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CARDIOVASCULAR FLASHLIGHTS

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Percutaneous closure of a paravalvular leak 4 years after mitral valve replacement

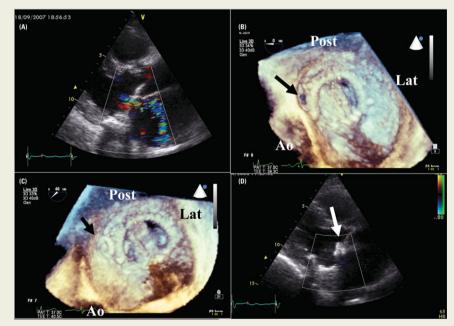
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An 89-year-old man presented with global cardiac insufficiency 4 years after mitral valve replacement by a 29 mm St Jude mechanical valve for severe mitral insufficiency. In the immediate post-operative period, a mild paravalvular leak had been noted and increased progressively from 0.13 to 0.38 cm² actually (*Panel A*).

Because of the very active status of the patient, a percutaneous closure of the paravalvular leak was considered. A right femoral vein approach was chosen under fluoroscopic and three-dimensional real-time transeosophageal echocardiographic (RT3DTEE) guidance in a patient intubated and sedated. RT3DTEE provided unequalized imaging of the prosthetic valve in real-time with perfect delineation of



the localization and size of the paravalvular leak ($Panel\ B$). A guide wire was advanced through the orifice after transseptal puncture and an $8\times 10\ \text{mm}$ Amplazer PDA occluder was positioned in the paravalvular channel through a dedicated delivery sheet ($Panel\ C$). No residual leak was detectable by transesophageal and transthoracic echocardiography ($Panel\ D$). Mean transprosthetic gradient went down from 7 to 3.5 mmHg and pressure gradient of the tricuspid regurgitant jet from 40 to 22 mmHg.

After a short in-hospital rehabilitation, the patient was able to resume his physical activities without symptoms.

Panel A. Parasternal long-axis view of the left heart, systolic frame, showing the paravalvular leak, just posterior to the aorta.

Panel B. RT3DTEE visualization of the paravalvular regurgitant orifice (black arrow), on the medial portion of the prosthetic valve annulus, just posterior to the aorta.

Panel C. RT3DTEE appearance of the left atrial side of the Amplatzer PDA occluder (black arrow) after positioning through the paravalvular orifice.

Panel D. Parasternal long-axis view, systolic frame identical to *Panel A*, showing the Amplatzer occluder in place (white arrow) with the absence of residual leak.

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