

IMAGING VIGNETTE

ADVANCED

CLINICAL VIGNETTE

Pericardial Lipoma With Fat Necrosis



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ABSTRACT

A pericardial lipoma is a rare benign cardiac tumor, and fat necrosis is an uncommon clinical condition. This is the first reported case of pericardial lipoma with fat necrosis, which showed clinical presentations of a malignant tumor despite imaging findings consistent with benign lipoma. (**Level of Difficulty: Advanced.**) (J Am Coll Cardiol Case Rep 2022;4:101677) © 2022 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 61-year-old Japanese man presented to the emergency department with dyspnea on exertion and facial edema. His blood pressure was 146/80 mm Hg, and heart rate was 86 beats/min. The rales in the lung field were not audible. An electrocardiogram showed low voltage on the limb lead. Chest radiography revealed cardiomegaly with pleural effusion. Transthoracic echocardiography revealed a large pericardial effusion, a mass in the pericardial cavity, and right atrial and right ventricular collapse (**Figure 1A**). There were signs of echocardiographic tamponade; therefore, an emergency percutaneous pericardial drainage was performed. Hemorrhagic pericardial effusion (1,335 mL) was drained. The cytopathological diagnosis of pericardial effusion was classified as Class III. A bacterial culture test was negative. Subsequently, cardiovascular cardiac magnetic resonance (CMR) was performed, which showed a multilobulated and well-defined mass in the pericardial cavity. The mass showed high intensity on T₁-weighted image (**Figure 1B**), low intensity and no enhancement on T₁ fat-suppression image with gadolinium administration (**Figure 1C**). A contrast-enhanced computed tomography (CT) image showed an area of fat with central soft-tissue attenuation (**Figure 1D**). There was negative ¹⁸F-fluorodeoxyglucose uptake on positron emission tomography in the mass (**Figure 1E**). The tumors were completely resected. Macroscopic inspection revealed a multilobulated fatty mass with a maximum length of 9.5 cm. Histological examination showed that the mass contained fat tissue with necrotic and degenerative changes and confirmed the diagnosis of pericardial lipoma with fat necrosis (**Figure 1F**). The patient's postoperative course was uneventful. At the 4-month follow-up, the recurrence of tumor was not observed.

Cardiac lipomas are typically asymptomatic, and pericardial lipomas rarely induce cardiac tamponade.¹ In this case, large amounts of hemorrhagic pericardial effusion caused the cardiac tamponade. Hemorrhagic pericardial effusion is a characteristic of malignant tumors; however, CMR and positron emission tomography CT showed evidence of benign pericardial lipoma. An area of fat with central soft-tissue attenuation on CT is one of characteristics of fat necrosis,² and histological examination confirmed the diagnosis of pericardial

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**ABBREVIATIONS
AND ACRONYMS**

CMR = cardiac magnetic resonance

CT = computed tomography

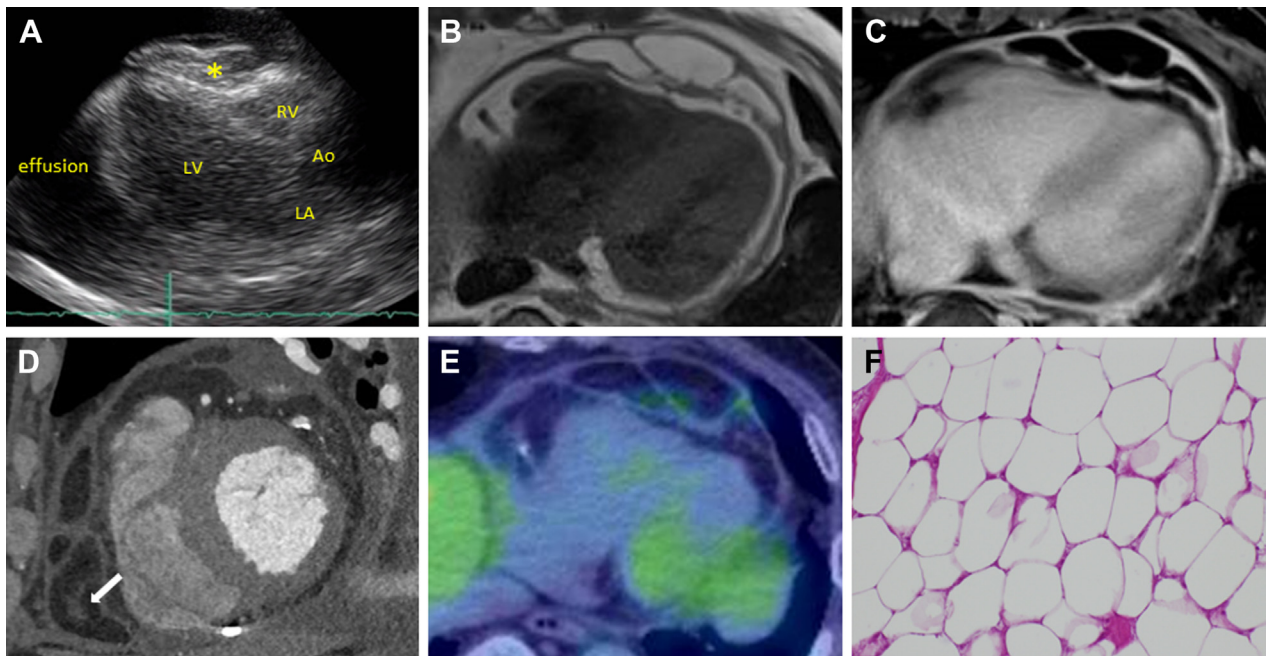
lipoma with fat necrosis. Fat necrosis in lipoma is very rare. A case of vulvar lipoma with fat necrosis has been reported,³ and no cases of fat necrosis in pericardial lipoma have been described. CMR should be a reliable modality depending on the characteristics of the mass; however, the reliability of CMR for detecting and differentiating fat necrosis has been challenged. Fat necrosis in a lipoma can change the clinical presentation; therefore, if there is an apparent discordance between clinical presentation and imaging findings, lipoma with fat necrosis should be considered and confirmed by histology.

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FIGURE 1 Imaging and Histological Finding



(A) Echocardiography showed pericardial mass (**asterisk**) and effusion. **(B)** T₁-weighted cardiac magnetic resonance. **(C)** T₁ fat-suppression cardiac magnetic resonance with gadolinium administration. **(D)** Contrast-enhanced computed tomography image: There was central soft-tissue attenuation (**arrow**). **(E)** ¹⁸F-fluorodeoxyglucose positron emission tomography computed tomography. **(F)** Microscopic finding of the mass (high-power field, ×200, hematoxylin and eosin staining). The mass contained necrotic adipocytes that were devoid of nuclei. Ao = aorta; LA = left atrial; LV = left ventricle; RV = right ventricle.

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KEY WORDS fat necrosis, hemorrhagic pericardial effusion, pericardial lipoma