

IMAGES IN INTERVENTION

The Rare Complication of Transcatheter Mitral Valve-in-Ring Procedure



Not Only Left Ventricular Outflow Tract Obstruction Counts

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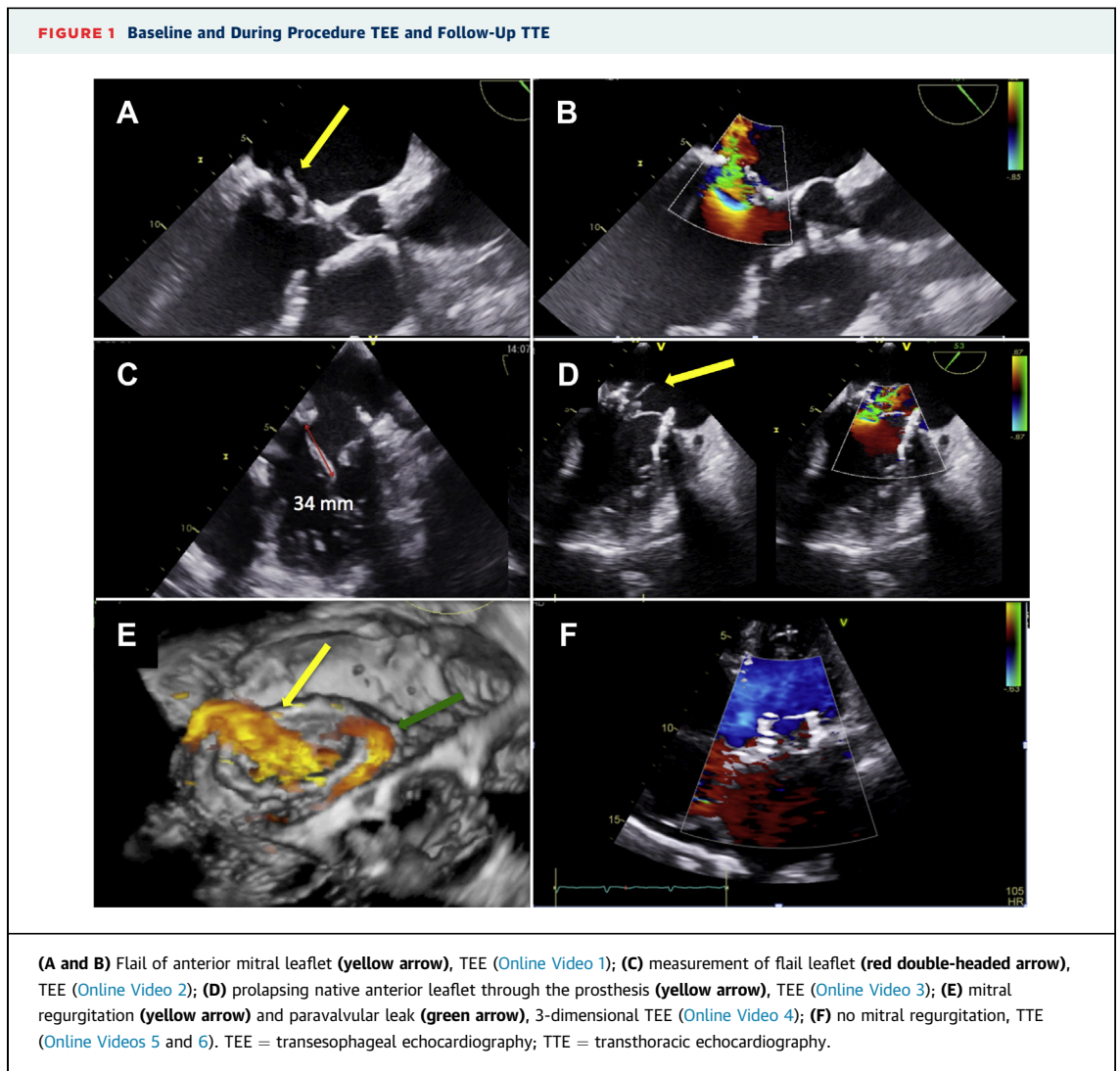
The transcatheter mitral valve-in-ring (VIR) procedure can trigger more than just left ventricular outflow tract obstruction from permanent displacement of the native anterior mitral leaflet (1). A 74-year-old man was referred for VIR after pulmonary edema due to severe mitral regurgitation. Four years before, he underwent mitral valve repair with a 32-mm Carpentier-Edwards Annuloplasty Ring (Edwards Lifesciences, Irvine, California) and edge-to-edge commissural stitch. Baseline transesophageal echocardiography (TEE) was used to measure the mitral ring diameters and the length of the anterior leaflet (34 mm) (Figures 1A to 1C, Online Videos 1 and 2). We performed a transcatheter VIR procedure with a 29-mm Edwards Sapien 3 valve (Edwards Lifesciences). After implantation, intraoperative TEE revealed severe central mitral regurgitation secondary to a prolapsing native anterior leaflet

into the S3 and mild paravalvular leaks (Figures 1D and 1E, Online Videos 3 and 4). After discharge, patient remained symptomatic, and several weeks later, we decided to surgically remove the anterior prolapsing mitral leaflet by an aortic approach. The patient subsequently improved and has remained asymptomatic (Figure 1F, Online Videos 5 and 6). Preprocedural measurement of mitral leaflet length is important, and in cases with prolapse or long leaflets, VIR should not be performed without a strategy for the anterior leaflet modification such as removal or reduction (2).

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Manuscript received March 7, 2018; revised manuscript received May 7, 2018, accepted May 15, 2018.



REFERENCES

1. Bapat V, Pirone F, Kapetanakis S, et al. Factors influencing left ventricular outflow tract obstruction following a mitral valve-in-valve or valve-in-ring procedure, part 1. *Catheter Cardiovasc Interv* 2015;86:747-60.
2. Babaliaros VC, Greenbaum AB, Khan JM, et al. Intentional percutaneous laceration of the anterior mitral leaflet to prevent outflow obstruction during transcatheter mitral valve replacement: first-in-human experience. *J Am Coll Cardiol Intv* 2017;24;10:798-809.

KEY WORDS mitral regurgitation, transesophageal echocardiography, valve-in-ring

APPENDIX For supplemental videos, please see the online version of this paper.