
Left ventricular outflow tract obstruction due to residual native valve following mitral valve replacement

An 84-year-old female with history of bioprosthetic mitral valve replacement four years earlier presented with a progressively worsening dyspnea on exertion. A transthoracic echocardiogram (TTE) showed a mean gradient of 13 mmHg across the bioprosthetic valve (Fig. 1a). The TTE also noted a left ventricular outflow tract obstruction (LVOTO) gradient due to residual native valve tissue (peak gradient >130 mm Hg) (Fig. 1b, arrow) and an estimated right ventricular systolic pressure of 70 mm Hg. The transesophageal echocardiogram (TEE) corroborated that two out of three leaflets on the bioprosthetic valve had a significantly reduced motion (Fig. 1c and Video 1). In addition, a significant systolic anterior motion of the native mitral valve anterior leaflet (red arrows) was observed which had not been resected throughout the original surgery, resulting in a significant dynamic LVOTO (Fig. 1d and 1e and Video 1). She subsequently underwent redo bioprosthetic mitral valve replacement and resection of the native anterior mitral valve leaflet (Fig. 1f). The resected bioprosthetic valve revealed findings consistent with a degenerated valve prosthesis with calcified leaflets and significantly restricted motion (Fig. 1g, white arrows). Her postoperative course was unremarkable, and she was discharged on postoperative day 7.

Postoperative LVOTO may occur for a variety of reasons, including abnormal prosthetic position, hypercontractile ventricle, left ventricular hypertrophy, and a small ventricular cavity (1-3). Dynamic obstruction secondary to the preservation of native anterior mitral valve leaflet has also been outlined (our patient) (4, 5). This problem was likely exacerbated by the presence of a prosthetic stenosis. This case also highlights the importance of intraoperative TEE.

Informed consent: Informed consent was obtained from the patient.

References

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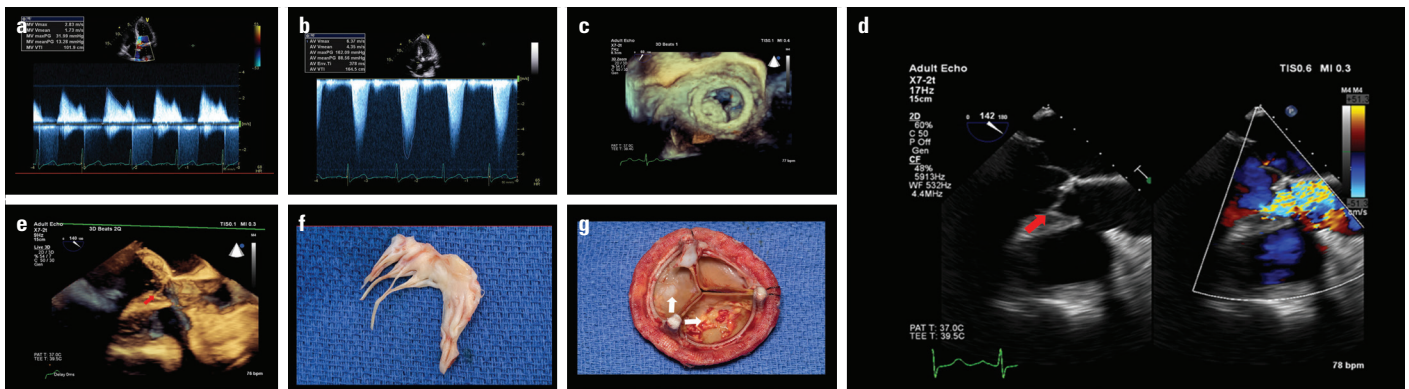


Figure 1. TTE showing elevated mean gradient across bioprosthetic mitral valve (a). TTE demonstrating LVOTO due to residual valve tissue (b). TEE confirming reduced bioprosthetic valve motion (c). Red arrow demonstrating systolic anterior motion of the native mitral valve (d and e). Resected native anterior mitral valve leaflet (f). Resected bioprosthetic valve with calcified leaflets (g, white arrows)

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Video 1. TTE in parasternal long axis revealing the presence of unresected native anterior mitral valve leaflet causing systolic

anterior motion and left ventricular outflow tract obstruction. 3D TEE demonstrating fixed leaflet in mitral valve prosthesis.

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