A 56-year-old woman with a history of chronic coughing and occasional wheezing was referred to the gastroenterology clinic with jaundice and weight loss of recent onset. Clinical evaluation showed evidence of chronic liver disease. Chest computed tomography showed an interstitial bilateral lung infiltrate and diaphragmatic lymphadenopathy. A liver biopsy was performed, revealing a noncaseating granulomatous hepatitis (Figure 1). Thorough investigation of granulomatous diseases was performed and the final diagnosis was sarcoidosis. A resting ECG showed premature atrial and ventricular beats and conduction disturbances (right bundle branch block and left anterior fascicular block). The patient was then referred to the Heart Institute (InCor) for cardiac evaluation.

A cine magnetic resonance image (MRI) showed 2 small ventricular aneurysms involving the septum and right ventricular free wall (Figure 2 and Movie I). The left ventricular ejection fraction and end-diastolic and end-systolic volumes were 0.45, 146 mL, and 84 mL, respectively. Contrast (gadolinium; dose 0.2 mmol/kg) delayed-enhanced MR images, using an inversion recovery prepped gradient-echo sequence, revealed areas of hyperenhancement (fibrosis) corresponding precisely to that of the ventricular aneurysms (Figures 2, 3, and 4; Movies I and II). Additionally, several small and focal areas of myocardial fibrosis were observed in other segments (basal antero-septal and antero-lateral; see Figure 3).

This new MR technique has been shown to detect irreversible myocardial injury (necrosis or fibrosis) with great detail and high spatial resolution and has been used to detect new or previous myocardial infarction.

Figure 1. Liver biopsy showing numerous small and well-defined noncaseating epithelioid granulomas (one of them is indicated by a black arrowhead). The granulomas contain multinucleated giant cells and asteroid bodies (a typical finding of sarcoidosis) and are surrounded by portal and periportal fibrosis. No necrosis was detected (hematoxylin and eosin, 100×). Inset displays a large asteroid body (HE, 400×).
Figure 2. The left and middle panels represent the end-diastolic and systolic frames of a 4-chamber view cine MRI showing 2 areas of dyskinesia on interventricular septal wall and right ventricular anterior wall, characterizing 2 focal ventricular aneurysms (arrows). See the corresponding Movie I. The right panel displays the delayed-enhanced MRI with increased signal intensity within the myocardium, demonstrating fibrosis precisely on the location of aneurysms (arrows).

Figure 3. Delayed-enhanced MR images of left ventricle short-axis views from apex to base demonstrate myocardial hyperenhancement at several locations. A, B, and C display hyperenhancement in the left ventricle and inferior and septal walls (arrows), corresponding to the aneurysm. D depicts myocardial hyperenhancement in the left ventricle and antero-septal and antero-lateral segments (focal fibrosis, arrows) and in the right ventricle anterior wall (arrowheads), corresponding to the right ventricular aneurysm seen in Figure 2.

Figure 4. The left and middle panels represent the end-diastolic and systolic frames of a 2-chamber view cine MRI showing an area of dyskinesia in the left ventricular inferior wall (see Movie II) that corresponds to the increased signal intensity in the delayed-enhanced MRI (right panel).
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