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## CARDIOVASCULAR FLASHLIGHTS

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### Sub-mitral aneurysm

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A 55-year-old Caucasian man presented with a rapid atrial fibrillation which was controlled by Digoxin with spontaneously converting to sinus rhythm. He had history of diabetes. Physical examination showed an infected wound at one toe of the right foot.

There was no electrolyte abnormality, and cardiac-specific enzymes were normal. Conventional echocardiography revealed a mild mitral regurgitation and a suspected cavity in the left atria. Transoesophageal echocardiography and magnetic resonance imaging revealed a large cavity (5 cm of diameter) attached to the atrial side of the posterior leaflet of the mitral valve (Panels A–C), communicating with the ventricle via a single neck. Doppler colour imaging demonstrated blood flow entering the cavity from the left ventricle in systole and returning from the cavity to the ventricle in diastole (Panels D and E). Our first hypothesis was a mitral endocarditis with abscess, but the patient remained asymptomatic with no clinical criteria for infective endocarditis and no septic peripheral emboli. All the cultures were negative.

Coronary angiography showed normal coronary arteries.

The diagnosis of submitral aneurysm was made, and the patient was referred to surgery. The aneurysm was resected (Panel F) and the orifice was repaired with a Dacron® patch. The post-operative course was uneventful. The pathological examination does not suggest an inflammatory aetiology.

Submitral aneurysm is a relatively unknown cardiac pathology, described predominantly in black Africans. They occur in constant anatomic positions, under the posterior leaflet of the mitral valve. It should be differentiated from left ventricular false aneurysm, caused by myocardial necrosis. Atrial fibrillation has not been previously reported in association with submitral aneurysm.

Panel A Magnetic resonance imaging of submitral aneurysm (red arrow).

Panel B Multiplane transoesophageal echocardiography. Submitral aneurysm (red arrow). LA indicates left atrium and LV indicates left ventricle.

Panel C Magnetic resonance imaging of submitral aneurysm (red arrow).

Panel D Multiplane transoesophageal echocardiography; colour Doppler flow from left ventricle to the submitral aneurysm (green arrow).

Panel E Magnetic resonance imaging: submitral aneurysm enhancement after contrast injection.

Panel F Surgical view of the sub-mitral aneurysm. Arrow indicates the single aneurysm neck.

