

HEART FAILURE

INTERMEDIATE

IMAGING VIGNETTE: CLINICAL VIGNETTE

An Uncommon Cause of Dyspnea

Usefulness of Multimodality Cardiac Imaging



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ABSTRACT

Pericardial lipomas are very uncommon benign primary cardiac tumors. We describe the case of a patient with symptomatic large pericardial mass who presented with heart failure. Multimodality cardiac imaging helped us in the diagnosis of this unusual entity. (**Level of Difficulty: Intermediate.**) (J Am Coll Cardiol Case Rep 2021;3:1855-1857) © 2021 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 71-year-old man with a medical history of type 2 diabetes and hypertension presented to the emergency department with left pleuritic chest pain, dyspnea, and trepopnea in the right lateral decubitus position. Physical examination revealed signs of biventricular heart failure. An electrocardiogram showed sinus tachycardia, and a chest X-ray indicated cardiomegaly (**Figure 1A**). Transthoracic echocardiography showed a large mass adjacent to the lateral sac of the visceral pericardium, causing displacement of the cardiac silhouette to the right hemithorax. Normal biventricular function was observed without evidence of restriction to the filling flow, neither transmitral nor transtricuspid (**Videos 1, 2, and 3**). Cardiac computed tomography revealed a large left-lateral mass of fat density dependent on the pericardium extending into the left pleural cavity, causing a contralateral mediastinal shift (**Figures 1B to 1D**). Linear structures within the large pericardial mass were also described, which suggested to be corresponding to vascular structures (**Figures 1B and 1C**). The anatomical study was completed by cardiac magnetic resonance imaging, which described a giant left anterolateral pericardial mass, well delimited, with hyperintensity on both T1 weighting and T2 weighting, and without enhancement after the administration of intravenous contrast material, with mass effect that displaced mediastinal structures to the right without invading adjacent structures (**Figure 1E**). The patient was referred to preferential surgery to remove the pericardial mass. An anterior transsternal thoracotomy and pericardiotomy were performed and disclosed a huge tumor (21 × 14 × 10 cm) adhered to the heart, sharing vascularization with a diagonal coronary branch. (**Figure 1C**). Coronary and nutritional vein section was performed. Finally, tumor resection was performed without complications (**Figure 1F**). The anatomopathological study of the surgical specimen showed a 21-cm maximum diameter lipoma, well delimited and encapsulated, weighing 1,504 g. This study also showed areas of steatonecrosis and absence of malignancy. Postoperative evolution was favorable. At hospital discharge the patient was asymptomatic. Echocardiography showed biventricular normal function without relevant valvular disease or pulmonary hypertension.

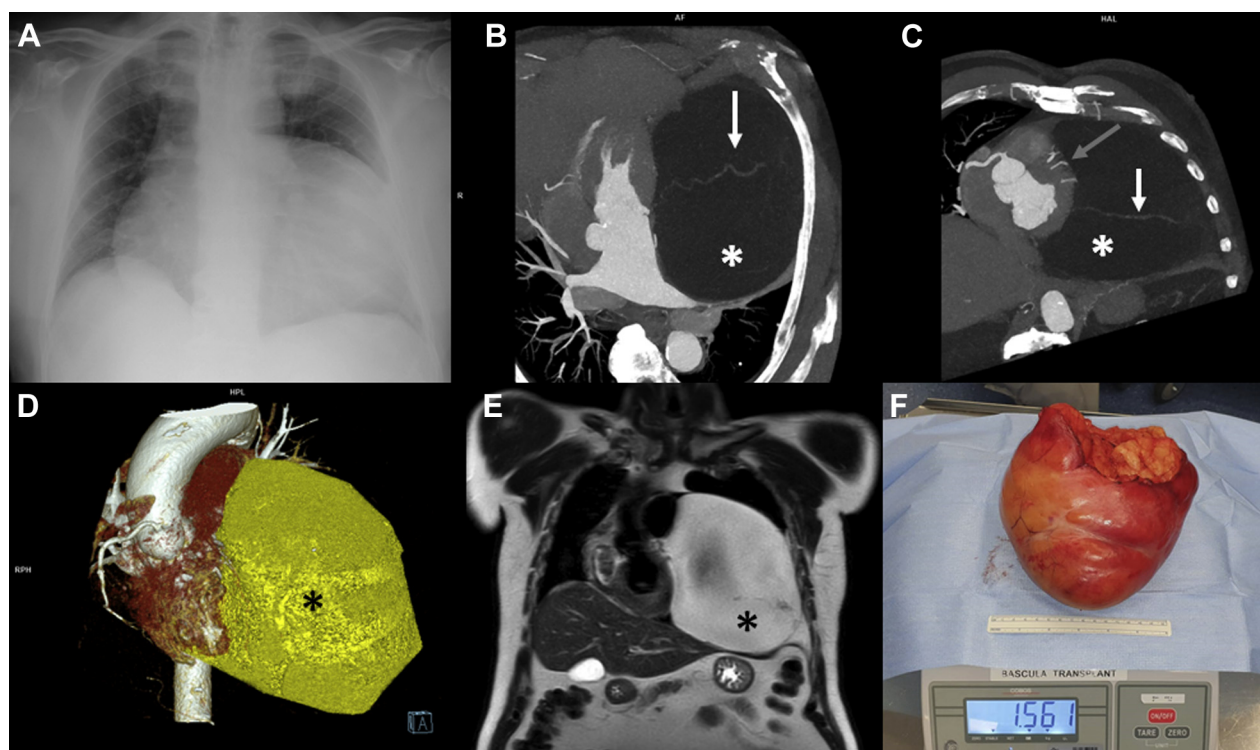
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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

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Pericardial lipomas are soft masses of fat tissue that are often encapsulated by a thin layer of fibrous tissue. Nowadays, no more than 400 cases of true cardiac lipomas have been reported. True lipomas with fibrous encapsulation occurring in the pericardium are very rare. In general, pericardial lipomas can grow very large in the pericardial sac, reaching a median size of 10 cm. Most of them are silent, and only a small proportion may show clinical symptoms depending on their location and size, dyspnea being the most common symptom (1). Accurate diagnosis and complete evaluation of this entity are highly dependent on multimodality imaging methods (2). On cardiac computed tomography, lipomas are characterized as low-density lesions without enhancement after the administration of intravenous contrast material, whereas on cardiac magnetic resonance imaging, this type of lesion is characterized as a hyperintensity mass on both T1-weighted and T2-weighted images without enhancement after the administration of contrast material (3). In symptomatic patients, radical resection is the treatment of choice.

FIGURE 1 Multimodality Cardiac Imaging in the Diagnosis of Pericardial Lipoma



(A) Chest X-ray showing cardiomegaly. (B) Cardiac computed tomography showing left lateral mass of fat density dependent on the pericardium (asterisk) and vascular structures (white arrow). (C) Cardiac computed tomography showing left lateral mass of fat density dependent on the pericardium (asterisk), vascular structures (white arrow), and shared vasculature between heart and pericardial lipoma (gray arrow). (D) Cardiac computed tomography reconstruction showing lipoma (asterisk). (E) Cardiac magnetic resonance image (T2-weighted) showing pericardial lipoma (asterisk). (F) Surgical specimen.

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KEY WORDS computed tomography, imaging, shortness of breath, ultrasound

 **APPENDIX** For supplemental videos, please see the online version of this paper.