

Percutaneous closure of paravalvular leak in a patient with a mechanical mitral valve prosthesis

Antonia Melada^{1*},
Andrija Matetić¹,
Ivona Mustapić¹,
Tea Domjanović Škopinić¹,
Tina Bečić¹,
Frane Runjić¹,
Darija Baković Kramarić^{1,2}

¹University Hospital of Split, Split, Croatia
²University of Split, School of Medicine, Split, Croatia

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***ADDRESS FOR CORRESPONDENCE:** Antonia Melada, Klinički bolnički centar Split, Šoltanska 1, HR-21000 Split, Croatia. / Phone: +385 98 225 051 / E-mail: antonia.melada@gmail.com

ORCID: Antonia Melada, <https://orcid.org/0000-0003-4223-2582> • Andrija Matetić, <https://orcid.org/0000-0001-9272-6906> • Ivona Mustapić, <https://orcid.org/0000-0002-1534-3642> • Tea Domjanović Škopinić, <https://orcid.org/0000-0002-4989-6974> • Tina Bečić, <https://orcid.org/0000-0001-7596-2712> • Frane Runjić, <https://orcid.org/0000-0001-6639-5971> • Darija Baković Kramarić, <https://orcid.org/0000-0001-6751-5242>

Introduction: Paravalvular leaks (PVLs) after surgical valve replacement have a multifactorial etiology. Mitral PVLs are more frequent than aortic PVLs and are more common in patients with mechanical prosthesis as opposed to those with biological prosthesis. Patients with clinically relevant PVLs most frequently present with symptoms of heart failure, with some degree of hemolysis.^{1,2}

Case report: 55-years-old male who underwent mitral valve replacement with a mechanical heart valve (St. Jude Medical Masters, M-33) two years earlier due to mitral valve insufficiency was now hospitalized because of suspected heart failure. He was also recently surgically treated for lung cancer with ongoing adjuvant chemotherapy. Laboratory tests were indicative of significant anemia with hemoglobin level of 81 g/L, with elements of hemolysis. Transthoracic echocardiography (TTE) revealed moderate to severe mitral PVL. Further multimodality imaging evaluation was performed (transesophageal echocardiography, cardiac computed tomography, magnetic resonance) and confirmed significant PVL originating from anteromedial region (**Figure 1**). The case was discussed with

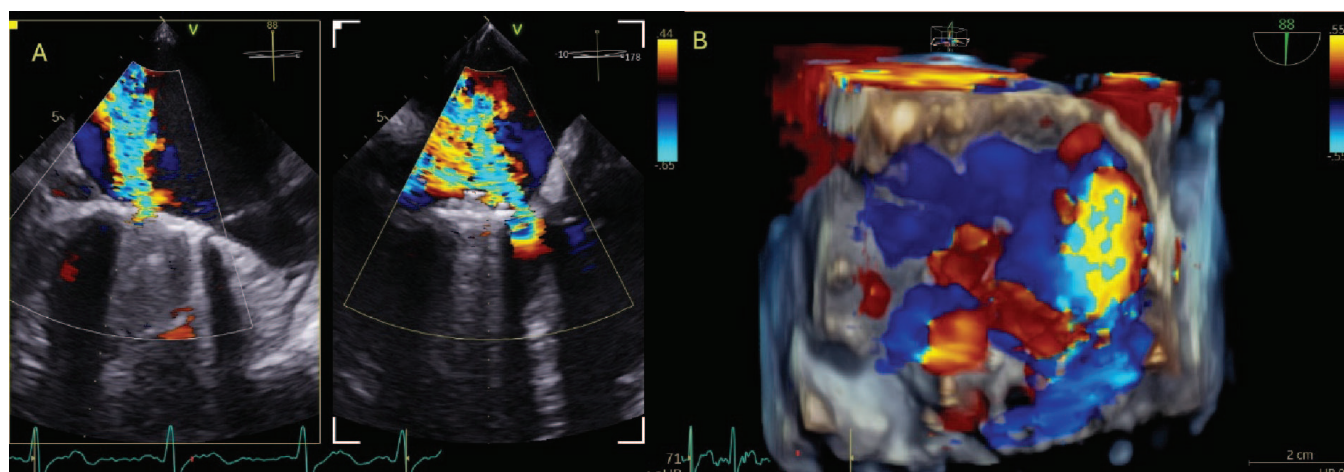


FIGURE 1. Preprocedural transesophageal echocardiography showing a paravalvular leak originating in the anteromedial region.

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cardiac surgeons and because of high perioperative risk of complications, we decided to perform percutaneous transcatheter TOE guided PVL closure. The procedure was successfully performed using a 10x5 mm Amplatzer Vascular Plug III (AVP3) (**Figure 2**). Post-procedure echocardiographic controls confirmed the effective PVL closure with only trace of residual regurgitant jet.

Conclusion: Even though surgical reoperation is still considered as the first therapeutical option for patients with symptomatic PVLs, percutaneous transcatheter PVL closure is emerging as an alternative treatment for this high-risk group.

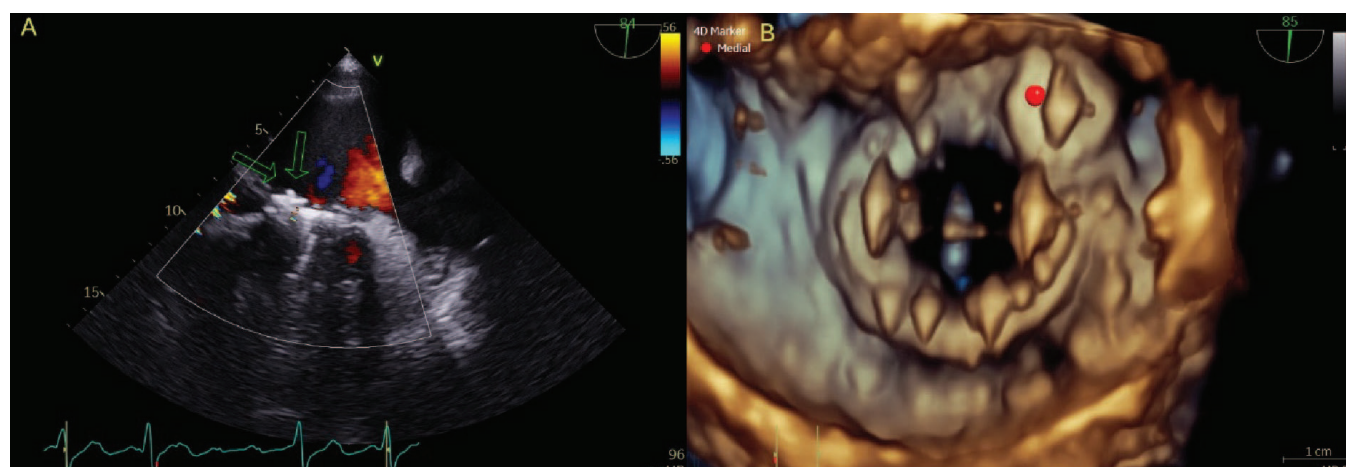


FIGURE 2. A) Postprocedural transesophageal echocardiography (TEE) showing good results with only a trace of residual paravalvular leak. B) 3D reconstruction of TEE appearance of the Amplatzer Vascular Plug III (indicated with the red dot).

LITERATURE

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