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Case report - Thoracic general

Anterior transmediastinal contralateral access

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Abstract

Transmediastinal approach for resection of bilaterally metastatic lung tumors, bullectomy and apical pleurectomy is a technically feasible and safe method. We report herein a 40-year-old male with a 20-year history of progressive dyspnea who underwent bilateral bullae excision through a left posterolateral thoracotomy. We tried to emphasize that a transmediastinal contralateral approach may prevent a secondary operation in patients with bilateral bullous lesions.
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Keywords: Transmediastinal; Bullous lung; Contralateral

1. Introduction

Transmediastinal approach for contralateral lung is an operative alternative for bilateral lung lesions. It is technically feasible and a safe method for bilateral lung tumors, metastatic lesions or in patients with pneumothorax who need a bilateral apical bullectomy and pleurectomy. It is very likely that this procedure may be an alternative for patients with bilateral lesions, thus preventing a contralateral thoracotomy.

We are aware of few reports in the literature regarding transmediastinal approach for bilateral lung lesions [1–3]. We herein report the case of a 40-year-old male who underwent a bilateral bullae excision through a left posterolateral thoracotomy. We tried to emphasize the significance of this alternative method in the surgical treatment of patients with bilateral bullous disease.

2. Case report

A 40-year-old male patient was admitted with exertional dyspnea. He had a history of 15 years smoking. Clinical examination revealed decreased breath sounds in the left upper and middle zone. Rutin laboratory data were within the normal limits. Respiratory function tests showed an FVC of 1.77 l (44%) and an FEV1 of 0.67 l (20%). Arterial blood gas analysis showed that pH was 7.4, PO_2 was 87.4 mmHg, PCO_2 was 38.8 mmHg and SaO_2 was 95.1%. Chest computed tomography scan (CT) demonstrated an increase in the anteroposterior diameter of the thoracic cavity, bilateral hyperinflation, and giant bullae located at the left upper lobe in addition to blebs in both upper lobes (Fig. 1).

A left posterolateral thoracotomy revealed giant bullae measuring $20 \times 15\ cm^2$ and two blebs located at the left upper lobe. The giant bullae and the blebs were totally excised. Two other blebs located at the upper lobe of the contralateral right lung were found following the dissection of the anterior mediastinal pleura, and excised. Excision of the lesions were performed with the use of an absorbable 3/0 polyglyactine running suture (Vicryl, Ethicon).

Tube thoracostomy was performed in the left hemithorax resulting from prolonged massive air leak in the postoperative period (POD); however, progressive subcutaneous emphysema developed. The patient showed three attempts of suicide on the sixth postoperative day. Tracheostomy and mechanical ventilation were applied to the patient. He responded well to the mechanical ventilation and subcutaneous emphysema disappeared on the 10th postoperative day. *Corynobacterium* spp., *Stenotrophomonas maltophlia* and nonfermentative gram (−) bacillus were cultured from tracheal aspiration material, and parenteral specific antibiotic therapy was administered. Intrapleural pleurodesis was performed bilaterally with tetracycline. On the 30th

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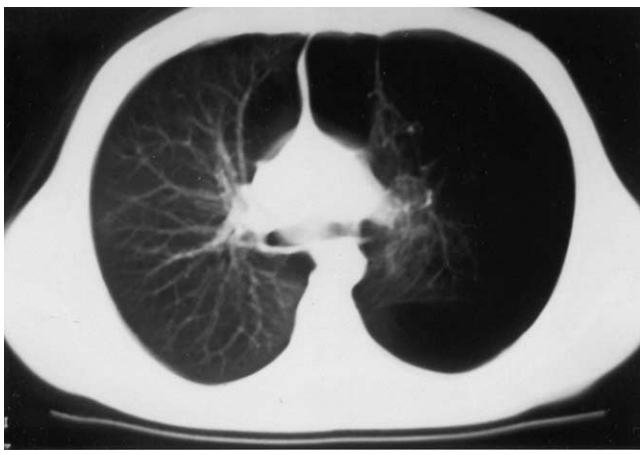


Fig. 1. Thoracic CT scan showing giant bullae and contralateral blebs.

postoperative day, the chest tubes were removed as the air leaks deceased and the patient was weaned from the respiratory support. No microorganisms were detected on tracheal aspiration materials and blood culture. The patient was discharged on the 40th postoperative day without any oxygen requirement. He remains well 28 months after the operation.

3. Discussion

The extent of the surgical procedure is of clinical significance for bilateral lung lesions. The appropriate approach should be minimally invasive with minimum morbidity and mortality. Median sternotomy, transverse thoracosternotomy, so-called clamshell incision or sequential bilateral thoracotomies can be performed for bilateral lesions of the lung. However, transmediastinal contralateral approach using a one-sided thoracotomy appears to be a less invasive and an effective procedure in the management of bilateral lung lesions compared to these procedures.

Very few data exist in the literature regarding transmediastinal approach for bilateral lung lesions [1–3]. Kodama et al. have shown that lingular laser resection might be performed for bilateral metastatic tumors with a transmediastinal approach [2]. They have also reported the feasibility of either an anterior or a posterior transmediastinal contralateral approach for the resection of bilateral tumors [3]. Nazari et al. have reported that they had performed contralateral apical bleb excision by transaxillary thoracotomy in 13 cases [1]. They have shown that transmediastinal contralateral approach might be performed by a posterolateral or axillary thoracotomy using the mediastinal dissection technique either anteriorly or posteriorly [1]. We performed bilateral resection of a giant bullae and blebs with an anterior transmediastinal approach in our case.

Transmediastinal approach may also be a therapeutic option for other bilateral lung lesions such as bilateral synchronous and metastatic lung tumors, bilateral hydatic cysts and bilateral pleural diagnostic procedures. Moreover, this approach can be performed in patients with limited pulmonary functions [2–4]. This approach is not an alternative to video-assisted thoracoscopic surgery (VATS); however, it may be a therapeutic option in selected cases, particularly in patients who cannot tolerate single lung ventilation with double tube intubation. On the other hand, transmediastinal contralateral approach decreases operation time as well as pre and postoperative morbidity compared with a bilateral incision. It also has an additional cosmetic advantage. Transmediastinal approach also prevents the risk of pneumothorax in bilateral bullous disease after unilateral approach or during postoperative period.

In conclusion, transmediastinal contralateral bullae excision is a feasible option for the surgical treatment of bilateral bullous lung disease.

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