Valve-in-Valve TAVR With Preceding Paravalvular Leak Closure for a Failed Bioprosthesis

VIV TAVR with Plug

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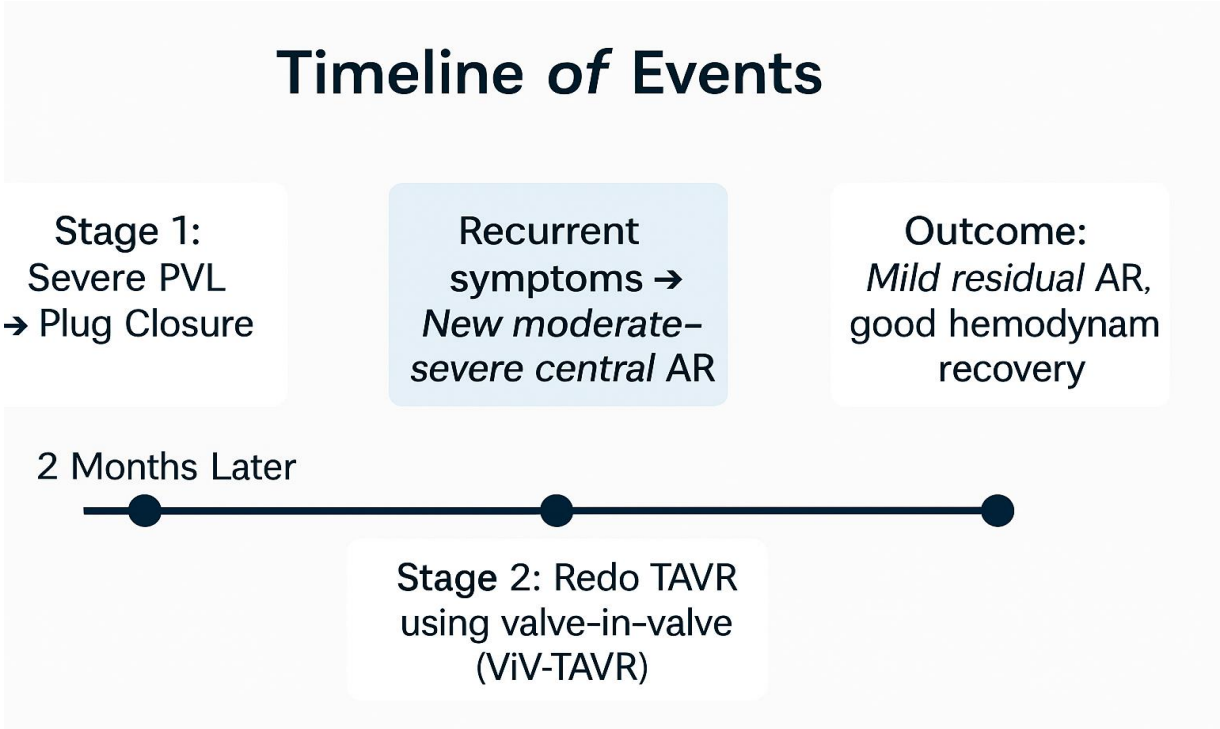
TCT® TRANSCATHETER CARDIOVASCULAR THERAPEUTICS®

Disclosure of Relevant Financial Relationships

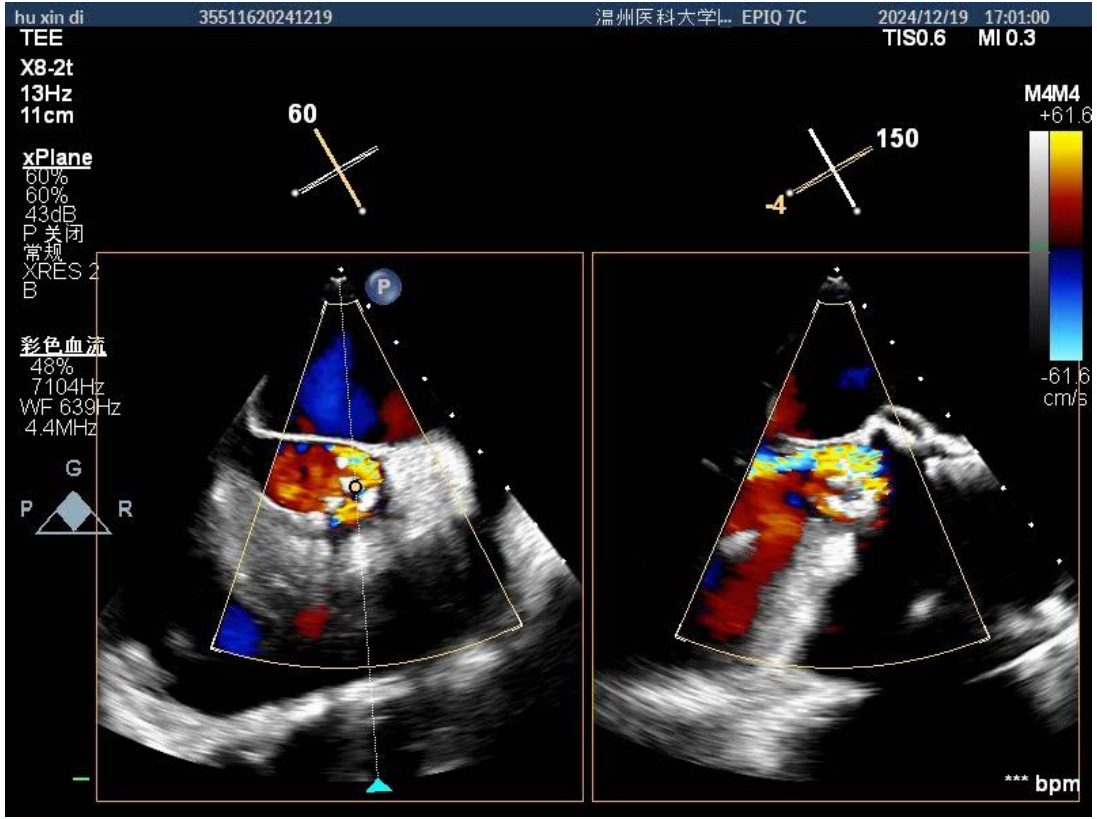
I, Changxi Chen DO NOT have any financial relationships to disclose.

Case Overview

- **Patient:** 85-year-old male
- **History:** TAVR 8 years ago for severe AS
- **Current Issue:** Recurrent exertional dyspnea

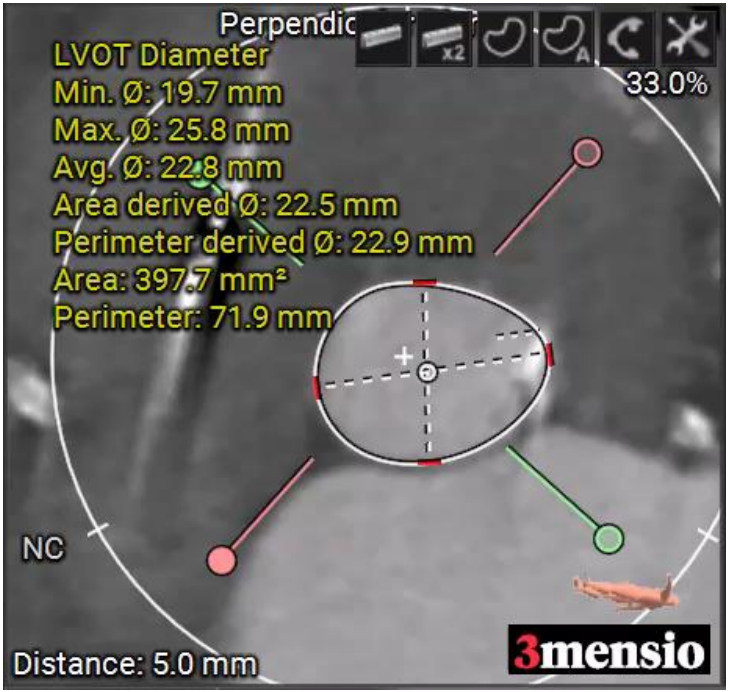


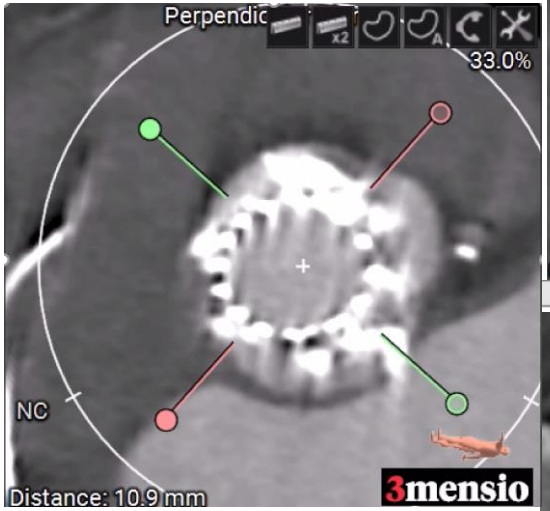
TEE before Plug

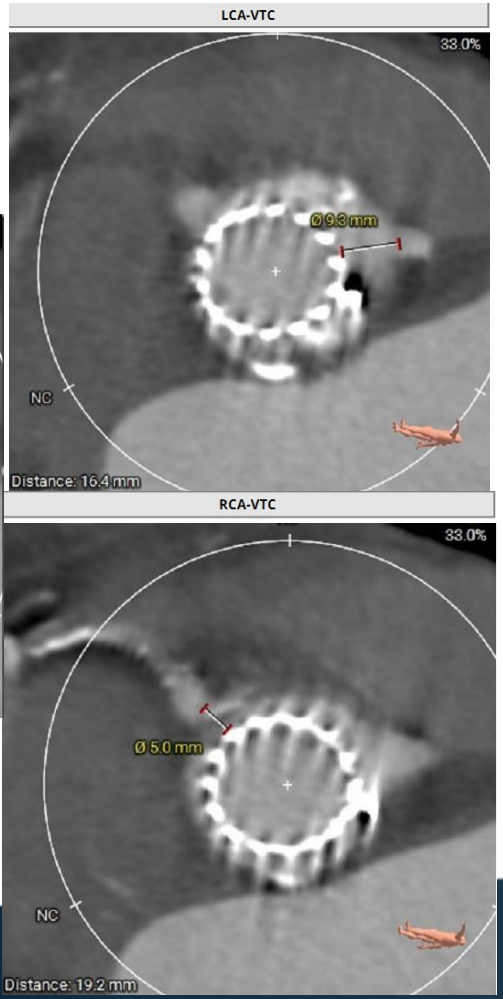


The main source of the paravalvular leak is the calcification located between the left and non-coronary sinuses

CTA

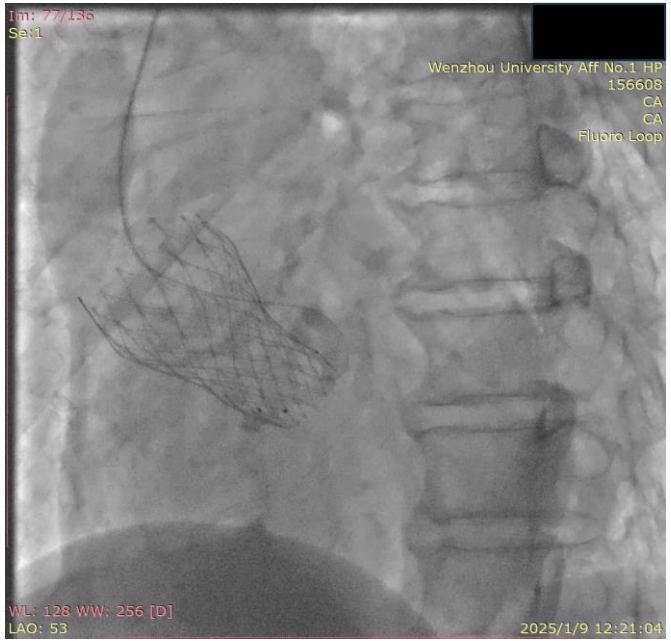

Perpendic
LVOT Diameter
Min. Ø: 19.7 mm
Max. Ø: 25.8 mm
Avg. Ø: 22.8 mm
Area derived Ø: 22.5 mm
Perimeter derived Ø: 22.9 mm
Area: 397.7 mm²
Perimeter: 71.9 mm
33.0%
NC
Distance: 5.0 mm
3mensio


Perpendic
33.0%
NC
Distance: 10.9 mm
3mensio

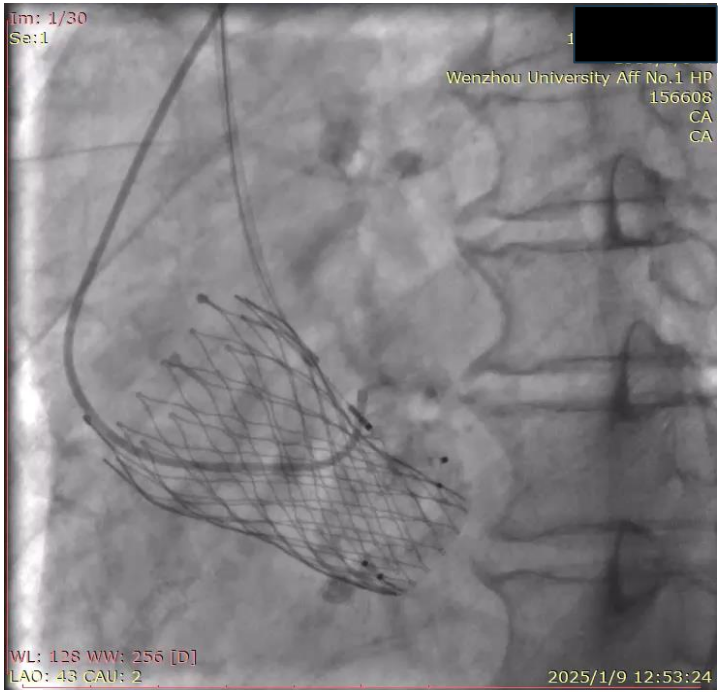

LCA-VTC
33.0%
Ø 9.3 mm
NC
Distance: 16.4 mm
RCA-VTC
33.0%
Ø 5.0 mm
NC
Distance: 19.2 mm

Stage 1 – PVL Closure: Plug Deployment

1. **Delivered AVP II 8×7 mm via JR4.0 catheter**

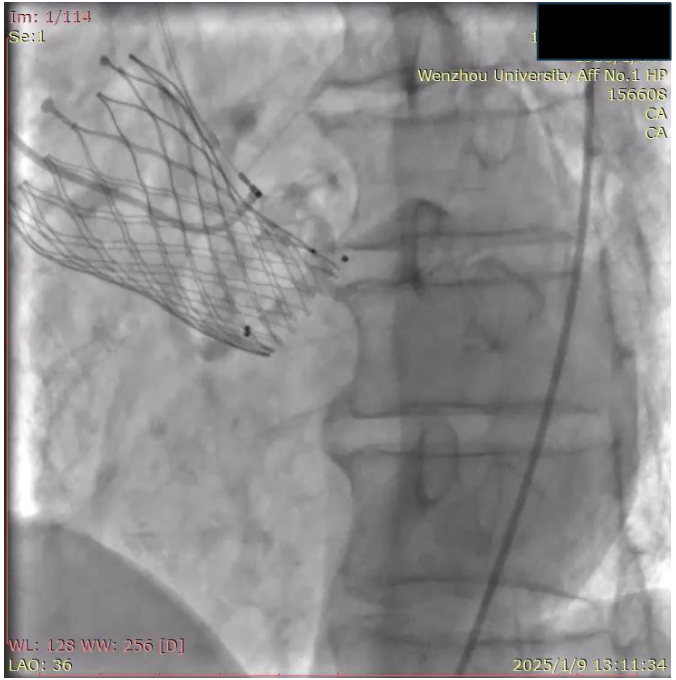


2. Too close to coronary ostium

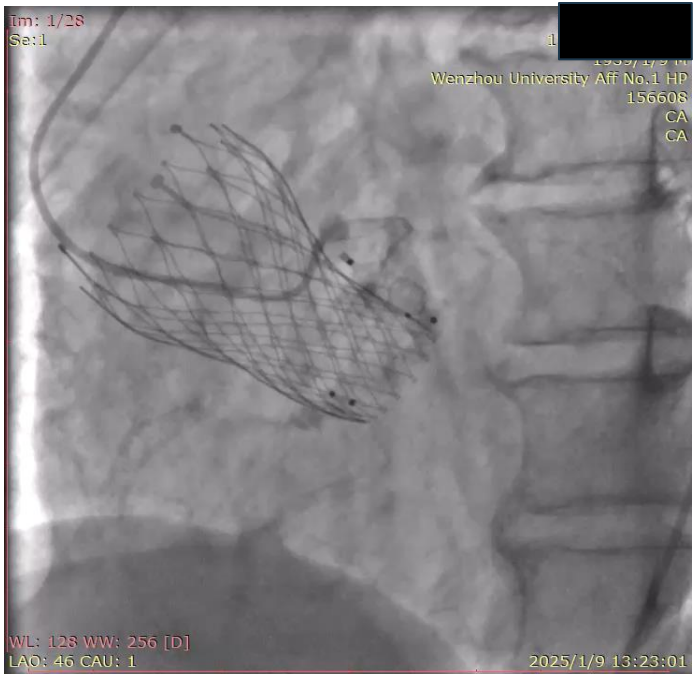


Stage 1 – PVL Closure: Plug Deployment

3. Plug withdrawn → re-deployed slightly further



4. Safe from coronaries



Post-Closure Evaluation & Symptom Recurrence

✅ Post-Closure Evaluation

- **TTE**

PVL improved from severe → mild

- **Aortography:**

Coronary ostia safely distant from plug

No evidence of flow obstruction or ischemia

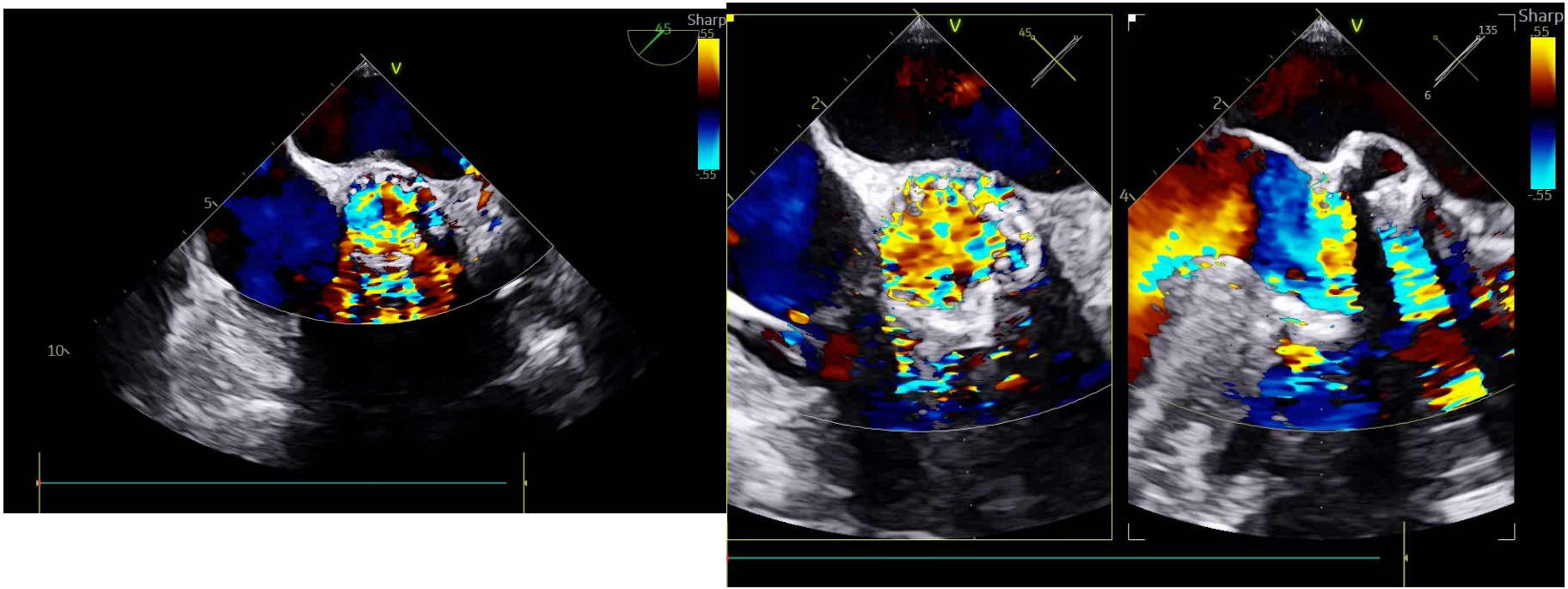
⚠ Recurrence (2 Months Later)

Symptoms: Return of exertional dyspnea

- **TTE**

1. Moderate-severe central aortic regurgitation (AR)
2. Vmax: 2.8 m/s
3. Mean gradient: 14 mmHg
4. Etiology: Structural deterioration of bioprosthetic valve

TEE before VIV



The aortic regurgitation is primarily central in origin

Stage 2: Valve-in-Valve TAVR

Challenge: Complex iliofemoral access (calcified, small lumen)

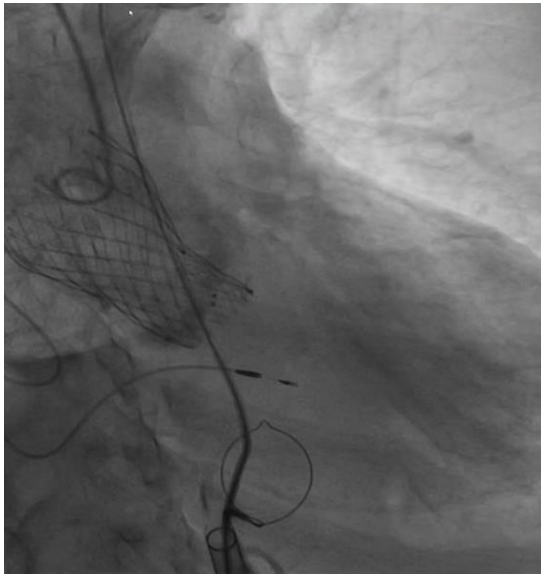
Solution:

- 18Fr sheath via ultrasound guidance
- Snare-assisted aortic arch navigation

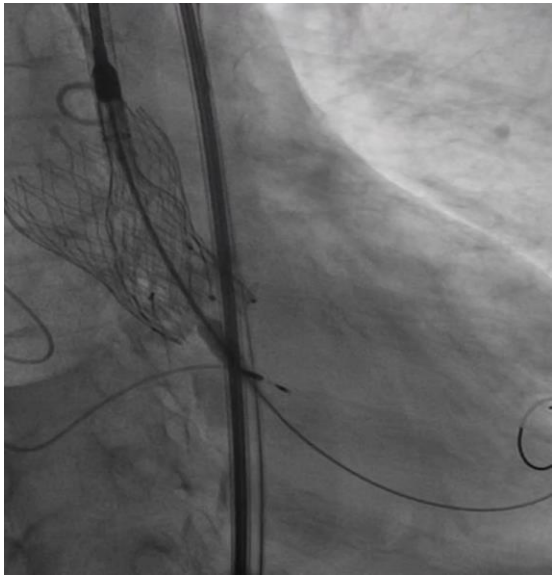
Valve: CoreValve™/Evolut™

Post-dilation: 18 mm balloon

Pre VIV



VIV positioning



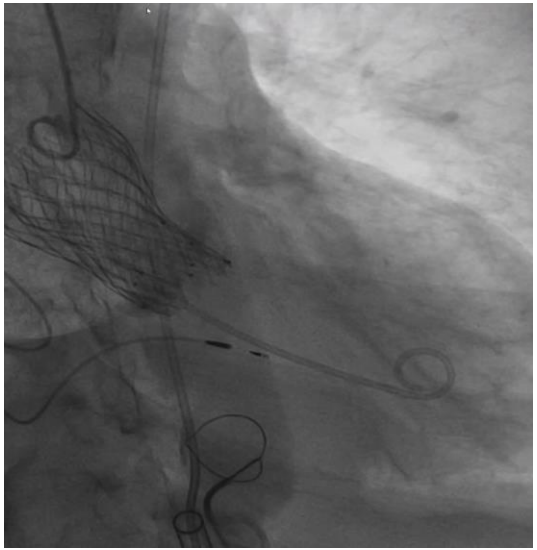
Post-Procedure Outcome

Final angiography:

- Mild residual AR
- Mean aortic gradient: 12 mmHg

Clinical recovery: Improved symptoms, stable vitals

Follow-up plan: Imaging surveillance + symptom monitoring



Take-Home Message

1. PVL closure can delay or reduce the need for early re-intervention
2. Structural valve degeneration can present with new central AR
3. Valve-in-valve TAVR feasible even in complex anatomy with proper planning
4. Multimodality imaging essential for decision-making
5. Elderly high-risk patients can benefit from staged hybrid approaches