

Bioprosthetic Leaflet Erosion After Percutaneous Mitral Paravalvular Leak Closure

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Transcatheter closure of prosthetic paravalvular leaks is increasingly performed at experienced centers (1–3). The lack of devices dedicated to paravalvular leak closure has not deterred the off-label use of various occluder devices. These images illustrate the potential complexity of transcatheter paravalvular leak repair with the need for additional occluder placement, and the development of severe leaflet erosion from occluder contact.

A 72-year-old woman who developed acute mitral regurgitation (MR) and cardiogenic shock in December 2006 underwent emergency mitral valve replacement with a #25 Hancock II bioprosthetic valve (Medtronic, Minneapolis, Minnesota), complicated by post-operative adult respiratory distress syndrome, mitral paravalvular leak, hemolytic anemia, and recurrent congestive heart failure. In April 2007, she had transcatheter mitral paravalvular leak closure at an outside facility using an

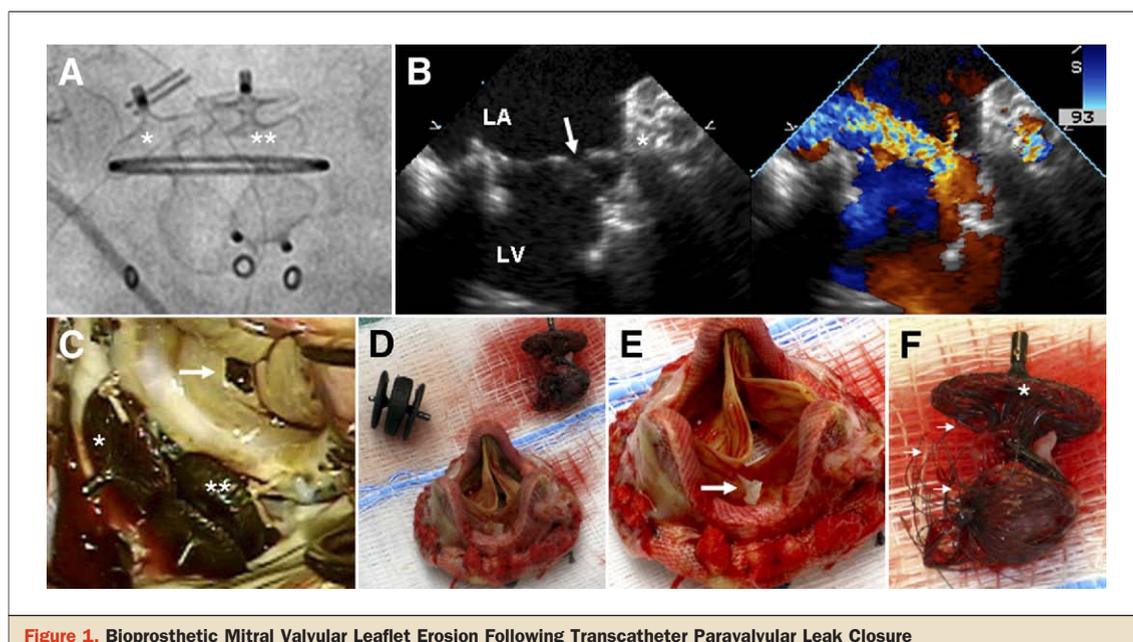


Figure 1. Bioprosthetic Mitral Valvular Leaflet Erosion Following Transcatheter Paravalvular Leak Closure

(A) Fluoroscopic view of adjacent Amplatzer Atrial Septal Occluder (ASO, *) and Amplatzer Vascular Plug II (AVP, **) occluding the mitral paravalvular leak. (B) Transesophageal echocardiographic images demonstrating leaflet perforation (arrow) from the ASO (*), which protrudes in the left ventricular (LV) cavity. Note severe regurgitant jet through the leaflet. (C) Left atrial (LA) intraoperative view of adjacent occluder devices and valve. The ASO (*) and AVP (**) are shown, as well as the eroded posterolateral leaflet (arrow). The ventricular aspect of the ASO is visible through the defect in the leaflet. (D) Excised valve and devices, showing relative sizes. (E) Close-up of ventricular aspect of excised valve showing large erosion defect in the posterior leaflet (arrow). (F) ASO with LA disc (*) and deformed ventricular disc with multiple wire fractures (small arrows). Also see [Online Videos 1 and 2](#).

8-mm Amplatzer Atrial Septal Occluder (AGA Medical Corp., Plymouth, Minnesota), with reduction in the MR as well as improvement in hemolytic anemia and congestive symptoms. In May 2008, she had progressive paravalvular leak adjacent to the original occluder with recurrent congestive heart failure, left pleural effusion, and hemolysis. Because of her high risk for reoperation, she underwent successful percutaneous closure of the remaining lateral paravalvular leak with placement of a 12-mm Amplatzer Vascular Plug II (AGA Medical Corp.). At that time, transesophageal echocardiography showed that the posterior bioprosthetic leaflet was contacting the previously deployed Amplatzer device during diastole, resulting in moderate valvular MR.

Although the patient was initially well-compensated, she developed increasing symptomatic valvular MR and 1 year later underwent open surgical mitral valve replacement with a #27 Carpentier-Edwards Magna Thermo FX pericardial valve (Edwards Lifesciences, Irvine, California), as well as bioprosthetic aortic valve replacement for moderate central aortic insufficiency. Intraoperative inspection of the bioprosthetic mitral valve revealed the occluder devices in place, but with significant fractures seen in the first occluder, which

was contacting the posterior leaflet, resulting in severe leaflet erosion and perforation (Fig. 1). The patient's recovery was uneventful.

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APPENDIX

For Videos 1 and 2 and their accompanying legends, please see the online version of this article.