CLINICAL IMAGE

An unexpected diagnosis in a patient with 2 left atrial pathological masses found by echocardiography

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A 63-year-old woman after kidney transplantation, treated with immunosuppressive drugs, with permanent atrial fibrillation on acenocoumarol, was admitted for diagnostic workup of 2 abnormal structures detected in the giant left atrium (LA) by routine transthoracic echocardiography (FIGURE 1A). In recent weeks, she presented with fatigue and periodic chest pain. During hospitalization, a recurrent fever reaching 39°C and an elevated C-reactive protein level of 154 mg/l were observed. Initially, empiric antibiotic therapy was ordered. Serial blood and urine cultures were negative. The international normalized ratio was within the therapeutic range on serial measurement. Transesophageal echocardiography confirmed 2 large abnormal masses in the LA, located opposite each other, both measuring approximately 32 to 33 × 24 mm in size (FIGURE 1B). The first mass was oval, attached to the posterolateral wall, and highly mobile (FIGURE 1C), and the other was irregular in shape and was localized next to the right upper pulmonary vein outlet (FIGURE 1D). The tumors did not originate from the interatrial septum. There was no evidence of valvular vegetations. Initially, cardiac myxomas or LA thrombi were suspected. Importantly, there was no sign of mitral stenosis or a formed thrombus in the LA appendage (FIGURE 1E). The lesions excised from the LA (FIGURE 1F) were suggestive of thrombi.

Histological examination revealed numerous colonies of *Aspergillus fumigatus* (mycelia).

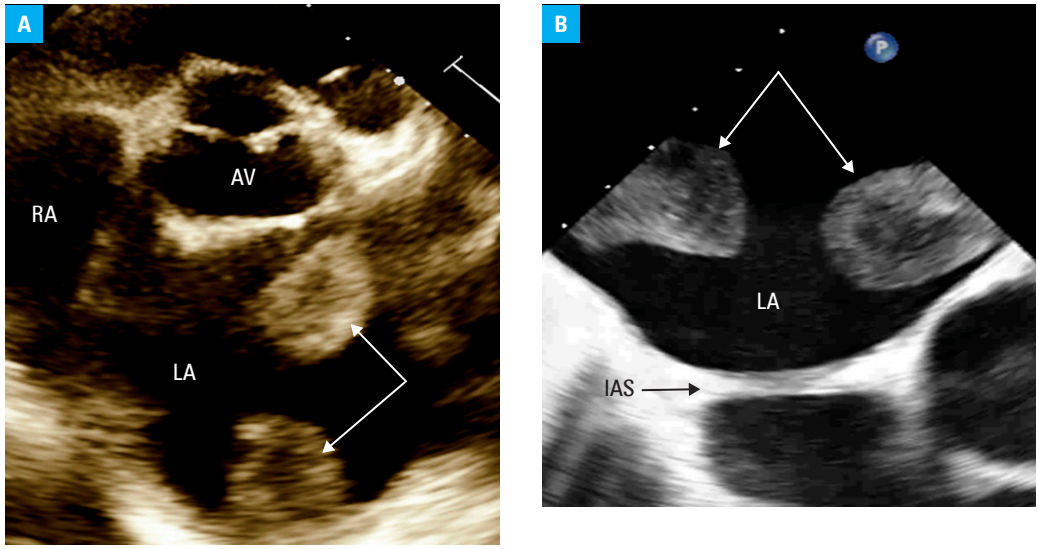

FIGURE 1 Imaging of abnormal masses in the left atrium (LA): **A** – pathological structures in the giant LA (39 cm², 180 ml), located opposite each other (arrows), transthoracic echocardiography, short-axis view; **B** – 2-dimensional transesophageal image of these structures (arrows)
Abbreviations: see on the next page

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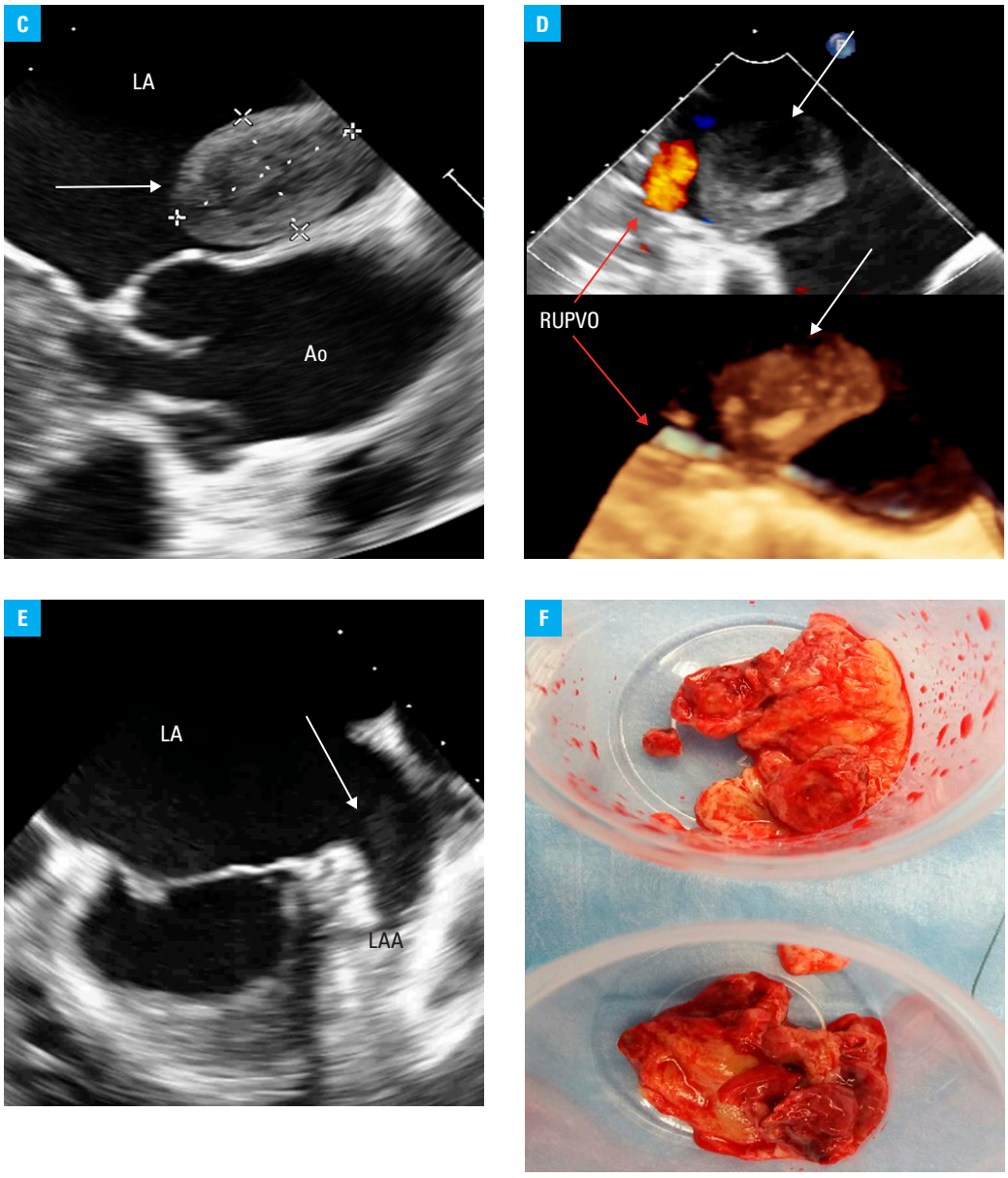

FIGURE 1 Imaging of abnormal masses in the left atrium (LA): **C** – an oval mass attached to the posterolateral wall of the LA (arrow), transthoracic echocardiography (TEE); **D** – an irregularly shaped mass (white arrows) localized next to the right upper pulmonary vein outlet (red arrows), 2- and 3-dimensional TEE; **E** – delicate spontaneous echocardiographic contrast (arrow) in the LA appendage, TEE; **F** – excised masses
Abbreviations: Ao, aorta; AV, aortic valve; IAS, interatrial septum; LAA, left atrial appendage; LV, left ventricle; RA, right atrium; RUPVO, right upper pulmonary vein outlet

Additionally, abdominal ultrasound showed hyperechogenic masses in the transplanted kidney, corresponding to mycotic involvement. No significant abnormalities in the lungs were revealed. Finally, the diagnosis of fungal endocarditis was established. Treatment with intravenous voriconazole, amphotericin B, and micafungin was initiated. Unfortunately, within a month after the surgery, the patient developed multiorgan failure and died despite the therapy.

The most common cardiac tumor located in the LA is myxoma.[1] Myxomas are pedunculated and usually attached to the interatrial septum. They may be multiple in up to 5% of cases.[1] LA thrombus is usually found in the appendage in patients with atrial fibrillation, particularly in the case of subtherapeutic doses of anticoagulants. They can also appear in an enlarged LA cavity, such as in mitral stenosis.[1,2]

The final diagnosis in our patient was unexpected, because fungal endocarditis caused by *Aspergillus fumigatus* and located in the LA is very rare. Healthy individuals have a natural immunity to *Aspergillus fumigatus* infection; however, there are cases of immunocompetent patients with aspergillosis of the left heart.[3] Aspergillosis often occurs in immunocompromised individuals, such as renal transplant recipients or hematologic patients, and contributes to high mortality.[4] Fungal lesions are usually found in the lungs, but the infection can spread to other organs. It may affect heart chambers, as well as heart valves.[4] Echocardiographic images are not specific, and it is often difficult to differentiate a thrombus from a neoplastic mass by echocardiography. Therefore, cardiac magnetic resonance may be a helpful tool.[5] Endocarditis caused by *Aspergillus fumigatus* can be a fatal disease and requires a multidisciplinary approach in many cases.

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