

Asymptomatic Pericardial Cyst: A Case Report and Brief Review of its Management

Matheus Rodrigues Barbosa,¹^{ID} Henrique Turin Moreira,¹^{ID} Gustavo Jardim Volpe,¹^{ID} Danilo Tadao Wada,¹^{ID} Minna Moreira Dias Romano,¹^{ID} Andre Schmidt¹

Universidade de São Paulo, Faculdade de Medicina de Ribeirão Preto,¹ Ribeirão Preto, SP – Brazil

A 59-year-old female patient, with high blood pressure, diabetes mellitus, and dyslipidemia, was referred to a tertiary care service for investigation of an irritating, non-productive cough that had onset two months prior. She denied symptoms of reflux or postprandial stuffiness, as well as nasal congestion or signs of allergic rhinitis. She denied smoking, alcohol consumption, and contact with individuals with tuberculosis and did not report previous pneumonic events.

She was taking losartan (50mg 12/12h), atenolol (25mg 12/12h), metformin (850mg 2x/day), and simvastatin (20mg at night), in addition to 100mg of acetylsalicylic acid at lunch daily.

She was initially medicated with dexchlorpheniramine maleate 2 mg per day and additional biochemical tests and a simple chest x-ray were requested. Upon return, she reported complete improvement in respiratory symptoms, biochemical tests were within normal limits, but the x-ray revealed a mass in the right anterior region of the chest (Figure 1A), which began to be investigated.

Given the suspicion of a cyst or neoplasia, a chest computed tomography was requested, which revealed a cystic lesion with regular contours located in the right cardiophrenic sinus, in contact with the pericardial surface on the right (Figure 3A).

Upon consultation with cardiology, the patient was asymptomatic and had no abnormalities on clinical examination, and it was found that the comorbidities were under adequate laboratory control. An electrocardiogram and a transthoracic echocardiogram were then requested, with only the latter being performed, which revealed cavities with preserved dimensions and systolic function, but with a hypoechogenic image in the right atrioventricular sulcus of imprecise dimensions, apparently without causing cardiac compression (FIGURE 2). A review of old medical records indicated that a chest x-ray taken 10 years earlier showed a mass with the same topography and smaller dimensions (Figure 1B). A magnetic resonance imaging (MRI) examination of the heart was then requested, which revealed the presence of a pericardial cyst, located in the

anterior mediastinum, measuring 8.8 x 3.6 x 7.4 cm (Figure 3B). No significant changes were observed in the cardiac chambers and in the functions of the left and right ventricles. The patient remains under semi-annual clinical follow-up, without symptoms, for a period of one year, under expectant management.

Discussion

Pericardial cyst is an uncommon clinical entity, with an estimated incidence of 1/100,000 to 1/10,000 autopsies. Its etiology is not yet completely understood, but it is believed to be due to an abnormal development of the pericardium during embryogenesis. It is necessary to differentiate the cyst from the pericardial diverticulum, which possibly have the same origin but, in the latter, there is communication with the pericardial cavity.¹ Most cases are asymptomatic, even with large dimensions, and the lesion is often discovered incidentally during imaging exams or heart surgery. When symptomatic, the clinical presentation is variable and may include cardiorespiratory symptoms, such as chest pain, dyspnea,² cough,³ sudden cardiac death or signs of cardiac tamponade.⁴

The diagnosis of pericardial cyst is initially suspected by the incidental performance of a chest x-ray, which shows the mass attached to the cardiac silhouette. Doppler echocardiography, computed tomography and cardiac MRI allow the diagnosis to be confirmed, notably the last two.⁵ Chest x-ray may reveal a mediastinal mass or an area of increased density. Computed tomography (CT) scans and cardiac MRIs provide more detailed information about the location, size, and characteristics of the cyst. Transthoracic echocardiography can be useful in evaluating cardiac function and the presence of cyst-related complications, such as cardiac compression. Differential diagnosis should include neoplasms and, more rarely, migratory hydatid cysts, which may be single.⁶

The approach to managing a pericardial cyst depends on presence or absence of symptoms, size of the cyst, impairment of cardiac function, and presence of complications, notably rupture and hemorrhage. In asymptomatic patients, an expectant approach with regular follow-up every one or two years is a safe and effective option, avoiding unnecessary invasive procedures. Recent data suggest that, in most cases, size may be maintained or even reduced, contrary to what was evidenced in this case.⁷

Surgical intervention is reserved for symptomatic patients or when there are significant complications such as cardiac compression or tamponade. Although open surgery is the most commonly used approach, punctures for drainage and relief and alcohol-based sclerosis thoracoscopy have been used.⁸

Keywords

Pericardium; Mediastinal Cyst; Case Reports.

Mailing Address: Andre Schmidt •

Universidade de São Paulo, Faculdade de Medicina de Ribeirão Preto, Centro de Cardiologia. Av. Bandeirantes, 3900 Postal code: 14048-900. Ribeirão Preto, SP – Brazil.

E-mail: aschmidt@fmrp.usp.br

Manuscript received October 4, 2023; revised November 3, 2023; accepted November 3, 2023

Editor responsible for the review: Daniela do Carmo Rassi Frota

DOI: <https://doi.org/10.36660/abcimg.20230080i>

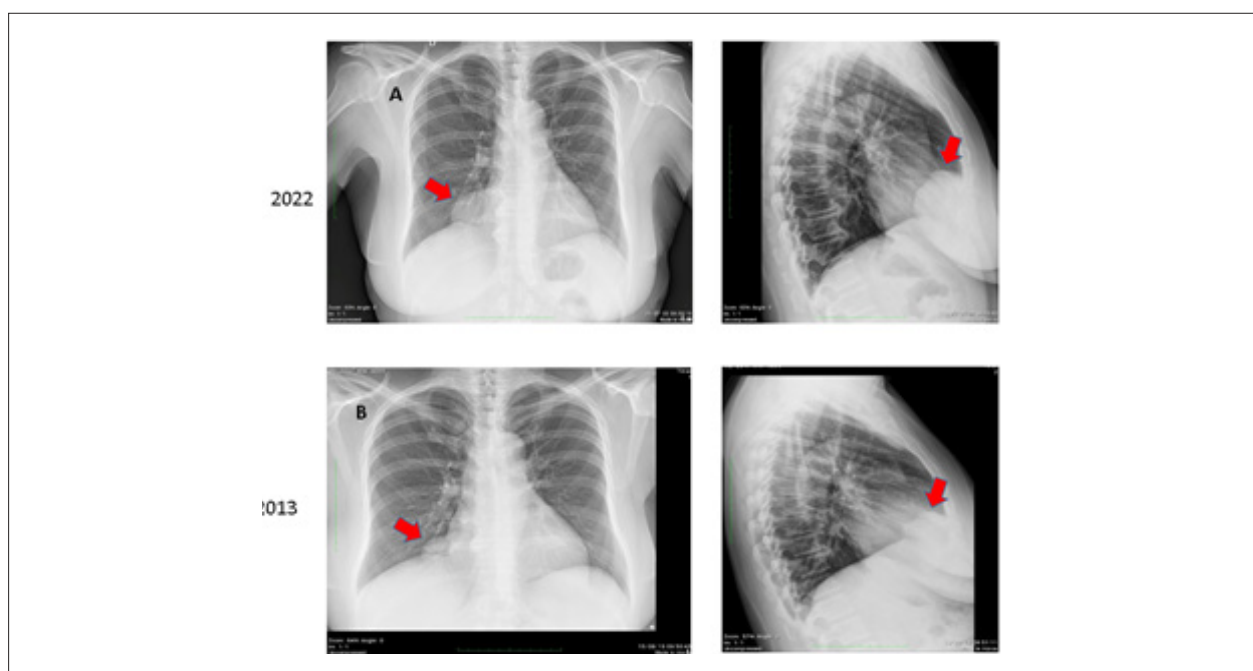


Figure 1 – Postero-anterior and lateral chest radiographs, showing the pericardial cyst (arrows) in 2013 (lower image) and in 2022 (upper image).

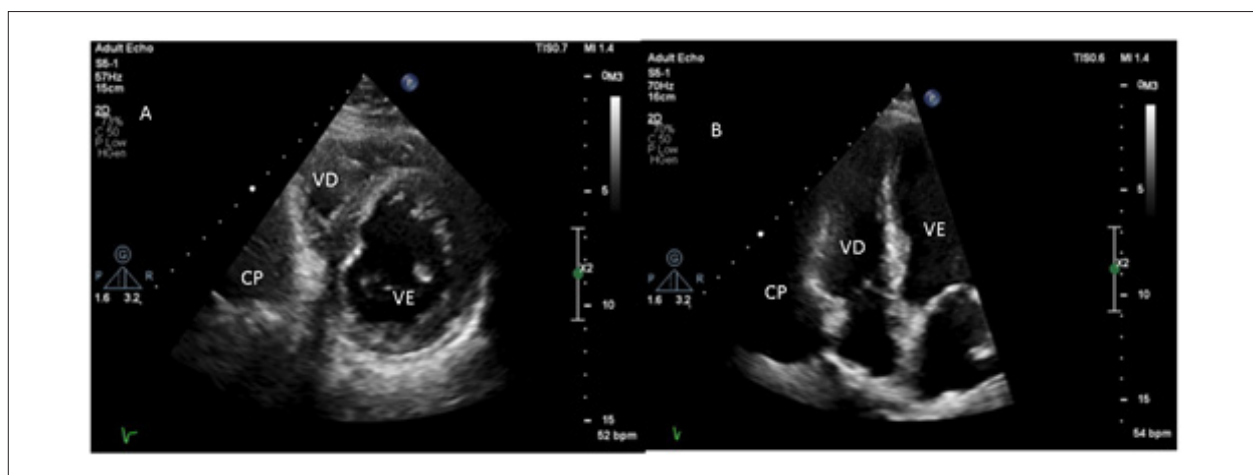


Figure 2 – Short-axis (left image) and four-chamber (right image) Dopplerechocardiogram images showing the pericardial cyst (CP) as a luminescent area posterior to the right ventricle (VD). VE=Left ventricle.

Conclusion

Pericardial cyst is a rare condition that can be asymptomatic and diagnosed incidentally. Expectant management is a valid option in asymptomatic cases, with regular monitoring to detect the development of symptoms or complications. Surgical intervention must be based on an individualized assessment, considering the presence of symptoms, the size and location of the cyst, cardiac function, and the risk of complications. It is paramount to increase awareness of this clinical condition to ensure proper diagnosis and management of patients. Additional studies are needed to improve our understanding of the

etiology, pathophysiology, and treatment approaches of pericardial cyst.

Author Contributions

Conception and design of the research: Schmidt A; acquisition of data: Volpe GJ, Wada DT; analysis and interpretation of the data: Barbosa MR, Moreira HT, Volpe GJ, Wada DT; writing of the manuscript: Barbosa MR, Schmidt A; critical revision of the manuscript for intellectual content: Moreira HT, Volpe GJ, Wada DT, Romano MMD, Schmidt A.

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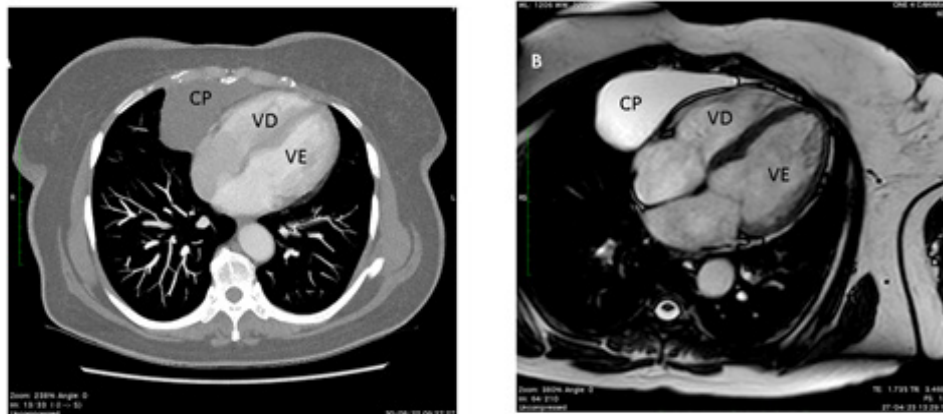


Figure 3 – Chest computed tomography (left image) and cardiac magnetic resonance (right image) in four-chamber position, showing the well-defined and homogeneous pericardial cyst (CP).

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Sources of Funding

There were no external funding sources for this study.

Study Association

This study is not associated with any thesis or dissertation work.

Ethics Approval and Consent to Participate

This article does not contain any studies with human participants or animals performed by any of the authors.

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