

# Successful percutaneous paravalvular leak closure after mitral valve surgery

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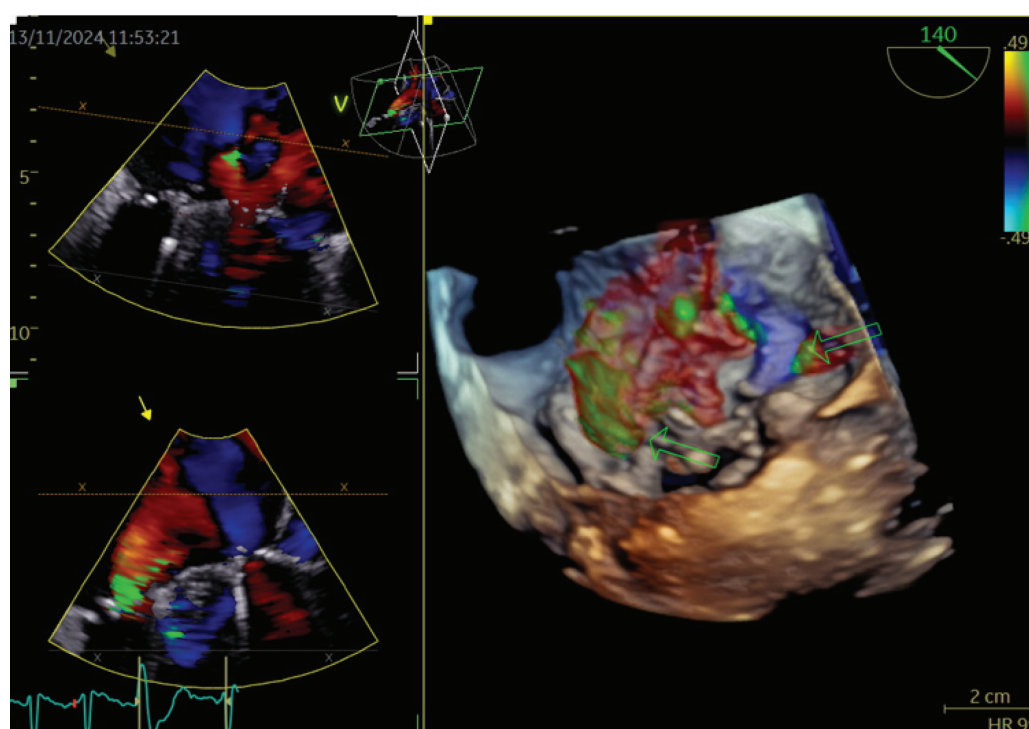
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**Introduction:** Paravalvular leak (PVL) is a common problem after cardiac surgery, which independently increases morbidity and mortality<sup>1</sup>. Based on the literature, percutaneous closure devices are a viable option in the treatment of the PVL, to defer repeat surgery and improve the overall prognosis<sup>2</sup>.

**Case report:** 66-year-old female previously underwent implantation of a mechanical mitral prosthesis (SJM Masters 33 mm) in October of 2024 for severe mitral regurgitation with secondary valvular cardiomyopathy. Her past medical history was significant for papillary thyroid carcinoma and lung carcinoid, treated with thoracic surgery and everolimus. Preoperative echocardiography revealed prolapse of both mitral cusps, with considerable calcification extending to the mitral annulus. Those findings were confirmed intraoperatively, and extensive mitral annular calcification (MAC) limited adequate prosthesis sealing, resulting in two considerable PVLs, superomedial and inferolateral (**Figure 1**). At first, it was decided to follow the patient without intervention as the early repeat surgery was deemed futile due to MAC. During follow-up, the patient exhibited laboratory results consistent with intravascular hemolysis, without significant anemia. Of note, there was a progressive dilatation of the left ventricle, with further deterioration of the systolic function that correlated with gradual clinical



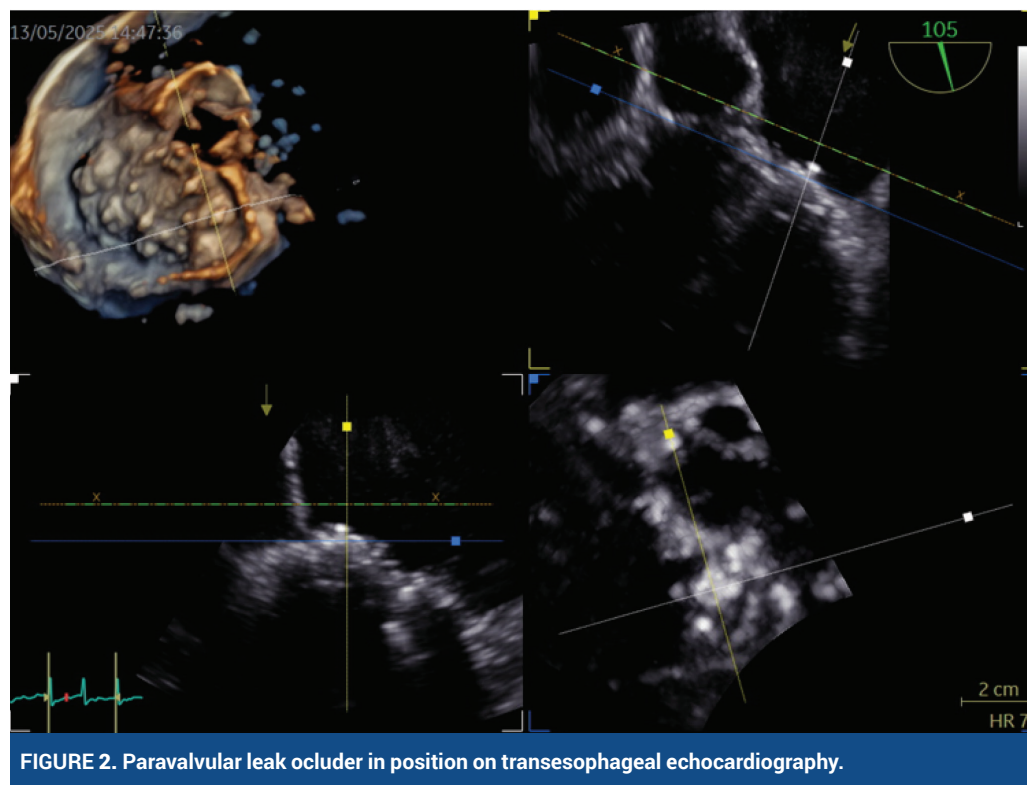
**FIGURE 1.** Paravalvular leaks shown on transesophageal echocardiography (marked with arrows).

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worsening. During follow-up, the Heart Team indicated that percutaneous closure was necessary, with heart CT for preprocedural planning. In May 2025, the patient was hospitalized for the closure of PVLs. Due to difficulty passing the catheter through the calcified lateral PVL, the leak was initially dilated with an Xtreme OTW balloon; subsequently, an Amplatzer Valvular plug (Abbott, 5x10 mm) was implanted. The medial leak was more easily passed, using the same closing device (**Figure 2**). Angiography after the procedure showed an optimal result. During follow-up, the patient is doing well, with only mild residual regurgitation.



**FIGURE 2.** Paravalvular leak occluder in position on transesophageal echocardiography.

**Conclusion:** Proper preprocedural planning before PVL closure, utilizing multimodality imaging, is crucial for achieving optimal results. In an aging and polymorbid population where severe MAC is expected, PVL closure offers an alternative solution to addressing this challenge<sup>3</sup>.

## LITERATURE

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