Case report - Thoracic general

Anterior transmediastinal contralateral access

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Abstract

Transmediastinal approach for resection of bilaterally metastatic lung tumors, bulllectomy 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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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 bulllectomy 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, PO2 was 87.4 mmHg, PCO2 was 38.8 mmHg and SaO2 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 × 15 cm2 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 maltophilia 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
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 sequen-
tial 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 trans-
mediastinal 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 hydatid
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 pre-
vents 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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