

Late postoperative aortic valve pop-out after transcatheter aortic valve implantation: successful rescue with double-snare repositioning and redo-transcatheter aortic valve implantation

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An 88-year-old woman was referred to our center due to severe symptomatic aortic stenosis and heart failure in NYHA class III. Transthoracic echocardiography showed respectively peak and mean gradients of 110 mmHg and 66 mmHg, and mild regurgitation. Following Heart Team evaluation, transcatheter aortic valve implantation (TAVI) was planned. Pre-procedural cardiac computed tomography revealed a tricuspid aortic valve with moderate calcification, with left ventricular outflow tract (LVOT) extension and an elliptical annulus and LVOT (annular diameters: 18 × 26 mm, LVOT diameters: 14 × 27 mm) (Figure 1). Due to tortuous accesses, a 25 mm Navitor Vision® (Abbott, IL, USA) transcatheter heart valve (THV) was selected for implantation via the right femoral artery. Given the morphology of the LVOT, the THV was repositi-

oned several times, and the final position was high, yet stable and with no paravalvular leak (Figure 2A).

On the first postoperative day, the patient developed nonspecific symptoms, with signs of decompensated heart failure. High-sensitivity cardiac troponin I was markedly elevated at 50,172 ng/L. The electrocardiogram showed sinus rhythm and a complete left bundle branch block. Bedside echocardiography revealed moderate-to-severe aortic regurgitation, peak and mean gradients of 72 mmHg and 42 mmHg, and preserved left ventricular ejection fraction (55%) without segmental wall motion abnormalities. Aortography revealed suprannular displacement of the Navitor® THV with grade III/IV regurgitation (Figure 2B & Video 1). The coronary arteries were patent, with TIMI 3 flow.

After Heart Team assessment and given the patient's hi-

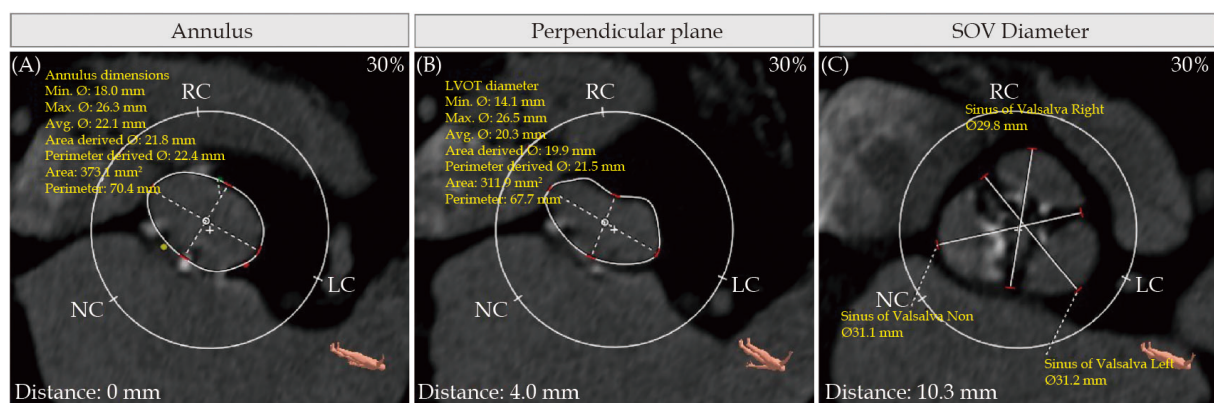


Figure 1 Pre-procedural cardiac computed tomography. (A) Aortic annulus dimensions demonstrating elliptical geometry; (B) left ventricular outflow tract dimensions showing marked ellipticity and extension of calcification; and (C) valsalva sinuses diameter.

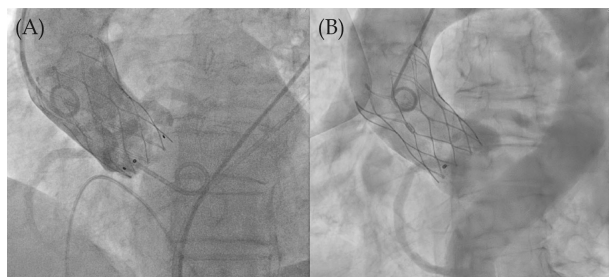


Figure 2 Aortography demonstrating late THV migration. (A) Final position immediately after implantation; and (B) retrograde migration of the THV into a suprannular position on the first postoperative day. THV: transcatheter heart valve.

gh surgical risk, a redo-TAVI was planned for the next day. Main access was obtained via the left femoral artery (14 Fr), with secondary accesses through the right femoral and radial arteries. The aortic valve was crossed, and the correct positioning of the catheter through the displaced THV was confirmed by rotational angiography. Two 35 mm snares were then introduced via femoral and radial accesses and attached to the paddles of the Navitor[®] THV (Figure 3A & Video 2). Controlled pushing with the snares successfully displaced the THV into the ascending aorta, where it remained stable (Figure 3B & Video 3). A 23 mm SAPIEN 3 Ultra RESILIA[®] THV (Edwards Lifesciences, CA, USA) was then advanced across the Navitor[®] THV and implanted with ~1 cc from the manufacturer's recommended balloon volume, to reduce excessive radial force, and minimize the risk of further valve displacement (Figure 3C–3E & Videos 4–6). The final aortography

showed a good result, with no significant paravalvular regurgitation (Figure 3F & Video 7). Coronary arteries were patent, and the patient remained hemodynamically stable.

Postoperatively, the patient received a brief course of intravenous diuretics for volume overload and resumed oral anticoagulation the same evening without bleeding or transfusion. She was discharged stable on day five.

This case highlights that, although rare, late aortic THV migration can occur, and prompt recognition is critical for successful outcomes.^[1,2] In this patient, a relatively high implantation together with an elliptical LVOT and limited calcification likely contributed to suboptimal anchoring and subsequent retrograde THV migration. To minimize the need for permanent pacemaker implantation, THVs are sometimes implanted higher than recommended, though this approach carries an increased risk of valve pop-out, particularly in elliptical LVOTs and when calcification is limited. This case also underscores the value of double snare-assisted THV repositioning as a bailout technique. By providing controlled stabilization of the displaced valve in the ascending aorta, this approach enables safe manipulation while maintaining coronary perfusion and reducing the risk of coronary obstruction during the procedure.^[3] In this context, redo-TAVI may offer an effective and minimally invasive rescue strategy for elderly high-risk patients in whom surgical bailout is often not feasible. However, this report has limitations: as a single-case experience, the findings are not generalizable, and causality cannot be estab-

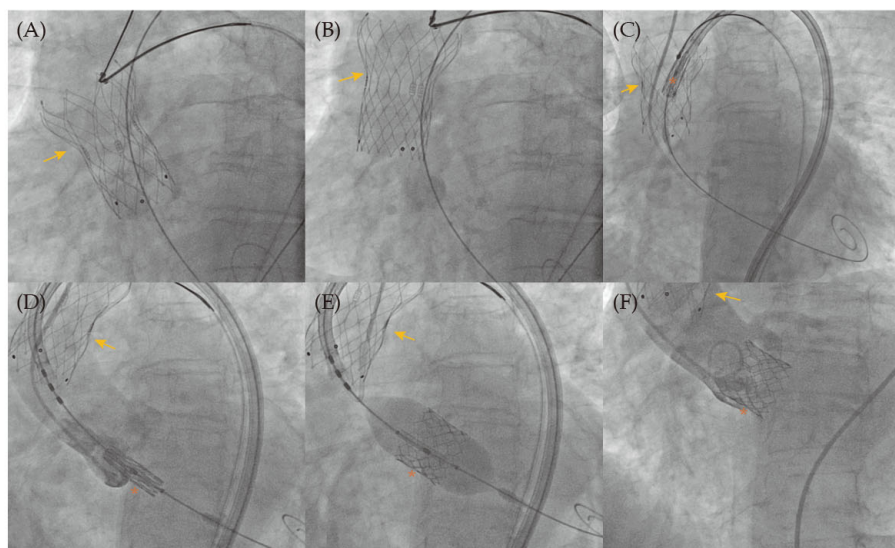


Figure 3 Redo-transcatheter aortic valve implantation procedure with double-snare stabilization. (A & B) Snaring the displaced Navitor[®] THV into the ascending aorta; (C) crossing the Navitor[®] THV with the SAPIEN 3 Ultra RESILIA[®] system; (D) confirming the SAPIEN[®] THV position; (E) implantation of the SAPIEN[®] THV; and (F) final result showing the Navitor[®] THV stabilized in the ascending aorta and the SAPIEN[®] THV correctly implanted in the aortic position. The Navitor[®] THV is indicated by yellow arrows and the SAPIEN[®] THV by orange asterisks. THV: transcatheter heart valve.

blished despite the proposed mechanisms. In addition, the short follow-up precludes assessment of long-term outcomes.

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REFERENCES

- [1] Burmeister C, Kaleta F, Jain S, *et al*. Delayed migration of a valve-in-valve transcatheter aortic valve implantation. *CASE (Phila)* 2025; 9: 218–223.
- [2] Alirhayim Z, Kereiakes D, Garcia S. Late migration of a transcatheter heart valve. *JACC Case Rep* 2024; 29: 102214.
- [3] Aquino-Bruno H, García-García JF, Gayosso-Ortiz JR, *et al*. “Use of snare catheter technique in transcatheter aortic valve replacement with self-expandable valve: expert review”. *Catheter Cardiovasc Interv* 2025; 105: 981–989.

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