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Simultaneous Transfemoral Aortic and Transseptal Mitral Valve Replacement in a High-Risk Patient

We present an 80-year-old female with severe aortic stenosis and significant mitral regurgitation, previously treated with coronary artery bypass grafting and mitral ring annuloplasty (Video 1). Due to high surgical risk (STS score: 12.5%), simultaneous transfemoral aortic valve implantation and transseptal mitral valve-in-ring replacement were planned.

Under general anesthesia and transesophageal echocardiography guidance, transseptal access was established via an inferoposterior puncture. A 23-mm Myval balloon-expandable valve was deployed in the aortic position first (Video 2). Subsequently, a 26-mm Myval valve was implanted into the degenerated mitral ring with a transseptal approach (Video 3). Fluoroscopy confirmed optimal valve positioning without paravalvular regurgitation or left ventricular outflow tract obstruction (Video 4). The procedure was completed in 113 minutes, with a fluoroscopy time of 49 minutes. The patient was extubated in the operating room and discharged on postoperative day 5 without complications.

Simultaneous transcatheter valve replacement for aortic and mitral valve disease is emerging as a feasible alternative for high-risk surgical patients, despite limited clinical guideline support.[1,2] While traditionally performed via transapical access, this case presents the first successful fully percutaneous transfemoral approach in Türkiye using Myval valves. Treating the aortic valve first minimizes deployment complications. Despite procedural challenges, outcomes were promising, with minimal residual gradients, no major leaks, and notable symptom improvement. Pre-procedural planning and a multidisciplinary team were crucial. The case underscores the growing potential for transcatheter solutions in managing complex mixed valve disease and highlights the need for further studies to establish standardized approaches and long-term outcomes.

E-PAGE ORIGINAL IMAGE

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Video 1: Pre-procedural echocardiographic assessment.

Video 2: TAVR procedure.

Video 3: MVIR procedure.

Video 4: Post-procedural echocardiographic assessment.

Supplementary Video 1: Pre-procedural left ventriculography.

Supplementary Video 2: Post-procedural left ventriculography.

Supplementary Video 3: Post-procedural 3D MIP CTA evaluation showing valves positioning.

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