CASE REPORT

Giant retrocardiac foregut duplication cyst presenting with left atrial compression and palpitations

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SUMMARY

A 35-year-old man presented with a 3-month history of palpitations and shortness of breath. An ECG showed premature atrial contractions and episodes of supraventricular tachycardia. A subsequent echocardiogram showed a retrocardiac cystic mass that was compressing the left atrium. A CT scan confirmed these findings by showing a large left-sided posterior mediastinal cyst compressing the left atrium and pulmonary veins. The cyst was successfully excised from the retrocardiac position via left thoracotomy after which there was complete resolution of the palpitations. Histopathology showed it to be a mediastinal cyst, most likely a foregut duplication of the enterogenic variant. This is an extremely unusual case of foregut duplication cyst presenting with compression of the left atrium and pulmonary veins leading to atrial arrhythmias.

BACKGROUND

Cystic lesions are uncommon in the mediastinum, accounting for 12%–30% of all mediastinal masses.¹ Mediastinal cysts may arise from any mediastinal compartment and may be classified based on their aetiology, including foregut duplication cysts, bronchogenic cysts, thymic cysts, pericardial cysts and benign tumours among other cyst types.² Of these, foregut duplication cysts are relatively rare, accounting for 3%–6% of mediastinal cysts^{1,3} with a reported prevalence of 0.0122%.⁴ Foregut duplication cysts are further classified as either bronchogenic, enterogenic or oesophageal in origin.⁵ These mediastinal masses are typically asymptomatic and either discovered on routine imaging or when they become symptomatic due to their compressive effects on adjacent mediastinal structures. Symptoms and signs may include chest pain, dysphagia, weight loss, dyspnoea, cough and less commonly life-threatening complications

from rupture and bleeding such as mediastinitis and peritonitis.⁶ Although mediastinal cysts are known to cause cardiac arrhythmias, very few such cases have been reported, and these cases have primarily been in children.^{4,6} No cases to our knowledge have had an enterogenic variant of a foregut duplication cyst presenting as a cardiac arrhythmia in the adult population.

CASE PRESENTATION

A 35-year-old man, presented with a 3-month history of palpitations. These palpitations were described by the patient as a sensation of a ‘racing, pounding heart’ that lasted for 10–15 min and occurred intermittently throughout the day. The palpitations had no known triggers and were associated with shortness of breath. The patient had no chest pain, dizziness or cough during these episodes. He had no history of weight loss and his review of systems was unremarkable. The patient was a non-smoker, with no known allergies and no prior hospitalisations or surgeries. He had a history of hypertension diagnosed within the past year, which was currently well-controlled with enalapril. The patient was compliant with his medication and was not taking any other medications. His family history was also non-significant. Examination of the patient revealed a comfortable appearing man, oriented to person, place and time with normal vital signs. The precordial and respiratory examinations were unremarkable.

INVESTIGATIONS

An ECG was performed, which showed premature atrial contractions and brief episodes of supraventricular tachycardia. An echocardiogram was then performed which showed a retrocardiac mass that was cystic in nature and compressing the left atrium. Subsequent axial CT scan images revealed a well-defined, low attenuation cystic lesion without contrast enhancement, that was seen arising below the level of the carina from the left side of the posterior mediastinum in a retrocardiac location and was compressing the left atrium and pulmonary vein (as seen in figure 1). The lesion had benign characteristics and did not show any extension into adjacent mediastinal structures. Routine laboratory investigations were unremarkable.

DIFFERENTIAL DIAGNOSIS

- Foregut duplication cyst
- Bronchogenic cyst

Figure 1 Axial CT scan images showing a well-defined, low attenuation cystic lesion (red arrow) arising below the level of the carina from the left side of the posterior mediastinum in a retrocardiac location and seen to be compressing the left atrium and pulmonary veins.

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Figure 2 Intraoperative image after a left thoracotomy showing a large cystic mass in the posterior mediastinum.

- ▶ Neuroenteric cyst
- ▶ Pericardial cyst

TREATMENT

The patient was advised surgery. A left lateral thoracotomy was done, following which a large cystic mass was seen in the posterior mediastinum that was densely adherent to both the pericardium and the oesophagus, without any communication with these structures (shown in [figure 2](#)). The mass measured 7.5×6×1 cm. Thick green fluid was aspirated from the mass, after which it was completely excised. Subsequent histopathology of the resected mass showed features consistent with an enteric cyst that was partially lined by ciliated cuboidal epithelium with periapical vacuolated cytoplasm and had an underlying wall composed of two layers of smooth muscle, fibrosis and scattered lymphoid aggregates. No evidence of malignancy was noted.

OUTCOME AND FOLLOW-UP

The patient had an uneventful postoperative recovery and was regularly followed up in clinic, showing complete resolution of the patients' palpitations.

DISCUSSION

Foregut duplication cysts are a rare congenital abnormality that are most commonly encountered in children, with only 30% of cysts discovered in adults.⁶ Moreover, of these adults, less than 7% of adults present with symptoms.⁷ Our patient was an adult with a symptomatic cyst, who presented with intermittent palpitations that resolved completely after resection of the cyst. This is a highly unusual presentation of such a cyst, especially as the palpitations had only been present for the previous 3 months. This relatively short duration of symptoms may be explained by the slow growth of the cyst ultimately affecting the conducting pathway of the heart due to its compressive mass effect.

The resolution of symptoms after surgical resection is in line with the literature on the subject. There are several treatment approaches to foregut duplication cysts. If symptomatic, the treatment of choice is surgical excision, owing to its excellent prognosis and low surgical morbidity and mortality.³ This is due to the fact that while such cysts are closely associated with the oesophagus in the mediastinum, they do not communicate with the oesophageal lumen and are thus easily dissected during surgery.⁵ In case of asymptomatic cysts, the treatment is less certain and varied. They may be simply observed over time for

Learning points

- ▶ Foregut duplication cysts are rare congenital lesions that are usually seen in children, however, may be seen in adults as well.
- ▶ Foregut duplication cysts are mostly asymptomatic, but may present with arrhythmias, dyspnoea, dysphagia, chest pain and even mediastinitis.
- ▶ The treatment of symptomatic mediastinal cysts is surgical resection. Asymptomatic cysts may be observed in select cases; however, surgical resection is still preferred.

growth, the cyst may be aspirated or surgically excised.⁴ Several studies have favoured surgical excision over observation in asymptomatic cysts, as diagnosis can only definitively be made on postexcision histopathology. Diagnosis is essential in order to confirm the benign nature of the mass, as these cysts may be mistaken for malignant processes. Moreover, although currently asymptomatic, they may present with severe symptoms at any point owing to their critical location in the thorax¹ and would benefit from early resection.

Conventionally, such cysts have been treated by an open thoracotomy. However, advances in minimally invasive procedures have increased the role of thoracoscopy for cyst resection. These minimally invasive procedures are currently routinely performed for foregut duplication cysts in the paediatric population, owing to decreased morbidity, postoperative pain and hospital stay compared with conventional thoracotomy.⁸ In the adult population too, several cases have reported the success of this technique.⁹ The future of treatment for foregut duplication cysts lies in the use of minimally invasive surgery for resection.

Contributors MM and HM planned and drafted the manuscript. MM and AS were involved in the study concept and design and acquisition of data. SHF was involved in patient management and in the study supervision and concept.

Competing interests None declared.

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