

# Mobile Left Atrial Mass – Clot or Left Atrial Myxoma

Suraj Wasudeo Nagre

Department of CVTS, Associate Professor, Grant Medical College, Mumbai, INDIA

## 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 two conditions. We report a case of a left atrial mass in a middle age male patient having past history of closed mitral commissuro to my presented with mitral stenosis and atrial fibrillation. On transthoracic echocardiography (TTE) a round mass appeared freely mobile in left atrium 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 like mobile thrombus but possibility of left atrial myxoma cannot be ignored. 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 may help for differentiate clot from atrial myxoma but histopathological examination is a gold standard.

**Key words:** left atrium, mitral stenosis, mitral valve replacement, CMC-closed mitral, commissurotomy.

## Correspondence

Suraj Wasudeo Nagre

31, Trimurti Building, J J  
Hospital compound, Byculla,  
Mumbai, Pin -400008

Ph.no: 09967795303

E-mail: surajnagre@yahoo.com

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## INTRODUCTION

Nearly every fifth mitral stenosis patient presents with clot in the left atrium. Most clots are located in the left atrial appendage, but atrial appendage clot can also extend to the left atrial cavity.<sup>1</sup> Left atrial clot in operated case of closed mitral commissurotomy is not reported in literature as left atrial appendage was tied during CMC. Left atrial clot without mitral disease is rare.<sup>2</sup> The diagnosis of a left atrial clot should be regarded as an urgent indication for preventive surgery.<sup>3</sup>

The differential diagnosis for an intra-cavitary cardiac mass includes thrombus, myxoma, lipoma and non-myxomatous neoplasm. Cardiac myxomas are uncommon tumours found in 0.5 million population per year with left atrium being the predominant site. Over 72 % of primary cardiac tumors are benign. In adults, the majority of benign lesions are myxomas.

## CASE REPORT

A 38-year-old male with past history of closed mitral commissurotomy fifteen years back presented with symptoms of shortness of breath, palpitation and facial puffiness. He had longstanding mitral restenosis and atrial fibrillation and was classified as NYHA-III. There was no history of stroke or embolic event in the past. Physical examination revealed a mid-diastolic murmur at apex. His ECG showed an atrial fibrillation rhythm, chest x-ray revealed cardiomegaly with dilated left atrium. Transthoracic echocardiography revealed a large freely mobile round mass in the left atrium (LA), which was partially prolapsing into left ventricle through mitral valve [Figure 1]. The mass was moving freely in the LA and was bouncing back after striking the mitral valve leaflets like a ball in a pin-ball machine. Patient was scheduled for surgical removal of mass along with mitral valve replacement under cardiopulmonary bypass. Intra-operative transesophageal echocardiography (TEE) confirmed the pre-operative findings.

At surgery, a large spherical pink colored mass [Figure 2] with a smooth surface was removed [Figure 3]. Evidence of peduncle or wall attachment was not demonstrated during surgery. Though this patient has past history of CMC, intraoperatively we found left atrial appendage opening into left atrium through small partially closed opening. We closed it internally with prolene 4-0 suture. Stenosed mitral valve removed with preserva-

tion of posterior mitral leaflet [Figure 4]. Mitral valve replacement done with mechanical valve by intermittent 2-0 pledgetted ethibond sutures in horizontal mattress pattern with pledgett on left atrial side. Minimal inotropic support was used during weaning from bypass. Postoperatively, the patient remained hemodynamically stable. Patient ventilated for 5 hours and had minimal blood loss. ICU stay was two days, during which intensive chest physiotherapy was performed. Histopathology examination of the mass revealed features consistent with thrombus [Figure 5]. The patient was discharged after 8 days on tablet warfarin 5 mg with INR of 2.6.

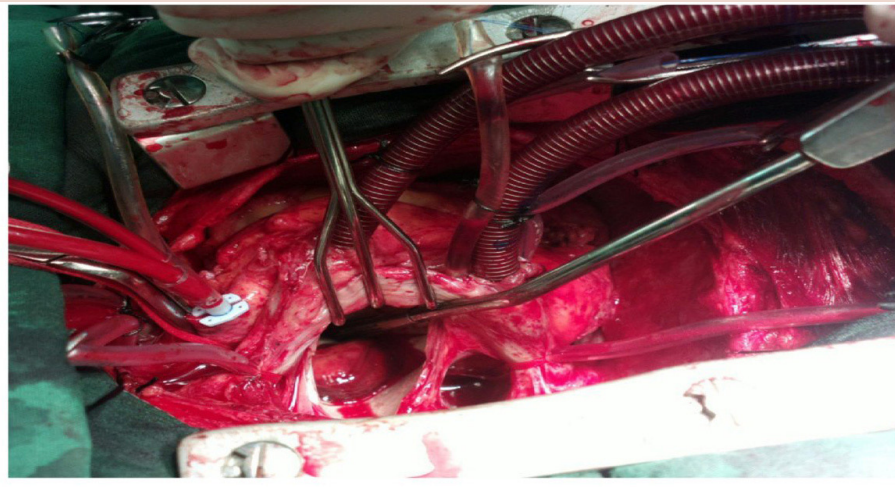
## DISCUSSION

The probable predisposing factors for thrombus formation are mitral valve disease, non-valvular atrial fibrillation, severe LV dysfunction, and other causes of atrial contractile failure.<sup>4</sup> Among these factors, mitral valve disease or atrial fibrillation are the most common. Thrombus formation in the presence of sinus rhythm is rare. Any condition predisposing to low flow state can lead to thrombus formation. Thus, in the present patient the risk factors for thrombus formation included atrial fibrillation and LV dysfunction. Patients with LA thrombus are at a high risk for thromboembolic events and sudden death as a freely mobile LA thrombus can occlude the mitral valve by a ball-valve mechanism.

The differential diagnosis for an intra-cavitary cardiac mass includes thrombus, myxoma, lipoma and non-myxomatous neoplasm.<sup>5</sup> Among them, cardiac myxoma is the most common benign primary tumor of the heart and generally found in the LA. Transthoracic echocardiography [TTE] is very useful tool for evaluating cardiac diseases. Indications of TTE are congenital heart disease, pericardial effusion, constrictive pericarditis, valvular or structural heart disease, evaluation of suspected infective endocarditis, evaluation of prosthetic valve, cardiomyopathy, cardiac mass (suspected tumor or thrombus) and evaluation of suspected complication of myocardial ischemia/infarction. On echocardiography cardiac myxomas typically appear as a mobile mass attached to the endocardial surface by a stalk, usually arising from the fossa ovalis. Cardiac thrombi, which appear more frequently than cardiac myxomas are typically located more often in the LA or LAA and generally occur in patients with organic heart disease.



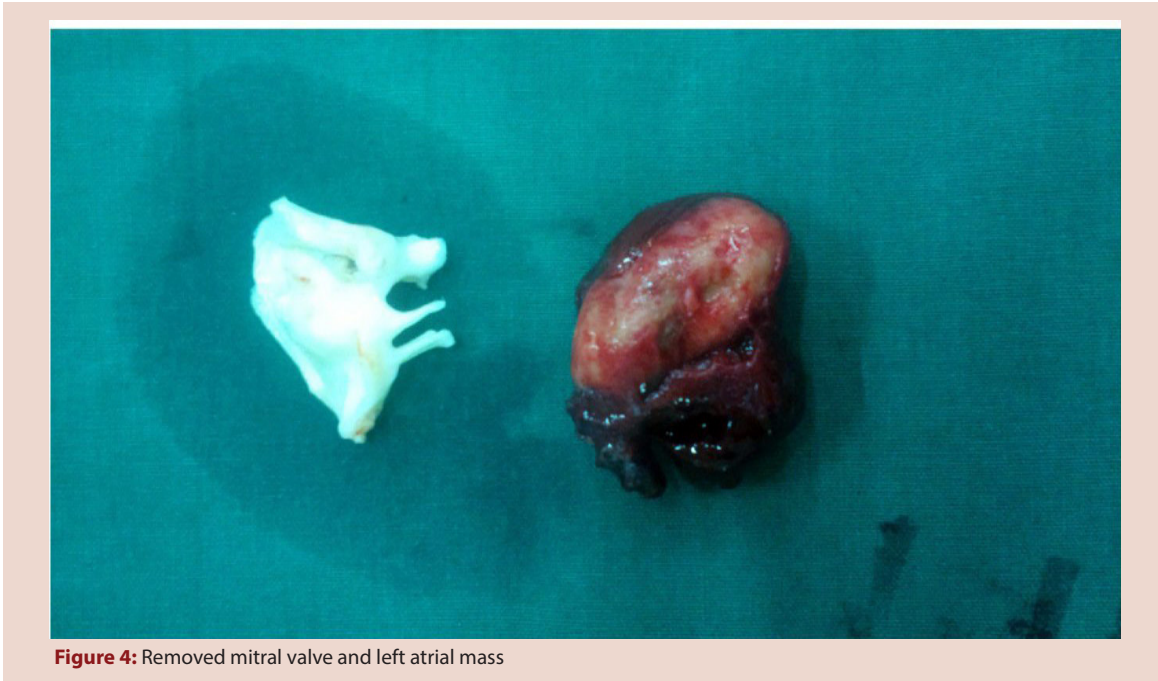
**Figure 1:** Transthoracic echocardiography revealed a large freely mobile round mass in the left atrium (LA), which was partially prolapsing in to the left ventricle



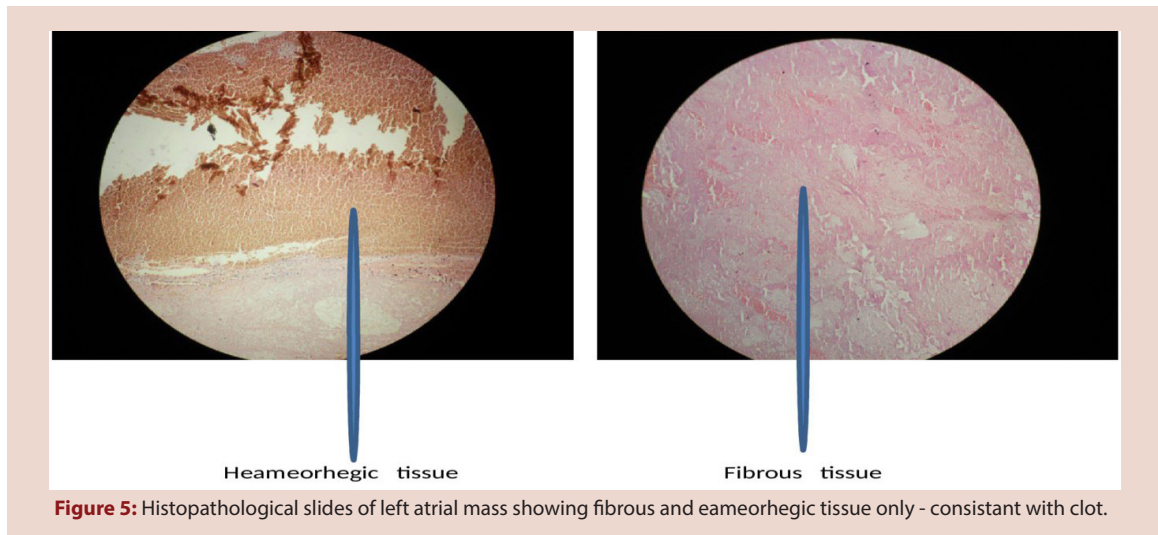
**Figure 2:** Spherical, round, smooth freely mobile left atrial mass



**Figure 3:** Removal of free left atrial mass



**Figure 4:** Removed mitral valve and left atrial mass



**Figure 5:** Histopathological slides of left atrial mass showing fibrous and eameorhegic tissue only - consistant with clot.

In the present patient, features were not consistent with thrombus as it was spherical and mobile, surface was smooth and echogenicity was more consistent with myxoma. The present thrombus may have been attached earlier, but got dislodged due to lysis at some stage. Other intra-cardiac masses such as lipoma or non-myxomatous neoplasm are rare. TEE is the extensive diagnostic tool to investigate suspected intra-cardiac mass involving the LA<sup>6</sup> and histopathological examination is gold standard for diagnosis of myxoma.

### CONCLUSION

To the best of our knowledge this is the only case report of a mitral stenosis with left atrial mass in a patient already having history of closed mitral commissurotomy. In the present patient, features were not consistent with thrombus as it was spherical and mobile, surface was smooth and echogenicity was more consistent with myxoma. Transoesophageal echocardiography imaging provides detailed information of a mobile

mass in the left atrium. Surgical removal of a mobile left atrial mass should be performed before the occurrence of a fatal embolism. We conclude that TTE is still a reliable tool in the diagnosis of large mobile atrial thrombi; TEE may help to differentiate clot from atrial myxoma but histopathological examination is gold standard.

### CONFLICT OF INTEREST

The Authors declare no conflict of interest

### ACKNOWLEDGMENT

Department of cvts, grant medical college, mumbai, maharashtra, 400008.

### ABBREVIATIONS

MS: mitral stenosis; LA: left atrium; CPB: cardiopulmonary bypass.

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