Percutaneous Management Of Prosthetic Valve Thrombosis

Dr. V. Hariram MD, DM

Consultant Cardiologist
Usha Mullapudi cardiac Center
Hyderabad
INDIA
• A 40 year old non diabetic non hypertensive female

• History of increasing breathlessness and orthopnea of 2 days duration.
• H/O rheumatic heart disease with severe Mitral stenosis and moderate aortic stenosis with double valve replacement in July 2007

• ATS open pivot 23mm bileaflet valve (ATS medical inc.) at the mitral position, ATS open pivot 18 mm bileaflet valve (ATS medical inc.) at the aortic position.

• She was on regular follow up with adequate anticoagulation with Acitrom and aspirin
On Examination

- SBP 80 mm of Hg,

- Bilateral crepitations extending more than 2/3rds of lung fields.

- Echocardiogram revealed increased gradients across the prosthetic mitral valve (peak gradient-35mm of Hg and mean gradient 25 mm of Hg).

- Gradients across the aortic prosthetic valve were within acceptable limits.
A fluoroscopic examination revealed stuck prosthetic mitral valve with one of the leaflet completely immobile and normally functioning prosthetic aortic valve.

Her INR at the time of admission was 2.69.
A fluoroscopic examination revealed stuck prosthetic mitral valve with one of the leaflet completely immobile and normally functioning prosthetic aortic valve.
- Started on intravenous streptokinase 2.5 lakhs loading dose followed by one lakh units per hour infusion.
- Developed respiratory distress - mechanically ventilated.
- After 36 hours of streptokinase infusion, a repeat echocardiogram did not reveal any significant reduction of gradients across the valve.
- No visible thrombus
- A repeat fluoroscopic examination revealed no significant improvement in the movement of the valve leaflet.
• A repeat fluoroscopic examination revealed no significant improvement in the movement of the valve leaflet.
In view of persistent hypotension, and the high risk involved in repeat surgery, the patient was planned for percutaneous management [As a bridge to surgical management] after properly discussing the risks involved with the relatives of the patient.
Trans septal route

- Through the right femoral venous route a trans septal puncture was done with the trans septal Brockenbrough needle through 8F Mullins sheath with dilator.

- After confirming the needle position in left atrium the Mullins sheath was advanced into the left atrium.
• Then the needle and dilator were removed. As soon as the dilator and needle were removed, the tip of Mullins sheath was positioned at the mitral prosthetic valve.
• A 6F Judkins Right (Cordis) Guiding catheter was passed through the Mullins sheath.
With little manipulation the JR catheter was passed across the Mitral prosthetic valve leaflet 2-3 times under fluoroscopic guidance.
After passage of the catheter the leaflet movement improved to a significant extent.
• Her blood pressure improved and the inotropic support was tapered off.

• No focal neurological defects were noted. Patient became asymptomatic.

• A repeat echocardiogram revealed significant reduction in the gradients (peak gradient–11 mm of Hg and mean gradient 7 mm of Hg).
• Discharged on acitrom and aspirin with INR of 2.8

• On follow up after 2 weeks patient was asymptomatic and the Gradients across the mitral prosthetic valve remained within acceptable limits.
A repeat fluoroscopy showed normal mobility of both valve leaflets.
• We have shown that under exceptional circumstances percutaneous management of prosthetic valve thrombosis can be attempted with satisfactory results.

• Though the initial results were good long term follow up is needed to confirm the utility of the procedure.

• A Transesophageal echo would have helped to understand the exact etiology, which could not be done in our patient.
Conclusion

- Percutaneous manipulation of prosthetic valves in selected patients with prosthetic valve thrombosis who did not respond to thrombolytic therapy is feasible and can be used as an alternative to surgery.
- Development of such alternative treatments is useful especially in developing and economically backward countries thus avoiding the higher risk and higher cost during surgical management.
• There is only one case report of similar procedure done previously in a 69 year old female for temporary hemodynamic stabilization before surgical treatment.1