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## Myocardial fibroma diagnosed with MRI: importance of the late enhancement pattern

We read with interest the pictorial review of cardiac neoplasms and pseudotumors by Hoey et al. (1) published in the January 2012 issue of *Diagnostic and Interventional Radiology*. We want to add our experience with one case of myocardial fibroma diagnosed with magnetic resonance imaging (MRI) that emphasizes the diagnostic importance of the late-enhancement pattern to differentiate myocardial fibroma from other mass lesions, including mass-like hypertrophic cardiomyopathy (HCM).

A 75-year-old man with coronary heart disease had been diagnosed with a left ventricular apical mass by echocardiography 13 years earlier. The mass was suspected of being HCM or a cardiac mass, but he had rejected intervention to obtain a diagnosis. The mass had not changed in size on long-term echocardiographic follow-up. Before undergoing coronary bypass surgery, the patient was referred for cardiac MRI to differentiate apical HCM and cardiac neoplasms.

On MRI, the cine images showed a left ventricular apical mass that was hypointense to myocardium (Fig. 1a). On the T1- and T2-weighted turbo spin echo axial images, the discrete mass was isointense relative to the myocardium, without signal loss with fat suppression. There was no first-pass enhancement (Fig. 1b). However, in the late contrast-enhanced scans, the mass had intense enhancement compared with the normal myocardium (Fig. 1c). The patient also underwent cardiac computed tomography (CT), which showed a partially calcified left ventricular mass (Fig. 2). With these characteristic findings and the patient's history,

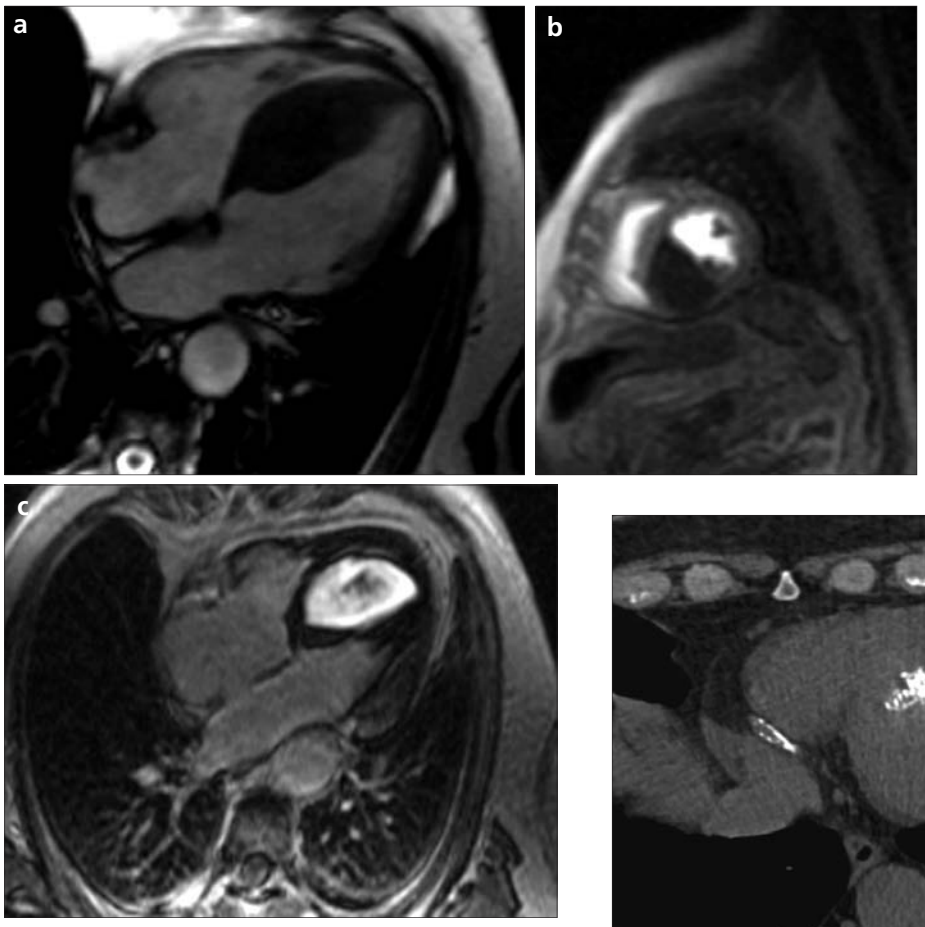


**Figure 1. a–c.** Four-chamber bright blood cine image **(a)** using the steady-state free-precession technique shows a slightly hypointense left ventricular apical mass with a broad attachment to the interventricular septum. The short axis image **(b)** in early perfusion phase after gadolinium injection shows hypoperfusion of the mass within the surrounding normally perfused myocardium. Late-enhanced four-chamber image **(c)** reveals that the mass shows intense enhancement, whereas the normal myocardial signal is nulled.



**Figure 2.** Coronary CT shows partial calcification in the mass.

the mass was diagnosed as a ventricular fibroma, and an endomyocardial biopsy and surgical excision were not required.

MRI plays an important role in differentiating mass-like HCM from a tumor. With cine images, the mass lesion has no contractile portion, unlike HCM, which shows a variable degree of contractility. The late contrast-enhancement pattern of HCM is usually patchy and in a mid-wall location, whereas fibromas have homogenous intense enhancement. The presence of calcification on CT is also an important finding for excluding HCM (2).

To our knowledge, only a few case reports have discussed the late-enhancement pattern of myocardial fibromas (3, 4). Although there is no exact information on the late-enhancement pattern of malignant cardiac masses, adding a late-enhancement series to the routine MRI protocol for cardiac masses may help to differentiate fibromas from other benign mass lesions, including HCM.

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