

Severe mitral stenosis with giant LA with LA thrombus - A case report

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Abstract:

Excess dilatation of the left atrium >60 mm is known in the literature as a gigantic atrium. This dilation is most commonly encountered in the mitral insufficiency of rheumatic etiology, but also in severe prolapses of the mitral valve, permanent atrial fibrillation, and at the left-right shunt with cardiac insufficiency. In this paper, we presented a case study of severe mitral stenosis with

giant LA with LA thrombus in a 42 years old female patient. The patient underwent successful mitral valve replacement and removal of LA thrombus and discharged from the hospital with advice.

Key words: Mitral Stenosis, Giant LA, LA Thrombus and Atrial fibrillation

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Introduction:

Mitral stenosis (MS) is a common finding in rheumatic heart disease and can lead to enlargement of the left atrium and stasis of blood in this heart chamber. A community based study showed the prevalence of rheumatic heart disease is 1.3 per 1000 in rural Bangladesh.¹ Current prevalence of RF and RHD may be <1/1000.² About 535 and 509 Mitral valve replacement were performed in our country in the year of 2015 and 2016 respectively.^{3,4} The exact aetiology is not known, Both increased left atrial pressure and weakening of left atrial wall by rheumatic pancarditis are implicated in its development.^{5,6} The condition can be associated with atrial fibrillation, thromboembolic complications,

hemodynamic and respiratory complications.⁷ Other causes of left atrial enlargement are left ventricular failure, chronic atrial fibrillation, and significant left to right shunts as seen in patent ductus arteriosus and ventricular septal defect. Advanced rheumatic mitral stenosis with enlarged left atrium and atrial fibrillation can predispose to the formation of thrombi in the left atrium and the left atrial appendage over time if anticoagulation treatment is ineffective. Giant left atrium is a feature of rheumatic valve disease with severe mitral regurgitation.⁸ We present a case of mitral stenosis associated with Giant LA with huge thrombus formation. The patient was successfully managed by mitral valve replacement and removal of LA thrombus.

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Case Report:

A 42 years female, named Masuda Begum, normotensive, nondiabetic was suffering from breathlessness during moderate to severe exertion for 1 year, palpitation for 6 months and generalized weakness for 3 months. Two months back she admitted in NICVD for better treatment. Physical examination revealed she was anxious, cooperative, decubitus on choice, no anemia, non-icteric, no cyanosis with normal blood pressure and an irregular pulse.

Cardiovascular examination revealed visible apex beat present in a normal position, no chest deformity and no scar present. The apical impulse in normal position tapping in nature, a diastolic thrill present in the mitral area but there is no parasternal heave and no palpable P2. On auscultation, first heart sound is loud in the mitral area and low pitched, localized, rough and rumbling mid-diastolic murmur also present in the mitral area.

Chest x-ray P/A view showed cardiomegaly (enlarged in transverse diameter, straightening of left heart border with double rt. Heart border), lung fields were normal to congestive. ECG showed atrial fibrillation. Echocardiography confirmed severe mitral stenosis (MVA -0.7cm²) with AML & PML both thickened and less pliable, both commissures are fused with subvalvular changes grade IV and moderate MR. LA was dilated (63x37 mm), thrombus is seen in posterior wall of left atrium without compressing RA. Pulmonary hypertension present with PASP 41 mm of Hg with grade I tricuspid regurgitation. The patient was getting anticoagulation before surgery and the dosage of anticoagulation was optimized to achieve the INR 2.5.

With all aseptic precaution, a median sternotomy was done. The thymus was dissected and ligated. Pericardiotomy was done and the Cardiopulmonary bypass was established with the bi-caval cannula. There was a 6x4x3 cm in size organized LA thrombus was found and thrombus was removed. (Fig 1, Fig 2 and Fig 3) Pulmonary veins opening were found free of thrombus. Mitral valve found both AML and PML thickened with severe subvalvular change. Mitral valve and it's apparatus excised and replaced with 27 mm

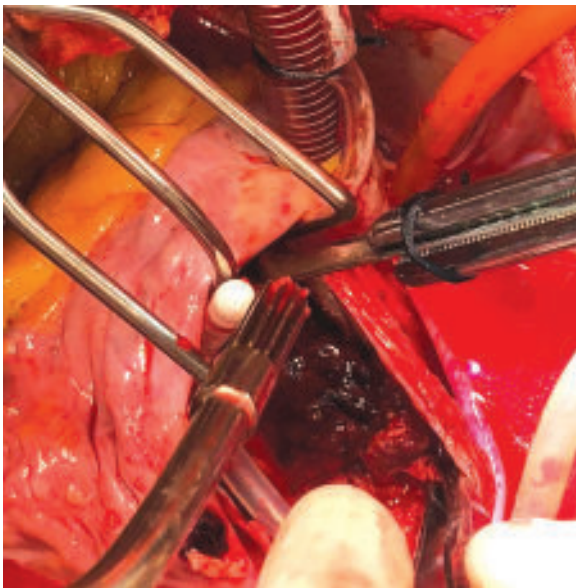


Fig.-1: Thrombus seen inside LA.

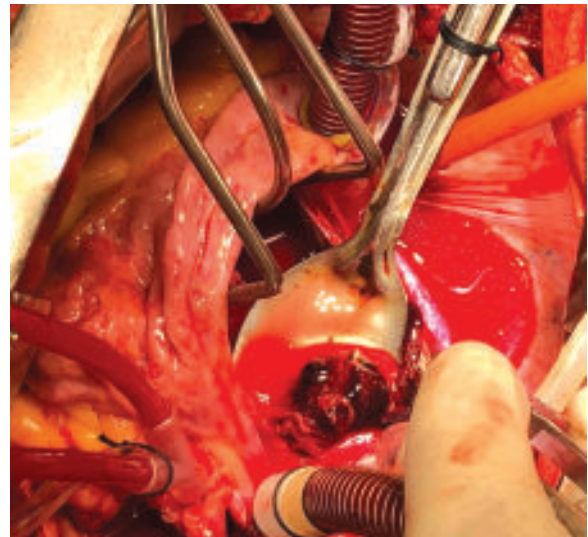


Fig.-2: Removal of thrombus

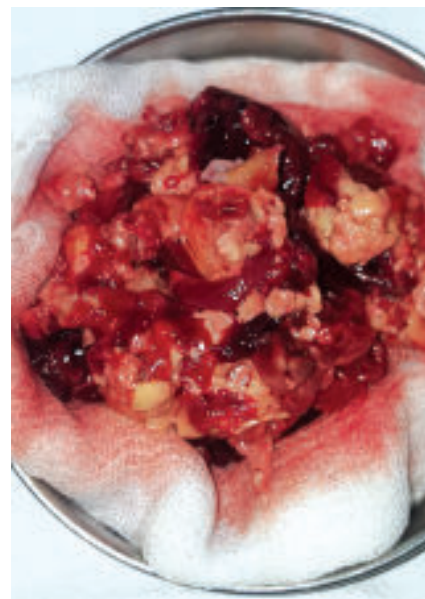


Fig.-3: Cauliflower like thrombus

St. Jude bi-leaflet mechanical valve. Maze procedure was performed for atrial fibrillation. Left atriotomy was closed in layers. Pacing wires were placed in RV wall and skin. Chest closed in layers after keeping 2 chest drain tube in retrosternal space. Proper hemostasis was ensured. The per-operative period was uneventful. The patient was extubated on 8 hours after the operation. The drain tube was removed on the 2nd POD. Patient shifted from ICU to ward on the 4th POD. Her GCS level is 15, no peripheral artery blockage is seen, heart rate is 80 bpm. Tab. Warfarin 5 mg is continued. Patient discharged on the 8th POD.

Discussion:

The differential diagnosis of intracavitary masses, particularly LA, may be quite wide and can be a case of a primary intracardial tumor (usually myxoma), thrombus, intracardial cyst or vegetation. The diagnostic method of choice is echocardiography (TTE or TEE).⁹ The incidence of the left atrial thrombus in a patient with mitral stenosis and atrial fibrillation varies between 7 and 38%.^{10,11} The cause of left atrial dilatation is not only an increase in intracavitary pressure but also a consequence of rheumatic carditis with chronic inflammation and myocardial fibrosis.^{5,12} Such dilation and atrophic fibrosis are the basis for the formation of atrial fibrillation the most common cause of ischemic cerebrovascular incidents, and in itself causes further dilation of LA. Patients with severe mitral stenosis and atrial fibrillation, as shown, have an increased risk and require adequate anticoagulant treatment. In patients with mitral stenosis, the level of fibrinopeptide A, thrombin-antithrombin III complex and von Willebrand factor in the left atrium is increased.¹³ The dilation of LA is associated with the blood trauma and the formation of a thrombus, and the risk of thromboembolism increases with the enlargement of the left atrial dimension, independent of the administration of an anticoagulant.¹⁴

According to Isomura and co-workers, left atria larger than 6 cm diameter is termed as giant left atria.¹⁵ In our patient had LA size was 63 mm, which is consistent with the above study. Hurst states that in cases of a giant left atrium, mitral regurgitation is more profound than mitral stenosis, and atrial fibrillation is almost always present.⁵ Giant left atria may rarely present in severe mitral stenosis alone, mitral regurgitation should also be present.¹⁶ In our case, X-ray chest of the patient revealed cardiomegaly. On echocardiography, there was severe mitral stenosis with enlarged LA (63 mm) not compressing RA with moderate MR which is consistent with the above study.

The patient of giant left atria usually presents with complaints of shortness of breath and/or dysphagia.¹⁷ Our patient had complaints of shortness of breath on exertion, palpitation without any compressive symptoms like dysphagia which is consistent with the above study.

Patients with severe mitral stenosis and atrial fibrillation, have an increased risk embolic events and require adequate anticoagulant treatment. We also optimized anti-coagulation therapy to achieve the INR 2.5.

In the view of such an enlarged left atrium with the progression of symptoms with atrial fibrillation, we advised our patient for mitral valvular replacement surgery to avoid further complications. Successful mitral valve replacement

surgery was done and the patient discharged from the hospital with advice. Ahmad and his colleagues also published a Case Report of Giant Left Atrium in a case of Mitral stenosis with LA thrombus.¹⁸

Such a giant left atrium with severe mitral stenosis with mild mitral regurgitation with AF is a rare entity¹⁹ and hence we have reported this case.

Conclusion:

Rheumatic mitral stenosis, even of moderate severity, associated with an enlarged left atrium and atrial fibrillation can be complicated by the formation of thrombi. Surgical management was done successfully and the patient discharged from the hospital.

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