Intrapericardial bronchogenic duplication cyst

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Abstract

Bronchogenic cysts arise from an abnormal budding of the ventral diverticulum of the foregut or the tracheobronchial tree, during embryogenesis. Intrapericardial cysts are rare, accounting for 27% of bronchogenic cysts. In this case report, we present a young woman with a symptomatic intrapericardial bronchogenic cyst compressing the superior vena cava. The cyst was resected via median sternotomy, alleviating the patients’ preoperative symptoms.

Keywords: Mediastinal cyst • Bronchogenic

A 40-year old female was referred to the Thoracic Surgery outpatient department with the diagnosis of a mediastinal mass. She had undergone an elective haemorrhoidectomy 2 weeks prior to her presentation, with her postoperative progress complicated by intermittent episodes of dyspnoea. Gradual worsening of the dyspnoea, associated with atypical chest pain, fatigue and bilateral upper limb paraesthesia, which the patient described as ‘a popping sensation in her veins’ prompted investigation with a computed tomography pulmonary angiogram (CTPA) to exclude a pulmonary embolus. Her background history was unremarkable. Distended veins were visible on the chest wall surface; however, no other abnormal clinical findings were noted.

The CTPA demonstrated a 39.9 × 47.1 × 43.8 mm smooth, well-circumscribed intrapericardial mass (Fig. 1). The mass was noted to be in the transverse sinus, extending laterally to compress the superior vena cava (SVC) on its posterior aspect, just above the cavo-atrial junction. The superior and inferior aspects were the right pulmonary artery and the roof of the left atrium (LA), respectively. The presumptive diagnosis was that of an intrapericardial cyst and in light of its compressive effect, surgery was planned.

The surgical approach was via a median sternotomy, given the location of the cyst. It was felt that this approach afforded the best recourse to cardiopulmonary bypass in the event of catastrophic bleeding or the presence of dense adhesions to adjacent structures as reported by Durieux et al. [1]. Induction of anaesthesia resulted in superficial venous engorgement and also a distinct rise in the jugular venous pressure.

The cyst was found to be on the roof of the LA and posteromedial to the SVC with near occlusion just above the cavo-atrial junction (Fig. 1C). The symptoms and the findings of venous engorgement in the head and neck distribution were accounted for by the compressive effect on the SVC. The anterior approach provided excellent exposure, facilitating complete excision of the cyst (Fig. 2).

Histological examination revealed a cyst lined by respiratory type epithelium, consistent with a bronchogenic duplication cyst. Postoperative recovery was uneventful, with the patients preoperative symptoms markedly improved; she has remained well on follow-up.

DISCUSSION

Bronchogenic cysts arise from an abnormal budding of the ventral diverticulum of the foregut or the tracheobronchial tree, during embryogenesis. Formation during a certain period of embryogenesis ultimately determines the location of the cyst, which can include pericarinal, paratracheal and intrapulmonary regions as well as along the oesophagus and below the diaphragm [2]. Bronchogenic cysts account for 6–15% of primary mediastinal masses, but are rarely found within the pericardium [3]. Intrapericardial bronchogenic cysts account for 27% of all bronchogenic cysts [4].

The clinical presentation can be variable, with most being discovered incidentally. Symptoms can include chest pain, shortness of breath and palpitations, depending on cyst location, size and degree of compression on surrounding structures [1].

In this case report, we present a patient with intermittent features of SVC syndrome secondary to SVC compression by an intrapericardial bronchogenic cyst.

Prior to the cyst being resected, the patient underwent an elective haemorrhoidectomy, which appears to have exaggerated the clinical features of dyspnoea, chest pain and venous engorgement. It may be possible that the general anaesthesia, with the use of muscle relaxants, during the haemorrhoidectomy worsened the compressive effects of the cyst, resulting in the postoperative symptom complex. This effect would have been compounded by the size of the cyst.

Gothard [5] found the effects of anterior mediastinal masses, causing severe airway and or vascular compression, to be exacerbated following the use of general anaesthesia with the use of...
muscle relaxants. While we appreciate the fact that this mass was in the visceral compartment of the mediastinum, the confined space and proximity to easily compressible vascular structures may have lead to the clinical features following the prior anaesthetic.

CONCLUSION

This case emphasizes an unusual location for bronchogenic cysts, potential postoperative complications due to unexpected mediastinal masses, subsequent difficulties with diagnosing this rare entity and an appropriate surgical approach for excision.

Conflict of interest: none declared.

REFERENCES