INTERNAL MEDICINE - PEDIATRICS

CASE REPORTS

PLEUROPERICARDIAL CYST – CASE REPORT

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PLEUROPERICARDIAL CYST-CASE REPORT (Abstract). Cystic lesions within the pericardial space are rare and comprise 7% of the mediastinal masses. We present the case of a 71-year-old woman admitted to the Cardiovascular Rehabilitation Clinic of the Iasi Rehabilitation Hospital for palpitations and vertigo. A routine abdominal ultrasound was performed, which revealed in the 4th segment of the liver a 12-mm hyperechoic nodule suggestive for hemangioma and a round, well-defined 3cm lesion with a possible topography on the diaphragm. An echocardiography has been requested and the cardiac origin was refuted. The barium test showed that the lesion was not located in the gastrointestinal tract. Anteroposterior and latero-lateral chest radiographs were performed, but they did not reveal the tumor. Thus, we decided to visualize it by chest computer tomography with contrast that showed an oval, well-defined lesion of 30/25 mm with homogenous structure, without contrast medium uptake and signs of local aggressiveness in the middle mediastinum, retrocardiac, on the posterior aspect of right atrium, in relation to inferior vena cava and esophagus. The lesions most frequently met within this area are the pleuropericardial ones. Short-term and long-term prognosis is good. Keywords: PLEUROPERICARDIAL CYST, MEDIASTINAL TUMOR, PALPITATIONS.

Cystic lesions within the pericardial space are a rare entity and comprise 7% of the mediastinal masses (1). They are more frequently located in the right costophrenic angle (in 70% of the cases) than in the left costophrenic angle (in 10-40%) (2). The most frequently met are the pleuropericardial lesions. The first to describe the mesothelial cyst were Churchill and Mallory in 1937 and later, in 1940, Lambert reported a similar case, described as pericardial cyst (3). They are usually found in the third or fourth decades of life and males and females are equally affected (4).

CASE REPORT
We present the case of a 71-year-old woman without medical history of cardiovascular disease, who was admitted to the Cardiovascular Rehabilitation Clinic of the Iasi Rehabilitation Hospital for palpitations and vertigo. When admitted to the hospital, the patient presented: impaired general status, altered mental status, amnesia, blood pressure of 105/60 mmHg and a heart rate of 60/min, normal heart rhythm but with numerous extrasystoles. Because of this, Holter-ECG monitoring was recommended that revealed 3325 supraventricular ectopies.
with 286 supraventricular bigeminy events and 3 supraventricular trigeminy events. Also, there have been observed 622 ventricular ectopies with 7 ventricular bigeminy events and 24 ventricular trigeminy events. An antiarrhythmic treatment was initiated with favorable outcome.

A routine abdominal ultrasound was performed, which revealed in the 4th segment of the liver a 12mm hyperechoic nodule suggestive of hemangioma and a round and well-defined 3 cm lesion with a possible topography on the diaphragm. Because its location could not be established, an echocardiography was requested and the cardiac origin was refuted. Then a barium test was performed that showed that the lesion was not located in the gastrointestinal tract. We have also done an antero-posterior and latero-lateral thoracic radiography, but neither this investigation showed the tumor. Thus, we decided to visualize it by chest computer tomography with contrast that showed an oval, well-defined lesion of 30/25 mm with homogeneous structure, without contrast medium uptake and signs of local aggressiveness in the middle mediastinum, retrocardiac, on the posterior aspect of right atrium, in relation to inferior vena cava and esophagus. The lesion had benign characters (pleuropericardial cyst).

![Fig. 1. Pleuropericardial cyst](image)

**DISCUSSION**

From a theoretical point of view, the mediastinum is divided into 9 regions by 2 vertical planes and 2 horizontal planes into superior, middle and inferior and anterior, middle and posterior. In our patient’s case, we had to make the differential diagnosis of the anteroinferior region in which there can be found the endo-thoracic fascia, inferior pericardial ligament, phrenopericardial ligaments, heart and pericardium (5). It is known that the mediastinum contains numerous vital structures in a relatively small area and has a limited accessibility. At least half of the patients with mediastinal tumors are asymptomatic and the lesions are usually detected incidentally on chest radiographs or other routine laboratory investigations. The asymptomatic lesions are usually benign. The symptoms commonly appear after the compression or invasion of the adjacent organs (6).
The main symptoms that can be observed after the compression or invasion of the bronchial tree are: pain, cough, dyspnea, hemoptysis, dysphonia, wheezing; also, the venous compression determines the superior vena cava syndrome, azygos vein syndrome, thoracic duct syndrome, Menetrier syndrome, bilateral pleural effusion or lower limb edema. There can also appear signs of nervous compression expressed by dysphonia, hemidiaphragm paralysis, hiccups, intercostal neuralgia, Claude Bernard Horner syndrome, Pancoast Tobias syndrome. In addition, we can find tachycardia and palpitations as circulatory signs and, last but not least, dysphagia. Occasionally, mediastinal tumors may manifest clinically as paraneoplastic syndromes, most frequently endocrine (7).

In our patient’s case, we considered the following differential diagnosis:

- Pleuropericardial cyst - a mesothelial cyst that grows from the parietal pericardium. It is asymptomatic, being frequently discovered incidentally. It is in the anterior costophrenic angle, predominantly right sided. Chest radiograph reveals a well-defined homogenous opacity, moving with respiration;
- Diaphragmatic relaxation or eventration, determined by the deficient development of the phrenic nerves that reach the muscles and are often located in the anteromedian region of the right hemidiaphragm; this was refuted in our case by computer tomography;
- Morgagni hernia that is determined by a defect in the parasternal region of the diaphragm, usually on the right side. Chest radiograph shows well-defined right para-cardiac opacity of variable intensity depending on the content (8), negative in our case.

Short- and long-term prognosis is good. Among the most frequent complications we should mention compression, inflammation, rupture and hemorrhage. Intracystic hemorrhage may be spontaneous or post-traumatic. Hemorrhage may determine a quick expansion of the cyst and may culminate with severe pain, cardiac tamponade or congestive heart failure (9, 10, 11).

CONCLUSIONS

Our case is a useful opportunity for clinical remarks firstly given its atypical onset - this cyst was detected incidentally in the seventh decade of life, it was localized on the left side, contrary to most the cases in the literature. In addition, we should take into consideration the fact that in our patient we could not see anything on the chest radiograph, even if in the literature many cases are discovered through this investigation.

REFERENCES

LONGER CORONARY ANASTOMOSIS PROVIDES LOWER ENERGY LOSS IN CORONARY ARTERY BYPASS GRAFTING

The first successful CABG intervention was performed in 1964 by Michael DeBakey who bypassed a coronary stenosis by interposing a saphenous vein graft between the ascending aorta and the diseased coronary artery distal to the lesion. Since then, the technique evolved and nowadays the intervention can be performed off-pump and minimally invasive. Despite all progress, clinical studies did not manage to identify the ideal grafting technique in terms of grafting configuration, graft type, graft harvesting, graft preparation, anastomoses, and optimal long-term patency. Distal anastomosis technique has been proved to affect long-term graft patency by numerous studies. However, the appropriate length of distal anastomosis has not been investigated until the research performed by Dr. Hiroyuki Tsukui and his collaborators. Their study aimed to evaluate whether longer distal anastomosis provides higher quality of distal anastomosis and better hemodynamic patterns. For this purpose they used a CABG training simulator for building distal anastomosis models. The authors prepared two end-to-side distal anastomosis models of different lengths (10 versus 4 mm) and used computed tomography (CT) to obtain a 3D reconstruction of the inner shape of distal anastomosis. Afterwards, computational flow dynamics (CFD) was used to analyze hemodynamic patterns. The 3D CT reconstruction showed that the quality of distal anastomosis in the 10 mm model was more uniform without vessel wall inversion or kinking compared to 4 mm model. Anastomotic flow area proved to be significantly larger in the 10 mm model compared to the 4 mm one. Also, the anastomotic angle was smaller in 10 mm model compared to 4 mm model, a condition associated with lesser flow turbulences. CFD analysis demonstrated that the 10 mm model had streamlined flow with smooth graft curvature, whereas 4 mm model had abrupt blood flow with directional changes and separation at the toe. Subsequently, the 10 mm model registered a lower energy loss than the 4 mm model. The authors concluded that longer distal anastomosis provided a larger anastomotic flow area, a smaller anastomotic angle, and smoother graft curvatures, factors associated with a higher flow quality and better long-term patency. (Tsukui H, Shinke M, Park YK, Yamazaki K. Longer coronary anastomosis provides lower energy loss in coronary artery bypass grafting. Heart Vessels. 2016; 32(1): 83-89).