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Case Report

A Rare Giant Pericardial Cyst with Atypical Clinical Presentation—A Case Report

Dabeluchi C Ngwu[1,2] and Nicholas A Kerna[3,4]*

[1]*Cardiovascular and Thoracic Surgery Unit, Department of Surgery, Federal Medical Center, Umuahia, Nigeria*

[2]*Earthwide Surgical Missions, Nigeria*

[3]*Independent Global Medical Research Consortium, USA*

[4]*First InterHealth Group, Thailand*

***Corresponding Author:** Nicholas A Kerna, (mailing address) POB47 Phatphong, Suriwongse Road, Bangkok, Thailand 10500. Contact: medpublab+drkerna@gmail.com.

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Abstract

Pericardial cysts are typically benign congenital lesions of the pericardium—located generally at the right costophrenic angle (70 – 75%) and less frequently at other sites. They are typically asymptomatic and incidentally found in imaging investigations. Some larger tumors become symptomatic due to their local effects on surrounding structures or complications, such as cyst infection or rupture.

Highly-sensitive cross-sectional imaging modalities, like CT and MRI, are frequently employed for preoperative diagnosis confirmation and to exclude differential diagnoses, including other mediastinal cysts, hematoma, and neoplastic masses.

Surgical excision is the treatment mainstay, but less-invasive therapeutic measures have been successful in a select few. The prognosis following successful excision is excellent.

Smaller, asymptomatic lesions should be initially monitored and treated if symptoms develop or complications exist or appear imminent.

We report the case of a large pericardial cyst with atypical symptoms of singultus (hiccups) and acid reflux (heartburn). The cyst was surgically excised to relieve the patient's symptoms and forestall the development of possible complications.

Keywords: *Acid Reflux; Congenital Lesion; ECG-Gated; Heartburn; Heart Tumor; Hiccups; Singultus*

Introduction

Pericardial cysts are rare, mostly benign, congenital lesions of the mediastinum [1,2]. They may also be acquired pericardial anomalies (e.g., post-inflammatory, hydatid, neoplastic) [1]. Their incidence is rare at 1 in 100,000 but remains the most common benign pericardial mass [2]. Pericardial cysts are classically found in the right or left cardiophrenic angle and rarely are located outside of this location [3]. These cysts have been reported in other sites within the mediastinum [2,4], including the hilum and superior mediastinum [4].

Pericardial cysts are usually unilocular, well-marginated, spherical, or teardrop-shaped lesions of variable size. They have thin walls and no internal septation and may be attached to the pericardium directly or by a pedicle [1,2]. They contain clear serous fluid called

"spring water" [1]. Histologically, these cysts contain a single layer of mesothelial cells—the remainder of the wall is composed of connective tissue with collagen and elastic fibers [1,4].

Typically, they are asymptomatic and are discovered incidentally, but occasionally they become symptomatic owing to compression of surrounding structures, cyst infection, or rupture [2].

We report on a young man who presented to our facility with a 4-day history of sudden onset of persistent singultus (hiccups) associated with heartburn. The patient was found to have a significant pericardial cyst and complete symptom resolution following surgical excision.

Case Presentation

A 34-year-old man presented to our emergency room with a 3-day history of persistent singultus (hiccups) and worsening heartburn. He had been well before these symptoms, which started suddenly. He was studying for an examination with no identifiable precipitating factors or associated symptoms. He also had no co-morbidities and expressed no history of previous surgical operations.

Physical examination was unremarkable. However, the initial chest x-ray showed a sizeable radiopaque mass abutting the right cardiac border and the ipsilateral diaphragm (Figures 1 and 2).

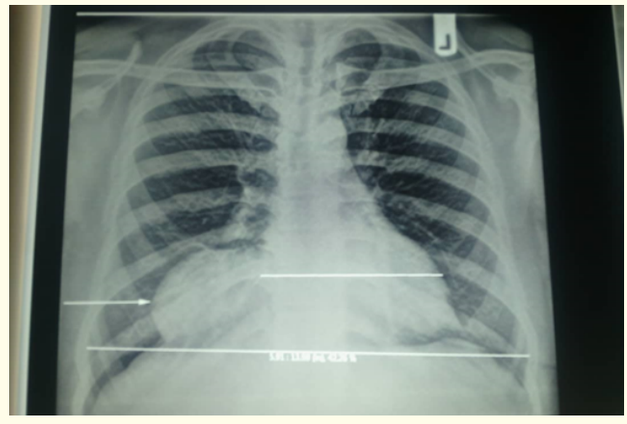

Figure 1: *A sizeable radiopaque mass is revealed.*

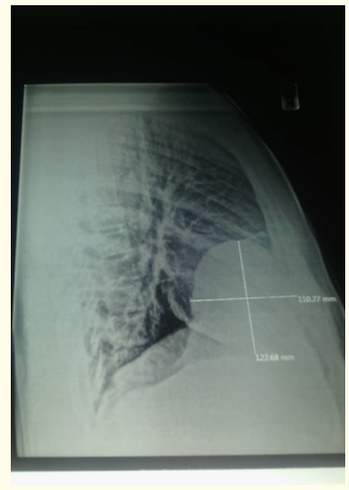

Figure 2: *A sizeable radiopaque mass is revealed.*

Further assessment with a contrast chest CT revealed an elliptical, well-marginated cystic mass with the same attenuation as water and no enhancement following the injection of contrast (Figures 3 and 4).

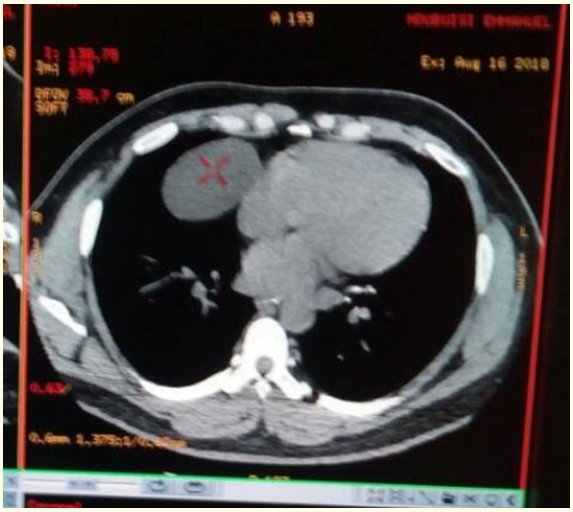

Figure 3: *Cyst assessment with a contrast chest CT.*

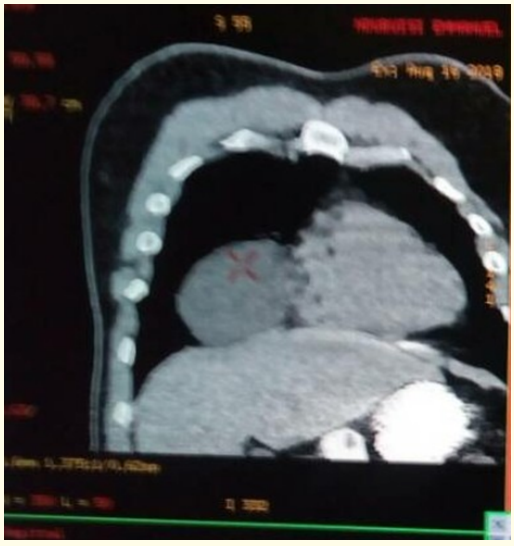

Figure 4: *Cyst assessment with a contrast chest CT.*

The diagnosis of a pericardial cyst was upheld, and the patient's symptoms were temporarily controlled with metoclopramide. the patient's was evaluated for (and underwent) surgical cyst excision via a formal right posterolateral thoracotomy (Figure 5).

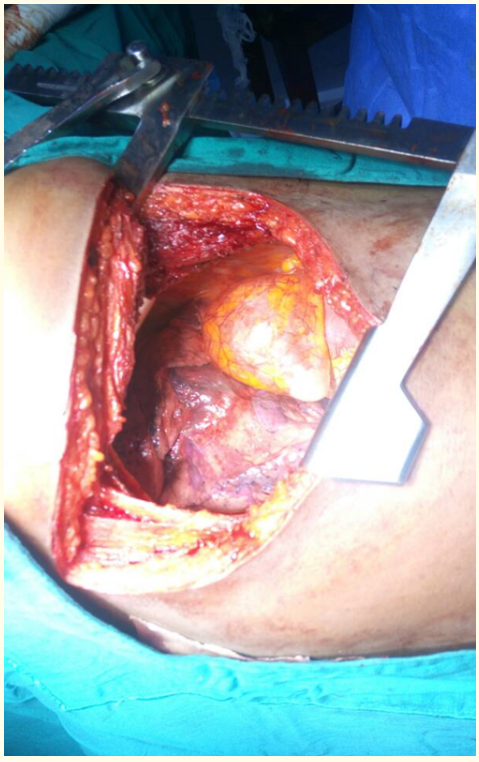

Figure 5: *Surgical cyst excision via a formal right posterolateral thoracotomy.*

The cyst was successfully excised without rupture. Histopathological examination confirmed a simple benign pericardial cyst.

Discussion and Conclusion

Typically, pericardial cysts are as follows:

- Congenital encapsulated cysts that arise from the pericardium in early development [2]
- Do not communicate with the pericardial cavity [2]
- Occur equally in males and females [1]
- Appear most frequently in the third or fourth decade of life [1]
- Are unilocular, but multilocular states have been reported [3,4]

- Have smooth walls and no internal septa, with diameters ranging from 1 – 5 cm [2].

Our experience matched this description, but the cyst was unusually large, with a 9 cm diameter. The patients are typically asymptomatic; the pericardial cyst is discovered incidentally on chest imaging for other purposes.

However, some pericardial cyst patients have reported a range of symptoms, including cough, chest discomfort, dyspnoea, palpitations, dysphagia, and weight loss [1,4]. This case might be an index case as it seems to be the first report of a patient with a pericardial cyst presenting with singultus and heartburn and without more typical bronchopulmonary or cardiac symptoms.

The following five life-threatening complications have been reported:

- Atrial fibrillation
- Cardiac tamponade
- Obstruction of the right main stem bronchus
- Cyst infection with cardiac or large vessel erosion
- Sudden death after a stress test [1,4].

Generally, the initial investigations, viz., electrocardiography, chest x-ray, and echocardiography, typically lack the sensitivity required for accurate diagnosis, intervention planning, and strategy [5–7]. Cross-sectional imaging modalities, including computed tomography (CT) and magnetic resonance imaging (MRI), are frequently utilized for this purpose [8–10].

CT and MRI have the advantage of being able to provide three-dimensional images of the heart and the pericardium in any anatomical plane [11]. Also, they can provide anatomical and functional information and can be ECG-gated to reduce motion artifacts [12].

In CT, the cysts have the same attenuation as water and are not enhanced after contrast material administration [13]. With MRI, the cysts typically have low or intermediate signal intensity on T1-weighted images and homogeneous, high-intensity T2-weighted images [14].

They are not enhanced with the administration of gadolinium chelates [15]. Occasionally, a cyst may contain highly proteinaceous fluid, which may have a high-signal intensity on T1-weighted images [14]. Pericardial cysts must be differentiated from other mediastinal cysts, hematomas, and neoplasms [16].

There are no reports of malignant transformation of these cysts, and their course is usually benign [17]. Surgery is the treatment mainstay. Thus, surgery indications include a large size, symptoms, cyst infection, patient request, suspected malignancy, and prevention of complications [16,17].

Other less invasive treatment options include video-assisted thoracoscopic surgery, percutaneous aspiration, and injection of a sclerosing agent. Asymptomatic patients with smaller cysts should be managed conservatively with short follow-up periods and treated when symptoms develop or complications occur (or are deemed likely to occur) [1,18,19]. Our patient was offered surgical excision based on his symptoms to avoid the development of complications.

Conflict of Interest Statement

The authors declare that this paper was written without any commercial or financial relationship that could be construed as a potential conflict of interest.

Authors Contribution

The manuscript was read and approved by both authors.

Supplementary Note

A previous abstract (appreciably updated herein) was presented at the Joint Association of Surgeons of Nigeria and the Nigerian Surgical Research Society Meeting, Umuahia, Nigeria, in July 2018 [20].

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