Summary

Introduction. Paracardial cysts are rare lesions adjacent to the heart, mostly congenital in origin. They include pericardial and neural cysts, bronchogenic cysts, esophageal duplication cysts, neurenteric cysts, and cysts of other origin. Case report. A four-month-old female was admitted to our department for diagnostic evaluation of a left pleural effusion. The child did not have any difficulties. Computed tomography and magnetic resonance imaging confirmed a giant dumbbell-shaped extrapulmonary multiloculated cyst with fluid-filled cavities, detached from the pericardium, bronchial tree and pleura. Left-sided thoracoscopy confirmed a cystic formation attached to the lung parenchyma, esophagus, pericardium and diaphragm. Its outer surface was glistening and filled with clear fluid. During cyst wall preparation, an opening of the esophageal wall was noticed, and a conversion to the left posterolateral thoracotomy was made. The cyst was removed completely, and the defect of anterior wall of the esophagus was sutured, via the nasogastric tube. Histopathological examination confirmed the diagnosis of a pericardial cyst.

Conclusion. Pericardial cysts are rare and often clinically silent. If the existence of these cysts is suspected, a thorough work-up is required in order to make an accurate diagnosis.

Key words: Pleural Effusion; Mediastinal Cyst; Infant; Signs and Symptoms; Diagnosis; Treatment Outcome; Thoracoscopy; Esophageal Fistula

Introduction

Paracardial cysts are rare lesions adjacent to the heart, commonly of congenital origin. They include pericardial and neural cysts, bronchogenic cysts, esophageal duplication cysts, neurenteric cysts, and cysts of other origin. These formations are mostly located behind the heart, and usually found incidentally upon chest ultrasound, radiography, computed tomography, magnetic resonance imaging, cardiac ultrasound, or on thoracoscopy and thoracic surgery. The differential diagnosis includes lymphangioma, congenital diaphragmatic hernia or thymic cyst [1].

Case report

A four-month-old female was admitted to our department for diagnostic evaluation of a left pleural effusion. This was an accidental finding during previous hospitalization due to prolonged jaundice (at two months of age), when abdominal ultrasound was performed. In the meantime, an ultrasound follow-up was performed. However, the effusion measuring 6 – 11 mm remained in the left phrenicocostal sinus. The child did not have any difficulties.

She was a late preterm baby, born at 36 weeks of gestation, as the first child of nonrelated parents, after second pregnancy (one induced abortion due to absence of cardiac action). During this pregnancy, ultrasound examination revealed a pericardial effusion and supraventricular tachycardia. The baby’s birth weight was 2,59 kg, body length 48 cm, and Apgar score 9/9. She was examined by a cardiologist, and no pericardial effusion or tachycardia were observed.

On admission she was alert, with a rectal temperature of 37 °C, respiratory rate 28 per minute, and no pericardial effusion or tachycardia were observed.

Sažetak


Ključne reči: pleuralni izliv; medijastinalna cista; odojče; znaci i simptomi; dijagnoza; ishod lečenja; torakoskopija; ezofagealna fistula
A giant dumbbell-shaped extrapulmonary multiloculated cyst with fluid-filled cavities, detached from the pericardium, bronchial tree and pleura (Figure 1).

Left sided thoracoscopy confirmed a cystic formation that was attached to the lung parenchyma, esophagus, pericardium and diaphragm. Its outer surface was glistening and the cyst was filled with clear fluid. During cyst wall preparation, an opening to the esophageal wall was observed, and a conversion to the left posterolateral thoracotomy was made. The cyst was removed completely, and the defect of the anterior esophageal wall was sutured, via the nasogastric tube. During surgery, esophagography showed no anastomotic leaks. At the end of surgery, a thoracic drain was placed. Postoperatively, the child was admitted in a surgical intensive care unit, and was extubated on the first postoperative day. Antibiotic therapy was initiated with ceftriaxone (Longaçehp) and metronidazole (EfloranR) during the first 7 days. Control X-ray of the heart and lungs showed a right paracardial lung infiltration shadow, as described previously. The right costophrenic sinus was clear. Left-sided pleural effusion was found. On the sixth postoperative day, the child developed fever and signs of sepsis. Control esophagogram revealed an esophageal anastomotic leak. Antibiotics were changed according to the antibiogram and drainage of the thorax continued. On the twelfth postoperative day, there was no contrast leakage at the anastomotic site. Ten days later, a large pneumothorax occurred on the left lung and was treated. After that, the postoperative course was uneventful.

Repeated CT scan of the chest showed the previously described septated cystic lesion in the right hemithorax (38 x 84 x 46 mm) and vascular malformations of the great arteries. The cardiologist performed echocardiography which confirmed a small atrial septal defect without hemodynamic significance that required no treatment.

The histopathological examination confirmed the diagnosis of a pericardial cyst.

Discussion

Mediastinal cysts are uncommon and usually diagnosed by routine radiographic imaging procedures.

Pericardial cysts are defined as unilocular, fluid-filled masses that arise from the mediastinal fat, with walls composed of connective tissue and a single layer of mesothelial cells. They can communicate with the pericardial space. Pericardial effusion may sometimes occur because of spontaneous emptying or rupture of the cyst into the pericardial space. This may explain resolution of the cyst as well as the transient appearance of a small pericardial effusion, as seen in our patient prenatally [2].

Lymphangiomas are cystic malformations of the lymphatic vessels that appear as single or multiloculated fluid-filled cavities. Surgical excision of the cyst is the treatment of choice, but spontaneous regression may occur as well. The chest lymphangioma appears to be a lesion usually not associated with other congenital abnormalities [3].

Single cysts located in the posterior mediastinum encompass derivatives of the primitive foregut (enteric, bronchogenic, and esophageal duplication) and, occasionally, atypically located pericardial cysts. Neurenteric canal cyst is presumably the result of incomplete separation of the notochord from the foregut in embryogenesis. The extraspinal form is usually located in the right posterior chest and associated with vertebral anomalies [4]. As a reflection of the cyst’s size and proximity to the heart,
great vessels and airways, mediastinal shifting and compression of the surrounding structures may be encountered. As such, mediastinal cysts tend to present with respiratory symptoms, including tracheomalacia or bronchomalacia.

Bronchogenic cysts result from abnormal budding of the ventral diverticulum of the primitive foregut. On ultrasound exam they present as single unilocular, echo-free cystic structures within lung parenchyma or within the posterior mediastinum. Unlike neurenteric cysts, bronchogenic cysts are usually small and not associated with prenatal complications, based on the limited experience with prenatally diagnosed cases [5]. However, mediastinal bronchogenic cysts are located near the carina between the trachea and the esophagus and, therefore, obstruction of the main bronchi resulting in respiratory distress is a well-established complication.

The differential diagnosis of paracardial cysts includes pericardial cyst, lymphangioma, esophageal duplication cyst, bronchogenic cyst and neurenteric cyst. Pericardial cysts may spontaneously resolve, while cysts of other entities are likely to persist and require surgical treatment.

In the available literature, we found no connection with genetic disorders for this kind of anomaly, which certainly does not exclude the possibility of their existence. The etiology of the cyst is often not known when being treated by the surgeon, therefore it is necessary to perform thorough diagnostic evaluation that would precede thoracic surgery.

**Conclusion**

Pericardial cysts are rare, often clinically silent, but may cause life threatening complications. As a result, it is necessary to keep such anomalies in mind, especially when evaluating patients who have chest complaints. If the existence of these cysts is suspected, thorough work-up is required to make an accurate diagnosis.

**References**


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