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Morphology

Biatrial Cardiac Myxoma

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CASE REPORT

A routine abdominal sonography study detected a round mass in the right atrium of a 66-year-old man, who was then transferred to our hospital for further evaluation. On physical examination, the patient appeared healthy, with no signs of discomfort or heart failure. Cardiac auscultation revealed normal heart sounds with a mild respiratory-dependant systolic murmur at the apex. Laboratory studies did not detect any significant abnormalities.

Electrocardiogram (ECG) showed sinus tachycardia of 100 bpm and an incomplete right bundle branch block with a QRS duration of 0.10 sec. Transthoracic echocardiography showed a round homogeneously echogenic mass of 30 × 20 mm in the right atrium, which was adjacent to the interatrial septum. Left ventricular diameters and function were normal. No diastolic prolapse of the mass into the right ventricle was detected. The left atrium was not entirely visible, and further studies were suggested to exclude tumor in the left atrium.

We performed an ECG-triggered cardiac magnetic resonance imaging (MRI) examination on a standard Siemens Expert Magnetom 1.0-T scanner with gradient-echo sequences and T1- and T2-weighted spin-echo sequences. Total examination time was 30 min. Round tumors were seen in both atria in the four-chamber view and in the short-axis view (Fig. 1), but there was no movement of either tumor during the heart cycle. Tumors were 30 × 35 and 30 × 25 mm. The signal intensities of both tumors in the T1- and T2-weighted spin-echo sequences were homogenous; signal intensity in the T1-weighted images resembled that of myocardial tissue and signal intensity in the T2-weighted images was higher as in the myocardium. No contrast medium was injected. Left ventricular function was normal, and there were no regional dyskinetic areas of the left ventricle or valvular dysfunction.

After exclusion of coronary artery disease by selective coronary angiography, the patient underwent open heart surgery and biatrial tumors were found and removed (Fig. 2). The interatrial septum was intact, and no patent foramen ovale was found. The actual tumors were 32 × 33 and 32 × 26 mm, and the pathologic examination confirmed the diagnosis of a biatrial myxoma without signs of malignancy. The patient recovered uneventfully and is well without recurrence of the tumor.

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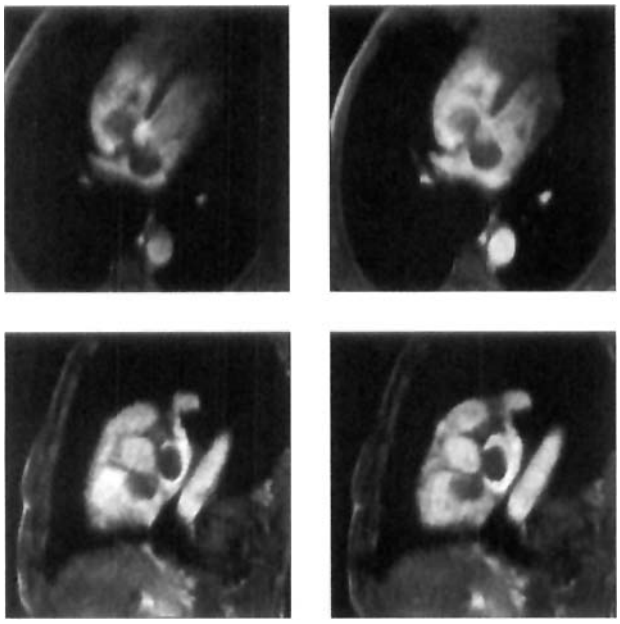

Figure 1. Gradient echo-sequences showing the tumors in both atria. Top row: four-chamber view in diastole (left) and systole (right). Bottom row: short-axis view in diastole (left) and systole (right).

DISCUSSION

Cardiac tumors are rare (1–8) and are often detected by chance during routine echocardiography. If symptomatic, the most common presenting symptoms are congestive heart failure or signs of embolization (5,7). Differential diagnoses include primary cardiac tumors as myxoma, malignant tumors of myocardial or vascular origin, and secondary cardiac tumors, most often metastasis of other primary tumors. The incidence of primary heart tumors varies depending on age, race, and sex. Most cardiac tumors are benign (~80%, more often in women than in men [5]) but can lead to serious complications like embolization (9–11), rhythm disturbances, cardiac tamponade, and death. Most intraatrial tumors are myxomas, but biatrial tumors are rare and may occur with familial incidence. Therefore, cardiac tumors should be removed even when asymptomatic (5,6). The diagnosis of cardiac tumors with echocardiography can be difficult by a transthoracic approach, so transesophageal echocardiography is needed in many cases to establish the diagnosis (7,12–14). All heart chambers need to be visualized in patients with suspected cardiac tumors to know the extent and exact location of the tumor. With MRI, it is possible to obtain three-dimensional information about

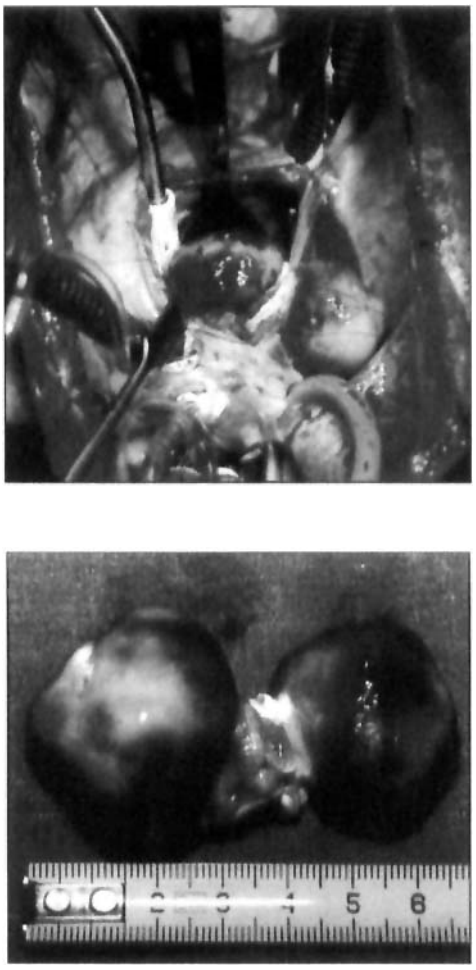

Figure 2. Top: Intraoperative view with both atria opened and the tumors in situ. Bottom: Excised tumors with adjacent interatrial septum.

the exact location and size of intracardiac and extracardiac masses and to visualize possible mobility of cardiac tumors. In many cases, tissue characterization is possible based on different contrast in native and contrast-enhanced spin-echo images.

Cardiac MRI is the least invasive imaging method and should be performed in all patients with suspected heart tumors. After successful surgery, MRI can detect early recurrence of tumors and should be used for follow-up serially (5,7,16).

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