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ABSTRACTS

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Oral Free Paper Sessions

OFP-01 | Oral Free Paper Session Digestive Diseases Pathology – GI

OFP-01-001

Results of the "Uniform Noting for International application of the tumour-stroma ratio as easy diagnostic tool" (UNITED): a multicentre prospective validation study

M. Polack*, A.G. Roodvoets, E. Meershoek-Klein Kranenbarg, H.A. Gelderblom, V. Terpstra, G. Petrushevska, G. Gasljevic, S. Kjær-Frifeldt, E.M. de Cuba, N. Bulkmans, G.R. Vink, R. Al Dieri, R.A. Tollenaar, H.J. van Krieken, W.E. Mesker
*Department of Surgery, Leiden University Medical Center, Leiden, The Netherlands

Background & objectives: As advised by the UICC and CAP, the prospective multicentre UNITED study was initiated to validate the tumour-stroma ratio (TSR) as prognostic independent parameter, predicting patient-related outcomes for stage II-III colon cancer (CC) patients and subsequently aid in personalized treatment.
Methods: The UNITED study was enrolled in 27 participating centres in 12 countries worldwide. The effect of TSR, categorized as stroma-high (>50%) or stroma-low (≤50%) through standardized histopathology microscopic assessment by certified pathologists, was evaluated on disease-free survival (DFS) as primary endpoint for a 3-year median follow-up period. Secondary endpoints were response to adjuvant chemotherapy and overall survival (OS).
Results: A total of 1537 patients were included, of which 1388 were deemed eligible and operated between 2015-2021. DFS was significantly shorter ($p<0.001$) in stroma-high CC patients (n=428) than in stroma-low CC patients (n=960). In multivariate analysis, the TSR was an independent prognosticator for DFS ($p=0.001$; hazard ratio 1.498, 95% confidence interval 1.180-1.903) as well. As secondary outcomes, stroma-high stage II-high risk and stage III CC patients also notably had a worse DFS despite receiving adjuvant chemotherapy ($p<0.001$). For OS, although the follow-up period was relatively short, already a slight trend towards worse OS in stroma-high CC patients was visible ($p=0.102$).
Conclusion: The multicentre UNITED study hereby unequivocally validates the TSR as an independent, prognostic factor for DFS in stage II-III CC patients, proving that stroma-high CC patients have a worse survival. Furthermore, these patients were also observed to respond worse to adjuvant chemotherapy. As the TSR can thus aid in shared decision-making and personalized treatment, future implementation in the tumour-node-metastasis-classification is aimed.
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OFP-01-002

Multi-site multi reader study on artificial intelligence-assisted primary diagnosis of gastric biopsies

M. Rodriguez-Justo*, G.Y. Lauwers, A.L. Booth, A.P. Levine, W. Jervis, K. Kantekure, L. Aherfi, E. Lanteri, L. Apple, A. Arat, R. Mikulinsky, T. Amit, M. Vecsler, M. Grinwald, J. Sandbank
*Cancer Institute, University College London, United Kingdom

Background & objectives: This study aimed to clinically validate the use of an artificial intelligence (AI)-based solution by pathologists for reviewing and reporting gastric biopsies.
Methods: A two-arm prospective reader study comparing the performance of pathologists supported by AI with pathologists reviewing digital slides was performed at multiple sites (varied staining protocols & different scanners). Both arms were compared to ground truth (GT) established by a consensus of 2 GI-pathologists. Rates of major discrepancies between each arm and GT, as determined by an adjudicating-pathologist, were compared.
Results: 6 pathologists reported on 235 cases (426 H&E-slides), each case being reported twice, once in each study arm. Pathologists first reviewed only slides and IHC after request, while the AI results were rendered on H&E-slides only. The AI solution demonstrated high performance for the detection of gastric-neoplasia (Carcinoma/HGD/ HG-Lymphoma):AUC of 0.98 (95% CI: 0.967,0.994), sensitivity 96%, specificity 90%, NPV 100% and PPV 94%. High performance was demonstrated for H Pylori detection: AUC of 0.93 (95% CI: 0.88,0.97) sensitivity 91%, specificity 80%. Pathologists' feedback showed the AI solution is user friendly (92.5%), adds confidence to the cases review (80%) and a majority (83%) would prefer continuing to work with the system.
Conclusion: This multi-site multi-reader study reports high accuracy for the detection of gastric neoplasia by the AI solution. The AI solution performed accurately and equally well with slides issued from different staining platforms and scanners. Thus, AI solutions have the potential to be a significant helping tool for pathologists in various clinical decision-making in routine pathology practice, enhancing the quality and reproducibility of diagnoses.

OFP-01-003

Quantitative and qualitative analyses of exosomes derived from cancer-associated fibroblasts (CAFs) according to the desmoplastic reaction (DR) patterns in colorectal cancer

K. Tashiro*, K. Okamoto, S. Mochizuki, E. Shinto, Y. Kajiwara, M. Yamadera, H. Abe, Y. Sota, K. Kikuya, T. Kawauchi, K. Aihara, H. Ueno
*Department of Surgery, National Defense Medical College, Japan

failed to demonstrate the presence of MelSCs due to their decreased expression. Hence, role of alternative markers like DCT, TRP1, and TYR needs to be explored in order to identify MelSCs.

OFP-07-006
Clinicopathological evaluation of nail lesions: a single-centre experience
S.K. Dursun*, B. Çalım Gürbüz, O. Erdem, F. Kuşku Çabuk
*Basaksehir Cam and Sakura City Hospital, Turkey

Background & objectives: The nail region consists of a complex anatomy with surrounding structures. Trauma-induced lesions of this region are frequently confronted in childhood and adulthood. Besides this, infections, systemic disease involvement, and neoplastic lesions are also conditions that can be encountered.
Methods: This study aimed to assess the clinicopathological findings in the materials of the patients who had a complaint in the nail area and underwent a biopsy. Biopsy materials of 116 patients diagnosed in our department between June 2020 and December 2022 were retrospectively analysed. Clinical presentation type, localization, lesion diameter, age, gender, and pathological diagnosis were evaluated statistically.
Results: 66% were female and the median age was 30.9 years old (range 6-71). 67% were adults, and 64% were localized to the foot. The most common clinical presentations were; granulation tissue development (58%), keratotic papules (14%), melanonychia (11%). Pathological diagnoses were; vascular lesions (54%), epithelial lesions (22%), infections (12%), stromal lesions (9%), systemic disease involvement (2%). The vascular lesions were seen statistically significantly more frequent in adulthood&toenail region ($p<0.001$). Among the epithelial lesions, the most common ones were melanocytic hyperplasia (n=9) and keratoacanthoma/squamous cell carcinoma (n=6). They were seen significantly higher in adulthood ($p=0.01$). The systemic disease involvement was in adults, while their diagnoses were lichen planus and psoriasis vulgaris.
Conclusion: Nail lesions are frequently seen in clinics, but the role of pathology in this process is still unclear. The development of traumatic lesions is the most remarkable condition in the nail region. It is stated that the more frequent occurrence of these lesions is associated with the long-term use of the wrong shoes. Especially in adulthood, hyperkeratotic papules and melanonychia on the nails should be carefully examined clinicopathologically. Systemic disease involvement should also be kept in mind in nail lesions.

OFP-07-007
Diagnostic utility of PRAME in melanocytic lesions, particularly in spitzoid ones
Z. Gahramanli*, A. Okcu Heper, B.A. Kirmizi
*Ankara University School of Medicine, Turkey

Background & objectives: Distinguishing between melanoma and nevi is usually straightforward, whereas differential diagnosis can sometimes be problematic. Therefore, additional reliable methods to help differentiate benign from malignant are crucial. We aimed to investigate the role of PRAME in challenging melanocytic lesions.
Methods: Our study included 119 cases; 27 atypical Spitz tumours (AST), 12 spitzoid melanoma, 20 conventional melanoma, and 60 nevi (Spitz, melanocytic, dysplastic). All tissue sections were analysed for PRAME, BRAF, BAP1, p16, and MelanA/Ki67. Staining above 75% was accepted as a threshold for PRAME. We also investigated the usefulness of PRAME together with BRAF(VE1) positivity, Ki67 proliferation, p16, and BAP1 loss.
Results: PRAME showed diffuse positivity in twelve conventional and three spitzoid melanoma cases. Benign nevi showed no staining at all. However, we detected PRAME expression in one AST, three Spitz nevi, and two dysplastic nevi. For melanoma, sensitivity was 60%, specificity was 100%; for spitzoid melanoma, sensitivity was 25%, and specificity was 100%. When we lowered the threshold to 50%, sensitivity increased to 70% for melanoma and 33.3% for spitzoid melanoma, with no change in specificity. There was no statistically significant correlation between PRAME expression and the degree of dysplasia. However, as the degree of dysplasia increased, the percentage and severity of PRAME expression correspondingly increased.
Conclusion: The absence of PRAME staining in melanocytic nevi and its characteristic staining pattern in melanomas demonstrated that PRAME is useful in distinguishing malignant from benign/borderline melanocytic lesions. Furthermore, decreasing the previously reported PRAME cut-off from 76% to 70% in conventional melanoma and 50% in spitzoid melanoma would enhance the sensitivity of PRAME as an ancillary tool. However, a diagnosis based solely on PRAME expression should be avoided, and any expression pattern must be evaluated in light of histologic findings.

OFP-07-008
Large-scale dermatopathology dataset for AI: construction, annotation, and segmentation of cutaneous neoplastic lesions
Y. Chong*, M. Alam, B. Kim, G. Park
*The Catholic University of Korea, Republic of Korea

Background & objectives: Artificial intelligence (AI) has shown great potential in dermatology and dermatopathology, particularly in segmenting various cutaneous malignant lesions. However, AI application in dermatopathology mainly focused on malignant melanoma and the dataset was limited without enough external validation.
Methods: This study aimed to address previous limitations by constructing a large-scale, multi-institutional dermatopathology dataset and exploring the potential of AI in segmenting six types of skin lesions. We collected 34,376 whole slide images from multiple medical institutions, including Seoul National University Hospital, Catholic Medical Center, National Cancer Center, and Samsung Medical Center. Multiple segmentation models were employed and compared.
Results: Included skin lesions were epidermal inclusion cyst (EIC), seborrheic keratosis, Bowen disease/squamous cell carcinoma (BWN/SqCC), basal cell carcinoma, melanocytic nevus (MN), malignant melanoma, normal skin tissue. The model achieved relatively high performance in segmenting skin lesions, with the highest patch-level performance of 90.08% in EIC and the lowest of 81.98% in BWN/SqCC, and the highest slide-level performance of 90.78% in MN and the lowest of 81.31% in BWN/SqCC, as measured by dice coefficient score.
Conclusion: Our study demonstrates the potential of AI in segmenting cutaneous malignant lesions using a large-scale, multi-institutional dataset. However, further research is needed to address limitations such as racial diversity and external validation.

OFP-07-009
Do multidisciplinary team meetings make a difference in the reporting of dermatopathology?
M. Craughwell*, A. Dorman, E. Kay, K. Sheehan
*Blackrock Clinic, Ireland

Background & objectives: There is increasing evidence around the benefits of multi-disciplinary teams (MDT) in the practice of Histopathology. The objectives of this study were to evaluate the impact that discussion at a Dermatopathology MDT had on the final pathology report.
Methods: All patients who were listed for discussion at an MDT attended by Dermatologists, Plastic surgeons and Pathologists, between January and December 2022 were analysed retrospectively. The nature of pathology was divided into 3 categories. Any additional work that was performed as part of the 2nd review or MDT discussion was documented, including any changes to the final diagnostic report.