Diagnosis of Pericardial Cyst Using Multiple Cardiac Imaging Modalities

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Abstract

Pericardial cysts are rare mediastinal abnormalities. We report on a 54-year-old male, who was found to have a large right-sided pericardial cyst incidentally. Multiple imaging modalities including 2D echocardiography, contrast echocardiogram with DEFINITY, transesophageal echocardiography and CT scan were used to delineate the features of the pericardial cyst. Patient was asymptomatic and was managed conservatively.

Keywords: Pericardial cyst; Echocardiography; Transesophageal echocardiography; Contrast echocardiography

Introduction

Pericardial cysts are a rare benign anomaly in the mediastinum. They are often found in either cardiophrenic angle. It is postulated that pericardial cysts are derived from failed fusion of one of the mesenchymal lacunae normally forming the pericardial sac [1]. Incidence of pericardial cysts is estimated to be 1:100,000 [2]. Pericardial cysts consist of about 7% of all mediastinal masses [2,3].

Most commonly, they have no associated symptoms and are discovered incidentally during a routine chest X-ray or echocardiography. Episodes of chest pain, shortness of breath, cough or persistent arrhythmia have been described. Other complications, such as congestive heart failure, right ventricular outflow tract obstruction, infection and pulmonary stenosis have been reported. CT scan, MRI and transesophageal echocardiography are the common imaging modalities of choice for diagnosis and follow up.

Case Presentation

This is a 54-year-old white male with past medical history of hypertension, who was admitted to a local hospital with chief complaint of diarrhea, vomiting and epigastric pain. He denies chest pain or shortness of breath. He has “fullness” feeling at the epigastric area for several years. In the emergency room, patient underwent CTA of the chest to rule out pulmonary embolism.

CTA of the chest revealed a thin-walled, sharply defined and oval homogenous right mediastinal mass, measuring 5.9 × 4.0 cm², suggestive of a pericardial cyst (Figure 1).

Patient was discharged from the emergency room and was referred to us due to the pericardial cyst. Patient was asymptomatic. Routine transthoracic echocardiogram (2D echo) revealed a 4.1 × 4.4 cm² cystic structure (red arrow) adjacent to the right atrium, consistent with possible pericardial cyst (Figure 2).
DEFINITY is a perflutren lipid microsphere and is injected intravenously to opacify cardiac chambers and to improve the delineation of the endocardial border. Figure 3 shows DEFINITY opacifies the right atrium and the right ventricle. However, the pericardial cyst, which is adjacent to the right atrium, does not fill with the contrast agent. This study suggests that there is no communication between pericardial cyst and the heart.

To further delineate the structure of the pericardial cyst, a transesophageal echocardiogram (TEE) was performed. TEE revealed a large pericardial cyst adjacent to the right atrium which had no direct communication with the pericardial space (Figure 4). Since the patient was asymptomatic from a cardiac point of view, he was offered conservative management.

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