Intrapericardial bronchogenic cyst adherent to ascending aorta in young patient

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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. An intrapericardial location is an extremely rare finding. Symptoms are related to cardiac structure compression, but in most case they remain asymptomatic. We present a case of intrapericardial bronchogenic cyst in a young patient, resected entirely with repair of right lateral proximal ascending aorta with PTFE graft.

1. Introduction
Bronchogenic cysts are congenital lesions resulting from an abnormal budding of the ventral diverticulum of the foregut or the tracheobronchial tree during embryogenesis. Bronchogenic cysts account for 6–15% of primary mediastinal masses. We reported the case of a giant intrapericardial bronchogenic cyst adherent to the ascending aorta in an asymptomatic young patient.

2. Case report
A 5-year-old girl, without medical history, was brought to our service for mild dyspnea (stage II New York Health Association). The physical examination was unremarkable. The chest X-ray showed mediastinal enlargement with cardiothoracic index at 0.65 (Fig. 1a).

Trans thoracic echocardiography revealed a large intrapericardial mass compressing the right pulmonary artery and right atrium. A computed tomographic (CT) scan was obtained and showed an intrapericardial mass compressing the proximal ascending aorta (Fig. 1b).

The patient underwent an uncomplicated resection of the intrapericardial mass through a median sternotomy under cardiopulmonary bypass on beating heart. After sternotomy, we found a small mass in the thymus space. The resection of the mass (Figs. 2a, 2b) eradicated adventice and media strates entirely; that led us to repair the right lateral proximal ascending aorta with 5/0 polypropylene in continuous sutures with PTFE graft.

Histological examination of the resected mass (6 × 4 × 2 cm) revealed respiratory epithelium lining the capsula wall, intramural islets of cartilage and infiltration by chronic inflammatory. The postoperative course was uneventful.
3. Discussion

Bronchogenic cysts arise from an abnormal budding of the ventral diverticulum of the foregut or the tracheobronchial tree during embryogenesis. They may arise from locations depending on the time of their formation during embryogenesis, including the pericardial, paratracheal, intrapulmonary regions, along the esophagus and below the diaphragm. Rarely they may also develop within the pericardium.\textsuperscript{2}

In many cases, the remain asymptomatic. In fact, symptoms are related to direct compression of adjacent cardiac structures, such as chest pain, cough, dyspnea or acute respiratory distress, atrial fibrillation, superior vena caval obstruction or spontaneous pericardial effusion as reported by Floch and al.\textsuperscript{3} Our patient has been asymptomatic and the first sign leading to medical admission was a mediastinal enlargement at chest X-ray.

A similar case was already described by Durieux and al\textsuperscript{4} in Belgium with replacement of ascending aorta and a coronary artery bypass graft in a young female patient. Once diagnosis has been made, surgery remains the best option for treatment and early to avoid compression of adjacent cardiac structures as described by Fievet and al.\textsuperscript{5} In certain cases, intrapericardial bronchogenic cysts may be discovered incidentally during open heart surgery as reported by Antoniou and al\textsuperscript{6} in an old man with coronary artery disease.

In few cases, these tumors can occur with other abnormalities concern other localization than mediastinum, and with increase of antigen CA 19–9 as reported by Ferrari and al.\textsuperscript{7}

4. Conclusion

Bronchogenic cysts are common benign tumors which usually develop within mediastinum, intrapericardial location is seldom but not impossible. Proximal ascending aorta may involve by the tumor compression, and in certain circumstances complicated surgical technique to preserve the proximal ascending aorta.

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**Figure 1a** Chest X-ray showing a large mediastinal enlargement before operation with increase of cardiothoracic index.

**Figure 1b** Chest computed tomography showing a giant intrapericardial mass compressing the proximal ascending aorta.

**Figure 2a** Operative view of intrapericardial bronchogenic cyst compressing the right atrium and right corner of Theile sinus.

**Figure 2b** Macroscopic view of bronchogenic cyst after surgical resection.
Conflict of interest

Authors declare that there is no conflict of interest.

References