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# Percutaneous treatment of the right heart endocarditis

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**Percutaneous treatment of the right heart endocarditis**

**Short title:** Percutaneous vegetation removal

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Right heart endocarditis (RHE) is a significant issue among drug addicts [1]. Intravenous antibiotics serve as the primary treatment for RHE. However, in cases that are resistant or complicated with valve dysfunction, cardiac surgery may be necessary [2]. We present a case where the vegetation on the tricuspid valve was percutaneously removed using a vacuum-assisted device in a patient with recurrent RHE despite antibiotic treatment. The illness was successfully treated, and there has been no relapse during a 12-month observation period.

A 22-year-old male drug addict was admitted due to recurrent RHE. Over the course of a year, he was treated three times for relapses of tricuspid endocarditis. Despite the temporary success of antibiotic therapy, the disease returned after a few months. During that period,

echocardiography showed a growing pedunculated vegetation (measuring finally 2.5 × 1.2 cm) attached to the anterior tricuspid leaflet, with only mild to moderate tricuspid regurgitation (Figure 1A, B, Supplementary material, *Video S1*).

Since the valve function did not significantly deteriorate, and after discussion with the Heart Team, we decided to remove the vegetation percutaneously as a prophylaxis against recurrent endocarditis. To achieve this, we used the AngioVac system (AngioDynamics, Latham, NY, US), which consists of a venous drainage cannula and a re-infusion (venous return) cannula that are connected to the extracorporeal circuit and centrifugal pump [3, 4].

The AngioVac drainage cannula was inserted through the right internal jugular vein via the DrySeal 26F Sheath (Gore Medical, Newark, DE, US) (Figure 1C, Supplementary material, *Video S2*), while the 18 F reinfusion cannula was inserted into the right femoral vein. The centrifugal pump (RotaFlow ECMO system, Maquet Cardiovascular, Wayne, NJ, US) generated a flow of up to 5 liters per minute, and the vegetation material was successfully removed (Figure 1D–F, Supplementary material, *Video S3*).

The tricuspid regurgitation remained mild to moderate. Both jugular and femoral vascular access were percutaneously closed with Proglides. During a 12-month follow-up, the patient had no symptoms or signs of infection relapse. Furthermore, he received treatment at a drug addiction clinic and has remained drug-free.

This case demonstrates that the percutaneous removal of vegetation material is a safe and feasible option for right heart endocarditis in patients without significant valvular damage. It also highlights the effectiveness of percutaneous aspiration, making it a promising option for minimally invasive treatment of endocarditis.

## Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

## Article information

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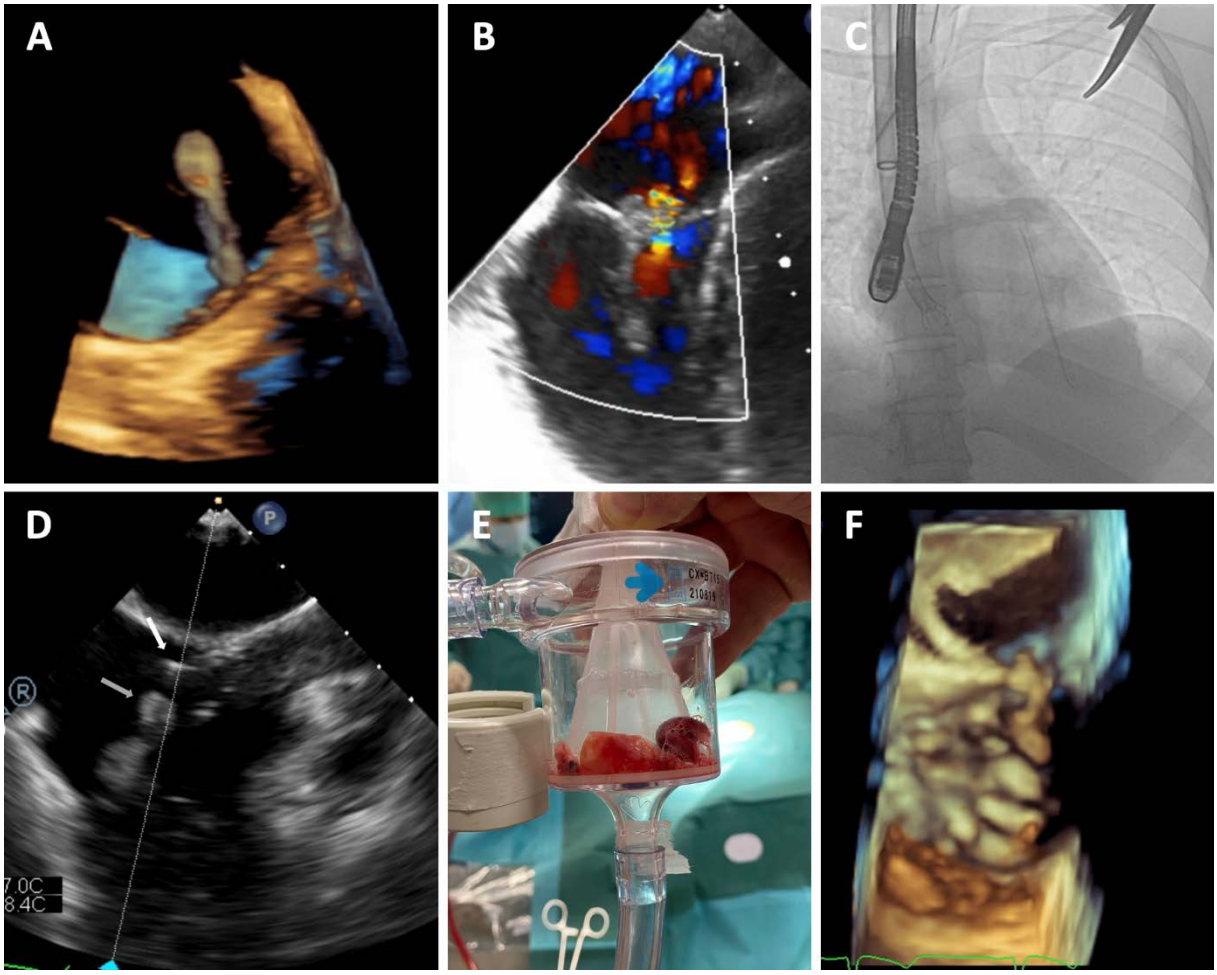


**Figure 1. A**.3-D transesophageal echocardiography (TEE) shows a large vegetation attached to the anterior tricuspid leaflet — see Supplementary material, *Video S1*. **B**. TEE shows mild tricuspid regurgitation. **C**. The AngioVac drainage cannula is inserted into the right atrium, and the TEE probe is inserted into the esophagus — see Supplementary material, *Video S2*. **D.** The tip of the AngioVac cannula (white arrow) faces the vegetation (grey arrow) in the right atrium (TEE imaging) — see Supplementary material, *Video S3*. **E**. The vegetation material removed from the tricuspid valve is caught by the AngioVac filter. **F**. 3D TEE shows the tricuspid valve without vegetation