

Images in
Cardiovascular Medicine



Images of Mitral Valve Perforation due to Atrial Septal Occluder Device

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Conflict of Interest

The authors have no financial conflicts of interest.

Author Contributions

Conceptualization: Kim KH; Data curation: Yoo JS, Kim KH; Visualization: Yoo JS; Writing - original draft: Kim KH.

Technical complications of percutaneous closure of an atrial septal defect (ASD) with device malposition, valve regurgitation, or infective endocarditis have been reported.^{1,2)} Minimally invasive cardiac surgery (MICS) approaches are being increasingly adopted to repair ASD with smoother postoperative course and an earlier discharge time.³⁾

A 20-year-old female underwent uneventful occlusion of an ASD, ostium secundum type, through transcatheter implantation of a 32-mm Amplatzer device. At 2 years, physical examination revealed an apical systolic murmur grade 2/6. No shunt was detectable and the device appeared in place; however, in the early systolic phase, the base of the anterior mitral leaflet seemed to collide with the inferior edge of the device. Mitral regurgitation (MR) had increased to severe by year 4 of follow-up (**Supplementary Video 1**). An eccentric regurgitant jet was clearly originating from the base of the anterior mitral leaflet, where the leaflet touched the inferior margin of the device in systole (**Figure 1**). Considering the great increase in MR compared with the prior year, surgery was done to prevent the persistent of this contact from eventually injuring the mitral leaflet and further compromising valve function. MICS was decided on because of the relatively young age of the patient. Surgical inspection revealed the presence of diffuse prolapsed anterior mitral leaflet and a tear in the basal area of the medial scallop of the anterior mitral leaflet (**Figure 2**). Repair was accomplished through

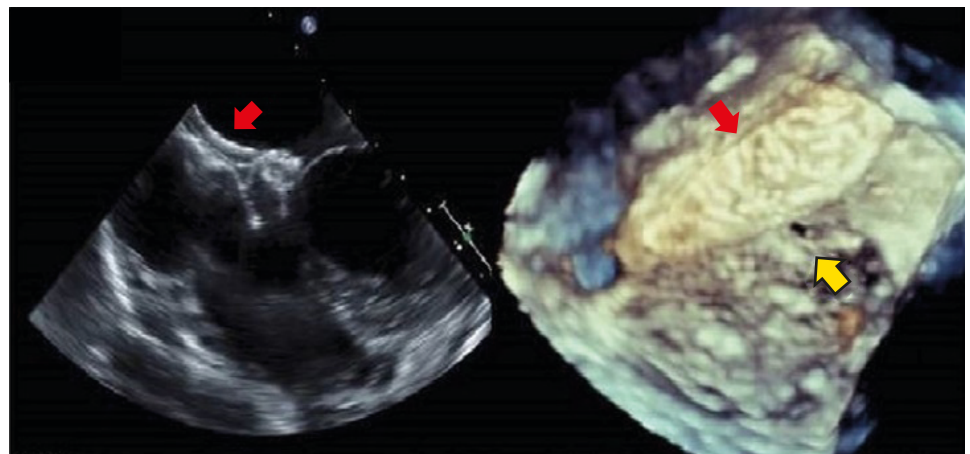


Figure 1. Transesophageal echo showed the atrial septal occluder attached to the anterior mitral leaflet. Yellow arrow indicates the perforated anterior mitral leaflet. Red arrow indicates atrial septal defect closure device.

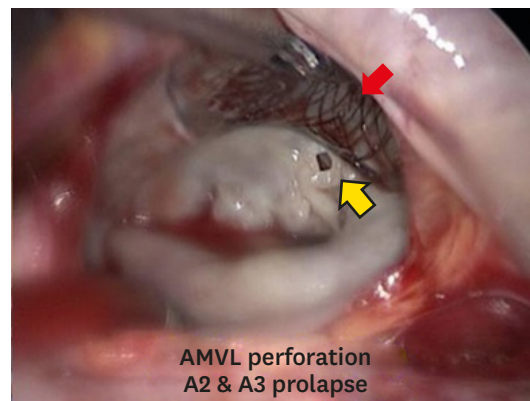


Figure 2. Mitral valve: anterior mitral leaflet perforation (about 3 mm) with diffuse anterior leaflet prolapsed. Amplatzer device was explanted including the adherent interatrial septum and the septal defect was reconstructed using Gore-Tex cardiovascular patch. Yellow arrow indicates the perforated anterior mitral leaflet. Red arrow indicates atrial septal defect closure device.

direct suture concomitant with the removal of the device and atrial septum closure with a Gore-Tex cardiovascular patch.

SUPPLEMENTARY MATERIAL

Supplementary Video 1

Apical 4 chamber view color Doppler image. Moderate to severe mitral regurgitation was observed beside atrial septal defect closure device.

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