Pulmonary infarction complicating thoracoscopic removal of congenital foregut cyst

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Abstract

A 42-year old woman presented with rheumatoid arthritis, dyspnoea and a congenital foregut cyst referred by a rheumatologist for thoracic surgery. The cyst was removed by video-assisted thoracoscopic surgery. The patient developed acute haemoptysis in the immediate postoperative period, which necessitated pulmonary resection due to infarcted right lower lobe. This case report highlights the complication related to an unusual anatomy of a congenital foregut cyst.

Keywords: Bronchogenic cyst • Video-assisted thoracic surgery

INTRODUCTION

Congenital foregut cysts arise as abnormal growth of the primitive foregut. They represent 6–15% of primary mediastinal mass. They are usually asymptomatic and frequently diagnosed in incidental radiological images. Surgical excision of the cyst is the mainstay of treatment even in asymptomatic patients with an intention to prevent cyst-related complications. Recently, thoracoscopic surgery superseded thoracotomy for excision of congenital foregut cyst with a good result. This present case, however, emphasizes cautious selection of patients for video-assisted thoracoscopic surgery, due to underlying complex anatomy.

CASE REPORT

A 42-year old woman was referred to the thoracic surgeon with mild dyspnoea and right basal opacity in chest radiography. Computed tomography (CT) revealed a 7-cm cystic lesion in the right azygoesophageal recess above the right diaphragm (Fig. 1). Her medical history consisted of rheumatoid arthritis, anaemia, Raynaud’s phenomena and bilateral breast reduction surgery. She was on Humera (adalimumab), hydroxychloroquine, prednisolone, folic acid, sulphasalazine and methotrexate.

She was taken to the theatre for elective right video-assisted thoracoscopic surgery for excision of the cyst. A large encapsulated cyst was identified posterolaterally, partially attached to the right lower lobe, and was adherent to the mediastinum, pericardium and the oesophagus. The cyst was dissected from the pericardium and the oesophagus. It was detached from the right lower lobe by using Endo GIA™ (Covidien, USA). At operation, an ectopic vein was adherent to the cyst wall, which was stapled.

Histological examination revealed a mediastinal cyst with possibly undifferentiated congenital foregut cyst (Fig. 2). On the second postoperative day, the patient developed haemoptysis and tachycardia. Chest radiograph revealed right lower lobe consolidation. In CT scan, the right inferior pulmonary vein and its branches were not visualized due to extensive consolidation, and the right superior pulmonary vein showed impression of filling defect involve the peripheral branches possibly represent a non-occlusive thrombus. The patient was taken back to the theatre for exploratory thoracotomy. A consolidated, haemorrhagic right lower lobe was identified. The right upper lobe could not be salvaged. The histology of the right lung revealed right lung haemorrhagic infarction secondary to pulmonary venous thrombosis. Her recovery was complicated with sepsicaemia, deep vein thrombosis and pulmonary embolism. She was discharged home on the 35th postoperative day. She recovered well in a 3-month follow-up.

DISCUSSION

Bronchogenic cyst is also known as undifferentiated foregut cyst. It is one type of bronchopulmonary malformation. They are usually solitary mass lined by cuboidal or ciliated columnar epithelium and mucous gland. Cysts within the lung parenchyma communicate with the bronchus, whereas those within the mediastinum do not communicate with the bronchial tree. One-third of the cysts are asymptomatic. Most cysts are identified incidentally when chest radiograph was performed for other reasons. Symptomatic patients are usually treated by surgical excision. Recently, many case series of thoracoscopic excision of the bronchogenic cysts have been published in the literature [1]. Surgical management is controversial in asymptomatic patients. It is shown in the literature that 45% of asymptomatic patients develop symptoms afterwards.
At this stage, surgery becomes complicated as a result of enlargement of the cysts and recurrent infection leading to adhesions to the surrounding structure.

In our patient, the cyst was identified in chest radiograph and CT scan. She had underlying comorbidities such as severe rheumatoid arthritis. She was prone to develop thrombogenic events due to the presence of anti-phospholipid antibodies as a rheumatoid patient. Choi et al. [2] reported that patients with rheumatoid arthritis showed 2-fold increased risk of pulmonary embolism and deep vein thrombosis than the normal population. Although she was on a prophylactic dose of low-molecular-weight heparin as per hospital protocol from the day of surgery, her post-operative CT scan on the second postoperative day revealed non-occlusive thrombus in the pulmonary vein and consolidation of the right lung. Right pneumonectomy was carried out at this stage. It was indicated as the inferior pulmonary vein was transected. The ectopic anomalous pulmonary vein found intra-operatively was the inferior pulmonary vein. Histology of the right lung revealed right lung haemorrhagic infarction secondary to pulmonary venous thrombosis. In retrospect, conversion to thoracotomy would have been appropriate as the ectopic vein in close proximity to the cyst wall was uncertain (Fig. 2). Catastrophic complications are reported in the literature during removal of bronchogenic cyst. Roviaro et al. [3] reported 2 cases of torrential bleeding during VATS removal of bronchogenic cysts. Furthermore, intra- and postoperative bronchial ruptures have been reported in the literature [4, 5].

In conclusion, this case report demonstrates a serious post-operative complication following VATS removal of undifferentiated congenital foregut cyst. VATS is relatively safe in the majority of cases. Particular attention is warranted with complex anatomy, where thoracotomy rather than thoracoscopy may be the procedure of choice.

**Conflict of interest:** none declared.

**REFERENCES**


