

IMAGES IN INTERVENTION

Catheter-Based Edge-to-Edge Mitral Valve Repair After Partial Rupture of Surgical Annuloplasty Ring



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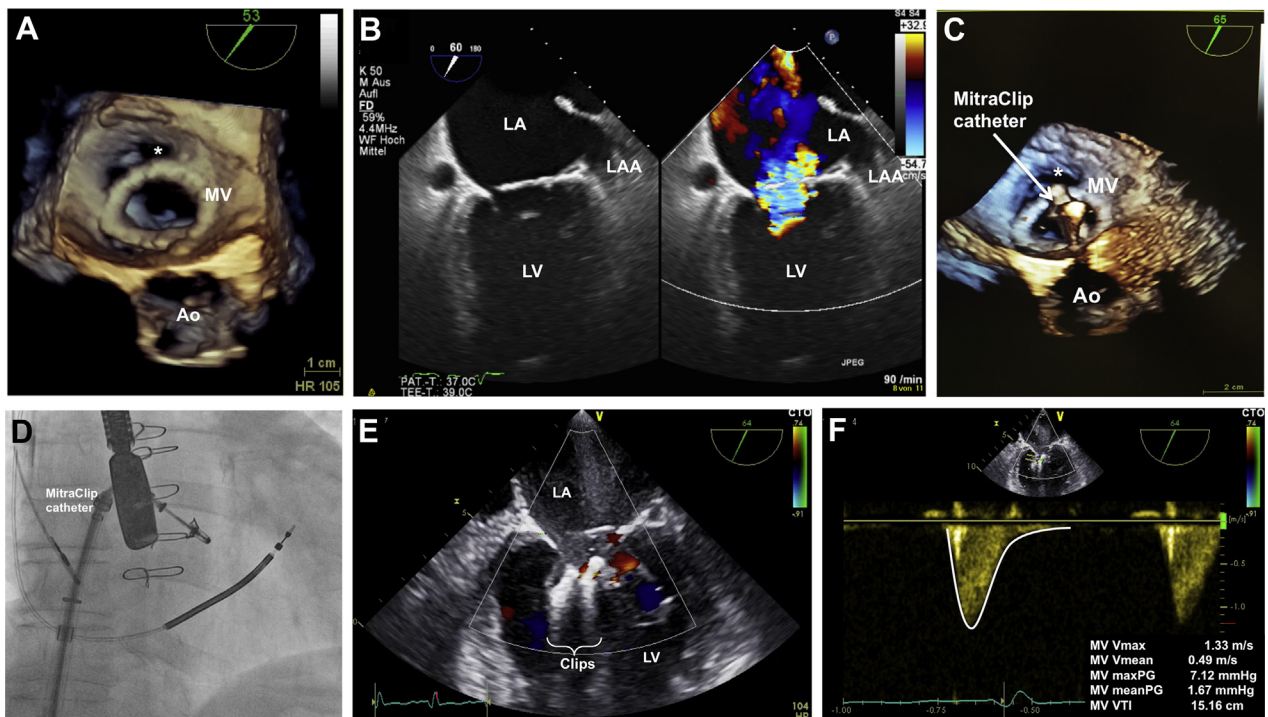
A 67-year-old male patient with history of ischemic cardiomyopathy and functional mitral regurgitation (FMR) treated with coronary artery bypass surgery and mitral annuloplasty with ring insertion in 2007, presented with right-heart failure symptoms, severe liver congestion, and hepatic encephalopathy. Echocardiography revealed a severe left-ventricular dysfunction (ejection fraction 24%), a dilated right ventricle with reduced systolic right ventricular function (tricuspid annular plane systolic excursion, 13 mm), moderate-to-severe tricuspid regurgitation, and moderate-to-severe transvalvular FMR (vena contracta: 0.7 cm; proximal isovelocity surface area: 0.9 cm²; effective regurgitant orifice area: 0.3 cm²; regurgitant volume: 45 ml/beat). FMR relapse was caused by posterior detachment of the surgical annuloplasty ring (nonradiopaque St. Jude Seguin 28-mm ring) (Figure 1A, Online Videos 1 and 2). Due to the high surgical risk (logistic EuroSCORE [European System for Cardiac Operative Risk Evaluation]: 33%), comorbidities, and previous cardiac surgery, the Heart Team opted for percutaneous transcatheter mitral valve repair with the MitraClip device (Abbott Vascular, Abbott

Park, Illinois). After assessment of the typical central regurgitant jet (Figure 1B), FMR was significantly reduced to trace after implantation of 2 clips (Figure 1E, Online Video 3). No mitral stenosis was observed after the procedure (Figure 1F). The patient demonstrated clinical improvement in the following days, with normalization of renal and liver functions, as well as resolution of the hepatic encephalopathy. Despite previous case reports of MitraClip insertion in patients with annuloplasty rings (1,2), to our knowledge, this is the first description of a catheter-based edge-to-edge mitral valve repair to treat significant mitral regurgitation after partial detachment of a surgical annuloplasty ring. This case illustrates the feasibility of MitraClip device utilization in an extreme clinical scenario, in which the surgical risk was deemed too high for a surgical procedure.

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FIGURE 1 Mitral Annuloplasty Ring Detachment and MitraClip Implantation for Moderate-to-Severe Mitral Regurgitation

Echocardiographic assessment is shown before (A, B, [Online Videos 1 and 2](#)), during (C), and after (E, F, [Online Video 3](#)) the implantation of 2 clips for the treatment of mitral regurgitation with partial annuloplasty ring detachment. Angiographic positioning is demonstrated in D. *Annuloplasty ring detachment in the posteromedial part of the mitral valve (MV) annulus. Ao = aorta; LA = left atrium; LAA = left atrium appendage; LV = left ventricle.

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KEY WORDS MitraClip, percutaneous mitral valve repair, surgical mitral annuloplasty

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