

IMAGES IN INTERVENTION

Leaflet-to-Annuloplasty Ring Clipping for Severe Mitral Regurgitation



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An 86-year-old man presented with recurrent heart failure and severe mitral regurgitation in the setting of previous surgical mitral repair for degenerative valve disease. Surgery had consisted of placement of a 32-mm Carpentier-Edwards Physio II annuloplasty ring (Edwards Lifesciences, Irvine, California). Transesophageal echocardiography demonstrated a large anterior leaflet (Figure 1A, arrow), poor coaptation of the anterior leaflet with the annuloplasty ring, a markedly deficient posterior leaflet (Figure 1B, arrow), and severe residual mitral regurgitation (Figure 1C, arrow) between the tip of the anterior leaflet and the annuloplasty ring (Figure 1D, arrow). Using a transfemoral, transeptal approach, a MitraClip (Abbott Vascular, Santa Clara, California) (Figures 1E and 1F, arrows) was implanted to affix the anterior leaflet to the annuloplasty ring (Figure 1G, arrow). This implantation

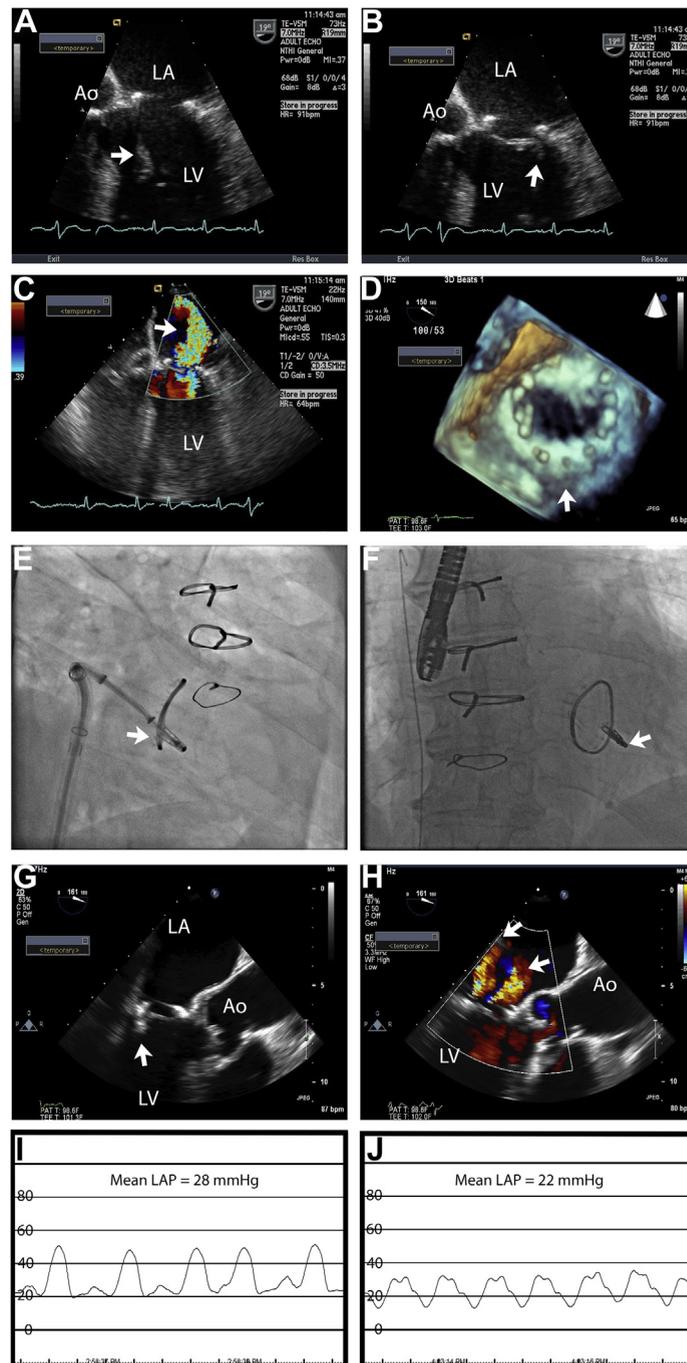
led to acute reduction in mitral regurgitation (Figure 1H, arrows). The mean left atrial pressure decreased from 28 mm Hg at baseline (Figure 1I) to 21 mm Hg at the end of the procedure (Figure 1J). There was relief of heart failure symptoms, and the MitraClip procedure obviated the need for repeat cardiac surgery. To our knowledge, this description represents the first report of MitraClip implantation for fixation of native leaflets onto a surgical annuloplasty ring.

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FIGURE 1 Transcatheter Mitral Valve Repair After Mitral Surgery

(A) Transesophageal echocardiography demonstrating a large anterior leaflet (**arrow**) and a deficient posterior leaflet. (B) Poor coaptation of the anterior leaflet with the annuloplasty ring and a markedly deficient posterior leaflet (**arrow**). (C) Transesophageal echocardiography demonstrating the presence of severe mitral regurgitation after cardiac surgery (**arrow**). (D) Three-dimensional echocardiography showing previously placed surgical annuloplasty ring (**arrow**). (E) Fluoroscopy with right anterior oblique view demonstrating fixation of the MitraClip (Abbott Vascular, Santa Clara, California) to the annuloplasty ring (**arrow**). (F) Fluoroscopy with left anterior oblique view demonstrating fixation of the MitraClip to the annuloplasty ring (**arrow**). (G) Transesophageal echocardiography demonstrating the final position of the fully deployed Mitraclip (**arrow**). (H) Transesophageal echocardiography demonstrating mild to moderate residual regurgitation after MitraClip deployment (**arrows**). (I) Left atrial pressure recording before transcatheter mitral valve repair. (J) Left atrial pressure recording after transcatheter mitral valve repair. Ao = aorta; HR = heart rate; LA = left atrium; LAP = left atrial pressure; LV = left ventricle.