Simultaneous video-assisted thoracoscopic surgery sleeve lobectomy and thymectomy

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Abstract
Thymic carcinoid tumour associated with pulmonary squamous cell carcinoma is very rare. We present a case of synchronous lung cancer and mediastinal tumour treated with simultaneous video-assisted thoracoscopic surgery (VATS) sleeve lobectomy and thymectomy. A 67-year old man presented with cough and bloody sputum. Chest computed tomography showed an anterior mediastinal mass with a right hilar nodule. A right upper sleeve lobectomy and a thymectomy were performed via a VATS approach. Thymic carcinoid tumour associated with pulmonary squamous cell carcinoma was diagnosed, and the patient received adjuvant radiochemotherapy.

Keywords: Thymic carcinoid tumour • Sleeve lobectomy • Thymectomy • Video-assisted thoracoscopic surgery

INTRODUCTION
Thymic carcinoid tumour is a very rare entity. To our knowledge, thymic carcinoid tumour associated with pulmonary squamous cell carcinoma is not reported in the literature. We present a case of a simultaneous video-assisted thoracoscopic surgery (VATS) sleeve lobectomy and thymectomy.

CASE REPORT
A 67-year old man presented with cough and bloody sputum. Chest computed tomography (CT) showed an anterior mediastinal mass with a nodule at the hilus of the right lung (Fig. 1). Flexible bronchoscopy showed a neoplasm at the orifice of the right upper lobe bronchus. The bronchosscopic biopsy revealed poorly differentiated squamous cell carcinoma. The brain MRI, bone scan and thoracoabdominal CT scan showed no evidence of distant metastasis. There was no apparent mediastinal lymphadenopathy from the chest CT, and the patient had a concurrent mediastinal mass. Therefore, exploratory VATS was undertaken. The patient was placed in a lateral decubitus position. Three 10-mm ports were inserted, and one 50-mm anterior utility incision was made in the fourth inter-costal space. After the division of the right inferior pulmonary ligament, the fissure, pulmonary arteries and veins were separately cut off using the endoscopic stapler. We divided the bronchus of the right upper lobe. Frozen sections of resection margins were all negative. Interrupted sutures were used for the bronchial anastomosis with 4–0 Vicryl absorbable sutures (Ethicon, Inc., Somerville, NJ, USA). After the anastomosis, systemic mediastinal lymphadenectomy was performed. After a sleeve lobectomy, the patient was rotated to a 30° semisupine position for mediastinal surgery. Carbon dioxide insufflation was used for thymectomy. Intraoperative fine-needle aspiration cytology of the anterior mediastinal mass was carried out, which revealed pleomorphic spindle cells. The patient underwent a simultaneous en bloc thymectomy with video-assisted thoracoscopic support. The entire thymus (including four horns) was removed with the tumour. The operation was completed in 260 min.

Macroscopically, the anterior mediastinal tumour measured $3 \times 2.5 \times 1.5 \text{ cm}^3$ in size, and the pathology revealed a well-differentiated thymic carcinoid tumour, which was classified as Masaoka Stage I thymoma. The expression of synaptophysin, chromogranin A and CD56 were positive in the tumour (Fig. 2), and

Figure 1: Chest computed tomography showed a right hilar nodule (arrow), associated with an anterior mediastinal mass (outlined arrow).
somatostatin stain was negative. Pathology confirmed the lung cancer (2.5 × 2 × 1.5 cm³ in size) as squamous cell carcinoma with level 10 lymph node metastasis. The patient was diagnosed as pT2N1M0 Stage IIb. His postoperative course was uneventful, and he was discharged after 5 days. The patient underwent four cycles of adjuvant chemotherapy with gemcitabine and carboplatin combined with radiation therapy to the anterior mediastinum. He was followed up with chest CT, abdominal ultrasound, brain MRI and bone scan every 6 months for 32 months, and there was no recurrence.

DISCUSSIONS

Thymic carcinoid tumour is a rare neoplasm, which was first described by Rosai and Higa in 1972 [1]. To our knowledge, thymic carcinoid tumour associated with pulmonary squamous cell carcinoma has not been reported in the literature. Thymic carcinoid is likely to invade surrounding organs or metastasize to mediastinal lymph nodes or distant sites [1].

Our case illustrates an important diagnostic and therapeutic dilemma: what to do and what to expect when managing a resectable lung cancer but with a concurrent mediastinal mass. Our case showed that a synchronous occurrence of two different malignant tumours could present this way, and good clinical outcomes could be achieved with aggressive surgery instead of prolonged fussy work-up. We chose VATS operations for both tumours to reduce the surgical injury in these simultaneous operations, and this case indicated that the simultaneous sleeve lobectomy and thymectomy could be feasibly achieved by VATS with curative intent.

Although the minimally invasive approach for thymectomy or sleeve lobectomy still remains controversial, VATS sleeve lobectomy and thymectomy are safe and feasible surgical approaches with acceptable morbidity and mortality [2, 3].

In conclusion, to our knowledge, thymic carcinoid tumour associated with pulmonary squamous cell carcinoma is not reported in the literature. A simultaneous sleeve lobectomy and thymectomy can be feasibly achieved by VATS.

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REFERENCES