

Large pericardial cyst mimicking a unilateral pleural effusion: a case report

Quiste pericárdico gigante mimetizando derrame pleural unilateral: reporte de caso

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ABSTRACT

Pericardial cysts are rare and usually asymptomatic. We present the case of a 65-year-old woman with progressive dyspnea and an apparent massive left pleural effusion. After unsuccessful thoracenteses, chest CT revealed a large pericardial cyst measuring 20 × 20 cm. Video-assisted thoracoscopic drainage and unroofing were performed, the presence of a benign serous cyst was confirmed by pathology. This case highlights the diagnostic challenge and the importance of advanced imaging in atypical mediastinal masses.

Keywords: pericardial cyst, dyspnea, pleural effusion, thoracoscopy.

RESUMEN

Los quistes pericárdicos son lesiones infrecuentes, habitualmente asintomáticas. Presentamos el caso de una mujer de 65 años con disnea progresiva y aparente derrame pleural izquierdo masivo. Tras toracocentesis infructuosas, la tomografía reveló un quiste pericárdico gigante de 20 × 20 cm. Se realizó drenaje y destechamiento por toracoscopia, confirmando su naturaleza benigna. El caso resalta el reto diagnóstico y la importancia de la imagen avanzada en masas mediastínicas atípicas.

Palabras clave: quiste pericárdico, disnea, derrame pleural, toracoscopia.

INTRODUCTION

Pericardial cysts are uncommon entities, accounting for approximately 33% of all mediastinal cysts and 6% of mediastinal masses. Their estimated incidence is 1 per 100,000 individuals in the general population, with no gender predilection, and a peak occurrence between 30 and 50 years of age. They are usually asymptomatic and incidentally detected on imaging studies. However, when large, they may cause symptoms such as atypical chest pain, persistent

cough, progressive dyspnea, and others, due to extrinsic compression of adjacent structures.¹⁻³ We present the case of a symptomatic giant pericardial cyst initially misdiagnosed as pleural effusion.

CASE DESCRIPTION

A 65-year-old female with a clinical history of diabetes mellitus and bilateral gonarthrosis presented to the emergency department in April 2024 with progressive dyspnea and a

How to cite: Ortiz-Betance GT, Saldivar-Landeros A, Arreola-Solís PS. Large pericardial cyst mimicking a unilateral pleural effusion: a case report. *Cir Card Mex.* 2026; 11 (3): 111-113. <https://dx.doi.org/10.35366/123485>

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Received: 14-10-2025. Accepted: 25-11-2025.

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radiographic finding suggestive of pleural effusion. She reported the onset of exertional dyspnea for six months, with fatigue after walking 500 meters or bending over. One month later, she developed orthopnea (requiring two pillows to sleep), palpitations, dizziness, and an unintentional weight loss of 5 kg over recent months. The patient also mentioned a history of COVID-19 three years ago, with residual persistent cough and sputum production. Due to persistence of symptoms, she consulted a private physician, who performed an EKG and chest X-ray revealing a massive pleural effusion, prompting referral to our institution. On arrival, her vital signs were blood pressure 143/64 mmHg, heart rate 76 bpm, and respiratory rate 25 breaths per minute. Physical examination revealed decreased chest expansion, crackles over the right hemithorax, absent breath sounds at the left base, and preserved apical vesicular murmur without wheezing. Further electrocardiographic tests and laboratory investigations were mostly negative. Chest radiography showed a large opacity occupying approximately 80% of the left hemithorax, tracheal deviation to the right, and left lung atelectasis (*Fig. 1*).

Multiple attempts of diagnostic-therapeutic thoracentesis were performed unsuccessfully, prompting a thoracic CT scan, which revealed a large fluid-filled collection within the anterior and inferior mediastinum extending laterally, causing extrinsic compression of both lungs without evidence of pleural involvement (*Fig. 2*). Video-assisted thoracoscopy identified a large pericardial cyst containing approximately 2,100 ml of serohematic fluid, located in the left hemithorax and occupying two thirds of it, displacing the lung superiorly. The cyst measured approximately 20 × 20 cm. The cyst was drained and unroofed, and an endopleural tube was placed. Cytological analysis revealed no bacterial growth. Histopathological examination of the cyst wall showed a fragmented serous wall with no evidence of malignancy, which confirmed the diagnosis. Postoperatively, the patient's course was uneventful, with marked improvement in dyspnea and no immediate complications. She was discharged on postoperative day 7 with stable hemodynamic and respiratory parameters.

COMMENTARY

Most pericardial cysts are congenital, resulting from the abnormal development of celomic cavities. They may also be acquired secondary to inflammatory, infectious, or traumatic processes. In this case, a congenital defect with progressive growth leading to clinically significant volume is the most likely etiology.⁴

Giant pericardial cysts are defined as those exceeding 10 cm in diameter. Reported sizes range from less than 3

cm to as large as 28 cm being extremely rare.^{5,6} The cyst's size is clinically relevant, as symptoms typically arise from compression of thoracic structures, explaining the clinical presentation in this case.⁷

Pericardial cysts are most frequently located in the right cardiophrenic angle (70%), followed by the left (approximately 22%) and other mediastinal sites (superior or posterior) in 8% of cases.⁶ The left-sided location in our patient is atypical and contributed to the initial diagnostic confusion.

The diagnostic workup is often challenging, as several radiologic differential diagnoses must be considered, including bronchogenic cysts, pericardial effusions, teratomas, and pleural effusions. Chest radiography is non-specific. Other imaging modalities include transthoracic echocardiography, computed tomography, and magnetic resonance imaging (MRI), this last one being superior for diagnosis and follow-up due to its excellent delineation of pericardial anatomy.⁸⁻¹⁰ In this case, the absence of complementary imaging led to multiple unsuccessful thoracentesis attempts, which delayed the final diagnosis. This situation has been previously described in the literature, with persistent pleural collections mimicking pericardial cysts.

Management of pericardial cysts should be individualized based on symptoms, cyst growth, and imaging findings suggesting solid components. Asymptomatic patients may be managed conservatively with periodic imaging follow-up. However, surgical resection via thoracotomy, video-assisted thoracic surgery, or percutaneous aspiration are indicated in symptomatic patients or those with enlarging cysts.^{10,11}

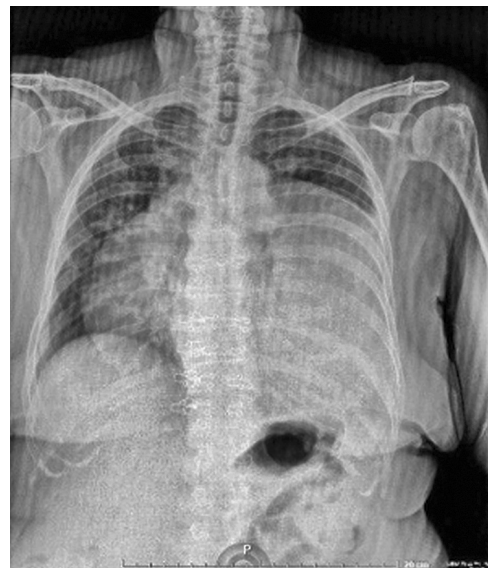
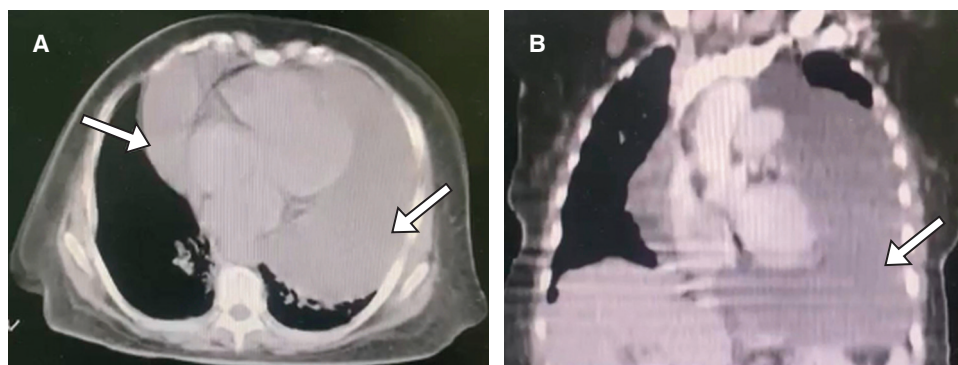


Figure 1: Chest radiography showing extensive opacity in the left hemithorax with near-complete obliteration of the pulmonary parenchyma.

**Figure 2:**

Large fluid collection in the anterior and inferior mediastinum extending laterally, causing extrinsic compression of both lungs without evidence of pleural involvement (indicated by white arrows). **A)** Axial view. **B)** Coronal view.

CONCLUSIONS

Giant pericardial cysts are rare entities that can mimic more common conditions such as pleural effusion, representing a significant diagnostic challenge. The atypical left-sided location and large size in this case explained the compressive symptoms observed. This case highlights the importance of including pericardial cysts in the differential diagnosis of mediastinal masses and atypical pleural effusions, as well as the value of advanced imaging for accurate characterization. Video-assisted thoracoscopic drainage and unroofing provided a safe and effective therapeutic approach, resulting in excellent clinical outcomes and favorable prognosis.

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Funding: none.

Disclosure: the authors have no conflict of interest to disclose.