Atrial fibrillation: an unusual cause

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Figure 1. Transthoracic echocardiographic parasternal long axis in early systole. A large mass is visible in the left atrium (arrow).

Figure 2. Transthoracic echocardiographic parasternal long axis in diastole. The mass is protruding through the mitral valve ostium (arrow) causing a significant obstruction of the mitral valve ostium.

A 28-year-old male presenting with atrial fibrillation (AF) underwent successful electrical cardioversion to restore sinus rhythm. He had no prior history of AF or other cardiac disease. However, transthoracic echocardiography (TTE), performed to exclude structural

abnormalities as a cause of AF, demonstrated a large mass in the left atrium (LA). For further analysis the patient was referred to our centre, and echocardiography, multislice detector computed tomography (MDCT) and cardiovascular magnetic resonance imaging (CMR) were performed for further non-invasive diagnostic work-up.

TTE revealed two large, smooth structures in the LA (figures 1 and 2). These protruding structures were responsible for a significant obstruction of the mitral valve ostium (mean gradient 7 mmHg, maximal gradient 21 mmHg). Transoesophageal echocardiography confirmed attachment of the structures to a thickened LA wall.

MDCT (figure 3) revealed a large mass in the mediastinum, which was attached to the ascending and descending aorta, the right pulmonary vein, the pulmonary artery and the superior vena cava. The superior vena cava was partially compressed by this mass. CMR demonstrated that the mediastinal tumour was continuous with the mass in the LA through the thickened LA wall (figure 4).

An open sternotomy biopsy was performed, because mediastinoscopy revealed a non-diagnostic

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Figure 3. Multislice detector CT image in coronal orientation. The mediastinal tumour is attached to the ascending and descending aorta but not to the aortic-arch (aorta). The tumour was also attached to the pulmonary vein (not visible), the pulmonary artery (pulm. art) and the superior vena cava (SVC).

Figure 4. Cardiac magnetic resonance image in sagittal orientation. The mediastinal tumour (tumour) shows continuity with the left atrial mass (atrial mass) and is only separated by the thickened atrial wall (atrial wall).

specimen. The tumour was classified as a low-grade spindle cell sarcoma not otherwise specified.

Atrial fibrillation in this patient was most likely due to the presence of the obstructive tumour, and the malignancy-related structural changes of the LA wall. Because the obstruction of the mitral valve ostium was considered to determine the short-term prognosis, successful debulking of the tumour in the LA was performed. Currently, the patient is receiving radiotherapy in a palliative setting. ■

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