LAVA-ECMO supported ViV TAVR & PVL closure in aortic prosthetic valve dehiscence

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Disclosure of Relevant Financial Relationships

I DO NOT have any financial relationships to disclose.

Faculty disclosure information can be found on the app.

Patient Journey

60-year-old man

Severe AR with surgical tissue AVR in 9/2023

(Histology vegetation with acute inflammation, given prolonged course of Abx)

New onset of *severe PVL* with *partial dehiscence* of tissue AVR

Redo AVR on 12/2023

Unfortunately, 6 months later

APO with ICU admission

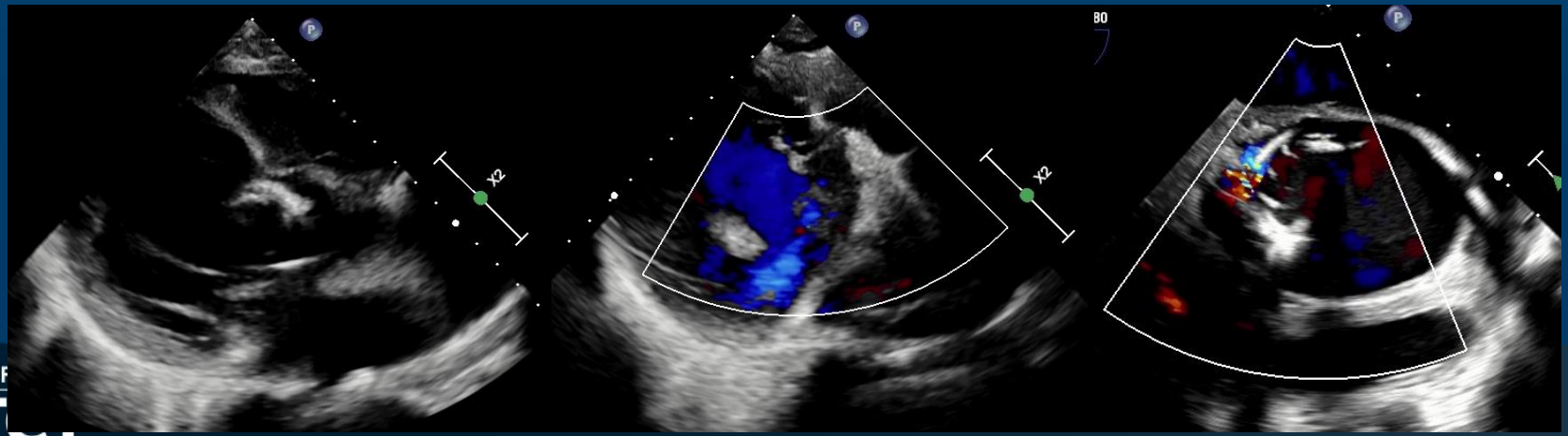
Dehiscence of AVR again

Another redo-AVR on 5/2024

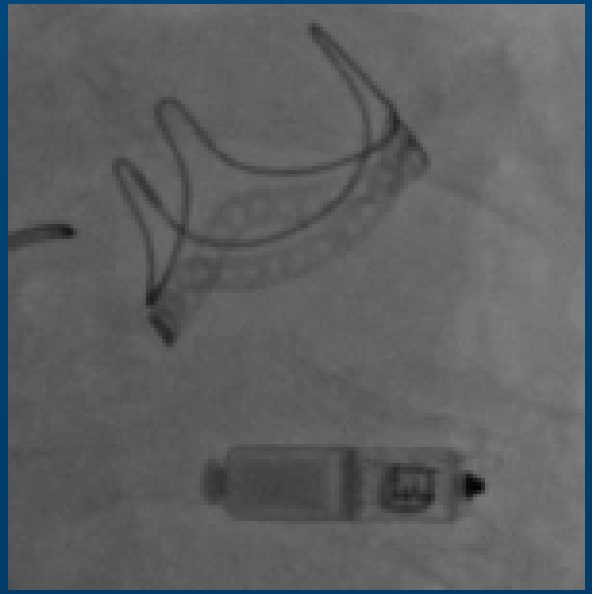
Intra-op cardiogenic shock, requiring ECMO, complete heart block with leadless PPM inserted

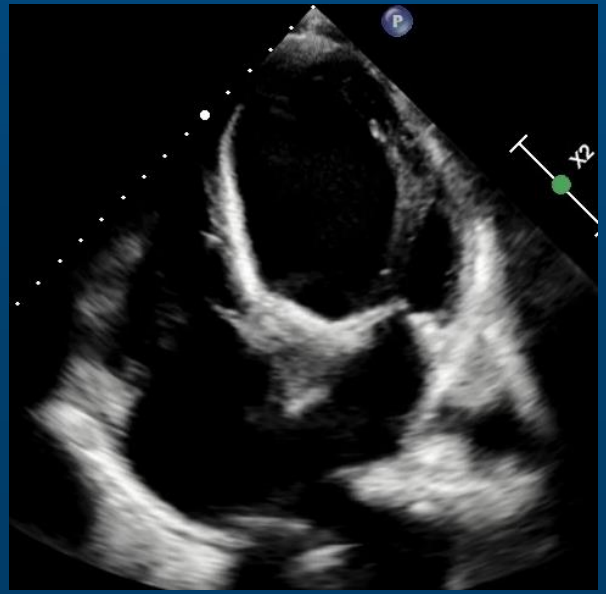
Unfortunately

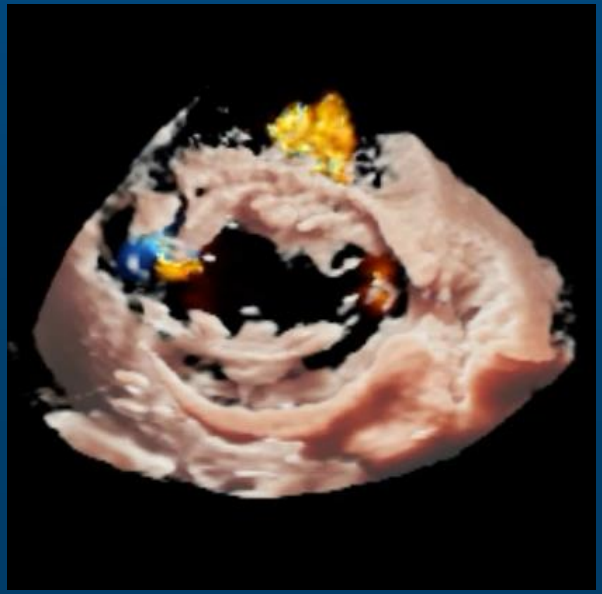
- 9 months later.
- He presented again with SOB, ↓ ET, and in NYHA III-IV
- ECHO showed
  - *Dehiscence of prosthesis again with PVL resulting in severe AR*
- HEART team: surgically inoperable



Problem
Dehiscence of tissue AVR + Poor LVEF + Severe PVL



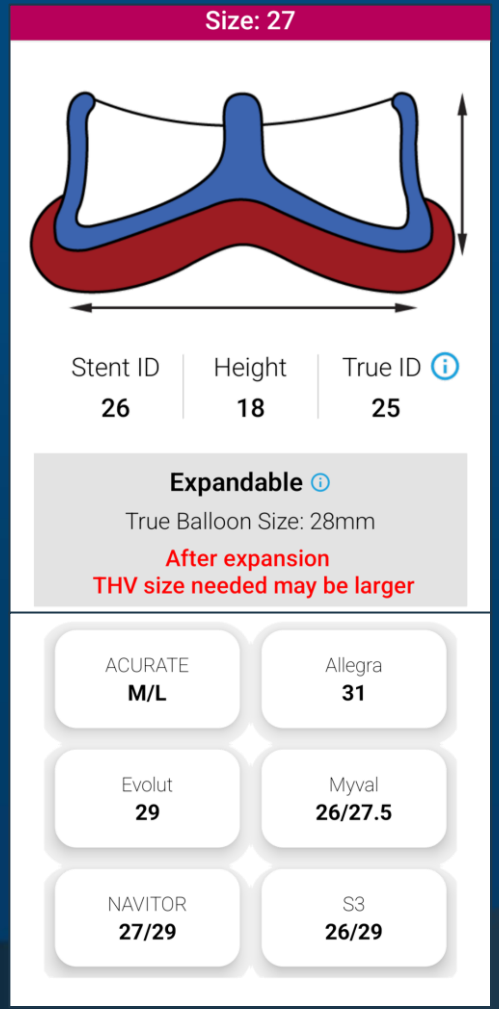


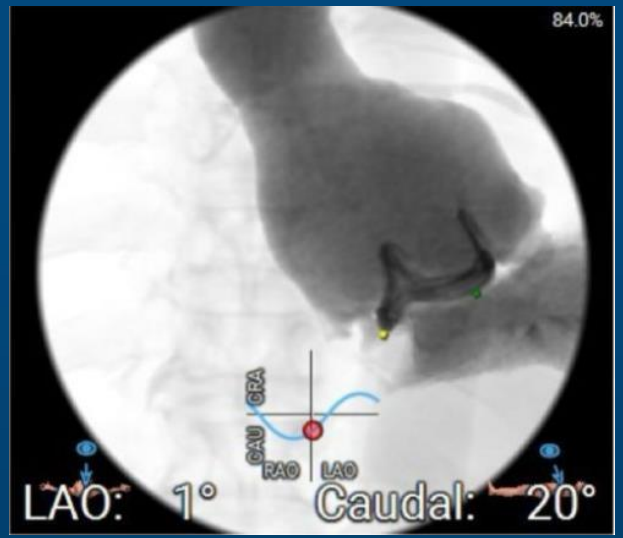


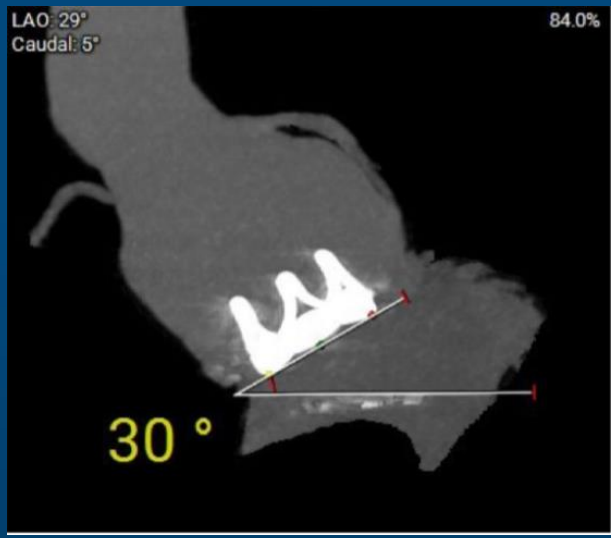
Edwards Perimount Tissue #27

Plan of procedure

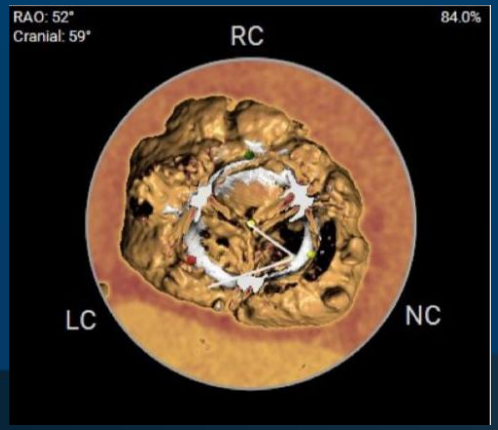
- GA + TEE
- LAVA-ECMO for circulatory support
- Plan
  - Bioprosthetic valve fracture
  - ViV TAVR → Evolut FX+ 34mm
  - +/- PVL closure




84.0%
CRA
CAU
RAO
LAO
LAO: 1°
Caudal: 20°


LAO: 29°
Caudal: 5°
84.0%
30 °


Min. Ø: 31.8 mm
Max. Ø: 33.2 mm
Avg. Ø: 32.5 mm
84.0%
Distance: 74.8 mm


RAO: 52°
Cranial: 59°
84.0%
RC
LC
NC

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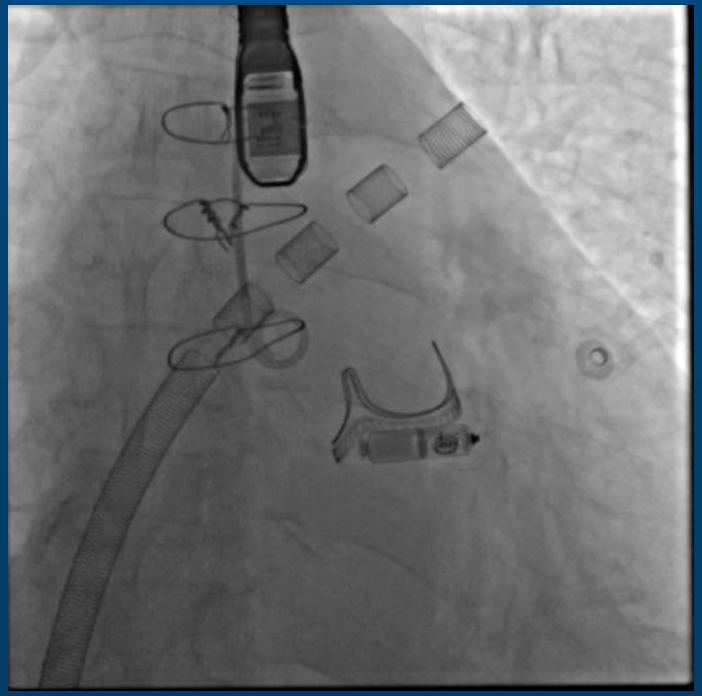
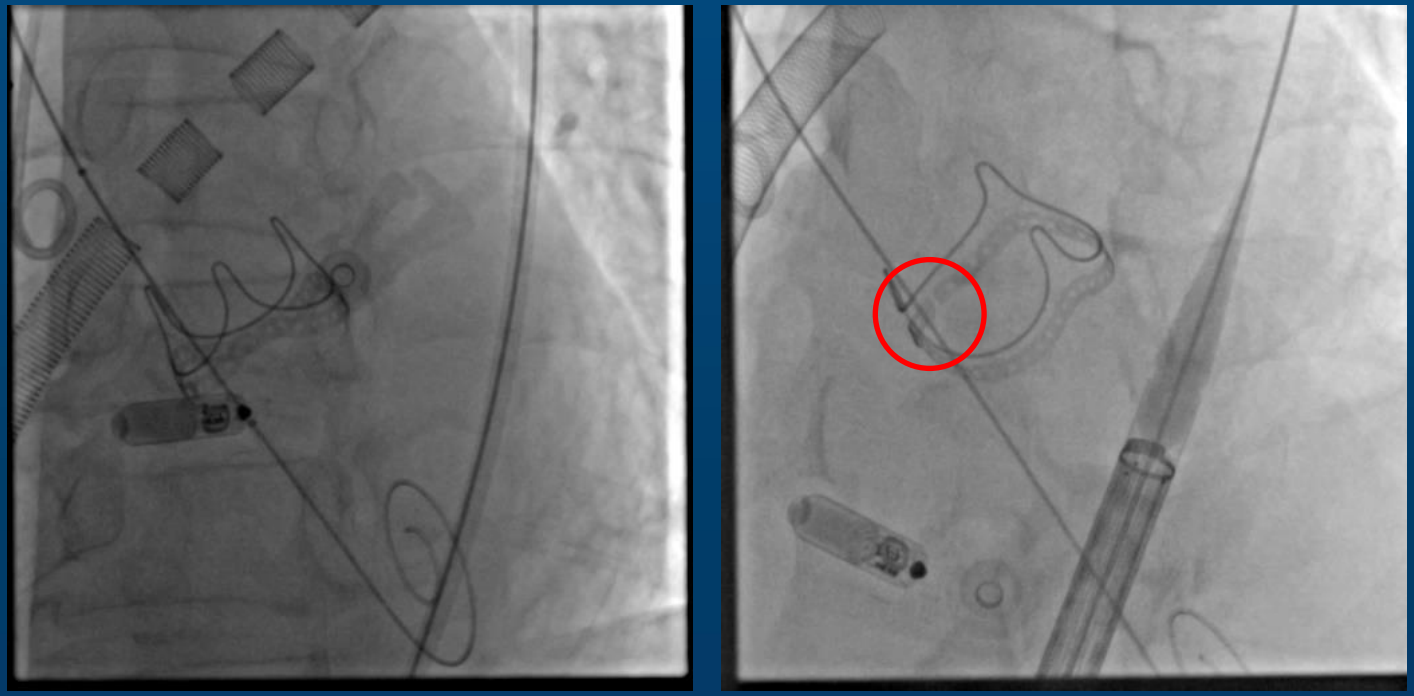
LAVA-ECMO

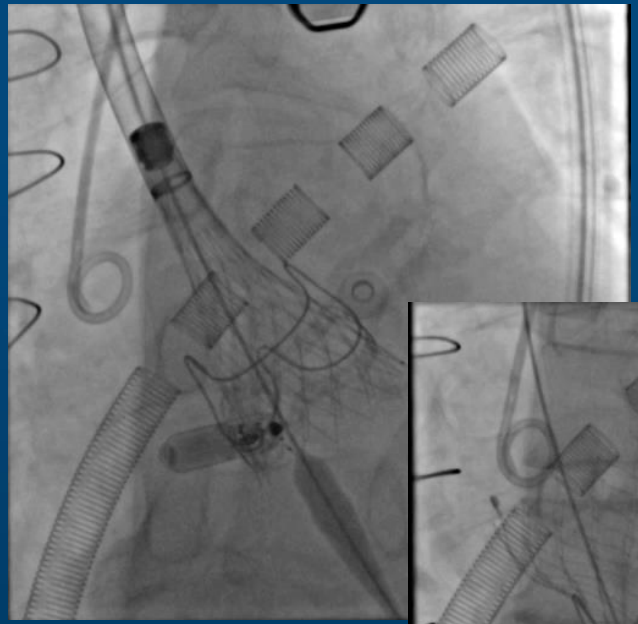


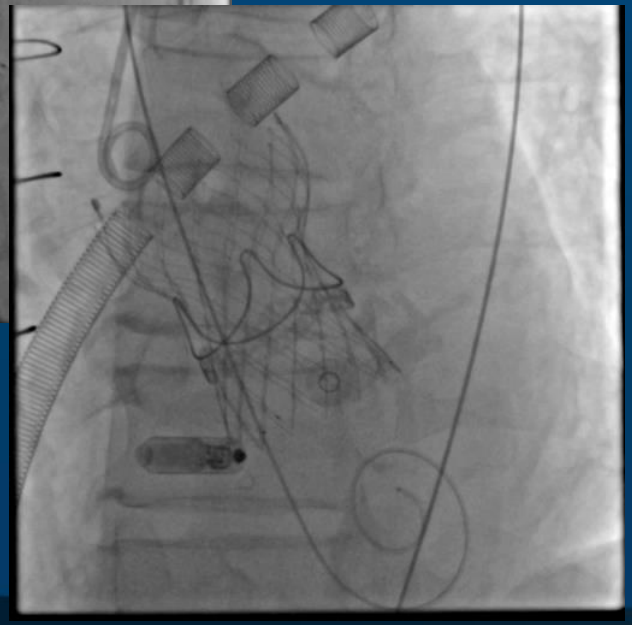
Fracture of biosprosthetic valve



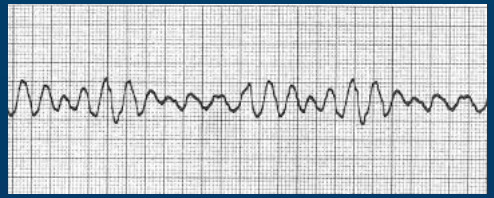
Intended bioprosthetic valve fracture with 28mm balloon predilatation

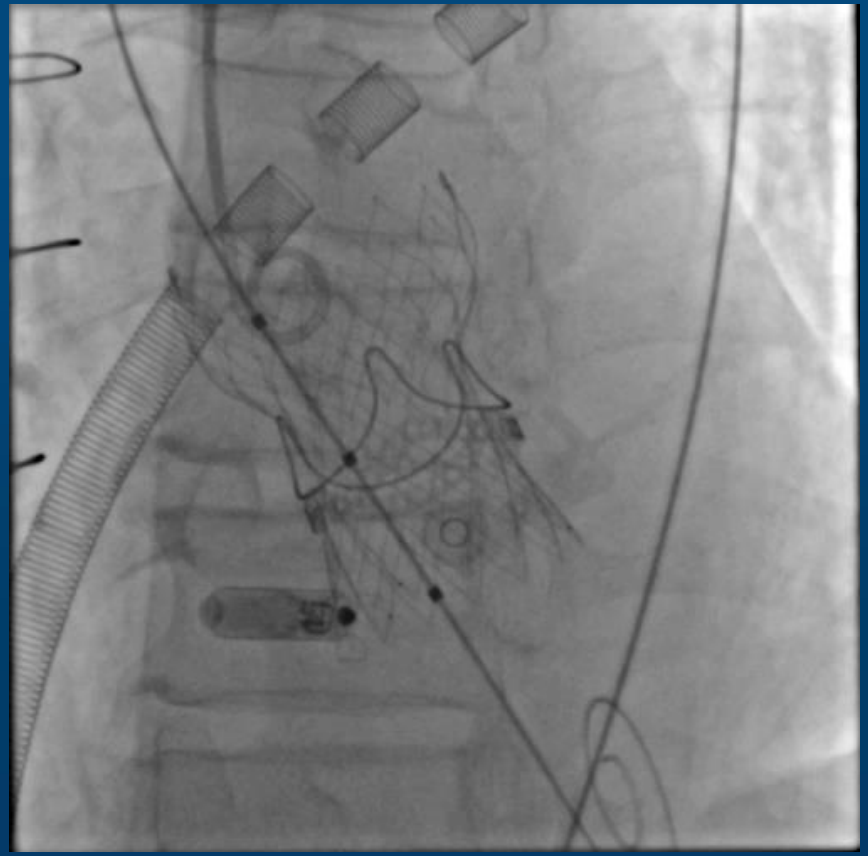
First THV dive-in

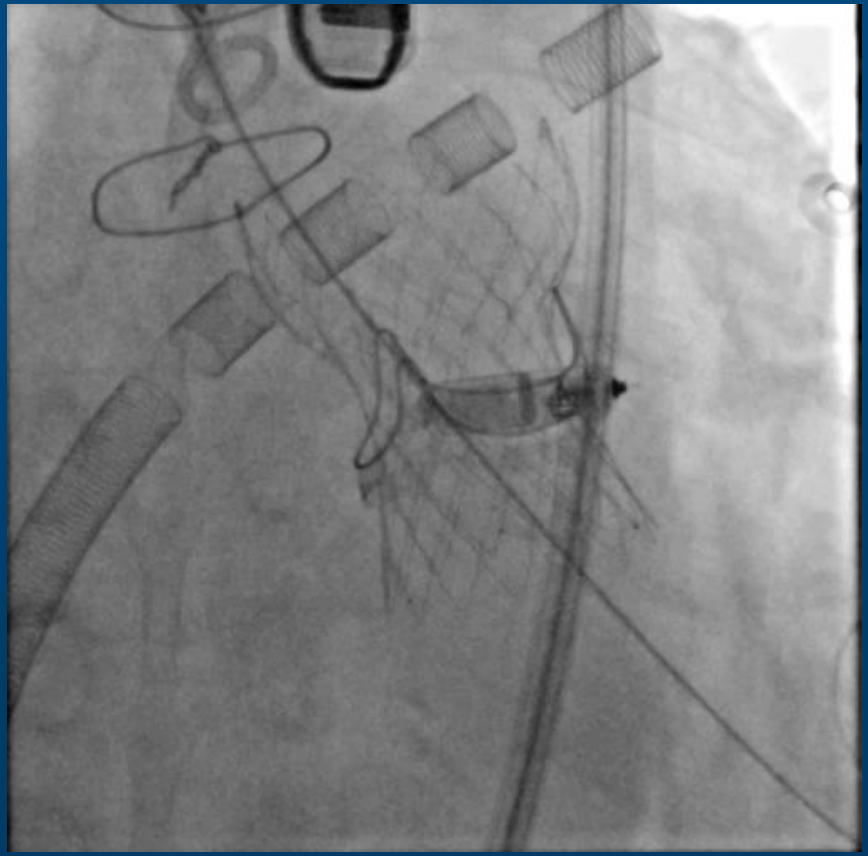




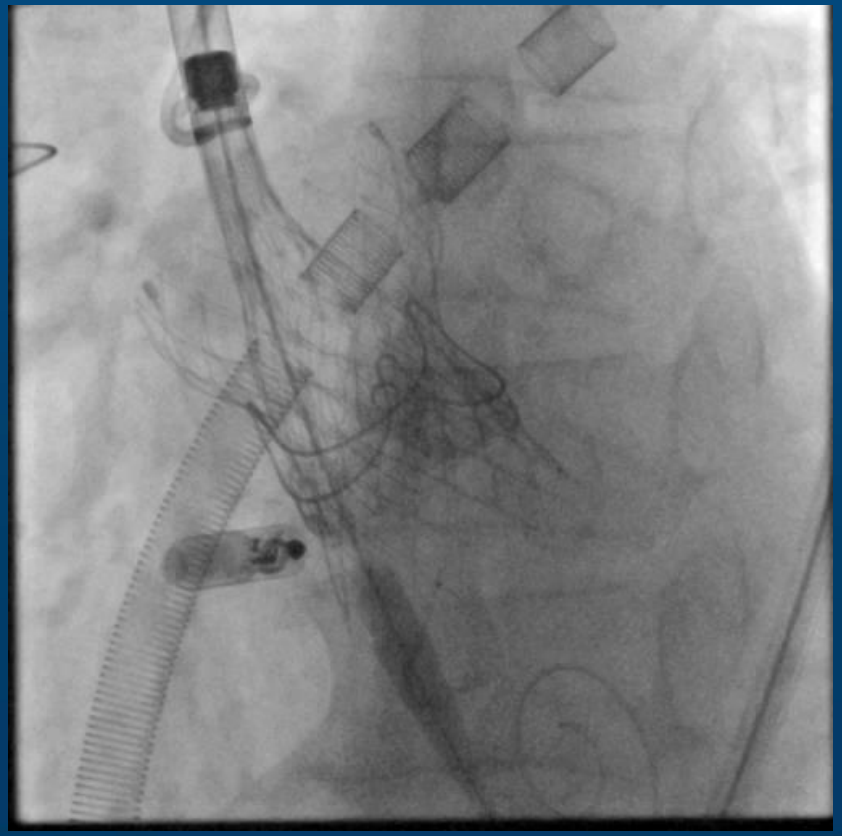
- Partial migration into LV
- Significant regurgitation
- Prosthesis still rocking
- VF required defibrillation
- Supported by LAVA-ECMO



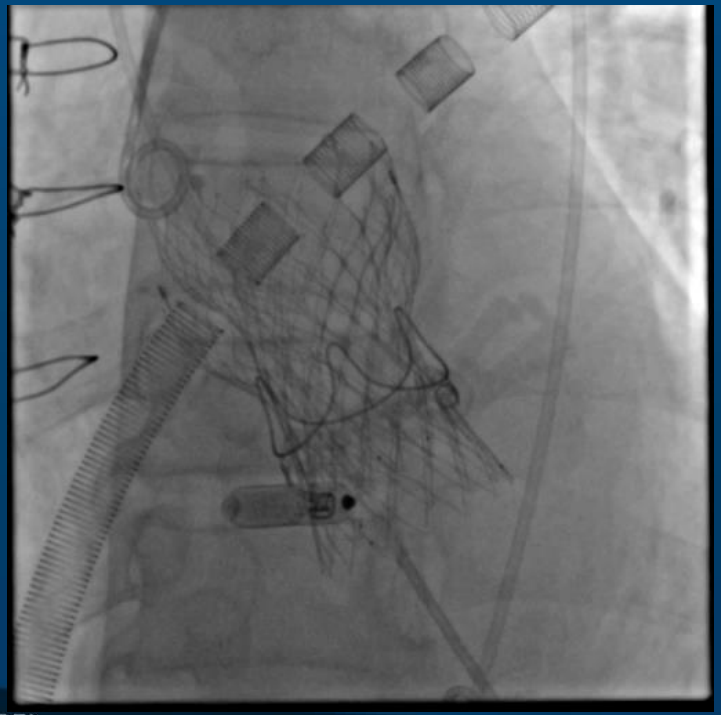


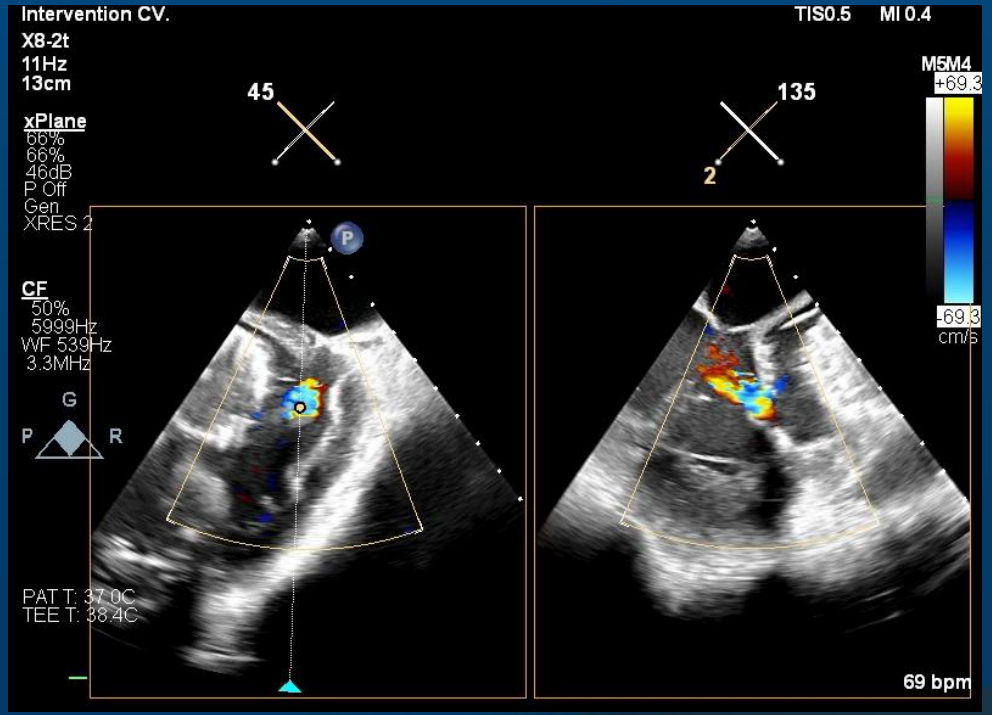


Second THV



Residual PVL

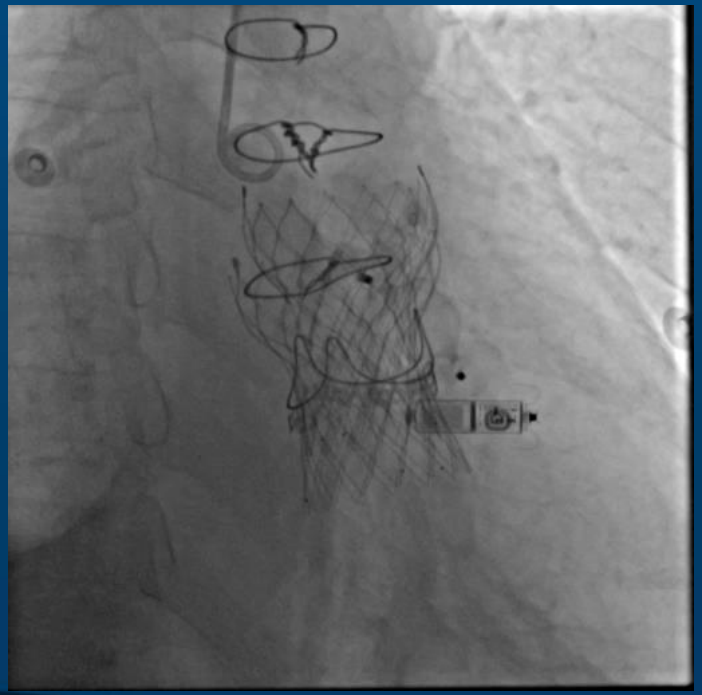


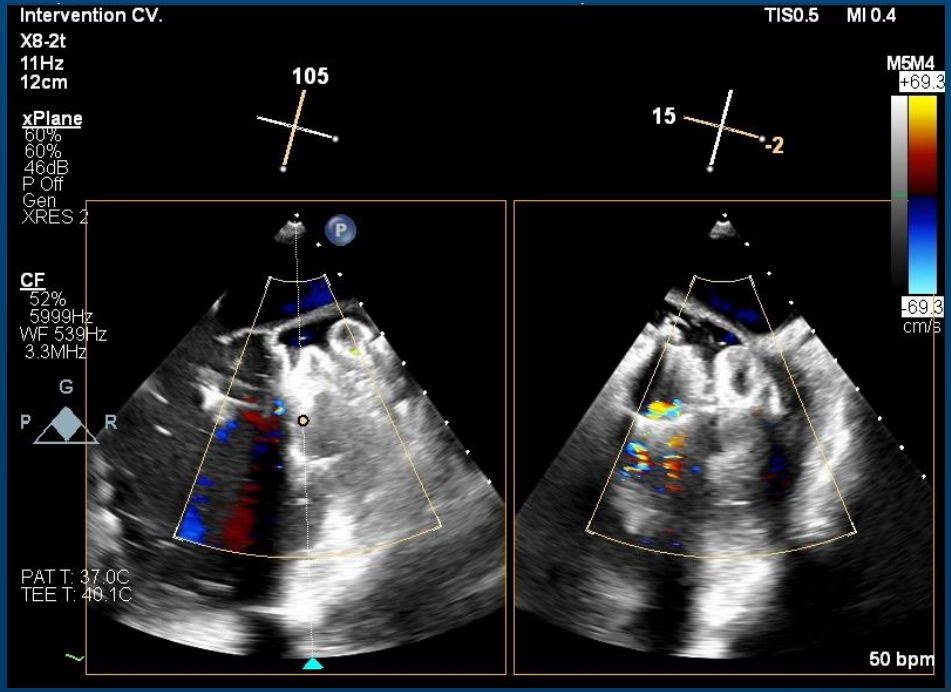


PVL closure

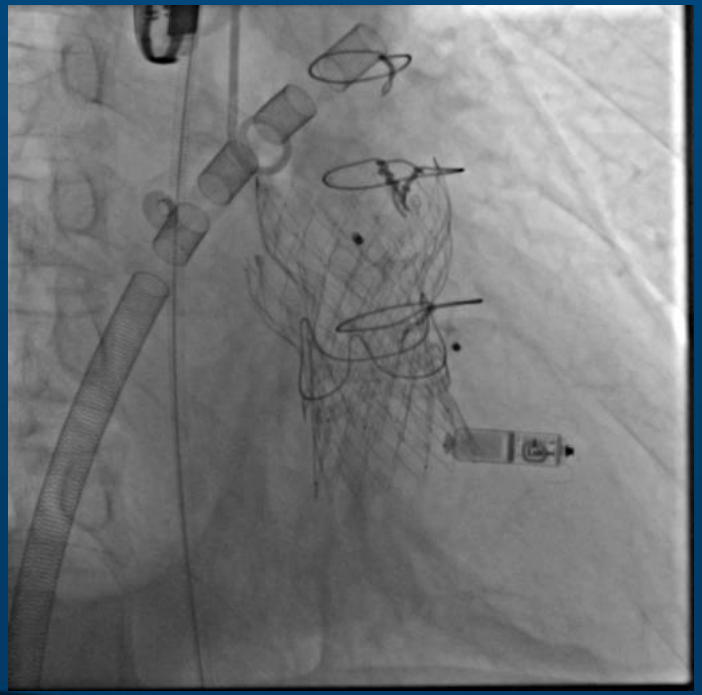
PVL closure with vascular plug (16mm AVP II)

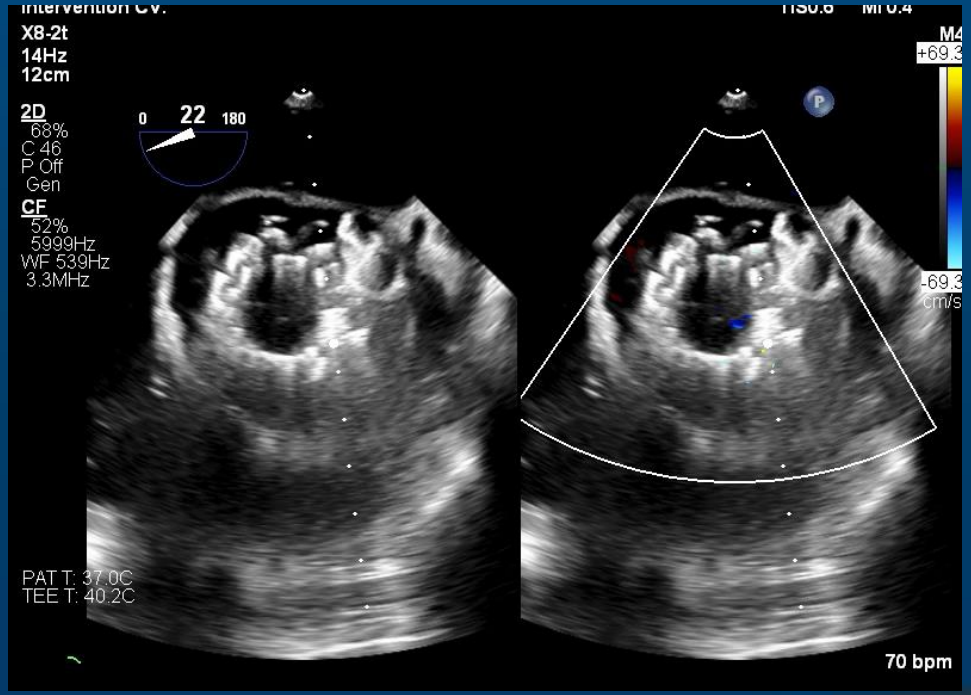
Final angiogram / TEE

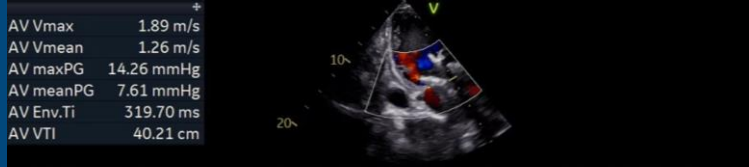


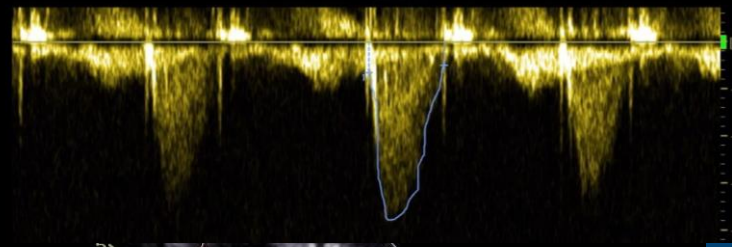


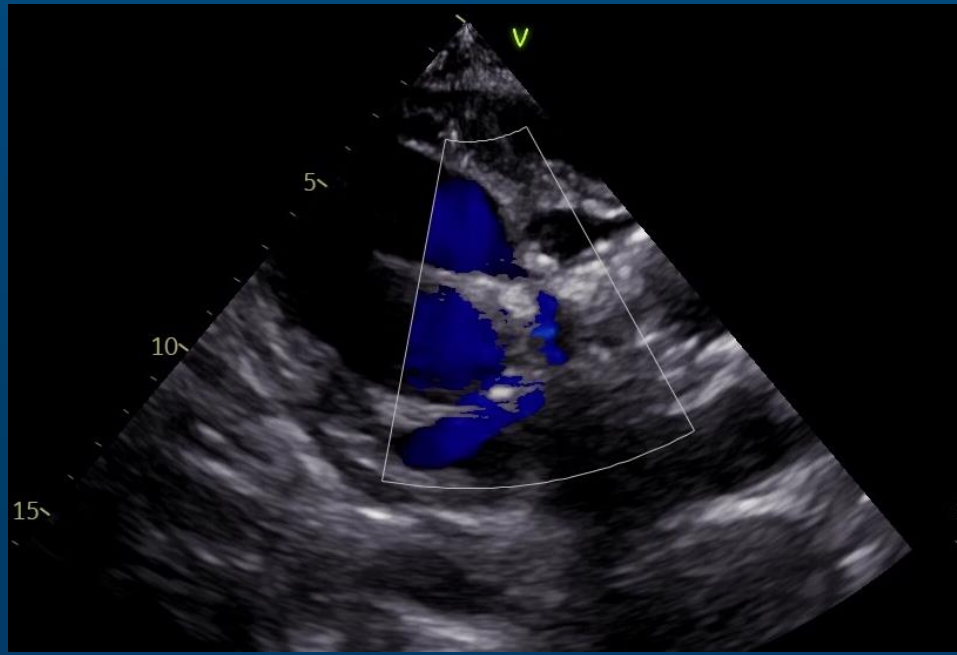
Final angiogram / TEE






AV Vmax 1.89 m/s
AV Vmean 1.26 m/s
AV maxPG 14.26 mmHg
AV meanPG 7.61 mmHg
AV Env.Ti 319.70 ms
AV VTI 40.21 cm
V
10
20




V
5
10
15


10
15

Outcome

- LAVA-ECMO was able to wean off after procedure
- Post op ECHO satisfactory position of THV & vascular plug; no residual leakage noted
- Patient discharged from CCU POD2
- Outpatient FU, in NYHA class I-II

Conclusion

- Meticulous pre-procedural planning
- Pre-emptive LAVA-ECMO provide hemodynamic stability during high risk TAVR
- TAVR & PVL closure is possible in extreme surgical risk patient