CASE REPORT

An atypical presentation of a pericardial cyst

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Abstract

A pericardial cyst is a benign and rare congenital anomaly. The presentation of pericardial cysts varies with the extent of mediastinal involvement. Complaints can include dyspnea, pleuritic chest pain and systemic symptoms; however, the majority are asymptomatic. Imaging modalities such as MRI, CT and X-ray can visualize the cysts. Treatment approach includes aspiration or surgical resection. We describe an atypical presentation of a pericardial cyst and subsequent treatment and recommendations for these rare anomalies.

INTRODUCTION

Pericardial cysts are benign congenital anomalies of the middle mediastinum [1]. The pericardium of the heart is anatomically structured as an outer fibrous layer and inner serous sac containing a visceral and parietal layer composed of mesothelial cells [2]. The thickness of the pericardial sac is normally <2 mm and contains 25–50 ml of fluid [2]. Formation of a pericardial cyst is due to abnormal fusion of the mesenchymal lacunae during embryogenesis, though cases have been described following traumatic insult.

The incidence of pericardial cysts is ~1 in 100,000 [3]. Predilection of cyst location in order of incidence involves the right costophrenic angle, left costophrenic angle and anterior/posterior mediastinum [2]. Due to location within the mediastinum, other masses to consider involve bronchogenic cysts, cardiac teratomas and thymic cysts [4].

Clinical presentation of pericardial cysts varies depending on compression of adjacent structures within the mediastinum. Reports of dyspnea, fever, pleuritic chest pain, syncope, weight loss, cardiac tamponade, pneumonia and palpitations have been described [3]. In this case report, we describe an atypical presentation of a pericardial cyst discovered incidentally on X-ray.

CASE REPORT

A 37-year-old Caucasian female with a past medical history significant for tobacco use, anxiety, an abdominal hernia and palpitations was evaluated for complaints of chronic paresthesias and lower back pain. The initial insult occurred 3 years prior following a lifting accident where the patient felt a ‘pop’ in the mid-upper back.

After a short interval, the patient started to experience tingling in her hands when bending her elbows or driving. She also reported paresthesias in the calves/feet bilaterally. The symptoms were intermittent and lasted for several hours. The paresthesias were described as a ‘warm tingling sensation and pain,’ which started in the mid-back and radiated down and around the posterior back. The symptoms occurred after standing for 15 min. Relief was reported in the supine position. The patient denied any weakness, vision loss and review of systems was otherwise negative. Physical exam demonstrated...
tenderness to palpation of the bilateral thoracic paraspinal muscles, with left tenderness > right tenderness at the T4/T5 and T6/T7 dermatomes. Hypomobility of the thoracic spine and right upper thoracic/cervical paraspinals was also documented. Following unsuccessful treatment with physical therapy, the primary diagnosis of dorsalgia with referral to a specialist was recommended.

Evaluation by a specialist revealed tenderness in the right trapeziuses and rhomboids. Reflexes and strength were normal; straight leg raise and Spurling’s tests were negative. Vital signs were remarkable for a blood pressure of 139/65 and pulse of 56. A lidocaine/kenalog injection was performed for trigger point. X-ray of the cervical and thoracic spine, complete metabolic panel, glucose, B12/Folate, hepatic function panel, iron level, anti-nuclear antibody, total iron body content, ferritin and c-reactive protein were ordered. Referral to neurology was conducted.

The patient received a preliminary diagnosis of a demyelinating disease at the neurological visit. All prior lab tests resulted negative. Radiographs demonstrated a thoracic perihilar mass. The perihilar mass measured 9.3 × 11.2 cm (Figs 1 and 2). Due to the location and size of the perihilar mass, a computed tomography (CT) scan was conducted. The CT scan demonstrated fluid attenuation arising from the aspect of pericardium measuring 9.0 × 9.1 × 9.4 cm, compatible with a pericardial cyst (Figs 3–5). Imaging was negative for a pericardial effusion and lymphadenopathy.

Following discovery of the pericardial cyst, a cardiology referral was scheduled. In the interval period, the patient developed shortness of breath with exertion, dizziness, orthopnea and chest tightness. Due to the location of the pericardial cyst, the cardiologist suggested the cause of the back pain, paresthesias and shortness of breath was a result of mediastinal compression instead of a demyelinating process. An electrocardiogram and cardiac and pulmonary exam were normal. The patient was referred to cardiothoracic surgery with echocardiography. Initial transthoracic echocardiogram was remarkable for a large cyst impeding on the right atrium and a cyst with a fluid filled level in the mid portion of the atrium, ~8.5 cm in diameter. Transesophageal echocardiography revealed trace tricuspid regurgitation and right atrial compression with impedance of inflow into the right atrium and high-velocity jets coming from the inferior vena cava and superior vena cava (Fig. 6).

The pericardial cyst was removed with a minimally invasive approach. Following removal, the right atrium returned to normal size. On post operative Day 5, the patient was evaluated and complained of numbness and tingling of the right breast/nipple. Both shortness of breath and dizziness had resolved. The pathology report revealed a fibrous walled cyst with chronic inflammation and calcification (Figs 7 and 8). At a 1-month follow-up, the patient experienced complete resolution of all symptoms.
DISCUSSION

Visceral innervation of the pericardium is conducted by cervical vagal fibers. These medullated fibers respond to stretching, pulling or touching of the pericardium [5]. However, the majority of pericardial cysts are indeed asymptomatic [3]. Due to the ability of pericardial cysts to become infected, systemic symptoms and cardiac complaints should be evaluated actively [6].

Treatment of symptomatic pericardial cysts is accepted practice. Close follow up and imaging is recommended for asymptomatic pericardial cysts. Surgical excision of the pericardial cyst, thorascopic resection, and cyst aspiration are all accepted modalities for treatment [2].

In this case report, we present a novel case of paresthesias and thoracic back pain linked to enlargement of a pericardial cyst within the right mediastinum. Due to resolution of symptoms at a 1-month interval after resection of the cyst, the symptoms are partially explained by the mass. We believe the stretching of the pericardium resulted in interrupted normal vagal innervation, which presented with pain in a mixed dermatomal distribution. Lower extremity pain and paresthesias would not be consistent with the location of the pericardial cyst. These symptoms are better explained as a component of anxiety disorder.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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ETHICAL APPROVAL

No ethical approval was required for this case.
CONSENT
Patient has signed paper for Oxford case reports.

GUARANTOR
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