

IMAGES IN INTERVENTION

Percutaneous Transcatheter Closure for Aortic Puncture and Paravalvular Leak Closure With the New Amplatzer III Device

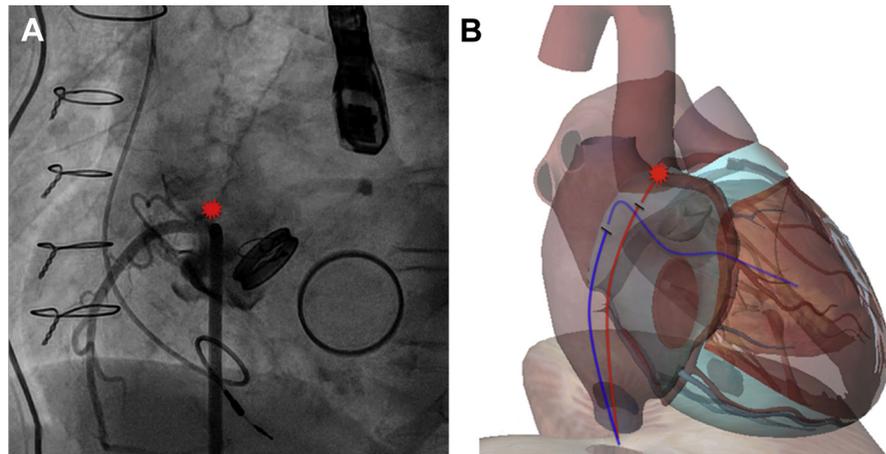


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A 72-year-old woman with a long-standing history of rheumatic heart disease was admitted to our hospital for a severe paravalvular leak (PVL). The patient contracted rheumatic fever in 1953 and received closed mitral commissurotomy in 1965, mechanical aortic valve replacement with open mitral commissurotomy in 1977, and mechanical mitral

valve replacement in 1997. In 2014, the patient was medically treated for endocarditis of the mitral valve prosthesis but subsequently developed a severe PVL of the mitral valve prosthesis and important concomitant hemolysis requiring 1 to 2 blood transfusions a week. The patient was referred for reoperation in a severely reduced clinical state. Surgical treatment

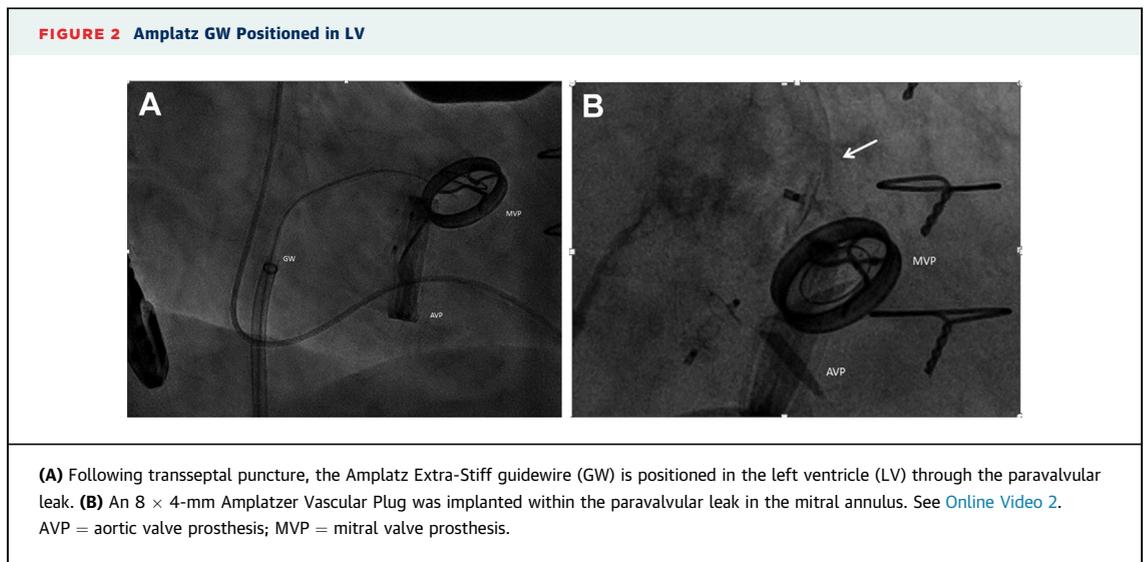
FIGURE 1 Perforation of the Ascending Aorta



(A) Perforation of the ascending aorta next to the right coronary ostium is indicated by red asterisk (*). (B) The red line indicates the wire route with the aortic puncture, and the blue line represents the guidewire path through mitral valve annulus/paravalvular leak after transseptal puncture. See [Online Video 1](#).

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as primarily recommended in this context of endocarditis can be associated with mortality rates approaching 16% (1). Because of the increased perioperative risk, a percutaneous transcatheter approach was selected to close the PVL with an Amplatzer Vascular Plug III device (St. Jude Medical, Plymouth, Minnesota) through a transseptal approach (2).

The procedure was performed from the right femoral vein, under general anesthesia, and guided by transesophageal echocardiography. Accidental perforation and dilation of the ascending aorta next to the right coronary ostium was immediately treated by insertion of a first Amplatzer Vascular Plug III ([Figures 1A, 1B, Online Video 1](#)). After successful transseptal puncture, the atrial septum was dilated, an Amplatzer Extra-Stiff guidewire (Cook Medical,

Bloomington, Indiana) was positioned in the left ventricle through the paravalvular leak ([Figure 2A](#)). An 8 × 4 mm Amplatzer Vascular Plug III was then successfully implanted within the PVL in the mitral annulus ([Figure 2B, Online Video 2](#)). Transesophageal echocardiography showed no paravalvular regurgitation and a mean gradient of 4 mm Hg. Hospital stay was uneventful, and the patient was discharged 7 days after the intervention. The patient was in excellent condition without further symptoms and without hemolysis 3 months after the intervention.

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KEY WORDS aortic puncture, closure device, paravalvular leak

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