

Stuck Prosthetic Aortic Valve: Rescued with Recombinant Tissue Plasminogen Activator

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Abstract

Retepase, a tissue plasminogen activator commonly used as a thrombolytic agent in acute ST elevated myocardial infarction; however its use in prosthetic mechanical valve thrombosis remains controversial. We report a case of mechanical aortic prosthetic valve thrombosis which was successfully treated with reteplase. Being faster acting and more efficacious, tissue plasminogen activators like reteplase and tenecteplase can be attractive and better alternative to the age old streptokinase used conventionally to treat prosthetic valve thrombosis.

Key words: Mechanical; Prosthetic; Thrombolysis.

Introduction

Mechanical prosthetic valve thrombosis is rare but serious complication requiring either thrombolytic therapy or surgical intervention. Slow infusion of streptokinase is the recommended therapy. Experience with reteplase as a thrombolytic agent in this condition is less with paucity of literature evidence.

Case

52 year old female with history of AVR 5 year back with St Jude mechanical aortic valve was admitted with acute onset shortness of breath and echocardiography revealed peak and mean prosthetic aortic valve gradient of 103 and 63 mmHg respectively, fluroscopy revealed one immobile

and nonvisualised mechanical aortic valve leaflet suggestive of prosthetic valve thrombosis (Fig-1). She was treated with intravenous bolus dose of 10 U of reteplase. Second dose of thrombolytic therapy was withheld as the patient developed gum bleeding. Post thrombolytic therapy patient's shortness of breath was relieved completely and fluroscopy revealed good movement of both mechanical aortic valve leaflets (Fig 2).

Post thrombolytic therapy echocardiography revealed normal prosthetic peak and mean gradient of 35 and 20 mm Hg respectively and the patient was discharged with oral anticoagulant with INR of 2.5.

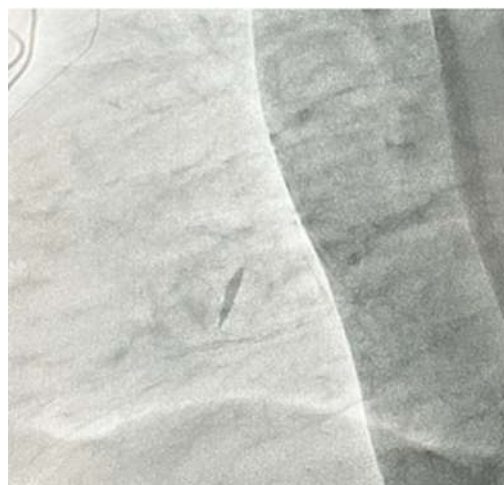


Fig. 1: Stuck prosthetic aortic valve leaflet.

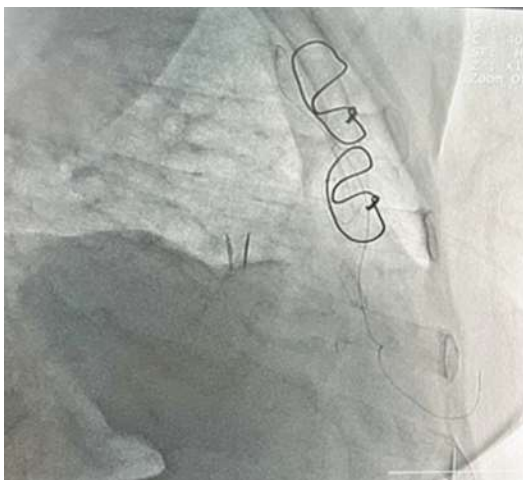


Fig. 2: Mobile leaflets post thrombolysis.

Discussion

Reteplase is a recombinant tissue plasminogen activator. Reteplase has been shown to have fibrin specificity similar to that of alteplase but with a lower binding affinity for fibrin. This enables reteplase to bind to the thrombus repeatedly and increases its fibrinolytic potential.¹ Reteplase is mainly used as a thrombolytic therapy in acute ST-segment elevation myocardial infarction.² However, for the last few years it is also used for the treatment of acute pulmonary embolism and deep venous thrombosis and for thrombosed catheters.^{3,4} The use of reteplase for stuck valves is limited in the literature and has been published for few cases of prosthetic mitral and aortic valves.⁵ Our case is a beautiful demonstration of role of

tissue plasminogen activator in prosthetic valve thrombosis where half dose of thrombolytic therapy was also effective in resolving the thrombus. Reteplase may be a better alternative to streptokinase or alteplase in prosthetic valve thrombosis due to ease of administration also.

Conclusion: Contrary to the age old practice of treatment of stuck valve with streptokinase and alteplase, third generation tissue plasminogen activators like reteplase and tenecteplase can be also promising in resolving a stuck valve thrombus. We report a rare case report of stuck valve thrombosis successfully treated with half dose of reteplase due to bleeding issue. Rapidity and efficacy of those rtPAs save the life from a catastrophe.

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