

Floating left atrial mass in a patient with mitral stenosis

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ABSTRACT

Mobile masses within the left atrial cavity are commonly caused by organized thrombi or left atrial myxoma. The use of transesophageal echocardiography has provided means for differentiation between the 2 conditions. We report a case of a left atrial mass in a female patient who presented with mitral stenosis and atrial fibrillation, and was diagnosed by transthoracic echocardiography (TTE). The mass appeared freely mobile but did not prolapse between the mitral leaflets due to the tightly stenosed valve orifice. In the presence of mitral stenosis, atrial fibrillation and dilated left atrium, the appearance of the mass was in keeping with mobile thrombus. Consequently, the patient was referred for surgical treatment and the mass removed through left atriotomy. Microscopic examination revealed a highly organized thrombus. We conclude that TTE is still a reliable tool in the diagnosis of large mobile atrial thrombi; TEE is needed when differentiation from atrial myxoma is difficult.

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Thrombus within the left atrial cavity poses diagnostic difficulty, especially if attached to the fossa ovalis, in which case differential diagnosis from left atrial myxoma may be difficult. The use of transesophageal echocardiography has provided means for differentiation between the 2 conditions. Left atrial masses in patients with mitral stenosis have been previously reported.¹⁻⁴ In the age of echocardiography and early anti-coagulation, large atrial thrombi are becoming a clinical rarity. We report a case of a large floating left atrial mass in a 60-year-old female who had mitral stenosis and atrial fibrillation, and in whom the diagnosis of thrombus was made by transthoracic 2D echocardiography (TTE).

Case Report. A 65-year-old lady presented to hospital complaining of recurrent episodes of pain in the left leg. In the past, she had undergone below knee amputation of the right leg and received long term warfarin. Echocardiography was not carried out at that time, as it was not available at the local

hospital. She had no history of hypertension, diabetes or peripheral vascular disease. On examination, pulse was 88 bpm, irregular, and blood pressure was 130/70 mm Hg. Jugular venous pressure was normal, peripheral pulses were intact and there was no carotid bruit. Auscultation revealed loud first heart sound at the mitral area together with rumbling mid-diastolic murmur grade 3-4/6. Pulmonary second heart sound was normal, and other valves were clinically intact. The rest of the examination was not remarkable. An echocardiogram (ECG) revealed atrial fibrillation with normal ventricular rate. Chest x-ray showed normal lung fields, mitralization of left heart boarder and enlargement of the left atrium. White blood count was 6.2, and erythrocyte sedimentation rate 44 mm/HR. Platelet count was normal; levels of protein C and S were normal, and anticardiolipin antibody was not detected. A TEE showed a freely mobile and sharply demarcated mottled ovoid mass in the left atrial cavity measuring 4 x 3 cm (**Figure 1**). It bounces towards the mitral valve but was not

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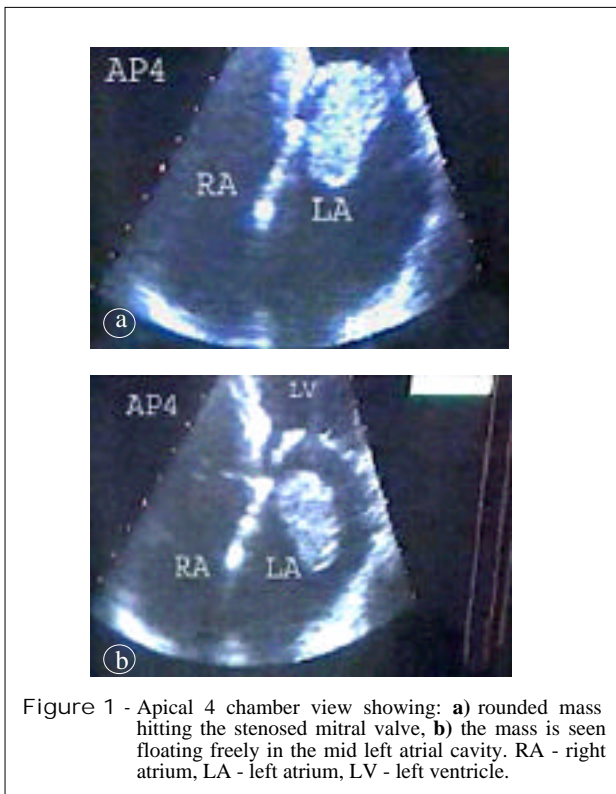


Figure 1 - Apical 4 chamber view showing: **a)** rounded mass hitting the stenosed mitral valve, **b)** the mass is seen floating freely in the mid left atrial cavity. RA - right atrium, LA - left atrium, LV - left ventricle.

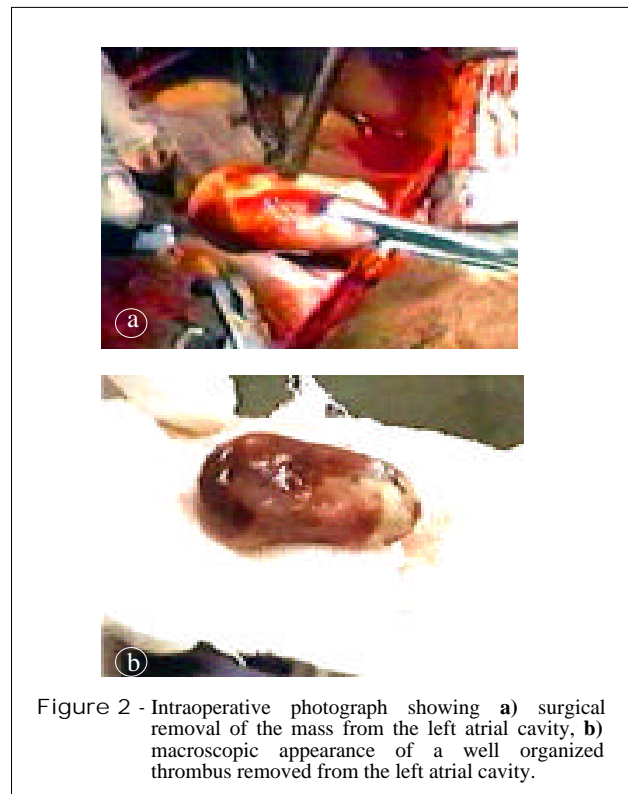


Figure 2 - Intraoperative photograph showing **a)** surgical removal of the mass from the left atrial cavity, **b)** macroscopic appearance of a well organized thrombus removed from the left atrial cavity.

prolapsing between the valve leaflets. The left atrium measured 5.2 cm, but appendage was free. The entire mitral leaflets looked thickened with reduced mobility of the midportion and base. There was increased brightness of both leaflets together with subvalvular thickening (Boston Score 9/16). Mitral valve area measured 1.11 cm² (Pressure 1/2 time) and there was moderate mitral regurgitation. right ventricular systolic pressure = 45 mm Hg. A provisional diagnosis of left atrial thrombus was made in view of the freely mobile mass, and the patient was subsequently referred for surgical treatment. Standard left atriotomy was carried out, and a free mobile mass was found and removed. The left atrial cavity and appendage were inspected, and no myxoma pedicle or other masses were found. The mitral valve was deformed with fusion of the commissures. Open mitral commissurotomy was carried out and patient had an uneventful recovery. Macroscopic examination of the mass showed an ovoid mass with smooth glistening whitish surface measuring 4 cm x 3 cm x 2 cm in size (**Figure 2**). Microscopic examination was consistent with highly organized thrombus.

DISCUSSION. Transthoracic and transesophageal two-dimensional (2-D) echocardiography remain the procedures of choice for evaluating intra-cardiac

masses. This case was diagnosed by TTE alone. The diagnosis of freely mobile left atrial cavity mass rests between myxoma and ball thrombus. Usually, a left atrial myxoma arises from the inter-atrial septum at the level of the fossa ovalis. Pitfalls in diagnosis occur when the tumor size is very small, or its attachment site is atypical or ill defined. Atrial thrombi classically reside in an atrial appendage, but can also form in the body of the left atrium. The presence of atrial fibrillation enlarged atrial chamber, prosthetic mitral/tricuspid valves, stenotic mitral/tricuspid valves, low cardiac output state, and spontaneous atrial contrast echoes favor the diagnosis of atrial thrombus.⁵

The case in question exhibited most of the typical associations of thrombus including dilated left atrium, atrial fibrillation and the presence of mitral stenosis. It is possible that the thrombus has developed within the left atrial appendage and subsequently dislodged when it had outsized the mitral valve orifice. It can be argued that the stenosed mitral valve has guarded the systemic circulation against dire embolic effects of the large thrombus.

This case demonstrates that TTE is still an important tool in the diagnosis of left atrial thrombi. A TEE is the method of choice when differentiation between myxoma and thrombus proves difficult.

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