A 67-year-old woman with stage IV (New York Heart Association) heart failure had an echocardiogram that showed a pericardial effusion and a large mass in the left ventricle, occupying one third of its cavity. The mass adhered to the free wall of the ventricle. The motion of the left ventricular wall was normal. On magnetic resonance imaging, differentiation between the mass and the myocardium was impossible using both a gradient echo image and a spin echo-weighted T1 image (Figure 1). After gadolinium injection, the mass was more clearly defined because only the myocardial signal intensity increased (Figure 2). Computed tomography revealed a high-density mass in the left ventricle distinct from the myocardium (Figure 3). A diagnosis of mural thrombosis was therefore made.

An endomyocardial biopsy was not performed because of the patient's age and clinical status. However, in view of the hypereosinophilia and ventricular thrombosis without any other cardiac pathology, a diagnosis of endomyocardial fibrosis was made.1

Laminated mural thrombi may indeed be difficult to distinguish from the myocardium in some cases, and a high proportion of studies are technically inadequate.2 Magnetic resonance imaging may be useful in improving the differentiation between thrombus and surrounding blood and myocardium.3 Chronic left ventricular thrombi can appear as a hyper or a hypo signal mass on a T1 image because of the presence of deoxyhemoglobin and/or hemosiderin. In the short-term, the thrombus may even appear in iso signal compared with the myocardium. Thrombus signal intensity depends on paramagnetic hemoglobin degradation products and thus results in a signal intensity that can vary with time. The injection of gadolinium contrast medium is sometimes useful for increasing the contrast between the myocardium and the thrombus.

Computed tomography may confirm the diagnosis when the mass is of high density. However, the examination must be performed without the injection of contrast medium. After such an injection, the thrombus density will appear similar to that of the myocardium.

The patient received anticoagulant therapy, without significant regression of the thrombus. Partial alleviation of her heart failure was achieved using a β-blocker and a diuretic.

References
Figure 1. Magnetic resonance examination. Left, transverse T1-weighted image (echo time, 14 ms). Right, gradient echo image in short axis. Mass and the myocardium show similar signal intensities (arrow). RV indicates right ventricle; LV, left ventricle; RA, right atrium; and LA, left atrium.

Figure 2. Magnetic resonance transverse T1-weighted image after gadolinium injection. Thrombus is visible adjacent to free wall of left ventricle (LV, arrows). RV indicates right ventricle.

Figure 3. Computed tomography scans. Right, image obtained before injection of contrast medium showing a spontaneous high-density mass in left ventricle (arrows). Left, image obtained after injection of a contrast medium. Note clear distinction between bright blood pool, relatively high-intensity thrombus, and myocardium (arrows).
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