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Clinical Note

Cardiac Tamponade due to a Pleuropericardial Cyst with Invasive Lung Cancer

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ABSTRACT

Pericardial and pleuropericardial cysts are uncommon (7% of all mediastinal masses) and the majority of cases are asymptomatic, so they are usually found by chance.

We present the case of a 62 year-old male with a left-sided pleuropericardial cyst, complicated by the development of a cardiac tamponade, a rare finding in this type of disease. After it was surgically removed, histopathology showed infiltration of the cyst by a poorly differentiated large cell carcinoma.

Taponamiento cardíaco por quiste pleuropericárdico con invasión por carcinoma pulmonar

RESUMEN

Los quistes pericárdicos y pleuropericárdicos son una enfermedad infrecuente (el 7% de todas las masas mediastínicas) y en la mayoría de los casos cursan de manera asintomática, por lo que su hallazgo suele hacerse de forma casual.

Presentamos el caso de un varón de 62 años, con un quiste pleuropericárdico de localización izquierda, que tuvo como complicación el desarrollo de taponamiento cardíaco, hallazgo poco frecuente en este tipo de enfermedades. Tras su extirpación quirúrgica, el examen anatomopatológico mostró infiltración de este quiste por carcinoma de células grandes poco diferenciado.

Introduction

The differential diagnosis of mediastinal masses involves a wide variety of lesions of a different nature. Of these, mediastinal cysts make up 20%-32% of all primary mediastinal masses.[1]

Pericardial and pleuropericardial cysts are congenital mesothelial cysts (seldom post-traumatic), which are the result of the abnormalities in the formation of the coelomic cavities.[2]

This is an uncommon disease (7% of all mediastinal masses[3]) and most cases are asymptomatic and are thus normally found by chance in a chest x-ray performed for another reason.[4]

We report the case of a patient with a pleuropericardial cyst with some peculiarities with regard to its location and evolution and due to its infiltration by pulmonary carcinoma.

Case report

A 62-year-old male patient who was a lifelong non-smoker, and whose medical records included only a herniated disc and benign prostatic hypertrophy treated with tamsulosin hydrochloride was admitted to the pneumology clinic with symptoms of asthenia and anorexia that had started 6 weeks earlier, an itchy, dry cough that had started 2 weeks earlier, and a feeling of retrosternal pressure. The patient stated that he had not suffered from any respiratory symptoms prior to this episode.

The chest x-ray stood out among all the tests performed. It detected a large mediastinal mass, mainly in the anterior compartment. The chest CT scan revealed a mediastinal mass with

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attenuation values corresponding to fluid occupying the left mediastinal border, adjacent to the border of the heart and large vessels. The mass measured approximately 121×101×140 mm, had no signs septum or calcification on its inside, had a thin wall, and produced partial atelectasis of individual pulmonary segments, and extended cranially towards the anterior mediastinum. The findings were compatible with a pericardial cyst. No abnormal lymph node of significant size were detected in the mediastinum and there were no nodules or infiltrates in the lung parenchyma. Macroscopic pathological changes were not detected in the abdomen. A 55-mm ESR and 2.05-mg/dL CRP stood out in the general analysis. Immunoglobulins, TSH and urine were normal. Hydatid serology was negative. The tests of respiratory function were normal. The ECG showed sinus rhythm of 66 bpm without ischemic or repolarization changes. Fiberoptic bronchoscopy detected no pathological changes other than some abnormal bronchial distribution.

In the light of the discovery of a possible pleuropericardial cyst, the patient was referred to the thoracic surgery department for surger. Once assessed and waiting for surgery, the patient began to suffer progressive dyspnea until it occurred on minimal exertion, orthopnea, and oppressive chest pain in the left costal margin related to posture, and was admitted as an emergency case to the cardiology department. When examined, the patient had a BP of 110/60 mm Hg, HR of 120 bpm, basal SaO_2 of 96%, poor general condition, eupnoea at rest, and obvious JVD at 45º. His heartbeat was rhythmic in the auscultation with no murmur or rubs; the respiratory auscultation revealed normal breathing sounds, with no additional pathological sounds; the lower limbs had no edemas or signs of deep vein thrombosis. The patient had rhythmic, weak pedal and radial pulses. An ultrasound scan was then performed, which showed normal systolic function in the left ventricle, with slight concentric hypertrophy. There was moderate-to-severe pericardial effusion around the right cavities (over 30 mm) and to a lesser degree around the posterior wall, provoking the partial collapse of the right ventricle and complete collapse of the right atrium. The inferior vena cava was severely dilated and unable to collapse. There was incomplete expansion of the left ventricle in diastole, not caused by the effusion, but rather because of compression due to the large pericardial cyst.

Due to hemodynamic instability it was decided to bring forward the surgery; a left anterolateral thoracotomy was performed to remove the mediastinal cyst, which was closely adhered to L2, and dark fluid and smooth walls were observed. During surgery, a pericardial window was created and 250 mL of pericardial fluid was extracted. During the lung expansion, a nodule was found on the LSL, and a biopsy was taken for study. Furthermore, samples of the mediastinal cyst and the fluids were sent for microbiological and anatomical pathological analysis.

The patient's postoperative progress was good, and he underwent an ultrasound examination that showed hemodynamic stability, no pericardial effusion, and structurally normal heart valves and left ventricle.

In all the samples sent for analysis (cyst wall, parietal pleura, lingula, LSL tumour, hilar adenopathy) there was neoplastic proliferation composed of undifferentiated large cell carcinoma. In view of these findings, the patient was referred in the end to the oncology department.

Discussion

As mentioned above, of the wide variety of lesions that appear as mediastinal masses, mesothelial cysts (pericardial and pleuropericardial) make up 7% of them.[3] While these have a series of characteristics that are common in most patients, in this case there were a series of peculiarities that we will now remark on.

Mesothelial cysts are usually found in the middle or visceral mediastinum,[1,5] typically in the right cardiophrenic angle (in 57%[1], 70%,[6] or 75%[2] of cases, according to studies carried out) In this patient, the mass was predominantly located in the anterior mediastinum (this understood as when the mass is located predominantly in the region forward of a lined traced along the anterior border of the trachea and the posterior border of the heart[2]) and on the left-hand side. This was the first peculiarity observed in this patient.

Most of these cysts have a diameter of between 3 and 8 cm.[2] This patient's cyst measured 12×10×14 cm and, therefore, was bigger than average, although cases have been reported of masses up to 28 cm.

Meanwhile, most patients have no symptoms[2] (in up to 60% of cases) and when they are present, they are due, in general, to the lesion increasing in size and growing towards nearby structures such as the heart, large vessels, or the tracheobronchial tree. While uncommon, the most frequent symptoms are dyspnea, a feeling of retrosternal pressure, or chest pain and coughing.[2,6] Rare complications include cardiac tamponade, infection of the cyst, arrhythmias, and mesothelioma.[2]

The patient presented here presumably had no symptoms for years, and only a month and a half before undergoing the chest x-ray he began to suffer from asthenia, anorexia (possibly part of the constitutional symptoms associated to the neoplasia discovered), cough and retrosternal pain; later, he developed complications of pericardial effusion and tamponade.

Finally, it is worth highlighting how the neoplasia extended to the pleuropericardial cyst and neighboring structures; while this is possible as part of the tumour progression, a search of PubMed revealed no published cases where this has occurred. Although cases have been reported of concomitant neoplasia and mediastinal masses, there are no cases of patients with a mediastinal mass invaded by cancer.

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