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,
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.

References