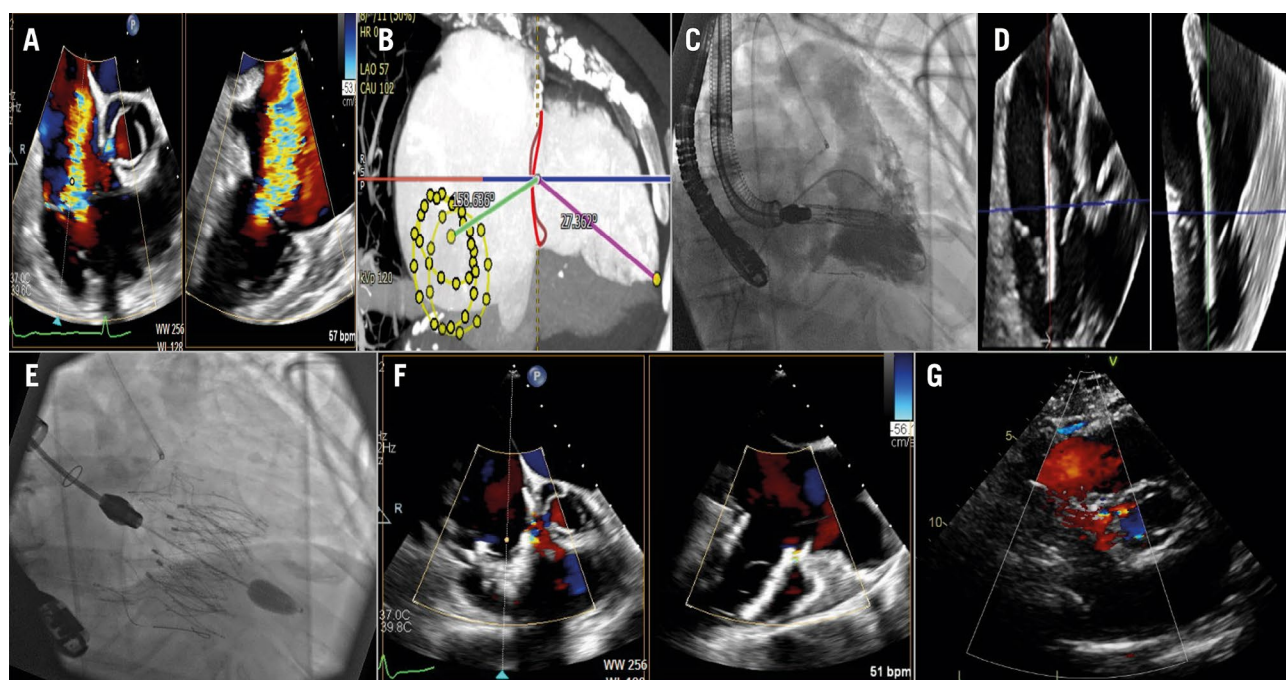


# Topaz transjugular transcatheter tricuspid valve replacement

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**Figure 1.** Topaz transjugular TTVR. A) Baseline echocardiography demonstrating torrential TR. B) CT showing IVC-TA offset angle. C) Delivery system with RV angiography. D) 3D echocardiography demonstrating coaxial delivery system. E) Fluoroscopy after valve implantation. F) Echocardiography demonstrating trace paravalvular TR. G) Follow-up echocardiography with trace TR. 3D: three-dimensional; CT: computed tomography; IVC: inferior vena cava; RV: right ventricle; TA: tricuspid annulus; TR: tricuspid regurgitation; TTVR: transcatheter tricuspid valve replacement

A 74-year-old female with severe tricuspid regurgitation (TR), New York Heart Association Class III dyspnoea, oedema, and fatigue was referred for transcatheter tricuspid valve intervention. Past medical history included atrial fibrillation, hypertension and diabetes. Echocardiography demonstrated torrential TR due to a large malcoaptation gap and multiple scallops, with preserved right ventricular function (**Figure 1A, Moving image 1**). Computed tomography (CT) imaging revealed a tricuspid annular area of 12.7 cm<sup>2</sup>, with significant offset between the inferior vena cava (IVC) and tricuspid annulus, precluding coaxial valve delivery via the femoral approach (**Figure 1B**). After Heart Team review, she underwent transcatheter tricuspid valve replacement (TTVR) using a 45 mm Topaz device (TRiCares)<sup>1</sup> via the transjugular approach.

After percutaneous right internal jugular venous access, an Agilis steerable sheath (Abbott) was used to place an extra small SAFARI wire (Boston Scientific) in the apex of the right ventricle (RV), using right coronary wire markers and RV angiography to define the tricuspid annulus (**Figure 1C**). Under fast pacing, a Topaz 45 mm valve was implanted in a stable position with trace residual paravalvular TR, no change in RV function, and a mean gradient of 2 mmHg (**Figure 1D-Figure 1G, Moving image 1**). Haemostasis was achieved with two Perclose ProStyle devices (Abbott) using preclosure. The patient recovered well and was discharged home 3 days later.

Here, we report the feasibility of transjugular Topaz TTVR in a patient with significant offset between the IVC and tricuspid annulus. Steering of the delivery system is reversed

compared to the transfemoral approach: the primary flexion knob moves the system anteriorly/posteriorly, clockwise/counterclockwise rotation moves it laterally/septally, and advancing/withdrawing moves it posteriorly/anteriorly. The transjugular approach can overcome anatomical limitations and complements the femoral approach, increasing the number of patients who may be successfully treated with TTVR.

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### Conflict of interest statement

N.P. Fam is a consultant for Edwards Lifesciences, Abbott, Cardiovalve, Medtronic, TRiCares and inQB8. S. Alnasser is a consultant for Edwards Lifesciences, Abbott, and Medtronic. A. Gamal has no conflicts of interest to declare.

### Reference

1. Teiger E, Nejari M, Lim P, Ruf T, Blanke P, Schäfer U, Treede H, Gallet R, Dreyfus J. First-in-human implantation of the Topaz transcatheter tricuspid valve replacement system. *EuroIntervention*. 2022;18:862-4.

### Supplementary data

**Moving image 1.** Procedural and follow-up imaging.

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