Cardiac magnetic resonance imaging of a large prolapsing left atrial myxoma causing pulmonary hypertension and syncope

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A 49-year-old woman presented with a one-year history of progressive exertional dyspnea and an episode of syncope. A transthoracic echocardiogram showed a large left atrial mass attached to the interatrial

septum, with severe pulmonary hypertension (right ventricular systolic pressure 102 mmHg) and mitral inflow obstruction, which were confirmed on cardiac catheterization.

Cardiac magnetic resonance imaging (CMR) using cine steady-state free precession demonstrated a large, lobulated, pedunculated mass (arrow in Figure 1) attached to the left interatrial septum, with prolapse into the left ventricle during diastole along with a signal void suggestive of flow acceleration. Associated findings were enlargement of the pulmonary artery and systolic flattening of the ventricular septum, consistent with pulmonary hypertension. The mass demonstrated high signal intensity on T2-weighted black-blood fast-spin echo with fat saturation images (Figure 2). Dynamic first-pass perfusion imaging revealed minimal early contrast enhancement of the mass (Figure 3). On inversion-recovery fast-gradient echo imaging postgadolinium administration, the mass did not demonstrate any late enhancement (Figure 4).

The patient underwent successful surgical resection of the mass, which was confirmed on histology to be an atrial myxoma. The

Figure 1

Figure 2

Figure 3

Figure 4

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Received for publication August 20, 2009. Accepted September 24, 2009

postoperative echocardiogram showed a significant decline in her right ventricular systolic pressure to 52 mmHg.

Because of its excellent spatial resolution and signal-to-noise ratio, along with the ability to provide multiplanar images with a large field of view, CMR is a well-established clinical tool for the assessment of cardiac masses (1-3). Furthermore, CMR may allow noninvasive tissue characterization by using various pulse sequences.

The cine steady-state free precession images can be found in Video 1.

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