

32 Years Old Female, 7 Month Primigravida, A Case of Stucked Mitral Valve with Extensive Thrombus Treated Successfully with Thrombolysis Developing Right Femoral Artery Occlusion

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Abstract: 32 - year primi ANC female with history of MVR (2008) presented to us with history of breathlessness and orthopnea since 4 days. The patient was non - compliant with enoxaparin injections. Urgent echo showed incomplete movements of one mitral leaflet and other was stucked completely with elevated gradient of across the mitral valve and severe PAH with heavy thrombus load. Cardiothoracic vascular surgeon opinion was obtained and decision of thrombolysis was taken after discussion with family. However, after around six hours of thrombolysis, patient developed sudden burning pain, loss of movements in the right lower limb and urgent ultrasound doppler showed complete occlusion of the right common femoral artery. After Interventional radiologist consultation, the decision of conservative management was taken. Within 1 to 2 hours of continued thrombolysis, her pain has resolved completely, movements regained and pulses were palpable. Repeat 2D echo after thrombolysis showed resolution of the thrombus, significant fall in the gradient with no pulmonary artery hypertension and leaflets started moving. Patient was given heparin infusion and warfarin post thrombolysis. Patient was discharged in stable condition.

Keywords: Mechanical mitral valve thrombosis, stucked valve, embolic complications of stucked valve, extensive mitral valve thrombosis, femoral artery occlusion in stucked mitral valve

1. Case Report

32 - year primi ANC female presented to us with history of breathlessness and orthopnea since 4 days. She has a history of mitral valve replacement done 15 years back (2008). The patient had stopped warfarin since a few months in view of pregnancy and non - compliant with enoxaparin injections. On physical examination, the patient was tachypnoeic and in distress. She was in sinus tachycardia. Her electrocardiography showed Sinus tachycardia (HR 129 bpm) and blood pressure of 97/68 mmhg. Her CVS examination revealed PSM at LLSB and metallic click. On respiratory system examination, bibasalcraets were heard. Per abdomen was soft and distended. Urgent echo was done which showed incomplete movements of one mitral leaflet and other was stucked completely with gradient of across the mitral valve being 24 mmhg at peak and 10 mmhg mean and severe PAH (RVSP of 60 mmhg). Thrombus load was heavy and there was visible extensive thrombus. Cardiothoracic vascular surgeon opinion was obtained and decision of thrombolysis was taken after discussion with family. Thrombolysis was begun with streptokinase according to standard protocol. However, after around six hours of thrombolysis, patient developed sudden burning pain, loss of movements in the right lower limb. On examination, pulses were absent and extremity was cold to touch. Urgent ultrasound doppler was done, which showed complete occlusion of the right common femoral artery. Interventional radiologist consultation was done and after discussing with the family, the decision of conservative management was taken. Within 1 to 2 hours of continued thrombolysis, her pain has resolved completely, movements regained and pulses were palpable.

Repeat 2D echo after thrombolysis showed resolution of the thrombus, significant fall in the gradient (with peak gradient of 5 and mean gradient of 2 mmhg) with no pulmonary artery hypertension and leaflets started moving. Patient was given heparin infusion and warfarin post thrombolysis. Heparin infusion was stopped after the therapeutic range INR was achieved. Patient was discharged in stable condition.

2. Discussion

Stucked valve is rare and important complication post mechanical valve replacement. Clinical presentation in almost all cases is breathlessness, which may be associated with orthopnea. Patient may be in cardiogenic shock in acute stucked mitral valve. In our case, we had suspected stucked mitral valve based on her clinical presentation and history of drug default. We had confirmed our diagnosis on echo, however since patient was pregnant, fluoroscopy was avoided and management was decided based on echo findings only. Cine fluoroscopy is gold standard for diagnosing stuck mechanical mitral valve 1. Underlying cause for valve dysfunction is either pannus or thrombus formation, which can be difficult to differentiate.2. In our case, thrombus was likely possibility as acute nature of presentation, sub therapeutic INR and echo findings. On echo, thrombus appears as of lower density and irregular shape, attachment to prosthetic heart valve leaflets, or hinge points with mobile mass. In contrast, higher density mass extending along the valve ring suggests the possibility of pannus formation.3.

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Redo valve surgery and thrombolytic therapy are accepted way of treatment. Choice between the two is debatable due to lack of data as condition is quite rare. The current recommendations for surgery include failure of thrombolytic therapy, sizable thrombus area on TEE of 0.8 cm², concomitant pannus formation, NYHA class III, IV symptoms on presentation, mobile thrombus or recurrent valve thrombosis. Although, thrombus load was heavy and higher NYHA class, due to refusal of surgery by patient and ANC status, option of thrombolysis was adopted. We have gone for bolus followed by slow infusion of streptokinase, according to patient's choice. After 6 hours of streptokinase infusion, the patient developed sudden pain in right lower limb with loss of pulsations. Ultrasound doppler confirmed the complete occlusion of common femoral artery. Due to pregnancy, the decision of intervention was deferred and we continued with thrombolysis. Within 1 - 2 hours of continued thrombolysis, the patient's pain resolved and pulses were palpable again. So, embolic complications resolved with ongoing thrombolysis itself.

Post thrombolysis, patients symptoms of breathlessness and led pain had completely resolved. Echo showed significant fall in the mitral valve gradient suggesting successful thrombus. Success rate for thrombolysis varies from 62% to 81.8% (5 - 7).

Multi - gated cardiac CT scan may be used to evaluate the lesion size and extent, differentiate pannus versus thrombus based on density seen on CT scan 8 - 9. Pannus has higher HU of more than 145 with circumferential involvement in contrast to thrombus, which has lower HU (<90) with hinge involvement. So, CT scan be useful in the deciding the cause for stucked valve and further treatment. This will be more helpful in patients, who have not responded to thrombolysis

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