.

Poster walk 9, Urology 2

106 - PROGNOSTIC FACTORS OF OUTCOMES OF VESICOURETERAL REFLUX ENDOSCOPIC CORRECTION IN CHILDREN

Sergei Zorkin, Rimir Baiazitov, Aleksandra Gurskaya, Dmitriy Shahnovskiy

National Medical Research Center for Children's Health, Moscow, Russian Federation

Introduction.

Vesicoureteral reflux (VUR) can lead to recurrent urinary tract infections or renal parenchyma scarring. Endoscopic correction is the gold standard of treatment, but prediction of treatment outcomes still remains a challenge.

Methods.

We conducted a single-center longitudinal non-randomized controlled retrospective-prospective observational study. Our cohort included 270 children (442 ureters) aged from 1 month to 7 years with VUR. In the main group (n=150, 240 ureters) we identified predictors of effective endoscopic treatment and create a prognostic model (10 parameters were evaluated). Outcome of each endoscopic injection was evaluated using the predictive model based on binary logistic regression analysis. Validation and approbation were performed in validation and approbation groups: (n=65, 108 ureters) and (n=60, 94 ureters), respectively.

Results.

We identified statistically significant predictors of VUR endoscopic correction outcomes ($p<0,001$): VUR degree, ureteral diameter ratio (UDR), time of reflux, pelvis and ureter dilatation by ultrasound. The model showed sensitivity 70,4%, specificity 85,2%, precision 93,4%, accuracy 74,0%. Approbation group showed significant increase of recovery from 53,3% to 90,4% compared to the main group. Prognostic value of UDR and time of reflux was significantly higher than that of reflux degree. Mobile application for iOS was created for easy use by pediatric surgeons.

Conclusion.

Our prognostic model helps to predicted outcomes of endoscopic correction of VUR in children. UDR and time of reflux are the main statistically significant predictors. Easy to use and efficient mobile VURPrediction application can help pediatric surgeons to make the right choice of treatment for their patients with VUR.

11 - PROXIMAL HYPOSPADIAS WITH SEVERE CHORDEE : MIDTERM FOLLOW AFTER THE TALE PROCEDURE

MOHAMED FAWZY, MICHAEL SENNERT, Johannes Wirmer, Ahmed Hadidi

Sana Klinikum, Offenbach, Germany

Purpose:

To evaluate patients with proximal hypospadias with severe chordee for recurrence of curvature and complications.

Materials and methods:

126 patients with proximal hypospadias and severe chordee had staged repair between 2014 and 2021. All patients were operated by the same surgeon using the same surgical technique. The severe curvature was corrected in the first stage using the TALE- (Tunica Albuginea longitudinal excision) technique. Eighty six patients underwent two stage BILAB-Technique (Bilateral based flaps). Forty children underwent chordee excision as well as distal urethroplasty (CEDU) technique during the first stage. The Thiersch principle was used to complete the urethroplasty during the second stage. Mean age of patients during the first repair was 13,4 months. The second stage repair was performed 4-6 months later. All patients maintained regular follow up for at least 3 years. Children were followed up for recurrence of chordee and complications . The mean follow up was 5 years (range 3 -9 years).

Results:

110 patients had satisfactory results. Sixteen children (12.7%) developed 41 complications. Mild chordee (less than 15 degrees) was reported in 5 patients (4%). Glans dehiscence developed in 16 children (12.7%). Eleven patients were operated upon for fistula (8.7%). Diverticulum developed in 7 children (5.5%). Two children developed meatal stenosis requiring surgery (1.5%).

Conclusion:

The TALE technique is an effective technique with low recurrence . Patients with small glans (indicating penile hypoplasia) seem to be associated with glans dehiscence as well as several other complications. Long term follow up is necessary after hypospadias repair to detect late complication.

Poster walk 9, Urology 2

109 - SURGICAL TREATMENT OF PERINEAL HYPOSPADIAS WITH COMPLETE PENOSCROTAL TRANSPOSITION IN DSD PATIENTS. OUR EXPERIENCE WITH A "THREE-STAGED" RECONSTRUCTIVE PROCEDURE.

Letizia Corbi, Lorna Spagnol, Giorgia Romano, Marco Cappa, Massimiliano Silveri

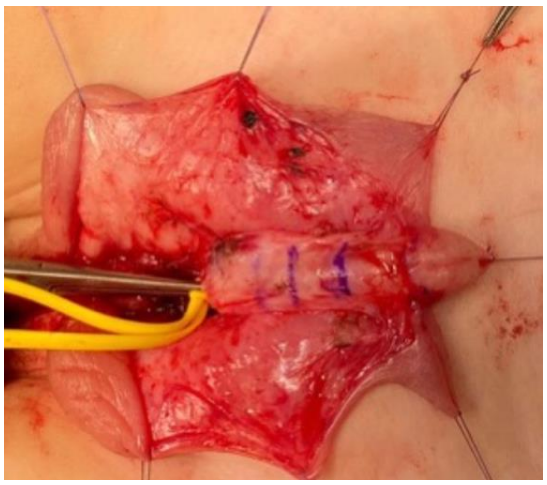
Bambino Gesù Children Hospital, IRCCS, Rome, Italy

Aim of the study: Perineal hypospadias (PH) with a variable degree of penoscrotal transposition (PST) and irregular descent of the testes represent the classical anatomic feature of a 46, XY or "sex chromosome" (mosaicism) pediatric patient affected by a disorder of sex development (DSD). The choice of the correct surgical technique and timing is mandatory to avoid failures, the need for further interventions, and catastrophic effects that concern physical and psychological sequelae.

Methods: In the last 3 years we performed "STAC" ("straighten and close"), a multistage masculinizing genitoplasty in 11 selected DSD patients with PH and PST (complete in 6/11 and partial in 5/11). The operative sequence consists of a first stage with the correction of penile curvature by ventral corporotomies, penile lengthening, PST correction, and skin closure (Fig.1). A second stage consisting of preputial skin graft, and a final one of urethroplasty. Penile curvature, penile length, and post-operative complications were evaluated before and at the end of the surgical sequence. Follow-up was 18.6 months

Main results: All 11 patients completed the multistage genitoplasty. Preoperative average PC was 55 degrees, postoperative 0°. Preoperative average penile length 1.64 cm, post-operative 3.94 cm. Two patients developed urethra fistula; 1 patient developed glans dehiscence. All patients completed the surgical steps by 30 months of life

Conclusions: Our successful experience with such a multistaged surgical sequence seems to demonstrate that an early surgery aimed at the primary objectives of correction of PC and penile lengthening can improve these patients' functional and aesthetic outcomes.



Poster walk 10, Urology 3

519 - URINNARY INCONTINENCE (UI) AND NEURODEVELOPMENTAL DISORDERS (NDDs) – IMPACT ON LIFE AND BARRIERS TO IMPLEMENTATION OF TAILORED TREATMENT

Teodora Ampirska[1], Emile Crouzen[1], Anna Radford[2,1], Ramnath Subramaniam[1]

[1]Leeds Teaching Hospital NHS Trust, Leeds, United Kingdom. [2]Hull University Teaching Hospital NHS Trust, Hull, United Kingdom

Aim of the study: The rate of NDDs in children with UI is high. These children need a specific tailored approach as recommended by the ICCS. This project aimed to establish the local care of UI associated with NDDs, and barriers to implementing the ICCS guideline in daily practice.

Methods: Retrospective note review, of patients seen in paediatric urology clinic, with UI between 01/2021 – 08/2021 was performed.

Demographics, type of UI, investigations and associated NDDS were recorded. Patients were asked to prospectively complete a validated Quality of Life (QoL) questionnaire. Chi-squared statistical analysis was performed. An MDT discussion identified key barriers to implementing a pathway for early screening and focused treatment of patients.

Results: 114 patients with functional incontinence were identified. Median age was 11yrs [range:6-19].The overall M:F ration was 1:1,5, respectively, with the ratio being 2,4:1 in NDDs.

17 patients (15%) had confirmed or strongly suspected NDDs (autism/ADHD) diagnosis. Combined (day and night-time) incontinence was more prevalent in this group compared to non-NDDS group (65% vs 40%, *p=0.03)*. The NDDS group were more likely to be extensively investigated (ultrasonography (88% vs 51%, p=0.003), MRI (11% vs 2%, p=0,005), urodynamics (11% vs 2% p=0,005)). 67% of NDDS patients reported severe impact of incontinence on daily life. The key barriers identified were timing, providers of screening, informed consent, time, and resources.

Conclusion: NDDS children are more likely to have incontinence refractory to conventional treatment with significant impact on QOL. Identification of barriers to implementation of the ICCS recommendations can help with establishing pathways for efficient, tailored treatment

Poster walk 10, Urology 3

2 - COMPARATIVE STUDY OF LAPAROSCOPIC TREATMENT OF EXTRINSIC URETEROPELVIC JUNCTION OBSTRUCTION IN CHILDREN WITH HORSESHOE KIDNEYS VERSUS NON-FUSED KIDNEYS

Sonia Pérez-Bertólez, Isabel Casal-Beloy, Oriol Martín-Solé, Paula Salcedo, Blanca Capdevila, Ainhoa Lombardero, Xavier Tarrado, Luis García-Aparicio

Hospital Sant Joan de Déu, Barcelona, Spain

Aim:

To compare the results of laparoscopy for extrinsic ureteropelvic junction obstruction (UPJO) in children with horseshoe kidneys (HSK) vs non-fused kidneys (non-HSK) in a single center.

Methods:

Patients who underwent laparoscopic treatment for extrinsic UPJO between 2007-2022 at a single center were prospectively collected. Demographic, clinical, surgical and radiological variables were analyzed. Ethics committee approval (PIC-09-24).

Results:

In this period, 266 laparoscopies were performed for UPJO: 184 due to intrinsic obstruction and 82 extrinsic (15 HSK, 67 non-HSK). Mean age of patients was 8.49 (r: 1-18) years. There were 93.3% boys in HSK vs 58.2% in non-HSK ($p<0.05$). There were no statistical differences between groups in terms of weight, laterality, preoperative renal function, caliceal and renal pelvis antero-posterior diameter. 90.2% of patients were operated on with dismembered pyeloplasty and 9.8% through vascular hitch (VH): 1 HSK and 7 non-HSK. Mean operative time were comparable between groups except for VH, which was shorter in non-HSK group (115 vs 165 min). All HSK patients had a stent, while 11.9% of non-HSK patients did not ($p<0.001$). Mean hospital stay was lower in HSK group: 4.1 vs 5.5 days ($p=0.05$). After a mean follow-up of 4.5 years, the complication and success rates were higher in non-HSK: 16.4% vs 0% ($p<0.05$). Main complication was urinary leak in 9 cases. Three patients required redo-surgery in non-HSK group due to restenosis of the ureteropelvic junction ($p=0.05$).

Conclusion:

Laparoscopic treatment is safe and feasible in children with extrinsic UPJO in HSK, with good results and minimal morbidity.

79 - FIBROUS LIGAMENTOUS STRUCTURE OF THE PENIS AND AN ANATOMICAL CLASSIFICATION OF HYPOSPADIAS

Hüseyin Özbey

Sechenov First Moscow State Medical University, Department of Pediatric Surgery and Division of Pediatric Urology, Moscow, Russian Federation

Aim of the study

The glanular urethra differs from the penile urethra in that it forms a fossa with a specific shape, with different boundaries, attachments and elasticity. The main component of this difference is the fibrous-ligamentous structure (FLS) of the penis, including the tunica albuginea, distal ligament and *septum glandis,* particularly at the junction between the glans and the shaft of the penis. Based on the pathology of FLS in hypospadias, a classification of hypospadias is proposed.

Methods

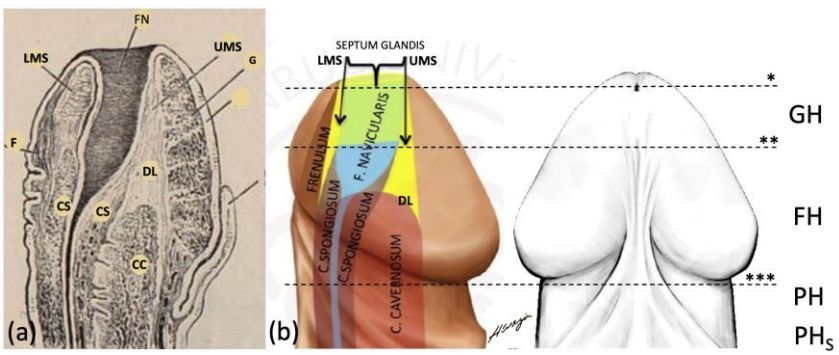
Eigthy-eight boys (6 mo-12 yrs) who underwent surgery for primary hypospadias were included in this prospective study. The surgical morphology of each patient's penis was compared with magnetic resonance imaging (MRI) findings of normal penile anatomy. Consequently, hypospadias was classified into glanular (GH), frenular (FH), penile (PH), and penile hypospadias with severe ventral curvature requiring staged reconstruction (PH_S). The so-called megameatus intact prepuce was considered the mildest form of glanular hypospadias (GH-MIP) due to the isolated absence of the *septum glandis* and frenulum.

Main results

Fourteen patients were classified as GH (2 with GH-MIP), 37 patients with FH, 29 patients with PH and 8 patients with PH_S.

Conclusions

The distal ligament and *septum glandis* provide the connection between the glans and shaft and hold the navicular fossa in a slit-like shape. This new classification describes the functional anatomy of the male urethra and prescribes two different surgical approaches to reconstruction of the glanular and penile urethra in hypospadias.



805 - Critical review of the value of the TWIST score for the diagnosis of spermatic torsion in children

Yasmine Houas[1], Bochra Aziza[1], Oussema Meherzi[2], Asma Slimani[1], riadh jouini[1]

[1]children hospital bechir Hamza Pediatric surgery department A, Tunis, Tunisia. [2]Children hospital Bechir Hamza Pediatric surgery department A, Tunis, Tunisia

Aim of the Study

Acute scrotum is one of the most frequent pattern of consultation in pediatric emergencies. Our purpose was to study the value and the limits of THE TWIST score to assess the risk of torsion of the spermatic cord .

Methods:

Retrospective study including patients operated on for acute scrotum , from 2011 to2021.The patients were divided into two groups: group 1 included patients with spermatic cord torsion and group 2 those operated on for another etiology. The TWIST score was correlated with the data from each group.

Results :

Three hundred and forty-six patients with an acute scrotum were operated on: 62 cases (17.9%) were included in group 1. Two patients with a TWIST SCORE equal to 2 had spermatic cord torsion, giving an NPV of 99.27%. For those with a TWIST SCORE equal to 5 and more, 100% had a testicular twist giving a PPV of 100% and a Specificity of 100. For newborns, the twist score had a sensitivity and specificity of 100% if the thresholds of the risk were less than 2 for low risk and greater than or equal to 4 for high risk. The TWIST score also depended on the time of consultation, in fact, before 6 or after 72 hours, patients were strongly suspected of torsion if the score was greater than 3.

Conclusion:

The TWIST score is a reproducible tool allowing physicians to detect patients with strong suspicion of torsion without the use of imaging that could delay therapeutic treatment.

Poster walk 10, Urology 3

799 - 3D-KIDNEY RECONSTRUCTION: USEFULNESS IN PREOPERATIVE PLANNING FOR RENAL CANCER SURGERY IN CHILDREN

Elisa Cerchia[1], Elena Ruggiero[1,2], Elisabetta Teruzzi[1], Marcello Della Corte[1], Paola Quarello[3], Barbara Tadini[1], Massimo Catti[1], Franca Fagioli[3], Simona Gerocarni Nappo[1]

[1]Pediatric Urology Unit, Department of Public Health and Pediatric Sciences, Regina Margherita Children's Hospital, Turin, Italy. [2]Pediatric Surgery Unit, Department of Women's and Children's Health, University of Padua, Padua, Italy. [3]Pediatric Oncology Department, Regina Margherita Children's Hospital, Turin, Italy

Preoperative planning for surgery of complex renal masses in children can be challenging, particularly in those cases where nephron sparing surgery (NSS) is advised. We report our experience on the use of 3D-virtual reconstruction focused on how it influenced the surgical decision making.

Our study included four cases diagnosed with renal masses with high-grade of complexity from a surgical point-of-view, for their extensions and vascular anomalies. DICOM-data obtained from a preoperative abdominal MRI or CT-scan were submitted to a 2D-manual segmentation and followed by a final 3D-virtual reconstruction. A panel of 3 experts with oncology experience, were asked to individually evaluate the MRI and/or CT images and 3D-reconstructions before surgery for every patient. At the end of surgical procedure, a questionnaire was completed regarding the quality of the conventional imaging vs the 3D-reconstructions.

4 patients (2 males,2 females) were enrolled: two (Cases 1-3) had a circumscribed tumor at the upper-pole of the right kidney and lower-pole of the left kidney (Bosniak-Cyst IV); one (Case 2) had a large hilar mass extending to the whole kidney unresponsive to chemotherapy and the last one (Case 4) had a stage IV Wilms tumor with venous tumor thrombus.Compared with conventional imaging, the 3D-reconstructed models were evaluated by the experts to be superior for all anatomical structures except for urinary collecting system ($p<0.05$).

Our study suggests that 3D-visualization could be regarded as a useful tool in the preoperative assessment of children with complex renal masses and essential to facilitate NSS in selected patients.

Poster walk 10, Urology 3

861 - THE IMPACT OF CAUDAL BLOCK ANESTHESIA ON POSTOPERATIVE COMPLICATIONS IN DISTAL HYPOSPADIAS SURGERY: A MULTI-CENTER RANDOMIZED CONTROLLED TRIAL

Toni Risteski[1], Mustafa Azizoğlu[2,3], Sergey Klyuev[4]

[1]Ss. Cyril and Methodius University in Skopje, Pediatric Surgery, Skopje, Macedonia, the former Yugoslav Republic of. [2]Istanbul Esenyurt State Hospital, Pediatric Surgery, Istanbul, Turkey. [3]Istinye university Health Sciences Institute Stem Cell and Tissue Engineering Department, Istanbul, Turkey. [4]AO GK MEDSI, pediatric surgery, Moscow, Russian Federation

Aim of the study:

This study aimed to assess the effect of caudal block anaesthesia on the outcomes of distal hypospadias surgery.

Methods:

The patients were randomly divided into two groups. Group 1 (n=) received caudal block anesthesia Group 2 (n=) received no caudal block. The postoperative complications were compared. All patients underwent repair with the TIPU technique.

Results:

Group 1, consisting of 101 patients, and Group 2, with 78 patients, were evaluated for the prevalence of complications. The findings revealed that meatal stenosis occurred in 6.9% of Group 1 and 7.7% of Group 2, urethrocutaneous fistula in 6.9% of Group 1 compared to 5.1% in Group 2, glans dehiscence in 2% of Group 1 and 3.8% of Group 2, and urethral stenosis was observed in 2% of patients in both groups. Notably, there were no instances of urethral diverticula in either group. Statistical analysis showed no significant differences in the rates of meatal stenosis (p=0.846), urethrocutaneous fistula (p=0.619), glans dehiscence (p=0.453), and urethral stenosis (p=0.793) between the two groups.

Conclusion:

The study demonstrated that caudal block anesthesia does not significantly increase the postoperative complications in distal hypospadias surgery, with similar complication rates observed in both study groups.

Ethical approval number: 0302-301/1 /29.05.2023.

Poster walk 10, Urology 3

29 - SAFETY AND EFFECTIVENESS OF TRICLOSAN-COATED POLYDIOXANONE (PDS-PLUS) VERSUS UNCOATED POLYDIOXANONE (PDS-II) FOR PREVENTION OF SURGICAL SITE INFECTION AFTER HYPOSPADIAS REPAIR

Zenon Pogorelić[1,2], Lana Stričević[2], Sara Elezović-Baloević[1], Jakov Todorić[1], Dražen Budimir[1]

[1]Department of Pediatric Surgery, University Hospital of Split, Split, Croatia. [2]Department of Surgery, University of Split, School of Medicine, Split, Croatia

Aim:

To compare the safety and efficacy of triclosan-coated polydioxanone (PDS-Plus) with uncoated polydioxanone (PDS-II) for the prevention of surgical site infections (SSI) following hypospadias repair.

Methods:

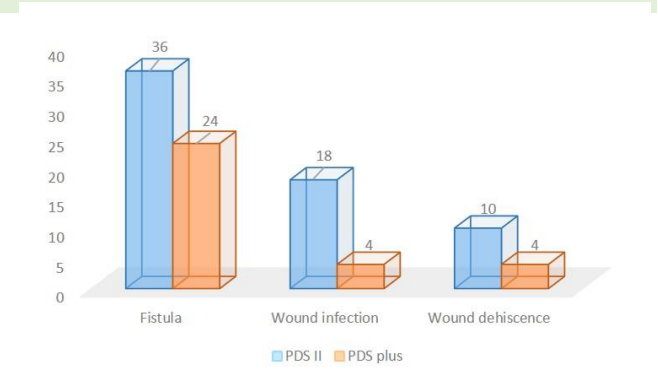
The medical records of 550 children who underwent hypospadias repair between January 1, 2014, and December 31, 2023, were retrospectively analyzed. The patients were divided into two groups and compared in terms of SSI, occurrence of complications, number of readmissions and repeat operations. In the first group, PDS-II was used (n=262), while in the second group (n=288) PDS-Plus was used for hypospadias repair.

Results:

The median age of all children participating in the study was 16 (IQR 14, 20) months. The patients in whom PDS-Plus was used for hypospadias repair had a significantly lower number of SSIs than the patients in whom PDS-II was used (6.9% vs. 1.4%, p<0.001). Wound infection led to wound dehiscence in 10/18 patients from the PDS-II group, and in 4/4 patients from the PDS-Plus group (p=0.07). The number of postoperative urethrocutaneous fistulas was significantly lower in the patients in whom PDS-Plus was used (13.7% vs. 8.3%, p=0.042). The incidence of late complications did not differ between the study groups: Meatal stenosis (p=0.944), residual chordee (p=0.107), urethral stricture (p=0.196), scarring (p=0.351) and urinary tract symptoms (p=0.713). The frequency of reoperations was lower in the PDS-Plus group than in the PDS-II group (11.1 % vs. 20.6 %; p=0.03).

Conclusion:

The use of PDS-Plus in hypospadias surgery significantly reduces the incidence of SSI, postoperative fistula and reoperation rates compared to PDS-II.



Poster walk 10, Urology 3

75 - Long-term outcomes of ileocystoplasty in children: 20 years of experience.

Elena Rovero[1], Agata Trypens[1], Nathalie Botto[1], Thomas Blanc[1,2], Henri Lottmann[1]

[1]Department of Pediatric Surgery and Urology, Hôpital Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Paris, France. [2]Université Paris Cité, Paris, France

Methods: We retrospectively analyzed data of children who underwent ileocystoplasty for bladder augmentation (BA) in a single institution from 2000 to 2020, focusing on long-term complications and bladder metrics.

Results: 145 ileocystoplasty were performed; median age was 10 years, interquartile range (IQR): 8-14. The median follow-up was 7 years (IQR 3 – 11 years).

Underlying conditions were: neurogenic bladder (NB) (68%), bladder exstrophy-epispadias complex (BEEC) (24%) and other rare etiologies (8%).

A continent catheterisable channel (CC) was performed in 116 patients (80%), associated to a bladder outlet procedure in 54% of cases. Overall, complications of CC requiring surgical revision were reported in 19 patients (16%). No bladder perforation occurred. Re-augmentation rate was 3%. Urolithiasis affected 20 children (20%) in NB group, 6 (17%) in BEEC group, and 0 in miscellaneous group (no statistically significant difference).

The median bladder capacity improved significantly, as well as bladder compliance.

Symptomatic post-operative urinary tract infections affected 42 patients (43%) in NB group, 9 (26%) in BEEC group, and 5 (42%) in miscellaneous group (no statistically significant difference). Miscellaneous group presented a statistically significant higher rate of renal impairment compared to the others groups.

Adhesion-related readmissions occurred in 7 children (5%). No malignancy occurred at last follow-up.

Conclusion: Ileocystoplasty improves bladder metrics. It is associated with non-negligible but acceptable complications rate. Proper post-operative management, surveillance, and transitional care play a pivotal role in mitigating risks in patients after BA.

Poster walk 10, Urology 3

299 - EFFICACY OF THE MACEDO CONTINENT CATHETERIZABLE ILEUM-BASED RESERVOIR: CASE SERIES ON INNOVATIVE SIMULTANEOUS BLADDER AUGMENTATION AND CATHETERIZABLE STOMA FORMATION

Agnieszka Wiernik, Paulina Brauner, Magdalena Jastrzębska, Magdalena Górska, Tomasz Koszutski, Grzegorz Kudela

Department of Pediatric Surgery and Urology, Medical University of Silesia, Katowice, Poland

Aim of the Study:

The potential advantages of Macedo continent catheterizable ileum-based reservoir were explored based on some complex cases where the universal feasibility of Mitrofanoff appendicovesicostomy was limited.

Case Descriptions:

Four patients with complex urinary tract disorders were treated at our institution. All of them required a vesicostomy as the primary treatment. However, the replacement with a Macedo reservoir and the introduction of clean intermittent catheterization (CIC) significantly improved their quality of life. The first patient had a complete obstruction of the urethra due to epidermolysis bullosa lesions in the mucosa of the urinary tract. A Macedo reservoir replaced the salvage vesicostomy, preventing the catheter used for CIC from coming into contact with the native bladder mucosa. The second patient had esophageal and anal atresia, a solitary kidney, a neurogenic high-pressure bladder, an underdeveloped penis and a urethra that made catheterization impossible. He had a vesicostomy in infancy and a Macedo surgery at the age of 6. The third patient had bilateral ureteral ectopia and underwent ureteral reimplantation, vesicostomy in infancy and Macedo augmentation at the age of 15. The fourth patient required a Macedo stoma due to an inaccessible appendix during the augmentation. All patients achieved a continent, easily catheterizable stoma and adequate bladder volume, which improved their quality of life.

Conclusions:

The Macedo conduit is a promising technique for simultaneous bladder augmentation and formation of a catheterizable stoma in selected cases, as presented by the successful results in our patient cohort.

173 - ANALYSIS OF UROFLOW PATTERNS IN CHILDREN WITH CLOSED SPINAL DYSRAPHISM

Sinead Cornyn[1], MIRIAM DOYLE[1], SALVATORE CASCIO[2]

[1]CHILDRENS HEALTH IRELAND AT TEMPLE STREET, DUBLIN, Ireland. [2]SCHOOL OF MEDICINE, UNIVERSITY COLLEGE DUBLIN AND CHILDRENS HEALTH IRELAND, DUBLIN, Ireland

Aim of the Study:

To determine the uroflowmetry patterns of children with Closed Spinal Dysraphism (CSD).

Methods:

All Uroflowmetry of patients attending our bimonthly CSD Clinic from 01/06/20 to 31/5/23 were reviewed. Different parameters were assessed according to the International Children's Continence Society Standardization document: a) Flow curve shape b) Voided Volumes (VV) c) Flow times (FT) d) Maximum flow rate (QMax) e) Post Void Residual (PVR). Patients were divided into two groups according to the uroflow: *group 1*, normal and *group 2* abnormal.

Main results:

140 patients attended our clinic during the study period and 68(48.6%), 41 girls, underwent uroflowmetry. There were 33(48.53%) children in group 1 and 35(51.47%) in group 2. The most common abnormal curve identified was plateau-shaped found in 15(42.86%), followed by interrupted 13(37.14%), staccato 6(17.14%) and tower-shaped 1(2.86%). Mean VV (221.04ml ± 129.46) and FT (22.28secs ±12.79) in group 1 were reduced when compared to group 2 Mean VV (240.55 ± 159.54) and FT (53.86secs ± 104.36), while Mean QMax (21.53ml/sec ± 7.97) was increased in group 1 compared to group 2 (19.08 ± 23.43) (P=0.12). PVR was abnormal in 6(18%) of group 1 and 14(40%) of group 2 (p= 0.5). No difference was noted when comparing abnormal uroflow curves in boys versus girls (p=0.4).

Conclusions:

Over half of the tested children with CSD have abnormal uroflowmetry, with the most common flow curve being plateau-shaped. Uroflowmetry is a useful noninvasive test to select children who may require more complex urodynamic testing.

Poster walk 10, Urology 3

85 - LONG-TERM OUTCOMES OF BLADDER NECK PROCEDURES FOR URINARY INCONTINENCE IN CHILDREN WITH NEUROGENIC BLADDERS

Christelle Destinval[1], Olivier Larmure[1], Aline Ranke-Chrétien[1], Julie Liénard[1], Nicolas Berte[1], Vladimir Gomola[2], Jean-Louis Lemelle[1]

[1]Nancy Regional University Hospital Center: Children's Hospital, Vandoeuvre-Les-Nancy, France.
[2]Metz-Thionville Regional Hospital, Metz, France

Introduction:

Managing urinary incontinence can be challenging, especially in children with neurogenic bladders (NGB). Different bladder neck procedures (BNP) are used to achieve continence, such as Kropp, Young Dees, Kurzrock, Deflux, bladder neck suspension, or urethral transposition.

This study aims to display the long-term outcomes of BNP in children with NGB.

Patients and Methods:

We retrospectively analyzed the medical data of children with NGB who underwent BNP at our tertiary care referral center from 1982 to 2022. Continence at the end of follow-up was the primary endpoint. Non-parametric tests were used for statistical analysis.

Results:

During these 31 years, 46 children, 21 boys (45.7%) and 25 girls (53.3%) underwent 50 BNP such as sling (n=22), Young-Dees (n=19), Kurzrock (n=4), Kropp (n=3), urethral transposition (n=1) and Deflux injection (n=1). The median age at surgery was 9.4 years (from 0.3 to 17.2 years). All patients had a Mitrofanoff procedure, concomitantly. Some patients had had bladder augmentation, or artificial urinary sphincter, previously, concomitantly, or after BNP. Two children (2.9%) who underwent sling needed one re-intervention (one bladder neck closure and one Young-Dees). The dry rate within one year was 16.4%. After a median follow-up of 9.9 years, 77.4% (24 out of 31 patients) were dry.

Conclusion: BNP is interesting in the case of urinary incontinence with few complications in children with neurogenic bladder. However, they are often performed associated with other bladder surgeries, which can lead to more postoperative complications.

Poster walk 11, Thoracic 2

439 - MEDIASTINAL SHIFT ANGLE (MSA) AS A PREDICTIVE TOOL FOR PERINATAL DISTRESS IN CONGENITAL LUNG MALFORMATIONS (CLMS)

Chiara Marchetto[1,2], Eleonora Fornaciari[3], Andrea Sciarrone[3], Fabrizio Gennari[1], Elisa Zambaiti[1]

[1]Ospedale Infantile Regina Margherita, Torino, Italy. [2]Università degli Studi di Padova, Padova, Italy. [3]Obstetrics and Gynecological Ultrasound and Prenatal Diagnosis Center, Ospedale S. Anna, Citta' della Salute e della Scienza, Torino, Italy

Aim

The association between subjective severity of cardiomediastinal shift and adverse perinatal outcomes in congenital lung malformations (CLMs) is debated. Mediastinal shift angle (MSA) is an objective prenatal measurement of cardiomediastinal shift that has recently been correlated with outcomes in congenital diaphragmatic hernia. We aimed to investigate the correlation between the mediastinal shift angle (MSA) value and the peri-natal outcome of fetuses affected by congenital lung malformations (CLMs).

Methods

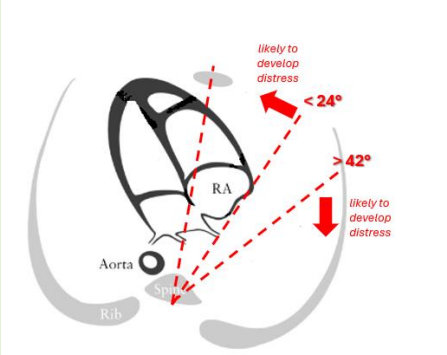
This was an observational study of all patients presented at a tertiary referral center for CLMs between 2019 and 2023. We included prenatally diagnosed CLMs, assessed with ultrasonographic (US) examination, born within the study period. The US-MSA measurements were retrospective performed by three independent authors on the four-chambers view for both left and right-sided lesions. Appropriate statistical analyses were performed to determine whether MSA can be regarded as a valid predictive tool for perinatal outcomes.

Results

Of the 34 patients referred in the study period, 5 underwent voluntary pregnancy termination. Seven had perinatal distress, with worse APGAR score, pH, longer need for intensive care and longer hospitalization (all p<0,05). Values of the AUC demonstrated good predictive performance of MSA for distress for both left (0.85, 95%CI 0.62-1.00) and right lesions (0.901, 95%CI: (0.781-1.000)). The cut-off value of MSA for predicting neonatal distress in left lesions was more than 42° (sensitivity 0,94 and specificity 0,80) and less than 24° in right lesions (sensitivity 0,92 and specificity 0,62) (Figure).

Conclusions

These preliminary results suggest that US-MSA may predict neonatal distress in CLMs patients.



Poster walk 11, Thoracic 2

632 - SURGICAL OR ENDOSCOPIC TREATMENT OF RECURRENT TRACHEOESOPHAGEAL FISTULA: A SYSTEMATIC REVIEW

Marit van Stigt, Stefaan Tytgat, Eline Breuking, Johannes Verweij, Ellen Reuling, Saskia Coenraad, Joost Bittermann, Maud Lindeboom

Wilhelmina Children's Hospital, Utrecht, Netherlands

Background:

Recurrent tracheoesophageal fistula (rTEF) can be a therapeutic challenge. The ideal treatment option is unclear. RTEF can be treated surgically through thoracotomy or thoracoscopy, or endoscopically via endotracheal de-epithelialization and/or sealants.

Aim:

The aim of this study was to systematically review the success and complication rate of endoscopic (ET) and surgical treatment (ST) for rTEF, in order to determine which treatment approach has the best outcome.

Methods:

PRISMA guidelines were followed. PUBMED, EMBASE, and the Cochrane Library were searched from 2000 until June 2023. Studies were independently screened and analyzed by two reviewers.

Results:

A total of 29 papers, describing a total of 791 patients with rTEF, were eligible for inclusion. Twenty four of the included studies were retrospective cohort studies, 4 were case series, and 1 was a prospective study. The median success rate was 84% [40-100 %] for ET, and 97% [67%-100%] for ST (thoracotomy and thoracoscopy). The mean number of procedures was 2.0 [1.0-3.8] for ET and 1.1 [1.0-1.2] for ST. The median complication rate was 36% [0%-71%] for ST and 0% [0%-8%] for ET. The most common complications were anastomotic strictures and leakage for ST and infection for ET. However, for ET complication rates were low.

Conclusion:

Surgical correction of rTEF has the best outcome, with a lower mean number of procedures. Endoscopic rTEF correction, however, leads to fewer complications and average success rates. Therefore, it may be considered to start with ET first, and if ET fails, the option to perform ST is available.

Poster walk 11, Thoracic 2

162 - INSTITUTIONAL EXPERIENCE WITH PRIMARY STERNAL OSTEOMYELITIS IN CHILDREN

Niklaus Schoepke, Tobias Krause, Kai Ziebarth, Steffen Berger, Milan Milosevic

Dept. od Pediatric Surgery, Inselspital, Children`s Hospital, University of Bern, Bern, Switzerland

Aim of Study

Primary sternal osteomyelitis (PSO) is a rare condition in children with about 100 cases described in the literature. We describe our experience with 5 recent cases of sternal osteomyelitis.

Methods

We retrospectively reviewed all cases with primary sternal osteomyelitis from 2013 until 2023 with special emphasis on epidemiology, clinical presentation, and treatment outcomes.

Main Results

We retrospectively reviewed 208 Patients with osteomyelitis from 2013 until 2023 in our institution. 5/208 had PSO (2.5%) with a median age of 13 months (range 12-22 months). Main reason for presentation was sternal swelling (5/5), tenderness (4/5) and fever (2/5). CRP was elevated in 2 patients, erythrocyte sedimentation rate (ESR) was increased in all patients (range 10-110, mean 49 mm/h). Sonography was diagnostic in all patients. 4 patients had additional MRI, where the diagnosis was confirmed. All patients underwent surgical debridement with recurrence in one patient. Kingella kingae was isolated in 4 patients from intraoperative biopsy material. All patients recovered after a prolonged antibiotic treatment (co-amoxicillin or 2nd generation cephalosporin) for a total of 4 weeks.

Conclusion

PSO is the predominant differential diagnosis of sternal masses in previously healthy infants from developed countries. Diagnostics should include ESR as sensitive marker of inflammation. Sonography was sufficient to suspect the diagnosis of PSO in all cases. MRI, requiring anesthesia in this age group is redundant in patients without signs of mediastinitis. Complete resolutions was achieved by surgical debridement and antibiotic treatment.

Poster walk 11, Thoracic 2

422 - PULSATING UMBILICUS IN A NEONATE WITH LEFT VENTRICULAR DIVERTICULUM

Maria Moormann[1], Marcel Vollroth[2], Lacher Martin[1], Holger Stepan[3], Daniel Gräfe[4], Ulrich Thome[5], Sebastian Rützel[5], Michael Weidenbach[6], Illya Martynov[7], Carolin Puegge[6]

[1]Kinderchirurgie, Leipzig, Germany. [2]Hezchirurgie Herzzentrum, Leipzig, Germany. [3]Geburtshilfe, Leipzig, Germany. [4]Kinderradiologie, Leipzig, Germany. [5]Neonatologie, Leipzig, Germany. [6]Kinderkardiologie Herzzentrum, Leipzig, Germany. [7]Kinderchirurgie, Gießen, Germany

Abstract:

Left ventricular diverticulum is a rare malformation presenting in 0.05% of all congenital cardiac anomalies. It is associated with additional cardiac and extracardiac malformations.

Case description:

We report on a female neonate with prenatally diagnosed heterotaxia and dextrocardia who was born with a pulsating supraumbilical mass. Echocardiography revealed a diverticulum originating from the left ventricle, which was connected to the umbilicus. MRI confirmed a left ventricular diverticulum without evidence of diaphragmatic hernia on DOL #9 (Fig. 1). The child underwent laparotomy/lower sternotomy and the diverticulum and epigastric hernia were closed. The postoperative course was uneventful and the girl was discharged on the 10th postoperative day.

Conclusions:

In a neonate with a pulsatile supraumbilical mass, the diagnosis of a congenital left ventricular diverticulum should be taken into consideration. The treatment is straight forward and was successful in this single case.



Poster walk 11, Thoracic 2

380 - CONFIGURATION CHANGES OF ANTERIOR CHEST WALL AFTER NUSS BAR REMOVAL IN ADOLESCENTS WITH PECTUS EXCAVATUM

Pavol Omanik[1], Eva Stefankova[1], Lenka Matejakova[1], Michaela Omanikova[2], Igor Beder[1], Jozef Babala[1]

[1]Pediatric Surgery Department, National Institute of Children´s Diseases, Bratislava, Slovakia.
[2]Department of Pediatric Anestesiology and Intensive Care, National Institute of Children´s Diseases, Bratislava, Slovakia

Background:

Little information is available regarding long-term outcomes in patients with pectus excavatum after pectus bar removal. The presented study aims to identify the degree of anterior chest wall (ACW) retraction after bar removal in adolescents.

Methods:

A retrospective analysis of patients who underwent pectus bar removal in 2022-2023. Sagittal chest diameter as one of the anthropometrically used parameters was measured: before the Nuss procedure (S1), after the procedure (S2), and after pectus bar removal (S3). Based on these parameters, the extent of ACW elevation and the extent of ACW retraction were calculated. A correlation between the age of the patients and the degree of ACW retraction was analysed.

Results:

Twenty-five patients aged 13.7–18.9 years at the time of the Nuss procedure, and 17.2–22.5 years at the time of the bar extraction were included in the study. The bar in situ was 41.4±6.0 months on average. Follow-up after the bar removal was 7.9±4.7 months. The average S1 was 15.1±1.8 cm, S2 18.8±1.6 cm, and S3 17.6±2.5 cm. The average ACW elevation was 2.9±1.5 cm, and ACW retraction was 0.7±2.1 cm. The correlation coefficient between the patients' age and the extent of ACW retraction showed no correlation (p=0.491).

Conclusions:

Based on the authors' experience, one must expect a certain degree of anterior chest wall retraction after pectus bar removal. The patients' age at the time of the initial operation or the bar removal does not affect the chest wall retraction value.

Poster walk 11, Thoracic 2

836 - DOES THE CARDIAC FUNCTION OF PATIENTS WITH PECTUS EXCAVATUM IMPROVE THROUGHOUT GROWTH? WHAT HAPPENS AFTER CORRECTION?

Irene Diez-Bartolomé, Lucas Moratilla La Peña, María Velayos, Miriam Mestre-Martínez, Montse Bret, Carlos de la Torre Ramos

La Paz University Hospital, Madrid, Spain

Pectus excavatum (PE) is a progressive deformity. Magnetic resonance imaging (MRI) has been shown to be effective for functional and anatomical study. Our objective is to demonstrate the progression of the deformity and to evaluate the effectiveness of its correction by MRI.

Retrospective comparative single-center study of patients with PE in whom an MRI was performed at the beginning of their evaluation. They were divided according to whether they underwent surgery or not. All patients underwent repeat MRI at least 2 years after the initial MRI. Demographic, anatomical and functional variables were analyzed.

We present 30 patients. In 18 patients a correction was performed according to Nuss technique. There were no significant differences with respect to sex (p=0.872) or age at first MRI (p=0.746). There was no disparity in Haller's index (HI) [5.75(4.4-8.37) vs 5.95(4.60-6.89);p=0.755], right ventricular ejection fraction (RVEF) [50.35(47.57-56.42) vs 50.15(47.15-55.62); p=0.869] and left ventricular ejection fraction (LVEF) [64.85 (56.85-70.62) vs 60.40 (56.12-66.05);p=0.332] in the first MRI. In control MRI, we observed in the non-operated group no differences in AHI, CI and LVEF (p=0.959; p=0.515; p=0.173) although there was a worsening of RVEF [50.35 (47.57-56.42) vs 49.65 (45.70-50.70);p=0.012]. In patients who underwent surgery, AHI improved [5.95 (4.60-6.89) vs 4 (3.3-4.65);p=0.002] without showing deterioration of LVEF and LVEF (p=0.877;p=0.309].

Through this study we have demonstrated in our series that the RVEF of patients with non-intervened PE worsens throughout growth while the intervention stops this worsening in addition to achieving anatomical correction.

Poster walk 11, Thoracic 2

171 - INTRA-DIAPHAGMATIC EXTRALOBAR PULMONARY SEQUESTRATIONS: A MULTI-INSTITUTIONALEXPERIENCE

Mirko Bertozzi[1], Marta Gazzaneo[1], Chiara Oreglio[2], Federica Fati[3], Rossella Angotti[4], Edoardo Bindi[5], Riccardo Rizzo[6], Riccardo Guanà[7], Paola Midrio[8], Martina Ichino[9], Anna Morandi[9], Carmine Noviello[10], Alfonso Papparella[10], Fabrizio Gennari[7], Lorenzo Nanni[6], Giovanni Cobellis[5], Francesco Molinaro[4], Andrea Volpe[3], Francesco Morini[2], Giovanna Riccipetitoni[1]

[1]Department of Clinical, Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pediatric Surgery Fondazione IRCCS Policlinico San Matteo, Pavia, Italy. [2]Pediatric Surgery Unit - AOU Meyer – University of Florence, Firenze, Italy. [3]Pediatric Surgery, Department of Woman and Child Health, University Hospital, Padua, Italy. [4]Division of Pediatric Surgery, Department of Medical, Surgical and Neurological Sciences, University of Siena, Siena, Italy. [5]Pediatric Surgery Unit, Salesi Hospital, Ancona, Italy. [6]Pediatric Surgery Unit Fondazione Policlinico Universitario "A. Gemelli" IRCCS, Roma, Italy. [7]Pediatric and Neonatal Surgery Unit. Regina Margherita Children's Hospital, Turin, Italy. [8]Pediatric Surgery, Ca' Foncello Hospital, Treviso, Italy. [9]Department of Pediatric Surgery, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy. [10]Pediatric Surgery Unit, University of Campania "Luigi Vanvitelli", Naples, Italy

AIM:

Intra-diaphragmatic extralobar pulmonary sequestration (IDEPS) is a rare condition, surgical indication and approach are still matter of controversy. Aim of the study is to report a national multi-institutional experience on IDEPS.

Methods: Analysis of the records of patients affected by IDEPSs collected by ten pediatric surgery centers from 2010 to 2022.

Results: Our series consists of 23 patients affected by IDEPS, prenatally diagnosed. Postnatally the lesions were studied with angio-CT and/or angio-MRI. Surgical treatment was carried out at an age ranging from 1 to 15 months. A mini-invasive approach was adopted in 19/24 cases (79,1%) (laparoscopy 8; thoracoscopy 11); 5 cases were treated in open surgery (2 laparotomy; 3 thoracotomy). In 2/8 laparoscopic cases the lesion was not found requiring an additional thoracoscopy. In 2/11 thoracoscopic cases the exploration was negative: one was successfully converted to laparotomy, one is waiting for further investigations. Operative time ranged from 43 to 520 min; persistent pneumothorax occurred in 1 case (Clavien- Dindo I). Mean hospital stay was 4.5 days. The histology demonstrated hybrid lesion in 9 cases (37.5 %) and a pure pulmonary sequestration in 14 (62.5%).

Conclusions:

In IDEPS high-definition imaging are essential for choosing the better MIS approach. Nevertheless the intra-operative identification of the lesion may be difficult and parents should be informed about possible conversion and/or a combined intervention. The surgical treatment is advisable due to the high incidence of hybrid lesions and oncologic risk. MIS approach is currently the most used for its effectiveness and low complications.

Poster walk 11, Thoracic 2

763 - Long-Term Assessment of Growth in CDH: Analysis of Weight, Height, and Head Circumference in 1,250 Cases

Julia Elrod[1], Richard Martel[1], Alexander Jordan[2], Christoph Mohr[1], Michaela Klinke-Petrowsky[1], Katrin Zahn[1], Alba Perez Ortiz[3], Thomas Schaible[3], Michael Boettcher[1]

[1]Department of Pediatric Surgery, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany. [2]Pediatric Gastroenterology, Hepatology and Nutrition, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany. [3]Department of Neonatology, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany

Aims of the Study:

Growth abnormalities in children with Congenital Diaphragmatic Hernia (CDH) present a critical concern for long-term developmental outcomes. This study explores the patterns of weight gain, height, and head circumference as vital indicators of growth and developmental progress in CDH survivors.

Methods:

We retrospectively analyzed the growth parameters of 1250 CDH patients treated at our center from 2000 to 2022. Standard growth charts were used to track weight gain, height, and head circumference over the first 18 years of life. Growth trends were compared with standard pediatric growth milestones. We applied linear and multivariate regression models to identify factors associated with growth disparities. The study was approved by the competent authority.

Main results:

A total of 5,722 weight measurements, 5,238 height measurements, and 2,331 head circumference measurements were analyzed. Preliminary findings indicate that CDH survivors exhibited a notably slower weight gain, mostly below the 50th percentile for age and gender during the first years of life. By age 14, the majority of the cohort displayed a catch-up in weight. Body height remained consistently within the normal range for most children throughout all ages.

Conclusion: This study reveals that while initial weight gain is typically delayed in CDH survivors, a significant number achieve catch-up weight by adolescence. The results lay the groundwork for the creation of personalized nutritional and therapeutic strategies to enhance growth outcomes in children with CDH. Moreover, the emerging CDH-specific growth curves provide pediatricians with more accurate expectations for attainable weight in these patients.

Poster walk 11, Thoracic 2

454 - FETAL MRI DEFECT-DIAPHRAGMATIC RATIO (FMRI-DDR): FEASIBILITY AND REPRODUCIBILITY OF THIS NOVEL TOOL IN THE EVALUATION OF DIAPHRAGMATIC DEFECT.

Camilla Pagliara[1,2], Andrea Garnero[3], Monica Zuliani[4], Fabrizio Gennari[5], Jurgen Schleef[2], Piergiorgio Gamba[1], Giovanni Morana[3], Elisa Zambaiti[5]

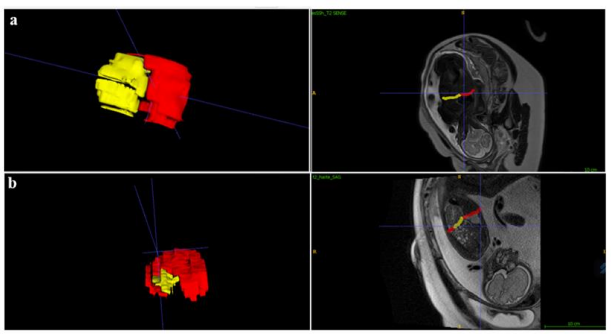
[1]Pediatric Surgery, Department of Women's and Children's Health, Padova, Italy. [2]Pediatric Surgery, IRCSS Burlo Garofolo, Trieste, Italy. [3]Neuroradiology, Città della Salute, Torino, Italy. [4]Pediatric Radiology, Department of Women's and Children's Health, Padova, Italy. [5]Pediatric Surgery, Regina Margherita Children's Hospital, Torino, Italy

In CDH, fetal-MRI (fMRI) has been validated for evaluation of lung volume and is currently used to define pulmonary hypoplasia. In recent literature, studies on the utility of fMRI to identify the defect extent in CDH patients are still lacking. Aim of the study is to assess the feasibility and reproducibility of fMRI to quantify diaphragmatic defects.

A multicentric retrospective study including 23 CDH fetuses underwent fMRI between 2015 and 2023 has been conducted. Manual segmentation of the diaphragm has been obtained by 2 radiologists. Based on 3D-images, fMRI Defect-Diaphragmatic ratio (fMRI-DDR) has been obtained. Interpersonal concordance for fMRI-DDR and CDHSG staging system for images obtained has been evaluated through Cohen's kappa coefficient.

Manual segmentation of the diaphragm was feasible in all cases. Median fMRI-DDR was 17.3%, with an overall inter-observer concordance (k) of 0.729 (IC95% 0.455 – 0.920). Overall concordance between fMRI-DDR and CDHSG staging system was 0.714 (IC95% 0.310 – 0.933). Among exams performed during second trimester (F1.a), inter-observer concordance for fMRI-DDR was 0.582 (IC95% 0.008 – 0.738) and concordance between fMRI-DDR and CDHSG staging system was 0.750 (IC95% 0.290 – 1.000). Among exams performed after 25 GW (1.b), inter-observer concordance for fMRI-DDR was 0.738 (IC95% 0.476 – 0.985) and concordance between fMRI-DDR and CDHSG staging system was 0.681 (IC95% 0.145 – 0.998).

Our data support feasibility of manual segmentation of the diaphragm from fMRI. Its reproducibility has been proved by agreement between fMRI-DDR and CDHSG staging system evaluations. Inter-observer concordance for fMRI-DDR was significantly higher if fMRI was performed during third trimester.



795 - TRICHLOROACETIC ACID CAUTERIZATION, A MINIMAL INVASIVE TREATMENT FOR FOURTH BRANCHIAL ARCH SINUS

Haider Ali Khan Riaz, Laura García Martínez, Ana Laín Fernández, Félix Pumarola Segura, Carlos Giné Prades, María Díaz Hervás, Manuel López Paredes

University Hospital Vall d'Hebron, Barcelona, Spain

AIM

Fourth branchial arch remnants often require aggressive cervical surgeries and recurrences may be challenging. We present our series of patients treated with trichloroacetic acid (TCA) cauterization as an alternative to surgical excision.

METHODS

Retrospective analysis of patients treated from January-2018 to December-2023. Sinus tracts were treated by laryngoscopy and TCA(50%) cauterization of the fistulous orifice at the level of the piriform sinus (3 applications in each procedure). A follow-up laryngoscopy was performed 3-6 months later. Data collected included patient characteristics, treatment, recurrence and complications.

RESULTS

Five patients (3 females/2 males) with a mean age of 8.7y (5-13) were treated. All were unilateral left sided and presented with deep cervical abscesses. Three out of 5 had required multiple drainages previously and in one, an unsuccessful surgical excision of the sinus was performed 8 years prior. In all patients cauterization was uneventful and patients were discharged the following day.

With a mean follow up of 1.2 years(0.6-5), three patients remain asymptomatic after one single TCA cauterization and the control laryngoscopy revealed closure of the fistulous orifice. Two patients experienced recurrence and a new laryngoscopy with cauterization is scheduled. No vocal cord palsy were registered.

CONCLUSIONS

TCA cauterization of 4th branchial arch sinus has shown resolution in 60% of our patients, effectively avoiding recurrent cervical abscesses and extensive neck surgeries. Recurrence is possible hence closed monitoring is required, as successive cauterizations might be needed. In our experience, it is a minimally invasive technique with low complications and favorable success rate.

Poster walk 11, Thoracic 2

772 - ROLE OF BRONCHOSCOPY IN ENDOBRONCHIAL TUBERCULOUS GRANULOMA IN CHILDREN

MARIA DEL CARMEN SARMIENTO CALDAS, LUCAS MORATILLA-LAPEÑA, TERESA DEL ROSAL, CRISTINA DE MANUEL GOMEZ, CARLOS A DE LA TORRE RAMOS

Hospital Infantil La Paz, Madrid, Spain

AIM OF STUDY

Endobronchial tuberculosis (EBTB) is infrequent. It can lead to airway obstruction due to endobronchial granulomas (EBG) presented at diagnosis or during treatment. Bronchoscopy is key to diagnosis and management in this case. Medical treatment versus surgical resection in EBG is currently discussed. We report our experience with endoscopy treatment in children with EBTB complicated with a EBG.

METHODS

Retrospective study of patients diagnosed of EBTB between 2016-2023. We analyze epidemiological data, complementary tests, treatment and complications.

MAIN RESULTS

Six patients with mean age of 18 months of age, diagnosed with tuberculosis in different clinical context (foreign air body suspicion, epidemiology contact and persistent respiratory symptoms). All treated with conventional tuberculosis treatment and corticoids. We performed a thorax CT and/or fibrobronchoscopy when no response to medical treatment was report or symptoms of airway obstruction were present. EBG was found in all patients being the right superior lobe the most affected in half of the cases. Rigid bronchoscopy for local extraction with forceps was performed without complications. One case relapse but was successfully treated in a second procedure.

CONCLUSIONS

EBTB requires high suspicion and when diagnosed, bronchoscopic removal of EBG is a safe option treatment with good outcomes in experienced air way surgeons. Early EBG treatment can minimize long-term bronchopulmonary complications.

Poster walk 12, Case reports 2

595 - CASE REPORT: PERINEAL ULCERATIVE GRANULOMATOSUS CHRONIC PYODERMA GANGRENOSUM

FEDERICA DEL PRETE, FEDERICA SERVILLO, MIGUEL GARCIA MAGNE, GABRIELLA SCIRE', NICOLA ZAMPIERI, FRANCESCO SAVERIO CAMOGLIO

Università degli Studi di Verona, Verona, Italy

Aim of the study:

Pyoderma gangrenosum is a rare muco-cutaneous condition in childhood, whose aetiology is unclear and often associated with chronic inflammatory bowel disease. Although the perineal ulcerative variant is the most frequent in paediatric patients, we present this case to underline the difficulties in surgical management of this affection.

Case description:

We present a case of a ten-years old girl, who consulted for constipation partially responsive to laxatives. The initial physical examination revealed bleeding anal fissures and skin tags. The patient returned to her home-country and was lost to follow-up for a year. At the return, she presented severe and extensive perineal necrosis and an ileostomy made in India. Considering the lack of improvement, lesion biopsies were taken and VAC therapy was started. After excluding all possible infectious causes, the possibility of pyoderma gangrenosum was considered. Corticoid and Dapsone combined therapy was started, showing improvement of the perineal lesions for the first couple of months. An MRI was performed to study the pelvic floor muscles, with the aim to restore perineum; unfortunately, the scans demonstrated a severe muscle damage. In the last month the patient experienced a worsening, necessitating a switch from corticoid therapy to Infliximab. The clinical decline forced us to postpone reconstructive surgery, and currently she still has ileostomy.

Conclusions:

Pyoderma gangrenosum is an extremely rare condition in paediatric age that must be considered in the differential diagnosis of perianal lesions. Its presence, in fact, can influence the surgical timing, compromising the quality of life.

Poster walk 12, Case reports 2

605 - METASTATİC OSTEOSARCOMA: RARE CAUSE OF AN ADRENAL MASS

KIVILCIM KARADENIZ CERIT[1], AYTEN CEREN BAKIR[1], MAHAMMED JAFAROV[1], NURSAH EKER[2], GURSU KIYAN[1]

[1]Marmara Üniversitesi Tıp Fakültesi, Çocuk Cerrahisi Anabilim Dalı, ISTANBUL, Turkey. [2]Marmara Üniversitesi Tıp Fakültesi, Çocuk Hematoloji ve Onkolojisi Bilim Dalı, ISTANBUL, Turkey

Aim:

Osteosarcoma is the most common malignant bone tumor in children and metastasis is commonly involving the lungs. To describe an exceptional metastatic osteosarcoma to the adrenal gland.

Case:

A 12 year old boy presented with right knee pain while playing football. Family admitted to emergency unit due to persisting pain. He had no fevers, night sweats nor weight loss. Radiological work-up of the extremity with magnetic resonanace imaging and computed tomographic scan revealed a lesion in right femoral distal metaphysis. He underwent a core needle biopsy and diagnosed as osteosarcoma. The patient was treated with 3 cycles of multidrug chemotherapy regimen preoperatively. He underwent limb-preserving, en-bloc resection of the primary tumor. Pathological examination revealed a high grade osteosarcoma. He was treated with another 3 cycles regimen postoperatively. After 6 and 8 months he presented with lung metastasis. The patient underwent thoracotomy with multiple wedge resections of the pulmonary metastasis. During the follow-up a right adrenal mass (34x38 mm) was detected in PET-CT. The adrenal mass resected completely, there was no invasion to inferior vena cava. Pathological examination was metastatic osteosarcoma, resected with clear margins. Necrosis was %30 of the tumor specimen. There was no complication after surgery.

Conclusion:

Prolonged treatment of metastatic osteosarcoma may be associated with uncommon sites of recurrence like adrenal gland. Pediatric oncologist should be aware of unusual and rare sites of metastasis during follow-up.

Poster walk 12, Case reports 2

689 - CHOLECYSTOSTOMY TUBE PLACEMENT FOR TEMPORARY BILIARY DRAINAGE AS A BRIDGE TO DEFINITIVE SURGERY IN UNSTABLE CARDIAC PATIENT WITH BILIARY ATRESIA

Lorenzo Anez-Bustillos, Sam Han, Adriana Koenig, Lisandro Luques, Kasper Wang, Mercedes Pilkington

The Hospital for Sick Children, Toronto, Canada

Aim of the Study:

Prompt diagnosis and early biliary drainage greatly influence the outcome of patients with biliary atresia (BA). The type I form of the disease is characterized by atresia of the common bile duct. Associated congenital anomalies may require consideration of less complex procedures than the immediate definitive repair.

Case Description:

A female term neonate was born with multiple cardiac congenital anomalies and developed cholestatic jaundice with direct hyperbilirubinemia and imaging findings concerning for BA. Surgical management was deferred due to the need for urgent repair of her cardiac defects. On day of life (DOL) 32, she finally underwent surgical exploration with cholangiogram that suggested type I BA. There appeared to be adequate flow of bile draining from gallbladder. Patient became hemodynamically unstable, and decision was made not to proceed with hepatopotroenterostomy. A cholecystostomy tube was inserted and secured in place, and the patient was transferred to the critical care unit. She recovered uneventfully and her bilirubin levels normalized. Once further optimized from cardiac standpoint, she returned to the operating room nearly 4 weeks later for definitive drainage by creation of Roux-en-Y hepaticojejunostomy. Liver function tests and bilirubin levels normalized postoperatively, and she was ultimately transferred to local hospital in good condition.

Conclusion:

Attaining biliary drainage in unstable patients through less morbid and lengthy procedures can halt hepatic damage and development of irreversible fibrosis in BA. Placement of cholecystostomy tube can serve as a relatively simple and quick alternative to bridge sub-optimal surgical candidates prior to definitive repair.

792 - INTRAPILORIC BOTULINUM TOXIN INJECTION AS INNOVATIVE TREATMENT IN CHILDREN: A CASE REPORT

Valentina Díaz Díaz, Mariela Dore, Patricia Deltell Colomer, Irene Martínez Castaño, Pedro Alcaraz Jimenez, María Gabriela Toro Rodriguez, Alba Hernández Perez, Carlota Abril Sánchez, Alejandro Encinas Goenechea, Jerónimo Gonzálvez Piñera

Hospital General Universitario Dr. Balmis Alicante, Alicante, Spain

Aim of study

The use of intrapiloric botulinum toxin injection (IBTI) has been described as gastroparesis treatment. Our aim is to report a case of severe gas bloat syndrome (GBS) after a Nissen fundoplication (NF) and its innovative treatment.

Description

A 5-year-old boy was admitted to the ER on his 6th postoperative day following laparoscopic NF with severe abdominal pain and nausea. Past medical history revealed a left congenital diaphragmatic hernia corrected at birth and a recurrence after 7months. Abdominal tenderness and distension were identified. Gastric dilation with signs of small-bowel obstruction were confirmed by imaging. A gastroscopy with nasogastric tube insertion was performed. Meglumine-diatrizoate sodium solution protocol was started, with symptom resolution in 24h. After proper oral intake, the patient was discharged with dietary recommendations. Forty-eight-hours later, the patient was readmitted with symptom recurrence and required a gastroscopy with nasogastric tube placement. A contrast-study was performed and delayed gastric emptying (DGE) was seen. After careful consideration, IBTI was proposed as treatment. A flexible gastroscopy (D=9.6mm) was performed and IBTI was carried out with a 22G needle and a total of 100IU (25IU per quadrant) of botulinum toxin. The patient was discharged with complete resolution of symptoms. No recurrence was observed during outpatient follow-up (1year).

Conclusions

GBS can frequently present after NF in patients with DGE. Treatment includes dietary adjustments, nasogastric tube placement, and rarely, surgery. To the best of our knowledge, this is the first described case of IBTI for the symptomatic treatment of GBS in children following NF.

Poster walk 12, Case reports 2

807 - ENDOBRONCHIAL VALVE TREATMENT OF SEVERE DESTRUCTIVE PNEUMONIA

Dionisiy Petrov[1,2], Zhanetta Tramova[2], Svetlana Podlipaeva[2], Evgeny Andreev[2]

[1]Pirogov Russian National Research Medical University, Moscow, Russian Federation. [2]Russian Children's Clinical Hospital, Moscow, Russian Federation

Aim:

to demonstrate the possibilities of minimally invasive treatment of severe destructive pneumonia with bronchopleural fistula

Case description:

a stable 17 y.o. patient with a history of post-burn esophageal stenosis since 8 years of age, numerous esophageal dilatation procedures, Nissen fundoplication and gastrostomy had an episode of swallowing a hard piece of food which resulted in fever and hospitalisation. Chest imaging revealed left-sided lower lobe destructive pneumonia with purulent pleuritis. There was an active air leakage through the chest drainage with the traces of food and saliva. Upper GI contrast study demonstrated esophagopleural fistula (EPf) and chest CT scan revealed a destructive cavity located in the left lower lobe. During bronchoscopy an active air leakage was detected coming from segments 6, 8, 9 and 10 of the left lung. Synthetic endobronchial valve was placed into the left main bronchus using flexible bronchoscopy after which the air leakage stopped. EPf resolved without surgery over 2 weeks of antibiotics and feeding by gastric tube. The patient was re-admitted for follow-up 6 weeks later. Control CT scan showed significant reduction of the initial destructive cavity from 75 to 12 mm in diameter with the small area of remnant infiltration in the left lower lobe. The valve was successfully removed with no further complications. The patient was discharged stable and is to be hospitalised later for esophagoplasty.

Conclusions:

endobronchial valve placement using flexible bronchoscopy can be a procedure of choice for destructive pneumonia with brochopleural fistula even in severe cases with significant comorbidities.

824 - HETEROGENEOUS PHENOTYPE PRESENTATION DESPITE TTC7A DEFICIENCY: A CASE COMPARISON STUDY AND REVIEW OF THE LITERATURE

Hans Christian Schmidt[1], Julia Imhoff[2], Mario Lange[3], Daniel Tegtmeyer[4], Konrad Reinshagen[1], Christian Tomuschat[1]

[1]University Medical Center Hamburg-Eppendorf, Department of Pediatric Surgery, Hamburg, Germany. [2]University Medical Center Hamburg-Eppendorf, Hamburg, Germany. [3]University Medical Center Hamburg-Eppendorf, Department of Neonatology and Pediatric Intensive Care Medicine, Hamburg, Germany. [4]University Medical Center Hamburg-Eppendorf, Clinic and Polyclinic for Pediatrics and Adolescent Medicine, Hamburg, Germany

Background:

TTC7A, is a critical protein for intestinal and immune system health. Deficiency is linked to intestinal epithelial barrier disorders and intestinal atresia, accompanied by lymphocytopenia, and therefore characterized by combined immunodeficiency with multiple intestinal atresias (CID-MIA). As heterogeneous phenotype presentation ranges from fatal CID-MIA to mild colitis the question arises as to whether all genetic mutations should be regarded as equally pathogenic. Therapeutic approaches like Rho-kinase inhibitors and leflunomide seemed to be promising in preclinical studies.

Material and Methods:

Two neonates with confirmed TTC7A mutation were assessed, involving multiple specialties. A review of the literature was conducted focusing on case reports, treatment, and correlation of genotype and phenotype.

Results:

The first neonate exhibited homozygous TTC7A deficiency, immunodeficiency and multiple intestinal atresias (Fig. 1). Treatment included gastric tube placement, multiple surgeries for intestinal atresias and total parenteral nutrition. Post-surgical challenges persisted, leading to a palliative approach within the first year of life. The second neonate, also exhibiting biallelic, but compound heterozygous TTC7A deficiency has shown no evidence of primary immunodeficiency or atresia.

Conclusion:

Advanced interdisciplinary approaches fail to maintain clinical remission in severe TTC7A cases. Heterozygous neonates exhibit mild symptoms. Case reports of severe phenotypes from heterozygous or compound heterozygous mutations may reveal pathogenic segments in TTC7A-related CID-MIA. The absence of established treatments for TTC7A deficiency highlights the need for enhanced understanding and novel therapeutic development.



Figure 1 Intraoperative visual diagnosis confirms the suspicion of multiple intestinal atresia.

Poster walk 12, Case reports 2

572 - ACCIDENTALLY FOUND INGESTED MAGNETS LEAD TO DUODENO-COLIC FISTULA

Jurate Pakrosnyte[1], Marius Šikšnius[2], Arturas Kilda[3], Dalius Malcius[4,3], Ausra Lukošiūtė[3]

[1]Resident doctor Pediatric Surgery, Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania. [2]Pediatric surgeon, Klaipėda's Children Hospital, Klaipėda, Lithuania. [3]Pediatric Surgeon, Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania. [4]Resident doctor Pediatric Surgery, Chairman of Department of Pediatric Surgery, Lithuanian University of Health Sciences., Kaunas, Lithuania

The aim:

to present a case of asimptomic and accidentally found ingestion of magnets lead to duodeno-colic fistula.

Case description:

A 3-year-old girl was admitted to the secondary care hospital for cough, fatigue, and decreased oral intake. There were no other gastrointestinal symptoms. Blood tests showed increased inflammation markers. A chest x-ray showed pneumonia. Antipiretics, fluids, and penicillin were prescribed. Unexpectedly, during the treatment on the fifth day, the control chest x-ray with a part of the abdomen showed foreign bodies in the gastrointestinal system. However, parents couldn't mention any history of magnets intake. The magnets were presumed to be in the stomach; therefore, an esophagogastroduodenoscopy was performed. The magnets were found to be embedded in the duodenum area of the papilla vater. Unfortunately, removal was unsuccessful. The girl was referred to a tertiary care hospital. CT assessment was complicated by artifacts caused by magnets in the duodenum, but signs of intestinal perforation were not found. An exploratory laparotomy was performed. Duodeno-colic fistula with 21 magnets inside were observed. The fistula was separated, magnets removed, duodenum and colon were primarily closed. Antibiotic therapy was changed to cefuroxime and metronidazole; protone pump inhibitors; and analgetics were prescribed. The girl was discharged on the 7th day after surgery without any complications.



Conclusions:

Asymptomatic ingestion of magnets can cause serious complications. Detailed anamnesis should always be warranted.

152 - Recurrent Pneumothorax Associated with Rib Osteochondroma: A Case Report

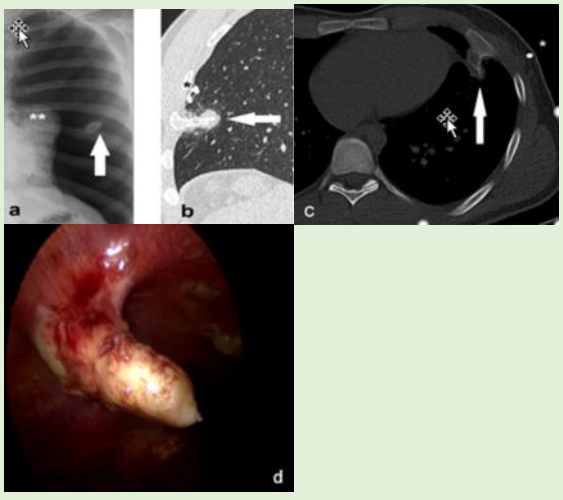
Dana Al-Refai, Franz-Xaver Anzinger, Jan Gödeke, Oliver Muensterer

Dr. von Hauner Children's Hospital, Munich, Germany

Osteochondromas are common, typically benign, and often asymptomatic osseous tumors generally arising from the metaphysis of long bones. Although costal osteochondromas are rare and usually associated with minimal risks, complications such as pneumothorax, hemothorax, and pericardial effusion have been documented in association with these growths. Pneumothorax induced by costal exostoses is rare, with only 14 reported cases in existing literature. In this context, we present an interesting new case of recurrent pneumothorax attributed to an intra-thoracic costal exostoses.

A fourteen-year-old boy presented to our emergency department with shortness of breath and left-sided chest pain. An X-ray revealed a left-sided pneumothorax and a suspected, nonpalpable cartilaginous exostosis of the anterior fourth rib (figure a). A chest tube was inserted, and the patient was discharged two days later in good condition. However, he presented again on the evening following discharge with a recurrent pneumothorax. Subsequently, after replacement of a chest tube, a chest computed tomography was performed, which confirmed the intrathoracic exostosis as the likely cause (figure b, c). The patient underwent costal exostosis resection and pleurodesis by video-assisted thoracoscopic surgery (VATS, figure d). The postoperative course was uneventful, and the patient was discharged on the 7th postoperative day. The pathological workup confirmed the diagnosis of cartilaginous exostosis. At his one-month follow-up, the patient reported no complaints and no recurrence of pneumothorax.

Intra-thoracic osteochondromas, that cause injuries and pneumothoraces should be resected due to their potential risk of causing recurrent life-threatening complications. VATS is an effective, minimally-invasive technique to perform the resection.



Poster walk 12, Case reports 2

181 - "HANDLEBAR HERNIA": A CLINICAL CHALLENGE IN PEDIATRIC ABDOMINAL TRAUMA

Paulina Vargova, Carolina Corona Bellostas, Ainara González Esgueda, Rafael Fernández Atuán, Andrea Santiño Tenorio, Ricardo Escartín Villacampa

Hospital Universitario Miguel Servet, Zaragoza, Spain

Aim of the Study:

Handlebar hernia is a rare type of traumatic abdominal hernia in the paediatric age group. Its diagnosis is challenging and requires a high index of clinical suspicion. The aim of this study is to raise awareness of the existence of this pathology and to present our experience with its diagnosis and management.

Case description:

We present an 8-year-old patient with abdominal trauma due to contact with a bicycle handlebar, presenting with a visible hematoma and abdominal pain. Diagnostic evaluation, including ultrasound, confirmed the presence of an uncomplicated traumatic abdominal hernia.

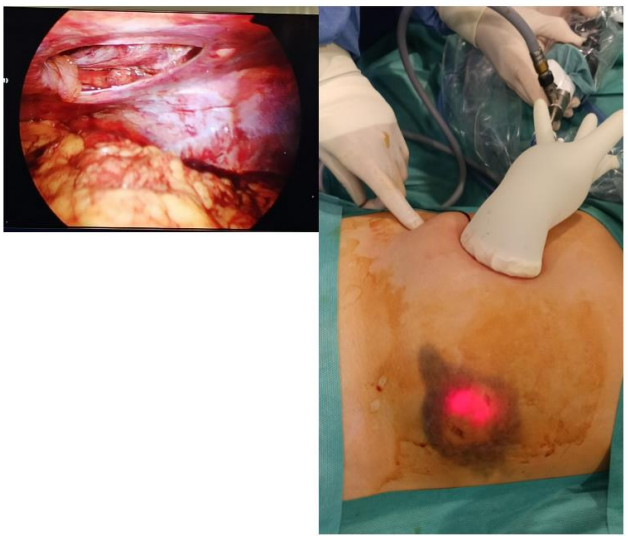
As the patient's condition deteriorated with the onset of bilious vomiting, a surgical exploration became necessary.

We used a video-assisted laparoscopic approach with a glove port, which revealed a 5 cm defect involving multiple layers, including the prolapse of epiploic fat. Further exploration revealed perforation and contusion of the descending colon.

The surgical procedure included removal of the injured portion of the colon, creation of a mechanical side-to-side anastomosis, and primary closure of the abdominal wall. The patient was discharged with a positive outcome, and there were no post-operative complications.

Conclusions:

Handlebar hernias are difficult to diagnose and require a high index of suspicion for prompt management and prevention of co-morbidities. The laparoscopic approach is feasible and safe. In the published literature we found less than 100 cases of handlebar hernia in paediatric patients published to date.



322 - SUCCESSFUL TREATMENT OF CONCURRENT CHOLANGIOHYDATIDOSIS AND COMMUNICATING RUPTURE OF HEPATIC HYDATID CYST THROUGH THE DIAFRAGM INTO THE RIGHT PLEURAL CAVITY

Narcis Flavius Tepeneu[1], Calin Marius Popoiu[1,2], Radu Emil Iacob[1,2], Daniela Iacob[2], Cosmina Cucui[3], Simona Cerbu[4], Oana Belei[1,5], Rodica Heredea[6]

[1]University of Medicine and Pharmacy "V. Babes" Timisoara, Timisoara, Romania. [2]Pediatric Surgery and Orthopaedics Clinic, "L. Turcanu" Children's Hospital, Timisoara, Romania. [3]Pediatric Anesthesiology and Intensive Care Department, "L. Turcanu" Children's Hospital, Timisoara, Romania. [4]Pediatric Radiology Department, "L. Turcanu" Children's Hospital, Timisoara, Romania. [5]Pediatric Gastroenterology Department "L. Turcanu" Emergency Children's Hospital Timisoara, Timisoara, Romania. [6]Pathology Department "L.Turcanu" Emergency Hospital Timisoara, Timisoara, Romania

Aim of the study

Concurrent rupture of hepatic hydatic cysts into the biliary tree and into the pleural cavity is a very rare complication in echinococcosis and can pose diagnostic and treatment challenges. We present the case of a 15 years old female patient with recurrent abdominal pain, chest pain, fever, vomiting, jaundice and cholangitis.

Methods

Ultrasound, X-rays, CT of the abdomen and thorax and cholangio-MRI revealed a hepatic hydatid cyst with rupture into the main biliary duct causing obstruction, gallbladder microlithiasis, rupture of the right hemidiafragm and pleural hydatidosis. Echinococcus serology tests were positive.

ERCP could not resolve the obstructive jaundice. A laparotomy with choledochotomy, removal of hydatid structures, choledochal drainage with Kehr tube, cholecistectomy, Lagrot partial pericystectomy, partial pleural resection, suturing of the diaphragm, and triple drainage(right pleural cavity, cystic cavity and Douglas pouch) was performed.
Perioperative albendazole and antibiotic therapy was administered.

Results

The patient had an uneventful postoperative course. Follow-up at 1,6,12 and 24 month showed a favorable evolution without relapse of the hydatidosis.

Conclusions

The very rare complications of cholangiohydatidosis and concomitant hepatothoracic transit lead to a severe condition which needs adequate surgical treatment. Clinical presentation and laboratory findings are not specific and may simulate an obstructive jaundice and acute cholangitis of other etiology.

ERCP with endoscopic papillotomy offers the advantage of a minimally invasive surgery, but it doesn't allow a definitive treatment of the whole problem and may be useful as a bridge procedure to drain the bile duct while awaiting definitive surgery.

Poster walk 12, Case reports 2

358 - URINARY SCHISTOSOMIASIS MIMICKING BLADDER NEOPLASM: UNUSUAL OBSERVATION IN CENTRAL EUROPE.

Ciro Esposito, Claudia Di Mento, Annalisa Chiodi, Mariapina Cerulo, Fulvia Del Conte, Vincenzo Coppola, Francesca Carraturo, Maria Escolino

Federico II University, Naples, Italy

Aim of the study:

This case report aims to describe schistosomiasis as the new risk factor for haematuria and bladder papillomatous lesions in Central Europe.

Case description:

A 16-year-old-boy with gross haematuria was admitted to our Pediatric Surgery Unit. He immigrated in Italy from Mali in January 2023 and his symptoms started in June 2023. No fever, abdominal pain, dysuria, or other urinary symptoms were referred. Ultrasound (US) showed the bladder with thickened walls and irregular mucosal profile due to multiple papillomatous outgrowths. The major clinical suspicion was bladder neoplasm. The patient underwent laboratory culture tests on blood, urine, and stools. Cystoscopy with multiple biopsies of the bladder walls was performed. Urinary schistosomiasis' diagnosis was obtained. Abdomen and scrotal US, and brain magnetic resonance imaging excluded secondary localizations. Medical therapy with Praziquantel was performed in one-day administration. At 1-month follow-up urine cultures were normalized, while bladder US was slightly improved. Cystoscopy at 6-month follow-up showed persistence of schistosomiasis' lesions. A second one-day administration of Praziquantel was given, thus eradicating the disease at 9-month follow-up.

Conclusions:

Although schistosomiasis remains a rare infection in our geographical region, the growing migration flows emphasize the necessity of including this disease in the differential diagnosis. Urinary schistosomiasis is a recognized risk factor for bladder cancer, emphasizing the importance of prompt diagnosis and treatment.

712 - LIVER TRANSPLANTATION DESPITE LOW BILIRUBIN LEVELS AFTER KASAI PROCEDURE: WHAT HAVE WE LEARNED?

Carlotta Plessi, Catherine de Magnée, Sofya Yankouskaya, Isabelle Scheers, Giulia Jannone, Etienne Sokal, Raymond Reding, Xavier Stephenne, Roberto Tambucci

Pediatric Liver Transplantation Program, Saint-Luc University Clinics, Université catholique de Louvain, Brussels, Belgium

Aim of the study: To assess peculiar characteristics of patients affected by biliary atresia (BA) who underwent liver transplantation (LT) with persistent normal/subnormal total serum bilirubin (SB) after Kasai procedure (KP).

Methods: Single-center retrospective analysis of 443 pediatric recipients affected by BA transplanted between 1993 and 2022. Those who previously underwent KP were categorized in two groups, according to SB at LT: group A (SB<3 mg/dL) and group B (SB>3 mg/dL). Analyzed variables included pre-LT characteristics, main LT-indications, and post-LT outcomes. Length of pre-existing Roux-en-Y was assessed during LT and considered inadequate when <30 cm.

Main results: Three-hundred-thirty-two children (74.9%) received previous KP. Among them, 33 (9.9%) had SB<3 mg/dL, including 10 with normal values (<1.2 mg/dL). At LT, patients in group A showed older age, lower rate of growth failure, and lower PELD. Regarding LT-indications, untreatable recurrent cholangitis, severe portal hypertension and hepatocellular carcinoma were significantly more frequent in group A; no differences were found for the others. One-hundred inadequate Roux-en-Y were found at LT (median: 20cm; IQR: 15-21); that was more frequent in transplantations for recurrent cholangitis (61.1% vs 26.4%; p<0.001). Patient/graft-survivals were not significantly different among groups A and B.

Conclusions: A relevant number of BA patients were transplanted despite normal/subnormal SB. Recurrent cholangitis is the main transplant indication in these patients, and it was often associated with a short pre-existing Roux-en-Y. Interestingly, although they mostly showed overall better clinical conditions, some were transplanted due to decompensated cirrhosis with ascites.

Variables (at time of LT)		Group A (bilirubin ≤ 3 mg/dL) (n=33)	Group B (bilirubin > 3 mg/dL) (n=299)	p-value
Age (years) [median (IQR)]		2.8 (1.5-5.0)	1.1 (0.7-1.9)	<0.001
Weight (kg) [median (IQR)]		14.0 (9.5-20.0)	8.2 (7.0-10.7)	<0.001
z-score for weight (SD) [median (IQR)]		−0.6 (−1.8-0.4)	−1.7 (−2.7–0.4)	0.004
Growth failure [n (%)]		5 (15.2%)	126 (42.1%)	0.003
Total bilirubin (mg/dL) [median (IQR)]		1.6 (1.0-2.3)	15.7 (9.9-20.6)	<0.001
INR [median (IQR)]		1.2 (1.1-1.3)	1.3 (1.1-1.6)	0.038
Serum albumin (gr/dL) [median (IQR)]		3.4 (3.1-3.8)	3.2 (2.7-3.6)	0.029
PELD score [median (IQR)]		−2.0 (−5.4-2.5)	13.8 (8.8-22.1)	0.004
Portal vein hypoplasia [n (%)]		11 (33.3%)	169 (56.5%)	0.011
Main indications for LT	**Decompensated cirrhosis with ascites** [n (%)]	6 (18.2%)	101 (33.8%)	0.069
	Recurrent bleedings due to portal hypertension [n (%)]	14 (42.4%)	68 (22.7%)	0.013
	Untreatable recurrent cholangitis [n (%)]	17 (51.6%)	23 (7.7%)	<0.001
	Compensated cirrhosis with other symptoms* [n (%)]	8 (24.2%)	124 (41.5%)	0.055
	Hepatopulmonary syndrome [n (%)]	2 (6.1%)	6 (2.0%)	0.150
	Hepatocellular carcinoma [n (%)]	2 (6.1%)	1 (0.3%)	0.001
Living donor [n (%)]		21 (63.6%)	197 (65.9%)	0.796
5-year patient survival [%]		100%	94.8%	0.954
5-year graft survival [%]		90.9%	90.6%	0.689

* pruritus, fatigue, failure to thrive, etc.

LT: liver transplantation; IQR: interquartile range; PELD: pediatric end-stage liver disease; INR: international normalized ratio.

318 - AST AND APRI FOR PREDICTION OF NATIVE LIVER SURVIVAL IN BILIARY ATRESIA

Maria Hukkinen[1], Björn Fischler[2], Ulrika Liliemark[2], Omid Madadi-Sanjani[3], Mark Davenport[4], Mikko P. Pakarinen[1]

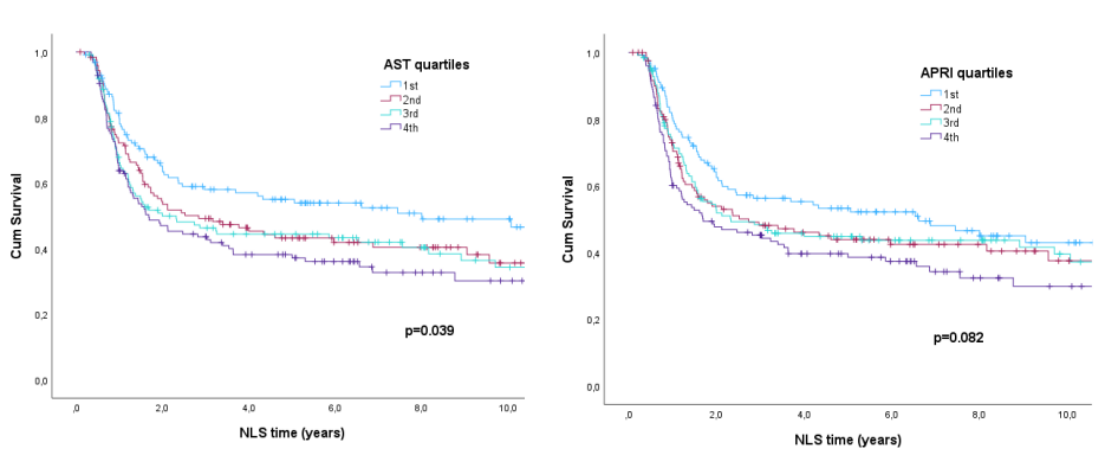
[1]Section of Pediatric Surgery and Pediatric Liver and Gut Research Group, New Children's Hospital, University of Helsinki and Helsinki University Hospital, Helsinki, Finland. [2]Department of Pediatrics, Karolinska University Hospital and CLINTEC, Karolinska Institutet, Stockholm, Sweden. [3]Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany. [4]Department of Pediatric Surgery, King's College Hospital, London, United Kingdom

Aim of the study. Aspartate aminotransferase to platelet ratio index (APRI) measured at time of portoenterostomy has been associated with clearance of jaundice (COJ) and native liver survival (NLS) in biliary atresia (BA). Previous research mainly consists of single-center analyses in small cohorts.

Methods. Five pediatric surgery tertiary centers participated. Preoperative AST, APRI, GT and bilirubin were retrospectively collected. CMV-DNA detected by PCR in serum/urine or positive CMV-IgM before portoenterostomy were defined as CMV-positive BA. Predictors of NLS were studied with survival analyses.

Main Results.Out of 515 patients operated during 2005-2020, 61 (12%) had BASM and 54 (11%) were CMV positive. Median age at portoenterostomy was 55 (interquartile range, IQR 42-70) days. COJ was achieved by 286 (56%) and not recorded for 11 patients. Both APRI and AST correlated with portoenterostomy age (r=0.392 and r=0.430, p<0.001 for both) and discriminated BASM (0.76 vs 0.55, p<0.001 and 179 vs 156, p=0.028) and CMV positive patients (1.04 vs 0.69 and 247 vs 174, p<0.001 for both) from others. COJ patients had lower AST compared to non-COJ (170 vs 186, p=0.011) whereas difference in APRI (0.66 vs 0.76, p=0.055) did not reach statistical significance. Unlike GT and bilirubin, both APRI and AST predicted NLS (p=0.007 and p<0.001 for continuous variables). However, in multiple regression including BASM, CMV positivity, age, and AST or APRI, only BASM (hazard ratio 1.5, p=0.021) and age <60 days at surgery (hazard ratio 1.5, p=0.002) remained significant.

Conclusions.AST is equal or superior to APRI for prediction of NLS in BA.



291 - EFFICACY AND SAFETY OF LOW MOLECULAR WEIGHT HEPARIN IN THE MANAGEMENT OF NEONATAL VENOUS THROMBOSIS CAUSED BY UMBILICAL VEIN CATHETERIZATION

MERVE KARAYAZILI[1], ULGEN CELTIK[1], DEMET TEREK[2], OZGE ALTUN KOROGLU[2], ORKAN ERGUN[1]

[1]EGE UNIVERSITY FACULTY OF MEDICINE DEPARTMENT OF PEDİATRİC SURGERY, IZMIR, Turkey. [2]EGE UNIVERSITY FACULTY OF MEDICINE, DEPARTMENT OF PEDİATRİCS, DİVİSİON OF NEONATOLOGY, IZMIR, Turkey

Aim: Umbilical vein catheterization (UVC) for venous access in premature and very low birth weight newborns has been associated with a reported increase in incidence of venous thrombosis. The efficacy of anticoagulant therapy in those cases remains ambiguous due to the lack of comprehensive studies and guidelines. This study examines the effectiveness and safety of Low Molecular Weight Heparin (LMWH) in treating neonatal venous thrombosis caused by UVC.

Methods: Medical records of neonates who had UVC for variety of indications between years 2014-2022 were reviewed retrospectively. Patients who developed venous thrombosis (portal venous system and intracardiac) due to UVC were included. Data regarding demographics, duration of UVC usage, position of the tip of the catheter, and site of thrombosis were collected. Two groups were constituted based on the administration of LMWH. The study compared thrombus resolution in neonates treated with LMWH to those untreated, categorizing the resolution as total, partial, or absent.

Results: Among the LMWH-treated group (n=13), 38.46% had no resolution of the thrombus while 61.54% achieved total resolution, with no cases of partial resolution. In contrast, in the untreated group (n=8), 75% had no thrombus resolution, and 25% had partial resolution. Significant difference was observed in total thrombus resolution rates between the two groups ($p<0.05$)

Conclusion: LMWH treatment seems to improve resolution rates in neonatal venous thrombosis due to UVC suggesting a potential benefit in selected cases. Further studies and guidelines are required to refine early treatment strategies and understand the potential for long-term complications.

Table 1. Comparison of Thrombus Resolution with use of LMWH therapy

		Treated with LMWH (n:13)		Untreated (n:8)		P value
Thrombus Resolution	No Resolution	5	38,46	6	75,00	0,009*
	Total Resolution	8	61,54	0	0,00	
	Partial Resolution	0	0,0	2	25,00	

Chi-square Test, *p<0.05

Poster walk 13, Hepatobiliary

470 - LAPAROSCOPIC KASAI PORTOENTEROSTOMY, IS TIME TO CHANGE THE SURGICAL APPROACH IN WESTERN COUNTRIES?

Lucas Moratilla-Lapeña, María Sarmiento, María San Basilio, Ricardo Mejía, Miriam Maestre, Javier Serradilla, Alba Sánchez-Galán, Carlos De la Torre, Jose Luis Encinas, Esteban Frauca, Loreto Hierro, Ane Miren Andrés, Francisco Hernández-Oliveros

Hospital La Paz, Madrid, Spain

Aim of the study:

Surgical approach for biliary atresia (BA) has been classically open (OKP), but eastern countries publish same results with laparoscopic (LKP) procedure. Few studies have been published with favorable results using laparoscopic technique in western countries. Our objective is comparing both techniques and their long-term results.

Methods:

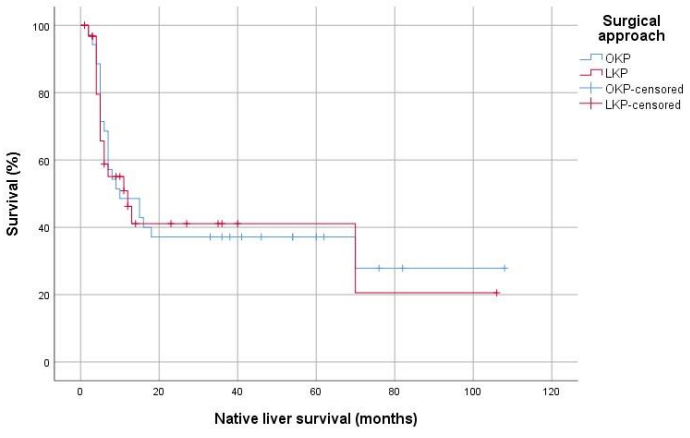
Retrospective unicentric study (2015-2023) with corrected BA. Patients were divided according to their approach, OKP or LKP. Demographics and analytics variables, operative and postoperative parameters, jaundice clearance, native liver survival and transplantation data were collected.

Results:

68 patients were studied (33 LKP and 35 OKP) with no differences in age or weight (p=0,543; p=0,234). Surgical time was longer in LKP (275±42 vs 192±40 minutes; p<0,001) with no differences in transfusion needs (p=0,147). Time to first (3,6±1,1 vs 5,13±1,36; p<0,001) and full feeds (1,97±0,85 vs 3,29±0,9; p<0,001) were earlier in LKP. There was no difference in the time of admission (p=0,234). Jaundice clearance at 6 months was similar (41,4% vs 45,7%; p=0,728). Native liver survival was the same for both groups (p=0,881), with a non-significant HR 1,37 (0,68-2,72) for LKP. During liver transplantation, the amount of blood or plasma transfusions was equal between groups (p=0,475; p=0,822), but the length of the procedure was significantly shorter in LKP [455(3.58-539) vs 540(453-660); p=0,01].

Conclusion:

LKP has same results in jaundice clearance and native liver survival. In turn, it offers advantages such as shorter time to first feed as well as shorter duration of transplant surgery.



Poster walk 13, Hepatobiliary

701 - SIMPLE HEPATIC CYSTS: MANAGEMENT AND TREATMENT AFTER PRENATAL DIAGNOSIS. 25 YEARS EXPERIENCE

Miguel Garcia Magne[1], Virginie Fouquet[2], Stéphanie Franchi Abella[2], Géraldine Hery[3], Florent Guérin[3], Sophie Branchereau[3]

[1]Ospedale della donna e del bambino, Azienda Ospedaliera Universitaria di Verona, Verona, Italy. [2]Hôpital Bicêtre, AP-HP, Université Paris-Saclay., Paris, France. [3]Hôpital Bicêtre, AP-HP, Université Paris-Saclay., Paris, Italy

Prenatal diagnosis of Simple Hepatic Cystic Lesions (SHCL) is increasing. Even if they are asymptomatic, complications and risk of transformation into ciliated hepatic foregut cyst (CHFC) must be considered. Very few data about this condition in pediatric population is available. The aim of our study was to present our experience and to propose recommendations regarding management and follow.

Methods:

We present a retrospective study. We analyzed medical records and imaging results of children with prenatal diagnosis of SHCLs between 1997 and 2021. Post-natal diagnosed SHCLs, extrahepatic and intrahepatic choledochal malformations, biliary atresia and polycystic liver disease were excluded.

Results:

48 children with prenatal diagnosis of SHCL were included, 26 (56%) were females, gestational age at diagnosis was 23 weeks, in 6 (12%) dimensions increased during pregnancy requiring a fetal MRI. The first post-natal US was made at 4 d (0 -10). The most affected segments were IV and V (80%), with lesions measuring 22 mm (7-107mm). In14 patients (29%) with US anomalies required further assessment with MRI and HIDA scintigraphy before the year of life, 6 for increasing of dimensions and 8 for abnormal US findings (polylobed, sediments). Among these, 3 were aspirated and in 4 cases CHFC was found. From 34 patients which remain in the US follow up group. 20 had a complete resolution of the cystic lesions.

Discussion:

HSCL require a pre and post natal follow up. Increasing dimensions, presence of abnormal US findings require advanced imaging techniques in order to detect alterations and consent proper treatment

359 - ALL ROADS LEAD TO ROME: AORTOHEPATIC CONDUITS AS AN ALTERNATIVE SOURCE OF ARTERIAL INFLOW IN PEDIATRIC LIVER TRANSPLANTS

Isabel González-Barba, Jose Andrés Molino, Ernest Hidalgo, Jesus Quintero, Mercedes Pérez, Concepción Gómez, Cristina Dopazo, María Marget Mercadal, Cristina Padros, Marta Martos, Mireia Caralt, Itxarone Izaskun Bilbao, Ramón Charco

Vall d'Hebron University Hospital, Barcelona, Spain

INTRODUCTION

Aortohepatic conduits (AHC) represent an alternative source of inflow when receptor or graft characteristics preclude standard hepatic arterial reconstruction, especially in the pediatric population where donor-recipient size discrepancies are more common.

METHODS

A retrospective analysis of pediatric liver transplant (pLT) recipients from 2016-2023 who required an AHC.

RESULTS

Out of 150 pLT, 23 patients (8 female/15 male, with a mean age and weight of 45.3±55.2 months and 13.6±11.7 kg) received 24 AHC (16%): 8 were cadaveric whole-organ grafts (33.3%), 4 reduced cadaveric grafts (16.7%), 9 split grafts (37.5%) and 3 living-donor grafts (12.5%). AHC were employed in 19 first-time graft recipients and in 5 retransplants. Primary pLT indications included: inborn errors of metabolism (IEM) (11), Alagille syndrome (ALG) (4), biliary atresia (4), and others (4).

Indications for AHC included: poor native arterial perfusion (9), size discrepancy (7), complex anatomy of the arterial inflow (4), and technical challenges in surgical exposure (1). Conduit types employed included the iliac artery (22), splenic artery (2) and abdominal aorta (2). In 20 (83%) AHC the infrarenal aorta was the source of arterial inflow. The remaining 4 conduits (17%) were supraceliac.

During a 48.8±28.7 month follow-up, all patients have patent conduits. 4 patients presented arterial complications, 2 required retransplantation and 1 passed away, resulting in a graft and patient survival rate of 91.7% and 95.8%, respectively.

CONCLUSIONS

AHCs are a viable alternative for graft arterialization in smaller children, inborn errors of metabolism, Alagille syndrome and retransplants.

Poster walk 13, Hepatobiliary

460 - MONOSEGMENTAL AND HYPERREDUCED SPLIT GRAFTS TO OVERCOME LARGE-FOR-SIZE SCENARIOS IN PEDIATRIC LIVER TRANSPLANTS

Isabel González-Barba, Jose Andrés Molino, Cristina Dopazo, Concepción Gómez, Jesus Quintero, María Margaret Mercadal, Cristina Padros, Juan Ortega, Marta Martos, Ramón Charco, Ernest Hidalgo

Vall d'Hebron University Hospital, Barcelona, Spain

AIM

A significant size discrepancy between graft volume and the recipient's abdominal cavity is a limiting factor for smaller patients to access liver transplantation. Our aim was to report our experience with monosegmental (MSG) and hyperreduced left lateral segment (HRLLS) split grafts to overcome large-for-size-scenarios.

METHODS

A retrospective analysis (2019-2023) of HRLLS and MSG graft recipients in split liver transplants (LT).

RESULTS

Out of 41 split liver transplants, 20 patients received 22 conventional LLS grafts (8 female/12 male, mean age and weight of 36.5±34.4 months and 14.2±6.6 kg) and 19 patients received 5 MSG and 14 HRLLS grafts (10 female/9 male, mean age and weight of 8.2±4.6 months and 6.3±1.7 kg).

End-stage liver disease secondary to progressive cholestasis was the predominant indication for LT in the HRLLS/MSG group (73.7%), versus 45.5% in the LLS-group.

All patients in the HRLLS/MSG group were first-time graft recipients. Graft-to-recipient weight ratio in the HRLLS/MSG-group was 3.7±0.9%, despite all patients weighing less than 10 kilograms.

Standard hepatic arterial reconstruction was performed in 33 cases (80.5%). 3 monosegmental graft recipients required an aortohepatic conduit.

Twelve patients (7 HRLLS/MSG patients) required delayed sequential abdominal wall closure.

During a 25.3±17.8 month follow-up, 2 hepatic artery stenosis were recorded in the HRLLS/MSG-group. All patients in the HRLLS/MSG-group are alive and have functioning grafts.

CONCLUSIONS

Despite being a more technically challenging option, both reduction-types successfully prevented large-for-size and large-for-flow problems in small recipients.

Poster walk 13, Hepatobiliary

490 - ENHANCED RECOVERY AFTER SURGERY (ERAS) PROTOCOL FOR THE SURGICAL MANAGEMENT OF PEDIATRIC CHOLEDOCHAL CYSTS MAKES A DIFFERENCE

Cemal Bilir[1], Ulgen Celtik[2], Orkan Ergun[2]

[1]Bakırcay University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey. [2]Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey

Aim: Current management of choledocal cysts (CC) in children is complete excision of the CC with Roux-Y hepaticojejunostomy. Prolonged nil-peros observation, drains and nasogastric tube drainage in the postoperative period is associated with longer hospital stays. Postoperative Enhanced Recovery After Surgery (ERAS) protocols for patients with CC has been practiced since 2016 in our department. This study presents the outcomes of implementing ERAS protocols during the postoperative period of choledochal cysts.

Methods: Hospital records of patients who underwent surgery for CC between 2008-2023 were reviewed. Patient evaluations were conducted over two time frames; The first group covered the period between 2008 and 2015 (Group1), and the second group from 2016 to 2023 (Group2) after the initiation of use of ERAS protocol. Groups were compared according to placement of abdominal drains, time to first mobilization, time to first eating, time to reach full enteral intake and postoperative complications.

Results: Forty-five patients underwent surgery for CC. Group1 included 24 and Group 2 twenty-one patients. Group 2 has significantly shorter times for the initiation of the first meal, achievement of full intake, first mobilization, and overall hospital stay (Table). Despite the implementation of ERAS protocols, there is no related postoperative complication.

Conclusion: There seems to be no need for abdominal drains and NG tube unless specifically required. Early mobilization and resumption of enteral feedings as early as possible is realistic, reasonable, and shortens the hospital stays facilitating early return to normal activities. ERAS protocol is effective and safe after CC excision and hepaticojejunostomy in children.

Table	Group 1 (n=24) (2008-2015)	Group 2 (n=21) (2016-2023)	p
Female/Male	16/8	15/6	
Abdominal drain	21	6	0.0001
Laparotomy / MIS	24 / 0	14 / 7	
Median time for drain removal	3 (2-6) days	3,5 (2-4) days	
Median time to first eating (hours)	42 (18-76)	20 (18-44)	0.003
Median time to reach full intake (hours)	66 (44-100)	44 (40-90)	0.002
Median time to first mobilization (hours)	18 (4-40)	8 (4-24)	0.015
Median hospital stay (days)	5 (3-7)	3 (2-5)	0.0001
Postoperative early complications (Surgery related)	0	2	0.21

706 - Robotic approach for pancreatectomies for congenital hyperinsulinism in children.

Claire DAGORNO[1], Maxime KOFFI[2], Patrick BARBET[1], Louise GALMICHE[1], Yves AIGRAIN[1], Jean-Baptiste ARNOUX[1], Carmen CAPITO[3]

[1]Necker, Paris, France. [2]Abdijan, Abidjan, Côte d'Ivoire. [3]Necker, Paris, Réunion

Objective

Mini-Invasive Surgery (MIS) is now widely used in the management of pancreatic lesions in adults. Congenital hyperinsulinism is a rare pediatric entity, with codified metabolic and specific surgical management. Only few data exist on this surgical procedure with Robotic approach in pediatric population. We report our experience with robotic approaches compared to open approach for focal congenital hyperinsulinism operative management.

Methods

From 2011 to 2024, 19 children underwent pancreatectomies for congenital hyperinsulinism (6 robotic, 3 laparoscopic and 10 open surgeries). Data were recorded including patient's characteristics, diagnosis, surgical management, operative time, length of stay, surgical complications, and post-operative outcomes.

Results

Six patients had a robot-assisted pancreatectomy, and ten had an open pancreatectomy. There was no difference between groups regarding weight age at surgery (p=0,89, 8.1 kg [7.7;8.2] vs 7.3 kg [7.2;8.1]) or median age (p=0,38, 9.1 months [4.9;9.5] vs 5.9 months [3.4;7.5]). Regarding robotic approach, one umbilical port and three additional ports were needed. There was no difference between groups regarding median operative time (p=0.49; 286 min [221.3;344] vs 285 min [270;405]), LOS (p= 0.62; 14.5 days [14;15] vs 14.5 days [10.3;24.8]), postoperative feeding (p= 0.39; 5.5 days [3.5;9] vs 4.5 days [4;5.8]). One case of Clavien-Dindo >3 complication occurred with the robotic approach (incomplete resection in one case leading to redo surgery). No per-operative bleeding or conversion occurred.

Conclusion

Robotic pancreatectomy with splenic preservation is feasible and safe.Robotic gives an excellent view of small vessels, facilitating minimal dissection, easing the localization of the focal lesion.

365 - BETTER SAFE THAN SORRY: MINIMIZING ARTERIAL COMPLICATIONS IN ALAGILLE SYNDROME LIVER TRANSPLANT RECIPIENTS

Isabel González-Barba, Jose Andrés Molino, Ernest Hidalgo, Jesus Quintero, Mercedes Pérez, Concepción Goméz, Cristina Dopazo, María Margaret Mercadal, Cristina Padros, Marta Martos, Mireia Caralt, Itxarone Izaskun Bilbao, Ramón Charco

Vall d'Hebron University Hospital, Barcelona, Spain

AIM

The association between Alagille syndrome (ALG) and arterial anomalies is well established in the literature. Our aim was to analyze the incidence of arterial complications after LT in our ALG series.

METHODS

A retrospective analysis of receptor and graft characteristics, postoperative complications, graft and patient survival rates of ALG pediatric liver transplant (pLT) recipients from January 2015-January 2022.

RESULTS

Eleven ALG patients were transplanted (7 female/4 male, mean age and weight of 17.6±18.9 months and 11.5±14.7).

Primary indication for pLT was end-stage liver disease secondary to progressive cholestasis (8) and intractable pruritus (3). 1 patient had a history of partial internal biliary diversion.

All patients were screened preoperatively for abdominal arterial anomalies with a CT angiography. One patient presented a celiac trunk stenosis and another a hepatic artery (HA) stenosis.

All patients were first-time graft recipients, of which 8 (72.7%) were cadaveric grafts (3 whole-organ, 1 reduced, 4 split) and 3 were living-donor grafts.

Standard hepatic arterial reconstruction was performed in 8 cases (72.7%). The 4 remaining patients required an aortohepatic conduit.

With a 68.6±32.4 month follow-up 2 patients presented arterial complications: 1 early early hepatic artery thrombosis and 1 stenosis, which proved to be a celiac trunk stenosis that had gone unnoticed at screening. All patients have functioning grafts and are alive.

CONCLUSIONS

Preoperative screening for abdominal arterial anomalies in ALG patients helps establish a tailored surgical plan and assess alternative sources of graft arterialization to minimize arterial complications.

502 - LONG TERM EFFECTS OF SCLEROTHERAPY IN PORTAL HYPERTENSION TREATMENT

Poyraz Yorulmaz[1], Ali Ekber Hakalmaz[1], Ayşe Kalyoncu Uçar[2], Pınar Kendigelen[3], Osman Faruk Şenyüz[1], Şenol Emre[1]

[1]Istanbul University-Cerrahpasa Cerrahpasa Medical Faculty Department of Pediatric Surgery, Istanbul, Turkey. [2]Istanbul University-Cerrahpasa Cerrahpasa Medical Faculty Department of Radiology, Division of Pediatric Radiology, Istanbul, Turkey. [3]Istanbul University-Cerrahpasa Cerrahpasa Medical Faculty Department of Anesthesiology and Reanimation, Istanbul, Turkey

Aim:

To assess the efficacy of endoscopic sclerotherapy (EST) for the treatment of esophagogastric varices in children with non-cirrhotic extrahepatic portal hypertension (NCEHPH) caused by portal vein thrombosis at the Department of Pediatric Surgery, Istanbul University-Cerrahpaşa (IUC) Cerrahpaşa Faculty of Medicine

Materials and methods:

We conducted a retrospective review of the records of children who underwent endoscopic sclerotherapy (EST) for esophagogastric varices at our pediatric surgery department from 1990 to 2022. We collected and analyzed the data on age, gender, symptomatology, etiology, clinical, laboratory and radiological findings and treatment outcomes. For variceal grading the Japanese Research Society for Portal Hypertension classification was used. We compared the outcomes by age, time and etiology. We defined positive outcomes as no bleeding for one year or no transfusion for two years.

Results:

Of the 126 NCEHPH patients, 41 had F1-F2 varices on endoscopy. 21 had surgery for severe complications such as severe varices, gastropathy, frequent bleeding or hypersplenism. 64 received EST and 44 had positive outcomes in 4.1 sessions on average. 20 failed EST and had surgery. The success rate of EST was 60%, 44% and 88.2% in 1990-2000, 2001-2010, 2011-2022 periods, respectively. The results improved significantly in the last decade.

Conclusion: Endoscopic sclerotherapy (EST) is a consistent and efficient procedure for the elective management of esophagocardiac varices in pediatric patients with NCEHPH. The outcomes of EST have improved over time with the accumulation of experience and the development of imaging technology.

154 - CENTRALIZATION OF THE SURGICAL CARE OF CHILDREN WITH ANORECTAL MALFORMATIONS DOES NOT REDUCE SHORT-TERM COMPLICATIONS

Malin af Petersens[1], Pernilla Stenström[2], Helena Borg[3], Johan Danielson[4], Jenny Oddsberg[1], Anna Gunnarsdottir[1], Elisabet Gustafson[4], Christina graneli[2], Kristine Hagelsteen[2], Anna Löf Granström[1], Louise Tofft[2], Tomas Wester[5,1]

[1]Karolinska University Hospital, Stockholm, Sweden. [2]Skåne University Hospital, Lund, Sweden. [3]Queen Silvia's Children's Hospital, Gothenburg, Sweden. [4]University Children's Hospital, Uppsala, Sweden. [5]Karolinska Institutet, Stockholm, Sweden

Aim

The Swedish National Board of Health and Welfare centralized the surgical reconstruction of anorectal malformations from four to two centers in 2018. The aim of this study was to compare short-term complications after anorectal reconstruction before and after centralization.

Methods

This was a retrospective review of all children in Sweden who underwent reconstruction for anorectal malformations 1st of July 2013 to 30th of June 2023, comparing two 5-year periods, before and after centralization. The main outcomes were unplanned readmissions and procedures under general anesthesia up to 90 days after the anorectal reconstruction, as well as complications classified according to Clavien-Madadi within 30 days after anorectal reconstruction.

Main results

Before centralization 173 children underwent anorectal reconstructions compared with 176 after centralization. Patient groups were comparable with respect to frequency of associated malformations and distribution of anorectal malformation subtypes. Before centralization 80 (46%) had a stoma prior to their reconstruction, compared with 89 (51%) after centralization (p=0.454). The anorectal reconstruction was performed at median age 62 and 47 days of age (p=0.865), respectively. Unplanned readmissions after anorectal reconstruction were needed in 12 (6%) compared with 24 (14%) children (p=0.052). Unplanned procedures under general anesthesia were required in 21 (12%) children before centralization compared with 24 (14%) after centralization (p=0.294). Complications (Clavien-Madadi III-V) within 30 days after reconstruction occurred in16 (9%) children before centralization and in12 (7%) children after centralization (p=0.856).

Conclusions

Centralization of the surgical care of children with anorectal malformations does not seem to reduce short-term complications.

326 - SYSTEMATIC DEPARTMENTAL REFLECTIONS – LESSONS LEARNED FROM 1000 APPENDICECTOMIES

Benjamin Martin[1], Eden Cooper[2], Thejasvi Subramanian[1], Hetal Patel[1], Mitul Patel[1], Suren Arul[1], Ingo Jester[1]

[1]Birmingham Women's and Children's Hospital NHS trust, Birmingham, United Kingdom. [2]University of Birmingham, Birmingham, United Kingdom

Aims of the study:

The department noted a high post-operative collection rate when compared to international reports. We therefore sought to complete a systematic and step wise quality improvement process to change this.

Methods:

An initial retrospective cohort analysis (213 patients) provided a retrospective baseline. All surgeons agreed on stepwise alterations, focussing on intra-operative irrigation, locally tailored anti-microbial medication, and post-operative intervention for collections.

Main results:

Data collection started 2015. The 1000th was admitted in April 2023. Primary and any subsequent operations were completed laparoscopically in 86% of patients. Microbiological information was gathered in 89% of the procedures. Histology demonstrated complicated appendicitis in 711 (71%) of cases, as defined by suppurative or perforated appendicitis. Intra-abdominal collections in 178 (18%) symptomatic patients were identified on post-operative imaging, with only 63 (6%) being greater than 5x5x5cm^3. 69 (7%) patients had a return to theatre to manage an infectious complication.

Conclusions:

This study reflects on phases focussing on teaching, standardisation, irrigation, and changing antibiotics.

Our department unified its approach to the management of acute appendicitis and reduced the post-operative collection rate through iterative quality improvement cycles. Changing the empiric antibiotic regime led to significant reduction of postoperative complications over the last period. We would encourage others to learn from this process, and our mistakes. Key points are tailoring antibiotics to local sensitivities according to ongoing monitoring, avoiding intra-operative drains, and setting clear principles around intervening for collections.

Group (n)	Dates	Focus	Length of stay (days)[range]	Collections on imaging n (%)	Post-operative drains n(%)	Return to theatre* n(%)
Phase 1 - 213	1/1/15 – 31/10/16	Baseline	5.2 [1-129]	46 (22%)	20 (9%)	5 (2%)
Phase 2 - 144	1/11/16 – 31/10/17	Teaching	5.2 [1-27]	22 (15%)	10 (7%)	3 (2%)
Phase 3 - 182	1/11/17 – 30/6/19	Standardisation	5.6 [1-61]	42 (23%)	18 (10%)	10 (5%)
Phase 4 - 84	1/7/19 – 19/3/20	Irrigation	4.9 [1-32]	16 (19%)	3 (4%)	2 (2%)
Phase 5 - 89	20/3/20 – 29/11/20	COVID	5.5 [1-32]	21 (24%)	8 (9%)	1 (1%)
Phase 6 - 288	30/11/20 - present	Change of antibiotics	5 [1-125]	37 (12%)**	7 (2%)**	3 (1%)
Total (1000)			5.1 [1-129]	184 (18%)	66 (7%)	24 (2%)

Table 1 – post-operative outcomes by study period.
* for vascular access or any operation apart from an interventional radiology drain insertion
** denotes statistical significance compared to remaining cohort

897 - SURGICAL MANAGEMENT IN VERY EARLY-ONSET INFLAMMATORY BOWEL DISEASE

Garance Martin, Mathilde Glenisson, Marie Christine Vinson, Liza Ali, Arnaud Bonnard

Robert Debré, Paris, France

Very early-onset inflammatory bowel disease (VEO-IBD) is defined as disease onset before the age of 6. It includes Crohn's disease (CD), ulcerative colitis (UC) and inflammatory bowel disease–undefined (IBD-U). The aim of this study was to summarize experience of surgical treatment for VEO-IBD in our center.

Medical charts of patients with VEO-IBD diagnosed between 2003 and 2022 in our center were retrospectively reviewed. Patients requiring surgical or conservative treatment were compared. Surgery was performed in case of uncontrolled disease despite medical treatment.

A total of 34 patients were included with a median age at diagnosis of 3.4 years (IQR 2.5-3.8). Six patients required surgery at a median age of 5 years (IQR 3.3-5.7) with a median delay of 19.6 months after diagnosis. Four patients underwent laparoscopic subtotal colectomy with ileosigmoïdostomy. Ileostomy was closed with a median delay of 30 months. One patient required repeated ileostomy due to recurrent symptoms. One patient had laparoscopic total colectomy 1 month after ileostomy for persistence of symptoms. Proctectomy was realized 5 years later for rectal bleeding. One patient had robotic-assisted left coloproctectomy with coloanal anastomosis but required colostomy for anastomotic leak. Infantile onset (<2 years) of disease and resistance to Anti-TNF were associated with the need of surgical treatment ($p= 0,03$ and $p<0,005$). Final diagnosis was CD (n=3), IBD-U (n=2) and UC (n=1).

VEO-IBD is rare but may require surgical management in case of resistance to medical treatment. This surgery carries a risk of complication and should be performed in expert center.

198 - Mental health, psychosocial functioning and quality of life in adolescents with anorectal malformation

Rania Adel Hameed[1,2], Aders Telle Hoel[3], Marianne Valeberg Fosby[3], Trond H. Diseth[1,4], Kristin Bjørnland[3,4], Helene Gjone[1]

[1]Department of Child and Adolescent Mental Health in Hospitals, Division of Paediatric and Adolescent Medicine, Oslo, Norway. [2]Department of Child and Adolescent Psychiatry, Innlandet Hospital Trust, Gjøvik, Norway. [3]Department of Pediatric Surgery, University of Oslo, Oslo, Norway. [4]Institute of Clinical medicine, Oslo, Norway

Aim of the study

Due to limited data on mental health in adolescents with Anorectal Malformation (ARM) we have examined mental health, psychosocial functioning, and quality of life (QoL) in this population.

Methods

Adolescents treated at our hospital were invited to participate. Exclusion criteria were mental retardation and involvement in a different research project. Mental health was assessed by interview (Child Assessment Schedule; CAS) and by questionnaires obtained from parents (Child Behavior Checklist; CBCL) and adolescents (Youth Self-Report; YSR). Psychosocial functioning was evaluated using the Child Global Assessment Scale (cGAS) and adolescent QoL with Pediatric Quality of Life inventory (PedsQL). Medical records reviewed for somatic history. Ethical approval was obtained.

Results

Thirty one of 46 (68%) eligible adolescents, 55% males, participated. Median age was 15 (13-18) years. Eight had perineal fistula, 16 rectovestibular/rektobulbar/rectoprostatic fistula, and 7 other ARM variants (web, atresia, unknown). Associated anomalies were recorded in 19 (61%). Three had colostomy and 9 an appendicostomy. CAS interviews revealed that 39% (WHO report 2021; general population 15%) met criteria for psychiatric diagnoses. Primarily within the emotional (internalizing) categories. Sixteen percent showed borderline/clinical internalizing scores on the CBCL, and 23% exhibited borderline/clinical internalizing scores on the YSR. Based on interviewer-rated cGAS, 36% scored in the clinical range. PedsQL self-report indicated that 26% had total and psychosocial health scores below cutoff.

Conclusions

Adolescents with ARM report more mental health problems than shown in the recent WHO report. QoL scores were reduced in a quarter of the patients.

500 - LONG TERM OUTCOMED OF TRANSANAL ENDORECTAL PULL-THROUGH PROCEDURE IN RECTOSIGMOID HIRSCHSPRUNG DISEASE

Ali Ekber Haklamaz[1], Turkan Rahimli[1], Maharram Guliyev[1], Mine Onenerk[2], Sebuh Kuruoglu[3], Rahsan Ozcan[1], Gonca Topuzlu Tekant[1]

[1]Istanbul University-Cerrahpasa, Cerrahpasa Faculty of Medicine, Department of Pediatric Surgery, Istanbul, Turkey. [2]Istanbul University-Cerrahpasa, Cerrahpasa Faculty of Medicine, Department of Pathology, Istanbul, Turkey. [3]Istanbul University-Cerrahpasa, Cerrahpasa Faculty of Medicine, Department of Pediatric Radiology, Istanbul, Turkey

AIM:

Evaluation of late term results of transanal endorectal modified Swenson pull-through (TERP) method in rectosigmoid Hirschsprung disease (HD).

METHOD:

The patients who underwent TERP between January 2008 and July 2023 were reviewed retrospectively. Secondary cases and abdomino-perineal approach were excluded. Bowel functions and continence were evaluated.

RESULTS:

89 (M:79/F:10) patients with rectosigmoid HD were included in study. Mean age at surgery was 14.4 months (1 month-5.8 years). In preoperative period, 29 had enterocolitis. Stoma was performed in 11 cases. The average removed colon length was 33.8 cm (15-54 cm). No complications related to anastomosis were observed in early postoperative period. In late term, distal aganglionosis was detected in one case. Bowel functions and continence data were evaluated in 57 cases (M:50, F:7). [Exclusion criteria: Younger than 5 years of age (n:9), neuropsychiatric disorders (n:8), lack of data (n: 15)]. The mean age was 10.4 (5-17 years). Fourteen cases had soiling more frequently than once a month. Seven patients showed improvement with medical treatment consisting of phosphate enemas, laxatives and high-fiber diet. Voluntary bowel movement were present in all after treatment. 7 cases were noncompliant with treatment. The average bowel function score (BFS) of fifty-seven cases was 18.4/20, and 16.2/20 (12-20) in cases with incontinence. Soiling was more common in males (21/50) than females (1/7). The average follow-up period was 8.9 years (1.5-15.3 years).

CONCLUSION:

Constipation and soiling are frequently encountered findings for HD in late postoperative period. Symptoms improve in patients with treatment compliance.

Poster walk 14, Lower gastrointestinal 2

393 - GASTRO-INTESTINAL RELATED QUALITY OF LIFE IN CHILDREN BORN WITH GASTROSCHISIS.

Matilda Bräutigam, Michaela Dellenmark-Blom, Cathrine Gatzinsky, Kate Abrahamsson, Vladimir Gatzinsky

Department of Paediatric Surgery, Queen Silvia Children's Hospital, Institute of Clinical Sciences, Sahlgrenska Academy, Gothenburg, Sweden

Aim of the study:

Little is known about the perceived impact of the disease on Quality of Life (QoL) in children with gastroschisis (GS). The aim was to determine gastrointestinal (GI)-related QoL in these children.

Methods:

57/83 families of children operated for GS at a tertiary pediatric surgical center aged 2-18 accepted study participation. Children aged 5-18 and one parent in each family of children aged 2-18 completed the Swedish version of the PedsQL™ Gastrointestinal Symptoms Module, evaluating GI-related QoL through 14 different GI-specific scales (Figure 1), with a score ranging between 0 (worst) and 100 (best) QoL. Norm values for Hirschsprung's Disease (HD) and Esophageal Atresia (EA) were used for comparison. Data were analyzed using descriptives, t-test and Pearson correlation. Significant level p <0.05. Ethical study approval DNR-2022-01838-01.

Main results:

Children with GS had significantly lower parent-reported scores on "gas and bloating" compared with children with EA, 77 vs 85.5(<0.001). Scores on several GI-scales were similar to those of children with EA in child- and parent-report (Figure 1). Parents of children with GS rated higher overall scores, 87 vs 71,9(p<0.0001) as well as higher scores in 8/14 scales compared to HD (Figure 1). Clinical GS-specific risk factors for worse GI-QoL were identified, and included e.g. more days with silo.

Conclusions:

Children with GS have an impact on GI-related QoL, much comparable to that in EA, but not to HD. This shows the importance regarding a disease-specific GS follow-up program including taking clinical risk factors into consideration.

Comparison of gastro-intestinal quality of life scores between children with Gastroschisis (GS) and Hirschsprung's disease (HD), GS and Esophageal Atresia (EA)(parent-report) using PedsQL Gastro-Intestinal Symptom Module

14 different Gastro-intestinal Scales	GS[a] (n=57)	HD[b] (n=32)	p-value	EA[c] (n=32)	p-value
Stomach Pain and Hurt	81.4 (19.0)	70.1 (18.0)	0.0075	84.0 (16.3)	0.52
Stomach Discomfort When Eating	87.5 (18.2)	78.8 (18.8)	0.035	90.9 (13.5)	0.35
Food and Drink Limits	90.9 (19.6)	69.3 (30.6)	0.0008	83.5 (18.1)	0.080
Trouble Swallowing	98.5 (3.9)	94.5 (11.9)	0.073	77.1 (24.1)	<.0001
Heart Burn and Reflux	92.7 (10.5)	87.5 (14.1)	0.053	85.5 (16.9)	0.037
Nausea and Vomiting	95.1 (10.7)	90.2 (15.5)	0.13	93.4 (12.1)	0.51
Gas and Bloating	77.0 (23.4)	49.2 (22.0)	<.0001	85.5 (14.5)	0.039
Constipation	82.3 (19.1)	66.1 (16.9)	0.0002	81.8 (16.9)	0.91
Blood in Poop	95.6 (10.4)	95.7 (12.1)	0.97	96.5 (10.2)	0.70
Diarrhea	92.3 (12.4)	68.9 (20.1)	<.0001	91.9 (13.5)	0.88
Worry About Going Poop	94.6 (10.8)	77.0 (21.1)	<.0001	93.1 (12.0)	0.54
Worry About Stomach Aches	88.8 (21.0)	80.1 (29.1)	0.14	92.6 (17.3)	0.39
Medicines	95.3 (13.0)	86.4 (23.0)	0.061	86.5 (17.9)	0.020
Communication	79.6 (27.0)	61.8 (31.8)	0.0069	71.8 (30.3)	0.22
GI module total score	87.5 (11.7)	72.6 (13.5)	<.0001	85.8 (10.4)	0.49
GI symptoms total score	87.0 (12.7)	71.9 (13.5)	<.0001	86.1 (10.5)	0.72

[a]31,6% male, median age 10,3 years, [b]76,9% male, median age 10,7 years [c]55.0% male, median age 11.2

636 - TRANSANAL AND LAPAROSCOPIC PULL-THROUGH IN RECTOSIGMOID HIRSCHSPRUNG DISEASE: A COMPARISON OF THE TWO TECHNIQUES

Carla Ramirez-Amoros[1], Laura Tiusaba[2], Maria San Basilio[1], Andrea Badillo[2], Maria del Carmen Sarmiento[1], Thomas Xu[2], Leopoldo Martinez[1], Marc A. Levitt[2], Alejandra Vilanova-Sanchez[1]

[1]La Paz Children's University Hospital, Madrid, Spain. [2]Children's National Hospital Washigton, Washington DC, USA

Aim of study

Surgical treatment of rectosigmoid Hirschsprung disease (RHD) can be performed with a purely transanal (TPT) or laparoscopically assisted pull-through (LPT). Our aim is to compare the experience with both techniques.

Methods

A multicentre and retrospective study of patients with RHD who underwent TPT or LPT between 2010-2023. We analysed demographics, stoma presence, complications and long-term follow-up.

Results

Of 55 patients, 31 underwent TPT and 24 LPT. There were no differences in demographics, comorbidities, stoma presence, or intraoperative complications. Five (16.1%) TPT required conversion to laparotomy due to the inability to reach ganglionic bowel through this approach, vs none of the LPT ($p<0.05$). There were no differences in postoperative complications between the two groups; TPT: 11(37.9%) vs LPT: 4(16.7%). There were 3(10.3%) vs 0(0%) wound dehiscences, 2(6.4%) vs 1(4.1%) bowel obstructions, 1(3.2%) vs 0(0%) anastomotic bleedings, and 9(31.0%) vs 3(12.5%) anastomotic strictures, $p>0.05$ for all comparisons. There were no differences in the need for later treatment with laxatives [12(42.9%) vs 8 (38.1%)] or irrigations [6(21.4%) vs 7(30.4%)]. Spontaneous stooling was similar [26(92.9%) vs 22(91.7%)] with no significant difference in soiling [7(25.9%) vs 3(12.5%)]. After a follow-up of 6.5±3.3 and 3.8±3 years, 4(14.8%) of the TPT and 3(12.5%) of LPT suffered from enterocolitis ($p>0.05$).

Conclusion

There was no different between TPT and LPT in terms of postoperative complications and constipation but the TPT risks conversion to open surgery.

682 - ACUTE APPENDICITIS IN CHILDREN DURING WAR CONFLICT: A MULTIPLE CENTER STUDY

Gal Becker[1], Osnat Zmora[2], Nadav Slijper[3], Dana Zezmer[4], Vadim Kapuler[4], Alon Yulevich[5], Yair Ben Shmuel[6], Audelia Eshel Fuhrer[1], Haguy Kammar[1], Lili Hayeari[6], Igor Sukhotnik[1]

[1]Dana Dwek Children's Hospital, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel. [2]Shamir Medical Center, Be'er Ya'akov, Israel. [3]Galillee Medical Center, Nahariya, Israel. [4]Assuta Ashdod Medical Center, Ashdod, Israel. [5]Ziv Medical Center, Safed, Israel. [6]Bnai Zion Medical Center, Haifa, Israel

Aim:

Similar to Covid-19 pandemic, war conflicts may impose public health restraints and impact patients' presentation to hospitals. We aimed to assess the incidence and severity of acute appendicitis (AA) in children during the 2023 Israeli-Palestinian conflict.

Methods:

A multi-center retrospective cohort study. Children age <18 years who were admitted with the diagnosis of AA in 6 Medical Centers during war conflict (October 7- November 30, 2023) were compared to children with AA admitted during a similar period of time the year before (2022).

Results:

206 patients were included, 105 in group A (during-conflict group) and 101 in group B (pre-conflict group). Median time from onset of symptoms until admission was 24 hours in both groups. There was a trend for the occurrence of complicated appendicitis in group A (A=27%, B=18%, p= 0.12). A 20% decrease in incidence of AA was observed in hospitals located close to the conflict zone, and a 28% increase away from it. The relative incidence of complicated AA in medical centers close to the conflict zones was doubled (20% and 39%, pre- and during-conflict respectively). There was no increased likelihood of non-operative management for non-complicated AA (A=24%, B=28%, p= 0.5). Average length of stay was similar (A=3.3 days, B=3.6 days, p=0.33).

Conclusion:

Although the 2023 war conflict in Israel did not affect overall severity and management of pediatric AA, a decreased incidence of AA and relative increase in the incidence of complicated AA were observed in medical centers located close to conflict zones.

277 - Prenatal Sonographic Assessment of Fetal Sacral Ratio: Insights from the First 100 Cases and Gender Disparities

Inbal Samuk[1,2,3], Itai Shwartz[2], Yenon Hazan[4,5], Avichai Weissbach[1,2], Yinon Gilboa[6,2], Sharon Perlman[6,2]

[1]Schneider Children's Medical Center, Petach Tikvah, Israel. [2]Sackler Faculty of Medicine, Tel Aviv, Israel. [3]Children's National Hospital, Washington DC, USA. [4]Kaplan Medical Center, Rehovot, Israel. [5]The Hebrew University and Hadassah Medical School, Jerusalem, Israel. [6]Rabin Medical Center, Petach Tikvah, Israel

Objectives:

The sacral ratio was described as a postnatal X-ray-based measurement to detect sacral abnormalities and predict functional prognosis in children with anorectal malformations. This study aimed to describe the results of sonographic assessment of the fetal sacral ratio (f-SR) in the first 100 cases of a normal fetal population and evaluate potential sex differences.

Methods:

A retrospective analysis was conducted on 3-D images of the fetal sacrum obtained from second-trimester low-risk prenatal ultrasound scans. The f-SR was calculated on 3-D reconstructed coronal images by determining the ratio between lines drawn at the upper and lower levels of the iliac bone and the 5th sacral vertebra. T-test was used to calculate between sex differences.

Results:

The study included 100 normal cases (50 females and 50 males). Both female and male fetuses exhibited linear sacral growth, with females demonstrating a longer sacrum and increased growth rate compared to males. The study demonstrated good repeatability of measurements and agreement between readers. The overall f-SR in the second-trimester fetal population was 0.920 ± 0.0917. No significant differences in the f-SR were observed between females and males (0.91 ± 0.091 vs. 0.91 ± 0.085, p = 0.8).

Conclusions:

Fetal-Sacral-Ratio can be calculated by prenatal three-dimensional ultrasound with good reliability and reproducibility. This study did not reveal significant between-sex differences in f-SR during the second trimester of pregnancy. These findings contribute to our understanding of normative values and sex-related variations in fetal pelvic development, emphasizing the potential clinical utility of f-SR measurements in prenatal assessments.

337 - THE SONOGRAPHIC SACROCOCCYGEAL RATIO IN INFANTS WITH ANORECTAL MALFORMATIONS

Louisa Behrens, Stuart Hosie, Marc-Matthias Steinborn, Carmen Kabs

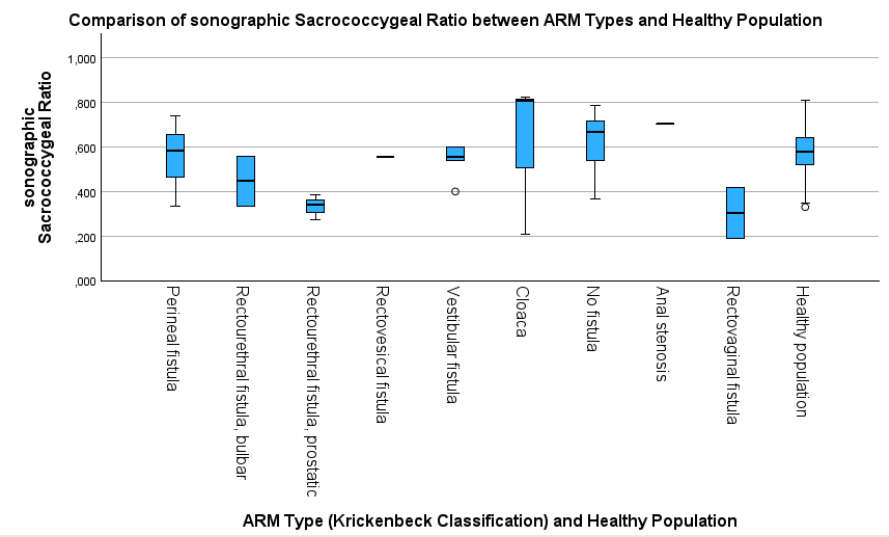
Technical University of Munich, Munich, Germany

Patients with anorectal malformations (ARM) and additional sacrococcygeal anomalies often face compromised continence prognosis. In 1995, Alberto Peña described the Sacral Ratio measured on pelvic radiographs, with a ratio below 0.50 correlating with poorer continence outcomes. Our study assesses a radiation-free alternative: the sonographic Sacrococcygeal Ratio (sSCR). A previous study demonstrated feasibility and reproducibility in 247 healthy newborns. In this study, we evaluated sSCR-measurements in patients diagnosed with ARM.

Forty-one infants treated for ARM between 2010 and 2023 were enrolled. With parental consent, each underwent sacrococcygeal ultrasound. Two independent examiners retrospectively measured distances between the first and fourth sacral vertebrae (Distance I) and between the fourth sacral vertebra and coccyx-end (Distance II). sSCR was calculated by dividing Distance II by Distance I. Differences in sSCR-measurements (healthy vs. ARM) were analyzed using Mann-Whitney-U-Tests. Interrater reliability was evaluated by the intraclass correlation coefficient (ICC).

The mean age was 25.7±55.5 days, with 53.7% males. The mean sSCR was 0.55±0.16 (IQR = 0.27), not significantly different to the healthy population (p = 0.37, sSCR = 0.58±0.10, IQR = 0.12). Regarding the individual ARM types, two were significantly different to the healthy population (Figure 1: Rectourethral prostatic fistula: sSCR = 0.33, p = 0.01; Rectovaginal fistula: sSCR = 0.31, p = 0.02). Interrater reliability was robust (ICC: Distance I = 0.86, Distance II = 0.90, sSCR = 0.93).

The sSCR in ARM patients is a reliable, reproducible, and radiation-free method. Long-term studies are needed to investigate the correlation between sSCR and continence.



341 - ROLE OF CONSERVATIVE MANAGEMENT OF ACUTE APPENDICITIS IN PEDIATRIC AGE

Martina Monti[1,2], Marco Agamennone[1,2], Michela Cing Yu Wong[1], Maria Grazia Calevo[1], Giuseppe Losurdo[1], Stefano Avanzini[1], Girolamo Mattioli[1]

[1]G.Gaslini, Genoa, Italy. [2]DINOGMI, Genoa, Italy

Aim of the Study:

Historically, appendectomy has been the standard treatment for acute appendicitis (AA), both complicated (CA) and uncomplicated (UA). Recently, there has been increasing interest in conservative management (NOM) of UA. Our aim was to compare outcomes between NOM and appendectomy, while also exploring preoperative factors that predict outcomes to guide optimal management of UA.

Methods:

In a single-centre retrospective study, we reviewed data on 774 patients younger than 18 years old who required hospital admission at our institute with a primary diagnosis of AA between July 2017 and July 2022. Demographic, clinical, laboratory and ultrasound data were analysed at both first and last admission. The operated patients were stratified according to management and time of surgery. The minimum follow-up was 6 months.

Main results:

Of the 530 children (68.5%) who underwent surgery on first admission, 316 had UA and 214 had CA. The 244 patients (31.5%) who were not indicated for surgery were treated with intravenous antibiotic therapy. Of these patients, 104 underwent appendectomy on the second admission: 9 cases presented with CA, requiring multiple antibiotic therapy and a total hospital stay of 9.1±3.1 days. Twenty-eight patients underwent surgery on their third admission and 112 never underwent surgery.

Conclusions:

Although almost half of our NOM-treated patients did not undergo surgery, it would be preferable to choose appendectomy in patients with significant clinical signs at first presentation. This minimises LHS, costs, antibiotic use and prevents complications. Further studies of NOM in AA are essential to optimise its use.

Poster walk 15, Oncology

374 - Development and implementation of recovery after surgery program in pediatric surgical oncology

Marta Martos Rodríguez, Montserrat Pascual, Sergio López, Jose Andrés Molino, Manuel López Paredes, Susana Redecillas, Esther Toro, Mónica Castro, Anna Llort, Marina Bonfill, Gabriela Guillén

Vall d'Hebron University Hospital, Barcelone, Spain

INTRODUCTION

ERAS (enhanced recovery after surgery) programs have demonstrated effectiveness in adult patients by reducing hospital stay and morbimortality. However, there is little evidence in pediatric patients. Pediatric oncological surgery involves the care of complex and especially fragile patients. We analyze the initial adherence to our ERAS program.

METHODS

A multidisciplinary ERAS protocol was developed following the Delphi model, including specific psicologic support. Oncologic patients aged 0-18 years requiring surgical treatment were prospectively included at diagnosis. A management algorithm was established based on the need for neoadjuvance and clinical priority. Perioperative measures were defined, according to the anatomical region (abdominal, thoracic or hepatic).

RESULTS

From June 2023 to January 2024 23 patients were included. Median age was 7.52 (0-16) years. The approaches were: 18 abdominal, 3 thoracic, 2 liver. 62% received neoadjuvant treatment. Imbalances requiring preoperative intervention were detected in 7 patients (7 nutritional support, 2 rehabilitation). Intraoperatively, short-term anesthetics were prioritized as well as normothermia and measures to reduce anxiety in all patients. The use of drainage in abdominal surgery was avoided whenever possible (77.8%). Postoperatively, early removal of devices was promoted. Pain control was optimized through a combination of locoregional (82.6%) and conventional analgesia. 86% started oral intake in the first 24 hours.

CONCLUSION

Pediatric oncology patients can obtain important benefits from ERAS programs. In the first months after the application of our protocol we acquired good adherence in the majority of patients. Prospective studies are necessary to analyze the results.

82 - ROLE OF NEPHRECTOMY IN LOCAL CONTROL OF ABDOMINAL NEUROBLASTOM

Ulgen Celtik[1], Eda Ataseven[2], Deniz Kızmazoğlu[3], Bengu Demirbag[4], Mehmet Kantar[2], Nur Olgun[3], Ahmet Celik[1]

[1]Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey. [2]Ege University Faculty of Medicine Department of Pediatric Oncology, Izmir, Turkey. [3]Dokuz Eylul University Faculty of Medicine Department of Pediatric Oncology, Izmir, Turkey. [4]Behcet Uz Pediatric Medicine and Surgery Training and Research Hospital, Pediatric Oncology Clinic, Izmir, Turkey

Aim: The resection of abdominal neuroblastoma (AN) is crucial for survival, with nephrectomy deemed necessary in approximately 10% of cases as reported in literature. This study aimed to evaluate the reasons for and outcomes of nephrectomy during or after neuroblastoma surgery.

Methods: We analyzed patients treated for AN who underwent nephrectomy between 2003 and 2023. Data included demographics, radiological findings, risk classification, Nmyc status, neoadjuvant chemotherapy, pathological results, and survival outcomes. Patients were categorized into two groups: those requiring nephrectomy during initial excision due to kidney invasion (Group 1) and those needing secondary surgery for nephrectomy during follow-up (Group 2).

Results: Among 122 AN surgical patients, 10 (M/F: 5/5) underwent nephrectomy (8.1%). The mean age at diagnosis was 31.5±22.4 months, with all tumors originating from the left adrenal. Two patients received surgery without neoadjuvant treatment, while eight underwent post-diagnosis neoadjuvant therapy. The findings according to groups have been summarized in Figure. In Group 1, nephrectomy was performed due to tumor invasion of kidney, whereas Group 2 experienced nephrectomy after initial surgery elsewhere or due to residual or recurrent disease found during follow-up. In Group 1, four patients maintained disease-free status for an average of 93±48.7 months, while in Group 2, 4 patients died during follow-up.

Conclusion: The decision to perform nephrectomy for local control in AN case is challenging. Notably, tumors that are N-myc positive, high risk, and particularly those originating from the left adrenal gland carry an increased risk for necessitating nephrectomy.

	Group 1	Group 2	P
Number of patients	5	5	
Age (month)	29,2 ±31,9	33,8±10,1	
Radiological findings			
Medium tumor volume (cm³)	678,2	396,4	0,400
Kidney invasion	5	5	
Risk stratification			
Intermediate risk	2	-	
High risk	3	5	0,44
Nmyc status			
Positive	2	4	
Negative	1	-	1
None	2	1	
Neoadjuvant CHT	4	4	
Survival	4	1	0,20

Poster walk 15, Oncology

770 - ICG FLUORESCENCE NAVIGATION IN DIFFERENT PEDIATRIC TUMORS: WHAT DOES IT CONTRIBUTE TO SURGERY?

Haider Ali Khan Riaz, Sergio López-Fernández, Marta Martos, José Andrés Molino Gahete, Gabriela Guillén Burrieza

Universtiy Hospital Vall d'Hebron, Barcelona, Spain

AIM OF THE STUDY

Indocyanine Green (ICG) fluorescence has proved to be a great guidance tool in different surgical procedures. We aim to evaluate our experience with ICG in pediatric surgical oncology of several tumors, to figure out its role in helping the surgery and the decision making.

METHODS

Retrospective review (2017-2023) of pediatric patients who underwent tumor resections with intraoperative guidance through ICG fluorescence. Data concerning demographics, underlying disease, surgical procedure, ICG dose and time of administration, type of visualization and complications were analyzed. ICG usefulness was considered by the main surgeon in each case and systematically registered in the operative report.

RESULTS

ICG fluorescence was used in 77 cases, and in 50 of them was considered useful (65%), in three main ways:

1: Tumor localization with systemic ICG administration, especially in the cases of benign and malignant liver tumors, ovarian tumors, PTLD, GIST and metastasis of certain histologies.

2: Lymph node sampling in cases of soft tissue sarcomas and nephroblastomas.

3: Intraoperative angiography to limit vascular structures in altered anatomy and in organ-sparing surgeries.

In 35% of cases ICG fluorescence did not provide relevant information (i.e. lack of fluorescence in detection of Wilms tumors, or lung metastasis of some sarcomas).

CONCLUSIONS

Our accumulated experience with ICG fluorescence in pediatric surgical oncology is very promising, being a helpful and multipurpose tool. Since pediatric surgical oncology cases present a huge variety of histotypes, further investigations and thorough registration can be helpful to improve fluorescence guidance.

845 - FETAL OVARIAN CYSTS: TOWARDS A BETTER MANAGEMENT APPROACH IN NEONATES ! A MULTICENTER STUDY

Meriem OUMAYA[1], Marion LE HEGARAT[2], Jérôme MASSARDIER[3], Loren DESLANDES[4], Anne POURQUET[5], Daniela GORDUZA[6], Pierre-Yves RABATTU[1]

[1]CHU Grenoble Alpes, Children's Hospital, Department of Pediatric Surgery, Grenoble, France. [2]CHU Grenoble Alpes, Children's Hospital, Department of Obstetrics and Gynecology, Grenoble, France. [3]CHU Lyon, Children's Hospital, Department of Obstetrics and Gynecology, Lyon, France. [4]CHU Clermont-Ferrand, Department of Pediatric Surgery, Clermont-Ferrand, France. [5]CHU Lyon, Children's Hospital, Department of pediatric surgery, Lyon, France. [6]CHU Saint-Etienne, Department of pediatric surgery, Saint-Etienne, France

Aim of the Study:

Ovarian cysts are the most frequently encountered abdominal tumors in female fetuses and newborns. However, as of the current moment, consensus is yet to be reached regarding the optimal modality and timing for the treatment or monitoring of fetal ovarian cysts. The aim of the present study was to evaluate the management local protocols in newborns with antenatal ovarian cysts across four different university hospital centers.

Methods:

A retrospective multicenter study was conducted over a period of 10 years (2011-2021). All newborns with antenatal ovarian cysts from four university hospitals were included in our study. The management protocols were then compared based mainly on the rate of ovarian loss at the end of follow-up.

Main results:

A total of 147 patients have been included. cyst characteristic data were similar between centers. The average cyst size was 40 ± 15.1 mm. The median ovaries number present at the end of the follow-up was 1.6 in center with the highest surgery rate and 1.8 in the other 3 centers (*pvalue* = 0.363). Then we compared centers to center which had the lowest surgery rate. We observed significant difference in ovarian loss between center with the highest and lowest surgery rate in both univariate (*pvalue* 0,013) and multivariate analysis (*pvalue* 0,023).

Conclusions:

Conservative approach to fetal ovarian cysts, involving expectant management or postnatal aspiration, stands as a feasible option. The reevaluation of medical dogmas is imperative, as systematic surgery does not seem to save more ovaries than conservative attitude at birth.

Poster walk 15, Oncology

610 - WILMS TUMOR WITH INTRAVASCULAR TUMOR THROMBUS: EFFECT OF MULTIDISCIPLINARY APPROACH ON SURVIVAL

Kivilcim Karadeniz Cerit[1], Ozge Kilic Bayar[1], Nursah Eker[2], Dilek Gul[3], Elif Demirbas[4], Koray Ak[4], Gulnur Tokuc[2], Gursu Kiyan[1]

[1]Marmara University Faculty of Medicine Department of Pediatric Surgery, Istanbul, Turkey. [2]Marmara University Faculty of Medicine Department of Pediatric Hematology and Oncology, Istanbul, Turkey. [3]Marmara University Faculty of Medicine Department of Radiation Oncology, Istanbul, Turkey. [4]Marmara University Faculty of Medicine Department of Cardiovascular Surgery, Istanbul, Turkey

Aim: To evaluate the results of oncological and surgical approaches in complicated Wilms tumor patients with intravascular tumor thrombus.

Material and Methods: Data of Wilms tumor patients with intravascular tumor thrombus treated between June 2012 and December 2023 were evaluated retrospectively. Demographic data of the patients, radiological evaluation of the level of intravascular tumor thrombus, neoadjuvant/adjuvant chemotherapy and radiotherapy protocols, surgical approach, staging/histopathology and survival were analyzed.

Results: During this period 7 complicated Wilms tumors with intravascular tumor thrombus were treated in our clinic. All patients received neoadjuvant chemotherapy in accordance with NWTSG-5/ARENO534 protocols. Bilateral Wilms tumor (BWT) was observed in one patient and intracaval thrombus was detected at the retrohepatic level during presentation in this patient. In the remaining six patients with unilateral WT (UWT) four had intracaval thrombus extending to the level of hepatic confluence, and two had atrioventricular thrombus. Surgical procedures applied to the patients, staging/histopathology results, neoadjuvant/adjuvant chemotherapy and radiotherapy protocols, follow-up periods are shown in Table 1. While complete remission was observed in five patients, adjuvant chemotherapy treatment is still continuing in one patient. During follow-up only one patient died in intensive care conditions due to sepsis. Patient had UWT and was in the 14. months of complete remission after removal of the atrioventricular thrombus with cardiopulmonary bypass surgery.

Conclusion: Complicated Wilms tumor with intravascular tumor thrombus require detailed presurgical evaluation with multidiciplinary approach. Operations should be managed in centers with experienced surgical teams and awareness of the importance of nephron-sparing surgery to improve survival.

Table 1: Patient demographics, chemotherapy protocols, surgical management, and outcomes

P	Presentation	Age (month) sex	Neoadjuvant	Operation	Stage, histology	Adjuvant	Outcome, Follow-up (month)
1	BWT, IVC thrombus (retrohepatic-infrahepatic)	46 male	AREN 0534, 12 weeks, ICE 2 weeks	UNU (L), NSS (R) cavatomy, thrombectomy	I, I, II L, FH, margin (-)	AREN 0534 Right flank XRT pulmonary XRT	CR, 38 months
2	UWT, atrioventricular thrombus	56 male	NWTSG-5 6 weeks	UNU (L), cardiopulmonary bypass	I, IV, FH, margin (-)	NWTSG-5, WART	CR, 25 months
3	UWT, atrioventricular thrombus	24 female	NWTSG-5 8 weeks	UNU (R), cardiopulmonary bypass	R III, UFH, diffuse anaplasia, margin (-)	NWTSG-5 Right flank XRT	Exitus
4	UWT, hepatic confluence level IVC thrombus	35 male	NWTSG-5 6 weeks	UNU (L), cavatomy, thrombectomy (infrahepatic IVC)	I, III, FH, margin (+)	NWTSG-5 Left flank RT	CR, 39 months
5	UWT, hepatic confluence level IVC thrombus	48 male	AREN 0534 9 weeks	UNU (R), cavatomy, thrombectomy (infrahepatic IVC, renal vein)	I, IV, FH, margin (-)	AREN0534 Right flank XRT pulmonary XRT	CR, 31 months
6	UWT, hepatic confluence level IVC thrombus	22 male	AREN0534 12 weeks, ICE 2 weeks	UNU (R), cavatomy, thrombectomy (infrahepatic IVC, renal vein)	R III, FH, margin (-)	AREN 0534, Right flank XRT	CR, 67 months
7	UWT, hepatic confluence level IVC thrombus, right iliac vein thrombus	67 male	AREN 0534 4 weeks	UNU (R), cavatomy, thrombectomy (infrahepatic IVC, renal vein, right iliac vein)	R III, FH, margin (-)	AREN 0534 WART	Ongoing adjuvant chemotherapy 2 months

BWT: Bilateral Wilms tumor
UWT: Unilateral Wilms tumor
IVC: Inferior vena cava
UNU: Unilateral nephroureterectomy
NSS: Nephron-sparing surgery
ICE: Ifosfamide, Carboplatin, Etoposide
FH: Favorable histology
UFH: Unfavorable histology
XRT: Radiotherapy
WART: Whole abdomen RT
CR: Complete remission

Poster walk 15, Oncology

150 - PERCUTANEOUS CORE NEEDLE BIOPSY OF NEUROBLASTOMA IN THE PEDIATRIC POPULATION: WHAT HAVE WE LEARNED IN THE LAST DECADE.

Yael Dreznik[1], Maya Paran[1], Artur Baazuv[1], Aenov Cohen[1], Elchanan Bruckheimer[1], Daria Kozlova[2], Shira Amar[1], Michael Segal[1], Osher Cohen[1], Dragan Kravarusic[1]

[1]Schneider Children's Medical Center of Israel, Petah-Tiqwa, Israel. [2]Beilinson and Hasharon Medical Center, Petah-Tiqwa, Israel

Introduction: Historically, neuroblastoma has been diagnosed by surgical open biopsy (SB). In recent decades, core needle biopsy (CNB) has replaced surgical biopsy due to its safe and adequate method of obtaining tissue diagnosis.

Aim: Our study aimed to assess the effectiveness of core needle biopsy in obtaining tissue diagnosis for neuroblastoma and evaluate its safety profile in terms of post-operative complications, in comparison to surgical biopsy.

Methods: A retrospective cohort study, including all patients younger than 18 years of age who were diagnosed with neuroblastoma from 2012 until 2022 in a single tertiary medical center. Data regarding patients' demographics, tumor size and location, pathological results, and clinical outcomes were collected.

Results: 79 patients were included in our study: 35 biopsies were obtained using image-guided CNB and 44 using SB. Patients' and tumor characteristics including age, gender, tumor volume, and stage were similar in both groups. The biopsy adequacy rate in the CNB group was 91% and 3 patients in this group underwent repeated biopsy. The safety profile in the CNB group was similar to the SB group.

Conclusions: Core needle biopsy is a safe method and should be considered the first choice for obtaining tissue diagnosis when feasible due to its high adequacy in terms of tumor histopathological features.

Poster walk 15, Oncology

806 - DIAGNOSTICS AND SURGICAL TREATMENT OF PATIENTS WITH OVARIAN TUMORS AND RARE GENETIC SYNDROMES - A SINGLE CENTER EXPERIENCE.

Aleksandra Gawłowska-Marciniak, Jakub Kopeć, Justyna Kukulska

Department of Pediatric Surgery and Oncology, Medical University of Lodz, Lodz, Poland

Ovarian tumors occur with a frequency of 2.6 per 100,000 girls and are predominatingly germ cell tumors, less often sex cord tumors or tumors of epithelial origin. There are genetic syndromes that predispose to their development: disorders of sex differentiation, syndromes dependent on WT1, DICER1 or SMARCA4 gene mutations, Peutz-Jeghers syndrome.

Aim of the study

Presentation of the diagnostic difficulties and modifications to the standard oncological treatment of the patients with confirmed genetic predisposition to ovarian tumors operated on at the Department of Pediatric Surgery in 2012-2023.

Methods

Analysis of the course of diagnosis and treatment of 46 patients with ovarian tumors. Genetic diagnostics was implemented in 15 cases.

Main results

A genetic predisposition was confirmed in 7 children:

1. pure gonadal dysgenesis syndrome with karyotype 46,XY - patient with mixed germ cell tumor and malignant fibrous histiocytoma
2. karyotype 45,XY, der(13;14) (q10;q10)mat. ish(SRYx1) – 2 sisters with dysgerminoma and gonadoblastoma
3. DICER1 gene dysfunction – patient with Sertoli-Leydig cell tumor
4. DICER1 gene dysfunction – patient with immature teratoma
5. mutation in the SMARCA4 gene – patient with ovarian cancer
6. diagnosed Turner syndrome with mosaic karyotype (46,XX/46,XY) - patient with gonadoblastoma

Conclusions:

1. Patients with ovarian tumor from groups at high risk of genetic disorders should undergo genetic testing, as it may influence therapeutic decisions, treatment and patients' future.

2. In patients with a Y chromosome gonadectomy should be performed.

3. Good cooperation of the multidisciplinary team is necessary to plan appropriate management of patients with ovarian tumors and genetic mutations.

Poster walk 15, Oncology

896 - INDOCYANINE GREEN FLUORESCENCE FOR LAPAROSCOPIC SENTINEL LYMPH NODE MAPPING AND BIOPSY IN PARATESTICULAR RHABDOMYOSARCOMA

Alberto Attilio Scarpa[1], Laura Lombardi[1], Emilio Casolari[1], Patrizia Bertolini[2]

[1]Paediatric Surgery Department - Ospedale dei Bambini "P. Barilla", Parma, Italy. [2]U.O. Oncoematologia Pediatrica - Ospedale dei Bambini "P. Barilla", Parma, Italy

Aim of the study

To present application of sentinel lymph node (LN) technique using Indocyanine green (ICG) fluorescence during laparoscopic LN biopsy for accurate staging of paratesticular Rhabdomyosarcoma (PT-RMS)

Case description

A 13-years old boy with diagnosis of left PT-RMS was submitted to semi-elective surgical procedure for staging tumor. There was no clinical evidence of lymphadenopathy at the time of surgery. Pre-operative staging involved CT/PET and MRI scan. These studies ruled out radiological suspected LN involvement. Multiport (5 and 10mm) laparoscopic approach was applied. Surgical field was prepared by opening a wide peritoneal window between left iliac vessels and sacral promontory, extended cranially along left para-aortic region. ICG solution was then injected within the left testis with rapid (about 10 minutes) enhancement of a single LN in left para-aortic region which was excised according to sentinel lymph node biopsy technique used for other tumors in adults. Other LNs were excised according to paediatric oncological guidelines for PT-RMS by both laparoscopy and open left inguinal access. Histology revealed that the sentinel LN was the only LN (out of 12) to present metastatic RMS tissue allowing an accurate staging of the disease.

Conclusions

ICG fluorescence can be used during laparoscopic LN mapping and biopsy for appropriate staging of malignant tumor such as PT-RMS. We believe that routine use of this technique can improve the standard of staging solid malignant tumor in children.

Poster walk 15, Oncology

26 - SURGICAL FEASIBILITY OF OVARIAN TISSUE CRYOPRESERVATION (OTC) BY LAPAROSCOPIC HEMI-OVARIECTOMY - COMPARISON BETWEEN MALIGNANT AND BENIGN CONDITIONS

Kerstin Saalabian[1], Yannick Braun[1], Till-Martin Theilen[1], Florian Friedmacher[1], Anke Barnbrock[2], Udo Rolle[1], Andrea Jarisch[3], Henning Fiegel[1]

[1]Goethe-University Frankfurt, University Hospital, Department of pediatric surgery and pediatric urology, Frankfurt, Germany. [2]Goethe-University Frankfurt, University Hospital, Department of pediatric hematology and oncology, Frankfurt, Germany. [3]Goethe-University Frankfurt, University Hospital, Department of pediatric stem cell transplantation and immunology, Frankfurt, Germany

Aim

Due to increasing survival rates in pediatric tumors and after pediatric stem cell transplantation, fertility preservation is becoming increasingly important. Surgical procedures to retrieve eggs or sperm are often necessary, as other methods are often not suitable for these patient groups. In young women, laparoscopic removal of ovarian tissue is often necessary for fertility preservation. This procedure can usually be performed at the same time as the implantation of a central venous catheter.

Methods

A retrospective analysis of the data of patients who underwent laparoscopic hemi-ovariectomy for ovarian tissue cryopreservation at our clinic between 2014 and 2023 was performed. Underlying disease, age, postoperative length of stay, complications and duration of surgery were recorded. Descriptive and inductive statistical analysis was performed.

Results

In n = 44 patients, fertility-preserving measures were performed by means of laparoscopic hemi-ovariectomy. In n = 41 patients, the procedure was combined with a central venous catheter implantation. Complications after Clavien-Dindo occurred in n = 16 patients, including n = 14 transfusions of blood products that were related to the underlying disease. 3 complications could be attributed to laparoscopic hemi-ovariectomy. Median length of stay postoperatively was 2 days (range 1-4) for patients without further diagnostics or therapy. Average operating time was 57.7 minutes (range 24-89). Histological analyses of the tissue showed representative ovarian tissue without malignant cells. No significant differences regarding surgical outcome between malignant and benign cases were found.

Conclusion

Laparoscopic hemi-ovariectomy is a safe procedure for egg retrieval prior to cytotoxic therapy in children.

Poster walk 15, Oncology

308 - AN EXERCISE OF DELIBERATE PRACTICE ON OVARIAN-SPARING SURGERY: MANAGEMENT OF OVARIAN BENIGN LESIONS AND TORSION IN THE PEDIATRIC POPULATION

Sofia Martinho[1,2,3], Inês Braga[1], Mónica Recamán[1], Catarina Barroso[3], Jorge Correia-Pinto[1,2,3], Andreia Felizes[1]

[1]Pediatric Surgery Department, Hospital de Braga, Braga, Portugal. [2]School of Medicine, Minho University, Braga, Portugal. [3]Life and Health Sciences Research Institute (ICVS), University of Minho, Braga, Portugal

Introduction:

Fertility remains the crucial endpoint guiding treatment of presumably benign ovarian masses and/or torsion in children.The main goal was to optimize our management-protocol, considering outcomes in ovarian-sparing-surgery(OSS).

Methods:

Data concerning females <18 years (2017-2023) treated for benign ovarian-cyst and/or ovarian-torsion in a single-center were retrospectively analyzed. Laparoscopy was the preferred approach, used primarily in tumors without malignant features, whose size allowed safe-retrieval without spillage.When OSS was not possible,the limitations were analyzed.

Results:

Twenty-nine patients were included:12 operated electively for ovarian-cyst (eOC), 6 emergently for ovarian-torsion with ovarian-cyst (tOC), and 11 emergently for ovarian-torsion without mass (nOT). All began with laparoscopy, except 1 ovarian-cyst (eOC), due to suspected-malignancy and large tumor-size (>15cm). This laparotomy (n=1) allowed OSS. Within laparoscopies (n=28), 22 were OSS.Two tOC were converted to laparotomy (difficult dissection from deeper planes) and ended up in oophorectomies (ovarian/fallopian-tube necrosis). The remaining oophorectomies were completed laparoscopically:3 eOC (tumor-size>20cm) and 1 nOT (necrosis). Accordingly, OSS (n=23) was performed in 75% eOC,67% tOC and 91% nOT. Mean follow-up was 2.9years.No relapse nor procedure-related-complications reported.Surveillance-ultrasound after OSS showed no atrophy in 100% eOC/tOC and 89% nOT (1 atrophy, active endometriosis).

Conclusion:

Although laparoscopy is safe and feasible,it might pose limitations for ovarian-preservation, namely if large tumors (>15-20cm).Therefore, we propose laparoscopy should be used for selected cases.Conversion to laparotomy should be considered, if ovary is at-risk, before laparoscopic oophorectomy, keeping in mind that preservation of fertility is the crucial-goal for OT and/or OC without malignant features.

Poster walk 16, General

756 - CLINICAL MANIFESTATIONS OF MECKEL'S DIVERTICULUM AND ANALYTICAL DISTINCTION WITH APPENDICITIS: 20-YEAR EXPERIENCE IN A SINGLE CENTER.

Julio César Moreno-Alfonso[1,2], Sara Hernández Martín[1], Lidia Ayuso González[1], Alberto Pérez Martínez[1]

[1]Hospital Universitario de Navarra, Pamplona, Spain. [2]Universidad Pública de Navarra (UPNA), Pamplona, Spain

Aim of the study: To characterize patients operated on for Meckel's diverticulum and to evaluate the analytical distinction between diverticulitis and appendicitis.

Methods: Analytical study of pediatric patients operated for symptomatic Meckel's diverticulum between 2002-2023.

Main results: 28 patients operated on for symptomatic diverticula were included (age 6.8 years ± 4.8; 85% male). Diverticulitis was the main presentation (43%), followed by bleeding (32%), with volvulus being the most infrequent (3.5%). Intestinal resection was performed in 46% of the cases and in the remaining cases only diverticulectomy was performed. The average location of the diverticulum from the ileocecal valve was 41.6 cm ± 19.6 and in 64% of the patients ectopic gastric mucosa was documented and in none pancreatic mucosa. The comparative analysis of patients with diverticulitis (n=12) with a population sample with appendicitis (n=24) revealed that the derived neutrophil-to-lymphocyte ratio (dNLR) had the highest precision to differentiate between these two diseases, with a cut-off point of 5.21, area under the curve of 0.747 and OR of 66.8 (p 0. 006), with a mean value in diverticulitis of 5.82 ± 3 and 3.29 ± 1.1 in appendicitis (p 0.001).

Conclusions: In our experience, Meckel's diverticulitis is the main presentation of this embryologic remnant, while in the literature it is bleeding. Its main differential diagnosis is appendicitis, and in this process, dNLR could be useful to distinguish between both conditions.

Poster walk 16, General

811 - Postoperative Rectal Irrigation after Laparoscopic Swenson Pull-Through: Is Early Instrumentation Safe?

Nikhil Shah[1], Kathryn Maselli[1], Gabriella Kim[1], Paris D. Rollins[1], Peter F. Ehrlich[1], Marcus D. Jarboe[2], Matthew W. Ralls[2]

[1]University of Michigan, Ann Arbor, USA. [2]Nationwide Children's Hospital, Columbus, USA

Introduction:

Laparoscopic endorectal pull-through (Lap-ERPT) requires less trans-anal dissection and sphincter stretch. This may lead to more immediate post-operative obstructive symptoms. While antibiotics and rectal irrigations are mainstays of treatment, there is concern about rectal instrumentation in the setting of recent low anal anastomosis. The purpose of this study was to assess the incidence and safety of early rectal irrigations following Lap-EPRT.

Methods:

A single center, retrospective review of all pediatric patients who underwent Lap-ERPT for HD from January 2018-October 2023. Irrigations were performed if patients had obstructive symptoms including emesis, obstipation, and dilated bowel on radiographs**.** The primary outcome was anastomotic leak after rectal irrigations. Secondary outcomes included time from surgery to rectal irrigation (hours) and duration of rectal irrigation (days).

Results:

Thirty-seven patients underwent a Lap-ERPT. The majority were male (n=23, 62%) and a median age of 3 months (IQR 0.5, 5). Rectosigmoid disease was the most common diagnosis (n=29, 78.4%). Eleven patients underwent rectal irrigations with a median time to initiation of irrigation of 46 hours (IQR: 32, 114) and a median duration of irrigations of 3 days (IQR: 2, 4.5). There was no difference in anastomotic leak rate between patients who received irrigations and those who did not (9.1% vs 7.7%, p=0.88).

Conclusion

Following laparoscopic Swenson ERPT, nearly 30% of patients underwent rectal irrigation for post-operative obstructive symptoms. Despite concerns about instrumentation with a recent low anastomosis, there was no increase in leak rate in patients who received rectal irrigations.

276 - ASSESSMENT OF ANORECTAL MANOMETRIC AND URODYNAMIC FINDINGS RELATIVE TO THE LEVEL OF THE VERTEBRAL DEFECT IN CHILDREN WITH SPINA BIFIDA

Ali İhsan Anadolulu[1], Ragibe Büşra Erdoğan[2], Arzu Canmemiş[2], Şeyhmus Kerem Özel[2], Çiğdem Ulukaya Durakbaşa[2]

[1]İstanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital, İstanbul, Turkey.
[2]İstanbul Medeniyet University Göztepe Prof. Dr. Süleyman Yalçın City Hospital, Istanbul, Turkey

Aim Of The Study

A possible relationship between anorectal manometric and urodynamic parameters in spina bifida patients relative to the level of the vertebral defect was searched for.

Methods

After ethical committee approval, 29 spina bifida patients prospectively underwent anorectal manometry and urodynamic evaluation.

Main Results

The median age was 9.14±3.09 years. Fourteen were males. The spinal defect was at or below the level of the L3 vertebra in 18 patients and above it in 11. The bladder volume, bladder sphincteric resistance, and pelvic floor muscle activity were higher with low defects (266.83 mL vs 175.45 mL, 94.4% vs 45.5%, 94.4% vs 63.6%, respectively) ($p<0.05$).

On manometry, the maximum pressures for resting, strain and squeezing, and the first sensation and call volumes to feces were within the normal reference ranges (45.51 mmHg, 47.28 mmHg, 43.18 mmHg, 45.93 ml, 79.23 ml, respectively) in all. The mean maximum tolerable volume having a reference value of 170 mL was found to be 119.2±37.18 mL. RAIR was highly sensitive and became positive right after the balloon is inflated in all patients. The evaluated manometric values did not differ statistically between the lower and the upper defects.

Conclusions

Urodynamic evaluation parameters showed difference according to the level of the defect with low defects having more dismal results. All patients had findings consistent with neuropathic rectum but the results obtained from manometry were similar independent of the defect level. Degree of neuropathic bladder is not directly correlated with that of neuropathic rectum in spina bifida patients.

Poster walk 16, General

719 - SUBTOTAL COLECTOMY WITH ILEORECTAL ANASTOMOSIS IN PATIENTS WITH PAEDIATRIC INTESTINAL PSEUDO-OBSTRUCTION (PIPO): AN ALTERNATIVE FOR ENTEROSTOMY?

Anne Petersen[1], Ramon Gorter[1], Justus de Jong[2], Merit Tabbers[3], Marc Benninga[3]

[1]Department of Paediatric Surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [2]Department of pediatric surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [3]Department of Paediatric Gastroenterology, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands

Aim of the study: Treatment of Paediatric Intestinal Pseudo-Obstruction (PIPO) is primarily symptomatic, including preservation of bowel function, improvement of growth and development by optimizing nutrition. Enterostomy placement is sometimes needed for enteric decompression, but major postoperative complications may occur. The aim of this study is to evaluate the outcome of subtotal colectomy with ileorectal anastomosis as an alternative surgical procedure in PIPO patients, experiencing major enterostomy-related complications.

Methods: We performed a retrospective case-series including all PIPO patients, who underwent a subtotal colectomy with ileorectal anastomosis for this indication at our tertiary referral center. Data on baseline characteristics, clinical course, surgical procedure(s), and postoperative early and late complications (scored using Clavien-Madadi classification) were collected. Main outcomes were the number of complications and number of reinterventions.

Main results: Five patients were included, age varying from 6 to 20 years at the time of subtotal colectomy. Prior to subtotal colectomy, all patients had an ileostomy and underwent 2 to 12 reinterventions for major enterostomy-related complications. Four patients were dependent on Total Parenteral Nutrition (TPN) preoperatively. After subtotal colectomy with ileorectal anastomosis, four patients experienced a total of six complications, four of which required surgical reintervention (Table 1). None of the patients required replacement of their enterostomy. Follow-up period after subtotal colectomy ranged from 23 to 48 months.

Conclusion: Subtotal colectomy with ileorectal anastomosis could be an option for PIPO patients experiencing major enterostomy-related complications.

Poster walk 16, General

178 - Pediatric Robotic Surgery using 4 arms is possible in small cavities: short the trocar distance!

Carlo Maria Ferlini[1], Piero Romano[2], Luigi Avolio[2], Mirko Bertozzi[2], Giovanna Riccipetitoni[2], Alessandro Raffaele[2]

[1]Pediatric Surgery Unit, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy. [2]Pediatric Surgery Unit, Fondazione IRCCS Policlinico San Matteo and University of Pavia, Pavia, Italy

Aim of the study: Robotic pediatric surgery with DaVinci System faces challenges such as a high conversion rate due to limited space in small abdomens. Manufacturer's recommendation to space trocars between 6-10 cm limit the use of four arms in small children. This study aims to assess the safety and efficacy of pediatric robotic surgery with a reduced 4cm trocar spacing.

Methods:

After a serie of 84 robotic procedures, a consecutive series of pediatric patients with small abdomens (< 20x20cm) were enrolled. For all patients, four robotic trocars were used reducing distance between trocars to 4 cm. To allow this, the remote centers of individual trocars was retracted as outwards as possible. Collected data included intraoperative complications, procedure times, conversion rates, and postoperative outcomes.

Main Results:

to date, a total of 10 procedures have been performed: 4 fundoplications, 3 pyeloplasties, 2 nephrectomies, and 1 cholecystectomy. Mean age at surgery 6 years (2-9), mean weight 18 kg (10-22). Reduced spacing proved to be effective: four arms were successfully used in all patients, allowing good performance of the surgeon and relieving unnecessary effort for the table assistant. No need for conversion and no intraoperative complication occurred. Operating time and cosmetic results were comparable to previous experience with 3 arms plus accessory trocar.

Conclusions:

Our preliminary results suggest that 4cm trocar spacing in pediatric robotic surgery is safe, even in low-weight children, when combined with different remote centers. Despite this success, efforts should be made by manufacturers to develop smaller, child-friendly instruments.

Poster walk 16, General

265 - Laparoscopic Sac Excision as a Definitive Technique for Inguinal Hernia Management in Pediatric Females: A Prospective Study

LKR Shanbhogue, M Samer Baki

Maternity and Children Hospital, Buraidah, Saudi Arabia

Introduction:

The utilization of laparoscopic techniques in the management of inguinal hernias among pediatric patients has seen a rising trend. We aimed to assess the efficacy of laparoscopic excision of the hernial sac as a suitable approach for managing inguinal hernias specifically in female patients and conducted a prospective study to investigate this hypothesis.

Methods:

Over a comprehensive four-year period, a total of 99 hernias in 69 female patients were surgically addressed using laparoscopic methods. The surgical procedure primarily involved the laparoscopic inversion and excision of the hernial sac without subsequent distal suturing.

Results:

During the initial phase of the study, two cases encountered recurrences within 48 hours post-operation, potentially attributed to incomplete excision. However, in the subsequent period, no further recurrences were recorded.

Conclusion:

Our study findings support the contention that laparoscopic excision of the sac, without adjunctive closure of the peritoneum, suffices as an effective approach for managing inguinal hernias in female pediatric patients

Poster walk 16, General

724 - ERAS PROTOCOL IN LAPAROSCOPIC APPENDECTOMY IN CHILDREN: PRELIMINARY STUDY

Pari Khalilova, Asmer Davudova, Ufuk Ates, Gulnur Gollu, Meltem Kologlu, Aydin Yagmurlu, Murat Cakmak, Ergun Ergun

Ankara University, Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey

Aim of the study:

The widespread implementation of ERAS (Enhanced Recovery After Surgery) protocols in adult patients has led to the establishment of standard approaches in many surgeries. Unfortunately, there is a lack of sufficient research in this area in pediatric surgery. The aim of this study is to present the preliminary results of the ERAS protocol in pediatric patients undergoing laparoscopic appendectomy.

Patients and Methods:

The study included 21 patients who underwent laparoscopic appendectomy. Patients were subjected to a fasting period of 6 hours for solid and 2 hours for liquid food before surgery. Preoperative, intraoperative, and postoperative data of the patients were evaluated.

Main results:

Of the patients, 7 were female and 14 were male. The average age was 9.6 years (range 3-16); body weights were 36.2 kg (range 13-66). Three of the patients had perforated appendicitis, and 18 had acute appendicitis. Oral intake was initiated 2 hours post-surgery, and patients were transitioned to normal diet after 5.1 hours. The first mobilization occurred after 1.9 hours, and patients were freely mobile after 5.4 hours. The average postoperative VAS (Visual Analogue Scale) score was 5.8, and apart from 10 mg/kg paracetamol every 6 hours, no additional analgesics were needed. The children were discharged after an average of 31.6 hours. One patient re-consulted due to discharge at the surgical site, which healed with antibiotic local care.

Conclusions:

The ERAS protocol can be successfully applied in laparoscopic appendectomies in children.

Poster walk 16, General

36 - LOST IN LUNGS: INVESTIGATING DELAYED DIAGNOSIS IN FOREIGN BODY ASPIRATION

Aslihan Nalli, Emine Burcu Cigsar Kuzu, Bade Toker Kurtmen

Department of Pediatric Surgery, Tepecik Education and Research Hospital, Izmir, Turkey

Aim of the Study:

Tracheobronchial foreign body aspiration (FBA) is a critical pediatric emergency with high morbidity and mortality potential, necessitating prompt diagnosis and intervention. This study aims to explore the impact of delayed diagnosis by correlating patient complication rates with the duration of hospital admission.

Methods:

Patients diagnosed with FBA via bronchoscopy from 2012 to 2023 were included, with exclusions for pre-existing respiratory issues, incomplete medical data, and additional respiratory/cardiac conditions. Complications were analyzed concerning admission duration, including re-bronchoscopy, postoperative intubation, intraoperative bleeding, granulation tissue formation, pneumothorax, pre-postoperative arrests, and postoperative atelectasis. Sensitivity and specificity were assessed using ROC analysis.

Main Results:

The study included 112 patients (M/F=34/78) with, median age of 13 months, and a median FBA admission history of 96 hours. Bronchoscopy revealed granulation tissue in 31.3% and bleeding in 17.9%. Postoperative intubation was required in 23.2% with a median intubation time of 10 hours and ICU stay of 2 days. Complications were identified in 42.9% of cases. Complicated cases had significantly longer admission durations ($p<0.001$). An admission duration of 36 hours or more was associated with complications (sensitivity: 77%, specificity: 72%).

Conclusions:

Our study highlights an increased risk of complications in cases with admission histories exceeding 36 hours. Tailoring preparation to this risk is crucial for managing patients with prolonged admissions, emphasizing the need for informed communication with families.

Poster walk 16, General

67 - PRIMARY SPONTANEOUS PNEUMOTHORAX IN PEDIATRIC AGE: CLINICAL CARE PATHWAY PROPOSAL

Michele Maria Cantagalli[1], Claudio Vella[2], Antonino Morabito[1], Riccardo Coletta[1]

[1]University, Firenze, Italy. [2]Hospital, Ferrara, Italy

AIM OF THE STUDY

We investigate the treatment of primary spontaneous pneumothorax in children, aiming to provide a structured treatment plan. We compared the effectiveness and recurrence risk of two treatments: chest drainage with close monitoring and a surgical option involving an apicoectomy with pleurodesis after initial drainage.

METHODS

The examination is rooted in thoroughly reviewing the existing scientific literature about the subject and establishing a database comprising 78 treated patients. Statistical analysis was performed using multivariate analysis, linear regressions, correlation studies, and statistical scatter. The IRB waived the need for ethical approval due to its retrospective nature and the use of anonymised patient data, ensuring compliance with privacy regulations.

RESULTS

Our data emphasises the importance of using low-voltage HRTC to identify bullous pathology in pneumothorax patients. Out of 67 scans, pathology was present in 59 cases. Post-primary spontaneous pneumothorax patients only receiving chest drainage faced a 76% risk of recurrence. In comparison, those receiving apicectomy and pleurodesis had a significantly lower recurrence risk of 6.8%. This data suggests that surgical intervention can reduce the recurrence risk by 11.2 times compared to drainage alone, implying an Odd Ratio of 4.33 with drainage only.

CONCLUSIONS

Given the marked reduction in recurrent pneumothorax with apicoectomy and pleurodesis, our recommended protocol involves initial chest drainage, followed by low-voltage HRTC to check for bullous pathology. This approach facilitates swift recovery, enabling patients to resume daily activities and engage in sports without delay.

Poster walk 16, General

216 - SHORT-TERM RESULTS OF DIAPHRAGM AGENESIS REPAIR

Ihor Shulzhyk[1,2], Eugene Rudenko[1,2]

[1]Ohmatdyt, Kyiv, Ukraine. [2]Bogomolets medical University, Kyiv, Ukraine

Aim

Assessment of short-term outcomes in children after diaphragmatic agenesis reconstruction and selection of the optimal method for defect repair.

Methods

In this study, we included 9 newborns with congenital diaphragmatic hernia (type D), who underwent surgery at a single center between 2000 and 2023.

Results

Male patients constituted 6 (66.7%) and female patients were 3 (33.3%). Right-sided diaphragmatic dome agenesis was diagnosed in 2 (22.2%) children, left-sided in 7 (77.8%). Early total mortality in this group was 55.4%. The surgical approach for treatment was thoracotomy in the majority of cases, 89% (n=8), and in 1 case (11%), transverse subcostal laparotomy was chosen. All diaphragmatic agenesis repair were performed using synthetic materials (mostly PTFE) and applying the principle of thoracolysation of the abdominal cavity. Indications for reoperations in our group included hernia recurrence - 2 (in one patient at 6 and 15 months) and intestinal obstruction caused by malrotation - 1.

Conclusions

Patients with diaphragmatic agenesis have higher mortality compared to the group with small and medium defects. The size of the diaphragmatic defect is an independent prognostic factor and may serve as a marker for the degree of pulmonary hypoplasia and pulmonary hypertension. The optimal method of surgical treatment is diaphragmatic repair using a synthetic PTFE patch with thoracolysation of the abdominal cavity.

Poster walk 16, General

869 - SPIGELIAN HERNIA AND THROMBOSIS OF INFERIOR EPIGASTRIC VESSELS SECONDARY TO BLUNT ABDOMINAL TRAUMA: A CASE REPORT

Javier Arredondo Montero[1], Carlos Delgado-Miguel[2], María Rodríguez-Ruíz[1]

[1]Complejo Asistencial Universitario de León, León, Spain. [2]Hospital Universitario La Paz, Madrid, Spain

Aim of the study:

Spigelian hernias (SH) are exceptional in paediatric population. Isolated cases have been reported, most of them acquired and related to high-energy trauma.

Case presentation:

A 13-year-old male patient with no medical history presented with a high-energy closed inguino-abdominal trauma secondary to the impact of bicycle handlebars. On initial physical examination, the only finding was an acute haematoma of approximately 5 centimetres in major axis in the right iliac fossa. Blood tests showed no abnormalities. Abdominal US showed a previously unknown hernia in Spiegel's area and a vascular lesion of the right lower epigastric vessels. A CT scan was performed, confirming the presence of a right SH and a complete thrombosis of the right inferior epigastric vessels. Conservative management was chosen, with a favourable evolution and discharge after 48 hours. The haematoma resolved spontaneously after 2 weeks. Subsequent US showed a progressive reduction of the fascial defect, and clinical resolution of the hernia was documented 3 months later. The patient is currently asymptomatic and undergoing follow-up.

Conclusions:

In the presence of high-energy inguinal trauma, a directed radiological examination should be performed, since SH may go unnoticed. Although there is no consensus on the best therapeutic option, most cases reported in the literature were operated. There is no precedent literature on epigastric vessel thrombosis in this context, although we believe that this is probably an underreported finding due to the limited indication for CT in the paediatric population. In our case, this finding had no clinical repercussions.

747 - SURGICAL PLANNING AND SIMULATION OF A CASE OF XIPHO-OMPHALOPAGUS CONJOINED TWINS

Clara Massaguer, Laura Saura García, Pedro Palazón, Elena Muñoz Fernández, Jordi Prat, Irene De Haro Jorge, Xavier Tarrado

Hospital Sant Joan de Déu, Barcelona, Spain

Aim of the study:

Pediatric surgeons encounter a challenge in the separation of conjoined twins due to its low prevalence and unique anatomy in each case. Our objective is to describe the process of surgical planning for the separation of xipho-omphalopagus conjoined twins.

Case description:

We present a case of xipho-omphalopagus conjoined twins transferred to our center for scheduled separation. Ultrasounds and contrast-enhanced CT scans were performed on both with virtual reconstruction and a physical 3D model to plan the surgery. Both twins were joined from the xiphoid process to the umbilical cord. They had a hepatic fusion in the central segments measuring 5cm, without affecting the bile duct. Days before the intervention, a simulation of the twins' separation was performed to anticipate any procedural difficulties and optimize coordination between the involved teams. The simulation reproduced in the operating room the transfer of the patients, intubation and central venous accesses, the surgical procedure and crisis scenarios. Equipment, materials and spaces were rehearsed and analyzed, identifying 62 improvement points.

During surgery, the preoperative findings were confirmed. Hepatic transection, direct closure of the abdominal wall and umbilical plasty were performed. Everything proceeded as planned. The postoperative period was uneventful.

Conclusion:

3D planning and clinical simulation prior to the separation of conjoined twins are essential tools for preparing all professionals involved in the process and preventing setbacks.

565 - FETAL EXTRAPERITONEAL RECTAL PERFORATION

MARIA DEL CARMEN SARMIENTO CALDAS, LUCAS MORATILLA-LAPEÑA, PATRICIA MARTINEZ PAZ, EDUARDO ALONSO GAMARRA, CARLOS ZOZAYA NIETO, JOSE LUIS ENCINAS

Hospital Infantil La Paz, Madrid, Spain

AIM OF THE STUDY

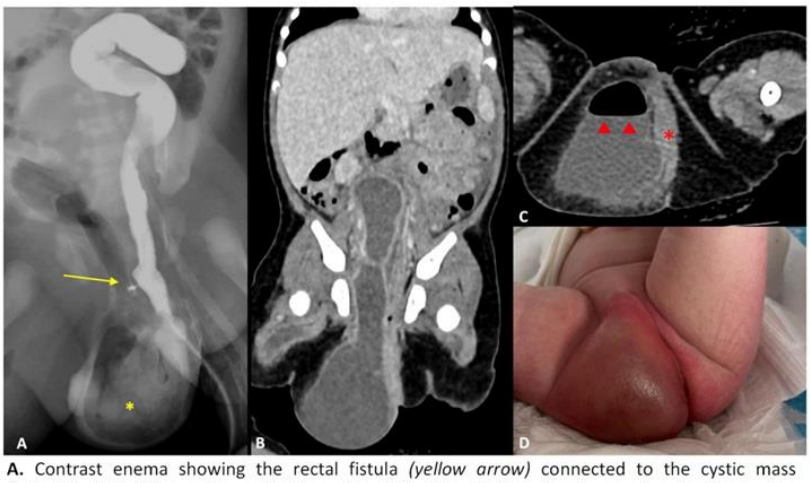
Fetal extraperitoneal rectal perforation (FERP) is extremely infrequent. Our objective here is to report the diagnosis, surgical management and outcome in one case but also to review the available literature.

CASE DESCRIPTION

A 3766gr term girl was born by vaginal delivery. Pregnancy was normal until the 38th week ultrasound where a cystic pelvic mass was described; a fetal MR confirmed these findings. She was referred to our institution presenting fever, C-reactive protein elevation and an enlarging right buttock-labium majus mass. Ultrasound showed connection with pre-sacral area, so we performed a CT revealing air-fluid levels probably extending to the perineum. A contrast enema described a rectal fistula connected to the cystic mass. A loop sigmoidostomy with closed mucosal fistula was fashioned on 4th day of life and the collection was widely drained. A rectal biopsy excluded the presence of Hirschsprung disease. She had an uneventful postoperative course and was discharged on day 19 post-surgery. We will perform a contrast enema for future colostomy closure.

CONCLUSIONS

FERP is extremely rare but has a classical clinical appearance and can be easily recognizable at birth based on clinical exploration and ultrasound. In our case, the lack of previous experience pushes us to probably unnecessary radiological confirmations. A delay management could cause fatal septic complications and prompt recognition with a simple diversion of meconium and drainage of the collection has good outcomes.



A. Contrast enema showing the rectal fistula *(yellow arrow)* connected to the cystic mass *(asterisk)*. **ByC.** CT revealing collection with air-fluid levels *(red head arrows)* extending to the perineum compressing the rectum *(asterisk)* **D.** Right buttock-labium majus mass

812 - BEYOND THE LUNG: A RARE CAUSE OF PRENATAL UNILATERAL LUNG HYPERINFLATION

Haider Ali Khan Riaz, Laura García Martínez, Ana Laín Fernández, Carlos Giné Prades, María Díaz Hervás, Joaquín Fernández Doblas, Joan Balcells Ramirez, Manuel López Paredes

University Hospital Vall d'Hebron, Barcelona, Spain

AIM

Prenatal unilateral lung hyperinflation (ULH) is a common sign of congenital pulmonary malformations. We present a case which developed severe respiratory distress upon birth requiring prompt surgical intervention.

CASE DESCRIPTION

A 20-week prenatal ultrasound revealed a male fetus with right CPAM. Prenatal MRI depicts right ULH compatible with lobar emphysema or CPAM. Findings remained stable and had no fetal impact, leading to birth at 39 weeks.

Upon birth, the newborn required immediate HFOV with nitric oxide. X-ray showed severe right ULH causing contralateral mediastinal shift. Angio-CT showed left pulmonary artery sling (LPAS) and right ULH without any intrinsic pulmonary malformation. Bronchoscopy revealed extrinsic compression of the right main bronchus causing right hyperinflation by a valve mechanism without complete tracheal rings.(Fig.1)

Given the patient's critical condition a prompt intervention was mandatory. Pulmonary resection was discarded, as no lung lesions were detected. Selective intubation was not feasible due to bronchus size. Reimplantation of the left pulmonary artery was deemed the best option and scheduled on the second day of life. Intraoperative bronchoscopy revealed significant improvement in airway compression.(Fig.2). ECMO was required for 39 days.

Five months post-surgery, follow-up X-ray shows marked hyperinflation improvement and the patient is at home with mild tachypnea that requires oxygen.

CONCLUSIONS

LPAS should be included in the differential diagnosis of prenatal ULH. To our knowledge, this is the first case showing symptoms immediately after birth leading to urgent reimplantation. Bronchoscopy is mandatory to rule out complete tracheal rings and to evaluate extrinsic compressions.

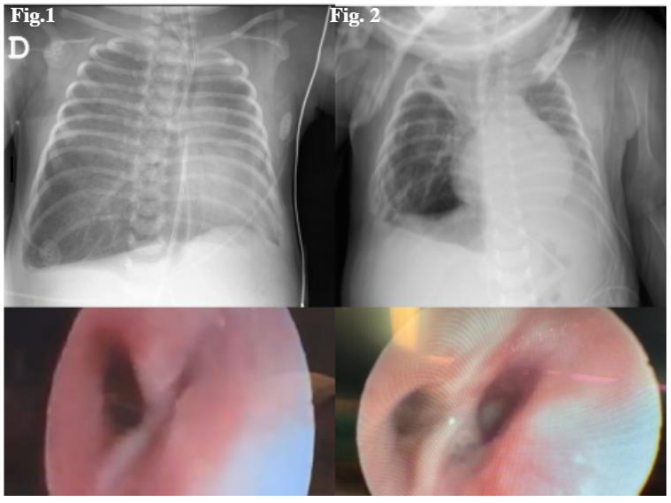


Fig 1: X-ray and bronchoscopic evaluation on birth Fig 2: X-ray and bronchoscopic evaluation postoperatively

552 - HYDROPS RELATED TO TORSION OF AN EXTRALOBAR PULMONARY SEQUESTRATION

MARIA DEL CARMEN SARMIENTO CALDAS, LUCAS MORATILLA-LAPEÑA, EDUARDO ALONSO GAMARRA, JOSE LUIS ENCINAS

Hospital Infantil La Paz, Madrid, Spain

AIM OF STUDY

Extralobar pulmonary sequestration (EPS) is usually diagnosed prenatally. Torsion of an extralobar pulmonary sequestration (TEPS) is scarcely reported in the literature. Usually occurs in childhood or adolescence with unspecific thoracic or abdominal pain.

To our knowledge we describe the first case of a fetus developing hydrops from a TEPS that was successfully treated prenatally.

CASE DESCRIPTION

43-year-old-gravida with fetus diagnosed of EPS. At 28th week of gestation fetus developed a tension hydrothorax leading to hydrops. We performed a thoracoamniotic shunt that improved the symptoms 48 hours later.

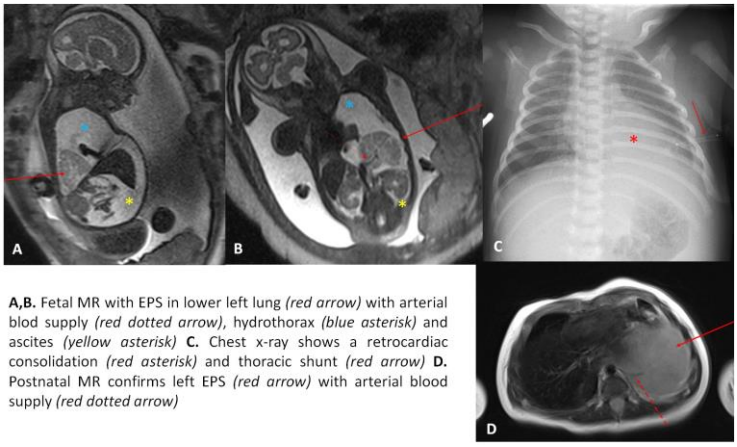
A 3350gr term girl was born from a vaginal delivery without respiratory distress. A chest x-ray showed a retrocardiac consolidation and the thoracic ultrasound reveled a mass of 4x3x3cm with minimum pleural effusion. We retired the shunt without complications.

MR confirmed an EPS with hardly any blood supply and an impaired venous return suggesting a prenatal TEPS. An echocardiogram, abdominal and transfontanelar ultrasound were performed with no pathologic findings. Patient stays clinical stable and was discharged at 10 days of life.

Currently the patient has 3 months of age, remains asymptomatic and a recent MRI showed a size reduction of the EPS.

CONCLUSIONS

TEPS is extremely rare and we should have a high index of suspicion when a fetus with a diagnosis of EPS develops hydrops because it has a high mortality rate when remains untreated. A thoracoamniotic shunt can be a lifesaving treatment option.



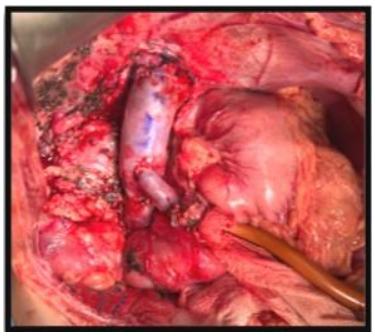
A,B. Fetal MR with EPS in lower left lung *(red arrow)* with arterial blod supply *(red dotted arrow)*, hydrothorax *(blue asterisk)* and ascites *(yellow asterisk)* **C.** Chest x-ray shows a retrocardiac consolidation *(red asterisk)* and thoracic shunt *(red arrow)* **D.** Postnatal MR confirms left EPS *(red arrow)* with arterial blood supply *(red dotted arrow)*

823 - LIVING-DONOR LIVER TRANSPLANTATION WITH INFERIOR VENA CAVA REPLACEMENT IN A PEDIATRIC RECIPIENT WITH ADVANCED HEPATOBLASTOMA

Aysel Memmedli[1], Ufuk Ates[1], Suat Fıtoz[2], Ali Varan[3], Onur Kirimker[4], Kaan Karayalcin[4], Meltem Kologlu[1]

[1]Ankra University School of Medicine Department of Pediatric Surgery, Ankara, Turkey. [2]Ankra University School of Medicine Department of Radiology, Ankara, Turkey. [3]Hacettepe University Pediatric Oncology, Ankara, Turkey. [4]Ankra University School of Medicine Department of General Surgery, Ankara, Turkey

Aim of the study Complete resection is crucial for the cure of hepatoblastoma. Total hepatectomy and liver transplantation is the only option for unresectable hepatoblastoma . In LDLT for advanced hepatoblastoma with retrohepatic IVC invasion, reconstruction of the recipient IVC is necessary. Herein, we present a case of pediatric LDLT with IVC homograft replacement for advanced hepatoblastoma.



Case description: The patient was a 20-kg, 4-year-old boy suffering from multifocal hepatoblastoma with invasion of retrohepatic IVC, unresponsive to neoadjuvant chemotherapy. The α-feto-protein level of the patient was 365.000. The patient underwent LDLT with left liver lobe(LL) procured from his uncle. TH with retrohepatic IVC excision was performed. A 7 cm-long and two cm-wide, cold-stored, fresh(5 days old) IVC homograft was anastomosed to supra-hepatic IVC and infra-hepatic IVC after total clamping of suprahepatic and infrahepatic IVC. While waiting to procure the LL graft from the donor, a transient portocaval shunt was done. 382g LL graft was implanted, HV anastomosis was done by creating a wide three-dimensional opening on the IVC graft.Portal vein and hepatic artery anastomoses were done in standard fashion. A duct-to-duct anastomosis was done to reconstruct the bile duct.The patient was discharged three weeks after LDLT, and his α-feto-protein level decreased to normal in six weeks. The patient is doing well during six months of follow-up.

Conclusion: TH with retrohepatic IVC resection and replacement is a feasible option for pediatric LDLT for advanced hepatoblastoma. LDLT eliminates the risks of tumor relapse during prolonged waiting times for cadaveric liver grafts.

479 - SURGICAL TREATMENT OF MEDIAN ARCUATE LIGAMENT SYNDROME IN A 16-YEAR-OLD ADOLESCENT: ANTEGRADE LAPAROSCOPIC APPROACH

Selin Ural, Kutay Bahadir, Ayse Keven, Ayhan Mesci, Güngör Karagüzel

Akdeniz University, Antalya, Turkey

AIM OF THE STUDY:

Median arcuate ligament syndrome (MALS) is rarely seen in children and adolescents, characterized by the compression of the celiac artery by the median arcuate ligament. There is still no standard laparoscopic technique as surgical experience in adolescents is far from optimal. The aim of this study is to show the technical details of the treatment of MALS with our laparoscopic approach.

CASE:

A 16-year-old male patient was admitted to our department with vomiting, nausea, diarrhea and rapid weight loss of 8 kg in the last 4 month. Abdominal Doppler ultrasound and CT angiography correlated with MALS. Under general anesthesia, the patient was positioned in supine and the 30° reverse Trendelenburg position with open legs. We used an antegrad approach. Totally five ports were used. First, the hepatogastric ligament was opened, then the esophagus was retracted by passing a vascular tape below it. Following indentification of the aorta, ligamentous tissues and muscle fibers that caused compression of the celiac trunk were carefully released. The decompression procedure was terminated after the celiac trunk and its trifurcation were fully exposed. Surgery was completed in 105 minutes without complications. Postoperative course was uneventful. The patient was discharged on the 3rd day with no complications. Symptoms were completely relieved at one-month follow up.

CONCLUSION:

Antegrade laparoscopic approach can be safely used in the treatment of MALS in adolescents. It is technically feasible, effective, relatively easy and time-saving. Additional advantageous are excellent exposure, better cosmetic appearance and shorter and more comfortable postoperative period.

575 - HERLYN-WERNER-WUNDERLICH SYNDROME (OHVIRA SYNDROME): A SYSTEMATIC REVIEW AND TWO CASE REPORT

Elisa Siano[1,2], Davide Dalla Rosa[1], Giuseppe Floramo[1,2], Beatrice Montanaro[1,2], Fabiola Colombini[1,2], Maurizio Cheli[1]

[1]SC Chirurgia Pediatrica - ASST Papa Giovanni XXIII, Bergamo, Italy. [2]Università degli studi di Brescia, Brescia, Italy

Introduction:

to identify clinical presentation, treatment and to increase awareness of Herlyn-Werner-Wunderlich syndrome (HWWS) in paediatric population.

Methods:

literature search was performed in accordance with PRISMA guidelines. Terms used during research included: Herlyn-Werner-Wunderlich syndrome and OHVIRA syndrome. Furthermore, we present two cases of HHWS treated in our Unit in 2022.

Results:

four-hundred-twenty-one abstracts were screened, 211 full-text articles were analyzed, 188 studies were included. Overall, 632 patients were identified (age 0-18 years). Median age at diagnosis was 13 [range 0-18] years. For patients diagnosed after menarche the median time from menarche to diagnosis was 12 [range 3-60] months. Main presenting symptom was chronic abdominal pain (50,0%), followed by dysmenorrhea (35,7%). Right side was involved in 61,8% of the cases. At diagnosis 54% had hematocolpo and/or hematometrocolpo. Endometriosis is the most common complication and was present in 54,8% of patients at diagnosis. Commonest performed procedure was vaginal septum resection (90,5%). 33,5% of patients underwent exploratory laparotomy/laparoscopy for aid at definitive diagnosis or for erroneous initial diagnosis.

In our two cases mean age at diagnosis was 12,5 years, with 18 months delay time from menarche to diagnosis. Presenting symptoms included back pain, acute abdominal pain, and pelvic mass. Both patients had uterus didelphys, hematometrocolpo and hematosalpinx at MRI. Both patients underwent vaginal septum resection with resolution of symptoms.

Conclusions:

HWWS should be included into differential diagnostic work-up in girls with detected renal agenesis together with abdominal pain, to avoid unnecessary intervention and delayed referral, with possible consequences for the fertility.

658 - FATAL OUTCOME: AORTOESOPHAGEAL FISTULA DUE TO BUTTON BATTERY INGESTION

Maria Velayos, Maria del Carmen Sarmiento, Arturo Almeyda, Nava Francisco de Borja, Luz Polo, Juvenal Rey, Carlos De La Torre, Francisco Hernández

Hospital Universitario La Paz, Madrid, Spain

Aim of the study

Foreign body ingestion in children is common. Most of the time it is harmless, but the dangers of button battery ingestion are recognized with numerous cases of serious complications and death. We present a clinical case of button cell ingestion.

Case description

A 17-month-old male, previously healthy, presented to the emergency department for two episodes of hematemesis 60 minutes earlier. He had been treated with oral ibuprofen for fever and odynophagia for three days. Minutes after his arrival, he suffered an episode of loss of consciousness, hemodynamic destabilization and anemia, and was transferred to the ICU for intubation, cannulation of central access and blood transfusion. Digestive endoscopy showed an ulcerated lesion with active bleeding in the middle third of the esophagus. Ethoxysclerol was injected and three clips were attempted without result. Due to hemorrhagic shock, a Sengstaken balloon was placed, which stopped the bleeding and stabilized the patient. On angio-CT, an aortoesophageal fistula and a button pile in the rectum were visualized. An urgent left thoracotomy was performed with localization of the defect through the aorta and closure with pericardial patch. During closure of the aorta, he suffered cardiorespiratory arrest and eventually died.

Conclusion

The formation of an aortoesophageal fistula as a consequence of ingestion of a button battery can be lethal. We must maintain a high degree of clinical suspicion, since even apparently banal situations can evolve into real medical tragedies.

787 - MESO-REX TRANSPOSITION SHUNT UTILIZING INFERIOR MESENTERIC VEIN-TO-SEGMENTAL LEFT PORTAL VEIN BRANCH AS SURGICAL MANAGEMENT OF EXTRAHEPATIC PORTAL VEIN OBSTRUCTION

Lorenzo Anez-Bustillos, Fernanda Takamatsu, Adriana Koenig, Simon Ling, Annie Fecteau, Blayne Amir Sayed

The Hospital for Sick Children, Toronto, Canada

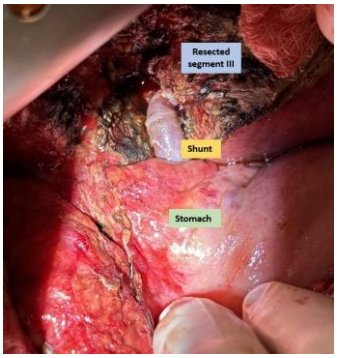
Aim of the Study:

Portal hypertension due to extrahepatic portal vein (PV) obstruction leads to hypersplenism, thrombocytopenia, and variceal gastroesophageal hemorrhage in children. There are multiple durable surgical options to prevent variceal bleeding and shunt construction is favored. Compared to portosystemic shunts, meso-Rex shunt bypasses the PV obstruction while restoring hepatic blood supply.

Case Description:

A 12-year-old male presented with portal hypertension secondary to PV thrombosis from unknown etiology, leading to recurrent variceal bleeding (first bleed at age 3). Attempt to create a meso-Rex shunt was aborted at age 5 due to diminutive left PV (LPV) identified at the Rex sulcus. Recurrent bleeding prompted re-evaluation. Computed tomography (CT) scan and transhepatic portography confirmed patent umbilical portion of LPV, with communication to left and right portal venous system. Dissection of rex fossa revealed presence of a small umbilical portion of fibrotic LPV that extended deep into the liver, not suitable for bypass. CT imaging had demonstrated a patent LPV with defined segmental branches, however.
To facilitate exposure of the LPV, a partial segment III resection was performed that allowed identification of the main segment III pedicle. The main LPV remained quite deep in the liver. As the internal jugular vein conduit would likely not be of sufficient length, the inferior mesenteric vein was fully mobilized from the superior mesenteric vein insertion to the pelvis, and then ligated. It was positioned in an ante-pancreatic, retro-gastric fashion. We utilized the main segment III portal branch as the outflow target. Flow in the main portion of the shunt was 125 ml/min by Medistim vascular flow probe. Doppler ultrasounds post-operatively showed laminar flow with main shunt velocities around 40 cm/sec. He stayed on subtherapeutic heparin + dipyridamole for the first three days and transitioned to 162 mg aspirin daily.

Conclusion: Surgical shunts offer durable treatment to deal with sequelae of PV thrombosis. The meso-rex transposition shunt has been previously reported, but here we describe using a sizable segmental PV branch to facilitate shunt creation in a challenging re-operative field.



906 - MINIMAL INVASIVE TREATMENT OF A RARE CAUSE OF CHRONIC HEADACHE IN A TEENAGE GIRL

Lucas Matthyssens, David Creytens, Katrien Van Renterghem, Annemie Bauters, Els Vandecruys, Evelien Snauwaert, Dirk Van de putte, Jef Willems, Robin De Putter, Barbara De Moerloose, Leen Willems, Yves Van Nieuwenhove

Ghent University Hospital, Ghent, Belgium

Aim

To describe a rare cause of chronic headache in a teenager, treated by multidisciplinary management and minimal invasive surgery.

Case Description

A 13 year-old girl without previous medical history was referred for work-up of unexplained chronic headaches, for over a year, and more recently, nausea, fatigue and anxiety. Physical exam revealed facial and thoracic acné, some sweating and arterial hypertension. Abdominal palpation revealed a painless fixed swelling under the umbilical level, slightly to the left. Blood analysis was normal. MRI showed a solitary pelvic mass of 61x42x39mm, partly solid/cystic, with central cystic component and hypervascularisation, diffusion restrictive and situated in the mesentery, infraumbilically paramedian to the left. Urinary metanephrins were raised. I-123 MIBG-scan showed heterogenous uptake. Surgical excision was planned after preoperative hospitalization with gradually increasing alpha-blockage under continuous cardiorespiratory monitoring, with the need for iv fluids due to orthostatic hypotension and syncopes. The retroperitoneal mass was completely excised laparoscopically after meticulous dissection from the aortic bifurcation under continuous haemodynamic monitoring, continued postoperatively at the paediatric intensive care unit. The patient recovered well and went home on postoperative day 4. Three months later, she is symptomfree. Surgical pathology revealed a completely resected paraganglioma of the organ of Zuckerkandl with a PASS-score of 2/20. Genetic results are awaited.

Conclusion

Paraganglioma of the organ of Zuckerkandl is a rare cause of headache and arterial hypertension in children. After appropriate medical preparation, complete laparoscopic excision was feasible without rupture of the tumour capsule and with minimal intraoperative manipulation, under haemodynamic monitoring.

74 - UNIPORTAL MINIMAL INVASIVE UPPER LEFT BRONCHIAL SLEEVE LOBECTOMY IN A CHILD WITH A MUCOEPIDERMOID BRONCHIAL CARCINOMA

Dietmar Cholewa[1], Michail Galanis[2], Carmen Casaulta[3], Tobias Dantonello[4], Andrea Marrazzini[5], Patrick Dorn[2]

[1]Department of Pediatric Surgery, Inselspital, Bern University Hospital, University of Bern, Switzerland, Bern, Switzerland. [2]Department of Thoracic Surgery, Inselspital, Bern University Hospital, University of Bern, Switzerland, Bern, Switzerland. [3]Division of Pediatric Respiratory Medicine and Allergology, Department of Pediatrics, Inselspital, Bern University Hospital, University of Bern, Switzerland, Bern, Switzerland. [4]Division of Pediatric Hematology and Oncology , Department of Pediatrics, Inselspital, Bern University Hospital, University of Bern, Switzerland, Bern, Switzerland. [5]Institute of Tissue Medicine and Pathology, University of Bern, Switzerland, Bern, Switzerland

Aim of the study:

We present a thoracoscopic-assisted uniportal (U-VATS) upper left bronchial sleeve lobectomy in a boy with a mucoepidermoid carcinoma (MEC).

Case description:

A 12-year-old boy presented with a history of three left upper lobe pneumonias in the last 6 months. Bronchoscopy and PET-CT revealed a heavily perfused multilobar neoplasm in the central upper lobe bronchus that had invaded the lumen of left main bronchus. We made an interdisciplinary decision to perform a U-VATS sleeve resection of this lobe. After clear identification, the superior pulmonary veins were bypassed and transected. The fissure was dissected followed by the transection of the anterior and apical segmental arteries. The pulmonary artery was clamped and retracted. The upper lobe bronchus was resected, while pars membranacea was preserved and a partial sleeve was created. Frozen section diagnosis revealed tumor-free resection margins. The upper lobe specimen was removed with an endobag. The anterolateral part of the lower bronchus was anastomosed to the main bronchus with a PDS 4-0 running suture and a mediastinal lymphadenectomy was performed. The histopathologic diagnosis showed a 8x8x6 mm low-grade MEC pT1a pN0 (0/13) R0 with evidence of CRTC1-MAML2 fusion. The postoperative course was without complications.

Conclusion:

According to the current literature, this is the first successful U-VATS sleeve lobectomy due to MEC in childhood.

649 - TRAPDOOR INCISION: DIFFERENT APPROACH IN CERVICOTHORACIC NEUROBLASTOMA

KIVILCIM KARADENIZ CERİT[1], AYTEN CEREN BAKIR[1], NURSAH EKER[2], ELIF DEMIRBAS[3], ADNAN DAGCINAR[4], GURSU KIYAN[1]

[1]Marmara Üniversitesi Tıp Fakültesi, Çocuk Cerrahisi Anabilim Dalı, ISTANBUL, Turkey. [2]Marmara Üniversitesi Tıp Fakültesi, Çocuk Hematoloji ve Onkolojisi Bilim Dalı, ISTANBUL, Turkey. [3]Marmara Üniversitesi Tıp Fakültesi, Kalp ve Damar Anabilim Dalı, ISTANBUL, Turkey. [4]Marmara Üniversitesi Tıp Fakültesi, Beyin Cerrahisi Anabilim Dalı, ISTANBUL, Turkey

Aim:

To describe our experience with trapdoor anterior thoracotomy (TAT), in cervicothoracic neuroblastoma which have close relationship with neurovascular structures and limited access during surgery.

Case:

A 39-month-old male patient had an incidental mass of 6x4.5 cm in the left paravertebral area at C7-T6 level, extension of the mass from the neural foramen at the level of T1-T4 vertebra. The result of thoracoscopic biopsy taken from the mass was evaluated as ganglioneuroma. However, since neuroblastoma foci in the mass could not be excluded, operation was planned. In the first operation, incomplete resection was performed by thoracotomy due to its relationship with vascular structures, and laminectomy was performed by neurosurgeons. Differentiated neuroblastoma/low mitotic index(favorable) was found in some foci of the mass in pathological examination. N-myc amplification (-). Preoperative chemotherapy was started according to IDRF. However, due to the inability to achieve sufficient reduction in the mass and DOTA-PET results, second operation was planned to remove the tumor completely. Trapdoor incision was preferred to provide an adequate approach. By performing a sternotomy, the incision was extended 2 cm above the clavicle and laterally from the third intercostal space. The aortic arch, subclavian artery-vein and vertebral artery were dissected. Neurosurgeons was involved during resection of the spinal extension of the tumor, invading rib and the mass were >95% gross total resected. No complications were observed.

Conclusion:

TAT is a preferred approach in cervicothoracic masses, especially due to its superiority over thoracotomy in surgically revealing large thoracic masses and vascular control.

533 - RIGHT LUNG AGENESIS WITH TRACHEAL STENOSIS AND LEFT PULMONARY ARTERY SLING TREATED BY TISSUE EXPANDER PLACEMENT

Ana Barría, Ana Laín, Laura García, Carlos Giné, María Díaz, Haider Ali, Manuel López

Hospital Universitari Vall d'Hebron, Barcelona, Spain

AIM

Congenital pulmonary agenesis is an exceptionally rare condition with significant morbidity and mortality. In this report, we present a case involving right pulmonary agenesis (RPA), tracheal stenosis (TS) and left pulmonary artery sling (LPAS)

CASE DESCRIPTION

A patient with a prenatal diagnosis of RPA, was born prematurely at 33 weeks, necessitating mechanical ventilation for the initial 24 hours. An echocardiogram revealed dextrocardia attributed to RPA, right pulmonary branch agenesis, and suspected LPAS. At 5 months old, sporadic stridor emerged. CT angiography confirmed LPAS associated with TS. Bronchoscopy uncovered 40% TS with complete rings (starting from the 5th ring), severe tracheomalacia, and tracheal compression from the aortic arch.

At 6 months old, a respiratory infection exacerbated mediastinal displacement, necessitating ventilatory support. A decision was made to perform mediastinal repositioning through right posterior thoracotomy using an intrathoracic tissue expander (80 mL). This intervention led to an improvement in tracheal collapse and symptoms. Due to the positive response, it was decided not to address the TS by sliding. A follow-up CT scan six months post-surgery revealed a change in TS measurements from 5.2x3.3 to 5x5 mm. Presently, the patient remains without dyspnea/dysphagia, experiencing only occasional stridor.

CONCLUSIONS

The management of congenital PA with TS is challenging and necessitates an individualized multidisciplinary approach. In symptomatic patients, mediastinal repositioning with a tissue expander should be considered first, as airway stabilization can be achieved avoiding complex tracheal surgeries. In case of persistent symptoms, aortopexy, division of ductal ligament or slide tracheoplasty should be considered.

729 - PANCREATIC PSEUDOCYST'S ENDOSCOPIC TREATMENT USING TRANSLUMINAL METAL STENT

M.G. Toro-Rodríguez, N. Albertos-Mira-Marcelí, V. Díaz-Díaz, A. Hernández-Perez, C. Abril-Sánchez, A. Encinas-Goenechea, J. Gonzálvez-Piñera

Hospital General Universitario Dr. Balmis, Alicante, Spain

Aim of the study

Pancreatic pseudocyst (PP) is a rare entity in children. Its therapeutic options include conservative management, excision, and/or drainage. Our objective was to present this case because of the novelty about using a transluminal metal prosthesis (TMP) for the drainage of a PP in a pediatric patient.

Case description

A 5-year-old boy (15.2kg) was admitted due to acute abdomen. He had bad general conditions, sallow skin colour, and abdominal tenderness. By laparoscopic exploration, abundant yellowish cloudy fluid and significant oedema of the transverse mesocolon were found, with no obvious cause encountered. Rupture of superficial continuity of the body of pancreas was seen in a postoperative CT, with an adjacent collection of 6.9x2.3cm., compatible with PP. After guided anamnesis, family recognized trauma with a bicycle handlebar the previous week.

Conservative treatment was indicated including octreotide during 12 days. Fifteen days after admission, due to persistence of the pseudocyst on the images and abdominal pain, TMP transgastric internal drainage was decided, guided by ultrasound endoscopy.

After drainage, patient showed clinical improvement with complete oral tolerance and was discharged. During follow-up he remained asymptomatic, and PP's complete resolution was observed on CT. The prosthesis was removed 2 months after its placement by esophagogastroscopy. There were no complications or recurrences after 4 months of follow-up.

Conclusions

- PMTs allow a watertight and long-lasting bypass between the gastrointestinal tract and other structures, such as pancreatic pseudocysts.
- They are a feasible, safe and effective option in the drainage of pancreatic pseudocysts in children.

866 - GENDER ASSIGNMENT AND SURGICAL CHALLENGES IN A CASE OF 45X/46XY SEX DEVELOPMENT DISORDER: HOW IMPACTFUL A THIRD-GENDER ASSIGNMENT MIGHT BE?

Michela Marinaro[1,2], Michele Ceresola[1,2], Giorgio Giuseppe Orlando Selvaggio[2], Sara Costanzo[2], Gloria Pelizzo[3,2]

[1]University of Milan, Milan, Italy. [2]Pediatric Surgery Department, "Buzzi" Children's Hospital, Milan, Italy. [3]Department of Biomedical and Clinical Science, University of Milan, Milan, Italy

Aim of the study:

to highlight the challenges of gender assignment in a complex case of 45X/46XY mosaicism and explore the impact of a third-gender assignment.

Case description:

we report the case of a female gender-assigned newborn with ambiguous genitalia: a ventrally curved genital tubercle with a single proximal external meatus at scrotal level and penoscrotal transposition. The left gonad was palpable in the inguinal canal, while the right was not. The genetic test revealed a 45X/46XY mosaicism. Serum testosterone level increased after b-HCG stimulation, demonstrating prenatal androgenic exposure and possible male gender reassignment. Ultrasounds, MRI, urogenital endoscopy and laparoscopy showed a hypoplastic uterus, a wide vaginal cavity and a 2-cm urethra, without verumontanum, inserted in the vagina generating a 1-cm common channel. A “peeping” right gonad was identified without vas deferens, while on the left side, a uterine horn was leading into the inguinal canal containing the left gonad. Multiple biopsies of both gonads were performed showing seminiferous tubules and very rare Leydig cells.

Endocrinological test results may suggest a male-affirming surgery, but due to the numerous interventions required, the potential for unsatisfactory outcomes, the risk of urological complications and the possibility of malignancy from retaining the gonads, a female-affirming surgery may be a more viable surgical option.

Conclusions:

This case complexity compares the surgical possibilities and the endocrinological indications based on the androgenic fetal imprinting, emphasizing the necessity of a third-gender assignment until the patient can make a decision. Only seven countries allow this practice, underscoring the significance of international dialogue.

223 - APLASIA CUTIS CONGENITA TYPE 5 WITH FETUS PAPIRACEOUS: MANAGEMENT OF THE 101st CASE

Valeria Testa[1], Mirella Mogiatti[1], Martina Corno[2], Laura Morlacchi[3], Massimo Agosti[3], Luigi Valdatta[4], Valerio Gentilino[1]

[1]Pediatric Surgery Unit - Filippo del Ponte Hospital, Varese, Italy. [2]Plastic Surgery Unit - Ospedale di Circolo e Fondazione Macchi, Varese, Italy. [3]Neonatology and Neonatal Intensive Care Unit - Filippo del Ponte Hospital, Varese, Italy. [4]Ospedale di Circolo e Fondazione Macchi, Varese, Italy

Aplasia Cutis Congenita (ACC) is a congenital malformation characterized by the absence of a section of skin, which may extend to underlying structures. This case report discusses a newborn diagnosed with ACC type 5, as per Frieden's classification, an uncommon subtype linked to the in utero demise of one twin in a monochorionic twin pregnancy between the 12th and 14th week (fetus papyraceus).

The infant, delivered at 32 weeks of gestational age through elective caesarean section at another hospital, exhibited a notable butterfly-shaped abdominal wall defect extending bilaterally up to the posterior axillary pillar. The defect spanned 16 cm transversely and 9 cm cranio-caudally, covered solely by peritoneum. Due to infection and risk of rupture, the patient was transferred to our Neonatal Intensive Care Unit.

Upon birth, a hydrogel and silver nanocrystal barrier were applied. Following a partial infection, the hydrogel was substituted with a dressing containing collagen, hyaluronic acid, and gentamicin cream. The objective was to maintain a moist environment, facilitating re-epithelialization, ultimately achieved after 9 weeks, leading to discharge and subsequent clinical and physiotherapeutic follow-up at home.

The post-natal management emphasized a conservative approach, reserving surgical intervention for complications. Given the elevated morbidity and mortality during the initial 4-8 weeks postnatally, continual monitoring involving collaboration between plastic surgeons, pediatric surgeons, and neonatologists is imperative. Considering the rarity of the condition, there is a call for a multicenter study to gather long-term follow-up data and assess the quality of life in patients with type 5 ACC.



707 - LAPAROSCOPIC TRANSHIATAL ESOPHAGECTOMY AND GASTRIC PULL-UP IN A CHILD WITH STRICTURE OESOPHAGUS

CHANDRAMOULI GOSWAMI, Anjan Dhua, Sandeep Agarwala

All India Institute of Medical Sciences, New Delhi, India

Aim of the study

Laparoscopy-assisted transhiatal esophagectomy (LATE) with gastric pull-up represents a minimally invasive approach to address complex esophageal strictures, particularly in pediatric patients.

Case description

We present a case of a 6-year-old girl with a history of retrosternal pain persisting for two years, eventually diagnosed with a lower one-third esophageal stricture located 20 cm from the incisors attributed to gastroesophageal reflux disease. Following an initial endoscopic assessment and dilation of up to 7mm, the patient experienced ongoing symptoms and weight loss, prompting referral to our institution.

Three months before this surgery, the patient underwent gastrostomy and feeding jejunostomy (FJ) placement for persistent dysphagia. At the time of definitive management, gastric mobilization, and successful transhiatal esophagectomy were performed. A cervical esophagogastric anastomosis was then established. The child could be extubated intraoperatively, and FJ feeds were resumed 48 hours post-procedure. The postoperative course remained uneventful, and the patient was discharged on postoperative day eight following a normal contrast swallow study. The patient remains asymptomatic six months post-surgery, showcasing weight gain and sustained improvement.

Conclusion

Laparoscopy-assisted transhiatal esophagectomy can be considered as a viable and effective approach in managing complex esophageal strictures in pediatric patients, offering favorable outcomes, rapid recovery, and an enhanced quality of life.

709 - Prune Perineum Syndrome – case report of an extremely rare perineal malformation

Emanuele Trovalusci[1,2], Nkhensani Mashaba[1], Giulia Brisighelli[1]

[1]Department of Paediatric Surgery, Chris Hani Baragwanath Academic Hospital, Faculty of Health Sciences, University of Witwatersrand, Johannesburg, South Africa. [2]Pediatric Surgery Unit, Department of Women's and Children's Health, University of Padova, Padova, Italy

Aim of the study

Prune Perineum Syndrome (PPS) is a rare anomaly characterized by a distinctive deformation of the perineum (large wrinkled perineal mass) and the absence of external genitalia. Only five cases were previously described, most of them resulting in perinatal death

Case description

A three-day-old neonate, born prematurely at 32 gestational weeks with a weight of 1660 g, was referred to our institution due to abnormal genitalia. The infant exhibited the absence of an anal opening and external genitalia, replaced by an empty cutaneous mass with an anterior opening (1 x 1 cm in size) from which urine was excreted; however, no discernible orifices were evident internally, despite numerous attempts at catheterization (Figure 1). Additionally, the infant had bilateral club feet. Pre-operative cardiac ultrasound revealed dextrocardia with tricuspid atresia and a hypoplastic right ventricle. Blood tests indicated acute kidney failure and a single hypoplastic kidney was visualized at ultrasound. The patient underwent exploratory laparotomy, revealing a type 3 atresia at the rectosigmoid colon, a bifid uterus, a single vagina without hydrocolpos, and a normal bladder. A single hypoplastic and pelvic kidney (20.5 mm) was observed. A divided colostomy and vesicostomy were performed but during surgery, the infant's overall condition deteriorated and the patient succumbed to renal insufficiency the following day.

Conclusions

PPS represents an extremely rare variant of caudal dysplasia, often associated with additional abnormalities, especially urogenital, that typically contribute to the overall fatal outcome. This is the first case of PPS with associated colonic atresia.



88 - Endovascular treatment with balloon expandable covered stent in a twelve-year-old boy with traumatic abdominal aortic rupture

Maria Florou[1], Chrysostomos Kepertis[1], Kyriakos Stavridis[2], Manolis Abatzis-Papadopoulos[2], Maria Tsopozidi[1], Kleanthis Anastasiadis[1], Ioannis Spyridakis[1]

[1]2nd Department of Pediatric Surgery, Aristotle University of Thessaloniki, Thessaloniki, Greece. [2]1st Department of General Surgery, Aristotle University of Thessaloniki, Thessaloniki, Greece

Aim of study:

To report our experience with the endovascular management of an abdominal aortic rupture in a 12-year-old boy.Although blunt trauma is common injury,the blunt aortic trauma is extremely rare and has high mortality rates.To our knowledge, this is one the first pediatric cases with endovascular management of abdominal aortic rupture.

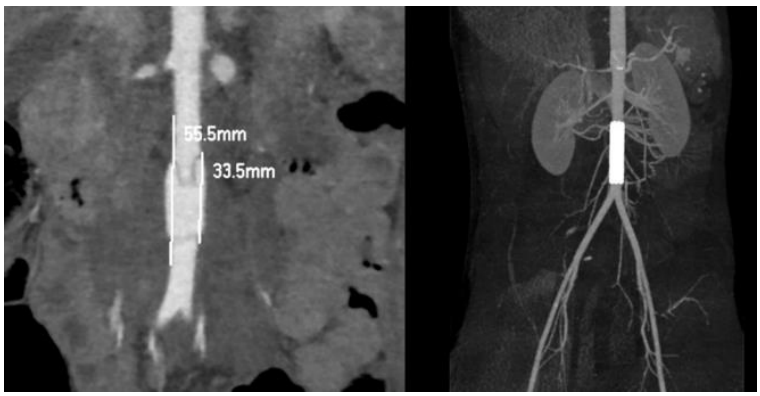
Case description:

A 12-year-old boy was transmitted to our emergency department with multiple injuries, after car accident.The patient was a backseat-restrained passenger.Upon admission he was hemodynamically stable and complained of abdominal pain.The computed tomography revealed a rupture in the abdominal aorta on the level of inferior mesenteric vessels, along with a 3 cm pseudoaneurysm distally,free intraperitoneal fluid and a large retroperitoneal hematoma extending to the pelvis.The rest associated injuries were:Grade III splenic injury,a retroclival epidural hematoma, right clavicle fracture,bilateral pulmonary lacerations, bilateral minor pneumothorax and thoracic vertebrae contusions.Given the extend of injuries and the risk of open laparotomy, the decision was made to proceed with endovascular stenting instead of open surgical repair.Intraoperatively, the open exposure of the left common femoral artery, along with a 7F-sheath placement and the advancement of an expandable-covered Bentley stent followed.The postoperative period was uneventful and the associated injuries were treated conservatively.

Conclusions:

Abdominal aortic trauma is extremely rare and the standard management has included either the conservative or the open surgical treatment.The new endovascular stents offer a promising alternative,although studies are needed for the long-term results.

Figure 1.Preoperative CT and postoperative angiography of the abdominal aorta.



237 - AORTOESOPHAGEAL FISTULA AFTER BUTTON BATTERY INGESTION - A CASE REPORT

Agnieszka Kwiecińska, Dorota Broniszczak, Marek Szymczak, Andrzej Kansy, Mariusz Birbach, Grażyna Brzezińska, Małgorzata Panek, Piotr Kaliciński

The Children's Memorial Health Institute, Warsaw, Poland

Aims of the study:

Button batteries (BBs) are common source of esophageal foreign body in children. Upon ingestion, they may cause severe damage. Aortoesophageal fistula (AEF) is a rare life-threatening complication. We present a case of AEF and review the current state of research.

Case description:

A 2-year-old girl with a history of BB ingestion, after right thoracotomy for esophageal perforation, was referred to our institution due to massive gastrointestinal bleeding nonresponding to endoscopic treatment. Aortic stent was implanted emergently, successfully stopping the bleeding, but the patient suffered from recurrent bacterial infections and serious thromboembolic complications. PET scan revealed the stent to be a source of thrombi. Second covered stent was placed resolving vascular issues, but infections continued.

Multidisciplinary council team referred the now 5-year-old patient for surgical treatment. During left thoracotomy, assisted by extracorporeal membrane oxygenation, partial aortic and stents removal was performed, esophageal perforation was closed, and aortic vascular graft was placed. Fungal colonisation of the stents was detected, and broad-spectrum antifungal and antibacterial treatment was introduced for several months. At 3-months postoperative the patient is well and disease-free.

Only few AEFs pediatric cases with positive outcome have been reported. Fatal results of AEFs emphasize that the management of children after BBs ingestion must be guided by a high index of clinical suspicion.

Conclusions:

BBs ingestion may lead to esophageal perforation or stricture, vocal cord paralysis, tracheoesophageal fistulae. Limited data report successful multidisciplinary management of pediatric AEFs.

233 - A NEW ERA IN PEDIATRIC ESOPHAGEAL REPLACEMENT FOR CORROSIVE ESOPHAGEAL STRICTURE: ROBOTIC GASTRIC PULL-UP AND ESOPHAGECTOMY

Zafer Dokumcu, Samir Hasan, Ulgen Celtik, Coskun Ozcan

Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey

Aim:

Among esophageal replacement techniques, the gastric pull-up (GPU) stands as the only method feasible for minimally invasive surgery. Recently, robotic surgery has gained popularity in experienced pediatric surgery centers. This study aims to present the first pediatric robotic GPU with transthoracic robotic esophagectomy in a patient with long-segment corrosive esophageal stricture.

Case Presentation:

A comprehensive assessment and preparation were conducted for a 3.5-year-old Algerian girl weighing 15 kg. She had previously undergone conservative treatment for one year due to esophageal stricture resulting from caustic ingestion, during which she experienced esophageal perforation. Primary phase of surgery started with a robot-assisted transthoracic esophagectomy, followed by the closure of the gastrostomy. Subsequently, a robot-assisted Gastric Pull-up (GPU) procedure was conducted. The console times were 157 minutes for transthoracic esophagectomy and 63 minutes for GPU. The procedure was completed with gastroesophageal anastomosis, and the total duration of the surgery was 320 minutes. The patient did not require blood replacement, was weaned off ventilator support on the first postoperative day, and was transferred to the ward on the fourth day following the removal of the chest tube. The patient began oral feeding on the 6th postoperative day after a postoperative esophageal contrast study, and she was discharged on the 9th day. During the 20-month follow-up period, the patient did not experience any complications except for a moderate anastomotic stricture that required two dilations.

Conclusion:

Robotic esophagectomy and gastric pull-up can be safely and effectively performed, particularly in small patients requiring extensive esophageal dissection.

545 - OPERATIVE REPAIR OF A SUPERIOR PARTIAL STERNAL CLEFT: BENEFITS OF EARLY REPAIR

Pamela Middleton, Andre Cardoso Almeida, Catherine Bradshaw

Bristol Royal Hospital for Children, Bristol, United Kingdom

Aim of Study

To describe operative repair of a superior sternal cleft without costal cartilage resection or sternal wires.

Case description

A newborn male, with normal antenatal course, was noted to have a soft swelling superior to the jugular notch that worsened on crying. On physical examination he was found to have a 5 x 3cm vertical defect in the manubrium sternum, with an associated overlying skin tag. Underlying tissues moved paradoxically with breathing (Figure 1). Preoperative investigation revealed no associated anomalies. At 3 months, he underwent surgical repair through a midline incision. Sternal edges were delineated and pectoralis major, sternocleidomastoid and sternohyoid muscles were released. A tract between the skin tag and pericardium was excised and the resultant pericardial defect was repaired. A hemi-thymectomy was performed, mitigating increased pressure on mediastinal structures. Pleura and pericardium were dissected off the inner sternal surface and a wedge excision was made in the inferior aspect of the cleft. The sternum was approximated with interrupted 2.0 vicryl sutures and a mediastinal drain was left insitu. This drain was removed on the first post-operative day. The patient was monitored in intensive care for 24 hours and discharged home day 5 post operatively. At 4 months follow-up, no complications were noted.

Conclusions

Management of structural sternal defects in children is complex and often requires input from multiple specialists. This case highlights the advantages of early repair, avoiding use of sternal wires and need for costal cartilage resection to achieve adequate closure.



Figure 1: Images showing the lesion at inspiration (left) and expiration (right) while crying.

586 - CONGENITAL MAIN BRONCHIAL STENOSIS IN A PRETERM INFANT: SUCCESSFUL CONSERVATIVE MANAGEMENT AND SPONTANEOUS REGRESSION

Giedre Stanevice, Arturas Kilda, Ausra Lukosiute-Urboniene

Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania

Aim of the study:

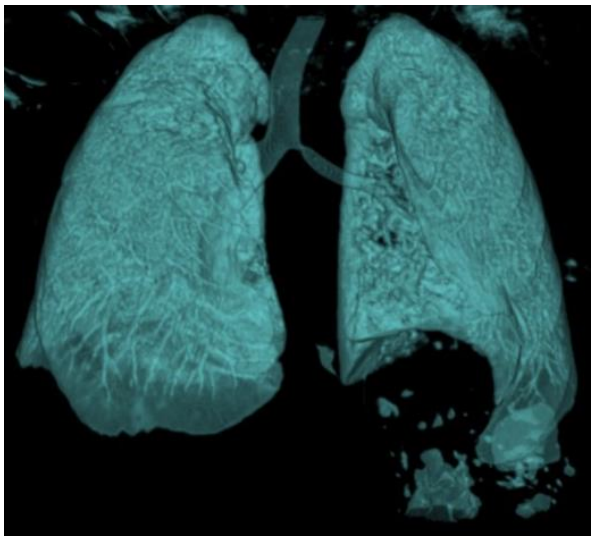
To present a case of congenital left main bronchial stenosis in an infant with spontaneous regression during a one-year follow-up.

Case description:

An infant was born at 34 gestational weeks, weighing 2.8 kg, due to severe maternal preeclampsia and treated at the Neonatal Intensive Care Unit with pulmonary surfactant and Continuous Positive Airway Pressure 10 days before discharge. The patient was released home without respiratory symptoms. In between, the patient had several respiratory infections, treated at home, including bronchiolitis and subsequent wheezing, with positional and nocturnal exacerbations. At 10 months he had severe bronchial obstruction that led to hospitalization. Since chest X-ray was normal and corticosteroids had minimal effect, the diagnostic bronchoscopy was performed. Bronchoscopy revealed left main bronchial stenosis, confirmed by 3D chest computed tomography, indicating a complete cartilage ring up to 2mm. Due to high surgical risks and favorable overall patient condition, a multidisciplinary team opted for conservative treatment of inhaled steroids and observation. A one-year follow-up bronchoscopy demonstrated a notable regression of the bronchial stenosis with the main left bronchus remaining narrow but not clinically significant. The patient remained free of respiratory infections and no further interventions were deemed necessary till this day.

Conclusions:

This case highlights the challenges of managing congenital bronchial stenosis in preterm infants and the success of conservative treatment in selected cases. The decision for observation, considering the patient's age, infection history, and surgical risks, resulted in a favorable outcome with spontaneous regression of the stenosis.



591 - CONGENITAL PYLORIC ATRESIA - RARE DIAGNOSIS?

Rebeka Pechanová, Miroslava Fuňáková, Michal Kabát, Erich Murár, Igor Tvrdoň, Jozef Babala

National Institute of Children's Diseases, Bratislava, Slovakia

Aim of the study:

Congenital pyloric atresia (CPA) is a rare congenital malformation accounting for less than 1 % of all upper-gastrointestinal atresias. Estimated incidence is 1 in 100, 000 live births. There are three distinct anatomical variants of CPA: type A pyloric membrane, type B solid cord, type C pyloric agenesis. Symptoms of non-bilious vomitting usually present shortly after the birth. Authors report two cases of isolated CPA and one case of CPA with associated esophageal atresia, outlining aspects of diagnosis and surgical management.

Case description:

3 cases of pyloric atresia during a 6-year period were treated at our department. Type A CPA was seen in 2 patients and type C CPA in one patient. Diagnosis was based on symptoms and radiography. All patients were operated by laparotomy, each of them having different type of surgical procedure according to anatomical circumstances- gastrotomy with excision of pyloric membrane, Heineke- Mikulicz pyloroplasty and gastro-jejuno anastomosis. Postoperative course was uneventfull and they reached full enteral feeds on day 14 and 15 post-op. The literature search on PubMed turned up only 4 articles describing experience of 3 and more cases of CPA in last decade.

Conclusions:

Although congenital pyloric atresia is extremely rare, in case of isolated anomaly the prognosis with surgical treatment is excellent. Evidence is limited due to a small number of cases described in the literature.

290 - ALTERED BILE ACIDS HOMEOSTASIS UNPERPINS CHOLESTATIC LIVER INJURY IN INTESTINAL FAILURE

Annika Mutanen[1,2], Mikko Niemi[3,4,5], Mikko Pakarinen[1,2]

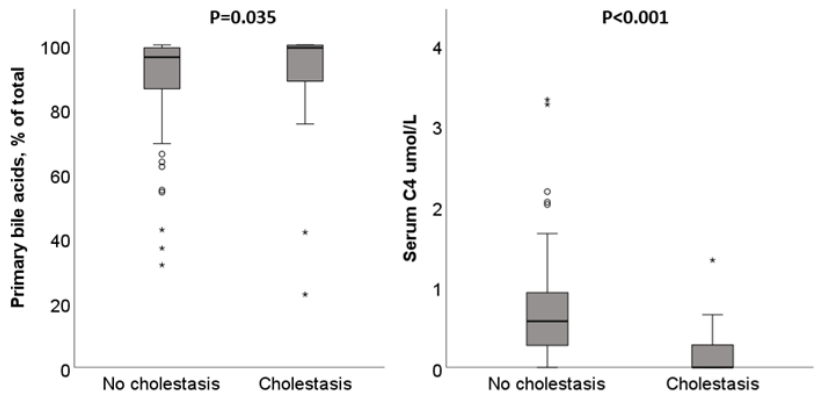
[1]Department of Pediatric Surgery, New Children's Hospital, University of Helsinki, Helsinki, Finland. [2]Pediatric Research Center, Children and Adolescent Department, New Children's Hospital, University of Helsinki and Helsinki University Hospital,, Helsinki, Finland. [3]Department of Clinical Pharmacology, University of Helsinki, Helsinki, Finland. [4]Individualized Drug Therapy Research Program, Faculty of Medicine, University of Helsinki,, Helsinki, Finland. [5]Department of Clinical Pharmacology, HUS Diagnostic Center, Helsinki University Hospital, Helsinki, Finland

Aim of the study. Disturbed bile acid (BA) homeostasis may promote development of cholestatic liver diseases. We investigated serum BAs, 7α-hydroxy-4-cholesten-3-one (C4), a surrogate for BA synthesis, and FGF19, ileum-derived negative feedback regulator of BA synthesis, in relation to liver injury in pediatric intestinal failure (IF).

Methods. After ethical approval, serum samples (n=103) and liver biopsies (n=85) were obtained from 62 IF patients at median age 4.1 years (IQR 1.1-8.7). Serum BAs and C4 were measured using high performance liquid chromatography-tandem mass spectrometry, and FGF19 using ELISA.

Main results. Histological cholestasis, present in 27% of liver biopsies, occurred uniformly (100%) during parenteral nutrition (PN) and predominantly (73%) in patients without remaining ileum. Cholestatic patients showed increased serum primary BA (Figure) and decreased secondary BA [0.9% (0.1-0.9) vs 3.8% (0.9-14.0) P=0.035] fractions, while serum FGF19 remained unchanged [41 pg/mL (31-60) vs. 49 (32-83), P=0.440]. Serum C4 levels were lower in patients with cholestasis (Figure) and current PN [0.032 µmol/L (0.0-0.74) vs 0.63 (0.14-0.96), P=0.049]. During PN, C4 correlated with cholestasis grade (r=-0.499, P<0.001), GT (r=-0.480, P<0.001) and APRI (r=-0.475, P=0.005). Serum FGF19 was decreased in patients without remaining ileum [38 Pg/mL (31-59) vs 54 (35-84), P=0.017] and correlated with primary BAs (r=-0.223, P=0.028).

Conclusions. In patients with IF, cholestatic liver injury occurred during PN, and associated with increased serum primary BAs and decreased BA synthesis, despite unaltered FGF19. The data suggest altered BA homeostasis may contribute to pathogenesis of IF associated liver disease.



343 - ENHANCING EARLY BILIARY ATRESIA PREDICTION THROUGH MACHINE LEARNING APPROACH UTILISING MULTIPLE IMPUTATION STRATEGY

Zhuoshang Han[1], Paul Taylor[1], Evelyn Geok Peng Ong[2], Sumaira Syed[2]

[1]UCL, London, United Kingdom. [2]Liver Unit, Birmingham Women's and Children's Hospitals NHS, Birmingham, United Kingdom

Aim: To enhance early detection of biliary atresia (BA) and outcomes of Kasai portoenterostomy, we aim to introduce a novel, non-invasive diagnostic method using a ground-breaking machine learning approach.

Method: Data from 2000 to 2022 on 502 neonates with conjugated jaundice (293 BA, 209 non-BA) at a single centre were analysed, including clinical, laboratory, and radiological findings. Due to significant missing data, multiple imputation was applied. This robust method involved generating several imputed datasets, where missing entries were replaced with a range of plausible values, statistically derived to reflect the original data's distribution and inter-variable relationships. This ensured the integrity and completeness of the dataset for subsequent machine learning analysis. Random Forest, SVM, and Logistic Regression models were developed and evaluated using an 80-20 training-test split, random search for hyperparameter tuning, and 5-fold cross-validation, ensuring accuracy, robustness, and generalizability.

Results: The three machine learning models with multiple imputation generally outperformed traditional methods and the models with simple imputation across Specificity, Accuracy, Precision, Sensitivity and F1 Score. The highest sensitivity was noted in Random Forest (97.4%), while SVM exhibited the highest specificity (97.7%). Complementing these findings, learning curve analysis reinforced the robustness of the models, while feature importance evaluations pinpointed 'Stool Colour', 'GGT', and 'Conjugated Bilirubin' as critical clinical indicators, solidifying their significance in the diagnostic process.

Conclusion: This machine learning model introduces a non-invasive, cost-efficient strategy for early BA detection, potentially diminishing the need for invasive interventions and facilitating a less burdensome healthcare process.

Table: Comparative Performance Metrics of Traditional Diagnostic Methods and Machine Learning Models in BA Detection

Method/ Model	Imputation Type	Specificity	Accuracy	Precision	Sensitivity	F1 Score
Liver Biopsy	-	88.9%	90.1%	94.9%	92.5%	93.7%
Hepatobiliary Scintigraphy	-	80.0%	84.5%	91.8%	90.0%	90.9%
Ultrasonographic Analysis	-	90.9%	66.3%	90.9%	41.7%	57.2%
Stool Colour Card	-	99.9%	-	28.6%	89.7%	43.4%
Logistic Regression	Simple	83.7%	93.1%	93.8%	93.1%	92.9%
SVM	Simple	88.4%	95.1%	95.4%	95.1%	95.0%
Random Forest	Simple	90.7%	96.0%	96.3%	96.0%	96.0%
(Pooled ±Variance Metrics for Multiple Imputation)						
Logistic Regression	Multiple	95.0% ± 0.00%	96.0% ± 0.00%	96.0% ± 0.00%	96.0% ± 0.00%	96.0% ± 0.00%
SVM	Multiple	97.7% ± 0.00%	97.2% ± 0.74%	97.2% ± 0.74%	97.2% ± 0.74%	97.2% ± 0.74%
Random Forest	Multiple	94.0% ± 0.01%	97.4% ± 0.48%	97.5% ± 0.45%	97.4% ± 0.48%	97.4% ± 0.49%

471- POSITIONING TIP OF THE UMBILICAL VEIN CATHETER IMPACTS ON THE RISK OF DEVELOPMENT OF PORTAL VEIN THROMBOSIS IN NEWBORN PATIENTS

MERVE KARAYAZILI[1], ULGEN CELTIK[1], DEMET TEREK[2], OZGE ALTUN KOROGLU[2], ORKAN ERGUN[1]

[1]EGE UNİVERSİTY FACULTY OF MEDİCİNE DEPARTMENT OF PEDİATRİC SURGERY, IZMIR, Turkey. [2]EGE UNIVERSITY FACULTY OF MEDICINE, DEPARTMENT OF PEDİATRİCS, DİVİSİON OF NEONATOLOGY, IZMIR, Turkey

Aim: Umbilical vein catheterization (UVC) for preterm and critically ill term neonates is being increasingly used in neonatal intensive care units due to its safety as both an emergency and a long-term central venous access. However, UVC is known to be a significant risk factor for portal vein thrombosis (PVT). Despite the lack of consensus in the literature, the importance of proper or improper placement in preventing PVT caused by UVC has been emphasized. This study investigates the effect of catheter tip position, a more sensitive indicator, on the development of PVT.

Methods: Neonates who underwent UVC between 2014-2022 were reviewed retrospectively. Catheter tip positions in each individual X-ray were classified into five categories**: very high, high, medium, low, and abnormal. Data on demographics, catheter duration, and thrombus occurrence were also assessed.

Results: After exclusions, there were total of 506 neonates; PVT group (n:18) and non-PVT group (n:488). Analysis of catheter tip position level and its relationship with PVT is depicted in the Table. Significant difference was observed between the incidence of PVT and UVC placement levels ($p<0.05$). A Post-hoc Tukey test to determine the source of this significant difference revealed that abnormal placement contributed to PVT development in the PVT group, while high placement was a factor in the non-PVT group.

Conclusion: This study highlights the significance of proper catheter tip placement during UVC to prevent PVT. It emphasizes a higher PVT risk with abnormal tip placements. Standardized guidelines for UVC placement are essential for improved neonatal outcomes.

		PVT (n:18)		Non-PVT (n:488)		P value
UVC Duration (days)		7,78±4,21	1-20	8,13±6,16	0-53	0,613[X]
		n	%	n	%	
Level	[A] Very High	4	22,22	169	34,63	0,001[Y]
	[B] High	1	5,56	198	40,57	
	[C] Medium	6	33,33	46	9,43	Differences* ;
	[D] Low	0	0,00	9	1,84	E>B
	[E] Abnormal	7	38,89	66	13,52	E>A

*X-One Way ANOVA Test, Y-Chi-square test, * Tukey test, p<0.05*

**The classification of catheter tip position in relation to the diaphragm on X-ray;
VERY HIGH: More than 0.5 cm above the diaphragm
HIGH: Between 0.5 cm above and 0.5 cm below the diaphragm
MEDIUM: More than 0.5 cm below the diaphragm within the hepatic shadow
LOW: Between the umbilicus and the hepatic shadow
ABNORMAL: Within the hepatic shadow but in a different orientation or other areas of the abdomen

351 - FLUORESCENT CHOLANGIOGRAPHY USING INDOCYANINE GREEN (ICG) IS BETTER OPTION FOR LAPAROSCOPIC CHOLECYSTECTOMY IN PEDIATRIC PATIENTS COMPARED TO CONVENTIONAL LAPAROSCOPIC PROCEDURE.

Ciro Esposito[1], Kirtikumar J Rathod[2], Mariapina Cerulo[1], Fulvia Del Conte[1], Rahul Saxena[3], Vincenzo Coppola[1], Arvind Sinha[3], Annalisa Chiodi[1], Claudia Di Mento[1], Maria Escolino[1]

[1]Federico II University, Naples, Italy. [2]Department of Pediatric Surgery, Jodphpur, India. [3]Department of Pediatric Surgery, Jodhpur, India

Aim of the study:

The objective of this 10-year study was to compare the outcomes of standard laparoscopic cholecystectomy (LC) with indocyanine green fluorescent cholangiography (ICG-FC) LC in pediatric patients.

Methods:

Between 2013 and 2023, 173 LCs were conducted across two pediatric surgery units, with 83 undergoing the standard technique (G1) and 90 employing ICG-FC (G2). Patients included 96 girls and 77 boys, with a median age of 12.3 years. The study assessed various parameters, including perioperative complication rates, overall surgery duration (T1), length of cystic duct isolation, clipping, and sectioning (T2), time of gallbladder removal (T3), biliary tree visualization degree, ICG-FC's safety and feasibility, and the incidence of intraoperatively anatomical anomalies detected.

Main results:

LCs were successfully completed without open conversion. The perioperative complication rate was significantly lower in the ICG-FC group (G2) compared to the standard technique group (G1) [p=0.0007]. Median durations for T1, T2, and T3 were notably shorter in G2 compared to G1 [p=0.0001]. The visualization rate of the complete biliary tree was significantly higher in G2 than in G1 [p=0.0001]. No adverse reactions to ICG were reported. The incidence of intraoperatively detected biliary anomalies was significantly higher in G2 (7.8%) than in G1 [p=0.03].

Conclusions:

the study suggests that ICG-FC can be considered the new standard practice for performing LC in pediatric patients. ICG-fluorescence demonstrated better visualization of biliary anatomy, increased detection of anatomical variants, faster procedure, and fewer complications compared to the conventional technique. ICG-FC was a safe, feasible, cost-effective, and time-saving tool.

617 - LAPARSCOPIC LIVER TUMOR RESECTION IN CHILDREN

Adam Kowalski, Marek Stefanowicz, Grzegorz Kowalewski, Hor Ismail, Piotr Kaliciński

Children's Memorial Health Institute, Warsaw, Poland

Although laparoscopic access for liver tumors is well described, most of the reports assess groups of adult patients. In most cases, laparoscopic liver tumor resections are performed in single, small, benign lesions. Most of these procedures are nonanatomical resections.

The aim of this study is to present our experience in laparoscopic resection of liver tumors.

Minimal access surgery program for liver tumors started in 2014 in our center. Since then, among 109 children with liver tumors, 11 patients (6 girls, 5 boys), underwent laparoscopic liver tumor resection. The patients' ages were one month to 16,5 years (med. 1,6 years). In 9 patients, the lesion was localized in the left lobe, and in 2 patients, in the right hepatic lobe. In 9 patients, we performed nonanatomical tumor resection. In 2 cases, left bi-segmentectomy was performed. Conversion to laparotomy was required in 1 case due to bleeding. In resected specimens, we found FNH in 6 patients, HBL in 2, hemangioendothelioma in 2, and mesenchymal hamartoma in 1. There were no early or late complications. One patient after nonanatomical tumor resection required laparoscopic extended resection due to suspicion of uncertain margins and a possible tumor recurrence. Post-operative hospitalization was 3 to 14 days (med. 6 days). All patients are free of recurrence. Follow-up ranges from 1 month to 5 years (med. 2,3 years).

Laparoscopic liver tumor resection in children is safe and feasible but requires extended experience in hepatic surgery and minimal access techniques.

638 - TRANSARTERIAL EMBOLIZATION WITH MICROSPHERES IN PATIENTS WITH FOCAL NODULAR HYPERPLASIA OF THE LIVER

Anna Roszkiewicz, Małgorzata Markiewicz-Kijewska, Marek Stefanowicz, Grzegorz Kowalewski, Dorota Broniszczak-Czyszek, Piotr Rago, Jan Bartuszek, Urszula Zienkiewicz, Agnieszka Pytlewska, Elżbieta Jurkiewicz, Piotr Kaliciński

Children's Memorial Health Institute, Warsaw, Poland

Aim of the Study

Focal Nodular Hyperplasia (FNH) is a benign tumor of the liver which presents specific features in radiological imaging. Most cases of FNH do not require any treatment – only symptomatic or expanding tumors are qualified for interventions. The aim of the study is to assess the effectiveness of transarterial embolization with microspheres performed in author's department.

Methods

Retrospective data analysis. Between 2000-2023 17 patients (9 female) with FNH were treated with microsphere embolization.

Main results

Patients age was between 10 and 17 years (median 14). FNH diameter at diagnosis ranged from 65 to 100 mm (median 80 mm). Four patients were symptomatic (pain – 3, vomitus – 1).

Most common localization of FNH was segment 4 – 5 patients, and segment 7 – 4 patients. One patient presented multifocal disease – 3 biggest lesions were embolized.

After the procedure lesions were assessed by ultrasound and computer tomography. Volume of every embolized mass decreased. Before the procedure volumes rated from 66 to 193 cm^3 (median 145 cm^3), a year after the procedure volumes rated from 12 to 139 cm^3 (median 67,5 cm^3).

6 patients required second embolization due to increase of FNH volume (11-25 months after initial procedure). No major complications were noticed. In the follow-up all patients remain asymptomatic.

Conclusions

Transarterial microsphere embolization is a good option of treatment in patients with FNH, especially in patients with large or growing tumors in surgically difficult localizations. Patients require long term observation and due to possible FNH volume increase may need repeated procedures.

32 - Congenital intrahepatic portosystemic shunt in 25 children: evaluation and treatment strategies

Jinshan Zhang

Capital Institute of Pediatric, beijing, China

Objective: To investigate the treatment strategies for congenital intrahepatic portosystemic shunt (CIPSS) through summarizing the experience in treating 25 children with CIPSS.

Methods: From August 2017 to December 2022, 25 children with CIPSS were treated at our hospital. Among them, from August 2017 to August 2022, 12 patients (operative age: 13-15.3 years, median: 0.5 years, male: 6, female: 6) underwent the ligation of portosystemic shunt (5 patients were diagnosed by the prenatal ultrasound); From December 2020 to December 2022, 13 cases (current age: 1-30 months, median: 16 months, male: 12, female: 1) with a prenatal diagnosis of CIPSS underwent the conservative treatment without surgery. The followed-up was performed at postoperative 1, 3, 6 months and every 6 months thereafter in the 12 patients. The followed-up was performed at 1, 3, 6 months and every 6 months thereafter after birth in the 13 patients. The contents of following-up included blood ammonia, routine blood test, biochemistry, coagulation function, and ultrasound and CT to identify the patency of shunt vessels.

Results: The prenatal ultrasound diagnostic rate of CIPSS was 72% (18/25). Hyperammoniaemia was the most common clinical manifestation, and its incidence was 80% (20/25). In addition to hyperammoniaemia, jaundice and abnormal liver function were the other two most common clinical manifestations in patients with the prenatal diagnosis of CIPSS, with the incidence of 77.8% (14/18) and 55.6% (10/18) respectively. 12 cases undergoing surgery were followed up for 9-69 months (median: 32.5 months), and their blood ammonia returned to normal after surgery. After surgery, ultrasound and CT showed that the portosystemic shunt was disappeared, and there was no portal vein thrombosis and portal hypertension complications in all patients. 5 of 13 children with conservative treatment had the disappeared portosystemic shunt shown by the ultrasound, and the spontaneous closure rate of shunt was 38.5% (5/13), the spontaneous closure age of these 5 patients was 1-7 months old (median: 3 months old). In all patients with conservative treatment, the cure rate of jaundice was 100% (11/11) and the cure age was 1-8 months old (median: 4 months old) ; the cure rate for liver dysfunction was 100% (8/8) and the cure age was 1-8 months old (median: 4 months old); the cure rate for hyperammoniaemia was 90.9% (10/11) and the cure age was 1-8 months old (median: 3.5 months old).

Conclusion: CIPSS is a curable congenital anomaly. Prenatal ultrasound is an effective method for diagnose this malformation, and 72% of CIPSS was detected by the prenatal ultrasound. Postnatal jaundice, liver dysfunction, and hyperammoniaemia can be cured within one year of age. The conservative treatment should be performed until 1 year old, and the surgery or interventional treatment should be performed in more than 1 year old patients with an unclosed shunt.

464 - MESO-REX BYPASS REVISITED: EMPLOYING CRYOPRESERVED ARTERIAL ALLOGRAFTS AS AN ALTERNATIVE TO AUTOLOGOUS VENOUS CONDUITS

Isabel González-Barba, Gabriela Guillén, Jesus Quintero, Manuel López, Sergio López, Mercedes Pérez, María Margaret Mercadal, Marta Martos, Cristina Padros, Jose Andrés Molino

Vall d'Hebron University Hospital, Barcelona, Spain

AIM

The Meso-Rex (MR) procedure employs an autologous venous conduit, usually the internal jugular vein (IJV), or a synthetic vascular substitute to bypass the extrahepatic portal vein obstruction (EHPVO), the latter remains a controversial option in pediatric patients. Our aim was to describe our initial experience using cryopreserved arterial allografts. To our knowledge this technical modification has not been previously described.

METHODS

Retrospective analysis of patients with idiopathic EHPVO who underwent an MR procedure using cryopreserved arterial allografts between January 2023-January 2024.

RESULTS

Four out of 8 surgically managed EHPVO were subjected to an MR bypass (50%). Arterial allografts procured by an external tissue bank were employed in 3 cases (2 female/1 male, mean age of 9.7±1.2 years). EHPVO constituted an incidental radiological finding in all cases. All patients underwent a preoperative transhepatic portography to attempt repermeabilization of the EHPV and assess intrahepatic right-to-left portal patency.

Conduit types included 1 thoracic aorta and 2 femoral arteries. Mean conduit diameter and length was 9±3.5 and 73.3±11.5 mm. An ante-pancreatic transmesocolic routing was employed in all cases. Patient 3 required intraoperative thrombectomy and stenting due to poor mesenteric venous flow. All patients received intensive antithrombotic therapy for the first month and antiplatelet drugs alone for the remaining 5 months. With a mean follow-up of 6 months all shunts are patent.

CONCLUSION

Cryopreserved arterial allografts reduce operative time and comorbidities associated with autologous IJV harvesting, salvaging a central venous access that may come in handy in the future.

646 - REMOTE ISCHEMIC CONDITIONING IN NECROTIZING ENTEROCOLITIS: UPDATE ON AN INTERNATIONAL PHASE II FEASIBILITY RANDOMIZED CONTROLLED TRIAL

Niloofar Ganji[1,2], Stella Sabbatini[1], Prakeshkumar Shah[3], Poorva Deshpande[3], Eugene Ng[4], Maher Shahroor[4], Jae Kim[5], Mustafa H Kabeer[6], Tomas Wester[7], Elena Palleri[7], Agostino Pierro[1,2]

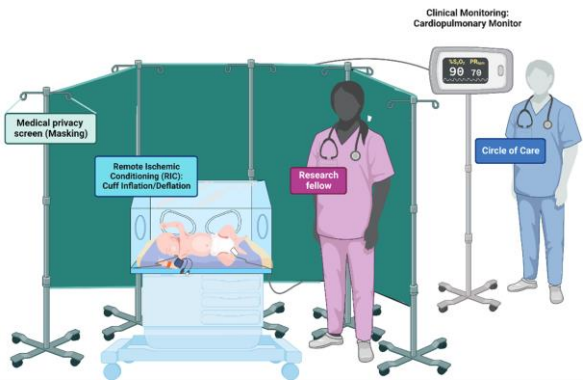
[1]The Hospital for Sick Children, Toronto, Canada. [2]University of Toronto, Toronto, Canada. [3]Mount Sinai Hospital, Toronto, Canada. [4]Sunnybrook Health Sciences Center, Toronto, Canada. [5]Cincinnati Children's Hospital Medical Center, Cincinnati, USA. [6]Children's Hospital of Orange County, Orange County, USA. [7]Karolinska University Hospital, Karolinska, Sweden

Aim: To evaluate the feasibility and safety of remote ischemic conditioning (RIC) in infants with necrotizing enterocolitis (NEC) and inform the design of a future efficacy phase III randomized controlled trial (RCT).

Methods: The RIC-NEC trial is a prospective, masked, international, phase II feasibility RCT. Neonates with medical NEC are randomized to RIC (intervention) or no-RIC (control) and continue to receive standard-of-care. RIC involves 4 cycles of limb ischemia (5-min blood pressure cuff inflation) followed by reperfusion (5-min cuff deflation), repeated on two consecutive days **(Figure)**. The primary endpoint is feasibility of recruiting and randomizing neonates within 24-hours of NEC diagnosis and delivering masked intervention.

Main Results: Between April-2023, and January-2024, in 4 out of 12 centers, 56 patients have been screened, 25 approached, 10 did not give consent, and 12 were enrolled, with an enrollment goal of 78 patients. The preliminary data suggests a 40% recruitment rate is achievable. The intervention has been feasible in all patients with no changes in safety outcomes. Secondary clinical outcomes at 1-month post-randomization are being assessed including duration of total parenteral nutrition (RIC: mean 21.4d; no-RIC: mean 24.4d), abdominal operations performed for failed medical treatment (RIC: 0/5; no-RIC: 3/5), and development of chronic lung disorder (RIC: 2/5; no-RIC: 2/5)

Conclusions: Our international NEC consortium has defined the feasibility parameters for introduction of RIC as a novel NEC treatment. The ongoing RCT will inform a future phase III RCT to evaluate the efficacy of RIC in the early management of medical NEC.



Figure

543 - INTERNATIONAL CORE OUTCOME SET FOR TREATMENT TRIALS IN NECROTISING ENTEROCOLITIS

Daphne Klerk[1], Otis van Varsseveld[2], Martin Offringa[3], Neena Modi[4], Martin Lacher[5], Augusto Zani[6], Mikko Pakarinen[7], Antti Koivusalo[7], Ingo Jester[8], Marie Spruce[9], Joep Derikx[10], Roel Bakx[10], Amine Asia[11], Elisabeth Kooi[1], Jan Hulscher[2]

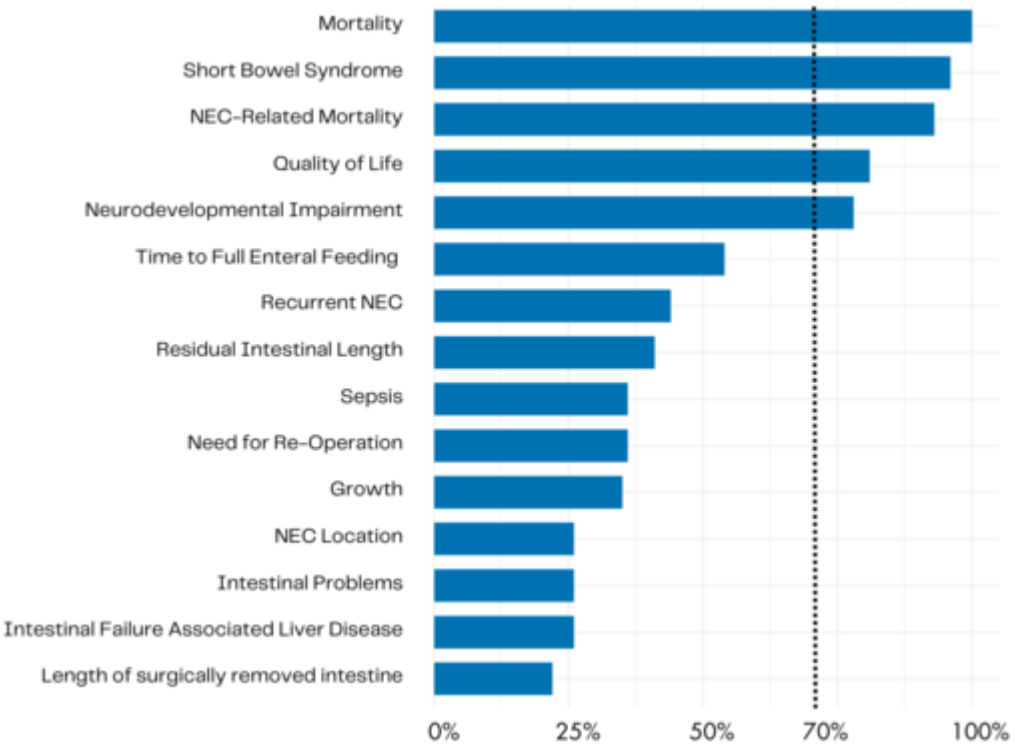
[1]Division of Neonatology, Beatrix Children's Hospital, University Medical Center Groningen, University of Groningen, Groningen, Netherlands. [2]Department of Surgery, Division of Pediatric Surgery, University Medical Center Groningen, University of Groningen, Groningen, Netherlands. [3]Child Health Evaluative Sciences, The Hospital for Sick Children Research Institute, University of Toronto, Toronto, Canada. [4]Section of Neonatal Medicine, School of Public Health, Chelsea and Westminster Hospital campus, Imperial College London, London, United Kingdom. [5]Department of Pediatric Surgery, University Hospital Leipzig, University of Leipzig, Leipzig, Germany. [6]Department of General and Thoracic Surgery, The Hospital for Sick Children, University of Toronto, Toronto, Canada. [7]Department of Pediatric Surgery, Children's Hospital, Helsinki University Hospital, University of Helsinki, Helsinki, Finland. [8]Departments of Paediatric Surgery, Birmingham Women's and Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom. [9]NEC UK Charity, Nottingham, United Kingdom. [10]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands. [11]Department of Surgery, Department of Pediatric Surgery, Fattouma Bourguiba Hospital, Monastir Medical School, Monastir University, Monastir, Tunisia

Aim of the Study: Variability in outcome selection and measurement in necrotising enterocolitis (NEC) treatment trials hinders conducting meta-analyses and implementing novel treatments. We aimed to develop a core outcome set (COS) for NEC treatment trials identifying outcome measures most relevant to patients and physicians, from NEC diagnosis to adulthood.

Methods: Clinicians and/or researchers from low-middle- and high-income countries were approached based on their scientific contributions to NEC literature, and patients and parents through local organizations. We presented all participants with 45 trial outcomes used in NEC research, identified through a systematic review. To achieve consensus, outcomes were rated on a scale of 1–9 in three online Delphi rounds and discussed at a final consensus meeting.

Main Results: Seventy-one participants from 25 countries completed all Delphi rounds, including 15 patients and family representatives. Thirteen outcomes reached consensus in one of the stakeholder groups, six reached consensus in both groups. Twenty-seven participants from both high- and low-middle-income countries attended the online consensus meeting, including family representatives and NEC patients. After discussion and a final vote, five outcomes reached consensus for inclusion in the COS: mortality, NEC-related mortality, short bowel syndrome, quality of life and neurodevelopmental impairment *(Figure 1)*.

Conclusions: This NEC core outcome set includes five, predominantly long-term outcomes agreed upon by clinicians, patients, and family representatives. Use of this international COS will help standardize outcome selection in clinical trials, ensure these are relevant to those most affected by NEC care, and ultimately, improve the care of infants with NEC.



819 - NECROTIZING ENTEROCOLITIS AND NEUTROPHIL EXTRACELLULAR TRAPS – A TRANSLATIONAL MODEL

Laura Blum, Deirdre Vincent, Michaela Klinke Petrowsky, Julia Elrod, Jasmin Knopf, Michael Boettcher

Department of Pediatric Surgery, Mannheim, Germany

Aim of the Study:

Necrotizing enterocolitis' (NEC) pathogenesis is multifactorial, involving gut prematurity and ischemia-reperfusion injury, which are partially mediated by neutrophils and their products - neutrophil extracellular traps (NETs). When neutrophils are overly active, excessive release of NETs promotes inflammation. Thus, animal studies suggest that NETs degradation decreases inflammation and intestinal cell apoptosis, resulting in reduced NEC-related morbidity and mortality. Therefore, the aim of the study was to validate neutrophils' role in NEC, using an intestinal organoid model.

Methods:

Intestinal organoid cultures were established using human intestinal NEC samples and samples from neonates, without gut inflammation. Subsamples were stimulated with lipopolysaccharide (LPS) for 48 hours and incubated with human neutrophils for 24 hours. All samples were analyzed using immunofluorescence and flow cytometry to assess NEC manifestation, as well as neutrophil activation and NETs.

Main results:

A total of 18 patients (NEC 9; Controls 9) were included. NEC organoids showed a significantly higher TLR-4 expression and apoptosis rate, especially upon LPS addition. Neutrophil recruitment did not differ significantly between groups. However, upon LPS treatment, NEC organoids recruited more neutrophils. Lastly, LPS stimulation resulted in increased NETs formation, regardless of group.

Conclusions:

Our study confirms that neutrophils and NETs appear to play an important role in NEC manifestation and maintenance. Moreover, a possible genetic susceptibility for NEC development due to an increased TLR-4 expression can be hypothesized. Overall, the "NEC in a Dish" model offers an alternative to animal experimentation and might bridge the gap between animal and human NEC research.

621 - SOMATOSENSORY EVOKED POTENTIAL IN PATIENTS WITH ANORECTAL MALFORMATIONS YOUNGER THAN 2 YEARS OF AGE: A PRELIMINARY STUDY

Alessia Bertolino[1], Stefania Conte[2], Silvia Bertolo[3], Cinzia Zanatta[1], Elena Trincia[4], Paola Midrio[1]

[1]Pediatric Surgery Unit, Cà Foncello Hospital, Treviso, Italy. [2]Neurology Unit, Cà Foncello Hospital, Treviso, Italy. [3]Radiology Department, Cà Foncello Hospital, Treviso, Italy. [4]Neuroradiology Unit, Dept. of Radiology, Cà Foncello Hospital, Treviso, Italy

Introduction.

Somatosensory evoked potentials (SSEP) of the lower limbs investigate the somatosensory pathway from the posterior tibial nerve, thru the spinal cord, up to the sensory cortex. No normative values are available for children younger than 2 years. This preliminary study provides values gathered in patients, younger than 2, affected by anorectal malformations (ARM).

Materials/Methods.

All ARM patients younger than 2, undergoing a spinal MRI between 2018-2023 were included (ARM-G). ARM types were divided into simple and complex. Same age patients undergoing a spinal MRI for other reasons (cutaneous lumbar-sacral tags, deep sacral dimples) served as control (C-G). The MRI was performed under mild sedation in both groups and SSEP taken at the end of the radiological examination. Measurements were taken at T12, C7, cortical root level (P40), and central conduction time (CCT) was recorded. The correlation between ARM's type and SSEP's values was also explored.

Results.

Thirty-three patients (20 ARM: 15 simple and 5 complex, 13 controls) were retrieved. P40 and C7 showed a trend of elongation and asymmetry left-right in complex ARM-G compared to C-G. Similarly, CCT presented a trend of increased values both in simple and complex ARM.

Discussion.

This is the first report on SSEP's values in children younger than 2. A trend of prolonged conduction time was detected in ARM patients, especially the complex ones, compared to controls. The data may serve in the multidisciplinary evaluation of ARM patients presenting spinal dysraphism who possibly undergo neurosurgery. A larger sample size is needed to confirm the preliminary results.

752 - LONG-TERM UROLOGICAL, COLORECTAL AND GYNECOLOGICAL OUTCOMES IN PATIENTS WITH CLOACAL EXSTROPHY SPECTRUM

Carla Ramirez-Amoros, Maria San Basilio, Virginia Amesty, Maria Lopez, Alejandro Madurga, Leopoldo Martinez, Maria Jose Martinez-Urrutia, Alejandra Vilanova-Sanchez

La Paz Children's University Hospital, Madrid, Spain

Aim of study

There is little published on the long-term functional results of cloacal exstrophy spectrum patients. We aim to summarise these long-term results in a reference center.

Methods

Retrospective review of the long-term urological, bowel and gynaecological outcomes of cloacal exstrophy spectrum patients treated at our institution from 1980-2010.

Results

We analysed 9 cloacal exstrophies, of which 4 were covered exstrophies, with a mean current age of 25.11±7.02 years. All patients are female, although 2 were born male and had sex re-assignation. All patients had associated malformations, of which 7 (78%) had spinal/sacral anomalies.

All patients underwent a stoma in the neonatal period. In 4(44%) it was possible to close it at a mean age of 10.10±2.86 years. Of these, 3(75%) had faecal continence at 10.67±3.05 years of age, although 2 depend on laxatives and 1 on enemas.

In terms of urinary continence, 7 (77%) patients required a Mitrofanoff aged 5.55 ±2.87 years and ultimately a bladder-neck closure because of persistent incontinence. Both of the 2 (22%) patients with a functioning urethra are dry, although 1 requires intermittent catheterization.

Two (22%) patients required a vaginoplasty and 5 (56%) an external genitoplasty at a later stage. 5 (71%) presented Mullerian anomalies; 4 (67%) are menstruating with a mean menarche of 12.86 ±1.59 years. A cloacal exstrophy had a to-term pregnancy.

Conclusion

Long-term faecal continence outcomes appear to be acceptable, with somewhat worse outcomes in urinary continence. These patients can have a well-functioning reproductive system.

PATIENT REPORTED OUTCOMES OF THE CHAIT TRAPDOOR™ CECOSTOMY IN PEDIATRIC PATIENTS WITH DEFECATION DISORDERS

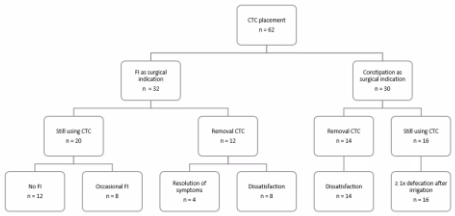
Charlotte Anne Louise Jonker[1,2], Ilan Koppen[3,2], Marc Benninga[3,2], Justin de Jong[1], Ramon Gorter[1,2,4]

[1]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [2]Amsterdam UMC, Gastroenterology and Hepatology, Amsterdam Gastroenterology Endocrinology Metabolism, University of Amsterdam, Amsterdam, Netherlands. [3]Department of Pediatric Gastroenterology, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [4]Amsterdam UMC, University of Amsterdam, Amsterdam Reproduction and Development Research Institute, Amsterdam, Netherlands

Aim of the study

To evaluate the outcomes of patients who underwent Chait Trapdoor™ cecostomy (CTC) placement for severe constipation or fecal incontinence (FI).

Figure 1. Results at last follow-up in 2023



CTC: Chait Trapdoor cecostomy; FI: faecal incontinence;

Methods

We performed a retrospective study including all children (<18 years) who underwent CTC placement between 2009 and 2023 at our tertiary referral center. Data were extracted from medical charts. During routine follow-up in 2023, patient reported outcomes were measured. Main outcomes included whether the CTC was still being used, satisfaction with CTC and resolution of symptoms.

Results

Sixty-two children underwent CTC placement. Median age at CTC placement was 12 years [IQR 8-14; range 1-17 years] and median follow-up was 4 years [IQR 2-8: range 0-14 years]. Most common underlying diseases were functional constipation (n=39, 63%), spina bifida (n=11, 18%) and anorectal malformation (n=5, 8%). In 32 (48%) patients CTC was placed for FI (due to severe constipation, neurogenic causes), while the remaining 30 (48%) patients did not experience FI but solely severe constipation. At last follow-up, 37/62 patients (60%) still used their CTC, whereas 25/62 (40%) had their CTCs removed (figure 1). Forty-one patients (66%) expressed to be satisfied with their CTC. Patients with FI 16/32 (50%) reported a complete resolution of symptoms after CTC placement. Patients without FI, but solely severe constipation achieved daily bowel moments in 16/30 (53%) patients.

Conclusion

At last follow-up, 60% of patients still used their CTC and 66% were satisfied with their CTC. The majority of patients reported daily bowel movements and/or disappearance of FI after CTC placement.

549 - Anorectal malformation with rectovestibular fistula in females treated with a perineal body preserving anorectoplasty - report of early outcomes.

Thomas Xu[1], Rachel Hanke[1], Inbal Samuk[1,2], Laura Tiusaba[1], Christina Feng[1], Erin Teeple[1], Anthony Sandler[1], Andrea Badillo[1], Marc Levitt[1]

[1]Division of Colorectal and Pelvic Reconstruction, Children's National Hospital, Washington DC, USA. [2]Colorectal Service, Department of Pediatric and Adolescent Surgery, Schneider Children's Medical Center, Tel Aviv, Israel

Aim:

The perineal body preserving anorectoplasty (PPA) is a novel approach, a modification of the posterior sagittal anorectoplasty (PSARP), for females with anorectal malformations and a rectovestibular fistula which aims to eliminate the risk of perineal body dehiscence. This report provides longer term postoperative outcomes after this procedure.

Methods:

A retrospective, single institution study was performed examining female patients with rectovestibular fistula who underwent PPA between 1/2020-12/2023. No perineal body or posterior sagittal incision was utilized. No routine post-operative dilations were performed. Post-operative outcomes, length of stay, time to first feeding, and early stooling patterns were assessed.

Results:

Fifteen patients underwent PPA at a median age of 175 days (range 2-570) and median follow up of eleven months (range 1-36). Three (20%) patients underwent repair within the first three months of life. Five (33%) had diverting ostomies prior to referral. There was no incidence of dehiscence or rectal prolapse requiring intervention. Two (13%) patients developed anal strictures which required revision. Fourteen (93%) patients resumed normal feeds on post operative day one. 92% (11/12) of non-NICU patients were discharged on post operative day one. All patients were stooling spontaneously at their most recent clinical encounter with eleven (73%) utilizing laxatives.

Conclusions

The PPA eliminates the risk of perineal body dehiscence and has a quick return to regular diet and home. There is a 13% stricture rate which could be due to a difference in the distal rectal mobilization compared to the traditional PSARP.

344 - ANALYSIS OF TECHNIQUES IN LAPAROSCOPIC INGUINAL HERNIA REPAIRS ACROSS PAEDIATRIC AGE GROUPS: EUPSA TRAINEES OF EUROPEAN PAEDIATRIC SURGERY (TEPS) SURVEY

Hilmican Ulman[1], Ophelia Aubert[2], Agnieszka Wiernik[3], Julio César Moreno Alfonso[4], Marta Gazzaneo[5], Alexander Sterlin[6], Amulya K. Saxena[7]

[1]Department of Pediatric Surgery, Bakircay University Cigli Regional Education Hospital, İzmir, Turkey. [2]Department of Pediatric Surgery, University Hospital Leipzig, Leipzig, Germany. [3]Department of Pediatric Surgery and Urology, Medical University of Silesia, Katowice, Poland. [4]Department of Pediatric Surgery, Hospital Universitario de Navarra, Pamplona, Spain. [5]Department of Pediatric Surgery, Hospital Universitario de Navarra, Pavia, Italy. [6]Department of Pediatric Surgery, Johannes Gutenberg University Mainz, Mainz, Germany. [7]Department of Paediatric Surgery, Chelsea and Westminster Hospital NHS Foundation Trust, Imperial College London, London, United Kingdom

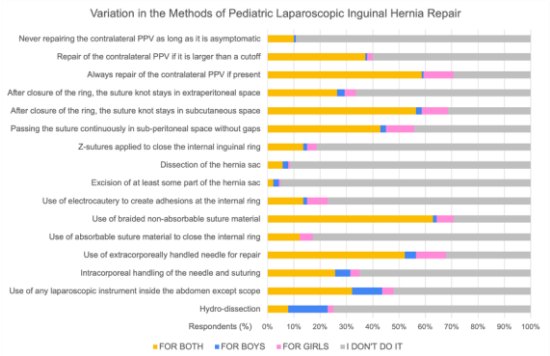
Aim: This survey analysed techniques in laparoscopic inguinal hernia repairs (LIHR) across paediatric age groups.

Methods: Data was collected using an online survey for paediatric surgeons, comprising of 38 questions, conducted by EUPSA Trainees of European Paediatric Surgery (TEPS) LIHR Working Group.

Results: There were 183 completed responses from 22 countries with main results below:

1. ***Implementation:*** 77% of respondents had performed LIHR.
2. ***Case selection:*** 7% select females, 9% routinely females, 15% both genders with age/weight restrictions, 23% routinely both genders, 31% few selected cases, and 15% none.
3. ***Approach***: Though percutaneous internal ring suturing (PIRS) was the most popular among all age groups, totally extraperitoneal and transabdominal preperitoneal repairs were preferred by 9% for adolescents.
4. ***Contralateral patent processus vaginalis (PPV):*** 59% repair PPV regardless of size, 10% do not repair in asymptomatic cases.
5. ***Technique:*** Hydro-dissection (21%) and intra-abdominal instruments (42%) were the preference in male patients (p=.003). Distal hernia sac was left intact in 92%; with sac excision in 5% and dissection in 9%.
6. ***Recurrences:*** 40% responded that LIHR had recurrence rates comparable to open surgery, whereas 10% reported increased recurrences hence limited its use, and 10% consider that slightly increased recurrences are outweighed by lower complication rates associated with laparoscopic methods thus continue LIHR.

Conclusions: PIRS is the preferred choice for paediatric LIHR. Surgical techniques vary and are influenced by patient gender and age. The survey gives insights into demographics, case selection and approaches among paediatric surgeons with regards to LIHR.



702 - INTERFERENTIAL CURRENT STIMULATION OF RECTAL MOTOR ACTIVITY – OBJECTIVE DATA FROM THE ISOLATED PERFUSED PORCINE RECTUM

Richard Martel[1,2], Michael Boettcher[1], Michaela Klinke Petrowsky[1], Nicolas Hoyos[1], Irmgard Herrmann[3], Walter Magerl[2], Martin Herrmann[3]

[1]Department of Pediatric Surgery, Medical Faculty Mannheim, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany. [2]Department of Neurophysiology, Mannheim Center for Translational Neurosciences (MCTN), Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany. [3]Department of Medicine 3, Universitäts-Klinikum Erlangen, Erlangen, Germany

Background:

Interferential Current (IFC) has been studied in several clinical trials for the treatment of bowel motility disorders, most often in children. However, only moderate effects are reported and in contrast to IFC, the so-called placebo application is indiscernible. The mechanisms and neuroanatomic points of action remain elusive. Therefore, this therapy remains being questioned.

Methods:

To gain objective experimental data about IFC stimulation, we examined this method ex-vivo in an isolated perfused porcine rectum including the mesorectum. To elucidate the role of plexus nerve fibres and enteric ganglia, we performed IFC stimulation also in the presence of tetrodotoxin or hexamethonium. We applied the commonly used stimulation modes with a beat frequency sweeping between 5-25Hz (IFC_{d5-25}) and 80-150Hz ($IFC_{d80-150}$). We monitored intraluminal pressure and motility by online barometry and video recording, respectively. Motor activity, reflected by changes in the intraluminal pressure ($cmH_2O\ s^{-1}$) and longitudinal movements (pixels s^{-1}), was quantified over time as Root Mean Squares (RMS).

Results:

After IFC_{d5-25} we observed a 30% increase of the rectal motility in the pressure changes which was sustained over 30 minutes post stimulation ($p<0.02$); only a minor effect was detected for $IFC_{d80-150}$. Both tetrodotoxin and hexamethonium abolished the stimulation. This suggests neuronal modulation.

Conclusion:

IFC_{d5-25} stimulates rectal motor activity in the isolated perfused porcine rectum. Ganglia in the enteric nervous system are modulated to allow increased activity throughout at least 30min. Therefore, the isolated porcine rectum is a suitable tool to study the effectiveness of various IFC settings in the rectum.

720 - UTILITY OF CELLULAR INDICES IN THE DIAGNOSIS OF ULCERATIVE COLITIS

Julio César Moreno-Alfonso[1,2], Ada Molina Caballero[1], Sara Hernández Martín[1], Alberto Pérez Martínez[1], María Concepción Yárnoz Irazábal[1,2]

[1]Hospital Universitario de Navarra, Pamplona, Spain. [2]Universidad Pública de Navarra, Pamplona, Spain

Aim: To describe the usefulness of cellular indices in the diagnosis of ulcerative colitis (UC).

Methods:

Diagnostic study of patients under 15 years of age undergoing colonoscopy ± esophagogastroduodenoscopy for suspected inflammatory bowel disease between 2015-2022 in a pediatric hospital. Patients with normal biopsy and anatomopathological diagnosis of UC were included. Using the area under the ROC curve, the values of platelet-lymphocyte ratio (PLR), neutrophil-lymphocyte ratio (NLR) and monocyte-lymphocyte ratio (MLR), calculated by dividing the number of platelets, neutrophils and monocytes by the number of lymphocytes, respectively, were compared to establish the sensitivity, specificity, predictive values and Odds Ratio of each parameter in the diagnosis of UC.

Main results:

26 patients were included: 14 with normal biopsy and 12 with UC. PLR and MLR values were significantly higher in patients with UC ($p < 0.05$). The sensitivity, specificity and negative predictive value of PLR, NLR and MLR for diagnosing UC were 58%, 83% and 91%; 85%, 35% and 50%; 70%, 71% and 87%, respectively. The biomarker with the highest diagnostic performance was MLR with a cutoff point of 0.235, area under the curve of 0.735 and Odds Ratio of 11 (95%CI 1.1-109.6; p= 0.041).

Conclusions:

MLR has a high sensitivity, negative predictive value and Odds Ratio in the pre-endoscopic diagnosis of ulcerative colitis. Therefore, it could be useful in the prioritization of endoscopic studies in patients with values >0.235, or to reconsideration of other diagnoses in those with a MLR ≤0.235.

553 - Potential predictors of necrotizing enterocolitis in ELBWIs: Analyses of coagulation and fibrinolysis markers at birth at a single institution

Keisuke Yano[1,2], Koshiro Sugita[1], Toshio Harumatsu[2], Makoto Matsukubo[3], Takafumi Kawano[1], Mitsuru Muto[1], Motofumi Torikai[3], Satoshi Ibara[2], Takuya Tokuhisa[2], Satoshi Ieiri[1]

[1]Department of Pediatric Surgery, Research Field in Medical and Health Sciences, Medical and Dental Area, Research and Education Assembly, Kagoshima University, Kagoshima, Japan. [2]Department of Neonatology, Kagoshima City Hospital, Kagoshima, Japan. [3]Department of Pediatric Surgery, Kagoshima City Hospital, Kagoshima, Japan

Aim of the study: We investigated predictors of NEC onset in extremely low-birth-weight infants (ELBWIs) by analyzing blood tests, including coagulation and fibrinolysis markers at birth.

Methods: We reviewed the medical records of ELBWIs born at our institution between 2013 and 2022. Patients' background characteristics and blood test results, including coagulation and fibrinolysis markers at birth, were compared between the NEC and control groups. NEC was diagnosed based on the findings of the operation, and all patients in the NEC group underwent laparotomy.

Main results: A total of 246 ELBWIs were enrolled in this study (control group, n=226; NEC group, n=20). Background characteristics were compared between the control and NEC groups as follows: gestational age at birth, 25.4±1.5vs.25.3±1.9 weeks, p=0.736; body weight at birth, 733.8±159.5 vs. 663.9±152.1 g, p=0.062; and sex (male:female),107:119 vs. 8:12, p=0.642. Coagulation and fibrinolysis markers at birth were compared between the control and NEC groups as follows (Table): prothrombin ratio, 1.65±0.55 vs. 1.39±0.27, p=0.052; activated partial thromboplastin time, 78.5±31.1 vs. 95.6±40.6 min, p=0.083; fibrinogen, 160.7±124.2 vs. 107.3±67.1 mg/dL, p=0.004; antithrombin III, 29.1%±7.8% vs. 28.4%±9.9%, p=0.083; D-dimer, 3.2±2.5 vs. 11.7±13.9 μg/mL, p=0.013; thrombin antithrombin III complex, 9.0±7.9 vs. 20.5±28.1 ng/mL, p=0.082; plasmin-α2 plasmin inhibitor complex, 1.04±0.67 vs. 1.88±3.0 μg/mL, p=0.254.

Conclusions: Low fibrinogen and high D-dimer levels at birth were potential predictors of the onset of NEC.

Table 1. Comparison of blood test parameters at birth between Control group and NEC regard

	Control group	NEC group	*p*-value
Total number of patients	226 (91.9 %)	20 (8.1 %)	
PT (%)	62.2±19.4	54.2 ± 24.4	0.169
PT-INR	1.65 ± 0.55	1.39 ± 0.27	0.052
APTT (min)	78.5 ± 31.1	95.6 ± 40.6	0.083
Fib (mg/dL)	160.7 ± 124.2	107.3 ± 67.1	**0.004**
ATIII (%)	29.1 ± 7.8	28.4 ± 9.9	0.083
DD (μg/mL)	3.2 ± 2.5	11.7 ± 13.9	**0.013**
SF (μg/mL)	30.0 ± 26.9	35.7 ± 25.4	0.372
TAT (ng/mL)	9.0 ± 7.9	20.5 ± 28.1	0.082
PPI (μg/mL)	1.04 ± 0.67	1.88 ± 3.0	0.254
PAI-1 (ng/mL)	23.0 ± 14.3	42.5 ± 59.5	0.160
F-XIII (%)	25.7 ± 8.2	24.7 ± 9.7	0.667

NEC; necrotizing enterocolitis, PT; prothrombin time, PT-INR; prothrombin ratio, APTT; activated partial thromboplastin time, Fib; fibrinogen, ATIII; antithrombin III, DD; D-dimer, SF; soluble fibrin, TAT; thrombin antithrombin III complex, PPI; plasmin-α2 plasmin inhibitor complex, PAI-1; plasminogen activator inhibitor-1, F-XIII; factor XIII.

604 - IMPACT OF REPARATIVE CHANGES ON POSTOPERATIVE RECOVERY AND LONG-TERM OUTCOMES IN INFANTS WITH NECROTIZING ENTEROCOLITIS (NEC)

Miriam DUCI[1], Carmen Campilongo[1], Piergiorgio Gamba[1], Angelo Paolo Dei Tos[2], Bianca Maria Del Forno[2], Luisa Santoro[2], Francesco Fascetti-Leon[1]

[1]Division of Pediatric Surgery, Department of Women's and Children's Health, University of Padova, Padova, Italy. [2]Surgical Pathology and Cytopathology Unit, Department of Medicine, University of Padova, Padova, Italy

Aim of the Study: NEC is a devastating disease in infants, necessitating laparotomy in severe cases. Histological examination of the affected intestine reveals pathological changes (inflammation, hemorrhages, necrosis and reparative changes -RC-). This study aimed to assess the impact of RC on postoperative recovery and long-term outcomes in NEC infants.

Methods: Conducting a thorough pathological review of specimens collected during surgery for NEC, we categorized the histological grade of NEC and identified the presence of RC (neovascularization, increased fibroblasts, epithelial regeneration -ER-). Two groups were defined: Group 1 including patients with RC and Group 2 comprising patients with no RC. Histological findings were correlated to patients' characteristics, blood examinations and long-term outcomes, including neurodevelopment assessment beyond 3 years of age.

Main Results: Among fifteen eligible cases, twelve showed at least one form of RC on histopathology. Group 1 and 2 were homogeneous for gestational age, NEC onset and severity.ER was detected in 10 patients, prompting a subgroups analysis between patients with and without ER. Patients with ER were associated with earlier stoma closure, a reduced incidence of intestinal failure and improved long-term neurological outcomes (p=0.05, 0.06, 0.02 respectively). Furthermore, those with ER demonstrated higher leukocytes at NEC onset (p=0.05). The presence of ER was independently associated to the grade of NEC.

Conclusions: ER emerges as a promising prognostic marker, suggesting that in-depth analysis of histological phenotypes could unveil an increased variability in this disease and in its prognosis. These findings might be useful in tailoring personalized strategies for NEC infants.

Variables	(ER +) N=10	(ER -) N=5	p-value
Gestational age (week)-median	26.6	25.6	0.5
NEC onset (days after birth)	9	14.6	0.09
NEC Histology severity-median	4	4	0.6
Leukocytes (n/mmc)-median	18895	8090	**0.05**
C- reactive-Protein (mg/l)	91	133	0.6
Stoma closure timing in days from first laparotomy-median	43	58	**0.05**
Intestinal failure- % of patients	10	60	0.06
Long term follow-up in years-median	5.7	6.6	0.6
Normal neurodevelopmental development- % patients	10	80	**0.02**

540 - CHOICE OF EMPIRIC ANTIBIOTICS FOR COMPLICATED APPENDICITIS REVISITED – WILL THERE EVER BE A CORRECT ANSWER?

Hetal Patel[1], Ingo Jester[1], Benjamin Martin[1], Romir Patel[2], Eden Cooper[2], Mitul Patel[1]

[1]Birmingham Children's Hospital, Birmingham, United Kingdom. [2]University of Birmingham, Birmingham, United Kingdom

Aim:

The best choice of perioperative antibiotic management in paediatric appendicitis remains an unsettled issue. This study describes the effectiveness of changing an empiric antibiotic regime and its new challenges.

Methods:

Retrospective analysis of a prospective database from 2015-2023. Microbiological specimens were obtained by appendix serosa swabs. We changed empiric antibiotic treatment from Co-amoxiclav to Cefuroxime/Metronidazole in 2021. Gentamicin was added throughout the study if appendicitis was determined complicated intraoperatively.

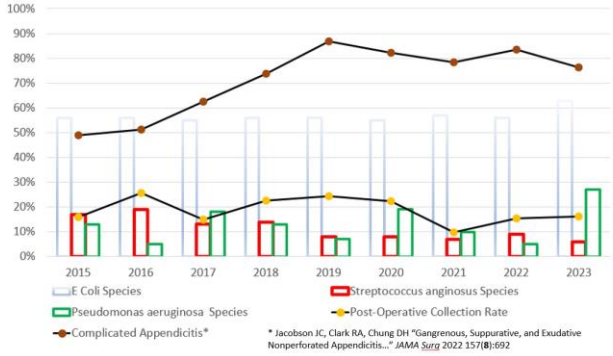
Results:

1054 patients had an appendicectomy with bacteria isolated in 725 patients. Our rate of complicated appendicitis is 74% (range: 49-87%). Our postoperative collection rate is high until 2020 at 21% (range: 15-26%), with significant decrease (p=0.003) to 14% (10-16%) after change in antibiotics. The main isolated bacterial species are E. coli, Streptococcus anginosus, Pseudomonas aeruginosa with fluctuations in prevalence and a significant (R^2=0.8) decrease in Streptococcus rates and an increase (R^2=0.08) in Pseudomonas rates. (Figure 1)

Conclusions:

This study demonstrates that monitoring the microbiology spectrum helps tailor adequate antibiotic cover for paediatric appendicitis. Contradictory to other reports, we demonstrate a significant reduction in postoperative collections after changing from Co-amoxiclav to Cefuroxime and Metronidazole. Problematic microorganisms such as Streptococcus anginosus and Pseudomonas aeruginosa which have been shown in literature to cause abscesses fluctuate spontaneously in our population and affect post-operative outcomes at different time points requiring entirely different antibiotic strategies from empiric therapy. These variations in bacterial profiles and differences in individual host immunity might explain different antibiotic recommendations worldwide.

Figure 1: Bacterial Species on Initial Culture, Post-Operative Collection Rates and Rate of Complicated Appendicitis



347 - ERNICA/EUPSA SURVEY ON THE PRACTICES IN THE MANAGEMENT OF TOTAL COLONIC AND INTESTINAL AGANGLIONOSIS

Anne Dariel[1], Marie-Edith Coste[1], Anders Telle Hoel[2], Kristiina Kyrklund[3], Francesco Fascetti Leon[4], Fabio Fusaro[5], Cornelius E.J. Sloots[6], Tutku Soyer[7], Leopoldo Martinez[8], Ramon Gorter[9], Marc Miserez[10], Willemijn Irvine[11], Jens Dingemann[12], Luca Pio[13], Célia Crétolle[14], Federica Pederiva[15], Niel Qvist[16], Mohits Kakar[17], Elke Ruttenstock[18], Ernst Van Heurn[9], Martin Lacher[19], Rony Sfeir[20], Mikko P. Pakarinen[3], Kristin Bjornland[2], Tomas Wester[21], Nigel Hall[22], Anna Löf Granström[21]

[1]Hôpital La Timone, Assistance Publique des Hôpitaux de Marseille, Marseille, France. [2]Oslo University Hospital, Oslo, Norway. [3]New Children's Hospital, Helsinki, Finland. [4]Padua University Hospital, Padova, Italy. [5]Bambino Gesu Children's Research Hospital, Roma, Italy. [6]Erasmus MC - Sophia Children's Hospital, Rotterdam, Netherlands. [7]Hacettepe University, Ankara, Turkey. [8]Hospital La Paz, Madrid, Spain. [9]Amsterdam University Medical Centres, Amsterdam, Netherlands. [10]University Hospital Gasthuisberg, Leuven, Belgium. [11]Qualicura Healthcare Support Agency, Breda, Netherlands. [12]"Auf der Bult" Children's hospital, Hannover, Germany. [13]Hôpital Kremlin Bicêtre, Assistance Publique des Hôpitaux de Paris, Paris, France. [14]Hôpital Necker Enfants Malades, Asistance Publique des Hôpitaux de Paris, Paris, France. [15]"Vittore Buzzi" Children's Hospital, Milan, Italy. [16]Odense University Hospital, Odense, Denmark. [17]Riga Stradins Hospital, Riga, Latvia. [18]Sickkids Hospital, Toronto, Canada. [19]University of Leipzig, Leipzig, Germany. [20]Hôpital Jeanne de Flandre, Lille, France. [21]Karolinska University Hospital, Stockholm, Sweden. [22]University of Southampton, Southampton, United Kingdom

Aim of the study: There are currently no surgical and medical guidelines for the management of TCA (total colonic aganglionosis) and near-TIA (total intestinal aganglionosis). The aim was to define current paediatric surgeons' practices in the management of these challenging conditions.

Methods: A survey was jointly developed by ERNICA and EUPSA members and distributed by email in November 2023.

Main results: 58 members responded, most (75%) take care of 2 or fewer new patients per year, 76% within a multidisciplinary team. The mapping surgery was usually performed during the first surgery (79%), with full-thickness frozen section biopsies in 88% and a 360 degrees analysis in 43%. For TCA and near-TIA, Duhamel (42%; 55%) and straight ileoanal anastomosis (42%; 26%) were the preferred pull-through technique, performed for 82% between 6 and 18 months. For TIA, the formation of jejunostomy was preferred by 28% at the place where ganglionic cells are found, and 50% at least 40 cm distal to the ligament of Treitz (even if aganglionic). A preventive resection of the diverted bowel was recommended by 82%: 33% only if previous enterocolitis and 49% even without enterocolitis, mainly before 2-3 years of age. For TCA patients with persistent postoperative obstructive symptoms or with recurrent enteritis (surgical complications excluded), sphincteric botulinum toxin injection is the procedure of choice for respectively 92% and 72% of respondents.

Conclusions: The online survey showed variations in practice in the management of TCA and TIA. Practice guidelines and clinical decision tools could give guidance to optimizing care.

564 - Anorectal malformation with rectoperineal fistula in males treated with a posterior rectal advancement anoplasty – report of early outcomes.

Thomas Xu[1], Rachel Hanke[1], Inbal Samuk[1,2], Christina Feng[1], Erin Teeple[1], Richard Wood[3], Andrea Badillo[1], Marc Levitt[1]

[1]Division of Colorectal and Pelvic Reconstruction, Children's National Hospital, Washington, DC, USA. [2]Colorectal Service, Department of Pediatric and Adolescent Surgery, Schneider Children's Medical Center, Tel Aviv, Israel. [3]Department of Colorectal and Pelvic Reconstructive Surgery, Nationwide Children's Hospital, Columbus, USA

Aim:

Recently, a novel posterior rectal advancement anoplasty (PRAA) for select male patients with an anorectal malformation and a rectoperineal fistula was described which incised only within the limits of the sphincteric ellipse and eliminated an anterior rectal dissection, thus avoiding any possibility of a urethral injury. This report provides longer term postoperative outcomes after PRAA.

Method

A retrospective, single institution study was performed examining male patients with a rectoperineal fistula between 1/2020-12/2023. PRAA was done if the rectoperineal fistula was located within the anterior extent of the sphincteric ellipse. We assessed post-operative outcomes, length of stay, time to first feeding, and early stooling patterns.

Results

Eighteen patients underwent PRAA at a median age of 162 days (range 1-242) with median follow up of fourteen months (range 2-40). Eight (44%) were repaired within the first month of life. Thirteen (72%) were repaired primarily and five (28%) had diverting ostomies before referral. There were no instances of wound dehiscence, rectal prolapse, or urethral injury. Two (11%) patients developed an anal stricture requiring dilation or Heineke-Mikulicz anoplasty. All patients resumed feeds on post operative day one. Median discharge was on post operative day one (range 1-6). Fifteen (83%) were utilizing laxatives.

Conclusions

The PRAA avoids any potential urethral injury or perineal dehiscence. It has a low rate of anal stenosis (11%). The technique allows for early return to diet and discharge and can be safely done in the neonatal period or in a delayed fashion without the need for a stoma.

561 - Anorectal malformation with rectoperineal fistula in females treated with a posterior rectal advancement anoplasty – report of early outcomes.

Thomas Xu[1], Rachel Hanke[1], Inbal Samuk[1,2], Christina Feng[1], Erin Teeple[1], Richard Wood[3], Andrea Badillo[1], Marc Levitt[1]

[1]Division of Colorectal and Pelvic Reconstruction, Children's National Hospital, Washington, DC, USA. [2]Colorectal Service, Department of Pediatric and Adolescent Surgery, Schneider Children's Medical Center, Tel Aviv, Israel. [3]Department of Colorectal and Pelvic Reconstructive Surgery, Nationwide Children's Hospital, Columbus, USA

Aim:

Recently, a novel posterior rectal advancement anoplasty (PRAA) for select female patients with an anorectal malformation and a rectoperineal fistula was described incising within only the sphincteric ellipse and avoiding an anterior rectal dissection and perineal body incision, in an attempt to avoid a vaginal injury and/or perineal body dehiscence associated with a traditional posterior sagittal anorectoplasty (PSARP). This report provides longer term postoperative outcomes after PRAA.

Method

A retrospective, single institution study was performed examining female patients with a rectoperineal fistula between 1/2020-12/2023. A PRAA was performed if the rectoperineal fistula was located within the anterior extent of the sphincteric ellipse. We assessed post-operative outcomes, length of stay, time to first feeding, and early stooling patterns.

Results

Sixteen females had rectoperineal fistula and twelve met criteria for PRAA. Patients underwent PRAA at a median age of 171 days (range 6-733) with a median follow up of five months (range 1-38) with no diverting ostomies. There were no incidences of stricture, dehiscence, prolapse, or vaginal injury. All patients resumed regular diet and were discharged by postoperative day one. All patients were stooling spontaneously at their most recent follow up with nine (75%) utilizing laxatives.

Conclusions

The PRAA for females with perineal fistula can safely be done without a stoma either in the neonatal period or in a delayed fashion. The technique allows for early advancement of diet and discharge and avoids the complications of stricture, perineal dehiscence, or vaginal injury.

417 - DEFINING EXCELLENCE: THE FIRST CORE SET OF QUALITY INDICATORS FOR HIRSCHSPRUNG'S DISEASE CARE

Daniel Rossi[1,2,3], Anna Löf Granström[2], Nadine Teunissen[1,3], Alejandra Vilanova[4], Cecile Lambe[5], Francesco` Fascetti Leon[6], Ivo de Blaauw[7], Kristin Bjørnland[8], Merit Tabbers[9], Mark Bremholm Ellebæk[10], Mikko Pakarinen[11], Udo Rolle[12], Nicole Schwarzer[13], Dirk-Jan Gloudemans[14], Tomas Wester[2], Rene Wijnen[1], Cornelius Sloots[1]

[1]Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands. [2]Karolinska Institute, Stockholm, Sweden. [3]Dutch Institute of Clinical Auditing, Leiden, Netherlands. [4]Universitary Hospital La Paz, Madrid, Spain. [5]Necker Enfants Malades Hospital, Paris, France. [6]University Hospital of Padua, Padua, Italy. [7]Radboudumc-Amalia Children's Hospital, Nijmegen, Netherlands. [8]Oslo University Hospital, Oslo, Norway. [9]Emma Children's Hospital/Academic Medical Center, Amsterdam, Netherlands. [10]Odense University Hospital, Odense, Denmark. [11]Helsinki University Central Hospital, Helsinki, Finland. [12]University Hospital Frankfurt, Frankfurt, Germany. [13]SoMA, The German Patient Support Organization for Anorectal Malformations and Hirschsprung Disease, Munich, Germany. [14]Dutch Association for Hirschsprung's Disease, 's-Hertogenbosch, Netherlands

Aim:
This study aimed to establish a core set of quality indicators to benchmark Hirschsprung's disease (HSCR) care across hospitals and countries within a European clinical audit framework (EPSA; European Pediatric Surgical Audit), focusing on short-term and long-term outcomes, and care quality improvement.

Methods:

An online Delphi method gathered inputs from both ERNICA and non-ERNICA health care professionals (HCPs), as well as patient representatives (PRs) in the field of HSCR. They evaluated baseline characteristics and potential outcome-, structure- and process indicators for HSCR care, identified through a systematic literature and guideline review, on a nine-point Likert scale over three Delphi questionnaire rounds. The items selection criteria were predefined, with participants selecting the five to ten most essential indicators for the core set in the second and third rounds.

Results:

An international panel of 8 PRs and 97 multidisciplinary HCPs from 59 hospitals in 16 countries completed all three Delphi rounds (response rate 73%), eventually including 12 baseline characteristics and 39 indicators. Six indicators were universally prioritized. Each group (HCPs and PRs) proposed four exclusive indicators. Mutual agreement was subsequently reached, with HCPs endorsing the indicators proposed by PRs and vice versa.

Conclusions:

This study established a core indicator set of 10 baseline characteristics, 5 outcome indicators, 2 structure indicators, and 4 process indicators for evaluating (quality of) HSCR care. These indicators, to be implemented in the EPSA, aim to highlight practice variations and guide HSCR care quality improvement, laying the groundwork for new guideline development after three years of data collection.

480 - Self-Perception of Scars in School-Aged Children After Major Surgery During Infancy

Ceren Imren[1], Marijn J. Vermeulen[2], Andre B. Rietman[3], Rene M.H. Wijnen[1], Hanneke IJsselstijn[1], Claudia M.G. Keyzer-Dekker[1]

[1]Erasmus MC Sophia Children's Hospital, department of Pediatric Surgery, Rotterdam, Netherlands. [2]Erasmus MC Sophia Children's Hospital, department of Neonatal and Pediatric Intensive Care, division of Neonatology, Rotterdam, Netherlands. [3]Erasmus MC Sophia Children's Hospital, Department of Child and Adolescent Psychiatry/Psychology, Rotterdam, Netherlands

Background

The long-term impact of scars after childhood surgery on self-image and quality of life (QoL are unknown. This study investigates the impact of such scars, identifying factors associated with positive or negative scar perception.

Methods

This retrospective cohort study involved children (8-17 years) born with severe anatomical anomalies who underwent surgery within the first year of life or neonatal ECMO. Routine follow-up data encompassed scar perception ('nice-looking'-'neutral'-'ugly'), shame (often-sometimes-never), QoL (PedsQL/DUX), self-esteem, and physical self-image (Competence and Perception Scales fior Adolescents, CBSA).

Results

Data of 454 children revealed that 152 (34%) rated the scar nice-looking, 222 (49%) rated neutral, and 52 (12%) rather ugly. Factors significantly associated with positive scar-rating were: endoscopic surgery (OR:0.229), vascular cannulation (OR:0.260), thoracic and neck scars (OR:0.402, OR:0.327). Female sex and older age were associated with more scar-related shame (OR:6.550, OR:2.493), thoracic scars with less (OR:0.146). Open surgery and abdominal scars were not significantly associated with scar perception or scar-related shame. When stratified for age and sex, QoL did not significantly differ among scar perception groups ('nice-looking'-'neutral'-'ugly'). However, girls with negative scar ratings had lower self-esteem, and boys with negative scar ratings had lower physical self-image compared to positively rating children (median CBSA-score: 92.00vs48.00, p=0.032; 84.00vs39.00, p=0.005, respectively).

Conclusion

At school age, only 12% of children found their scars ugly, while 35% perceived them as nice-looking. Scar perception did not significantly impact QoL. Surgery type and scar location influenced scar perception. These insights should be incorporated in long-term follow-up strategies to enhance awareness and improve anticipatory care.

555 - LONG-TERM FUNCTIONAL OUTCOMES AND THE INFLUENCE OF RET PROTO-ONCOGENE ON ENTEROCOLITIS INCIDENCE IN PATIENTS WITH TOTAL COLONIC AGANGLIONOSIS

Tereza Bartosova[1], Lucie Pos[1], Vojtech Dotlacil[1], Barbora Bulanova[1], Eva Vaclavikova[2], Blanka Rouskova[1], Richard Skaba[1], Alena Kokesova[1]

[1]Department of Pediatric Surgery, 2nd Medical Faculty, Charles University and University Hospital Motol, Prague, Czech Republic. [2]Institute of Endocrinology, Prague, Czech Republic

Aim of the study:

To assess the long-term quality of life regarding fecal continence, occurrence of postoperative enterocolitis and the risk of medullary thyroid carcinoma (MTC) of patients with Total Colonic Aganglionosis (TCA) in relation to RET proto-oncogene.

Methods:

A retrospective patient's records review of patients with TCA treated between 1979 and 2023 was conducted. Validated questions relating to bowel functions were provided. Patients and their family members were screened for mutations in the RET proto-oncogene.

Main results:

Out of 452 patients with Hirschsprung's disease, 32 (7.08%) were diagnosed with TCA, 24 of them were boys. 19 patients were diagnosed in the neonatal period. No deaths were reported. The mean age of definitive operation was 23 months. Postoperative enterocolitis occurred in 13 patients. 17 patients participated in follow-up, with a median age of 20 years. On average, there were 4 stools per day. Three patients had incontinence grade 1, and 2 had incontinence grade 2 according to the Krickenberg classification. No patient suffered from constipation. Out of the 32 TCA patients, 29 participated in the screening study for RET proto-oncogene mutation, with 11 testing positive and 18 negative. Out of 18 RET-negative patients, 7 (34%) exhibited enterocolitis, while among the 11 RET-positive patients, 6 (54%) presented with enterocolitis.

Conclusion:

Despite the reported complications, the functional results in patients with TCA are deemed acceptable. Screening for RET proto-oncogen mutations should be considered a standard procedure.

495 - NORMAL COLON LENGHTS BASED ON MAGNETIC RESONANCE IMAGING IN CHILDREN: PRELIMINARY RESULTS

Charlotte Anne Louise Jonker[1,2], Joost van Schuppen[3], Ilan Koppen[4,2], Ramon Gorter[1,2,5], Justin de Jong[1], Marc Benninga[4,2]

[1]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [2]Amsterdam UMC, Gastroenterology and Hepatology, Amsterdam Gastroenterology Endocrinology Metabolism, University of Amsterdam, Amsterdam, Netherlands. [3]Department of Radiology and Nuclear Medicine, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [4]Department of Pediatric Gastroenterology and Nutrition, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [5]Amsterdam UMC, University of Amsterdam, Amsterdam Reproduction and Development Research Institute, Amsterdam, Netherlands

Aim

To describe colon lengths on magnetic resonance imaging (MRI) in children without constipation in order to provide normative data for colon lengths in children for dolichocolon and dolichosigmoid.

Methods

We performed a retrospective study of children aged 0-18 years who underwent MRI for inflammatory bowel disease, including ulcerative colitis and Crohn's disease without colon involvement, who did not fulfil the Rome IV criteria for functional constipation. Primary outcome was the total colon length and secondary outcome was the rectosigmoid length (in cm). Two authors measured the colon segments on MRI independently using the program syngo.via. Linear regression was used to explore the relationship between colon lengths and age, height, weight and body surface area.

Main results

Forty-eight children (median age was 14; range 6-18 years, 50% male) were included in this study. Median total colon length was 114.9 cm [106.1, 124.8]. Median rectosigmoid length was 38.0 cm [29.4, 42.0]. Table 1 depicts the length of all predetermined colon segments per age in years. A linear regression model demonstrated a positive significant correlation between total colon length and age (R = 0.15, p = 0.006), height (R = 0.21, p = <0.001), weight (R = 0.18, p = 0.003) and body surface area (R = 0.23, p = <0.001).

Conclusions

Median total colon length on MRI in children without constipation was 114.9 cm; [106.1, 124.8]. Median rectosigmoid length 38.0 cm; [29.4, 42.0]. More patients are needed to establish reference values for dolichocolon and dolichosigmoid.

Table 1. Colon lengths presented as median (interquartile range) for the whole group and per age group

	Overall (n = 48)	6 years (n = 1)	9 years (n = 2)	10 years (n = 3)	11 years (n = 5)	12 years (n = 3)	13 years (n = 7)	14 years (n = 8)	15 years (n = 5)	16 years (n = 7)	17 years (n = 6)	18 years (n = 1)	P value[1]
Rectosigmoid length (cm)	38.0 (29.4, 42.0)	45.2	38.2 (38.2, 38.2)	42.0 (36.5, 47.1)	29.4 (29.1, 40.0)	41.4 (40.5, 44.0)	35.5 (32.9, 38.4)	37.5 (32.9, 43.2)	35.9 (28.9, 40.1)	28.6 (25.8, 38.1)	41.5 (33.9, 49.7)	25.3	0.39
Descending colon length (cm)	24.8 (21.6, 27.8)	22.2	19.6 (19.6, 19.6)	24.6 (20.0, 24.8)	22.1 (21.0, 24.5)	22.6 (20.2, 24.0)	21.7 (20.5, 27.1)	27.4 (25.0, 30.5)	25.2 (24.2, 27.4)	24.7 (24.6, 27.9)	29.3 (24.5, 31.3)	38.6	0.07
Transverse colon length (cm)	35.5 (32.1, 39.1)	14.6	32.9 (32.9, 32.9)	36.8 (34.5, 37.0)	32.5 (29.9, 39.4)	32.9 (31.4, 33.4)	38.3 (35.7, 39.1)	37.7 (30.8, 41.0)	34.8 (33.3, 39.1)	36.7 (31.2, 39.6)	36.5 (34.1, 38.2)	24.8	0.55
Ascending colon length (cm)	17.5 (15.2, 19.9)	14.6	9.9 (9.9, 9.9)	18.4 (15.0, 21.7)	18.1 (15.8, 19.4)	15.3 (13.9, 15.5)	17.2 (16.6, 18.3)	18.0 (17.3, 23.2)	18.7 (14.8, 18.9)	18.2 (13.4, 22.6)	20.2 (17.0, 25.1)	17.4	0.36
Total (cm)	114.9 (106.1, 124.8)	96.6	100.55 (100.53, 100.57)	116.2 (113.7, 120.0)	113.8 (95.7, 114.4)	113.1 (107.9, 115.3)	113.6 (109.3, 120.1)	126.2 (120.5, 127.5)	114.7 (113.1, 118.0)	119.7 (99.8, 124.2)	127.9 (116.8, 139.7)	106.1	0.15

[1]P-values less than 0.05 were considered statistically significant

782 - NECROTISING ENTEROCOLITIS SURGERY IN DUTCH INFANTS BORN BELOW 26 WEEKS OF GESTATION: SHORT-TERM MORTALITY AND POSTOPERATIVE COURSE

Otis C. van Varsseveld[1], Adinda G.H. Pijpers[2], Ceren Imren[3], Joep P.M. Derikx[2], Chris H.P. van den Akker[4], Joost van Schuppen[5], Claudia M.G. Keyzer-Dekker[3], Marijn J. Vermeulen[6], Maarten Schurink[7], Maud Y.A. Lindeboom[8], Elisabeth M.W. Kooi[9], Jan B.F. Hulscher[1]

[1]Department of Surgery, Division of Pediatric Surgery, University Medical Center Groningen, University of Groningen, Groningen, Netherlands. [2]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam and Vrije Universiteit, Amsterdam, Netherlands. [3]Department of Pediatric Surgery, Sophia Children's Hospital, Erasmus Medical Center, Erasmus University, Rotterdam, Netherlands. [4]Department of Pediatrics - Neonatology, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam and Vrije Universiteit, Amsterdam, Netherlands. [5]Department of Radiology and Nuclear Medicine Amsterdam UMC, University of Amsterdam, Amsterdam, Netherlands. [6]Department of Pediatrics, Division of Neonatology, Sophia Children's Hospital, Erasmus Medical Center, Erasmus University, Rotterdam, Netherlands. [7]Department of Pediatric Surgery, Amalia Children's Hospital, Radboudumc, Radboud University, Nijmegen, Netherlands. [8]Department of Pediatric Surgery, Wilhelmina Children's Hospital, University Medical Center Utrecht, Utrecht, Netherlands. [9]Division of Neonatology, Beatrix Children's Hospital, University Medical Center Groningen, University of Groningen, Groningen, Netherlands

Aim. Infants born <26 weeks of gestational age (<26wGA) are at considerable risk for developing necrotising enterocolitis (NEC). Medical and ethical considerations whether NEC surgery is still in the best interest of the child are complicated by a paucity of group-specific outcome data. Our aim was to investigate nationwide 30-day mortality, mortality risk factors, and surgical complications in <26wGA infants who had surgery during the active phase of NEC.

Methods. We performed a retrospective, nationwide multicenter study including all <26wGA infants who had NEC surgery between January 2008 and December 2022 in the Netherlands. Primary outcome was 30-day mortality. Secondarily, we assessed surgical complications (Clavien-Madadi grade III-IV). Potential 30-day mortality risk factors were assessed by multivariable logistic regression: mode of delivery, birth weight, sex, inotropes, portal gas and age at diagnosis.

Results. We assessed 142 surgically treated infants (39% <25wGA; 57% male). Median birth weight [min.-max.] was 750 [485-1070] grams. Median age at surgery was 14 [2-66] days. Primary open/close surgery occurred in 33/142 (23%) infants. Otherwise, surgical management most frequently included: ostomy creation 67/109 (61%), primary anastomosis 29/109 (27%) or both 10/109 (9%). The 30-day mortality was 66/142 (46%) of which 33/66 (50%) occurred after primary open/close and 4/66 (6%) after second-look open/close. Clavien-Madadi grade III-IV complications occurred in 26/76 (34%) survivors. Regression analysis identified no risk factors for 30-day mortality.

Conclusion. We found a 30-day mortality of 46% in NEC surgery in infants <26wGA. Among these, 56% died after an open/close procedure. These data can aid (shared) decision making.

Table 1. Patient population characteristics.

Variable		Total n=142
Male sex		81 (57%)
Gestational age in weeks + days		25+0 [23+6-25+6]
Birthweight in grams		750 [485-1070]
Age at diagnosis in days		13 [2-66]
Days between diagnosis and surgery		1 [0-10]
Vaginal delivery		101 (71%)
Inotropy in the first week of life		42 (30%)
Inotropy between NEC diagnosis and surgery		75 (53%)
Radiological findings	Pneumatosis intestinalis	92 (65%)
	Pneumoperitoneum	68 (48%)
	Portal gas	26 (18%)
	Ascites	12 (9%)
Age at surgery in days		14 [2-66]
Primary mode of treatment	Primary anastomosis	29 (20%)
	Ostomy creation	67 (47%)
	Both (anastomosis & stoma)	10 (7%)
	PD	1 (1%)
	PD & stoma	1 (1%)
	PD & anastomosis	1 (1%)
	Open/close (NEC totalis)	33 (23%)
Planned second-look surgery	Overstitch perforation	1 (20%)
	Open/close (NEC totalis)	4 (80%)
30-day postoperative mortality		66 (46%)
30-day complications	Overall	98 (69%)
Highest Clavien-Madadi	Clavien-Madadi grade I-II	6 (4%)
	Clavien-Madadi grade III-IV	26 (18%)
	Clavien-Madadi grade V	66 (46%)

Numbers are presented as Number (%) or Median [min.-max.]. n: Number, NEC: necrotising enterocolitis, PD: peritoneal drainage.

753 - THE DIFFICULT INDICATION FOR ABDOMINAL PROCEDURE IN NEONATES WITH GASTROSCHISIS AND INTESTINAL DYSFUNCTION

Eleuthère Stathopoulos[1,2], Thejasvi Subramanian[1,3], Theodoric Wong[1], Ingo Jester[1]

[1]Birmingham Women's and Children's NHS Foundation Trust, Birmingham, United Kingdom. [2]Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland. [3]Sheffield Children's NHS Foundation Trust, Sheffield, United Kingdom

Aims of the study: Describe the association between abdominal procedures and time to full enteral feeding (tFEF) dependant on type of surgery (adhesiolysis, bowel resection/anastomosis, stoma formation) in the surgical management of gastroschisis patients.

Methods: Retrospective cohort study over 10 years. For surgical relevance patients were divided into tFEF<90 days and tFEF>90 days. Gastroschisis Prognostic Score (GPS)[1] was analysed for patients' risk stratification.

Main results: 205 neonates with gastroschisis (gestational age 259 (249-264) days, birthweight 2.4 +/- 0.6 kg, birthweight percentile 25 (5.4-54), 96 females, 173 simple, 28 complex) were included. Thirty-nine (19%) neonates underwent one or several abdominal procedures excluding abdominal wall closure. More abdominal procedures were carried out in tFEF > 90 days: 22/24 (92%) patients had 2.8 +/- 1.6 surgical procedures while 17/181 (9%) patients in tFEF< 90 days required 1.5 +/- 0.7 procedures (table). Intestinal obstruction or non-progression of feeds, without atresia, necrosis or perforation, was the most frequent indication or intraoperative findings in both groups. Type of gastroschisis (simple vs complex: tFEF 23 days (17-39) vs 50 days (38-132), p<0.001) and GPS score (coefficient ß1 = 0.167, p <0.001) were found to have significant influence on tFEF. Type of closure (primary vs staged: 23 days to tFEF (17-35) vs 31 days (19-51.5), p=0.033).

Conclusions: In our cohort, abdominal procedures may have delayed tFEF in gastroschisis patients with intestinal dysfunction without anatomical cause. In neonates with gastroschisis and prolonged intestinal dysfunction, benefits, especially of adhesiolysis, should be considered with caution.

		Time to full enteral feeding <90 days	Time to full enteral feeding ≥90 days
Abdominal procedure	Adhesiolysis (single surgery) [*days to reach full enteral feeding after procedure*]	5 [*35.6 +/- 33.5*]	5 [*89 +/- 50*]
	Adhesiolysis (multiple surgeries)		6
	Stoma (single surgery) [*days to reach full enteral feeding after procedure*]	8 [*45 +/- 22*]	3 [*182 (102-252)*]
	Stoma (multiple surgeries)		11
	Bowel resection/anastomosis	4	14
	Gastrostomy		5
	Fundoplication		4
	Stricturoplasty	1	2
	Exploratory laparotomy	2	
Rationale of abdominal procedure (indication and/or intraoperative findings)	Obstruction or non-progression of feeds	9	19
	Atresia	2	3
	Necrosis		3
	Perforation	2	1
	Ischaemia	1	4
	Difficult abdominal wall closure	1	2

Table. Mean +/- standard deviation , median [confidence interval]

[1]Puligandla PS. *J Pediatr Surg* 52(5);718-721:2017

624 - Dorsal and ventral proctoplasty for low forms of anorectal malformation in girl: a new surgical approach

Justine leroy[1], Célia Crétolle[1,2], Sabine Sarnacki[1,2], Sylvie Beaudoin[1,2]

[1]Necker University Hospital, Assistance Publique-Hopitaux de Paris, Paris, France. [2]MAREP national reference center, Paris, France

We evaluate the technique combining ventral and dorsal perineorrhaphy in anterior recto-perineal or vestibular fistula, the most common forms of anorectal malformation in girls.

Between 2010 and 2019, 54 girls were operated on for ventral and dorsal perineorrhaphy for anterior recto-perineal or recto-vestibular fistula in the MAREP national reference center: 12 for vestibular fistula and 37 for rectoperineal fistula. One colorectal duplication was excluded. One was excluded because she was operated on late at the age of 8 and 3 were lost to follow-up. 12 of these patients have associated malformations, including 6 spinal cord and/or vertebral malformations.

Pre-operatively, 49% of patients were symptomatic, a colostomy was performed in one case and dilation of the fistula was performed in another case. The median age at surgery was 92 days.

No intraoperative complications occurred. There were 24% of superficial skin disunions but no surgical revision in the postoperative course. 3/49 children had anal stenosis, which was managed by dilation of the neoanus. With a median follow-up of 44 months, 40/49 children (81.6%) had normal bowel movements and 7/9 were constipated, including 3 with occasional soiling. Among the 43 patients without associated spinal cord and/or vertebral malformation, 88.3% had socially acceptable cleanliness compared to 33.3% among the 6 other patients.

Ventral and dorsal proctoplasty is based on minimal dissection with less mobilization of the rectal cul-de-sac. It offers satisfactory results in terms of social cleanliness with a constipation rate which is close to the frequency in the general pediatric population.

From the History Club to the EUPSA History Session

Zacharias Zachariou, Medical School, University of Cyprus

In his Newsletter of April 1983, the Honorary Secretary of the British Association of Paediatric Surgeons, Sean Corkery announced the upcoming 1983 London Meeting of BAPS. In his unparalleled style of writing, he concluded his letter as follows:

"Jan Molenaar has had another rush of blood to the brain. This time he feels the need to see if there are enough interested members of the Association to form a "History Club". He would like all interested members to meet at lunchtime at the London Meeting. At the moment, we have reserved a telephone booth but if that is too spacious, we can get something smaller!".

The response to this encouraging announcement was a rewarding one: 45 members of BAPS coming from 26 different countries attended. On Friday, July 22, 1983, the International Paediatric Surgical History Club came into being.

Since then, every 2 years during the BAPS Congress there was a Session of the History Club organized by the chairman, who was of course Prof. Jan Molenaar till 1997 when he retired. Two very interested and fully involved since the beginning in the History Club took over. These were Prof. Cenk Buyukunal and Prof. Robert Carachi who also accomplished the important aim of the History Club, the publication of a comprehensive book on the history of Pediatric Surgery. The last History Club session with the BAPS was in Amsterdam in 2016. However, in the same year there was another session within the EUPSA Annal Congress in Milano. Since then, a session was included in the EUPSA Congress program and in 2023 officially the **History Club** was renamed as **EUPSA History Session**. The till then organizers Prof. Cenk Buyukunal and Prof. Robert Carachi, who also due to their retirement handed the organization to Prof. Zacharias Zachariou.

A committee is now in charge for the selection of the presentations which will be submitted through the EUPSA submission link. The EUPSA website will be enrich with a history session presenting not only the history of the history sessions but also the history of EUPSA. A new logo for the EUPSA History Session was developed, which will be on a trophy donated by the Zachariou family to be awarded to the best presentation of the year for the next 20 years.

Becoming a Pediatric Surgeon 60 years ago

Juan Tovar, Professor emeritus, Spain

Imagine for a moment a world without computers, smart phones or digital cameras. Then, guess how a doctor could manage without US, CT, MRI, loupes, operating microscopes, fiberendoscopes, laparoscopes and so on. Finally, take out ICUs, i.v. feeding, prolonged ventilation, transplantation, PubMed and PowerPoint. This was the world in which my generation trained. And it was as fun as it is today.

I started in Salamanca my first surgical clerkship. I spent 2 years in Valladolid as a pediatric Fellow while I prepared my PhD and then moved to Paris. A very intense period of training in a huge house, Necker, in which there was an unbelievable workload. Then I moved to Madrid to what will later become my own Hospital. There again the size of the institution was huge and the patient referral immense (100 deliveries-a-day in our own maternity).

A surgical research Fellowship at Los Angeles Childrens Hospital completed my academic training and, after a couple more years in Madrid, I was appointed Chief of Pediatric Surgery in San Sebastian.

Current patterns of Pediatric surgical training were certainly different at that time since the specialty was not fully recognized. There were no logbooks, no working time directives and no days off after on call days. However, the training was as thrilling as it may be for a present-day resident.

Pictures of places and people will be abundantly displayed.

The Journey of female physicians and surgeons from antiquity to today in Türkiye

Gonca Topuzlu Tekant, Istanbul University - Cerrahpaşa Faculty of Medicine, Istanbul, Türkiye

Medical practice is without doubt as old as history. Working in the medical field requires having good communication skills, handicraft and being open to innovations. Although these are almost inborn skills of women, throughout history women have been kept away from training and practicing in medicine. In antiquity, the lands of the Turkish Republic have been the cradle of civilizations for centuries. Hittites, who ruled in Anatolia from 1650-1190 BC. meticulously documented events of their civilization on clay tablets. Three female doctors named Makija marat Sim'al, Mammitum-um-mi and Azzari have been mentioned as female physicians in these tablets. Additionally, women were recognized to be superior in obstetrics and gynecology.

Tomb inscriptions found in Anatolia in the 1st and 2nd centuries AD, mention Antiochis and Domnina whom gained a great reputation in their society for protecting their homeland from diseases. It's stated that the deaths of these valuable female physicians are a loss not only for their family but also for their hometowns.

In the Ottoman Period, Şerafeddin Sabuncuoğlu authored 'Imperial Surgery', the first illustrated Turkish-written medical textbook, in 1465. Female surgeons called 'tabiba' were depicted in his illustrations involving many surgical procedures. In the 17th century Saliha bint-i Küpeli is reported to perform hernia surgery in patients from all regions dominated by the Ottoman Empire. Zeynep bint-i Mustafa removed a mass in a man's neck in the village Köyviran in 1691.

Apart from the mentioned rare examples, women had limited opportunities to work as physicians. Dr. Zaruhi Kavalcıyan, an Armenian origin Ottoman citizen, following her medical education in the United States had to work under the supervision of her physician father. The first Turkish female doctor, Dr. Safiye Ali, shared the same fate despite having excellent education.

Following the birth of the Turkish Republic and implementation of women's rights revolutions, female physicians have thrived in all fields of medicine.

Women in Pediatric Surgery

Giovanna Riccipetitoni, M.Gazzaneo, Department of Clinical, Surgical, Diagnostic and Pediatric Sciences – Pediatric Surgery Unit, University of Pavia, Italy

To trace the evolution of the presence of women surgeons through history; to evaluate the impressive increase in female surgeons' number and the flourishing of associations such as Women in Surgery (WIS); to analyze career difficulties, the limited number of managerial figures and to identify operational tools.

Historiographical research on women practicing surgery from 2700 BC to today was performed, as well as a survey on the data reported by the Associations of Women Surgeons (WIS), an analysis of problems, opportunities, and possible actions.

Women doctors appeared in 2700 BC with Merit Phath and Peseshet in Egypt, within schools of medicine teaching gynecology. In the Greek-Roman era, women could practice as wives and daughters of doctors (e.g. Hygeia, Panacea, daughter of Aesculapius). Christianity allowed greater autonomy through some figures: Saint Theodosia and Saint Nicerata. A peak was reached during the Middle Ages in the Salerno School with Abella, Rebecca, Francesca, and Trotula de Ruggiero, writer of gynecology and pediatrics essay. In the Renaissance, the main interest was in studies and recipes on medicinal herbs, and in the chloroform to put patients to sleep (Caterina Sforza). However, the Holy Inquisition (1400-1700) branded many female doctor-surgeons as witches (around 100,000 were sent to the stake). During the Napoleonic Wars (1975-1865) an English military surgeon, James Barry, disguised herself as a man to practice her profession. Only in 1849 with Elisabeth Backwell women were allowed to access medical school in USA. In 1913, the first female surgeon was accepted into the American College of Surgeons (ACS), but until 1970 women represented only 2% of the ACS. In 1981 Patricia Numann established "The Association of Women Surgeons" among ACS, defining its mission and strategies. Following this experience, in UK WinS, in Italy WIS, in Africa WiSa were founded. Several female surgeons are present in Russia, the first was Vera Gedroits, a student of Roux in Switzerland who practiced at the Tsar's court from 1900. There are few women in Asia even if they are represented in MWIA (International Association of Medical Women).

Shusruta - The Father of Surgery in Ancient India (600 BC)

Prem Puri, Professor emeritus, Dublin, Ireland

Sushruta, an ancient Indian physician and philosopher practised medicine in Benares (Varanasi), India and compiled a monumental treatise in Surgery in 600 BC, the Sushruta Samhita in Sanskrit, which is the earliest text in world for the systematic teaching of surgery.

Although devoted mainly to the science of surgery, it also includes other disciplines such as medicine, pediatrics, geriatrics, disease of ear, nose, throat and eye. One Chapter is devoted to pediatrics (Kaumarabhratya), the first record of pediatrics in ancient India. It describes, prenatal and neonatal care, breastfeeding and management of illnesses of children. He devised structured training programme for his students, spanning 6 years to obtain proficiency and acquire skills and speed in the different types of surgical manipulations.

He devised 121 different surgical instruments, including 28 types of sounds, catheters and syringes. Sushruta included exercise in his prescriptions to prevent and treat diseases.

Amulets in medicine: Healers and protectors of health.

Cigdem Ulukaya Durakbasa,

Department of Pediatric Surgery, Istanbul Medeniyet University Faculty of Medicine, Istanbul, Türkiye

Varied and complex objects, amulets are fascinating. They are the items worn on the body for therapeutic or protective benefits. The defining feature for an object to be called as amulet is power; power to protect and heal.

The possession of amulets for protection and cure has always been widespread throughout human history because “disease” itself is old as living matter. We may take it that disease of some kind has always afflicted humans and must have led them to search for means of easing pain and curing disability. The oldest amulet which was found in the Altai Mountains dates back 40.000 years and was made of the perforated teeth of a cave bear. While seeking protection and cure, both wealthy and poor wore amulets of varying quality. Simple hazelnut amulets were worn against toothache and carried in Ireland against rheumatism yet a gold touch piece was a gift from kings and queens. Amulets may vary according to the society they are in. Evil-eye is a widespread belief found in various cultural regions and continents. If someone has been the victim of evil eye then they can get sick or even die. Different cultures use amulets such as coral necklaces, snakeskin, shoes, horns or a blue bead with a painted eye to distract or absorb the evil.

Healing centers around cure and protection, but where once these two actions were closely related, now they are more distinct. Current mechanistic medicine takes the human body as a machine. Accordingly, the ways amulets have been used and understood have changed from antiquity to today, but they have a long and rich history that spans many cultures and civilizations. It is likely that we all have objects in our homes with a history as being healing amulets, protective guards, or good luck charms.

Peter Paul Rickham - The Liverpool Neonatal Surgery Unit 1953

Paul Losty, Institute of Systems Molecular and Integrative Biology University of Liverpool, UK

Department of Paediatric Surgery, Ramathibodi Hospital, Mahidol University, Bangkok Thailand

Peter Paul Rickham is credited with co-founding the World's 1st Neonatal Surgery Unit in 1953 at Alder Hey Children's Hospital Liverpool, UK. The establishment of the unit at that time only some years after World War II ended led to dramatic improvements in survival for many babies born with surgical birth defects and allied neonatal disorders - Lancet 1960; 2 : 751-4. Surgeons and anaesthetists travelled to Alder Hey from some 6 World Continents to train and gain experience with Rickham and his pioneering anaesthetic colleague Jackson Rees widely regarded as the father of newborn anaesthesia – "The impossible thereafter becoming possible"

To this very day Peter Paul Rickham is warmly remembered as an innovative pioneering surgeon – "outspoken and forceful at times "but a man with a huge intellect, wicked humour and a strong supporter of our pediatric surgical speciality.

Since 1988 (after an anonymous benefactor financial donation) - Alder Hey Children's Hospital honours and celebrates Peter Paul Rickham with an International Symposium attended by members of the Rickham family and hosted by Alder Hey surgical staff with invited celebratory guest speakers from many world nations. A Visitors book, "A Who's Who in the World of Paediatric Surgery originally created by Peter Paul Rickham is entrusted to a senior surgeon at the Department of Paediatric Surgery to ensure the legacy, heritage, values linked to 'neonatal surgery - coming of age' continue onwards valiantly to inspire our next generation(s) of paediatric surgeons.





159- NORMATIVE RADIATION DATA IN PEDIATRIC PORT IMPLANTATIONS AT A SWISS INSTITUTION

Tobias Krause[1], Steffen Berger[1], Eric Stöckli[2], Milan Milosevic[1]

[1]Department of Pediatric Surgery, University Children's Hospital, Inselspital, Bern, Switzerland.
[2]Department of Pediatric Radiology, University Children's Hospital, Inselspital, Bern, Switzerland

Aim of the study

The aim of our study was to generate reference data for radiation exposure in children undergoing port implantation.

Methods

We conducted a retrospective analysis of radiation exposure (primary endpoint: mean dose area product in cGy x cm^2) in all children with port implantation in our department between 2018 and 2023. Secondary endpoints included the age of the patients, diagnosis, duration of radiation, and duration of surgery. All implantations were performed under fluoroscopy with a mobile C-arm with flat panel technology (Ziehm Vision, Leu AG). This device automatically adjusts the power to the tissue density. The standard preinstalled program “children and heart” delivers 12 pulses per second. Annual radiation protection training is mandatory for all surgeons using fluoroscopy.

Main Results

We analysed 156 port implantations in 142 patients. 60% of port implantations were performed in patients under 7 years of age (n= 93). Main pathologies requiring port implantation were leukemia (42%, n=59) and brain tumors (16%, n=23). The mean dose area product across all years was 20.4 cGy/cm^2, the average radiation duration was 39.97 seconds. Radiation exposure increased along with age and body mass.

Conclusion

So far, there are only few data published regarding radiation exposure in pediatric port implantation. Our analysis provides a benchmark in those patients, useful for quality control and development of protocols aiming at reduction of radiation exposure in children.

522 - Lobectomy or total thyroidectomy in pediatric differentiated thyroid cancer? A systematic review and meta-analysis

Ioanna Gkalonaki[1], Athina Stamati[2], Dimitrios G. Goulis[3], Athanasios Christoforidis[4], Ioannis Valioulis[1]

[1]First Department of Pediatric Surgery, School of Medicine, Aristotle University of Thessaloniki, General Hospital of Thessaloniki "G.Gennimatas", Thessaloniki, Greece. [2]School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece. [3]Unit of Reproductive Endocrinology, 1st Department of Obstetrics and Gynecology, Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece. [4]Unit of Paediatric Endocrinology, 1st Department of Paediatrics, School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

Aim of the study:

Pediatric thyroid cancer is distinct from adult-onset due to differences in disease presentation, management and outcomes. This meta-analysis delves into contemporary data on managing pediatric differentiated thyroid cancer (DTC), assessing outcomes, such as recurrence and mortality, in children with radical total thyroidectomy versus the more conservative lobectomy approach.

Methods:

MEDLINE (via PubMed), Cochrane Central Register of Controlled Trials (CENTRAL), trial registry websites (ClinicalTrials.gov), and relevant congress abstracts were searched to identify eligible articles from the database inception to September 2023. Assessing study quality involved the Cochrane risk of bias tools (ROBINS-I), and overall evidence quality was gauged with the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) tool. Investigated outcomes included recurrence rates, mortality rates, postoperative complications, and independently permanent hypoparathyroidism and recurrent laryngeal nerve palsy (RLNP), postoperative radioiodine (RAI) and reoperation.

Main Results:

Twenty-two observational studies with 11,684 patients were included. No significant difference was seen between the two groups regarding the mortality rates, overall postoperative complications and RLNP. The meta-analysis demonstrated that in the thyroid lobectomy group, the recurrence rate [relative risk (RR 1.80, 95% confidence interval (CI) 1.22–2.67] and need for reoperation were higher (RR 3.99, 95% CI 2.01–7.92), while permanent hypoparathyroidism (RR 0.23, 95% CI 0.11–0.49) and postoperative RAI (RR 0.42, 95% CI 0.20–0.87) decreased.

Conclusion:

Total thyroidectomy is favored in pediatric thyroid cancer, showing lower recurrence and reoperation rates compared to lobectomy. For more robust findings, we strongly advocate for the implementation of well-designed randomized controlled trials.

556 - TIMING OF 11P15.5 ALTERATIONS DURING DEVELOPMENT DEFINES DIFFERENT MODES OF EVOLUTION TOWARD HEPATOBLASTOMA WITH VARIOUS CLINICAL PRESENTATIONS

Marianna Cornet[1,2], Jill Pilet[1,2], Barkha Gupta[1,2], Amélie Roehrig[1,2], Guillaume Morcrette[1,2], Aurore Pire[1,2], Eric Letouzé[1,2], Brice Fresneau[3,4], Sophie Taque[5], Laurence Brugières[3], Sophie Branchereau[6], Christophe Chardot[7], Isabelle Aerts[8], Sabine Sarnacki[7], Monique Fabre[9], Catherine Guettier[10], Sandra Rebouissou[1,2], Théo Hirsch[1,2], Jessica Zucman Rossi[1,2,11]

[1]Centre de Recherche des Cordeliers, Université Paris Cité, Sorbonne Université, Inserm, Paris, France. [2]Equipe Labellisée Ligue Nationale Contre le Cancer, Labex Onco-Immunology, Institut du Cancer Paris CARPEM, AP-HP, Paris, France. [3]Gustave Roussy, Université Paris-Saclay, Department of Children and Adolescents Oncology, Villejuif, France. [4]Université Paris-Saclay, Université Paris-Sud, UVSQ, CESP, Cancer and Radiation Team, Villejuif, France. [5]Pediatric Department hemato-oncology, CHU Rennes, Rennes, France. [6]Department of Pediatric Surgery, AP-HP Bicêtre Hospital, Paris Saclay University, Le Kremlin Bicêtre, France. [7]Department of Pediatric Surgery, AP-HP Necker Enfants Malades Hospital, Université Paris Cité, Paris, France. [8]Institut Curie, Oncology Center SIREDO, Paris, France. [9]Pathology Department, AP-HP Necker Enfants Malades Hospital, Université Paris Cité, Paris, France. [10]Pathology Department, AP-HP Bicêtre Hospital, Université Paris Saclay, Le Kremin Bicêtre, France. [11]AP-HP, Department of Oncology, Hopital Européen Georges Pompidou, Paris, France

Aims: Beckwith-Wiedemann syndrome (BWS), characterized by partial overgrowth due to mosaic genomic/epigenomic alterations of the 11p15.5 locus, predisposes to hepatoblastoma (HB). Furthermore, most HB without predisposition syndrome harbor 11p15.5 alterations acquired during tumorigenesis. We have recently described intermediate cases with localized 11p15.5 mosaicism in the non-tumor liver in the absence of clinical BWS. We aimed to better understand the timing and functional consequences of 11p15.5 alterations.

Methods: In this retrospective study, we screened for 11p15.5 alterations in 77 HB and their non-tumor liver using DNA sequencing, methylation-specific-multiplex-ligation-dependent-probe-amplification (MS-MLPA) assay, and RNAscope in situ hybridization. We used spatial transcriptomics and single-nucleus RNAseq to decipher the mechanisms and consequences of mosaic alterations.

Results: We identified pre-neoplastic mosaic 11p15.5 alterations in 12/76 HB without clinical BWS, with strong enrichment in younger patients, where mosaicism accounted for 22,2% of cases. Patients with mosaicism had no overgrowth and no 11p15.5 alteration in their blood, suggesting that the mosaicism was confined to the liver. Furthermore, single-nucleus RNAseq analysis identified 11p15.5 alteration in hepatocytes and cholangiocytes but not in other liver cell types. Overall, this suggests that localized mosaicism is due to a late alteration during liver development, contrasting with earlier alterations leading to clinical BWS and body-wide effects. However, localized mosaicism had functional consequences, notably the perturbation of liver zonation.

Conclusions: The identification of frequent 11p15.5 mosaicism broadens the number of HB cases with predisposition. We recommend systematic screening of non-tumor liver to enhance our understanding of different modes of tumor evolution.

532 - THE ROLE OF RADICAL NEPHRECTOMY IN CONTEMPORARY MANAGEMENT OF SYNCHRONOUS BILATERAL WILMS TUMOR: A SYSTEMATIC REVIEW AND META-ANALYSIS.

Silvia Ceccanti[1], Giuseppe Migliara[2], Corrado De Vito[1], Denis A. Cozzi[1]

[1]Sapienza University of Rome, Rome, Italy. [2]Department of Life Sciences, Health and Health Professions, Link Campus University, Rome, Italy

Aim of the study:

Radical nephrectomy combined with contralateral nephron-sparing surgery (NSS) has been historically accepted as a legitimate surgical treatment option for bilateral Wilms' tumor (BWT). We sought to identify trends over time in the prevalence of this surgical strategy.

Methods:

We conducted a PRISMA-compliant literature search in PubMed, Web of Science, and Google Scholar without language restrictions from inception to January 15, 2024. Studies including 10 or more patients with synchronous BWT and adequate information about their surgical treatment were eligible. We performed random effects meta-analyses to calculate pooled prevalence estimates (PPE) and 95% confidence intervals (CI) for all types of renal surgery.

Main Results:

A total of 32 studies, including 1510 patients, entered into the quantitative synthesis. The overall PPE for radical nephrectomy with contralateral NSS was 53% (95% CI 46-61), whereas the overall PPE for bilateral NSS and for bilateral nephrectomy was 35% (95% CI 26-44) and 1% (95% CI 0-2), respectively. Stratifying by treatment periods, subgroup analysis revealed that the use of bilateral NSS has significantly increased in studies including patients who received surgery after 2000 ($p < 0.04$). Heterogeneity, assessed using I^2 statistic, was substantial for all estimates, except for bilateral nephrectomy PPE.

Conclusions:

Given the negative effect on renal function after radical nephrectomy in patients with synchronous BTW, surgeons' efforts should strive at actively achieving the goal of decreasing the prevalence of unilateral nephrectomies to below 50%, while prioritizing bilateral NSS in these patients.

94 - LONG-TERM ONCOLOGICAL OUTCOMES OF FOLLICULAR THYROID CANCER IN ADOLESCENTS AND YOUNG ADULTS: A NATIONWIDE POPULATION-BASED STUDY

Daniël J. van de Berg[1], Christiaan F. Mooij[2], A. S. Paul van Trotsenburg[2], Hanneke M. van Santen[3,4], Sheila C. E. J. Terwisscha van Scheltinga[5], Menno R. Vriens[6], Schelto Kruijff[7,8], Els J.M. Nieveen van Dijkum[9], Anton F. Engelsman[9], Joep P. M. Derikx[1]

[1]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [2]Department of Pediatric Endocrinology, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [3]Department of Pediatric Endocrinology, Wilhelmina Children's Hospital, Utrecht University Medical Center, University of Utrecht, Utrecht, Netherlands. [4]Department of Pediatric Oncology, Princess Máxima Center, Utrecht, Netherlands. [5]Department of Pediatric Surgical Oncology, Princess Máxima Center, Utrecht University Medical Center, University of Utrecht, Utrecht, Netherlands. [6]Department of surgery, University Medical Center Utrecht, University of Utrecht, Utrecht, Netherlands. [7]Department of Surgery, University Medical Center Groningen, University of Groningen, Groningen, Netherlands. [8]Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Netherlands. [9]Department of Surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands

Introduction: Follicular thyroid carcinoma (FTC) in adolescents and young adults (AYAs) is rare and data on long-term oncological outcomes are scarce. This study aimed to describe the long-term recurrence and survival rates of AYAs with FTC, and to identify risk factors for recurrence.

Methods: We conducted a nationwide, retrospective cohort study, in which we combined two national databases. Patients aged 15 – 39 years, diagnosed with FTC in The Netherlands between 2000 and 2016, were included. Age, sex, pT-stage, pN-stage, size of tumor, focality, positive margins, angioinvasion were included in a cox proportional hazard model to identify risk factors for recurrence. This study has been approved by the institutional review board of Amsterdam UMC (registration number #20.319).

Main Results: 192 patients were included. Most patients presented with a minimally invasive FTC (MI-FTC) (95%). Five patients presented with synchronous metastases (2.6%). During a median follow-up of 12.0 years, three patients developed a recurrence (1.6%), of which one patient developed a regional recurrence (33%), and two patients presented with distant recurrences (67%). Five patients died during follow-up (2.6%). Cause of death was not captured. A cox proportional hazard model could not be performed, due to the low number of recurrences.

Conclusion: FTC in AYAs is generally characterized as a low-risk tumor, as it exhibits a very low recurrence rate, a high overall survival rate, and it typically presents as MI-FTC without synchronous metastases. These findings underscore the favorable long-term oncological prognosis of FTC in AYAs.

651 - PTLD-RELATED SURGICAL EMERGENCIES IN CHILDREN FOLLOWING SOLID ORGAN TRANSPLANTS

Diego Armando Montenegro Pinzon[1], Britta Maecker-Kolhoff[2], Omid Madadi-Sanjani[1], Tatjana König[1], Jens Dingemann[1], Rim Kiblawi[1]

[1]Department of Pediatric Surgery, Hannover Medical School, Hannover, Germany. [2]Department of Pediatric Hematology and Oncology, Hannover Medical School, Hannover, Germany

Introduction:

Post-transplant lymphoproliferative disorders (PTLD) are life-threatening complications secondary to organ transplantation and immunosuppression. Literature on adverse events requiring surgical interventions in children are scarce. We aimed to evaluate the PTLD-related surgical emergencies in a consecutive pediatric cohort and investigate potential risk factors.

Methods:

Retrospective study including all consecutive children with PTLD following solid organ transplantation from 1998 to 2021. We evaluated demographic, histological, radiological and surgical data. PTLD was histologically confirmed in all patients. PTLD-related surgical emergencies were defined as urgent need for procedures due to PTLD-complications. Endpoints were onset of PTLD and complications, localization, surgical intervention and outcome.

Results:

40 patients were included in the study, six (15%) required emergency surgery. In 75% of the cases, PTLD was localized in the gastrointestinal tract, mostly (58%) involving the small intestine. 42.8% of patients with small intestine PTLD required emergency surgery (five intestinal perforations, one obstructive ileus). The median time to PTLD onset after transplantation was 11.7 (5-24) months in children undergoing emergency surgery versus 38.5 (2-282) months for patients without abdominal complications (p=0.0271). Median time from PTLD-diagnosis to surgery was 39.8 (0-90) days. Mortality rate was 33% for those who underwent surgery vs. 9% for patients without surgical emergencies due to PTLD (p= 0.154).

Conclusions:

Children experiencing PTLD-related surgical emergency face a considerable mortality risk, with the small intestine being the most common site of localization. Routine surgical consultation for all PTLD-patients is recommended to enhance timely intervention.

Keywords:PTLD, pediatric transplantation, surgical emergency, Rituximab, immunosuppression.

217 - ROLLING IN THE DEEP: UTILITY OF RADIO-GUIDED OCCULT LESION LOCALIZATION (ROLL) IN PEDIATRIC SURGICAL ONCOLOGY

Isabel González-Barba, Sergio López-Fernández, José Andrés Molino, Marta Martos, Luis Riera, María de Bonilla, Ignacio Navales, Gabriela Guillén

Vall d'Hebron University Hospital, Barcelona, Spain

AIM

ROLL is a targeting technique involving the preoperative intralesional injection of a minimal radiotracer dose. This injection allows for subsequent localization and excision using a gamma-ray probe. In this study, we present our initial experience with ROLL in pediatric oncology patients.

METHODS

Retrospective analysis (2021-2023) of patients subjected to ROLL. The preoperative intralesional injection of 99mTc-MAA, guided by CT for lung/intercostal lesions and ultrasound for parathyroid lesions, was confirmed by pre-surgical SPECT-CT.

Both localizing and surgical procedures were performed on the same day. Open and thoracoscopic surgical gamma-ray probes were employed.

RESULTS

Five patients (mean age 8±6.1 years) with a history of osteosarcoma, nephroblastoma, Ewing's sarcoma and hyperparathyroidism, underwent 7 radio-guided surgical procedures: 4 nonperipheral solitary pulmonary nodules (SPNs), 2 parathyroid adenomas and one non-palpable intercostal nodule. The eldest patient presented 2 synchronous lesions (pulmonary and intercostal), whilst the youngest presented 2 metachronous SPNs. Mean lesion diameter was 8.6±7.5 mm.

One patient required 2 separate injections for the same surgical procedure due to radiotracer misplacement. The youngest patient, who required two pulmonary excisional biopsies, suffered minor pneumothoraces and presented no radiotracer uptake due to a problem during the injection technique.

All surgical procedures were successfully performed, with no surgical complications. Pathology reports confirmed excision of all the lesions.

CONCLUSIONS

In our series, ROLL enabled resection of all non-peripheral and non-palpable lesions, without radiotracer migration. These results encourage expanding the indication of ROLL as a marking technique to identify other deep-set lesions in pediatric patients.

87 - THE DEFINITION OF RECURRENCE OF DIFFERENTIATED THYROID CANCER. A SYSTEMATIC REVIEW.

Daniël J. van de Berg[1], Pedro M. Rodriguez Schaap[2], Faridi S. Jamaludin[3], Hanneke M. van Santen[4,5], Sarah C. Clement[4], Menno R. Vriens[6], A. S. Paul van Trotsenburg[7], Christiaan F. Mooij[7], Eveline Bruinstroop[8], Schelto Kruijff[9,10], Robin P. Peeters[11], Frederik A. Verburg[12], Romana T. Netea-Maier[13], Els J.M. Nieveen van Dijkum[2], Anton F. Engelsman[2], Joep P. M. Derikx[1]

[1]Department of Pediatric Surgery, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [2]Department of Surgery, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [3]Amsterdam University Medical Centers, University of Amsterdam, Medical Library AMC, Meibergdreef 9, Amsterdam, Netherlands. [4]Department of Pediatric Endocrinology, Wilhelmina Children's Hospital, Utrecht University Medical Center, University of Utrecht, Utrecht, Netherlands. [5]Department of Pediatric Oncology, Princess Máxima Center, Utrecht, Netherlands. [6]Department of Surgery, University Medical Center Utrecht, University of Utrecht, Utrecht, Netherlands. [7]Department of Pediatric Endocrinology, Emma Children's Hospital, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [8]Department of Internal Medicine, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, Netherlands. [9]Department of Surgery, University Medical Center Groningen, University of Groningen, Groningen, Netherlands. [10]Department of Molecular Medicine and Surgery, Karolinska Institutet, Stockholm, Sweden. [11]Department of Internal Medicine, Erasmus Medical Center, Erasmus University Rotterdam, Rotterdam, Netherlands. [12]Department of Radiology & Nuclear Medicine, Erasmus Medical Center, Erasmus University Rotterdam, Rotterdam, Netherlands. [13]Department of Internal Medicine, division of Endocrinology, Radboud University Medical Center, Nijmegen, Netherlands

Aim of the study

Currently, there is no universally accepted definition of recurrence for differentiated thyroid cancer (DTC). The primary aim of this systematic review was to assess the definition of recurrence of DTC.

Methods

A systematic literature search in MEDLINE and EMBASE was performed for studies reporting on recurrence of DTC, published January 2018 to December 2023. Studies that did not provide definition of recurrence were excluded. Primary outcome was definition of recurrence of DTC. Secondary outcomes were whether studies differentiated between recurrence and persistent disease, or between recurrence after lobectomy, total thyroidectomy and total thyroidectomy with radioiodine ablation (RAI). This study adhered to 2020 PRISMA statement for systematic reviews.

Main results

Out of 1450 identified studies, 231 studies met inclusion criteria. The most prevalent definitions of recurrence were cytology/pathology-proven recurrence (22.5%) and the combination of imaging studies and cytology/pathology-proven recurrence (18.2%). Forty studies (17.3%) differentiated between recurrence and persistent disease, while one study (<1%) defined recurrence after lobectomy and total thyroidectomy with RAI, but omitted total thyroidectomy without RAI.

Conclusions

Our main finding is that there is no universally accepted definition of recurrence of DTC and there is extensive heterogeneity among the definitions, emphasizing the need for a globally uniform definition. The findings of this study will serve as the basis of future Delphi-based proposal for a novel and widely accepted definition of recurrence of DTC. A universally accepted definition could facilitate global discussion, enhance the assessment of treatment outcomes and improve the comparability of studies.

718 - FACILITATING SURGICAL REMOVAL OF SMALL AND HARD-TO-LOCATE NEUROBLASTOMA LESIONS IN PEDIATRIC PATIENTS: EXPERIENCE WITH RADIO-GAMMA PROBE GUIDED SURGERY.

Maria Coronas-Soucheiron[1], Albert Pasten[2], Marta Pilar Martin[2], Maite Gorostegui[3], Salvador Mañe[4], Rosalia Carrasco[2], Lucas Krauel[2]

[1]Pediatric Surgical Oncology Fellow, Pediatric Cancer Center Barcelona (PCCB), Pediatric Surgery Department, SJD Barcelona Children's Hospital, Universitat de Barcelona, Barcelona, Spain. [2]Pediatric Surgical Oncology, Pediatric Cancer Center Barcelona (PCCB), Pediatric Surgery Department, SJD Barcelona Children's Hospital, Universitat de Barcelona, Barcelona, Spain. [3]Pediatric Oncology, Pediatric Cancer Center Barcelona (PCCB) - SJD Barcelona Children's Hospital, Universitat de Barcelona, Barcelona, Spain. [4]Nuclear Medicine Department, SJD Barcelona Children's Hospital, Universidad de Barcelona, Barcelona, Spain

Objective:

To describe our center's experience using the radio-gamma probe for detecting small and difficult-to-locate neuroblastoma (NB) lesions that are positive for metaiodobenzylguanidine (MIBG).

Methods:

Retrospective analysis of pediatric patients with high-risk neuroblastoma and metastatic lesions, who underwent surgery between February 2020 and December 2023, using a radio-gamma probe (Eurorad® Europrobe 3.2) after MIBG injection. Analyzed variables included gender, age, primary tumor location, prior radiotherapy/surgery, lesion location and size, surgical approach, surgical time, histopathological analysis and postoperative MIBG.

Main results:

Eleven patients were included (45% males), median age 6,7 years (IQR 3,6-9,43). All primary tumors were retroperitoneal, and 10 were metastatic at onset. 73% of the patients had prior surgeries, and 45% had received radiotherapy. Lesion locations were supraclavicular (27%), psoas muscle (18%), cervical (9%), hepatic hilum (9%), lung (9%), pelvic (9%), inguinal (9%) and renal hilum (9%). 82% were open procedures and 18% laparoscopic. Median surgical time was 90 minutes (IQR 52-141). Lesion sizes were <1 cm (18%) and 1-3 cm (82%). Biopsy revealed poorly differentiated (64%) and differentiated (36%) neuroblastoma, with molecular studies available in all samples. Postoperative MIBG was negative in 90% of patients.

Conclusion:

Small NB lesions can be challenging to locate and surgery in specific locations can be difficult. Integration of the nuclear medicine team in the operating room can improve the goal of efficient sampling in this difficult group. Radio-gamma probe guided surgery has proven to be a necessary tool for successful small and difficult to locate lesion excision.

774 - LONG-TERM OUTCOMES OF INFANTILE SACROCOCCYGEAL TERATOMA: RESULTS FROM A MULTIDISCIPLINARY PROSPECTIVE STUDY

Laura Valfre, Valerio Voglino, Pietro Bagolan, Barbara Daniela Iacobelli, Chiara Iacusso, Fabio Fusaro, Federico Scorletti, Annabella Braguglia, Lucia Aite, Andrea Conforti

Bambino Gesu Research children's Hospital, Rome, Italy

Aim: Sacrococcygeal teratoma (SCT) is a rare paediatric germ cell tumour. Long-term data regarding urinary tract and bowel function after SCT resection is limited to few studies. We report a prospective follow-up study.

Methods: All infants treated for SCT 2010-2023 were enrolled in a prospective multidisciplinary follow-up study. We analyzed data at long-term FU: Demographic and auxological data, feeding behavior, neurodevelopment, anorectal and urinary dysfunction, recurrence, redo-surgery and malignancy.

Results: During the study period we treated 44 SCT patients (32 female), prenatally diagnosed in 32). Median follow-up was 5.8-years (IQR: 1-12). Median of gestational age was 36,5 weeks and age at surgery was 8,2 days [IQR: 2-30]. Altman Stage I was diagnosed in 23, while immaturity was present in 21 patients. At follow-up, recurrence was observed in 4 (median age 18-month), 2 patients had anorectal disfunction and 3 had bladder dysfunction and 1 need intermittent catheterization. Associated anomalies, need for chemotherapy and surgical complication (Clavien>3) were associated to bladder or intestinal dysfunction.

Conclusion:

Our research revealed that 5 patients (13%) among those undergoing SCT resection, presented bladder or bowel dysfunction. Consequently, it is imperative to conduct a functional assessment of in the post-treatment follow-up for all SCT patients. Given the recurrence rate, there is a compelling indication for periodic imaging and evaluations of tumor markers in patients with identified risk factors. A multidisciplinary approach is strongly recommended to enhance the quality of life for patients and establish guidelines for optimal practices.

228 - SURGICAL MANAGEMENT OF PANCREATIC SOLID PSEUDOPAPILLARY TUMOR: RESECTION VERSUS ENUCLEATION

Ulgen Celtik, Ahmet Celik, Orkan Ergun

Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey

Aim:

Solid pseudopapillary tumors (SPT) represent the most prevalent pancreatic tumors in children. Total excision is the primary aim of surgical approach. This study compares the short- and long-term outcomes of enucleation and resection as surgical management.

Method:

We retrospectively analyzed the records of patients who underwent surgical resection for SPT between 2011-2023. Demographics, symptoms, radiological findings, surgical treatment strategies, and prognoses were reviewed. Patients were categorized into two groups based on the surgical approaches: Group 1 underwent enucleation of the mass while Group 2 underwent resection. Short and long-term outcomes were compared between two groups.

Results:

16 patients (M/F:1/15) were operated due to SPT. Median age at operation was 15 (8-16) years. Enucleation was performed for tumors located in the head and the body of the pancreas while distal pancreatectomy was performed for tumors in the tail. Whipple (pancreaticoduodenectomy) procedure was performed for three patients with SPT located at the pancreatic head. Pre- and postoperative findings are summarized in Table 1. Pancreatic leakage was significantly higher in Group1. Moreover, median time to total enteral feedings and length of hospital stay was significantly longer in Group 1. Median follow-up was 48 (2-120) months, and there were no recurrences in the long-term follow-up in both groups.

Conclusion:

Both techniques seem to have favorable long-term outcomes; however, the enucleation group is associated with a higher rate of early complications. As a result, the time to achieve total enteral feeding and the duration of hospital stay are longer in the enucleation group.

Table 1	Enucleation Group 1	Resection Group 2	p	Total
Number of patients	9	7		16
Tumor location				
Head	7	3		10
Body	2	0		2
Tail	0	4		4
Complications	6	1	0.06	7
Pancreatic leak	5	0	0.03	5
Pancreatic pseudocyst	1	1		2
None	3	6	0.06	9
Median time to initiate oral feeding (days)	7 (3-19)	3 (2-34)	0.17	4,5 (3-34)
Median time to total oral feeding (days)	20 (6-45)	5 (4-6)	0.006	6 (5-45)
Median time to hospital stays (days)	25 (8-50)	6 (5-7)	0.001	9 (5-50)
Median time to follow up (months)	76 (2-115)	48 (12-120)	0.29	48 (2-120)

851 - ASSOCIATING LIVER PARTITION AND PORTAL LIGATION FOR STAGED HEPATECTOMY (ALPPS) IN PEDIATRIC PATIENTS WITH ADVANCED HEPATOBLASTOMA: A CRITICAL EVALUATION.

Hanna Garnier, Maciej Murawski, Piotr Czauderna

Department of Pediatric Surgery and Urology for Children and Adolescents, Medical University of Gdansk, Gdansk, Poland

INTRODUCTION: Children with advanced primary liver tumors face the challenge of potentially inadequate future liver remnant. ALPPS has recently emerged as a novel approach for marginally resectable pediatric liver tumors.

METHODS: The original procedure involves a two-stage hepatectomy, incorporating initial portal vein ligation and in situ splitting of the liver parenchyma in the future session line.

MAIN RESULTS: Among three hepatoblastoma patients in our retrospective series, the ALPPS technique was considered when the FLR measured 25% or less of the total liver volume (TLV) based on magnetic resonance. Notably, all patients exhibited rapid FLR growth. The second procedure was performed within 7-9 days. Unfortunately, the first patient succumbed during the second stage surgery due to venous air embolism in the final resection stage, the second patient passed away two months post-procedure due to liver failure, and the third patient experienced oncological local relapse leading to death three years after the surgery.

CONCLUSIONS: Limited experience with ALPPS in pediatric cases revealed several challenges. Despite robust FLR growth, the second patient's demise underscores the risk of liver failure. Misqualification of the third patient for the initial conservative surgery despite right portalbranch thrombus, which resolved with preoperative chemotherapy resulted in subsequent local relapse, whcich required ALPPS, but led ultimately tot he 2nd local recurrence and disease progression, highlighted the critical importance of precise patients selection. While ALPPS demonstrates effectiveness in adults according to literature, its application in children should be cautiously considered, primarily in highly selected cases where transplantation is not feasible or unavailable.

55 - ORAL PROPRANOLOL VERSUS INTRA-LESIONAL CORTICOSTEROIDS INJECTION FOR MANAGEMENT OF INFANTILE HEMANGIOMA.

Moutaz Ragab, Wesam Mohamed, Mamdouh Aboulhassan, Khaled Bahaaeldin

Cairo University Specialized Pediatric Hospital, Cairo, Egypt

Aim of the Study: In this study, we compared the efficacy of Oral propranolol vs. intra-lesional steroid injection in infants below 24 months with infantile hemangiomas, bearing in mind the following criteria (size, color, degree of flattening of the lesions, and potential side effects).

Methods: Prospective, randomized controlled study included 50 patients with Infantile hemangiomas attending the vascular anomalies outpatient clinic between April 2016 and April 2018, who were distributed into two groups: Group A received oral propranolol; Group B received intra-lesional Betamethasone alone. Patients were evaluated after 7 days of treatment and then every month for a minimum of 6 months then every 3 months till 12 months. Monthly evaluation consisted of clinical and photographic evaluations of the lesions and monitoring of treatment compliance and tolerance.

Main Results: The mean age of patients in Group A was 5.48 months at time of starting the treatment (range 3-12) and was 11.64 months (range 9-18 months) at the time of stopping the treatment; while in Group B the mean age at starting was 7.96 months (range 4-14 months) and at time of termination the mean age was 13.84 months (range 10-21months). In Group A the mean reduction in size was 36.85% (SD 11.9); while in Group B the mean was 34.74% (SD 9.2).

Conclusion: There were no statistical differences between the two techniques. The choice of one over the other would be a matter of consensus between the managing team and the patient guardians.

510 - SURGICAL AND ETHICAL DILEMMAS IN THE MANAGEMENT OF A NEONATE WITH MULTIPLE GASTROINTESTINAL ATRESIAS AND SEVERE OBSTRUCTIVE JAUNDICE.

Vasiliki Magaliou[1], Polydorides Marianna[2], Mariorakis Chrysovalantis[2], Boutouridou Eleni[2], Voskidis Christos[2], Georgiou Eleftheria[2], Tzantzaroudi Aikaterini[2], Georgios Papouis[2]

[1]Hippokration Hospital of Thessaloniki, Thessaloniki, Greece. [2]Hippokratio Hospital of Thessaloniki, Thessaloniki, Greece

Aim: To elucidate the ethical dilemmas and operative challenges emerging in the management of the concurrence of apple-peel atresia with multiple gastrointestinal atresias and obstructive jaundice, ending in hepatic failure.

Case Presentation: A full-term female neonate presented with a gasless abdomen, a palpable mass at the epigastrium, gastric aspirates from the Levine tube, no meconium, inability to introduce a catheter into the rectum despite a normal-appearing anus, and obstructive jaundice. The abdominal X-ray indicated atresia. MRCP revealed significant dilatation of the choledochal duct and an extremely dilated duodenum. Laparotomy unveiled apple-peel atresia as well as gastric obstruction due to a diaphragm. The duodenum was immensely dilated, with bile refluxing into a huge choledochal duct. Rectal atresia was also confirmed. The duodenum was anastomosed to the stomach and the ascending colon, respectively, while the atretic small intestine was preserved for a second-look operation. Sigmoidostomy was also performed. Redo of the duodenum-colonic anastomosis was necessitated due to stenosis. The atretic intestine was re-evaluated, and segments with potential patency were preserved. Impaired liver function was exponentially aggravated by TPN. Combined intestine-liver transplantation was proposed but rejected for not meeting inclusion criteria. She finally succumbed at the age of seven months due to hepatic failure.

Conclusion: Apple-peel atresia combined with multiple GI atresias and obstructive jaundice is an extremely rare concurrence. Impaired liver function, along with long-term TPN, precipitate end-staged hepatic failure. The management of such cases encompasses, in addition to operative challenges, ethical dilemmas regarding treatment strategies and palliative care.

527 - A RARE CASE OF TRIPLE AORTIC DISSECTION AFTER A MOTORVEHICLE ACCIDENT INVOLVING A 14-YEAR-OLD PARIENT WITH A SEATBELT INJURY

Eleni Sioziou[1], Persefoni Antoniou[2]

[1]University Hospital of Ioannina, Department of Surgery, Ioannina, Greece. [2]General Hospital "Hatzikosta" of Ioannina, Intensive Care Unit, Ioannina, Greece

The **aim** of this case is to report the handling of life-threatening injuries that can occur from a seatbelt in a vehicle accident.

A 14-year-old was transferred to the emergency department after a high velocity vehicle accident while wearing a seatbelt. She had no external injuries other than a transverse ecchymosis under the umbilicus. She was hemodynamically stable, tachypnoic with Glasgow Scale 15/15. Clinical examination of the respiratory system was normal, she had no head injuries with normal neurological exam. Her abdomen examination showed abdominal distention, decreased bowel sounds and diffuse abdominal pain. There was no pulse difference between the right and left femoral arteries.

A CT angiography of the thorax, abdomen and lower extremities showed intrabdominal fluid with no contrast extravasation, pneumonic artery dissection and a double aortic dissection 3 cm below the renal arteries. The patient underwent emergency laparotomy, three mesenteric ruptures were found and sutured, and two pieces of ischemic small bowel were excised. No emergency repair for the dissections was needed. The patient remained stable and was discharged a week later. Four months later due to self-reported intermittent claudication and an increase in the abdominal aortic dissection diameter, the abdominal dissections were repaired with an endovascular stent. A year after the accident the patient is going on with her life with no medical incidents.

Seatbelt injuries are multimodal and can be life-threatening. Attention should be given not only to the common bowel injuries, but to the aorta as well due to the high deceleration.

641 - A RARE CASE OF CLOACAL ANOMALY: COVERED CLOACAL EXTROPHIA

Gul Ilayda Sarar, Aysenur Celayir, Sabri Cansaran, Olga Devrim Ayvaz

University of Health Sciences, Turkey. Istanbul Zeynep Kamil Maternity and Children Diseases Health Training and Research Center, Department of the Pediatric Surgery, Istanbul, Turkey

Aim of the Study: Persistent cloaca(PC) is a rare congenital anomaly characterised by single opening in perineum where urethra, vagina and rectum fuse. There are different variants and it isn't always easy to categorise the patients. Here, a unique cloacal anomaly case with omphalocele and complex anomalies was presented

Case Description: A neonate born at 37th-week to a 31-year-old mother with PC, omphalocele, hemangioma (of right leg and perineum) was admitted. A single orifice in the perineum situated posteriorly was compatible with posterior cloaca, however pubic diastasis was seen on the x-ray suggesting covered cloacal extrophia. Megacystis, rigth hydroureteronephrosis and left renal agenesis detected by ultrasound. She underwent surgery on day-1 for omphalocele repair, abdominal exploration and planned colostomy. Megacystis, bicornuate uterus and colovesical fistula were detected, fistula was ligated. Karyotype revealed XX. After one year treatment of propranolol, hemangioma lesions were gone.

Pelvic osteotomy was done at 18-months-old. Colon pull-through was done by abdominoperineal approach at 2-years-old. During cystoscopy, common canal was 5cm, and the vagina could not be seen. Due to recurrent infections despite clean intermittent catheterization, ureteroneocystostomy for the solitary kidney was performed. 3-years-old patient also has hypothyroidism and the treatment is ongoing.

Conclusions: Posterior cloaca with covered extrophia is a challenging congenital anomaly that requires a collaborative and comprehensive approach to management. Advances in surgical techniques and a better understanding of the condition have improved outcomes, but managing these patients remains difficult due to a wide variety of accompanying anomalies. Right diagnosis and attentive long-term follow-up are key components of a successful treatment.

684 - HADDAD SYNDROME: ONDINE'S CURSE + HIRSCHSPRUNG'S DISEASE

Asya Eylem Boztas Demir[1], Hatice Eroglu[2], Hilmican Ulman[1], Cemal Bilir[1], Gul Ozyuksel[1], Serif Hamitoglu[2], Mahli Batuhan Ozdogar[2], Muzaffer Coskun[2], Ozgur Olukman[2]

[1]Bakircay University Cigli Regional Education Hospital, Department of Pediatric Surgery, Izmir, Turkey.
[2]Bakircay University Cigli Regional Education Hospital,Neonatology Department, Izmir, Turkey

Introduction:

Congenital central hypoventilation syndrome (CCHS), also known as ''Ondine's curse'' is a rare genetic disorder, characterized by a mutation in the PHOX2B gene. It typically manifests as hypoxemia, hypercapnia, and apnea, often identified in neonates. Haddad Syndrome (HS) is an even rarer condition, representing a conjunction of CCHS and Hirschsprung's disease (HD). This case report details the clinical features and progression of Haddad syndrome in a female infant.

Case Report:

A female neonate, born from a 30-year-old mother, via c-section at 37-weeks gestation, weighing 2585g exhibited respiratory distress and, required admission to the NICU for respiratory support. During the first two months, she was unable to be weaned off the ventilator for more than a few hours, with typical worsening apneas and acidosis during sleeping periods, suggestive of CCHS. After full-enteral feeding, she developed intermittent abdominal distension and bilious residues. The discharge of dense meconium during rectal irrigations prompted a cystic fibrosis investigation, which returned negative for immunoreactive trypsinogen. A tracheostomy was performed on day-64, alongside colonic leveling biopsies and a colostomy. Pathological examination showed absent ganglion cells with negative ret-oncoprotein immunohistochemistry, confirming concomitant HD, and therefore diagnosing Haddad syndrome. After the tracheostomy, tuning of the home-vent and colostomy, she was able to be fed orally, gained significant weight, and had no episodes of apnea and acidosis, to be discharged on day-99.

Conclusion:

Given the rarity of CCHS, it is crucial to consider the potential coexistence of other autonomic nervous system disorders like HD, to improve patient outcomes.

619 - CONGENITAL FOCAL NODULAR HYPERPLASIA-LIKE LESION MIMICKING HEPATOBLATOMA: ANECDOTAL BUT POSSIBLE

Alessandra Gatto[1,2], Chiara Natale[2], Michela Casanova[3], Rita Alaggio[4], Maurizio Cheli[5], Andrea Zanini[2], Francesco Macchini[2]

[1]Università degli studi di Milano, Milano, Italy. [2]Department pediatric surgical - ASST Grande Ospedale Metropolitano Niguarda, Milano, Italy. [3]Department pediatric oncology - IRCCS Istituto Nazionale dei Tumori, Milano, Italy. [4]Department pathological anatomy - Ospedale Pediatrico Bambino Gesù, Roma, Italy. [5]Department pediatric surgical - ASST Papa Giovanni XII, Bergamo, Italy

AIM OF THE STUDY

To describe a case of prenatally diagnosed Focal Nodular Hyperplasia (FNH)- like lesion of the liver misdiagnosed as Hepatoblastoma (HBL), in order to raise awareness of this rare differential diagnosis.

CASE DESCRIPTION

A 3-day-old male newborn was referred to our Center for pre-natal finding of a liver lesion, suspicious of Hepatic Hemangioma. Post-natal Ultrasonography showed a 3x3cm mass occupying the VI-VII-VIII segment with solid components. This, together with elevated blood level of alpha-fetoprotein, placed the suspicion of hepatoblastoma, which was confirmed at MRI. A tru-cut 18G core-needle-biopsy was obtained and the pathologic findings were suggestive of a pure fetal HBL although not conclusive. Considering the uncertain diagnosis and the resectability of the lesion, a multidisciplinary discussion opted for up-front resection. Thus, an extended right hepatectomy was performed. The specimen was centralized for review as per protocol and discussed with the COG Hepatoblastoma protocol referent. The definitive pathological diagnosis was Focal Nodular Hyperplasia-Like Lesion.

CONCLUSIONS

To the best of our knowledge, this is only the sixth documented case of congenital Focal Nodular Hyperplasia-Like Lesion of the liver. Every reported case was diagnosed after resection following tru-cut biopsy suggestive of hepatoblastoma. It is extremely challenging to distinguish a fetal HBL from a FNH-like lesion on a core-needle biopsy. Therefore, FNL-like lesions should be considered in the pathological differential diagnosis in order to avoid unnecessary liver resection.

875 - ASSOCIATION BETWEEN VISCERAL MYOPATHY AND HIRSCHSPRUNG´S DISEASE: A CASE REPORT.

María Jesús Nally, Rodrigo Maluje

Hospital Exequiel Gonzalez Cortes, Santiago, Chile

Background:

Visceral myopathy (VM) is an etiology of chronic intestinal pseudo-obstruction syndrome (CIPO) and is characterized by intestinal dysmotility secondary to vacuolar degeneration, atrophy and fibrosis of the muscular propria layer of the intestinal wall, without inflammatory cells. The diagnosis is suspected clinically and confirmed with a total wall biopsy. Among the differential diagnoses is Hirschsprung's Disease (HD), although its association has not been demonstrated in the literature.

Material and Methods:

We present a case of a 4-day-old male patient who presented septic shock secondary to perforation of the transverse colon. The initial biopsies reported MV of the colon and absence of ganglion cells in the rectum. A year later, laparoscopic intestinal mapping was performed, which demonstrated the absence of ganglion cells in the rectum and hypoplasia of the muscularis propria from the sigmoid to the distal ileum, confirming concomitant HD and VM.

Discussion:

No cases of association between both diseases were found. Our case could correspond to an incidental finding or be the expression of the spectrum in a common etiology for both alterations. Further studies are necessary to determine if there is an association between VM and HD.

Poster walk 17, Case reports 3

41 - A RARE CAUSE OF HEMATOCOLPOS: MID-VAGINAL TRANSVERSE SEPTUM

Ozgun Erincin, Emine Burcu Cigsar Kuzu, Bade Toker Kurtmen

Department of Pediatric Surgery, Tepecik Education and Research Hospital, Izmir, Turkey

Aim of the Study: Transverse vaginal septum (TVS) is a rare congenital fusion anomaly resulting from defective recanalization of the müllerian tubercle, with an incidence of 1 in 70,000. Due to its rarity, the optimal management approach remains uncertain. This report details the surgical intervention and subsequent follow-up of a midvaginal TVS case.

Case description: A 14-year-old female presented with primary amenorrhea, cyclic abdominal pain, dysuria, and constipation persisting for three months. Physical examination revealed pelvic distension and a well-circumscribed, immobile, semi-solid, painless mass in the suprapubic region. Genitourinary examination indicated hymen agenesis and a normal vaginal opening, while rectal examination detected fullness anterior to the rectum. Imaging, including a pelvic ultrasound and MRI, identified a 140x92 mm cystic lesion with dense contents, suggestive of hematometrocolpos. Pediatric radiology favored proximal vaginal agenesis or TVS. The patient underwent an examination under general anesthesia, revealing a closed lumen at the mid-vaginal level. Transvaginal ultrasound indicated a septum thickness of 4-10 mm. TVS excision and repair were performed through a circular incision with separate sutures. Postoperatively, the patient entered a dilatation program and is under ongoing follow-up.

Conclusions: Transverse vaginal septum is an exceedingly rare anomaly presenting with nonspecific complaints. Management, including surgery and postoperative follow-up, should be conducted at specialized adolescent gynecology centers to ensure comprehensive care.

73 - VAGINAL REPLACEMENT FOR A DOUBLE UTERUS OF COMPLETE UORECTAL SEPTUM MALFORMATION SEQUENCE.

Kyoko Mochizuki[1], Morihiro Nishi[2], Takafumi Kondo[1], Chihiro Hayashi[2], Hidehito Usui[1], Norihiko Kitagawa[1], Masato Shinkai[1]

[1]Department of Surgery, Kanagawa Children's Medical Center, Yokohama, Japan. [2]Department of Urology, Kanagawa Children's Medical Center, Yokohama, Japan

Aim of the study

Complete urorectal septum malformation (URSM) sequence is an extremely uncommon and lethal anomaly including absence of perineal and anal openings associated with ambiguous genitalia and urogenital anomalies. We herein report the technique of vaginal replacement for a double uterus of complete URSM sequence.

Case description

After placement of vesicoamniotic shunt at 17 weeks of gestation, a female neonate was born at 41 weeks of gestation. She had lax and redundant abdominal wall with giant urinary bladder, left dysplastic kidney, and phallic-like structure without anal, vaginal, or urethral openings. No respiratory distress occurred. We constructed cutaneo-vesicostomy and sigmoid colostomy at 1 day of age, and sacro-abdomino-perineal rectoplasty at 14 months of age. Owing to the right hematometra and hemosalpinx at 13 years of age, she underwent vaginal replacement.

Surgical technique

Laparotomy in the left pararectal incision avoiding cutaneo-vesicostomy and right ureter was performed. The right uterus with hematometra and left immature uterus were far apart with poor mobility, and both vaginas were atrophied. We performed an isoperistaltic pull-through of the ileum segment between the bladder and the rectum placing the distal end of the graft in the pubic skin. Then, a side-to-end anastomosis of the ileum to the left uterus and an end-to-end anastomosis of the ileum to the right uterus were completed. Follow-up vaginoscopy confirmed the opening of both utero-ileal anastomoses at 1 and 4 months after surgery.

Conclusions

Vaginal replacement using an ileum for a double uterus of complete URSM sequence was simple and useful.

Poster walk 17, Case reports 3

372 - LEFT "VANISHING" GASTROSCHISIS:A CASE REPORT AND REVIEW OF THE LITERATURE

Marta Bisol[1], Elisa Filippi[2], Paola Midrio[1]

[1]Pediatric Surgery Unit, Cà Foncello Hospital, Treviso, Italy. [2]Prenatal Diagnosi Unit, Obt&Gyn, Cà Foncello Hospital, Treviso, Italy

Aim of the study:

Gastroschisis is a rare congenital full-thickness wall defect, usually located to the right of the umbilical cord insertion. In the literature there are only 30 cases of left defects. The "vanishing" gastroschisis is an extremely rare complication with spontaneous closure of the defect during gestation and, consequently, loss of the herniated portion of the intestine. To the best of our knowledge, this is the first case of left vanishing gastroschisis.

Case Description:

A female neonate, born at 32 gestational weeks, 1.9kg, presented at birth with a millimetric defect of the abdominal wall to the left of the umbilicus and mummified herniated small intestine. At 17 weeks' gestation the diagnosis of left gastroschisis, without dilatation of the herniated bowel, was formulated. During check-ups at 20-24-28-31 weeks the extra-abdominal bowel kept remaining collapsed and a minimal dilatation of the intra-abdominal loops was described. An urgent caesarean section was performed due to unstoppable labor. At surgical exploration no viable intestine was retrieved, except for 12 cm of duodenum-jejunum, ending blindly at the microscopic left defect, and part of the tranverse-left-sigmoid colon. An end-to-side duodenum/jejunum-colic anastomosis was performed and a percutaneous catheter inserted. The infant is 1 month old at present time, thriving on TPN and minimal enteral feeding.

Conclusions:

In case of prenatal diagnosis of gastroschisis, the fact the extra-abdominal loops never dilated should raise the suspect of "vanishing" gut and address the patient to a center with expertise in the management of patients with short bowel syndrome.





Poster walk 17, Case reports 3

530 - FORMULA 2; POWDER POO. A CASE SERIES OF UNDISSOLVED POWDER FORMULA MILK, CAUSING LOWER GASTROINTESTINAL OBSTRUCTION

Megan Griffiths, Irene Milliken

RBHSC, Belfast, United Kingdom

Aims of study:

To investigate a link between cases of lower gastrointestinal tract obstruction in formula fed babies, causing partially dissolved formula milk powder bezoars . It is important to establish possible causes and raise awareness.

Case description:

Over the last six months in our centre, four babies presented with lower gastrointestinal tract obstruction, caused by undissolved milk powder.

All were male, born prematurely in good condition, from 34 weeks gestation, with birth weights from 2.1Kg and no co-morbidities. Each presented with distal obstruction, confirmed on X-Ray. Digital rectal examination elicited firm lumps of semi-dissolved powder, which in three cases were manually broken up. A water soluble contrast enema was used as a diagnostic tool, outlining the milk powder bezoars in the rectum and colon. All were managed with repeated manual evacuations of the bezoars, one required N-Acetylcysteine washouts, and none proceeded to operative intervention.

Conclusions:

Possible contributing factors include the temperature and volume of the water used in making up the formula milk from powder; the time shaking the solution (water) and solute (formula) together; the addition of Carobel; and demographics including birth weight and gestation.

Going forwards, we are releasing a regional public health message regarding the reconstitution of formula feed to help educate the community on the risk of this condition. Further multi- centre data collection will help establish links between cases and possible causes.

18 - ENDOSCOPIC CYSTOGASTROSTOMY IN CONGENITAL PANCREATIC CYST AND PSEUDOCYST SECONDARY TO PANCREATITIS: REPORT OF TWO CASES

Kübra Öztürk Yüzdemir[1], Tutku Soyer[1], Özlem Boybeyi[1], Erkan Parlak[2]

[1]Hacettepe University Faculty of Medicine, Department of Pediatric Surgery, Ankara, Turkey.
[2]Hacettepe University Faculty of Medicine, Department of Gastroenterology, Ankara, Turkey

Introduction:

Endoscopic cystogastrostomy (ECG) is an alternative to surgical treatment in patients with peripancreatic collection. Although it is well defined approach in adult population, its use in children is limited. Patients with congenital pancreatic cyst (CPC) and pancreatic pseudocyst secondary to acute pancreatitis (PP) are presented to discuss the use and outcomes of EC in children.

Case Report:

16-year-old girl who has been following up with CPC admitted with complaints of increased cyst size and abdominal pain. Pancreatic enzyme levels and tumor markers were normal. MR cholangiopancreaticography revealed a 49x51x48 mm CPC in the head of pancreas. ECG was performed by entering the cyst through bulbus and three 7-Fr double-pigtail stents were inserted. The patient was fed next day and discharged on the same day. After 2 months, the size of cyst decreased to less than 2 cm and patient became asymptomatic. The second patient was a 7-year-old girl who has been following with multiloculated 93x26x36 mm pseudocyst secondary to pancreatitis. ECG was performed by three 10-Fr double-pigtail stents via pylorus. No complications occurred during and/or after the procedure. After the procedure, the size of the cyst decreased and the patient became free of symptoms. The cystogastrostomy catheter was removed endoscopically in both cases.

Conclusion:

ECG can be safely performed in children with better patient comfort and high success rates. It is effective not only in treatment of pseudocysts, but also in treatment of simple pancreatic cysts.

174 - Case report of a rare anomaly: Congenital pyloric atresia associated with Bart Syndrome

Ahmad Fawwaz Rasydan Johari, Ayna Nadia Nooraziz, Abhirrami Lechmiannandan, Mohamed Azlan Mahmud

Hospital Tengku Ampuan Rahimah, Klang, Malaysia

Background:

Pyloric atresia is an extremely rare congenital anomaly (with an incidence of 1 in 100,000 live births). It carries a high mortality rate when associated with epidermolysis bullosa (EB), a genodermatoses characterised by skin fragility and trauma-induced blister formation, known to have many subtypes. Bart's syndrome is characterised by EB, aplasia cutis (AC), and nail abnormalities, considered to be a clinical sign in many forms of EB.

Case report:

We present a case of a term newborn, male, prenatal scans noted to have polyhydramnios and a dilated stomach bubble. Postnatally, baby had abdominal distension with copious non billious aspirates. Plain radiograph identified a single bubble with absence of gas distally. Correlation of pyloric atresia and EB was made when trivial trauma caused extensive skin erosions and eruption of blisters and confirmed with skin biopsy. A multidisciplinary team approach consisting of paediatric surgeon, neonatologist, paediatric dermatologist, pediatric anaesthesiologist and highly trained Neonatal Intensive Care Unit (NICU) and Operation Theater (OT) staff needed to manage this case. Intraoperatively, a pyloric atresia type 2 was repaired with a gastroduodenostomy and transanastomotic tube was inserted. Special care was taken to prevent further trauma to the skin during and after surgery. Postoperative care in NICU required specialised feeding methods, central venous line access, and dressing.

Conclusion:

Careful preoperative and postoperative measures combined with multidisciplinary approach is needed to ensure favourable outcome in a rare and fatal disease.

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366 - 3D TECHNOLOGY IN SURGERY OF LUNG HYDATID CYST

Sergey Minaev[1], Igor Kirgizov[2], Jennifer Martinez[3], Mikhail Akselrov[4], Igor Gerasimenko[1], Maria Rubanova[1], Maxim Razin[5], Artem Mishvelov[1]

[1]Stavropol State Medical University, Stavropol, Russian Federation. [2]Russian Medical Academy of Postgraduate Education, Moscow, Russian Federation. [3]Saint-Petersburg State Pediatric Medical University, Saint-Petersburg, Russian Federation. [4]Tyumen State Medical University, Tyumen, Russian Federation. [5]Kirov State Medical University, Kirov, Russian Federation

The **aim** of the Study was to demonstrate the effectiveness of 3D technologies in the surgery of lung hydatid cysts (LHC).

Methods.

We present the results of using 3D technology to improve visualization and planning of the surgery of LHC in a girl 12 years old. The 3D reconstruction of the lungs was performed based on MRI DICOM files. Reconstruction was carried out using the HoloDoctor AR.VR software package, viewer module. The most reliable data were obtained with MRI with an Air and Fat filter.

Main results.

Based on the performed 3D reconstruction, a multiport thoracoscopic pulmonary echinococcectomy was performed. Thoracoscopy revealed an LHC located in the posterior basal segment of the left lung. Using two cassettes of a linear stapler (60 and 45 mm), an atypical resection of a lung with a hydatid cyst was performed. At the same time, it was possible not only to reduce the volume of intervention but also to eliminate the bronchial fistula leading to the LHC.

Conclusions.

Thus, the use of 3D technology for the left lung with a parasitic cyst made it possible to improve not only accurate visualization but also to conduct successful surgery for LHC.

Poster walk 18, Case reports 4

468 - SYMPTOMATIC CHOLEDOCHAL CYST AND RIGHT CONGENITAL DIAPHRAGMATIC HERNIA: WHEN IS THE RIGHT TIME TO INTERVENE?

Émilie Kate Landry[1], Annie Le-Nguyen[1], Sarah Bouchard[1], Josée Dubois[2], Caroline P Lemoine[1]

[1]Division of Pediatric Surgery, CHU Sainte-Justine, Montréal, Canada. [2]Department of Radiology, Radiation Oncology and Nuclear Medicine, CHU Sainte-Justine, Montréal, Canada

Aim of the study: Patients with congenital diaphragmatic hernia (CDH) can present other congenital anomalies but choledochal cyst (CDC) has rarely been described. We present the impact of a CDC diagnosed in a neonate with a right CDH.

Case description: A female baby with a prenatally diagnosed right CDH was born at term without pulmonary hypertension. Surgical repair was performed using a polytetrafluoroethylene mesh on day of life (DOL) 3. On DOL 31, an ultrasound (US) done for acholic stools and cholestasis (total/direct bilirubin: 3.6/2.8 mg/dL, gamma-glutamyl-transferase: 1050 U/L) showed sludge in the biliary tree. A percutaneous transhepatic cholangiography successfully cleared the sludge and revealed a CDC involving the common hepatic channel (Figure 1A). To reduce the risks of mesh damage and superinfection, CDC repair was postponed. With broad spectrum antibiotics, enteral feeds, and ursodeoxycholic acid, liver function tests initially improved. Eight days later they deteriorated (total/direct bilirubin: 6.6/4.7 mg/dL) and new free fluid was seen on US. CDC rupture with biliary peritonitis was diagnosed (Figure 1B). Thirty-eight days after CDH repair, CDC excision with Roux-en-Y hepaticojejunostomy was performed. The patient was discharged at DOL 83 without surgical or infectious complications. Four months after discharge, she is doing well with normal laboratory and imaging studies.

Conclusions: Congenital biliary anomalies should be suspected in patients with CDH and progressive cholestasis. Surgical repair of symptomatic CDC should not be delayed despite mesh closure, as the risks of CDC complications can outweigh those of complications from CDC surgery.

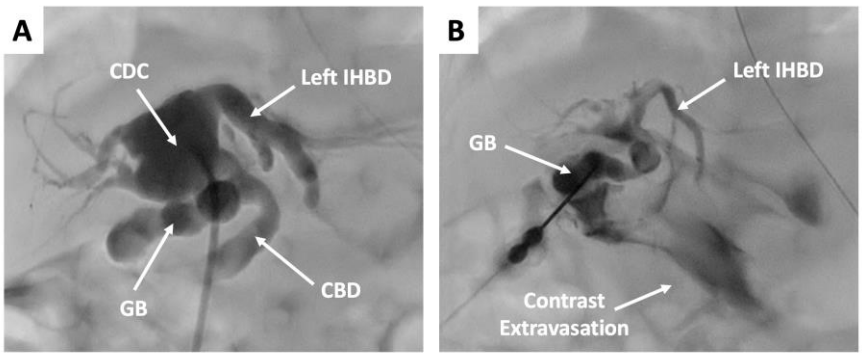


Figure 1. Percutaneous transhepatic cholangiography (PTC) results: (A) After clearing sludge, PTC showed an abnormally dilated biliary tree compatible with a CDC. B: Repeat PTC showed contrast extravasation in the peritoneal cavity compatible with CDC rupture. Abbreviations: CBD, common bile duct; CDC, choledochal cyst; GB, gallbladder; IHBD, intrahepatic bile duct.

489 - METASTATIC SACROCOCCYGEAL YOLK SAC TUMOR WITH INVASION OF THE SPINE AND CAUDA EQUINA SYNDROME

Narcis Flavius Tepeneu[1], Calin Marius Popoiu[1,2], Radu Emil Iacob[1,2], Mihai Neagu[2], Tudor Puscasiu[3], Rodica Heredea[1,4], Estera Boieriu[1,5], Smaranda Arghirescu[1,5], Andrei Brinzeu[1,6]

[1]University of Medicine and Pharmacy "V. Babes" Timisoara, Timisoara, Romania. [2]Pediatric Surgery and Orthopaedics Clinic, "L. Turcanu" Emergency Children's Hospital, Timisoara, Romania. [3]Radiology and Medical Imaging Clinic, "L. Turcanu" Emergency Children's Hospital, Timisoara, Romania. [4]Pathology Department, "L. Turcanu" Emergency Children's Hospital, Timisoara, Romania. [5]Pediatric Hematology and Oncology Clinic, "L. Turcanu" Emergency Children's Hospital, Timisoara, Romania. [6]Neurosurgery Clinic, "P. Brinzeu"County Hospital, Timisoara, Romania

Aim of the study

Malignant sacrococcygeal yolk sac tumor is a rare extra-gonadal germ cell tumor of infancy and childhood.

We report the case of an 18-month-old female infant with a history of weakness in the lower extremities with impossibility to walk, constipation and acute retention of urine.

Methods

Ultrasound and CT-scan of the abdomen revealed a presacral pelvic tumor with extension to the spine distal to S1 and two hepatic metastases. Further investigations (X-rays, MRI, tumor markers, bone marrow puncture, neurosurgical consultation) confirmed the diagnosis.

A Pfannenstiel laparotomy with ligation of the middle sacral vein and artery was performed, followed by a pelvic incision with dissection of the tumor from the rectum and muscles and a sacral S1-S5 laminectomy with complete removal of the tumor. The histopathological examination revealed a yolk sac tumor. A chemotherapy following MAKEI 05 protocol was started.

Results

The postoperative course was favorable. The patient regained normal sphincter control and gait. AFP levels returned to normal values.

The patient did not show any tumor recurrence or metastatic disease at 1 year postoperative follow-up.

Conclusions

A pure yolk sac tumor of the sacrococcygeal region can rarely present in the metastatic stage with invasion of the spine and onset of cauda equina syndrome. It can cause diagnostic difficulties and should always be kept in the differential diagnosis of neoplasms of the sacrococcygeal region. AFP determination is useful to monitor the results of therapy and detect metastases and recurrence. The successful management of this pathology requires interdisciplinary collaboration.

730 - OHVIRA SYNDROME UNVEILED IN A COMPLEX CASE OF OVARIAN TORSION

Ainhoa Lombardero, Clara Massaguer, Oriol Martín-Sole, Xavier Tarrado

Hospital Sant Joan de Déu, Barcelona, Spain

Aim of the study

Abdominal pain and dysmenorrhea are frequent reasons for emergency consultations, representing common symptoms that may conceal unusual pathologies. The objective of this study is to present a case of simultaneous hematometrocolpos and ovarian torsion and to describe the identifying characteristics of these pathologies, as early diagnosis can prevent severe complications.

Case description

The case involves a 14-year-old girl with iron-deficiency anemia, prolonged menstruation, and recurrent abdominal pain over a 6-month period. She sought emergency care with colic abdominal pain and vomiting lasting for 5 days. Upon examination, she displayed good overall condition and abdominal tenderness with palpable mass effect in the hypogastrium. Ultrasound revealed right ovarian torsion, didelphic uterus with left hematometrocolpos and left renal agenesis, consistent with OHVIRA syndrome.

An exploration under general anesthesia showed normal external genitals and bulging of the left vaginal wall. Vaginohysteroscopy revealed narrow right hemivagina and hemiuterus with atrophic cervix. Drainage of hematocolpos was performed through an incision in the left vaginal wall. Persistent signs of right ovarian torsion were confirmed by ultrasound. Exploratory laparoscopy with successful ovarian detorsion was conducted. The patient recovered satisfactorily, and two months later, vaginal septum resection was performed, with the patient remaining asymptomatic.

Conclusions

OHVIRA syndrome is characterized by didelphic uterus, obstructed hemivagina, and ipsilateral renal agenesis. Early recognition of the condition can prevent complications. It is emphasized to dismiss genital anomalies in patients with prenatal diagnosis of renal agenesis, and regular follow-up post-menarche is suggested to detect potential vaginouterine anomalies.

Poster walk 18, Case reports 4

833 - A NOVEL APPROACH FOR ENTEROESOPHAGOPLASTY

Dionisiy Petrov[1,2], Polina Gorelova[1], Aleksander Razumovsky[3,1]

[1]Pirogov Russian National Research Medical University, Moscow, Russian Federation. [2]Russian Children's Clinical Hospital, Moscow, Russian Federation. [3]N.F. Filatov Children's City Hospital, Moscow, Russian Federation

Aim: to demonstrate the novel approach of tension-free esophagoplasty by jejunal segment

Case description: A patient with esophageal atresia with a proximal tracheoesophageal fistula (TEF) underwent gastrostomy, esophagostomy and ligation of the TEF. At the age of 11 months a two-stage esophagoplasty was performed using jejunal segment. The first surgery was meant to prepare the vessels of the jejunum for conditions of reduced blood supply. Four main arteries arising from the superior mesenteric artery were clipped in the projection of the future jejunal graft. Four months later, the second stage involved plastic surgery of the esophagus using a prepared jejunal graft. The jejunal graft was passed behind the sternum and anastomosed to the oral end of the esophagus and the stomach without tension. The blood supply was provided by the underlying vessels of the mesentery in the distal part of the graft. The appearance of the graft remained intact throughout the surgery confirming its viability. The length of the graft was sufficient to perform tension-free esophagoplasty. During the follow-up examination, the patient had no complaints of dysphagia. On endoscopic examination, the graft was freely passable. Upper-GI contrast study showed that the graft didn't have any significant bends and there were no signs of reflux. An active peristalsis was noted, due to which food passed freely through the neoesophagus. Two weeks after surgery, the patient was readmitted for gastrostomy closure and was discharged home in a stable condition.

Conclusion: small bowel's adoption for reduced blood supply can provide new opportunities for esophagoplasty.

843 - NEONATAL OVARIAN CYSTS - LET'S TWIST AGAIN

Maite Jiménez Siebert, Cordula Scherer, Steffen Berger, Milan Milosevic

Pediatric Surgery Department Inselspital, Bern, Switzerland

Aim of the study

Neonatal ovarian cysts are usually managed conservatively due to frequent spontaneous regression. We describe a rare but severe intestinal complication questioning this management approach.

Case description

In a late preterm neonate prenatally diagnosed with bilateral ovarian cysts, postnatal ultrasound showed a single septated ovarian cyst sized 51 x 49 x 41 mm. After 3 weeks of conservative follow-up, the patient presented with vomiting, hematochezia and peritonitis, initially misdiagnosed as norovirus infection. Rapid increase of abdominal tenderness and lactat in serum and signs of intestinal obstruction on plain abdominal x-ray raised suspicion for an ileus. Urgent explorative laparotomy revealed a small intestinal volvulus adherent to a torqued right ovary with a hemorrhagic cyst and ovaryectomy and adhesiolysis were performed. Subsequent development of migratory peritonitis required resection of 35 cm necrotic gut and prolongued parenteral nutrition.

Conclusions

Adhesions accompanying ovarian torsions are often asymptomatic and rarely lead to intestinal obstruction. In the described case, we encountered a volvulus requiring gut resection as a major complication of these adhesions. To the best of our knowledge, this has been described only twice in literature.

Present data does not clearly advise for a conservative management of asymptomatic ovarian cysts, since they can function as a lead point of volvulus through adhesions. Close follow-up and high level of suspicion should be a part of conservative management of these cysts.

Poster walk 18, Case reports 4

853 - AN UNUSUAL ENCOUNTER: COMPLETE ANO-RECTO-COLONIC DUPLICATION AND ANORECTAL MALFORMATION IN A PATIENT WITH SPINA BIFIDA

Marta Bisol[1], Cinzia Zanatta[2], Paola Midrio[1]

[1]Pediatric Surgery Unit, Cà Foncello Hospital, Treviso, Italy. [2]Pediatric Surgery Unit, Cà Foncello Hospital,, Treviso, Italy

Aim of the study: Complete ano-recto-colonic duplication (RCD) is an extremely rare type of intestinal duplication. Anorectal malformations (ARM) are a spectrum of rare diseases. The association of RCD and ARM is anecdotal. A case of RCD, ARM type vestibular fistula in a patient affected by spina bifida is presented.

Case description: A five month old female, affected by L1 level spina bifida and ARM (recto-vestibular fistula) was treated. A standard posterior sagittal approach was adopted. At time of fistula trimming and anoplasty, two rectal lumens were encountered. An intraoperative contrast study confirmed the patency of both structures that extended beyond the splenic flexure. A standard anoplasty, including both lumens, was fashioned. The post-operative period was complicated by extensive dehiscence of the anoplasty. A colostomy was opened on the larger colon and VAC therapy successfully applied onto the perineum. After 2 months another contrast study confirmed the complete RCD up to the ascending colon with communications between lumens and subsequently intestinal continuity was restored. The patient is currently passing the majority of feces through one of the ani. A regular bowel management programme has been set due to the complex anorectal and spinal anatomy.

Conclusions: Excision of intestinal duplication is always preferable, but in case of RCD with a distal open ending, it is not necessary as flowing of feces is not impeded. In this unique case, the bowel management through both lumens is mandatory and it is facilitated by the fact a visible septum has been left in place.

Poster walk 18, Case reports 4

877 - SUPERIOR VESICAL FISSURE: A CHALLENGING CASE WITH ASSOCIATED CONGENITAL ANOMALIES

Sandra Davis, Jimmy Lam, Philip Hammond, Claire Clark

Royal Hospital for Children and Young People, Edinburgh, United Kingdom

Aim

The authors would like to illustrate a case of superior vesical fissure that presents with a complex series of congenital anomalies and management challenges.

Case Description

A term male infant was born with imperforate anus and anterior abdominal wall defect. On examination there was a protrusion of viscera of approximately 5cm diameter arising below and to the left of the umbilical cord that drained urine on examination. The umbilicus was low lying. The pubic symphysis was not widened and the infant had normal male genitalia with intact foreskin. There was no visible anal opening or evidence of fistula externally. A left sided Erb's palsy was noted, presumed secondary to shoulder dystocia at the time of delivery. Chest and abdominal radiographs showed an elevated left hemidiaphragm, multilevel spinal segmentation abnormalities and scoliosis. Attempts were made to catheterise the patient per urethra but were unsuccessful. Subsequent cystogram via the patent urachus showed a rectoprostatic fistula and hypoplastic urethra distal to this. On day 3 of life the patient was taken to theatre for formation of descending colostomy and vesicostomy. He underwent thoracoscopic plication of the left hemidiaphragm at 9 weeks of age due to ongoing respiratory compromise. There was a notable improvement in respiratory symptoms following this although the patient continues to require nightly CPAP.

Conclusion

This is an interesting case of superior vesical fissure with challenges related to his inital management and also prospects for the associated anomalies.

Poster walk 18, Case reports 4

463 - NEONATAL SEVERE STAPHYLOCOCCAL SCALDED SKIN SYNDROME MANAGEMENT WITH AUTOADHESIVE SKIN SUBSTITUTE DRESSING

Carlos Delgado-Miguel[1,2], Salomé Vincent[3], Miriam Miguel-Ferrero[4]

[1]Fundación Jiménez Díaz University Hospital, Madrid, Spain. [2]Institute for Health Research IdiPAZ, La Paz University Hospital, Madrid, Spain. [3]University Hospital of Toledo, Toledo, Spain. [4]La Paz University Hospital, Madrid, Spain

Introduction:
Staphylococcal scalded skin syndrome (SSSS) is a potential life-threatening skin disease especially in the first month of life. However, the role of autoadhesive skin substitutes in the management of neonatal SSSS is a new and relatively unknown method. Here we report the first experience of the use of Suprathel® in the treatment of neonatal SSSS.

Case report:
We present a 27-day-old male with an uncontrolled pregnancy, born at 38+5 weeks gestational age, who was referred to our hospital for multiple blistering lesions of 48 hours' evolution on the anterior thoracic area and on the 4 extremities, compatible with SSSS with 35% of affected body surface area. He was admitted to the neonatal intensive care unit for pain control and fluid and electrolyte replacement. Under intravenous sedation with midazolam and ketamine, blister lesions were debrided and autoadhesive skin substitute sheets (Suprathel®) were placed on the affected areas, covered by sterile gauze with vaseline and bandage. Dressing were removed after 5 days, observing complete re-epithelialisation of the lesions (suprathel film peeled off when the vaseline gauze was removed). The patient was discharged on 5th day without complications. At one month after discharge, there were no aesthetic or functional sequelae.

Conclusion:
Autoadhesive skin substitutes such as Suprathel® are useful in the treatment of neonatal SSSS due to the elimination of dressing manipulation of the affected area for 5-7 days while re-epithelialisation is taking place, thus reducing the associated pain and the hydroelectrolytic alterations due to the disrupted skin permeability.





602 - CAECAL DUPLICATION CYST MIMICKING INTUSSUSCEPTION IN A 5-MONTH-OLD INFANT

Giedre Stanevice, Arturas Kilda, Dalius Malcius, Ausra Lukosiute-Urboniene

Department of Pediatric Surgery, Lithuanian University of Health Sciences, Kaunas, Lithuania

Aim of the study: To present a rare case of a caecal duplication cyst in an infant and the diagnosis and treatment challenges.

Case description: A 5-month-old girl was initially presented with episodic vomiting and abdominal spasms in the emergency department. The infant, without a history of constipation, blood in stools, or red currant jelly stools, displayed a palpable mass in the right iliac fossa on examination. Abdominal ultrasonography revealed the typical target sign of intussusception, accompanied by a 2 cm cystic lesion at the intussusceptum's head in the right iliac fossa. An initial reduction with air enema under X-ray proved unsuccessful. Subsequent ultrasonography on the next day revealed the persistence of the cystic lesion with a gut pattern suggestive of intussusception, prompting further investigation. Contrast-enhanced computed tomography was performed, confirming a cyst and intussusception in the ileocecal region, raising suspicion for Meckel's diverticula. The patient underwent laparoscopic exploration revealing a caecal duplication cyst. The caecum was resected and ileo-ascending anastomosis was performed. Histopathology confirmed the diagnosis of a caecal duplication cyst. The post-operative course was uneventful, and the infant was discharged home four days post-surgery.

Conclusions: This case highlights the importance of considering rare entities, such as caecal duplication cysts, in the differential diagnosis of intussusception with cystic lesion presentations. Comprehensive imaging, including contrast-enhanced CT, and diagnostic laparoscopy played a crucial role in accurately diagnosing and guiding appropriate surgical intervention. Radiological intussusception reduction is not advised in cases with pathological lead point.



438 - MEDIASTINAL SHIFT ANGLE (MSA) AS AN OBJECTIVE MEASUREMENT FOR CARDIOMEDIASTINAL SHIFT IN BOTH LEFT AND RIGHT-SIDED CONGENITAL LUNG MALFORMATIONS (CLMS)

Chiara Marchetto[1,2], Eleonora Fornaciari[3], Fabrizio Gennari[1], Andrea Sciarrone[3], Elisa Zambaiti[1]

[1]Ospedale Infantile Regina Margherita, Torino, Italy. [2]Università degli Studi di Padova, Padova, Italy. [3]Obstetrics and Gynecological Ultrasound and Prenatal Diagnosis Center, Ospedale S. Anna, Citta' della Salute e della Scienza, Torino, Italy

Aim

Mediastinal shift angle (MSA), an objective prenatal measurement of cardiomediastinal shift, has recently been introduced with different methods according to the side of the lesion. We therefore aimed to validate same method for MSA measurement for both right and left-sided lesions and to correlate it with the prenatal mediastinal shift for fetuses affected by congenital lung malformations (CLMs).

Methods

The ultrasound (US)-MSA were retrospective blindly performed by three independent authors on four-chambers view of all prenatally diagnosed CLMs presented between 2019-2023. MSA was quantified with same two landmark lines for both side lesions: from vertebral body to sternum (splitting into two equal parts the thorax) and from the vertebral body to touch tangentially the lateral wall of the right atrium (Fig1A). The same measurement was repeated at different gestational weeks (GW): 18-22GW as early, 23-28GW as mid and 29GW-term as late gestation.

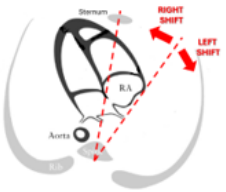
Results

Of the 34 patients presented in the study period, images were available for 19 patients with a total of 56 four-chamber views measured. Nine lesions were left-sided. On those, US-MSA was significantly higher (p=0,02, ANOVA) at early (44vs35) and mid-gestation (37vs31) but normalize thereafter (33vs33) in patients with identification of prenatal shift; conversely, on right-sided lesions, US-MSA angle was significantly lower (p<0,01, ANOVA) at all gestational ages (20vs13early, 27vs18mid, 33vs24late; Fig1B).

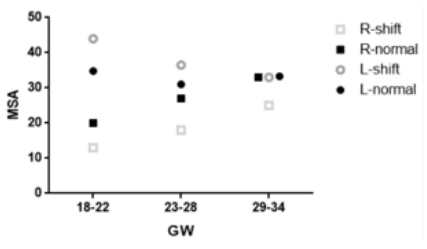
Conclusions

US-MSA is a valuable measurement of cardiomediastinal shift in CLMs allowing discrimination of left a right-sided lesions and may be a potential objective prognostic factor. We firstly report its use for both sides CLMs.

1A



1B



Poster walk 19, Thoracic 3

167 - LOWER RESPIRATORY TRACT INFECTIONS IN CHILDREN WITH CONGENITAL LUNG ABNORMALITIES

Louis Dossche, Casper Kersten, René Wijnen, Hanneke IJsselstijn, Marco Schnater

Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands

Aim of the Study: Uncertainty remains about the incidence of lower respiratory tract infections (LRTI) in children with congenital lung abnormalities (CLA). We aimed primarily to determine if incidence of LRTI in children with asymptomatic, observationally managed CLA differed from surgically managed children. Secondarily we sought to compare pre- and post-resection incidence of LRTI in surgically managed children.

Methods: We included children born between 1999 – 2021 with CLA confirmed by CT scan. Patients enrolled in a structured, prospective longitudinal follow-up (FU) program as part of standard of care. We analyzed incidence rates (IR) at the ages of 1, 2, 5, 8, and 12 years. We compared IR for surgically and observationally managed patients at each FU moment using incidence rate ratios (IRR). Additionally, in the surgical group we compared pre- and post-resection LRTI through IRR.

Main Results: We included 217 patients, of whom 81 (37%) eventually underwent surgery and 136 (63%) were managed observationally. The IRR did not significantly differ between the surgical and observational groups at any interval *(see Table)*. IR of LRTI were higher before surgery than after surgery (IRR of 3.57 (95% CI [2.00; 6.33], p< 0.001).

Conclusions: We could not demonstrate differences in LRTI incidence throughout childhood between patients with surgically and observationally managed CLA. As post-resection IR of LRTI are significantly lower compared to pre-resection IR, children with CLA who develop a LRTI should be deemed symptomatic and are candidates for surgery.

Table. LRTI IRR surgical vs observational groups across FU ages

Age	IRR	p-value
1 year	0.73	0.53
2 years	0.97	0.93
5 years	1.33	0.53
8 years	2.88	0.22
12 years	0.72	0.79

LRTI= Lower respiratory tract infection, IRR= Incidence rate ratio
FU= Follow-up

272 - DELAYED DYNAMIC ABDOMINAL WALL CLOSURE IN CONGENITAL DIAPHRAGMATIC HERNIA: GORETEX PATCH AS A SAFE APPROACH

Lucas Moratilla-Lapeña, María Sarmiento, Carla Ramírez, María San Basilio, Arturo Almeyda, Irene Diez, Carlos De la Torre, Ana Sánchez-Torres, Jose Luis Encinas, Francisco Hernández-Oliveros

Hospital La Paz, Madrid, Spain

Introduction:

Repair of congenital diaphragmatic hernia (CDH) increases intra-abdominal pressure and leads to abrupt changes in suprahepatic vein position. A few studies describe different methods for wall closure in CDH. Our aim here is to describe the safety of delayed dynamic abdominal wall closure (DDAC) with Goretex and compare it with primary closure (PC).

Methods:

Retrospective comparative study of patients who underwent CDH repair (2015-2023). Groups were divided into DDAC and PC. Prenatal and demographics variables, operative and physiologic details as well as postoperative variables and outcomes were collected.

Results:

Forty CDH from our institution were studied, in all 14 (35%) DDAC patients, the technique achieved a full abdominal closure. In DDAC group, 0/E LHR was lower than PC [25±5.48 vs 41.31±10.86%; p<0,001) as well as gestational age [37(34.75-39) vs 39(38-39); p=0.009] weeks, while birth weight was similar between groups (p=0.121). Need for ECMO (64.3 vs 11.1%; p<0.001) and HFV (78.6 vs 37%; p=0.012) was higher in DDAC. Also, it associates greater diaphragmatic defect (p<0.001), and liver-up (92.9 vs 14.8%; p<0.001). Although DDAC group has higher mortality rates (50 vs 3.7%, p<0.001), it wasn´t an independent risk factor of mortality after a multivariate anaylsis (p=0.998). Finally, it is associated with an increase in mechanical ventilation time [33.5 (20-63) vs 8 (4.75-22) days; p=0.001] and admission time [78 (47-103) vs 29 (16.50-46.25) days; p=0.008].

Conclusion:

Dynamic traction allows laparotomy delayed closure with native tissue in CDH. The need for DDAC is associated with complex CDH.

429 - THE OUTCOME OF URGENT NEONATAL SURGERY FOR CCAM: DESPITE THE EFFORT NOT IDEAL

Barbora Kucerova[1], Kristyna Krizova[1], Blanka Prosova[2], Jiri Snajdauf[1], Michal Rygl[1]

[1]Department of Paediatric Surgery, 2nd Faculty of Medicine,Charles University and Motol University Hospital, Prague, Czech Republic. [2]Department of Radiology, 2nd Faculty of Medicine,Charles University and Motol University Hospital, Prague, Czech Republic

Aim of the Study: To investigate the outcome of urgent lung resection for CCAM (Congenital Cystic Adenomatoid Malformation) in newborns.

Methods: A retrospective study of patients operated on in tertiary centre for CCAM in neonatal age treated between January 2013 and December 2022. Patients who underwent lung resection were indicated for neonatal surgery only in urgent life-threatening condition. Student's t test was used for statistical analysis.

Main results: The study cohort consisted of 21 patients who underwent urgent lung resection in neonatal age (10 girls,11 boys). In 15 patients, the diagnosis was made prenatally (only with ultrasound 5, MRI underwent 10 patients). 12 patients (57%) were born before 37th week of gestation (statistically insignificant for a worse outcome [P>0.05]). The median age at the time of surgery was 8 days (1-26), median length of the chest drainage 6 days (2-12), median artificial lung ventilation 5 days (2-17), median length of hospital stay was 12 days (8-68). There were 9 (43%) early postoperative complications (3 deaths, 2 sepsis, 1 pneumothorax, 2 severe respiratory failures, 1 wound dehiscence).

Symptoms leading to resection appeared in 13 patients (62%) within first 24 hours of life. These patients had statistically (P<0.05) worse outcome in the parameters mentioned above than patients who had symptoms later.

Conclusions: Urgent neonatal resection for CCAM is burdened with a high risk of complications (43%) in the early postoperative period, especially in patients who develop symptoms within first 24 hours of life. This outcome should be mentioned in the prenatal counselling.

84 - INTRAPARENCHYMAL CONGENITAL LUNG MALFORMATIONS IN CHILDREN: DEFINING THE OPTIMAL SURGICAL STRATEGY

Federico Rebosio[1], Erik Hervieux[1], Nadia Nathan[2], Guillaume Thouvenin[2], Blandine Prevost[2], Sabine Irtan[1]

[1]Pediatric and Neonatal Surgery Department, Armand-Trousseau Hospital, AP-HP, Paris, France.
[2]Pediatric Pulmonology Department, Armand-Trousseau Hospital, AP-HP, Paris, France

Aim of the Study. To define the best surgical approach for different types of intraparenchymal congenital lung malformations (ICLM), in order to obtain a complete anatomical resection and to preserve unaffected lung parenchyma.

Methods. Retrospective review of all consecutive patients who underwent a pulmonary resection for an ICLM at our Institution from January 2013 to June 2023. Five groups were defined according to the diagnosis made on the preoperative chest CT scan: congenital pulmonary airway malformations (CPAM), intralobar pulmonary sequestrations (IPS), congenital lobar or segmental emphysemas (CLE, CSE), hybrid lesions (HL). Formal lobectomies, anatomical segmentectomies or atypical lung resections were proposed, either by thoracotomy or by thoracoscopy. Incomplete surgical resection at follow-up was the primary outcome. Postoperative air leakage duration, length of postoperative hospital stay and early and late postoperative complication rate were analyzed as secondary outcomes. This study complies with the Declaration of Helsinki.

Main results. 102 patients were included: 51 (50%) CPAM, 14 (13.5%) IPS, 6 (6%) CLE, 20 (20%) CSE, 11 (10.5%) HL. Main results are summarized in the Table.

Conclusions. It is possible to propose a different pulmonary resection, specific to each type of ICLM, with a low rate of incomplete surgical resection and a favorable postoperative evolution.

	CPAM (51)	IPS (14)	CLE (6)	CSE (20)	HL (11)	*p-value*
Lobectomy	***38*** **(74%)**	***1*** **(7%)**	***6*** **(100%)**	***0***	***7*** **(64%)**	***<0.001***
Anatomical segmentectomy	***9*** **(18%)**	***1*** **(7%)**	***0***	***19*** **(95%)**	***0***	***<0.001***
Atypical lung resection	***4*** **(8%)**	***12*** **(86%)**	***0***	***1*** **(5%)**	***4*** **(36%)**	***<0.001***
Thoracotomy	***29*** **(57%)**	***4*** **(29%)**	***4*** **(67%)**	***6*** **(30%)**	***2*** **(18%)**	**0.031**
Thoracoscopy	***22*** **(43%)**	***10*** **(71%)**	***2*** **(33%)**	***14*** **(70%)**	***9*** **(82%)**	**0.031**
Postoperative chest tube	*39* (76%)	*13* (93%)	*6* (100%)	*16* (80%)	*8* (73%)	*0.523*
Median postoperative chest tube duration (days)	***4*** **(3-4)**	***1*** **(1-2)**	***4*** **(3-5)**	***3*** **(2-4)**	***2*** **(1-3)**	***0.047***
Median postoperative hospital stay (days)	*5* (3-6)	*3* (2-5)	*6* (6-6)	*4* (2-7)	*3* (3-6)	*0.075*
Early complications	*4* (8%)	*1* (7%)	*2* (33%)	*2* (10%)	*1* (9%)	*0.383*
Late complications	***1*** **(2%)**	***1*** **(7%)**	***0***	***4*** **(20%)**	***3*** **(27%)**	***0.014***
Incomplete resection	*0/50*	*0/14*	*0/6*	*2/18* (11%)	*0/11*	*0.102*
Median follow-up (months)	*16* (2-40)	*29* (7-40)	*14* (7-29)	*19* (3-39)	*23* (3-31)	*0.882*

Poster walk 19, Thoracic 3

166 - POSTNATAL CHEST X-RAY IN CHILDREN WITH ASYMPTOMATIC CONGENITAL LUNG ABNORMALITIES

Louis Dossche, Lotte van den Aardwegh, Marius Zuidweg, Casper Kersten, Joost van Rosmalen, René Wijnen, Hanneke IJsselstijn, Marco Schnater

Erasmus MC Sophia Children's Hospital, Rotterdam, Netherlands

Aim of the Study: The clinical implications of a postnatal chest X-ray (CXR) in asymptomatic children with a suspected congenital lung abnormality (CLA) are uncertain. We aimed at determining if the widespread postnatal use of CXR in asymptomatic patients with suspected CLA is justified.

Methods: We included children with chest CT-scan confirmed CLA who were asymptomatic at birth, underwent a routine postnatal CXR, and enrolled in our standard of care prospective structured longitudinal follow-up program. Our primary outcomes were the positive and negative predictive value (PPV and NPV) of the CXR findings in relation to symptom development at four weeks and six months of age. Secondarily, we investigated if CXR findings were associated with performance of additional diagnostics during the postnatal hospital stay or prolonged admission.

Main Results: Among 121 included patients, CXR showed no abnormalities in 35 (29%), nonspecific abnormalities in 23 (19%), and evident CLA in 63 (52%). The PPV of CXR in relation to symptom development at four weeks and six months was 0.05 and 0.25, respectively. Corresponding NPVs were 0.96 and 0.91. An association was found between CXR findings and performance of further diagnostics during the initial observational hospital stay (p= 0.047), but the findings of these additional assessments did not alter clinical management. CXR findings were not associated with longer initial observational stay (p= 0.40).

Conclusions: We conclude that performing a routine postnatal CXR in asymptomatic patients with suspected CLA can be refrained from, as CXR findings do not alter subsequent clinical management.

608 - CONGENITAL DIAPHRAGMATIC HERNIA: PROGNOSTIC FACTORS BEYOND PULMONARY HYPOPLASIA AND LIVER-UP.

M. Gracia Sevilla, Jose A. Molino, Sergio López, Marta Martos, Cesar W. Ruiz, Manuel López, Raquel Mena, Gabriela Guillen

Vall d´Hebron Hospital Campus, Barcelona, Spain

Aim:

Liver-up and pulmonary hypoplasia are well-known negative prognostic factors in congenital diaphragmatic hernia (CDH). Our aim was to analyze the impact of hernia sac presence, laterality, and stomach herniation on prognosis.

Methods:

Retrospective study (2003-2023) in neonates with CDH, analyzing hernia sac presence or laterality and herniation of the stomach as good or bad prognosis factors respectively

Results:

Out of 143 CDH patients, 33 (27.3%) had hernia sac, 29 (20.4%) were right-sided hernia and 68 (55.7%) had intrathoracic stomach. There were non-significant differences in weight, gestational age, associated anomalies, LHR, or need for intrauterine intervention between groups.

Patients with hernia sac had a lower requirement for high-frequency oscillatory ventilation (0% vs 25%) and nitric oxide support (12.5% vs 37.5%) ($p<0.05$). All sac patients underwent direct closure (100% vs 64.4%) ($p<0.05$), with no significant difference in recurrence. The mean duration of invasive mechanical ventilation post-intervention was inferior in the hernia-sac group (3.6 days vs 10.9 days) ($p<0.05$). No hernia sac patients died. Right-sided CDH patients showed no differences in pre-surgical support or post-intervention outcomes, although there were more recurrences in this group. Neonates with herniated stomach showed no significant differences in evolution except for a higher incidence of muscular flap or mesh closure (32.9% vs 16.9%) ($p<0.05$).

Conclusion:

The presence of hernia sac is associated with a favorable prognosis in CDH. In our series, laterality and stomach herniation was not associated with worse outcomes, although they may require muscular flap or mesh closure.

467 - LONG-TERM OUTCOMES OF FEMALE AND MALE CONGENITAL DIAPHRAGMATIC HERNIA SURVIVORS

Marietta Jank[1,2], Charanpal Singh[1], Michael Boettcher[2], Suyin A. Lum Min[1], Richard Keijzer[1]

[1]Department of Surgery, Division of Pediatric Surgery, Rady Faculty of Health Sciences, Max Rady College of Medicine, University of Manitoba, and Children's Hospital Research Institute of Manitoba, Winnipeg, Canada. [2]Department of Pediatric Surgery, University Medical Center Mannheim, Heidelberg University, Mannheim, Germany

Introduction:

Current literature shows that female congenital diaphragmatic hernia (CDH) patients have a higher mortality. To the best of our knowledge, this is the first study to investigate long-term gastrointestinal and respiratory outcomes of female and male CDH survivors.

Methods:

We linked our clinical database to a provincial administrative repository to investigate long-term gastrointestinal and respiratory outcomes. We determined risk ratios (RR), plotted Kaplan-Meier curves for the time to first diagnosis and constructed Cox proportional hazard models to determine hazard ratios (HR). We controlled for socioeconomic index score and CDH defect size. For recurrent events, we calculated a Poisson regression (RaR) and an extended Cox proportional hazard model.

Results:

We included 96 CDH survivors with Bochdalek-type hernia (39 females and 57 males). There was no difference between female and male CDH survivors in their risk for intestinal obstruction (RR=1.48, p=0.39; HR=1.84, p=0.3; RaR=1.24, p=0.3), esophageal (RR=0.75, p=0.43; HR=0.67, p=0.4) and nutritional dysfunction (RR=0.83, p=0.20; HR=0.60, p=0.061). Female and male patients had the same risk of asthma (RR= 1.01, p=0.98; HR=0.92, p=0.8) and acute respiratory infections (RR= 0.87, p=0.12; HR=1.01, p>0.9). Male CDH survivors showed a trend towards an increased risk of pneumonia compared to females (RR=1.87, p=0.02; HR=2.02, p=0.063). When males were diagnosed with asthma or pneumonia, recurrent events occurred more frequently in the Poisson regression (RaR=2.25, p<0.001 and RaR=1.39, p=0.007 respectively).

Conclusion:

We did not observe differences in the long-term gastrointestinal outcomes between female and male CDH survivors. Male CDH survivors may have an impaired respiratory outcome.

783 - HIGH RATE OF CPAM HISTOLOGY AND VENOUS DRAINAGE TO PULMONARY VEINS IN EXTRALOBAR PULMONARY SEQUESTRATIONS

Haider Ali Khan Riaz, Ana Laín Fernández, Laura García Martínez, Carlos Giné Prades, María Díaz Hervás, Manuel López Paredes

Universtiy Hospital Vall d'Hebron, Barcelona, Spain

AIM

The management of pediatric pulmonary extralobar sequestration lacks standardization, with various approaches ranging from early resection to clinical observation. Our objective is to assess the histopathological outcomes in our case series to contribute insights into optimal management strategies.

METHODS

We conducted a retrospective analysis of patients undergoing pulmonary extralobar sequestration treatment between 2009 and 2023. Data collected were relative to patient characteristics, surgical approach, histopathological findings and complications during follow up.

RESULTS

During the specified period, 73 patients with pulmonary lesions underwent surgical treatment. Among these, 18 had extralobar sequestration, with a male-to-female ratio of 33% to 66% and an average age of 3.5 years.

All extralobar sequestrations were prenatally diagnosed, and two required fetal treatment with thoraco-amniotic shunt placement. Four were infradiaphragmatic, one intra-diaphragmatic and three mediastinal. The remaining cases were intrathoracic, with 90% located on the left side.

Thoracoscopic approaches were employed for all except infradiaphragmatic cases, which underwent laparoscopic procedures. The conversion rate was 17%.

Histopathological analysis revealed that 40% of extralobar sequestrations had venous drainage to pulmonary veins, and 70% exhibited microcystic lesions consistent with CPAM type II.

Over an average follow-up of 7.5 years, no deaths occurred. Two postoperative complications were observed: chylothorax and hiatal hernia.

CONCLUSIONS

In our series, a substantial proportion of extralobar sequestrations, particularly those with pulmonary venous drainage and those located in abnormal sites (subdiaphragmatic, intra-diaphragmatic, and mediastinal), presented with microcystic lesions related to CPAM spectrum. The correlation of these lesions with malignant potential remains to be elucidated.

Poster walk 19, Thoracic 3

301 - VASCULITIS IN CHILDREN: PREVALENCE AND MANAGEMENT OF ARTERIAL LESIONS

Garance Martin[1], Isabelle Melki[1], Jean Michel Davaine[2], Véronique Baudouin[1], Coralie Gandre[1], Arnaud Bonnard[1]

[1]Robert Debré, Paris, France. [2]Pitié Salpétrière, Paris, France

Aim of the study: Vasculitis are rare in children. The prevalence and management of arterial lesions in vasculitis are poorly described in the literature. The aim of this study is to report the prevalence of arterial involvement in children with vasculitis, and the rate of open or endovascular management.

Methods: Data were collected retrospectively from the French national administrative database (PMSI): patients under 18 years old with vasculitis, diagnosed between 2004 and 2017 in one center, were identified using codes from the International Classification of Diseases, while interventional management was defined according to the Classification commune des actes médicaux (CCAM).

Main results: A total of 228 patients presenting vasculitis were identified, mainly Kawasaki disease (85%). The main other vasculitis were Behcet's (6%) and Takayasu (3%) disease and ANCA-associated vasculitis (3%). Nine patients had arterial involvement (4%). All patients with Takayasu disease presented arterial lesions: Aortic stenosis (n=2) or aneurysm (n=2) associated with visceral arteries (n=4) or supra-aortic trunk (n=2) involvement traited by open surgical management in 3 cases, for symptomatic renal stenosis and aortic lesion, while endovascular management was required in 3, for symptomatic renal stenosis. One patient with Behcet's disease presented an aortic stenosis, which was only followed up and one patient with Kawasaki disease had giant coronary aneurysms with myocardial necrosis and required coronary bypass surgery.

Conclusions: Arterial lesions in patients with vasculitis were rare and occurred principally in case of Takayasu disease. Some lesions required invasive management, which calls for an expert center and an interdisciplinary discussion.

252 - THE USE OF "PECTUS-UP": A NEW TECHNIQUE FOR MINIMALLY INVASIVE REPAIR OF PECTUS EXCAVATUM

Simone Frediani, Letizia Corbi, Federico Beati, Valerio Pardi, Ivan Pietro Aloi, Arianna Bertocchini, Antonella Accinni, Alessandro Inserra

Bambino Gesù Children's Hospital IRCCS, Rome, Italy

Aim of the study:

Taulinoplasty is a minimally invasive technique for pectus excavatum (PE). It assumes that the lifting of the sternum can be possible through external traction, in order to avoid invading the mediastinum or pleural cavity. We modified standard technique to improve aesthetic results and outcomes. Aim of this work is to show primary results of modified taulinoplasty compared to standard technique.

Methods:

All patients with diagnosis of Pectus Excavatum treated between October 2021- December 2023 with taulinoplasty were enrolled. Patients were categorized in two groups based on surgical techinique: “standard taulinoplasty” (group A) and “modified taulinoplasy” (group B).

Main results:

37 patients with PE were treated with taulinoplasty during the study period. Eleven patients were classified in Group A, 26 patients in group B. Median age was similar for two groups (14.8,1 vs 15,2 years). There were no major surgical complications. Modified taulinoplasty showed a significant reduction in terms of post-operative seroma (45% vs 10%; P= 0.05) and wound dehiscence (36% vs 0%; P=0.03). Mean hospital stay was lower but not significant for group B: 3,19 [2-6] vs 4.18 [2-6]; P= 0.6. Mean surgical time for standard technique group was higher than the other group: 75.2 [55-107]min vs 56 [40-80] min P=0.02

Conclusions:

Modified taulinoplasty is a safe technique, with better outcomes in terms of surgical complications. It seems to be easier and more feasible than standard technique although we need further experience to confirm osssur Simonepreliminary data.

134 - HISTOLOGICAL STUDY OF THE CREMASTER MUSCLE IN CHILDREN WITH RETRACTILE TESTIS AND CONGENITAL CRYPTORCHIDISM: DO THEY LOOK ALIKE?

Maria Florou[1], Triantafyllia Koletsa[2], Georgia Raptou[2], Antonia Syrnioti[2], Ioannis Spyridakis[1], Christos Kaselas[1]

[1]2nd Department of Pediatric Surgery, Aristotle University of Thessaloniki, Papageorgiou General Hospital, Thessaloniki, Greece. [2]Department of Pathology, School of Medicine, Aristotle University of Thessaloniki, AHEPA University General Hospital, Thessaloniki, Greece

Aim of Study: The histological investigation of striated muscle fibers in cremaster muscle(CM) biopsies from children operated for retractile testis(RT) and comparison of the muscle fiber diameters with biopsies from patients operated for undescended testes(UDT) and inguinal hernia-control group(IH).

Methods: 22 biopsies from RT patients were studied and compared with 7 UDT and 8 inguinal hernia samples.Routine histochemical processing,hematoxylin-eosin staining, a morphological study of the transverse diameters of the striated muscle fibers and the distribution of vessels,nerves and fibrosis were applied in all samples. In addition,the samples were divided into 3 groups according to patients' age: Group A:0-2 years,Group B:3-9 years,Group C: >10 years.After applying the Shapiro-Wilk-test on groups,means and median values were compared with t-test and Mann-Whitney-U-test respectively.Values for $p<0.05$ were considered statistically significant

Main results: It was found that UDT-patients of group A and RT-patients of groups B and C had significantly smaller muscle fiber size compared to IH-patients (p=0.02 and p=0.001 respectively).At the same time,the mean transverse diameter of myocytes was not different between RT and UDT patients (p=0.19 and p=0.08)(Table).Local fibrosis and atrophy were found in the samples from RT,similar to those from UDT patients.

Conclusions: Histological study of the CM from RT-patients revealed similar features of fibrosis and atrophy as with UDT-patients.The myocyte size of muscle biopsies in both groups was significantly smaller than the control group.It appears that in RT the CM has similar pathological morphologic features to UDT.

Sample groups	Muscle Fiber min diameter	Muscle Fiber max diameter
RT 3-9yo	5.7μm	22.3μm
IH 3-9yo	11μm	36μm
P-value	**0.0011**	**0.0010**
RT >10yo	6.5μm	24μm
IH >10yo	16.2μm	41μm
P-value	**0.0019**	**0.0010**
RT 3-9yo	5.7μm	22.3μm
UDT 0-2yo	6.3μm	18.7μm
P-value	**0.1994**	**0.0849**
UDT 0-2yo	6.3μm	18.7μm
IH 0-2yo	12.8μm	30.6μm
P-value	**0.04**	**0.02**

46 - COMBINED TREATMENT FOR THE ASYMMETRICAL PRIMARY VESICOURETERAL REFLUX

Beatrice Montanaro[1], Nathalie Botto[1], Aline Broch[1], Nicolas Vinit[1], Thomas Blanc[1,2], Henri Lottmann[1]

[1]Department of Pediatric Surgery and Urology, Hôpital Necker-Enfants Malades, Assistance Publique-Hôpitaux de Paris, Paris, France. [2]Université Paris Cité, Paris, France

Introduction Vesicoureteral reflux (VUR) represents one of the most common urological cause of acute febrile urinary tract infection in children. No report has been published regarding the recommended treatment in patients presenting a primary asymmetrical VUR: high grade on one side and low grade on the contralateral side.

The aim of the study is to evaluate the effectiveness and outcome of the combined extra vesical reimplantation / subureteral Deflux® injection treatment of high grade and low grade VUR respectively. Non-inferiority to bilateral cross-trigonal reimplantation was investigated in terms of surgical complications, recurrence rate and need for re-intervention.

Patients and Methods The study has been designed as monocentric and retrospective. Patients underwent either a bilateral cross-trigonal ureterovesical reimplantation or extravesical ureteral reimplantation/ Deflux® injection between January 2004 and December 2022.

Results 40 patients underwent bilateral cross-trigonal re-implantation (Group 1) and 40 patients the combined Lich-Gregoir extra vesical reimplantation and Deflux® sub ureteric injection (Group 2). Complications and success rates were comparable in the two groups. The median hospital stay was significantly shorter for Group 2, with 50% of patients who were discharged on day 1. Moreover, data showed a significant lesser need in number and length of bladder catheter and ureteral stents in Group 2.

Conclusion This comparative study demonstrates that the combined extra vesical ureteral reimplantation and sub ureteric Deflux® injection for the treatment of primary asymmetrical VUR is an effective alternative to the gold standard cross-trigonal ureteral reimplantation.

Poster walk 20, Urology 4

316 - COMPARISON OF THE QUALITY OF LIFE OF CHILDREN ON RENAL REPLACEMENT THERAPY, DEPENDING ON THE METHOD

Arina Trofimova[1], Andrey Fisenko[1], Sergei Arzumanov[1,2], Sergey Zorkin[1]

[1]National Medical Research Center for Children's Health, Moscow, Russian Federation. [2]Research Institute of Urology and Interventional Radiology named after. Lopatkina is a branch of the Federal State Budgetary Institution "National Medical Research Center of Radiology", Moscow, Russian Federation

Aim of the study:

Compare quality of life (QoL) of children receiving renal replacement therapy.

Methods:

We collected 20 questionnaires on QoL, validated in Russian, in children PedsQoL 4.0, children on dialysis for 12 months it was first group and children after kidney transplantation for 12 months was second group and third group it was children without chronic kidney disease.

Main results:

Among the respondents, there were 64%/36% boys/girls; the average age of the children was 8 years. Children on dialysis had the worst QoL; based on the responses of both children and parents, the total score in this group was 47. A statistically significant difference ($p < 0.05$) was obtained when compared with the group after transplantation, where the overall quality score life was 74 points, in the control group the total score was 80. The scores of children and parents coincided. Children with kidney transplant had higher scores on scales of physical activity and school attendance. Children on renal replacement therapy rated physical activity at an average of 43 points, children after transplantation at 78 points; in the control group, the average score was also 78. A statistically significant difference was obtained in the assessment of physical capabilities in children on dialysis and in children after kidney transplantation. The overall assessment of QoL after kidney transplantation is comparable to the control group.

Conclusion:

A study comparing the QoL of children receiving renal replacement therapy with various methods proves that kidney transplantation is the method of choice in pediatrics

354 - MID-TERM FOLLOW-UP STUDY ON ICG-FLUORESCENT LYMPHATIC SPARING LAPAROSCOPIC VARICOCELECTOMY IN CHILDREN AND ADOLESCENTS. IS INTRATESTICULAR INJECTION OF THE DYE SAFE?

Ciro Esposito, Rachele Borgogni, Annalisa Chiodi, Mariapina Cerulo, Francesca Carraturo, Vincenzo Coppola, Fulvia Del Conte, Claudia Di Mento, Maria Escolino

Federico II University, Naples, Italy

Aim of the study: The study focused on evaluating the safety and efficacy of laparoscopic Palomo varicocelectomy utilizing indocyanine green (ICG) fluorescent lymphography (FL) at mid-term follow-up.

Methods: Over the period from January 2019 to July 2022, 72 patients (median age 14.5 years) underwent the procedure, primarily for high-grade varicocele, with additional indications including symptoms in 41.7% and left testicular hypotrophy in 58.3%. The follow-up regimen included clinical examinations at 1, 6, and 12 months, along with scrotal Doppler ultrasonography (US) at the 12-month postoperatively.

Main results: Lymphatic sparing was successfully completed without intra-operative complications or adverse reactions to ICG. The median follow-up was 22.8 months. A self-limited scrotal hematoma occurred in 1.4%, and intratesticular hypoechoic millimetric areas with calcifications were detected in 4.2% on scrotal US, resolving in 66.7% after 1-year observation. Persistent grade II varicocele was observed in 5.5%, not necessitating re-intervention. Notably, no post-operative hydrocele was reported, and catch-up growth was observed in 63.6% of cases with pre-operative testicular hypotrophy.

Conclusions: Laparoscopic Palomo varicocelectomy using ICG-FL demonstrated excellent outcomes with low incidences of varicocele persistence and no post-operative hydrocele. These mid-term findings suggested the safety of intratesticular injection, with no specific risks identified for the testis or patients. The study emphasizes the need for future prospective investigations with larger series to assess long-term outcomes comprehensively.

486 - PAEDIATRIC BALANITIS XEROTICA OBLITERANS (BXO): A 6-YEAR MULTISITE RETROSEPCTIVE ANALYSIS

Dinelle Sirjuesingh[1], Mayur Gami[2], Shazia Sharif[2]

[1]East Suffolk North Essex Foundation Trust, Colchester, United Kingdom. [2]East Suffolk North Essex Foundation Trust, Ipswich, United Kingdom

Introduction
Paediatric BXO is diagnosed clinically; supported by histology. Management includes topical steroids and circumcision. We aim to evaluate changes in incidence of BXO through the pandemic and to assess the post-operative course.
Material and methods
Retrospective analysis (2018-2023) of all paediatric patients (<17 years) undergoing circumcision at two hospitals within one NHS trust. Clinical, operative, and histology records were utilised to establish the diagnosis and post-operative course.
Results:

120/653 (18.4%) children undergoing circumcision had the diagnosis of BXO. Sole clinical diagnosis of BXO was made in 24 (3.7%) and histological confirmation in 96 (14.7%).

	Circumcision	BXO	%
2018	108	10	9
2019	115	16	14
2020	96	8	8
2021	155	22	14
2022	124	40	32
2023	55	24	44
	653	120	18.4

Pre-pandemic data (2018-2019) compared with post-pandemic data (2022-2023) shows a significant increase in the incidence of BXO ($P<0.0001$, Fisher's exact test).

Post-operative steroids were used for residual disease in 26% (31/120) of BXO patients. Of these 23% (7/31) required further surgery. 4.5% (4/89) of those not requiring post-operative steroids required a further procedure. Clinical evidence of post-operative BXO increases the likelihood of requiring further procedures (OR=3.28).

Conclusion:
More cases of BXO are being seen post-pandemic. We hypothesis that as the SARS-CoV-2 virus has been shown to overstimulate proinflammatory cytokine production this may be implicated in the development of BXO which is a recognised autoimmune condition of unknown aetiology. Further research is required. Post-operative follow-up guidelines would be beneficial to identify patients who require further intervention early.

551 - RETROPERITONEOSCOPIC URETEROURETEROSTOMY IN INFANTS

Oana Sciboz[1], Jacques Birraux[2], Oliver Sanchez[1], Enrico Broennimann[1]

[1]CHUV, Lausanne, Switzerland. [2]HUG, Geneve, Switzerland

Aim of the study

Unilateral ureteroureterostomy is used for the treatment of a variety of urological anomalies. However, there is little published literature on the retroperitoneoscopic approach for ureteroureterostomy in children. This study aims to report on our experience with retroperitoneoscopic ipsilateral ureteroureterostomy in infants.

Methods

We retrospectively analyzed the data of patients who underwent retroperitoneoscopic ureteroureterostomy in our clinic between 2020 and 2023.

All patients were operated on in a lateral position with standardized access to the retroperitoneal space. Three trocars were used in all patients. The anastomosis was performed with absorbable 6/0 suture material. A JJ stent was used in all patients.

Main results

Two patients were treated for a complete ipsilateral duplication with ectopic upper moiety ureter, and one patient for a retrocaval ureter.

The patients had a median age of 27 months (3-52). The median follow-up time was 43 months (4-52). The median weight of the patients was 16,25 kg (5,7-18). There were 2 boys and one girl. The median operation time was 315 min (190-380). No intra-operative complication occurred, and no conversion or transfusion was needed. The median hospitalization time was 3 days (2-4). The JJ stent was removed after 6 weeks (6-16). The follow-up ultrasound showed a significant reduction in hydronephrosis in all patients.

Conclusion

Retroperitoneoscopic ureteroureterostomy is a technique with advantages in terms of postoperative recovery and minimal postoperative pain, which can safely be offered also to our smallest patients.

670 - Genetic screening of patients with severe hypospadias: does testicular descent matter?

Keren Sloan, Hazem Mosa, Charkaoui Adham, Benjamin Fisher, Ajay Thankamony, Ruth Armstrong, May Bisharat, Neil Featherstone

Addenbrookes, Cambridge, United Kingdom

Aim

Severe hypospadias can be observed in Disorders of sexual differentiation (DSD). The 2016 DSD consortium consensus recommends evaluation for DSD in patients with proximal hypospadias only if they have at least one undescended testis (UDT). We evaluated the genetic findings of children with severe hypospadias referred to a urology -endocrine-genetic MDT clinic and compared findings in those with and without UDT.

Methods

Retrospective review of electronic records of patients with severe hypospadias that were referred to the DSD MDT clinic between (2016-2023). Severe hypospadias was defined as the presence any of the following criteria: severe ventral curvature, small glans size, small corporal girth and/or scrotal fusion abnormalities (transposition, bifid scrotum). Patients underwent Karyotyping, microarray analysis, and /or Whole genome sequencing (WGS). Data analysed included hypospadias phenotype, endocrine work up, genetic results, and clinical outcomes of surgery. Statistical analysis was performed using chi squared and independent sample t-test for categorical and continuous variables.

Main results

20 patients met the inclusion criteria and were included. The mean gestation was 35 weeks+/- 4.4 SD (27-41) and mean birth weight was 2.3kg+/- 1.1 SD (0.64-3.9). Patient characteristics are summarised in table 1. 13 patients underwent a 2-stage graft repair. 61% (8) developed complications (fistula, dehiscence or stricture) and 46% (6) required reoperations.

Conclusions

Genetic and endocrine work up of children with severe hypospadias regardless of testicular descent may offer insights into underlying genetic differences and improve counselling. A prospective study to identify the utility of routine genetic work up is recommended.

679 - EVALUATION OF THE RESULTS IN TERMS OF COSMETICS AND CONTINENCE IN FIVE BOYS WHO HAD PRIMARY EPISPADIAS REPAIR

Gul Ilayda Sarar, Aysenur Celayir, Olga Devrim Ayvaz, Sabri Cansaran

University of Health Sciences, Turkey. Istanbul Zeynep Kamil Maternity and Children Diseases Health Training and Research Center, Department of the Pediatric Surgery, Istanbul, Turkey

Aim of the Study:

Isolated male epispadias is a rarely seen congenital anomaly. Urethroglanuloplasty and correction of dorsal penile curvature are essential in epispadias repair. Urinary continence problems are more frequently encountered in cases with proximal epispadias. Here, we aimed to evaluate the late-term results and continence status of our five cases who underwent primary epispadias repair.

Methods:

Demographic data, operative findings and postoperative outcomes of primary epispadias cases operated in between 2006-2023 were evaluated from hospital records, retrospectively.

Main results:

5 male patients underwent surgical repair for isolated epispadias in 17 years: 1-penopubic, 1-penil, 1-subcoronal and 2-glanuler epispadias. The median operation age was 4-years-old (2-years,10-years). There were no comorbidities except one patient with Down Syndrome who was operated for duodenal atresia. One patient was operated in another center at 1-year-old and re-operated in our center for recurrence.

The median follow-up duration was 7.5-years(2-year,17-year). Cosmetically, all penises are erect and patients urinate in thick calibration, projecting forward. All patients maintained continence postoperatively, with the exception of one case involving penopubic epispadias. In this case, bladder neck injection was performed twice in the first and second postoperative years. Complete continence was achieved at the age of 7, after nine sessions of biofeedback treatment. Same patient required corrective surgery due to traumatic posterior meatal dehiscense at 18-years-old.

Conclusions:

Children with epispadias can achieve urinary continence spontaneously or with additional operation and therapies. Long term follow-ups are crucial, even for continent patients with epispadias.

715 - Manual Detorsion in Testicular Torsion: Experience from a Tertiary Center.

Luz Emigdia Zelaya Contreras, María Rosa Ibarra Rodríguez, José Ignacio Pérez Garrido, Fernando Vázquez Rueda, Pablo María Ruiz Hernández, Rosa María Paredes Estebán

Hospital Universitario Reina Sofía, Córdoba, Spain

Introduction:

Testicular torsion (TT) is a pediatric emergency where the degree and duration of torsion are critical for testicular viability. While urgent surgical exploration has been the classical approach, manual detorsion (MD) under ultrasound control emerges as a non-invasive option that can restore blood flow, although it is not routinely practiced in many hospitals. Our objective is to demonstrate the positive outcomes of our experience.

Methods:

Retrospective review of TT patients treated between January 2020 and December 2023 . The age and duration of symptoms were evaluated and compared between patients who underwent MD versus initial surgical exploration (SE). Success rate (ultrasound-confirmed blood flow recovery) and complication rate were analyzed.

Results:

42 patients diagnosed with TT. MD was performed in 31 patients, and SE in 11 initially. Mean age was 12.1±1.1 years in MD and 8.6±4.9 in SE (p=0.001). The mean duration of symptoms was 5.6±6.7 hours in MD and 35.4±28 in SE (p=0.001). MD success rate was 80.7%, specifying 6 patients requiring SE. Among these 6 SE patients, intraoperative confirmation of TT was observed in 3. Orchiectomy was performed in 1 patient in the MD group versus 6 in the SE group (p=0.001). Complication rates for MD and SE were 13% and 18%, respectively.

Conclusion: MD could be considered as a safe initial treatment allowing deferred testicular fixation, leading to reduced inflammation and the advantages of a scheduled surgery.

832 - GLANS PENIS ISCHEMIA AFTER MEATOPLASTY OR CIRCUMCISION: CASE SERIES AND REVIEW OF LITERATURE

Alessia Allasia[1], Christelle Sommer[1], Ernesto Montaruli[2], Barbara Peiry[3], Jean Claude Renggli[4], Marion Poget[1], Jacques Birraux[5], Sylvain Mauron[1], Oliver Sanchez[1]

[1]Chuv, lausanne, Switzerland. [2]eoc, bellinzona, Switzerland. [3]HFR, friburg, Switzerland. [4]rhne, neuchatel, Switzerland. [5]hug, geneva, Switzerland

Postoperative glans ischemia is rare occurrence in the paediatric population. Glans ischemia should be suspected in cases of skin discoloration with or without pain in the hours following penile surgery. While glans ischemia following circumcision has been sporadically reported, we present the first cases series, each managed with diverse therapeutic strategies, including five instances and the first case of glans ischemia following a meatoplasty procedure.

We report the clinical presentation, treatment and outcomes of glans ischemia in six patients, aged between 4 and 12 years old, in five Swiss paediatric surgery centres.

Five cases occurred after circumcision, and one after meatoplasty. All procedures were performed under general anaesthesia, with four patients receiving a dorsal penile block, one a pudendal nerve block and one a spinal anaesthesia.

In the absence of a clear aetiology, and through a review of the literature, a combination therapy consisting of prostacyclin, heparin, antibiotics, and either testosterone or nitroglycerine cream was initiated. In one case, a conservative approach involving solely Kamillosan and Bepanthen cream was employed.

A complete restitution ad integrum was achieved in all patients.

Well-standardized procedures, such as circumcision and meatoplasty, are not devoid of complications, such as glans ischemia, that may require urgent treatment.

Glans ischemia aetiopathogenesis after meatoplasty and circumcision remains unclear and management guidelines are lacking.

All reported cases have demonstrated favourable outcomes, despite very different treatment approaches. Considering the range of reported treatments, it is not possible to offer at this stage a standardised care path for this rare complication.

81 - THE GLANULAR-FRENULAR COLLAR (GFC) TECHNIQUE: LONG TERM RESULTS OF A NOVEL TECHNIQUE FOR HYPOSPADIAS

Hüseyin Özbey

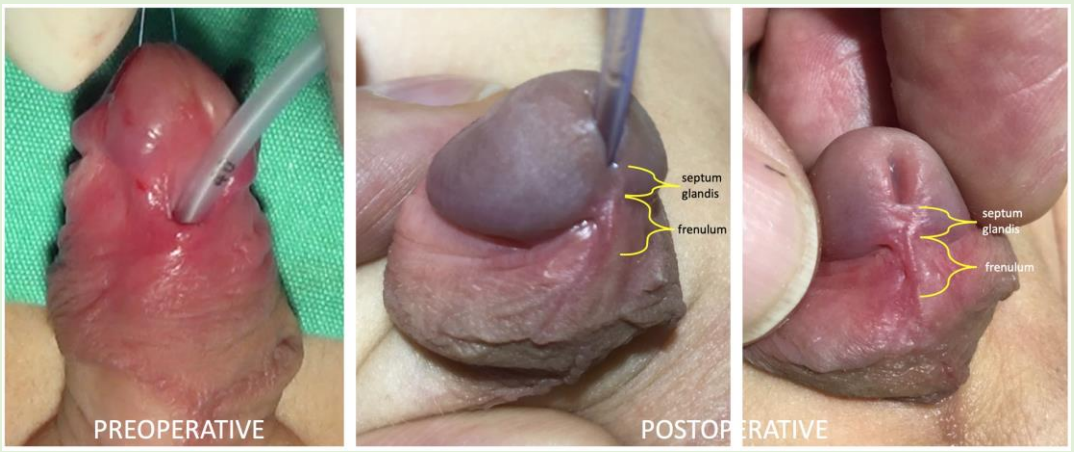
Sechenov First Moscow State Medical University, Department of Pediatric Surgery and Division of Pediatric Urology, Moscow, Russian Federation

Aim of the study As with the dual embryonic origin proposed for the development of the male urethra, the Glanular-Frenular Collar (GFC) technique involves a dual approach reserved for the glanular and penile urethra. The main concept of the GFC technique is the creation of the *septum glandis (SG)* and frenulum as the ventral wall of the glanular urethra. This study evaluated the long-term functional and cosmetic results of the GFC technique.

Methods One-year or longer follow-up of 244 patients who underwent surgery with the GFC technique for primary hypospadias by the same surgeon between 2010 and 2023 were conducted. There were 187 patients with distal-to-mid penile hypospadias, 57 proximal penile/penoscrotal hypospadias, all without severe ventral curvature ($<45^0$).

Main results A mean follow-up of 14 months (range 12-28 months) revealed a good cosmetic appearance of a vertically slit meatus with straight and wave-like shape of urine flow in 223 (91%) patients. Despite incomplete SG formation, 10 of these patients had straight and wave-like shape of urine flow and left as is. Failure of SG formation requiring a secondary operation was found in 10 (4%) patients, meatal stenosis in 6 (3%), fistula in 3 (1%), and mild ($<10^0$) residual ventral curvature in 2 (1%). The patients with meatal stenosis were successfully cured with calibration of the meatus, and the fistulas were repaired.

Conclusions The SG is an important anatomical structure, but has been overlooked in the history of hypospadias repair and should be the gold standard for both functional and aesthetic results.



680 - MALROTATION BEYOND THE NEONATAL PERIOD - DO NOT WAIT FOR BILIOUS VOMITING!

Sherif Abdelmaksoud, Sara Gozzini

King's College Hospital, London, United Kingdom

Purpose:

Bilious vomiting is a red flag when it comes to suspect intestinal malrotation (IM) in neonates. Past that period, symptoms can be nonspecific, making the diagnosis challenging or delayed. Our aim was to identify characteristic features of malrotation in children beyond the neonatal period.

Methods:

A retrospective review of all patients treated for IM between 2013 and 2023 was done. Those > 1 month were divided into 4 groups based on age at the time of diagnosis: group-A = >1 – 12 months (*n*=16), group-B = >1 – <4 years (*n*=11), group-C = 4– <13 years (*n*=12), and group-D = 13 – 16 years (*n*=5). Demographics, presentation, investigations, surgical findings, length of stay/follow up and complications were noted.

Results:

44 patients were included. One patient died before surgery in Group A. Bilious vomit was present in 37.5% in Group A, 33% (group-C), 20% (group-D) and none in Group-B. Non-bilious vomit, failure-to-thrive and abdominal pain were most common in group-A, B and D. Intraoperative findings confirmed viable bowel in all but one patient (Group-C). 73% in group-B and 75% in group-C had a chronic presentation of IM while in group-A and B the onset was mainly acute. Higher incidence of complications such as small bowel obstruction and recurrence of volvulus requiring surgery were seen in group-B (28%) and group-D (40%)

Conclusion:

High index of suspicion is paramount when dealing with chronic abdominal symptoms and there should be less reliance on bilious vomiting as a marker for malrotation past the neonatal period.

847 - Comparing main complications and outcome on Open Foker procedure-OFP with Thoracoscopic Foker Procedure-TFP for treatment in patients with LGEA.

Marcia Matias[1,2], Simon Eaton[3]

[1]UCL - Surgery and interventional science department, London, United Kingdom. [2]Hospital Federal de Bonsucesso, Rio de Janeiro, Brazil. [3]UCL Great Ormond Street Institute of Child Health, London, United Kingdom

Aim of study:

Long gap esophageal atresia (LGEA) remains a challenge for pediatric surgeons. Several techniques have been developed to achieve primary anastomosis. The Foker traction method has been developed to a thoracoscopic procedure. We aimed to compare complications and outcome of Open Foker procedure (OFP) with Thoracoscopic Foker Procedure (TFP) in patients with LGEA.

Method:

A comprehensive review of the literature was performed using electronic databases. All relevant articles published between 1992 and 2023 were included, and a meta-analysis of complications and long-term outcomes was performed, using OpenMetaAnalyst.

Results:

Sixteen articles presented data on 190 newborns with LGEA. 11/16 (69%) studies reporting OFP, and 5/16 (31%) reports TFP with or without gastrostomy. There were no comparative studies. The age at primary anastomosis was 74 days on OFP and 46 days on TFP; the mean follow-up was respectively 42 and 32 months.

Anastomotic leakage of 26% was reported for OFP and 22% on OFP. Stricture was reported to be 73% on OFP and 59% on TFP. 68% of OFP and 83% of TFP respectively were reported to have gastro-esophageal reflux, and 46% of OFP received a fundoplication. Only one of the 5 studies on TFP reported fundoplication, in 10/11 (91%) patients, with 6/11 (55%) patients having a redo fundoplication.

Conclusion: The choice of surgical technique (open or thoracoscopic) for LGEA repair should be individualized. Although the thoracoscopic Foker procedure seems superior in terms of stricture and leakage, there is a high incidence of reflux and fundoplication.

144 - LAPAROSCOPIC SLEEVE GASTRECTOMY VS LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING IN THE TREATEMNT OF MORBID OBESITY IN PEDIATRIC PATIENTS.

Chiara Ribaldone, Ottavio Adorisio, Sonia Battaglia, Daniela Camanni, Emanuela Ceriati, Francesco De Peppo

Bambino Gesù Children's Hospital, IRCCS, Rome, Italy

Aim of the Study

This study aims to compare laparoscopic sleeve gastrectomy (LSG) vs Laparoscopic Adjustable Gastric Banding (LAGB) to treat morbid obesity in pediatric patients evaluating weight loss, BMI reduction, and complications.

Methods

The medical records of all our patients who underwent LSG/LAGB from November 2017 to June 2022 were reviewed.

Main Results

One hundred forty patients were included. One hundred and thirteen (M/F=74/39), mean age 16.2±2,3 years (range 11-19), underwent LSG, while 27, (M/F=20/7), mean age 16.8±1,5 years (range 14-21) underwent LAGB. The mean follow-up was 4.2±1.5 months. In the LSG group mean weight loss was 44±12 Kg, in the LAGB group was 12± 5 Kg ($p<0.05$). The mean BMI decrease was 12±02 in the LSG group vs 5±1.1 in the LAGB group ($p<0.05$). The mean operative time was 88± 20 minutes in the LSG group vs 89±17 in the LAGB group ($p>0.005$). The mean hospital stay was 4±0.9 days in the LSG group vs 2,4±0,8 days in the LAGB group ($p<0.05$). In the LSG group, there were 3 gastric perforations (0.02%). Two patients required a redo suture while the last one required an oesophagus-jejunal anastomosis. In the LAGB group, the overall band removal was 4/27 (14,8%) (two slippages, 1 gastric pouch dilation, 1 port-tube system dysfunction.

Conclusions

Compared to LAGB, LSG is superior regarding weight loss and BMI reduction with a lower complication rate even if, complications following LSG may be potentially life-threatening.

451 - THE EVOLUTION OF THE APPROACH TO ESOPHAGEAL REPLACEMENT WITH INTESTINAL INTERPOSITION IN CHILDREN: A SINGLE – CENTER REPORT

Dorota Broniszczak-Czyszek[1], Marek Szymczak[1], Marek Stefanowicz[1], Małgorzata Panek[1], Grzegorz Kowalewski[1], Maciej Dądalski[1], Dorota Majak[2], Piotr Kaliciński[1]

[1]Children's Memorial Health Institute, Warsaw, Poland. [2]Children's MemorialHealth Insttute, Warsaw, Poland

Esophageal reconstruction (ER) with the intestine is the preferred method for replacing the esophagus. The aim of this study is to present the development of our approach to ER.

Material and Methods: Between 1998 and 2023, 51 ERs with the intestine were performed. We compared the approach to the reconstruction surgery and the results of the procedure in two periods: 1998 - 2007 (37 pts) and 2008 to 2023 (14 pts). In the second period, we introduced perioperative anticoagulation, pyloroplasty, thoracoscopy during esophageal removal and anastomosis in the chest, and indocyanine green. Results of ER with the large and small intestine were compared. The statistical analysis included early and late complications, ICU and hospital stay, and long-term follow-up.

Results: The causes of ER were EA (30 pts), caustic injuries (17), and other (4). The median age at the operation was 7 years. The large intestine was used in 37 pts, and the small intestine in 14. Graft necrosis (2 pts) and anastomotic ulcers (5 pts) were observed only in reconstructions with the large intestine and only in patients operated on before 2008. There was no difference in the frequency of fistulas or strictures between analysed groups and periods. Follow-up ranged from 3 months to 17.5 years. Two children died. All patients except one are fed orally. In the more contemporary period, the length of stay in the ICU and hospital has shortened.

Conclusions: ER with intestinal interposition remains our preferred method. Modifications of surgical technique and perioperative management positively influenced early and long-term outcomes.

528 - ESOPHAGEAL PERFORATION IN NEONATES: NON-OPERATIVE MANAGEMENT AND IMPLEMENTATION OF PROTOCOL

Adriana Koenig, Lorenzo Anez-Bustillos, Lisandro Luques, Julia DiLabio, Agostino Pierro

The Hospital for Sick Children, Toronto, Canada

Aim of the Study

Neonatal esophageal perforation is a rare life-threatening complication primarily affecting extremely low birth weight infants. It occurs after manipulating the upper respiratory and/or gastrointestinal tract. Transferring these patients in the first 72h of life significantly increases the risk of intraventricular hemorrhages and other complications.

We aimed to review outcomes of neonatal esophageal perforation in our center and report the implementation of a prospective management protocol.

Methods

Ethical approval was obtained from the institutional Research Ethics Board (REB# 1000063221).

We analyzed esophageal perforations in our level 3 neonatal unit from 2016 - 2023. During this period, we developed and implemented a diagnostic and management protocol involving referring neonatal units, aiming to standardise initial non-operative treatment and delay patient transfer in the first days of life. Esophageal perforation in the context of esophageal atresia or other congenital malformations were excluded.

Primary outcome was to confirm efficacy of non-operative management. Secondary outcome was to assess the effect on intervention and mortality rate when implementing the protocol.

Main results

We included 13 neonates with esophageal perforation (see table for details). No surgical intervention was required. The esophagogram one week after perforation was normal in all neonates. Patient outcomes did not change during development and implementation of the protocol.

Conclusions

Non-operative management of esophageal perforation is safe and effective in premature neonates. Standardisation of diagnosis and non-operative management with telemedicine consultation involving pediatric surgeons can avoid transferring fragile premature infants to a surgical center.

Table: Characteristics of patient population

Number of patients (n)	13
Gestational age *(median, IQR)*	25 weeks *(IQR 2.9)*
Birth weight *(median, IQR)*	670g *(IQR 242)*
Day of life when perforation was diagnosed *(median, IQR)*	2 *(IQR 3)*
Infants with multiple attempts at intubation/gastric tube placement (n)	10
Diagnostic modality	Chest Xray alone n = 8 Esophagogram at presentation n = 5
Infants with pneumothorax/pneumomediastinum	n = 6 Requiring decompression n = 4
Surgical intervention	None
Deaths	n = 1 (sequelae of prematurity unrelated to esophageal perforation)

IQR: Interquartile range

455 - COLELITHIASIS AFTER BARIATRIC SURGERY: IS WEIGHT LOSS THE PROBLEM?

Joana Mafalda Monteiro, Domingas Atouguia, Carolina Aquino, Miguel Campos, Tiago Tuna

Centro Hospitalar Universitário São João, Porto, Portugal

Introduction: After bariatric surgery, rapid weight loss has been associated with new-onset cholelithiasis, but other studies do not suport this finding. We aimed to evaluate the effect of weight loss on the development of gallstones after sleeve-gastrectomy.

Methods: Pediatric patients submitted to sleeve-gastrectomy from January/2014 to December/2023 were analyzed regarding their demographics, comorbidities, percentage of weight and excess of weight lost and percentage of BMI lost at 6, 12, 18 and 24 months. Development of cholelithiasis and associated symptoms were recorded. Patients with less than a year of follow-up were excluded.

Results: Thirty-three patients (66.7% female) were included. With a median follow-up of 1 (1.00-2.00) year, nine (27.3%) developed cholelithiasis, six were symptomatic. Patients with and without cholelithiasis did not differ regarding demographics, comorbidities or pre-surgical anthropometrics. We found no differences in weight loss parameters between patients with or without new-onset cholelithiasis. When comparing symptomatic cholelithiasis (SC) patients with patients without cholelithiasis (NC), SC patients had a significantly higher BMI and significantly lower percentage of weight and BMI lost at 12 and 18 months (Table1).

Conclusions: Although higher weight loss after bariatric surgery has been previously associated with cholelithiasis, our series does not support theses findings. Moreover, a lower degree of weight loss in the short term after sleeve-gastrectomy seems to be associated with SC. These findings suggest that post-surgical cholelithiasis may not be only related to weight loss and other factors should be further investigated.

		12 months	p	18 months	p	24 months	p
% Weight Lost	SC	24.07 (22.93-24.65)	0.049	24.07 (21.76-29.73)	0.021	26.96 (24.23-27.30)	0.280
	NC	36.33 (22.82-38.37)		36.27 (32.92-39.92)		39.07 (31.72-42-64)	
BMI	SC	36.55 (33.03-38.45)	0.049	35.00 (34.35-37.10)	0.017	33.90 (33.15-36.05)	0.570
	NC	32.40 (29.10-35.40		31.20 (30.90-32.40)		30.20 (29.65-32.30)	
% BMI Lost	SC	24.10 (22.93-24.74)	0.034	24.10 (21.20-24.73)	0.017	27.03 (24.30-27.37)	0.214
	NC	33.40 (29.83-38.27)		36.36 (32.98-39.88)		38.99 (31.65-42.60)	

Table 1 - Comparison of SC and NC patients

736 - NAVIGATING THE SHIFTING LANDSCAPE: CONTEMPORARY TRENDS AND VARIANCES IN PEDIATRIC FUNDOPLICATION

Andrea Schmedding

Pediatric Surgery and Pediatric Urology, Hospital of Braunschweig, Braunschweig, Germany

Aim of the Study:

This study explores the dynamics of pediatric fundoplication, scrutinizing trends over the past five years to discern shifts in both frequency and procedural approaches. Our objective was to unveil nuanced patterns in the numbers and types of procedures employed in this evolving surgical landscape.

Methods:

Data from the national statistics of hospital admissions from the Institute for the Remuneration System in Hospitals were obtained for 1/2019 to 9/2023. A cohort of 812 children (60% boys) underwent scrutiny for comparative fundoplication analysis.

Main Results:

While the overall prevalence of fundoplications demonstrates a discernible decline (221 in 2019 to 141 in 2022), a noteworthy surge is evident within the esophageal atresia (EA) subgroup, accounting for 3.2% of all procedures in 2019 and escalating to 11.2% by 2023. Among EA cases, 62.5% underwent surgery before age three, compared to 31% without EA. The adoption of laparoscopic procedures witnessed a substantial increase, rising from 68.3% in 2019 to an impressive 93.6% in 2023, with minor robotic assistance (8 in 2022, 9 in 2023) . Conversely, Hemiundoplication procedures experienced a decline from 40.3% to 30.0%. Notably, the mean length of hospital stay reduced from 19.8 days in 2019 to 14.4 days in 2023.

Conclusion:

This comparative analysis illuminates the dynamic trajectory of pediatric fundoplication, wherein an overarching decline coexists with a notable rise in EA cases. Although the procedure is becoming less invasive the numbers declined in such a way that the procedure can be called a rare procedure in Germany today.

629 - THE USE OF BIOSYNTHETIC MESH IN HIATAL HERNIA REPAIR IN CHILDREN - A 10-YEAR SINGLE CENTRE EXPERIENCE

Sidra Rauf, Ahmed Azzam, Ivana Sabolic, Micheal Singh, Giampiero Soccorso

Birmingham Children's Hospital, Birmingham, United Kingdom

Aim: To evaluate the outcome, including recurrence of hiatal hernias (HH) repair in children using a biosynthetic mesh.

Method: We retrospectively analysed all cases of HH repair and fundoplication with or without biosynthetic mesh at a tertiary centre from October 2012 to January 2024. Demographic, diagnostic, surgical and outcome data were collected. Fisher-Exact test was used to calculate the rate of recurrence.

Results: 27 children (16 males) (mean age 4.76 years, range: 20 days–17 years) underwent HH repair via laparoscopy (24) or laparotomy (3): 88.9% of the children had Nissen fundoplication, whereas 11.1% had Thal. 51.9% underwent a concurrent gastrostomy. 40.7% were type IV HH.

There were 15 simple suture repairs (SSR) and 12 biosynthetic mesh repairs (BSMR). The BSMR group had significantly more type IV hernias ($P<0.05$) but were comparable in gender, age, ASA, neurological impairment (NI), and past surgical history.

Seventeen (62.9%) were diagnosed via upper gastrointestinal contrast study (UGICS). Ten (37%) diagnosed intra-operatively (normal UGICS) underwent an SSR due to mesh availability except one.

The recurrence rate was 40% for SSR and 25% for the BSMR group (p 0.68) - confirmed with UGICS. Recurrence was unrelated to the presence of NI or HH type. There was no difference in the early/late complications and time to recurrence. The average length of follow-up was 36 months (IQR 7 - 54.5).

Conclusion: Biosynthetic mesh crural reinforcement is associated with a low incidence of complications and a reasonably low recurrence rate. However, it was not significantly superior to simple suture repair.

694 - COMPARISON OF BALLOON VS DISC-RETAINED GASTROJEJUNAL TUBES: FRIEND OR FOE?

Rachel Grayson, Katherine Tambudze, Andre Cardoso Almeida, Reesha Ranat, Catherine Bradshaw

Bristol Royal Hospital for Children, Bristol, United Kingdom

Aim of the Study

This study aims to establish the service impact of offering a gastrojejunal tube (GJT) feeding program in a specialised paediatric surgical unit and compare implications of different tube types.

Methods

Retrospective review of a prospectively maintained patient record database for children undergoing gastrojejunal feeding tube replacement between 2018 and 2024.

Main results

Data was analysed for 108 GJT placements/changes (83 balloon; 25 disc devices) in 21 children. Median age of initial insertion was 3 years (8 months – 17 years). Overall tube burden was 2.4 GJT per year per patient (1 – 10). Median gastrojejunostomy lifespan was 111 days and 135 days (p=0.008) for balloon and disc-based devices, respectively. A complication was encountered for every 244 tube days (Balloon 224 vs Disc 324 tube days), with the commonest being tube dislodgment. An unplanned tube change occurred in 42% of cases. General anaesthesia (GA) was required in 43% of placements and children with a disc device were nearly 9 times more likely to require GA (OR 8.8, 95% CI 3 – 26.1, $p<0.05$). Similarly, presence of disc device was a risk factor for an unscheduled tube change (OR 2.6, 95% CI 1.02 – 6.39, p=0.06). There were no mortalities related to tube placements or changes.

Conclusions

When establishing a gastrojejunal feeding service, clinicians should be aware of the benefits and disadvantages of different tube types. Our series shows that despite longer lifespan, children with disc-based tubes are more likely to require GA and unplanned changes.

180 - SUCCESSFUL TREATMENT OF CAUSTIC ESOPHAGEAL STRICTURE IN CHILDREN: LONG-TERM EFFICACY OF SERIAL DILATION

Paulína Vargová, Rafael Fernández Atuán, Carolina Corona Bellostas, Ainara González Esgueda, Andrea Santiño Tenorio, Ricardo Escartín Villacampa

Hospital Universitario Miguel Servet, Zaragoza, Spain

Aim of the study

The ingestion of caustic substances in children is a cause of oesophageal strictures. The initial treatment is serial dilation, with esophageal replacement reserved for cases refractory to endoscopic treatment. The aim of this study is to evaluate the safety, efficacy, and long-term outcomes of endoscopic dilatation in paediatric patients.

Methods

We present a retrospective study of patients requiring a serial endoscopic dilation.

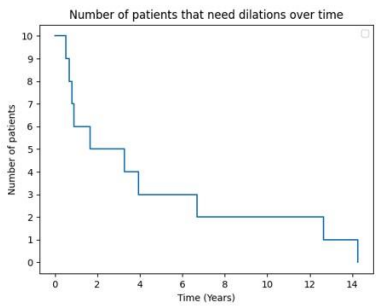
Results

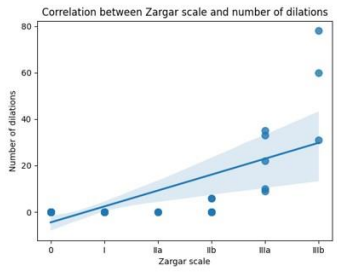
During the period 1999-2023, 49 patients presented with esophageal caustic with a mean age of 2.99 years. Endoscopy within the first 48h revealed Zargar 0-I lesions in 63.4%, Zargar II in 22.8% and Zargar III in 13.8%. Twenty percent developed stenosis, 100% of Zargar III and 28.5% of Zargar II. Endoscopic dilation was the primary treatment, with an efficacy of 50% in less than 2 years and with an average of 29 dilations.

After 4 years, only 3 patients required occasional dilation, increasing the interval between endoscopies. Two patients underwent esophageal-coloplasty, two of them at our centre, because of esophageal perforation in one patient, and refractoriness to dilation in another. They required subsequent dilatation of the anastomosis with an average of 13 dilations. The Zargar scale showed a correlation with length of hospital stay and number of dilations; as the scale increases, so does the length of hospital stay and the number of dilations required ($p<0.01$).

Conclusions

Esophageal dilation is a safe and effective method of treating caustic esophageal strictures. Long-term serial dilatation seems feasible and can reduce the need for surgery.





716 - HETEROTAXY AND ISOMERISM - CORRELATION OF ANTENATAL AND POSTNATAL CLINICAL FEATURES AND IMAGING

Sherif Mansour, Christina Resta, Spyros Bakalis, Manasvi Upadhyaya

Evelina London Children's Hospital, London, United Kingdom

Aim of the study

Heterotaxy can be associated with right or left atrial isomerism (AI). Majority of children with heterotaxy will have gut rotational anomalies (RA). Our aim was to review the outcome of antenatal findings of atrial-isomerism (AI) and correlate these with the postnatal confirmation of cardiac and gastrointestinal (GI) anomalies, and to determine the incidence of volvulus in those patients.

Methods

This retrospective study included neonates with an antenatal diagnosis of AI from 2006 until 2023. Postnatally, clinical assessment and imaging-echocardiography, abdominal ultrasound and upper GI contrast study (UGICS) were performed. After ethical approval, data were collected using electronic patient records and discharge summaries.

Main results

34 patients were diagnosed with AI antenatally. Details of 3 patients were not available. 8/32 had terminations of pregnancy. 3/32 patients had chromosomal abnormalities. 12/32 patients had normal karyotyping. 16/32 patients declined prenatal testing.

Postnatally, 22/24 patients had confirmed AI: 18/22 with left AI (81.8%) and 4/22 with right AI. 2/24 died shortly after birth with suspected severe associated cardiac abnormalities.

Postnatally, 18/22 had UGICS. 10/18 had confirmed GRA (45%). 6/10 were symptomatic with bilious vomiting and underwent a Ladd's procedure. 2 of these had a duodenal web in addition to malrotation. 1/10 developed NEC. At follow up until present time, no patients presented with midgut volvulus.

Conclusions

Antenatal diagnosis of isomerism mandates early postnatal clarification of cardiac and GI anomalies. We recommend a watchful-waiting policy for asymptomatic GRA as abdominal surgery could add to the morbidity of these fragile patients.

560 - Acute Mesenteric Ischemia-Induced Early Kidney Damage in Rats

Olafs Volrats[1], Ruta Muceniece[1], Ksenija Lucija Bahire[1], Marina Makrecka-Kuka[2], Elga Poppela[1], Baiba Jansone[1]

[1]Faculty of Medicine, University of Latvia, Riga, Latvia, Riga, Latvia. [2]Latvian Institute of Organic Synthesis, Riga, Latvia, Riga, Latvia

Aim of the Study

The objective of this study was to investigate the impact of acute mesenteric ischemia (AMI) on early kidney damage in rats, focusing on oxidative stress and the kidney injury marker I (KIM-1) levels in plasma, urine, and the kidneys.

Methods

The experimental procedures adhered to the guidelines of EU Directive 2010/EU/63 and were approved by the Food and Veterinary Service of Latvia (No. 120/2020). Wistar Hannover male rats underwent ischemia for 15, 30, 60, 90, and 120 minutes by ligating the superior mesenteric artery and vein (n = 6-9). Mitochondrial functionality was evaluated in tissue homogenates using high-resolution fluorespirometry. KIM-1 levels were assessed with a Quantikine ELISA kit, and absorbance read at 450 nm. Creatinine concentrations in urine and serum were measured using kits (SKT-200, SKT-217) from StressMarq Biosciences. Absorbance readings were taken at 490 nm using the Tecan Infinite 200 PRO plate reader and i-control software. Each sample underwent triplicate testing.

Main Results

KIM-1 levels in urine were elevated after 15 minutes, persisting for up to 2 hours, while KIM-1 in plasma and kidneys increased after 0.5 to 2 hours. Following 15 minutes of AMI, mitochondrial complex I-dependent oxygen consumption and reactive oxygen species (ROS) production were reduced. After 30 minutes, oxygen consumption in the kidneys increased.

Conclusions

AMI induced a time-dependent effect on kidney functions. The earliest responses to AMI included altered mitochondrial functionality and elevated KIM-1 release.

537 - MULTI-REGIONAL GASTRIC ASSEMBLOIDS FOR DISEASE MODELLING

Giada Benedetti[1], Bendan C Jones[1], Kelsey D.J. Jones[2,3], Paolo De Coppi[4,1], Giovanni Giuseppe Giobbe[1]

[1]Stem Cells and Regenerative Medicine Section, Developmental Biology and Cancer, Great Ormond Street Institute of Child Health, University College London, London, United Kingdom. [2]The Kennedy Institute of Rheumatology, Nuffield Department of Orthopaedics, Rheumatology, and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom. [3]Department of Paediatric Gastroenterology & Nutrition, Great Ormond Street Hospital for Children NHS Foundation Trust, London, United Kingdom. [4]Dept. of Specialist Neonatal and Paediatric Surgery, Great Ormond Street Hospital, London, United Kingdom

Aim of study

Pediatric gastric pathologies need new experimental approach and novel *in vitro* models to develop efficient personalised therapies. The aim of this work is to investigate the differential cell behaviour in paediatric patients affected by a mutation noted as HNF4a/PMM2, who exhibit unconventional foveolar antral polyps.

Methods

We developed an innovative assembloid *in vitro* system through the self-aggregation of multi-regional epithelial organoids of fundus, body, and antrum origin. The assembloid with a continuous shared lumen was used to model the paediatric genetic condition compared to healthy and diseased organoids.

Main results

Multi-regional HNF4a/PMM2 patient-derived organoids and assembloid were characterized for regional and gastric markers. The mutant assembloids displayed increased proliferation at antral level, and the formation of polyp-like structures *in vitro*, comparable to the *in vivo* condition. A reduced presence of MUC5AC was confirmed in the disease model. Moreover, we also demonstrated reduced functionality of ATP4b, with increased non-glycosylated protein in the mutant assembloid, and reduced acid production on the fundus side.

Conclusion

Each assembloid region maintained its identity and function, enhancing differentiation compared to standard patient organoid cultures. We demonstrated the ability of the gastric assembloid to model antral faveolar hypoplasia from a molecular point of view, recapitulating patient's condition and offering valuable hypothesis on polyps' formation causes. The assembloid is a useful tool to test available treatments, improving patient's prognosis. Moreover, it offers further insights into the disease's molecular mechanism, uncovering new therapeutic targets.

740 - BILIOUS VOMITING: A SURGICAL PROBLEM?

Lee Smith[1], Danai Kardassi[2], Ashish Desai[1]

[1]Royal London Hospital, London, United Kingdom. [2]Barts and the London School of Medicine and Dentistry, London, United Kingdom

Aim of the Study

We sought to assess the value of a Paediatric Surgical review for term neonates with bilious vomiting, when referred for assessment of potential malrotation.

Methods

A retrospective review of all neonatal referrals for suspected malrotation in term neonates (<28 days) where the primary reason for referral was bilious vomiting, between January 2018 and September 2023 at a tertiary referral centre. Data points included: demographics, weight, gestation, age at contrast, presentation, imaging, management and follow-up.

Main Results

Our cohort includes 126 neonates. Fifty nine (46%) were male. The median gestation was 38 weeks (range: 37-42+2) and median weight 3.2kg (range: 2-4.5). All were primarily referred for evaluation of bilious vomiting. Median age at contrast was 2 days (range: 0-8). Surgical review of the abdomen was normal in 97%. Ninety five percent underwent an abdominal radiograph and 100% an upper gastrointestinal contrast. Six (5%) neonates were malrotated (50% with volvulus). One hundred and two (80%) were diagnosed with sepsis; with 2 positive cultures and a mean CRP of 6.4mg/l. The remaining 18 (14%) were of unknown cause. Twelve (10%) neonates were reviewed at a surgical clinic; all were discharged at first appointment. There were no surgical re-admissions.

Conclusions

All term neonates with bilious vomiting require an upper gastrointestinal contrast study. Only 5% of our cohort had a surgical pathology. With the majority requiring no surgical intervention, the initial management could be undertaken by the neonatal team and discussed with a surgeon when necessary.

697 - MANAGEMENT OF GIANT OMPHALOCELE : SHOULD WE PAINT OR SHOULD WE CLOSE ?

Ulysse Laplanche, Arnaud Bonnard, Louise Montalva

Hôpital Universitaire Robert Debré, Paris, France

Aim of the study:

Two main strategies have been described for giant omphaloceles: surgery (including primary closing and silo confection) or the conservative alternative “paint and wait”, which has been introduced at our institution in 2009. The aim of the study was to compare outcomes of patients with GO managed using the surgical and conservative strategies.

Methods:

A retrospective monocentric study was performed including children with GO, defined as a defect size 5cm or liver >50% (2005-2022). Demographics, and outcomes including intensive care unit (ICU) stay, duration of mechanical ventilation, neonatal mortality (<30 days), need for reintervention, were compared between both groups. Ethical approval was obtained.

Results:

A total of 35 patients were treated for GO, diagnosed prenatally in 100%. Chromosomal disorders were present in 20% (n=7). Surgical management was performed in 22 patients (63%), including 11 which required a silo placement. A conservative strategy was used in 13 patients (37%), including eosin in 92%. Both groups were comparable in terms of baseline characteristics. The conservative strategy was associated with a shorter duration of ICU stay (6 vs 22 days, p=0.0003) and mechanical ventilation (0.5 vs 9 days, p=0.003). Neonatal mortality was similar in both groups (15% vs 14%, p>0.99). Rate of late reintervention for parietal issues was similar in both groups (23% vs 32%, p=0.7).

Conclusion :

Our study highlights that the conservative strategy of GO is associated with a shorter duration of mechanical ventilation and ICU stay, without increasing neonatal mortality.

780 - LONG-TERM FOLLOW-UP ON BOWEL ATRESIA: A PROSPECTIVE STUDY

Laura Valfre[1], Pietro Bagolan[2], Alberto Colasanti[2], Barbara Daniela Iacobelli[2], Fabio Fusaro[2], Federico Beati[1], Lucia Aite[1], Annabella Braguglia[1], Francesca Bevilacqua[1], Chiara Iacusso[1], Federico Scorletti[2], Andrea Conforti[1]

[1]Bambino Gesu Research Children's Hospital Neonatal Surgery, Rome, Italy. [2]Bambino Gesu Research children's Hospital neonat Surgery, Rome, Italy

OBJECTIVE:

Outcomes of patients treated for bowel atresia, duodenal atresia (DA) and jejuno-ileal atresia (JIA), are poorly explored. We report a prospective 1, 2- 5 years follow-up comparative study on DA and JIA.

METHODS:

All infants treated for DA and JIA between 2013-2023 were enrolled in a prospective multidisciplinary follow-up study. Demographic and auxological data, feeding behavior, neurodevelopment, need for gastrostomy, parenteral nutrition, readmission or re-intervention were assessed.

RESULTS:

During the study period 118 patients were treated (59 DA, 59 JIA). DA and JIA patients had similar gestational age [36vs35,p0.1], DA experienced higher prenatal diagnosis 81%vs58% p0.008, higher genetics and cardiac anomalies 24%vs7%,p 0.02 and 27%vs3%p 0.005.

DA present an improvement in auxological outcome between the first and second year: BMI 1y,16vs17 p 0.007,BMI 2y, 15,3vs5,9p0.5,BMI 5y14,8vs15,9 p0.5, an improvement in neurological outcomes :1y 24%vs7,p0.02;2y, 22%vs8%,p0.08, 5y 21%vs13%, p0.7. Feeding outcomes (7%vs6%,p1.0 and 2%vs3%,p1.0) , need of parenteral nutrition(1y: 0/59vs0/59; 2y 0/54vs0/39;3y 0/19vs0/15) gastrostomy 1y 7%vs7%;p1, 2y 5%vs5%,p1 and 5y 5vs0p1, GER 17%vs55,p 0.07 and readmission were similar between the two groups. Redo-surgery was more frequent in JIA in the 1y 5%vs20%p 0.02, while decreasing during the 2y 2%vs2%, p1.

CONCLUSION:

This is the first report of prospective long-term follow-up data on bowel atresia. Patients treated for DA, despite a worse syndromic associated anomalies, presents only a worse auxological and neurological outcome in the first year of life with similar results for the other parameters analyzed. Worse redo-surgery for patients with JIA in the first year of life.

668 - OCELOT STUDY: DEFINITIONS AND MEASUREMENT OF CORE OUTCOME SET (COS) FOR OESOPHAGEAL ATRESIA AND/OR TRACHEO-OESOPHAGEAL FISTULA (OA/TOF) PATIENTS

Eniola Folaranmi[1], Paul Cullis[2], Nigel Hall[3], Paul Losty[4], Nick Lansdale[5], Nadine Teunissen[6], Anna-May Long[7], Adam Donne[8], Laura Hopwood[8], Laura Baird[7], Julia Brendel[9], Victoria Gray[8], Lucy Bray[10], Graham Slater[11], Julia Faulkner[11], Sarah Gorst[4], Rebecca Thursfield[8]

[1]Noah's Ark Children's Hospital, Cardiff, United Kingdom. [2]Royal Hospital for Children & Young People, Edinburgh, United Kingdom. [3]University of Southampton, Southampton, United Kingdom. [4]University of Liverpool, Liverpool, United Kingdom. [5]Royal Manchester Children's Hospital, Manchester, United Kingdom. [6]Erasmus MC, Rotterdam, Netherlands. [7]Addenbrooke's Hospital, Cambridge, United Kingdom. [8]Alder Hey Children's NHS Trust, Liverpool, United Kingdom. [9]Hannover Medical School, Hannover, Germany. [10]Edge Hill University, Liverpool, United Kingdom. [11]TOFS Patient Support Group, Nottingham, United Kingdom

AIM OF THE STUDY

COS are important in standardising data collection to permit high quality clinical research. We aimed to define COS for OA/TOF and how they should be measured, applicable to those affected worldwide.

METHODS

- Proposal drafted by team lead primary investigator (PI) - (following comprehensive literature review)
- Steering committee (SC), International steering group (ISG) and consensus meeting experts review (n=50) were invited to critique / comment on proposal. Experts worked on a live document so interactive discussions were collated
- The SC assigned a responsible person per outcome with expertise in the specific area(s), tasked with amalgamating all comments to reach final definition(s).
- Final review by SC with universal agreements on key definitions and how to measure each COS
- Peer review by external experts not involved in the development of the COS

MAIN RESULTS

A COS of 14 outcomes was formulated with a steered focus on outcomes relevant to people born with OA/TOF and with international relevance. Debate over correct term definitions and ways to measure specific outcomes highlighted challenges where 'no gold standard exists' in clinical practice or health service research. With input from parents and patient support groups, agreement was attained on definition(s) and best ways to measure the 14 core outcomes for OA/TOF patients with approved experts and the SC.

CONCLUSION

Clear definitions and ways to best measure COS for OA/TOF will facilitate high quality evidence based research helping advance health care strategies for this vulnerable patient group.

103 - PEDIATRIC NUTRITIONAL SURGERY AND ITS IMPLICATIONS: RESULTS FROM A UNICENTRIC RETROSPECTIVE ANALYSIS.

Maria Stella Cipriani[1,2], Michela Ching Yu Wong[1], Stefano Avanzini[1,2], Paolo Gandullia[3], Girolamo Mattioli[1,2]

[1]Pediatric Surgery Department, IRCCS, Istituto Giannina Gaslini, GENOVA, Italy. [2]DINOGMI, University of Genoa, GENOVA, Italy. [3]Pediatric gastroenterology and endoscopy Department, IRCCS, Istituto Giannina Gaslini, GENOVA, Italy

AIM OF THE STUDY

The surgical management of nutritional problems in children is not well established yet. European Society for Gastroenterology, Hepatology, and Nutrition guidelines provide weak recommendations. The aim was to analyse the outcomes of different types of nutritional surgery in order to propose a management protocol.

METHODS

A retrospective analysis of children treated at our department from January 2015 to December 2019 was conducted. The sample was divided in two groups according to presence or absence of neurological impairment (NI). Patients with NI (Group 1) were classified in three subgroups based on presenting gastrointestinal symptoms: A-Dysphagia without gastroesophageal reflux (GER); B-GER with or without dysphagia; C-Symptoms associated with a delayed gastric emptying.

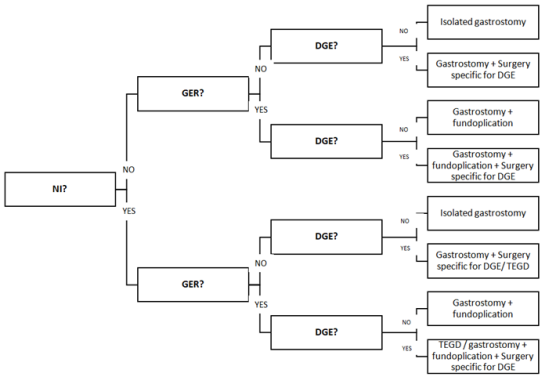
MAIN RESULTS

One-hundred-fifty-four patients were included, 111 with NI. One-hundred-twenty-eight patients (83.1%) underwent one procedure. A higher rate of re-intervention was found in Group 2. In subgroup A, isolated gastrostomy was the first nutritional surgery in all patients and 20% required a second procedure. In subgroup B most of patients were subjected to a Nissen fundoplication, while in 5 cases total esophagogastric dissociation (TEGD) was the first intervention. Considering the entire sample, 92.3% of patients who underwent a TEGD did not require further nutritional surgery procedures.

CONCLUSIONS

More than 15% of patients required multiple nutritional surgery procedures. Patients with dysphagia needed a second intervention more frequently compared to other groups. A multidisciplinary team propose a flowchart with some therapeutic indications in the management of patients who require nutritional support.

Fig. 1 Nutritional Surgery flowchart for patients with dysphagia.



581 - PEDIATRIC ESOPHAGEAL SURGERY IN GERMAN HOSPITALS: ANALYSIS OF NATIONWIDE HOSPITAL DISCHARGE DATA FROM 2016 TO 2022

Max Ungruh[1], Jochen Hubertus[1], Miriam Wilms[2,3], Anke Widenmann-Grolig[4], Reinhard Busse[5], Ulrike Nimptsch[5]

[1]Department of Pediatric Surgery, Ruhr-University Bochum, Marien Hospital Witten, Bochum, Germany. [2]University Hospital Düsseldorf, Department of General-, Visceral-, Thorax and Pediatric Surgery, Düsseldorf, Germany. [3]Patient Organization for People with Anorectal Malformations and Morbus Hirschsprung (SoMA e.V.), Munich, Germany. [4]Patient Organization for Esophageal Diseases (KEKS e.V.), Stuttgart, Germany. [5]Technische Universität Berlin, Department of Health Care Management, Berlin, Germany

Aim of the study

Esophageal atresia is a complex congenital malformation commonly associated with additional anomalies. Its surgical management is demanding, a multidisciplinary approach is necessary. Centralization and a minimum caseload number were promoted by the European reference Network ERNICA (Dingemann et al. 2019). However, the surgical care structure for EA in Germany remains decentralized (Elrod et al. 2021).

A volume-outcome-relation was previously shown for procedures of similar complexity in pediatric surgery such as the treatment of biliary atresia (Davenport et al. 2011) and congenital diaphragmatic hernia (Bucher et al. 2010) and also for esophageal surgery in adults (Nimptsch et al. 2018). This study aims to provide similar data for surgical treatment of EA.

Methods

DRG statistics provided by the German Federal Statistical Office were used to analyze all inpatient cases with EA from 2016-2022. Parameters of interest including diagnosis, procedures, length of stay and indicators for a complicated course were defined. A volume-outcome-relation was calculated regarding the hospital stay at the time of surgical treatment.

Main results

Preliminary results show a decentralized care structure for EA in Germany with most treating hospitals performing less than 2 respective procedures per year. Early postoperative complications were common. A volume-outcome-relation is likely, but the lack of high-volume centers poses a problem.

Conclusions

The care situation for EA in Germany is decentralized. Early postoperative complications are common. A volume-outcome-relation within Germany is difficult to establish due to the lack of high-volume centers. Centralization remains a key aim to improve quality of care.

89 - IMPACT OF COMPLICATIONS AND ASSOCIATED MALFORMATIONS ON COSTS IN ESOPHAGEAL ATRESIA PATIENTS DURING THE FIRST YEAR: A CLAIMS DATA ANALYSIS

Nagoud Schukfeh[1], Nicolas Pardey[2], Jochen Blaser[3], Jens Dingemann[1], Benno Ure[1], Jan Zeidler[2]

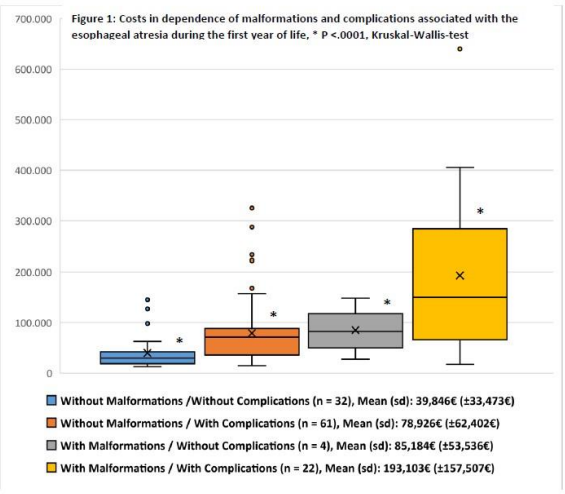
[1]Hannover Medical School, Hannover, Germany. [2]Center for Health Economics Research Hannover (CHERH), Leibniz University Hannover, Hannover, Germany. [3]Techniker Krankenkasse (Health Insurance)-Representative Office of Lower Saxony, Hannover,, Hannover, Germany

Aim: Esophageal Atresia (EA) is a rare disease often associated with comorbidities that requires early surgical repair. Our aim is to investigate hospital costs incurred by patients with EA during their first year and to identify cost drivers.

Methods: Claims data were provided by the Techniker Krankenkasse (~10.8 mio. clients) and extracted for patients treated in 2016-2020 with inpatient diagnosis of EA and reconstruction of the esophageal passage during their initial hospital stay. All patients were in their first year of life at initial hospital stay and were observed over one year. Costs were analyzed using descriptive statistics. Complications were defined as deviation from the normal postoperative course associated with EA repair. Associated malformations included vertebral, anorectal, cardiac, tracheal, renal, limb, diaphragmatic and small bowel defects. Multiple linear regression was used to analyze determinants of hospital costs.

MainResults: 119 newborns were included (55.5% male). Mean cost of the one-year observation period was 89,736€±97,419€ (range12,755€–640,154€). Two thirds of patients with EA alone versus almost all patients with associated malformations had EA-related complications. The presence of associated malformations combined with EA-related complications was associated with almost 5-fold higher costs than in patients without associated malformation and an uncomplicated course (193,103€±157,507€ vs 39,846€±33,473€, P <.0001,**Figure1**).

Conclusion: EA-associated complications double treatment costs during the first year of life. With presence of associated malformations, costs are almost 5 times higher than in uncomplicated cases without malformations. We conclude that it is presence of malformations in combination with complications that drive up costs.



714 - SURGICAL TREATMENT OF LONG GAP ESOPHAGEAL ATRESIA AFTER UNSUCCESSFUL PRIMARY REPAIR

Eugene Rudenko[1,2], Oleh Yanchuk[2]

[1]Bohomolets National Medical University, Kyiv, Ukraine. [2]National Specialised Children Hospital "Ohmatdyt", Kyiv, Ukraine

Aim of the Study.

Repairing long gap esophageal atresia (LG EA) poses a formidable challenge in pediatric surgery by itself. Because of modern techniques, such as the Foker process, correcting LG EA has become relatively easier and yields better results. More frequently, we encounter clinical cases where surgical intervention is completed by forming a cervical esophagostomy due to invincible diastasis between the segments.

Methods.

Retrospectively 5 clinical cases of separated esophagus with cervical esophagostomy were reviewed. In all cases, extrathoracic replacement of the oral esophageal segment was applied (Kimura process). The following surgical step involved a thoracalization of the oral esophageal segment with subsequent anastomosis or application of the Foker process, depending on the distance between segments.

Main results.

Each surgical intervention allowed to increase the length of the proximal esophagus by an average of 2 cm. From 3 to 5 surgeries were performed before consequent thoracalization. In two cases Foker process was performed due to proximal esophagus hypoplasia. Elongation duration to anastomosis took from 7 to 14 days. The average convergence of esophageal segments was approximately 2.4 mm a day. In all 5 cases the satisfying elongation was received, what made esophageal anastomosis end to end possible.

Conclusions.

Combination of Foker process and Kimura procedure is an effective method of growth induction in complicated cases of LG EA. This approach helps to save the patient's own esophagus after unsuccessful primary repair and facilitates an appropriate oral feeding.

121 - HEALTH LITERACY IN PARENTS OF CHILDREN WITH HIRSCHSPRUNG DISEASE

Signe Olsbo[1], Kristin Bjørnland[1], Marie Hamilton Larsen[2]

[1]Oslo University Hospital, Rikshospitalet, Oslo, Norway. [2]University of Oslo, Oslo, Norway

Aim:

This study aimed to explore health literacy (HL) in parents of children with Hirschsprung disease (HD) as this has not been studied previously.

Methods:

We invited Norwegian-speaking parents of all children (n=130) under 16 who had undergone HD surgery in our hospital to answer the Health Literacy Questionnaire (HLQ) parent version, the electronic Health Literacy-Scale and the General Self-efficacy Scale. Parental and child demographics were also recorded. Ethical approval was obtained.

Main results:

118 parents (71 mothers) of 83 children (mean age 7.2 years, SD 4.6) responded. The highest HLQ scores were found in the domains “understanding health information well enough to know what to do” and “active engagement”. The lowest scores were observed in the domains “feeling that healthcare providers understand and support my child’s health” and “appraisal of health information”. Higher education and age over 40 correlated with higher HLQ scores, while not speaking Norwegian at home and work absence were associated with lower scores. Maternal and paternal HLQ scores were comparable ($p>.05$). 72% of parents had high self-efficacy scores (defined as score >2, maximum score 4). Elevated self-efficacy correlated strongly with higher scores in all HLQ domains ($p<.001$). Parents demonstrated high electronic HL scores (mean 3.6, maximum score 5).

Conclusions:

HD parents feel that healthcare providers lack understanding of their child's challenges, and they express uncertainty in evaluating the information they are given. There is need for targeted efforts to enhance HL among non-native language-speaking parents and those with lower education levels.

230 - FUNCTIONAL SHORT BOWEL SYNDROME IN HIRSCHSPRUNG DISEASE

Donatella Di Fabrizio[1], Louise Montalva[1], Liza Ali[1], Dominique Berrebi[2], Matthieu Peycelon[1], Florence Julien-Marsollier[1], Arnaud Bonnard[1]

[1]Department of pediatric surgery, Robert Debré children's University Hospital, APHP, Paris, France.
[2]Department of pediatric surgery, Necker children's University Hospital, APHP, Paris, France

Objective:

The aim was to describe the characteristics and outcomes of children with HD and functional short bowel syndrome (SBS).

Methods:

A multicentric retrospective study including children with HD and functional SBS, defined as PN dependency, was performed (2003-2023). Demographics, surgical data, and follow-up were recorded. Type of HD was defined as total-intestinal-HD (TIHD:<20cm of ganglionated intestine beyond Treitz ligament) and small-intestinal-HD (SIHD:>20cm).

Results:

Seventeen patients were identified (41% female), with a familial history of HD in 35% and median follow-up of 7.4 years. Neonatal intestinal obstruction occurred in all patients, requiring diverting stoma at 6 (3-60) days, with a median Treitz to stoma length (TSL) of 50cm (range: 10-150). Final histology revealed transitional zone stoma in 71% (n=12), TIHD in 47% (n=8) and SIHD in 53%(n=9). In 47% (n=8), concomitant aganglionic intestine resection was performed.

A pull-through was performed in 29% (n=5), at median age of 4.8 years. The initial TSL was higher in patients that underwent pull-through (120cm,range:50-145 cm), compared to those that remained with a stoma (35cm, range:10-150cm;p=0.03). Persistent obstruction required reintervention for diverting stoma in 80% (n=4), 5 (1-39) months after pull-through.

Out of 12 patients without pull-through, 66% (n=8) presented obstructive symptoms and 42% (n=5) required reintervention for redo-stoma.

Two TIHD patients underwent a jejunal myotomy and 1 SIHD patient underwent a Serial transverse enteroplasty (STEP).

Conclusion:

Functional SBS can occur in both TIHD and SIHD. Larger, multicentric studies are required to define risk factors and optimal therapeutic management for patients with SBS and HD.

557 - PROTEASE ENZYME INHIBITOR CREAM (DIAPO-CARE®) OR STANDARD TREATMENT (BEPANTHEN®) FOR PREVENTION OF PERIANAL DERMATITIS AFTER COLORECTAL SURGERY IN INFANTS

I.K. Schokker-van Linschoten[1], D. Huijgen[1], H.P. Versteegh[1], J.G.H Ruseler-van Embden[2], L.M.C. van Lieshout[2], J.D. Laman[2], C.E.J. Sloots[1]

[1]Department of Pediatric Surgery, Erasmus University Medical Center - Sophia Children's Hospital, Rotterdam, Netherlands. [2]Department of Immunology, Erasmus University Medical Center, Rotterdam, Netherlands

Aim of the study

Perianal dermatitis (PD) frequently occurs following pediatric colorectal surgery despite preventive measures. This study aims to establish the effectiveness of Diapo-Care® (a protease enzyme inhibitor cream) in preventing PD after colorectal surgery in infants.

Methods

In this double-blind, single-center, randomized controlled trial, 30 consecutive infants who underwent colorectal surgery were 1:1 randomized to either the intervention group (Diapo-Care®) or control group (Bepanthen®). The preventive creams were applied after each diaper change for four weeks postoperatively. Photographs of the perianal region were evaluated for the presence of PD at two and four weeks using a severity scale of 0 to 6, as established by Buckley et al. If PD developed, parents were given the option to discontinue the study. The primary outcome was the presence and severity of PD during the first four postoperative weeks.

Main results

From November 2020 to March 2023, 30 patients were included. One patient dropped out after randomization, resulting in 14 Diapo-Care® and 15 Bepanthen® patients. Twenty patients (68.9%) developed PD, 9 (64.3%) in the Diapo-Care® group, and 11 (73.3%) in the Bepanthen® group (p=0.7). Thirteen patients suffered severe PD (score ≥4), and seven patients had non-severe PD. Twelve patients discontinued the study because of PD development.

Conclusions

This study highlights the significant issue of postoperative PD, which affects nearly 70% of infants after colorectal surgery, despite prevention with Diapo-Care® (a protease enzyme inhibitor cream) or Bepanthen®. Further studies should elicit whether Diapo-Care® is effective in the treatment of perianal dermatitis.

569 - LONG-TERM BOWEL FUNCTION OUTCOMES IN ADOLESCENTS AND YOUNG ADULTS WITH ANORECTAL MALFORMATIONS: A PROSPECTIVE STUDY OF 25 PATIENTS

Cunera de Beaufort[1], Adinda Pijpers[1], Caroline Kuijper[2], Olga Arguedas Flores[2], Judith Dekker[3], Sjoerd de Beer[1], Ernst van Heurn[1], Justin de Jong[1], Ramon Gorter[1]

[1]Emma Children's Hospital Amsterdam UMC, location University of Amsterdam, Department of Pediatric Surgery, Amsterdam, Netherlands. [2]Emma Children's Hospital Amsterdam UMC, location University of Amsterdam, Department of Pediatric Urology, Amsterdam, Netherlands. [3]Amsterdam UMC, location University of Amsterdam, Department of Obstetrics and Gynecology, Amsterdam, Netherlands

Aim of the study

To provide an overview of the bowel function outcomes of adolescents and young adults (AYA) with an anorectal malformation (ARM).

Methods

Data from all patients participating in the Lifelong guidance program were prospectively gathered. Patients enrolled in this program from January 2021 to December 2023 were eligible for inclusion. For this study, data on the gastrointestinal function obtained from 3 questionnaires (i.e. physical health, incontinence, and Groninger DeFeC) were analysed. Main outcomes were gastrointestinal outcomes such as potential problems with defecation and/or accidental stool loss (e.g., soiling, staining).

Main results

Twenty-five patients participated in this project with a median age of 18.0 years (IQR 17.0-18.0). Abdominal pain or cramps were reported in 12/25 patients, of which nine patients experienced this monthly and three weekly. Accidental stool loss occurred in 7/25 patients, of which soiling occurred in 5 patients and solid stool loss in two. Five/25 patients reported monthly loss of diarrhoea. Some patients required laxatives (n=4), an enema (n=1), or rectal rinsing (n=5) to properly evacuate stool. Of the patients that experience difficulty losing defecation, n=9/12 talked with someone about it, of which four with family and five with medical specialists.

Conclusions

Defecation problems were frequently reported in AYA's with ARM. This emphasizes the need for continuous monitoring and guidance of ARM patients highlighting the importance of a sufficient lifelong guidance and transition of care protocol.

870 - NECROTIZING ENTEROCOLITIS AND CONGENITAL CARDIOPATHIES: DIFFERENCES IN PRESENTATION AND OUTCOME

Raquel Mena, José Andrés Molino, Alejandra Castrillo, Sergio López, Anna Creus, Alicia Montaner, Marta Martos, Manuel López, Gabriela Guillén

Hospital Universitario Vall d'Hebron, Barcelona, Spain

AIM OF THE STUDY

Necrotizing Enterocolitis (NEC) is a main cause of neonatal morbimortality. Two of the main contributing factors are gut prematurity and ischemia-reperfusion, and both characterize two different scenarios: prematurity and congenital cardiopathy (CC). Our aim is to investigate whether CC worsens NEC gastrointestinal and general prognosis.

METHODS

NEC episodes from 2015-2023 were reviewed and classified into CC and non-CC. Patients with isolated intestinal perforation were excluded. Data regarding NEC debut and management, surgical timing, intestinal segment involved and nutritional outcomes were compared.

MAIN RESULTS

Out of 205 neonates, 15 were excluded for unavailable records or uncertain diagnosis. 190 cases were included, 59 with CC. Comparing CC and non-CC, no significant differences were found in weight or age at diagnosis, or NEC stage. CC patients at debut presented more often with haemodynamic (HD) instability or shock (24.43% vs 38.98 ($p<0.05$)) and need for vasoactive support (23.66 vs 44.07 ($p<0.05$)). No differences were found regarding need for surgery at debut, length of resected intestine or segment affected or days on parenteral nutrition. CC conditioned longer hospital stay (110.8±68.4 days vs 68.4±44.6 ($p<0.05$)) and higher mortality (30.5 vs 11.5 ($p<0.05$).

CONCLUSIONS

NEC in CC patients presents more HD instability at debut and worse global prognosis, probably due to inherent cardiovascular compromise, but need for surgery, type of intestinal involvement and nutritional outcomes are similar to non-CC NEC.

4 - SAFETY AND FEASIBILITY OF INDOCYANINE GREEN FLUORESCENCE ANGIOGRAPHY IN PEDIATRIC GASTROINTESTINAL SURGERY: A SYSTEMATIC REVIEW

Eline Breuking[1], Otis van Varsseveld[2], Marc Harms[3], Stefaan Tytgat[1], Jan Hulscher[2], Jetske Ruiterkamp[1]

[1]University Medical Center Utrecht, Utrecht, Netherlands. [2]University Medical Center Groningen, Groningen, Netherlands. [3]Stryker Endoscopy, Amsterdam, Netherlands

Background
Although ICG-FA may be valuable in assessing anastomotic perfusion, reliable data on its use in pediatric gastrointestinal surgery is lacking. This systematic review analyzes whether ICG is useful for intestinal perfusion assessment in pediatric gastrointestinal surgery and safe to use in neonates.

Methods
Systematic searches of PubMed, EMBASE & MEDLINE and CENTRAL were performed (last conducted December 6, 2021). The main inclusion criteria were (1) use of ICG for intestinal perfusion assessment and (2) use of ICG in young infants. Exclusion criteria were lack of an English or Dutch full-text and MINORS quality score <60%. Data was presented in overview tables. The usefulness in pediatric gastrointestinal surgery was assessed by surgical outcome. Safety of ICG in neonates was assessed by complication or adverse event occurrence.

Results
Regarding intestinal perfusion assessment, four studies were included, reporting 45 patients (median age 1.5 years). ICG was considered useful for anastomotic blood flow evaluation and intraoperative determination of resection length. Regarding ICG safety in neonates, eight studies were included, reporting 46 infants (median age 24.9 days), of which 18 neonates. All but one studies reported the absence of complications or adverse events. Two studies reported subcutaneous dye retention, which fully disappeared within two weeks.

Conclusion
Although the number of available studies is small, ICG might be useful for intraoperative intestinal perfusion assessment, perhaps even more than conventional clinical assessment. Furthermore, its safety profile looks promising in neonates. Larger prospective studies are necessary to confirm these assumptions and seem warranted given the safety profile.

Table 2
Overview of literature regarding the safety of intraoperative use of ICG in neonates.

Study	Country, Study interval	Study design	Disease treated	n	Procedure	Median age at surgery	ICG dose	ICG type	Administration route	Complications/adverse events	Follow-up (days), minimum	Other remarks
Haga 2020 [19]	Japan, 2019	Case report	Chylothorax	1	Lipiodol lymphan-giography	59 days	0.1–0.2 mL (0.125–0.25 mL/kg)	Lipiodol	Subcutaneous injection	No complications	276	–
Hayashida 2019 [20]	Japan, 2019	Case report	Chylothorax	1	ICG lym-phography	38 days	0.2 mL	Diagno-green 0.5%	Subcutaneous injection	No complications or adverse events	82	–
Hirayama 2015 [21]	Japan, 2012–2014	Prospective study	Biliary atresia type III	5	HPE	42 days (31–75)	0.1 mg/kg	ICG	Intravenous injection	No hypersensitivity reactions or other adverse events	25	–
Mihara 2015 [22]	Japan, 2012	Retrospective study	Postoperative LPEA	8	ICG lym-phography	2.9 months (0.5–7)	0.04 mL	Diagno-green 0.05%	Subcutaneous injection	No perioperative and postoperative complications	Unknown	–
Shibasaki 2014 [23]	Japan, 2011–2013	Prospective study	Congenital LPEA	10	ICG lym-phography	67.6 days (1–275)	0.1 mL (0.25 mg)	Diagno-green 0.25%	Subcutaneous injection	Change in skin color because of the ICG for 1–2 weeks	30	2 patients died because of the disease
Shirotsuki 2018 [24]	Japan, 2014–2017	Retrospective study	TEF ($n = 10$), chylothorax ($n = 3$)	10	TEF repair ($n = 8$), postoperative chylothorax repair ($n = 3$)	2.0 days (1.0–10.0)	0.025 mg	Diagno-green	Subcutaneous injection	Retention of the injected dye for several days	11	–
Tan 2014 [16]	USA, 2012	Case report	Chylothorax	1	NIRF lymphatic imaging	5 weeks	0.05 mg	ICG (50 mcg in 2cc of saline)	Subcutaneous injection	No adverse events associated with the imaging, no apparent reactions to the ICG	N/A	Patient died because of the disease
Yanagi 2019 [25]	Japan, 2017–2018	Retrospective study	Biliary atresia type I ($n = 2$), type III ($n = 8$)	10	Kasai PE ($n = 9$), HJS ($n = 1$)	74.8 days (48–122)	0.5 mg/kg	ICG	Intravenous injection	No report on complications/adverse events	22	–

Abbreviations: HPE, hepatoportoenterostomy; HJS, hepaticojejunostomy; LPEA, lymphatic pleural effusion and ascites; PE, portoenterostomy; TEF, tracheoesophageal fistula.

738 - DIAGNOSTIC VALUE OF CELLULAR INDICES IN THE STUDY OF THE PATIENT WITH SUSPECTED CROHN'S DISEASE.

Julio César Moreno-Alfonso[1,2], Ada Molina Caballero[1], Sara Hernández Martín[1], Alberto Pérez Martínez[1], María Concepción Yárnoz-Irazábal[1]

[1]Hospital Universitario de Navarra, Pamplona, Spain. [2]Universidad Pública de Navarra (UPNA), Pamplona, Spain

Aim of the study:

To describe the diagnostic utility of cellular indices in Crohn's disease (CD).

Methods: Diagnostic study of patients aged 0-15 years undergoing esophagogastroduodenoscopy ± colonoscopy for suspected inflammatory bowel disease between 2015-2022 in a children's hospital. Patients with normal biopsy and histopathological diagnosis of CD were included. Using the area under the ROC curve, the values of the neutrophil-lymphocyte ratio (NLR), derived neutrophil-lymphocyte ratio (dNLR) and platelet/lymphocyte ratio (PLR), obtained from the ratio between the number of neutrophils and platelets and lymphocytes, were compared to establish the sensitivity, specificity, predictive values and Odds Ratio of each parameter.

Main results: Thirty-six patients were included: 22 with CD and 14 with normal biopsy. NLR, dNLR and PLR values were significantly higher in patients with CD (p= <0,01). The sensitivity, specificity and positive predictive value of NLR, dNLR and PLR to diagnose CD were 90%, 81% and 81%; 64%, 78% and 92%; 80%, 85% and 94%, respectively. The biomarker with the highest diagnostic accuracy was PLR with a cut-off point of 155.35, area under the curve of 0.945 and Odds Ratio of 58.5 (95%CI 5.8-586.1; p= 0.0005).

Conclusions: PLR presents high specificity, predictive value and Odds Ratio in the diagnosis of Crohn's disease, this could help to prioritize endoscopic studies in patients with values >155.35 or to raise less invasive initial tests in those with an IPL ≤155.35.

281 - NECROTIZING ENTEROCOLITIS: IS PORTAL VENOUS GAS STILL SCARY? PROGNOSTIC EVALUATION OF INFANTS WITH NEC. SINGLE-CENTER EXPERIENCE.

Edoardo Bindi[1,2], Ilaria Acquaviva[3], Ilaria Burattini[3], Giovanni Cobellis[1,2]

[1]Department of Pediatric Surgery, Salesi Children's Hospital, Ancona, Italy. [2]University Politecnica of Marche, Ancona, Italy. [3]Department of Neonatology, Salesi Children's Hospital, Ancona, Italy

Objective:

To evaluate the outcomes of infants diagnosed with necrotizing enterocolitis (NEC) and portal venous gas (PVG) concerning intestinal resection and mortality.

Methods:

Data from infants admitted to the NICU of our center between 2013 and 2023 with a diagnosis of NEC (Bell stage II or III) were prospectively collected and retrospectively reviewed. Patients were divided into two groups: PVG and non-PVG on the X-ray. Data analysis utilized GraphPad Prism10, expressing values as mean ± SD and median (25°-75°pct). Statistical tests included the chi-square test and Student's t-test. The level of significance was P <.05.

Results:

57 infants were diagnosed with NEC, with a 44% incidence of PVG. The PVG and non-PVG groups showed comparable gestational age and birth weight. Bell stage III NEC occurred more frequently in infants with PVG (64% vs 34%, **P=.026**). Of the infants with NEC, 56% underwent an operation (OP). Those with PVG were more likely to undergo OP (72% vs 44%, **P=.033**), and bowel resection length was greater (**P=.039**). Mortality was higher in infants with PVG (32% vs 13% P =.104), although not significant, as well as the anatomical small bowel was more prevalent after OP in infants with PVG (22% vs 7%, P=.354). In the multivariate regression model, severe NEC, but not PVG, was significantly associated with OP (**P = .0017**).

Conclusions:

In our study infants with NEC and PVG experience more severe NEC, are more likely to undergo surgical intervention, and have poorer outcomes in terms of the extent of intestinal resection.

320 - EVALUATION OF THE HISTOPATHOLOGY OF FISTULA IN MALE PATIENTS WITH ANO-RECTAL MALFORMATIONS

Anand Pandey, Shubhajeet Roy, Preeti Agarwal, Nirpex Tyagi, Nitin Pant, Piyush Kumar, Jiledar Rawat

King George's Medical University, Lucknow, India

Aim of the study:

In the male anorectal malformation (ARM) there is a fistulous connection between the gastro-intestinal tract and urinary tract. Diverse views regarding the histopathology of the fistula reflects the controversy whether it can be preserved or not, for creation of the neoanus.

Methods:

Male patients of ARM with fistula, who underwent a posterior-sagittal anorectoplasty, over a period of 18 months were included. The tissue specimens consisting of 0.5–2.0 cm of the most distal part of the rectal pouch and the proximal portion of the recto-vesical or recto-urethral connection. After processing into transverse and longitudinal sections, haematoxylin and eosin-stained paraffin sections were prepared. Histological features of the fistula were evaluated.

Results:

We evaluated 24 patients. Internal sphincter was not found in any sample. Transitional epithelium was seen in 10 (41.67%) samples, anal glands were seen in 22 (91.67%) samples, anal crypts were seen in 4 (16.67%) samples, and ganglion cells were seen in 6 (25.00%) samples. Histopathological changes like subepithelial fibrosis were seen in 24 (100%), and thickened nerve trunks were seen in 4 (16.67%) samples. Metaplasia was noted in 8 (33.33%) samples.

Conclusions:

The anal morphology was distorted in the fistula samples (all normal anal histological features could not be found together in a fistula), and no evidence of internal anal sphincter muscles could be found in any sample. Histopathological findings like subepithelial fibrosis, thickened nerve trunks, and metaplasia further suggest against the preservation and possible use of the fistulous tissue for reconstructive purposes.

192 - IMPACT OF GENOTYPE ON SURGICAL MANAGEMENT OF CHILDREN WITH FAMILIAL ADENOMATOUS POLYPOSIS

Linara Khabibullina, Olga Shcherbakova

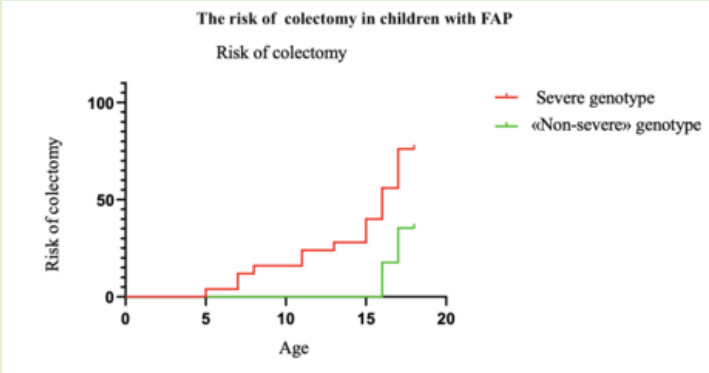
Clinical Hospital Pirogov Russian National Research Medical University, Moscow, Russian Federation

Genetic testing of patients with FAP is extremely important. It allows to confirm the diagnosis and predict the severity and course of the disease. The aim of this study is to analyze the genotype-phenotype correlation in children with FAP, and the association of genotype with the risk of colectomy in childhood.

Materials and methods: This observational study included of patients with FAP younger than 18 years with pathogenic variants of the *APC* gene, who were in our clinic from 2000 to 2023. Two groups were formed: patients of the severe and "non-severe" genotype (classic and attenuated). We analyzed the correlation of genotype with sex, age of onset of the disease and first colonoscopy, family history, symptoms and characteristics of adenomas, age at the time of surgery and the fact of colectomy before 18 years.

Results: This study included 42 children (25 – with severe and 17 – with «non-severe» genotype). Patients with the severe genotype were more likely to have a higher likelihood of carpeting of polyps, than children with the «non-severe» genotype (OR = 6.2, 95% CI 1.67 – 25, p = 0.01) and a higher likelihood of the probability of colectomy (OR = 5.8, 95% CI 1.56 – 22, p = 0.01). The risk of colectomy was higher in patients with severe genotype than in patients with «non-severe» genotype, 76% vs 34% (HR = 3.25, 95% CI 1.5 – 8.5, p = 0.003) (Figure).

Conclusion: our study demonstrated that patients with severe genotype have a higher risk of colectomy before 18 years.



266 - SHORT-TERM POSTOPERATIVE COMPLICATIONS IN NEC PATIENTS – A MULTICENTER RETROSPECTIVE COHORT STUDY OF 401 PATIENTS.

Ceren Imren[1], Adinda Pijpers[2], Otis Van Varsseveld[3], Laurens Eeftinck Schattenkerk[2], Jan Hulscher[3], Elisabeth Kooi[3], Chris van den Akker[2], Joost van Schuppen[2], Jos Twisk[4], Marijn Vermeulen[1], Joep Derikx[2], Claudia Keyzer-Dekker[1]

[1]Sophia Children's Hospital, Erasmus MC, Rotterdam, Rotterdam, Netherlands. [2]Emma Children's Hospital, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, Amsterdam, Netherlands. [3]Beatrix Children's Hospital, University Medical Center Groningen, Groningen, Netherlands. [4]Department of Epidemiology and Biostatistics, Amsterdam, Netherlands

Aim of the study Approximately 60% of patients diagnosed with necrotizing enterocolitis (NEC) undergo surgical intervention. The reported incidences of postoperative complications vary greatly, complicating parental counseling. This study aims to delineate short-term surgical complications, short bowel syndrome (SBS), and intestinal failure after surgery for NEC.

Methods A multicenter cohort study was conducted from 2008-2022, encompassing patients treated surgically for NEC. Complications occurring within 30 days post-surgery were categorized according to the Clavien-Madadi (CM) classification as mild (CM<3), severe (CM 3-4), or resulting in death (CM5).

Main results Median follow-up duration was 23.0 [IQR: 6.0-67.0] months. Out of 401 included patients, 75 (19%) succumbed to NEC totalis after an 'open-and-close' procedure. Among 326 patients without NEC totalis, 240 underwent enterostomy, and 110 received a primary anastomosis (See Table). Complications arose in 46% (N=144/326) of patients: 13% (N=41/326) had CM<3, 13% (41/326) had CM 3-4, and 19% (N=62/326) had CM5 (death). The most frequently occurring complications were high output stoma 22% (N=53/240), and stricture 18% (N=20/110) or leakage 10% (N=11/110) after primary anastomosis. Acute redo-surgery occurred in 15% (N=20/326) of cases. Intestinal failure was observed in 18% (N=57/326) of patients, SBS in 17% (N=54/326), with 36 patients exhibiting both conditions.

Conclusion Postoperative complications within 30 days affected 46% of surgically treated NEC patients, with 15% requiring multiple surgeries. One-third of patients died within 30 days – of whom 55% after an open-and-close procedure. Further understanding of patient-specific risk factors for NEC totalis, postoperative complications, and mortality is essential to optimize parental counseling both pre- and postoperatively.

Table 1: Primary surgical treatment for NEC

'Open-and-close' procedure for NEC totalis	75/401 (18.7%)
Primary anastomosis	81/326 (24.8%)
Stoma	207/326 (63.5%)
Anastomosis and stoma	29/326 (8.8%)
Peritoneal drainage without further intervention	1/326 (0.3%)
Peritoneal drainage and stoma	4/326 (1.2%)
Overstitching of perforation (small bowel)	1/326 (0.3%)
No resection	3/326 (0.9%)

692 - CLASSIC DIVIDED SIGMOIDOSTOMY VS LOOP SIGMOIDOSTOMY IN ANORECTAL MALFORMATIONS: TIME FOR CHANGE?

Carla Ramirez-Amoros[1], Catarina Carvalho[2], María San Basilio[1], Miriam Maestre[1], Irene Diez[1], Leopoldo Martinez[1], Jose Luis Encinas[1], Alejandra Vilanova-Sanchez[1]

[1]La Paz Children's University Hospital, Madrid, Spain. [2]Centro Materni Infantil Do Norte, Porto, Portugal

Aim of study

Divided sigmoidostomy (DS) is the most common stoma performed in patients with anorectal malformations (ARM). Loop sigmoidostomies (LS) have been associated with higher risk of stoma prolapse and urinary tract infections (UTI). However, this has not been clearly supported by literature. Our aim is to compare our experience with both techniques.

Methods

Retrospective study of ARM patients who underwent DS or LS between 2013-2023. We analysed demographics, associated malformations, surgical and anaesthetic time, time to oral intake and stoma functioning, hospital stay, stoma prolapses, and UTI.

Results

Of 40 patients, 29 underwent open DS and 11 laparoscopic LS. There were no differences in demographics, type of malformation, associated anomalies, surgical time, intraoperative or anaesthetic complications. There were more postoperative complications in DS compared to LS [14(48.3%) vs 1(9.1%), (p=0.02)], mostly at the expense of wound complications [12(41.3%) vs 0(0%), (p=0.01)]; of which 3 dehiscences and 3 strictures were reintervened. The hours to oral intake and stoma functioning were higher for DS [48(39-90) and 48(24-48) vs 24(24-48) and 24(24-24), (p<0.05)], with more days of hospital stay [36(19-60) vs 8(5-10), (p=0.001)]. There were no differences in prolapses [1(3.4%) vs 1(9.1%)] or UTIs [3(10.3%) vs 1(9.1%) (p>0.05)].

Conclusion

Contrary to the expectations, LS in ARM patients have no higher risk of prolapse or UTI compared to the classic DS. Furthermore, DS had more postoperative complications mostly at the expense of wound infections, strictures and dehiscences.

732 - LONG-TERM UROLOGICAL, COLORECTAL AND GYNECOLOGICAL OUTCOMES IN PATIENTS WITH CLOACAL MALFORMATION

Carla Ramirez-Amoros, Maria San Basilio, Virginia Amesty, Ricardo Mejia, Arturo Almeyda, Leopoldo Martinez, Maria Jose Martinez-Urrutia, Alejandra Vilanova-Sanchez

La Paz Children's University Hospital, Madrid, Spain

Aim of study

There is very little information available on the long-term functional results of patients with cloacal malformations. We aimed to summarise these long-term results in a tertiary reference center.

Methods

Retrospective review of the long-term urological, bowel and gynaecological outcomes of cloaca patients treated at our institution from 1980-2010.

Results

We analysed 11 females with cloacas, with a mean current age of 22.76±7.40 years. Eight (73%) had associated malformations and 3 (27%) had spinal or sacral anomalies.

All patients underwent a stoma in the neonatal period. In 10 (91%) it was possible to close it at a mean age of 2.17(0.71-2.31) years. Of these, 8 (80%) reached faecal continence at 10.43±3.10 years of age, although 1 depends on laxatives and 5 on enemas.

In terms of urinary continence, 4(36%) patients required a Mitrofanoff aged 8.35±6.99 years and 1(9%) patient a bladder augmentation. Of the patients without Mitrofanoff, 3(42%) require Intermitent urethral catheterization (CIC). These patients on CIC either through the Mitrofanoff or urethra, remain dry. Lastly, 3(27%) patients have received a renal transplant.

Three (27%) patients required a vaginoplasty and 4(36%) an external genitoplasty at a later stage. Eight (73%) presented Mullerian anomalies and 9(82%) are menstruating with a mean menarche of 13.07±2.33 years.

Conclusion

Long-term faecal and urinary continence outcomes appear to be good in cloacas. Although they need multiple and complex reconstructive surgeries most of these patients can remain clean and dry and menstruate normally.

745 - LONG-TERM GASTROINTESTINAL AND GENITOURINARY DYSFUNCTION IN HIRSCHSPRUNG DISEASE PATIENTS.

Yuichiro Miyake[1,2], Suyin A. Lum Min[1], Atsuyuki Yamataka[2], Richard Keijzer[1]

[1]University of Manitoba, Department of Surgery, Division of Pediatric Surgery and Children's Hospital Research Institute of Manitoba, Winnipeg, Canada. [2]Juntendo University School of Medicine, Department of Pediatric General and Urogenital Surgery, Tokyo, Japan

Aim of this study

This study evaluates the prevalence of gastrointestinal and genitourinary symptoms in Hirschsprung disease (HD) patients after surgery compared to healthy controls with subgroup analyses according to length of aganglionosis and surgical method.

Methods

We performed a retrospective case-control study of children diagnosed with HD between 1991-2022. International Classification of Disease (ICD) codes were used to identify gastrointestinal and genitourinary outcomes. Risk ratios (RR) were calculated for cases versus controls and for subgroups of cases.

Main results

We identified 94 HD cases and 940 date-of-birth matched controls. There were 75 short-segment HD and 19 long-segment HD; 23 cases underwent the Duhamel procedure while 71 cases had a Swenson.
HD cases suffered more constipation (RR=3.81, 95%CI:2.95,4.93, p<0.001), symptoms of digestive system (RR=3.23, 95%CI:2.48,4.23, p<0.001), symptoms of urinary system (RR=8.74, 95%CI:1.18,64.7, p=0.034) and abdominal pain (RR=2.55, 95%CI:0.08, 3.13, p<0.001) than controls. However, cases were not more likely to have urinary tract infections than controls (RR=1.1, 95%CI:0.78,1.57, p=0.61). Short-segment HD was associated with a higher risk of constipation than long-segment HD (RR=2.78, 95%CI:1.14,6.79, p<0.001) and patients undergoing the Duhamel had a higher incidence of abdominal pain (RR=1.46, 95%CI:1.08,1.98, p=0.049).

Conclusions

HD patients had a greater risk of gastrointestinal and genitourinary symptoms after surgery compared to controls, but were at no greater risk for urinary tract infections. Length of disease and type of surgery generally did not affect outcomes although short-segment HD were at greater risk of constipation and the Duhamel was associated with more abdominal pain.

	HD patients vs. Controls			Short-segment type vs. long-segment type			Duhamel procedure vs. Swenson procedure		
Outcome (ICD-9 code)	Risk ratio	95%CI	*p* value	Risk ratio	95%CI	*p* value	Risk ratio	95%CI	*p* value
Constipation (564)	3.81	2.95, 4.93	<0.001	2.78	1.14, 6.79	0.004	1.02	0.65, 1.61	>0.9
Symptoms of digestive system (787)	3.23	2.48, 4.23	<0.001	1.34	0.71, 2.51	0.44	0.58	0.30, 1.13	0.09
Abdominal pain (789)	2.55	2.08, 3.13	<0.001	0.83	0.58, 1.20	0.44	1.46	1.08, 1.98	0.049
Urinary tract infection (590, 595, 599)	1.11	0.78, 1.57	0.61	1.13	0.55, 2.36	0.79	1.94	0.65, 5.79	0.26
Symptoms of urinary system (788)	8.74	1.18, 64.7	0.034	3.80	0.54, 27.0	0.18	0.44	0.11, 1.80	0.34

Fisher's exact test

766 - INTER-OBSERVER VARIATION IN THE ASSESSMENT OF PREOPERATIVE CONTRAST STUDY IN PATIENTS WITH NECROTIZING ENTEROCOLITIS: A NATIONWIDE SURVEY.

Elisa Zambaiti[1], Camilla Pagliara[2], Pietro Lopa[3], Marta Bisol[3], Piergiorgio Gamba[3], Paola Midrio[4]

[1]Pediatric Surgery, Regina Margherita Children's Hospital, Torino, Italy. [2]Pediatric Surgery, IRCSS Burlo Garofolo, Trieste, Italy. [3]Pediatric Surgery, Department of Women's and Children's Health, Padova, Italy. [4]Pediatric Surgery, Ca' Foncello Hospital, Treviso, Italy

Aim

Intestinal stricture following necrotizing enterocolitis (NEC) can occur in up to one-third of neonates. Contrast studies are commonly performed before restoring intestinal continuity to determine the presence of stenosis. However, reliability and accuracy are extremely variable depending on the position of the stenosis and experience of the interpreter. This study aimed to evaluate inter-observer variation in the assessment of contrast studies following NEC.

Methods

A structured survey with 37 recordings of post-NEC radiological contrast studies has been created. Recruitment of experts in the field was done by National Society mailing lists and responders were asked to interpret each recording defining the presence/absence of stricture and its localization. Inter-observer concordance and accuracy, based on actual presence of the stricture during surgery, has been evaluated with Fleiss K and Cohen K respectively.

Results

A total of 39 specialists filled the questionnaire, both pediatric surgeons (27) and pediatric radiologists (12). In the recordings, 13 patients had a colonic stricture and 8 an ileal stricture. Overall inter-observer concordance was moderate (FleissK 0.54; IC95% 0.47-0.61), regardless of the type of specialists (surgeon or radiologist) and the volume of the center (more or less than 10 contrast/year). Overall accuracy on interpreting the contrast study was 0.30 (IC95% 0.04-0.56) with better results for colonic stricture (0.63; IC95% 0.38-0.87) than ileal ones (0.18; IC95% 0-0.41).

Conclusion

Interobserver concordance in the assessment of post-NEC contrast studies is moderate, with higher accuracy on identifying colonic stricture.

	Over-all	P. Surgeons	P. Radiologists	< 10	> 10
% agreement	63.4	64.1	61.3	66.1	60.7
Inter-observer concordance (Fleiss_k; IC95%)	0.54 (0.47 - 0.61)	0.55 (0.48 - 0.63)	0.52 (0.43 - 0.60)	0.58 (0.50 - 0.66)	0.51 (0.44 - 0.58)
Total accuracy (Cohen_k; IC95%)	0.30 (0.04 - 0.56)	0.29 (0.03 - 0.55)	0.32 (0.05 - 0.59)	0.32 (0.06 - 0.58)	0.28 (0.12 - 0.55)
Ileal accuracy (Cohen_k; IC95%)	0.19 (0 - 0.42)	0.18 (0 - 0.41)	0.21 (0 - 0.42)	0.19 (0 - 0.39)	0.19 (0 - 0.44)
Colonic accuracy (Cohen_k; IC95%)	0.63 (0.38 - 0.88)	0.61 (0.35 - 0.86)	0.69 (0.45 - 0.91)	0.64 (0.38 - 0.88)	0.63 (0.38 - 0.87)

862 - SPINAL MRI IN ADDITIONAL PRONE POSITION IMPROVES DETECTION OF TETHERED CORD IN CHILDREN WITH CAUDAL DEFECTS

Cordula Scherer[1], Katharina Lutz[2], Sebastian Grunt[3], Milan Milosevic[1], Steffen Berger[1]

[1]Department of pediatric surgery university hospital of Bern, Bern, Switzerland. [2]Department of neurosurgery university hospital of Bern, Bern, Switzerland. [3]Department of Paediatrics, Inselspital, Bern University Hospital, Bern, Switzerland

Aim of the Study

Tethered cord is diagnosed in children from clinical signs and radiological results. Spinal MRI in supine position is a diagnostic standard in children with anatomic predispositions (ARM, VACTERL, sacral porus, sacral hemangioma) and/or neurologic signs (neurogenic bladder, neurological deficits of lower limbs). We perform spinal MRI in supine and prone position at our institution since 2018 aiming to improve diagnostic accuracy, a retrospective analysis.

Methods

A cohort of 56 children (mean age 6.8 years) received spinal MRI in supine and prone position for suspected tethering from 2018-2023 in a 1.5 or 3 T scanner (40 min for both positions including change). We compared data from a supine position evaluation only to those from supine and prone position evaluation.

Main results

The majority (66%) had a normal conus tip position. Ventral conus motion indicated non tethering in additional prone position MRI in 48% of patients, especially in low conus tip position. Fatty filum or intraspinal lipoma were frequently detected in patients with anorectal malformations irrespective of the position in MRI.

Conclusion

Combined supine and prone spinal MRI is superior to MRI in supine position alone for the assessment of suspected tethered cord in children. In malformations with a high rate of occult spinal pathologies as anorectal malformations, early MRI helps to detect these before neurological symptoms develop.

164 - DO TREATMENT CHOICES BY AI CORRESPOND TO REALITY? RETROSPECTIVE COMPARATIVE STUDY WITH NECROTIZING ENTEROCOLITIS AS USE-CASE.

Rosa Verhoeven[1,2], Stella Mulia[3], Elisabeth M.W. Kooi[2], Jan B.F. Hulscher[1]

[1]Department of Surgery, Division of Pediatric Surgery, University of Groningen, University Medical Center Groningen, Groningen, Netherlands. [2]Department of Neonatology, Beatrix Children's Hospital, University of Groningen, University Medical Center Groningen, Groningen, Netherlands. [3]Councyl, Delft, Netherlands

Aim

In cases of severe necrotizing enterocolitis (NEC), the choice between laparotomy and comfort care presents a complex dilemma for clinicians. We previously developed an AI-driven decision aid providing output as "x percent of experts support laparotomy for this patient" [1,2]. The present study aims to retrospectively compare model output with actual clinical choices.

Methods

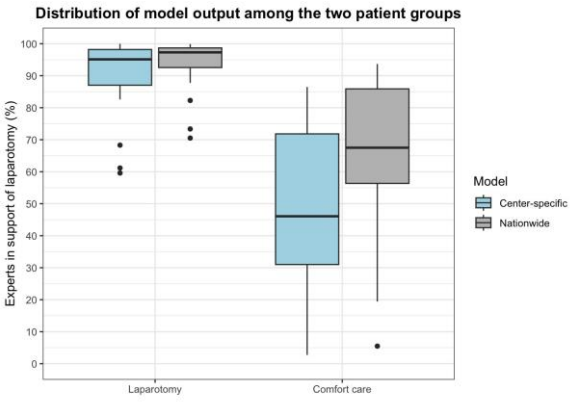
Four specialists retrospectively collected the variables required for the decision aid (e.g., cerebral ultrasound, birth weight) from preterm patients (<30 weeks) with NEC for whom the choice between laparotomy (LAP) or comfort care (CC) was made. Output was calculated using a center-specific and a nationwide model, the latter incorporating additional experts' input. Mann-Whitney U test compared model output for the two groups (LAP/CC). Additionally, the cut-off value above which the output was considered advice for LAP (else CC) was determined, after which Chi-squared test assessed correspondence with reality.

Results

40 patients were included (20 LAP, 25 male, median GA 26+0 weeks [IQR:25+0-27+5], mean BW 810.0 grams [SD 205], median onset NEC after 9.5 days [IQR:6.0-12.0]). Model output (% experts advising LAP) was higher in LAP than in CC by both the center-specific (mean 95.1% vs. 46.1% resp, p<.001) and nationwide model (mean 97.3% vs. 67.5% resp, p<.001) (Figure 1). Both models obtained significant correspondence with reality (accuracy 85% and 80% resp, p<.001).

Conclusions

This study demonstrates that the decision aid aligns with clinical practice in at least 80% of cases. Following prospective validation and ongoing refinements, the decision aid could offer valuable support to practitioners.



748 - ANALYSIS OF THE EFFECT OF HAND-SEWN TECHNIQUE AND STAPLER USE ON SURGICAL RESULTS IN COLOSTOMY REVERSAL IN PEDIATRIC PATIENTS

Seref Selcuk Kilic, Kamuran Tutus, Selcan Turker Colak, Onder Ozden, Recep Tuncer

Cukurova University, Adana, Turkey

Aim of the Study

Complications such as surgical site infection, stenosis and leakage in the anastomosis may develop after ostomy reversal. In our study, we aimed to investigate the effect of using stapler instead of hand-sewn anastomosis during ostomy reversal on complications in the pediatric population.

Methods

Elective colostomy reversal data from a tertiary pediatric surgery center between January 2010 and January 2021 was retrospectively examined. Patients who underwent any abdominal surgery and intervention before colostomy made, between colostomy made and reversal, and any additional intervention other than colostomy reversal, and who developed perioperative complications, which caused prolongation of the operation time, were not included in the study.

Main Results

A total of 76 patients met the study criteria. There was a statistically significant difference in age (p=0.037) and weight (p=0.020) between 53 hand-sewn anastomosis patients and 23 stapler patients. There was no patient with anastomotic leakage in study group. The groups differed in duration of surgery and oral onset times (p=0.003 and 0.043). The groups did not differ in gastrointestinal bleeding, blood transfusion, surgical site infection, incisional hernia development, hospitalization within the first month after discharge, or post-operative abdominal surgery. Follow-up and postoperative hospitalization times were not statistically different between groups.

Conclusions

According to the results of our study, the use of stapler in colostomy closure in children is as reliable as hand-sewn anastomosis. With using stapler for colostomy closure, we found the duration of surgery and initiation of oral feeding to be shorter than with hand-sewn anastomosis.

773 - ANAL DILATIONS (AD) AFTER POSTERIOR SAGITTAL ANORECTOPLASTY (PSARP) IN PATIENTS WITH ANORECTAL MALFORMATION (ARM): ARE THEY NECESSARY IN ALL PATIENTS?

María San Basilio, Carla Ramírez-Amoros, Alba Sánchez Galan, María José Martínez-Urrutia, Leopoldo Martínez, Alejandra Vilanova Sánchez

Hospital Infantil La Paz, Madrid, Spain

Aim of the study:

Anal dilations after PSARP can psychologically affect patients and caregivers. We present our results after modifying the classic AD program in order to improve patient selection and avoid unnecessary AD.

Methods:

Retrospective study of patients after PSARP in our center between 2018-2023. Demographic variables, type of ARM, intraoperative Hegar size (IH), postoperative Hegar size (PH) at outpatient clinic, need for dilations and follow-up were reviewed. The modified protocol includes calibration at the 3rd postoperative week at the outpatient clinic, only prescribing AD if the PH decreases compared to the IH or is lower than the size expected by age.

Main results:

36 patients (24 boys) with a mean age of 8.2±5.8 months at PSARP were included. ARM types were: rectoperineal (10), rectovestibular (10), rectobulbar (10), rectoprostatic (4), rectovaginal (1) and rectovesical (1). The size of IH was 12±1.2mm. PH size decreased by 1.9±1.4 mm in 29 patients (80.6%), starting AD in all of them. In 6 patients (16.7%) there were no differences between IH and PH, therefore AD were not indicated. After 3.0±1.5 years of follow-up, 6 (16%) patients, of whom 5 underwent AD, presented mucosal prolapse, although only 2 (5%) required surgical repair. No stenosis were identified.

Conclusions:

PH size at the outpatient clinic compared to the IH size help to select patients who need AD after PSARP. The majority of patients need dilations, but there is a small group in whom these can be avoided without increasing risk of stenosis.

312 - MILK CURD OBSTRUCTION: A FORTIFIED PROBLEM?

Claire Otasowie[1], Susan Lloyd[2], Oliver McCallion[1], Ami Pedersen[1], Kokila Lakhoo[1,3]

[1]Department of Paediatric Surgery, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom. [2]Newborn Care Unit, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom. [3]Nuffield Department of Surgical Sciences, Medical Sciences Division, University of Oxford, Oxford, United Kingdom

Aim of the study

Milk curd obstruction (MCO) is an increasingly common cause of neonatal bowel obstruction, known to affect premature, low-birth-weight infants. Despite a widely reported association with breast milk fortification (BMF), the occurrence of MCO in some infants but not others remains unexplained. Having recently noted increased precipitates within cooled fortified milks, we were initially suspicious of BMF in MCO in our centre, and sought to identify other risk factors.

Methods

Retrospective case series of MCO between 2019 - 2023 in the neonatal intensive care unit of a large, tertiary hospital. Electronic and paper notes were reviewed to collect patient demographics, feeding (including type of milk and fortification), past medical history, presentation, management and outcome.

Main results

14 infants (9 boys, 5 girls) developed MCO, all of whom were premature (gestational age 23+4 to 31+6 weeks) and low- or very-low-birth-weight (390g to 1590g). Infants were fed expressed breast milk at varying rates. 7/14 received BMF. Where pre-deterioration notes were available, 9/11 had recurrent abdominal distension and feed intolerance prior to MCO diagnosis. 11/14 underwent surgical management. The remainder were managed conservatively with rectal washouts. There was no mortality.

Conclusions

BMF alone does not explain MCO, given 7/14 of our cases were BMF-naive. Rather, the clinical profile of affected infants suggests a link with abnormal gastrointestinal motility which requires further education. Obstructive symptoms in premature, low-birth-weight neonates with dysmotility (e.g. slow to establish on feeds) should be met with high clinical suspicion.

77 - LAPAROSCOPIC VERSUS OPEN ILEAL POUCH-ANAL ANASTOMOSIS IN PAEDIATRIC PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Giada Loria[1], Salvatore Arena[1], Pietro Impellizzeri[1], Pietro Antonuccio[1], Simona Montalto[1], Girolamo Mattioli[2], Carmelo Romeo[1]

[1]Department of Human Pathology of Adult and Childhood "Gaetano Barresi", Unit of Paediatric Surgery, University of Messina, Messina, Italy. [2]Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOGMI), Unit of Paediatric Surgery, University of Genoa, Genoa, Italy

AIM OF THE STUDY

Restorative Proctocolectomy with Ileal Pouch-Anal Anastomosis (RP-IPAA) is considered the gold standard for patients undergoing total colonic and rectum removal. By ensuring proper faecal continence and avoiding the need for permanent ostomy, RP-IPAA achieved high degrees of patients' satisfaction and favourable long-term functional results.

Nowadays, both minimally invasive and open techniques for RP-IPAA are routinely employed in paediatric and adolescent patients (PAP), although literature currently lacks strong evidence concerning the best approach to IPAA-candidate patients.

Our metanalysis aims to review and compare laparoscopic-performed (L-IPAA) and open-tailored IPAA (O-IPAA) in PAP, in order to guide management decisions.

METHODS

Electronic research was carried out on PubMed databases using predefined keywords. Primary outcome, namely major complications, and secondary outcome, including surgical techniques data, operation time, length of hospital stay (LOS) were collected and examined. Analyses have been performed using OR and 95% CI. A p-value<0.05 was considered statistically significant.

RESULTS

Seven papers met the eligibility criteria, comprising a total of 1047 patients aged <21 years, with 676 L-IPAA and 371 O-IPAA.

There was no significant difference among L-IPAA and O-IPAA concerning two- or three-staged technique employment (p=0.9), operation time (p=0.2), and the incidence of major (p=0.3) and minor complications (p=0.1). In contrast, LOS was significantly lower in L-IPAA group (p=0.002).

CONCLUSIONS

Our analyses witnesses RP-IPAA as a feasible and valid procedure, even in PAP.

Minimally invasive technique yields results comparable to O-IPAA in terms of outcome, operative time, and complications incidence. Moreover, L-IPAA proves effective in significantly reducing LOS.

487 - COMPERATIVE ANALYSIS OF COMPLETE VS INCOMPLETE NECROTIC BOWEL RESECTION IN NEONATES WITH NECROTIZING ENTEROCOLITIS: SHORT AND LONG TERM OUTCOMES

Begüm Sönmez[1], Kamer Polatdemir[2], Ayşe Demet Payza[1], Akgün Oral[1]

[1]Health Sciences University, İzmir Faculty of Medicine , Dr. Behcet Uz Childrens' Hospital, İzmir, Turkey. [2]İzmir Bayraklı City Hospital, İzmir, Turkey

The study aimed to compare outcomes in neonates with Necrotizing Enterocolitis (NEC) who underwent complete versus incomplete necrotic bowel resection during laparotomy, investigating the short- and long-term effects of each approach.

42 neonates who underwent laparotomy for NEC between 2017 and 2022 were identified. Excluding two patients with stoma closures at other centers; demographic data, enteral autonomy, survival rates, stoma closure time, neonatal Sequential Organ Failure Assessment (nSOFA) scores, and laboratory values (CRP, lactate, leukocyte count) were analyzed. Patients were divided into two groups: Group 1 (n=21) had complete resection with stoma opening, and Group 2 (n=17) had incomplete resection with stoma opening. Two patients underwent resection and anastomosis without stoma opening. Statistical analysis employed SPSS version 22.0.

Mean follow-up was 743.61±590.69 days. Maternal age, gestational age at birth, birth weight, NEC development age, twin numbers, and sex ratios showed no significant differences between groups. Mean oral feeding time post-stoma closure was 6.70±5.65 days, with no significant inter-group difference in achieving enteral autonomy. However, survival rates differed significantly (Group 1: 90.5%, Group 2: 41.2%, $p<0.05$).Necrotic bowel length did not affect enteral autonomy (p: 0.97), but correlated significantly with CRP levels (r: 0.362, $p<0.05$) and nSOFA scores (r: 0.68, $p<0.05$).

Complete necrotic bowel resection did not influence enteral autonomy significantly but correlated with higher survival rates. These findings provide valuable insights into surgical strategies for managing NEC in neonates.

657 - Diagnosis of suspected pediatric distal forearm fractures with point-of-care-ultrasound (POCUS) in a tertiary center – minimal training, maximal sensitivity and specificity

Ricardo Beck, Jurek Schultz, Josephine Edith Pohl, Philipp Schwerk, Guido Fitze, Gabriele Hahn, René Mauer

University Dresden, Dresden, Germany

Background:

The use of ultrasound to diagnose fractures has been advocated by several studies. In many centers, however, ultrasound is still not recognized as the standard for diagnosing distal forearm fractures.

Methods:

After a 30-minute theoretical instruction, Wrist-POCUS was performed in all suspected isolated distal forearm fractures after adequate trauma, regardless of surgeons' prior ultrasound qualifications before performing X-rays. Wrist-POCUS included six specific imaging planes of the distal forearm, according to published recommendations. All sonographies, X-rays, and patient files were reviewed.

Results:

From February to June 2021, 146 patients under the age of 14 met the inclusion criteria, and 106 data sets were available for analysis. Regarding the presence of a fracture, X-ray and Wrist-POCUS showed the same result in 99.1%, with 83/106 (78.3%) fractures detected in both modalities and one suspected buckle fracture in POCUS not confirmed with radiographs. Wrist-POCUS had a sensitivity of 100% (95% CI [0.956, 1]) and a specificity of 95.8% (95% CI [0.789, 0.999]) compared to radiographs. In 6 cases, there were minor differences regarding a concomitant ulnar buckle. The amount of prior ultrasound training had no influence on accuracy of Wrist-POCUS for diagnosing distal forearm fractures. All fractures were reliably diagnosed, even when POCUS images did not meet all quality criteria.

Conclusion:

Wrist-POCUS is an easy-to-learn technique in screening for distal forearm fractures in children, minimizing radiation exposure. Since excellent sensitivity and specificity are achieved even without extensive training, there is no reason to postpone the introduction of distal forearm POCUS in any setting.

554 - Biomechanical Evaluation and Injury Potential of Bicycle Handlebars in Childhood

Christoph Arneitz[1,2], Simone Oliver Senica[1], Nico Erlinger[3], Corina Klug[3], Bernhard Kienesberger[1], Johannes Schalamon[1]

[1]Clinical Center Klagenfurt, Klagenfurt, Austria. [2]Safe Kids Austria, Klagenfurt, Austria. [3]Vehicle Safety Institute, Technical University of Graz, Graz, Austria

Aim of the Study

Children with handlebar injuries often suffer severe intra-abdominal injuries and up to 42% of patients require surgical treatment. This study evaluates the biomechanics of different handlebar grips with the aim of identifying handlebar ends with low injury potential.

Methods

Calculations were performed on a validated finite element model of a six-year-old child (PIPER Child Model, Version 0.99.0). For the simulations, a handlebar end with a damaged end and exposed metal tube was modeled (Grip 1) and three commercially available handlebar ends (Grips 2-4) were used. An additional handlebar (Grip 5) was specifically developed with the goal of further increasing child safety. Four different impact sites (liver, pancreas, spleen, abdominal wall), three different speeds (5, 10, 15 km/h), and three angles between the abdominal wall and the outside of the grip (45, 62.5, and 90°) were calculated.

Main results

In pairwise comparisons, significant differences ($p<0.001$) in variables were found between all pairs of handlebar grips. In terms of penetration depth (abdominal wall), maximum compression (%), deflection (mm), and viscous (m/s), Grips 3 and 5 showed the best values, while Grip 1 was the worst. The lowest resulting force (kN) was measured with Grip 5.

Conclusions

The shape and texture of the bicycle handlebar end have a significant impact on injury potential in the computer model. In this study, bicycle handlebar grips with low penetration depth were identified. These findings should be considered in the development of children's bicycles to increase safety standards.

349 - SOLID ORGAN INJURIES (SOI) AFTER BLUNT ABDOMINAL TRAUMA IN CHILDREN: FOLLOW-UP AND HEALING TIME WITH CONTRAST ENHANCED ULTRASOUND (CEUS)

Anyi C. Moore-Olalla, Javier Jimenez-Gomez, Viviana P. Beltran Salazar, Inmaculada Romero Novo, Saioa Santiago-Martinez, Josue Betancourth Alvarenga, Begoña San Vicente Vela, Paula Jimenez Arribas, Javier R. Güizzo Tobares, Clara Esteva Miro, Natalia Alvarez Garcia, Begoña Sanchez Vazquez, Mireia Gaspar Perez, Bernardo Nuñez Garcia

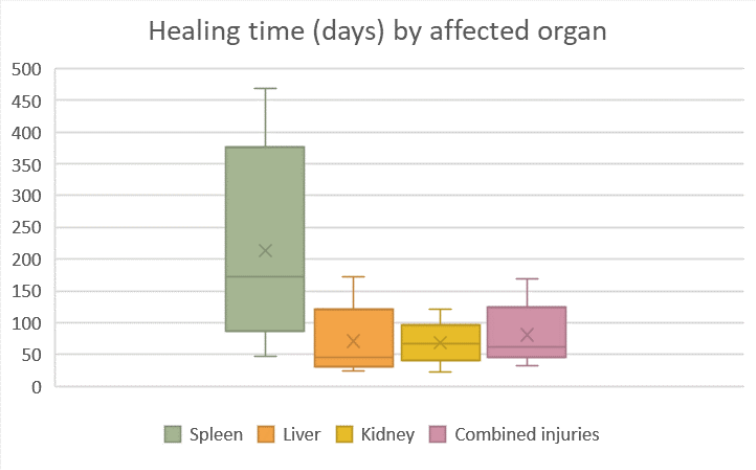
Hospital Universitari Parc Taulí, Sabadell, Spain

AIM: CEUS has shown similar sensitivity to CT-scan in SOI. Accordingly, CEUS is becoming a non-ionizing alternative for SOI imaging follow-up after non-operative management. We aim to assess SOI healing time (HT) with CEUS in children and its role in their long-term management.

METHODS: Retrospective study of children with SOI after blunt abdominal trauma managed non-operatively at our center between 2015 and 2023. Demographic, clinical, and radiological data of patients followed up with CEUS were collected and analyzed using chi-squared and non-parametric tests.

RESULTS: Thirty-six patients met the inclusion criteria. 67% were male and median age, weight and ISS score were 11yo(9-14), 40Kg(30-57) and 10.5(9-16). SOI compromised spleen (27.8%), liver (33.3%), kidney (19.4%) or combined injuries (19.4%). Twelve patients had a grade IV injury. Overall, CEUS showed resolution of SOI at a median of 11(7-22) weeks: spleen 25(14-47), liver 7(4-13), kidney 10(7-12) and combined injuries 9(8-11). HT was different by organ ($p<0,05$) but not by grade or isolated vs combined condition. Spleen injuries had a longer HT ($p<0.05$). Resolution at first CEUS was related to ISS score >18 and delayed follow-ups (52 days vs 32 days, $p<0,05$). CEUS influenced on physical activity restriction in 14 cases, delaying sport activities in 10 patients. There were no side effects after contrast administration.

CONCLUSIONS: CEUS is a sensitive method for SOI imaging follow-up. HT seems to be different by organ. Scheduling CEUS in a timely fashion is crucial for tailoring activity restriction to injury healing.



221 - SURGICAL MANAGEMENT OF PEDIATRIC MULTIPLE MAGNET INGESTIONS IN THE PAST TWO DECADES: SYSTEMATIC REVIEW OF OPERATIVE APPROACHES

Romilly Hayward[1], Amulya Saxena[1,2]

[1]Imperial College London, London, United Kingdom. [2]Department of Pediatric and Neonatal Surgery, Chelsea Children's Hospital, Chelsea and Westminster NHS Foundation Trust, London, United Kingdom

Background

Multiple magnet ingestion is increasingly reported in paediatrics and can cause significant morbidity. Various surgical approaches exist, though minimal literature compares outcomes between techniques. This review evaluates laparoscopic, laparoscopic-assisted, and open surgery with regard to outcomes.

Methods

Systematic review across MEDLINE, Embase, Scopus, and Web of Science identified reports of paediatric multiple magnet ingestion managed surgically between 2002 and 2022.

Results

Ninety-nine studies were included, reporting data from 136 cases. Of these, 82 (60%) underwent laparotomy, 43 (32%) laparoscopic surgery, and 11 (8%) laparoscopic-assisted procedures. Sixteen laparoscopic cases were converted to open, often due to intraoperative findings including necrosis/perforation, or grossly dilated bowel. Bowel perforation occurred in 108 (79%); 47 (35%) required bowel resection, and 3 had temporary stoma formation. Postoperative recovery was uneventful in 118 (86%). Complications were reported following 15 (18%) open and 3 (7%) laparoscopic surgeries. No complications occurred following laparoscopic-assisted surgery. All post-laparoscopic complications were Clavien-Dindo (CD) Grade I. Following open surgery, 5 complications were CD grade I, 6 were CD grade II, and 4 were CD grade IIIb, requiring re-laparotomy. Median length of stay for open and laparoscopic-assisted procedures was 7 days, and for laparoscopic was 5 days ($p<0.001$)

Conclusion

Surgical management of multiple magnet ingestion often achieved uncomplicated recovery and no long-term sequalae. Whilst open laparotomy was the more common approach, laparoscopic surgery was associated with reduced length of stay and postoperative complications. Therefore, in experienced hands, laparoscopic surgery should be considered first-line, with the possibility of conversion to open if required.

205 - PREPERITONEAL PELVIC PACKING (PPP) FOR HEMODYNAMICALLY UNSTABLE PELVIC FRACTURES IN CHILDREN. A CASE REPORT, SYSTEMATIC REVIEW AND PROPOSED MANAGEMENT ALGORITHM.

Javier Jimenez-Gomez, Angy C. Moore-Olalla, Patricia Martinez-Grau, Irene Baena Olomi, Saioa Santiago-Martinez, Mireia Tuges Alzina, Clara Esteva Miró, Begoña Sanchez Vazquez, Mireia Gaspar Perez, Josue Betancourth Alvarenga, Bernardo Nuñez Garcia

Hospital Universitari Parc Taulí, Sabadell, Spain

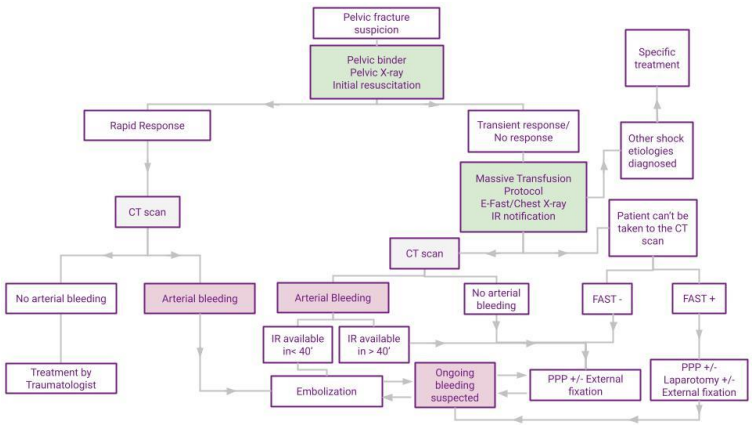
Introduction:

Pediatric hemodynamically unstable pelvic fractures(PHUPF) are rare and remain a therapeutic challenge. PPP can be a useful procedure to obtain hemodynamic stability but its role in children is poorly reported. We present a PHUPF case treated with PPP, systematically review all PHUPF treated with PPP in the literature and propose a management algorithm.

Case report:

A 14-year-old female with a history of depression fell from the 6th-floor of a building. She was unconscious and showed right lower extremity deformity. After EMS arrival, the patient was intubated and norepinephrine was initiated along with the infusion of 2 liters of crystalloids. At the Emergency Department, PHUPF was confirmed and massive transfusion protocol was activated. The Body-CT described multiple right sided injuries (subarachnoid hemorrhage, pneumothorax, kidney laceration, femur fracture) and extensive pelvic fracture without arterial bleeding (ISS: 43). Due to persistent hypotension, the patient was taken to the OR and PPP was performed obtaining hemodynamic stability. The patient was transferred next to the ICU where no more transfusions were required. PPP was removed 48h later and after multiple interventions the patient was discharged at 87th day of admission. Literature review showed another 6 pediatric HUPF cases treated with PPP alone or in combination with angioembolization. All authors suggested that PPP was key to achieve hemodynamic stability and reduce transfusion requirements.

Conclusion: PPP could be an effective procedure to obtain hemodynamic stability and reduce transfusion requirements. However, PPP is not widespread in children. We propose a pelvic fracture management algorithm including PPP



623 - TRANSEPIPHYSEAL PERCUTANEOUS INTRAMEDULLARY KIRSCHNER WIRE (TEPIK) IN DIAMETAPHYSEAL RADIUS FRACTURES (DMRF) - EXPERIENCES IN 59 CHILDREN

Susann Beck, Philipp Schwerk, Guido Fitze, Jurek Schultz

Department of Pediatric Surgery, University Hospital Dresden – Technical University of Dresden, Dresden, Germany

Background:

Distal forearm fractures are widespread in children and adolescents. The radial transition zone between diaphysis and metaphysis is not universally defined. Still, diametaphyseal radius fractures (DMRF) are prone to complications and a commonly agreed standard for their treatment has yet to be established.

Methods:

We report on 59 children with unstable DMRF treated with a transepiphyseal, percutaneous, intramedullary K-wire (TEPIK) from 2010 to 2020. After fracture reduction, the patient's hand is held in palmar flexion. Next, a 1.8-2mm K-wire is inserted just beyond Lister's tubercle through the epiphysis and advanced, crossing the physis straight into the medullary cavity of the diaphysis. We report radiographic geometry before and after the treatment, operation times, course of treatment, functional results, and complications.

Results:

We saw no loss of reduction and no remaining functional deficits. Surgical trainees performed this technique in 71.2%. The mean operating time was 29 minutes. Percutaneous K-wires could be removed without anesthesia or sedation in our outpatient clinic in 81.4%. We saw two refractures after a second high-energy trauma and seven K-wires that migrated subcutaneously because they were cut too short.

Conclusion:

TEPIK is a quick and easy treatment for unstable DMRF. It provides safe management with a single, definite surgery if metal removal of an ulnar ESIN is unnecessary. This study is one of the most extensive series on the surgical treatment of DMRF reported in the literature and presents successful results of TEPIK in the treatment of unstable DMRF.

710 - SOLID ORGAN INJURY PATTERNS AMONG ELECTRIC BIKE AND POWERED SCOOTER ADOLESCENT RIDERS

Gal Becker, Audelia Eshel Fuhrer, Neta Cohen, Haguy Kammar, Igor Sukhotnik

Dana Dwek Children's Hospital, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

Aim:

This study characterizes solid organ injuries (SOI) associated with micromobility vehicles (MMV), such as electric bicycles and scooters, in adolescent.

Methods:

A retrospective cohort study. Patients age ≤18 years with SOI admitted between 2017-2023 were divided into MMV and non-MMV groups.

Results:

65 patients were included: 11 in the MMV group and 54 in the non-MMV group. The overall rate of multiorgan injuries was similar between MMV and non-MMV groups (64% vs. 61% respectively, p=0.87) as were organ specific rates – head (45% vs. 43%, p=0.86), chest (36% vs. 37%, p=0.97) and extremities (18% vs. 19%, p=0.93). Within the MMV group, spleen injury was most common (45%) followed by liver (27%) and kidney (27%) injuries MMV-related trauma was associated with higher grade injuries for kidney (67% were grade ≥ 4, p=0.17) and spleen (60% were grade ≥ 4, p=0.19). MMV patients were more likely to require total body CT (TBCT) (72% vs. 48%, p=0.137), blood transfusions (40% vs. 16%, p=0.08) and ICU admission (64% vs. 52%, p=0.47). Abdominal surgery was indicated in similar rates (18% vs. 15%, p=0.78). Subgroup comparison of the MMV group to motor vehicle accidents (n=8) yielded similar results. However, comparison to bicycle accidents (n=9) showed significantly higher rates of transfusion (36% vs. 0%, p=0.043), TBCT (73% vs. 11%, p=0.006), and LOS (8.3d vs. 4.5d, p=0.05) in the MMV group.

Conclusions:

A trend of higher degree SOI was observed in MMV accidents. The pattern of MMV injuries resembles those from motor vehicles rather than bicycle accidents.

5 - ABUSIVE HEAD TRAUMA AND CRYING INFANT - PUBLIC AWARENESS OF NEWBORN AND INFANT TRAUMA

Christoph Arneitz[1,2], Jana Schmitz[3], Istvan Szilagyi[3], Bernhard Kienesberger[1,3], Georg Schalamon[4], Simone Senica[1], Johannes Schalamon[1,3,2]

[1]Department of Pediatric and Adolescent Surgery, Clinical Center Klagenfurt, Klagenfurt am Wörthersee, Austria. [2]Safe Kids Austria, Klagenfurt am Wörthersee, Austria. [3]University Clinic of Pediatric and Adolescent Surgery, Medical University of Graz, Graz, Austria. [4]Department of Trauma Surgery, Clinic Diakonissen Schladming – Teaching Hospital of the Paracelsus Medical University, Schladming, Austria

Purpose:

Excessive crying is the most common trigger for abusive head trauma (AHT) which is the leading cause of physical abuse fatalities in infants. We aimed, to assess the knowledge of AHT, crying infants and correct behavioral measures in a general population.

Methods:

An online questionnaire (LimeSurvey) was created to reflect possible associations between the level of knowledge of AHT and the individual relation to children and to assess the danger of shaking. The online survey contained a total of 41 questions, including the demonstration of a previously recorded video in which an infant doll is shaken.

Results:

319 persons, 245 of them (76.8%) with own children, participated in the study. Almost all respondents (98.4%) were aware of serious injuries by shaking, even to the point of death (98.1%). The majority of the participants (97.5%) had heard the "shaking trauma" prior, but did not receive professional information, neither before or after birth (85.2% or 86%), nor during follow-up examinations (88.5%). Emergency contact points are mostly unknown (80.7%). The majority of the participants (95%) considered useful coping strategies in infant crying as wrong.

Conclusions:

The consequences of shaking an infant were common knowledge in a normal population, while there was a knowledge gap regarding the management of excessive crying infants. Young parents should regularly be informed about coping strategies and provided with information about advice centers they could contact if they are helpless or overwhelmed. Prevention programs should focus especially on male caregivers and midwifes visits during postnatal care.

38 - EXPLORING THE CONTROVERSIES: A SELECTIVE APPROACH IN THE TREATMENT OF ABDOMINAL PENETRATING-STABBING INJURIES IN CHILDREN

Bengisu Karbuzoglu, Emine Burcu Cigsar Kuzu, Bade Toker Kurtmen

Department of Pediatric Surgery, Tepecik Education and Research Hospital, Izmir, Turkey

Aim of the Study:

Childhood trauma, a significant contributor to morbidity and mortality, rarely involves penetrating abdominal injuries in the pediatric population. While the conventional approach advocates for abdominal exploration, recent trends suggest a shift towards conservative management in specific cases. This study aims to present the outcomes of pediatric patients with penetrating-stabbing injuries at our clinic.

Methods:

We conducted a retrospective analysis of patients presenting with such injuries at our clinic from 2013 to 2023. The study encompassed demographics, medical history, physical examinations, imaging, and operative data.

Main Results:

The study included 46 patients (M/F=3/43) with a median age of 16 (IQR: 15-17; Range: 3-17), with 60.9% undergoing CT scans. Penetrating abdominal injuries were observed in 34.8% of cases, with 31.3% managed conservatively. CT scans for patients under conservative monitoring showed normal results. Of the 11 patients undergoing laparotomy, only one had no pathology detected during exploration, and their preoperative CT scan was normal. In the remaining 10 patients, identified pathologies correlated with the injured organ's location on the preoperative CT scan: 3 had kidney injuries, 2 had omentum injuries, 2 had colon injuries, 2 had stomach injuries, and 1 had duodenal perforation. Cases not undergoing surgery for penetrating abdominal injuries experienced uneventful follow-ups.

Conclusions:

The imperative for mandatory abdominal exploration in penetrating-stabbing injuries is diminishing in adult guidelines, yet uncertainty persists in managing these rare childhood traumas. Conservative management may be a favorable approach for select cases, guided by overall condition, vital signs, and imaging findings.

804 - MULTIPLE RAT BITES IN A 2 YEAR OLD CHILD: AN EXCEPTIONAL CASE OF CHILD ABUSE DUE TO NEGLECT

María San Basilio, Carla Ramírez-Amoros, Irene Diez-Bartolomé, Lucas Moratilla, Miriam Maestre, Paloma Triana Junco, Mercedes Diaz-González, Miriam Miguel-Ferrero

Hospital Infantil La Paz, Madrid, Spain

Aim of the study

We present the surgical management and animal bite protocol applied to a toddler who sustained major soft-tissue lesions secondary to multiple rat bites.

Case description

A 2-year-old male patient presented to the emergency department with extensive rat bites on his lower limbs, hands and face. The child had been left unsupervised in his room for several hours with a recently adopted domestic rat. Upon admission, the child presented haemorraghic shock (haemoglobin: 5.9g/dL) and major soft-tissue lesions to the hands and feet, including loss of several toes. Fluid resuscitation and intravenous antibiotic were initiated, the first dose of rabies vaccine was administered, and the wounds were thoroughly washed and covered with povidone iodine. Human rabies immunoglobulin, at a dose of 20IU/kg, was injected around the main injuries in both hands and feet. Once stabilized, the patient underwent surgery. Debridement of the wounds and devitalized tissue was performed and major lesions were reconstructed with dermal matrix, which was subsequently grafted one month afterwards, without complications. The patient received 4 doses of rabies vaccines as per WHO protocol. The case was reported to child protective services, and after a thorough investigation, the patient was taken into foster care.

Conclusions

This is a case of child abuse due to neglect. Although very infrequent, rat bites have a high infectious risk and can even pose a vital risk. An animal bite protocol must be applied promptly and effectively. Structured surgical management is paramount to reduce the risk of infection and sequelae.



822 - DIFFERENCIES IN THE MANAGEMENT OF PEDIATRIC TRAUMA BETWEEN ADULT AND PEDIATRIC TRAUMA CENTERS

Giulia Albo[1,2], Andrea Zanini[2], Giacomo Carmo[1], Stefano Mazzoleni[2], Stefania Cimbanassi[3], Maurizio Cheli[4], Francesco Macchini[2]

[1]Università degli Studi di Milano, Milano, Italy. [2]S.C. Chirurgia Pediatrica, Dipartimento Materno-Infantile ASST Grande Ospedale Metropolitano Niguarda, Milano, Italy. [3]S.C. Chirurgia Generale Trauma Team, Dipartimento Emergenza Urgenza, ASST Grande Ospedale Metropolitano Niguarda, Milano, Italy. [4]S.C. Chirurgia Pediatrica, Dipartimento Materno Infantile, ASST Ospedale Papa Giovanni XXII, Bergamo, Italy

AIM OF THE STUDY:

To evaluate different approaches in the treatment of pediatric abdominal trauma between an Adult Trauma Center (ATC) and a Pediatric Trauma Center (PTC).

METHODS:

Retrospective review of minors treated in the two centers between January 2013 and December 2019 for isolated abdominal sovramesocolic solid organ lesions

MAIN RESULTS:

105 patients were reviewed (20 in ATC and 85 in PTC). Mean age was 12 in PTC vs 15 in ATC. 11% of PTC patients had an E-FAST performed in the referring center vs 33% of the ATC (p=0,1). In the ATC a radiologist performs a complete ultrasound rather than an E-FAST only. CT scan was performed in 84% of patients referred to the ATC vs 93% of patients referred to PTC (p=0,2). Angiography was performed in 20% of cases in ATC and 9% in PTC (p=0.1). Operative management was undertaken in 40% of patients in ATC vs 9% in PTC (p=0,0006). Damage control laparotomy was necessaire in 10% of ATC cases, in PTC just in 5% (p=0,3). No patient died in any of the two centers.

CONCLUSIONS:

This study shows that a high volume ATC may be more used to an operator-dependent investigation such as ultrasound diagnosis thus reducing CT utilization. However, a PTC seems more prone to reduce invasive diagnostic and terapeutic procedures.

317 - SNAKEBITE ENVENOMING IN SWITZERLAND: PRESENTATION AND CLINICAL MANAGEMENT

Maite Jiménez Siebert[1], Salome Merk[2], Matthias Wendelspiess[2], Steffen Berger[1], Viktoria Pfeifle[1]

[1]Pediatric Surgery, Inselspital, Bern, Switzerland. [2]Emergency Medicine, Inselspital, Bern, Switzerland

Aim of the study

Snakebite envenoming is a potentially life-threatening event. Its incidence in Europe is underestimated. Vipera aspis and Vipera berus are endemic in Switzerland.

Methods

We present a series of four snakebites treated with antivenin at our hospital in 2023.

Main results

#1) 8-year-old girl, bitten in the arm. At the hospital she required adrenalin and antivenin (ViperaTAb®) which rapidly improved all symptoms. She was discharged on day 4.

#2) 12-year-old boy, bitten in the finger. He presented symptoms of severe envenomization. He received anaphylaxis treatment and improved after a dose of antivenin, requiring a second dose due to rapid edema progression. He was discharged on day 3 with a swollen hand.

#3) 2-year-old boy, bitten in the hand. He presented with swelling of the hand and vomiting. When swelling progressed and blisters developed, he received a single dose of antivenin. The patient was discharged on day 5.

#4) 9-year-old boy, bitten in the ankle. Persistent hypotensive shock required continuous infusion of adrenaline. He also received antivenin. He was stabilized in the ICU, local symptoms improved, and he was discharged on day 4.

Conclusions

Guidelines may facilitate rapid and effective therapy of snakebite envenoming which is a rare and underrecognised entity in central Europe. With systemic symptoms, antivenin administration is indicated with a dosage relative only to the amount of toxin (not relative to patient weight) until symptoms improve. For suspected compartment syndrome or fasciitis, repeated doses of antivenin should be considered rather than surgical intervention.

8 - THE ROLE OF DIAGNOSTIC LAPAROSCOPY IN PEDIATRIC PATIENTS WITH PENETRATING ABDOMINAL TRAUMA: OUR CLINICAL RESULTS

Seref Selcuk Kilic, Kamuran Tutus, Selcan Turker Colak, Onder Ozden, Murat Alkan, Recep Tuncer

Cukurova University, Adana, Turkey

Aim

Trauma is the most common cause of death in childhood. Laparoscopic abdominal evaluation is increasingly used in the diagnosis and treatment of abdominal trauma because it leads to a reduction in negative abdominal exploration, morbidity and medical expenses. The aim of our study was to investigate clinical outcomes of diagnostic laparoscopy in pediatric patients with penetrating abdominal trauma.

Methods

We retrospectively evaluated the medical data of pediatric patients who underwent diagnostic laparoscopy between January 2016 and January 2023 after penetrating abdominal trauma and were hemodynamically stable and had no significant peritonitis.

Results

There were 8 patients who met the study criteria. Seven were male, one was female and the median age was 16 years (IQR, 14.5-16.5). Two of the patients presented with gunshot wounds and 6 with stabbing. All patients were hemodynamically stable and evaluated with abdominal computed tomography with opaque. Laparoscopic examination revealed no peritoneal injury in 3 patients and the procedure was terminated. Laparotomy was performed in 5 patients with peritoneal injury on laparoscopic evaluation. One patient had injuries to the liver, one to the spleen and diaphragm, and the other three patients had no intra-abdominal injuries. The median length of hospitalization was 3.5 days (IQR, 2-6.5). The median follow-up period was 24 months (IQR, 15-45).

Conclusions

When it is not certain that the penetrating injury has reached beyond the periton to the intra-abdominal space, laparoscopic evaluation may prevent unnecessary laparotomy in paediatric patients with PAT who are haemodynamically stable and have no evidence of peritonitis.