Moderate Trans-Valvular Aortic Insufficiency Immediately After Implantation With Self Resolution One Month Post Procedure

Self resolving Intra-prosthetic Aortic Regurgitation

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Disclosure of Relevant Financial Relationships

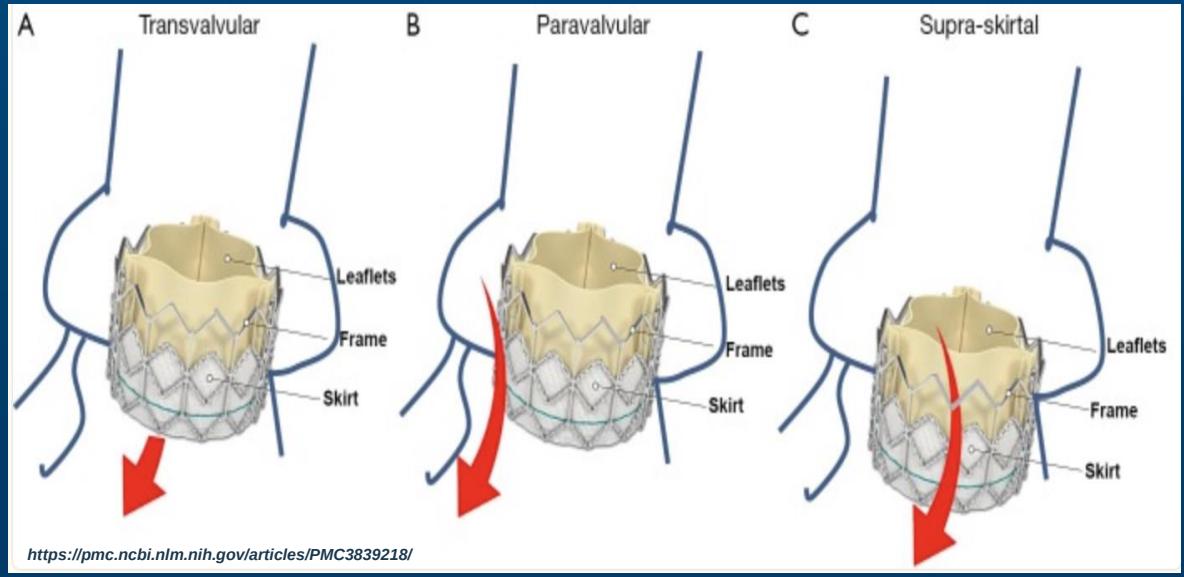
I, Marlena Lesniowska *DO NOT* have any financial relationships to disclose.

Background

- Despite the evolving technology of transcatheter valves, regurgitation post-TAVR is common, with a wide range of reported incidences
- In patients treated with transcatheter valve-in-valve implantation for failed surgical bio-prosthesis, the incidence of significant AR seems to be comparable to TAVI in native valves
- Patients with valvular regurgitation post TAVR experience higher risk of all-cause mortality, rehospitalization, and cardiovascular mortality.

Regurgitation mechanism

- Transvalvular
- Paravalvular
- Supra-skirtal

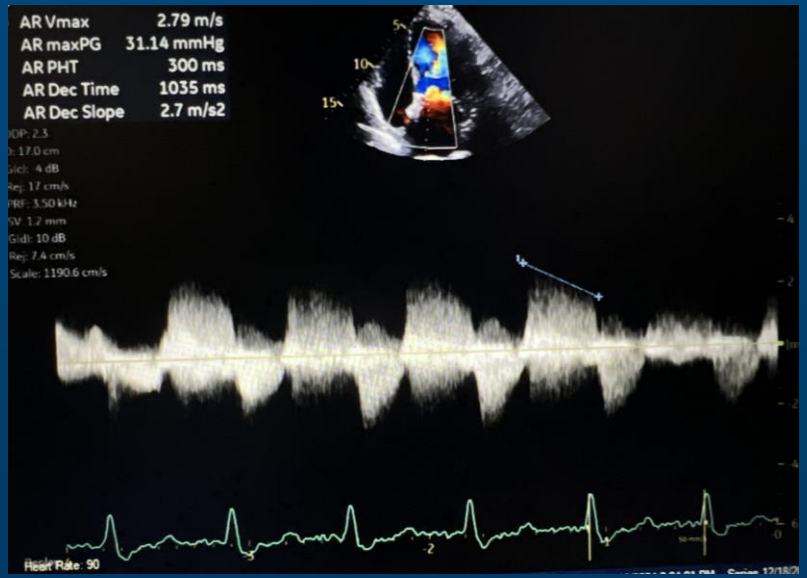


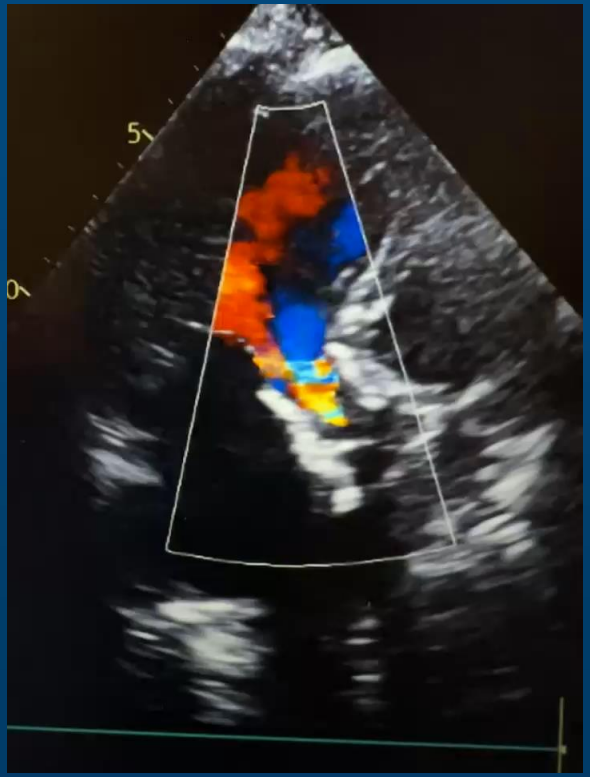
https://pmc.ncbi.nlm.nih.gov/articles/PMC3839218/

Case Summary

- 73-year-old female with prior SAVR with #19 mm Edwards Intuity valve in 2017
- Presented with severe symptomatic bioprosthetic aortic stenosis and moderate intra-valvular regurgitation
  - *AVA was 0.6 cm^2, Vmax of 4.8 m/s, and a MG of 56 mmHg.*
  - EF of 60 – 65%
- Underwent Transcatheter Valve-in-Valve implantation procedure
  - Right common femoral artery access, deploying a 20-mm SAPIEN 3 Ultra Resilia valve under rapid pacing.
  - Post dilatation was performed using 20 mm True balloon for valve frame optimization

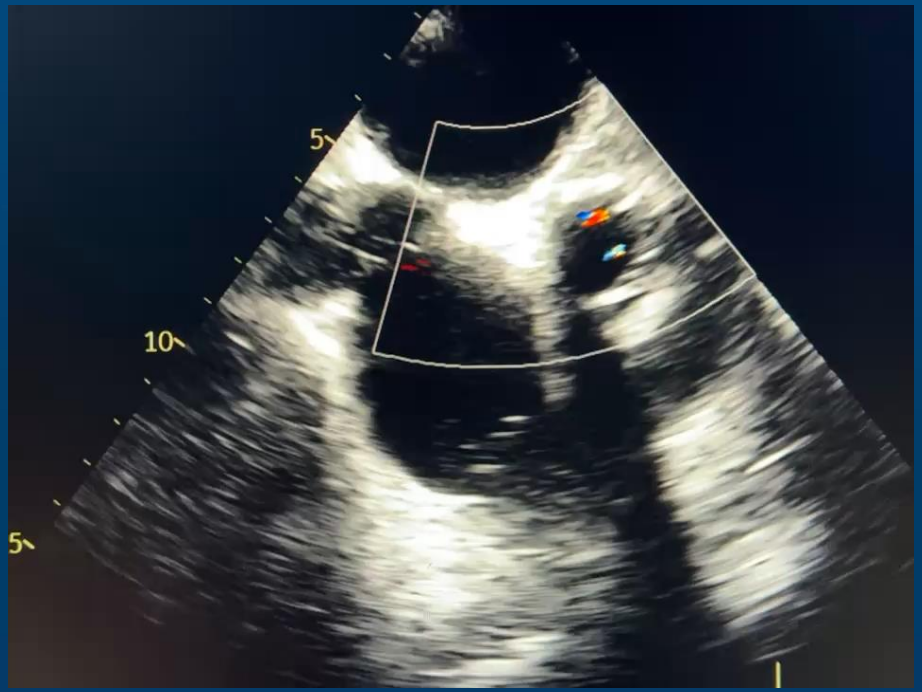
Post implantation Echo imaging

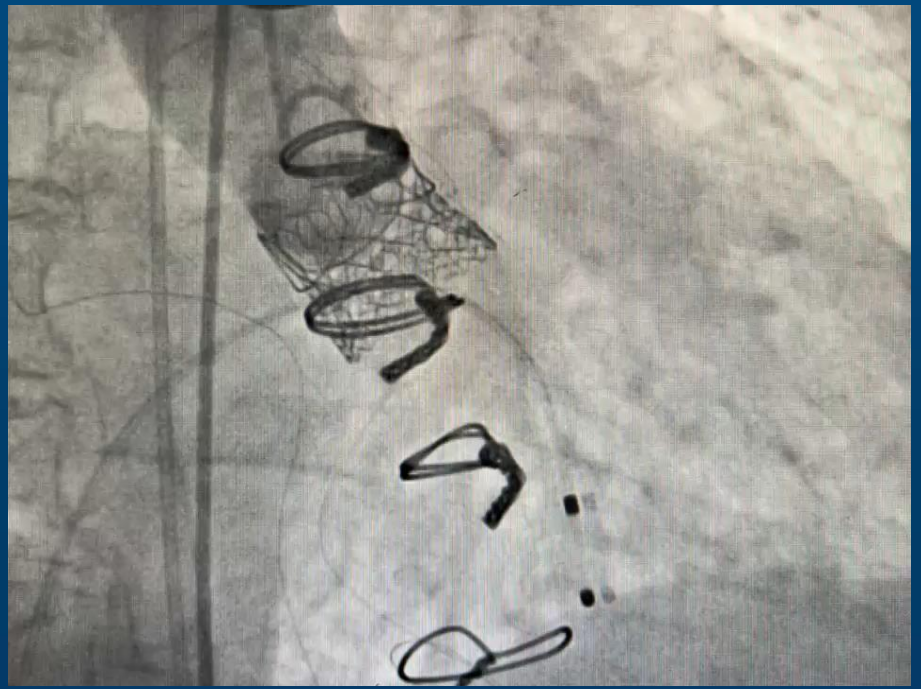




- Moderate regurgitation
- Likely transvalvular rather than peri-valvular based on transthoracic imaging
- Mean gradient of 9 mmHg on TTE

TEE and fluoroscopy post deployment





What happened?

- Confirmation of leak etiology/location/type (paravalvular vs transvalvular vs supra-skirtal)

- Transvalvular leak pathology:
  - Damaged leaflet
  - Stuck leaflet

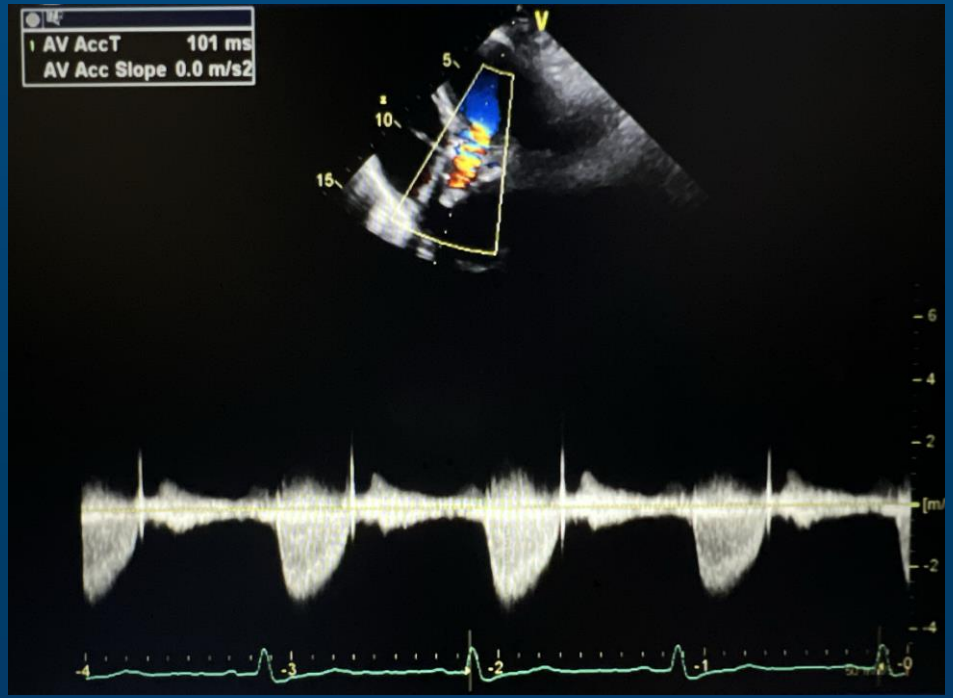
What to do next?

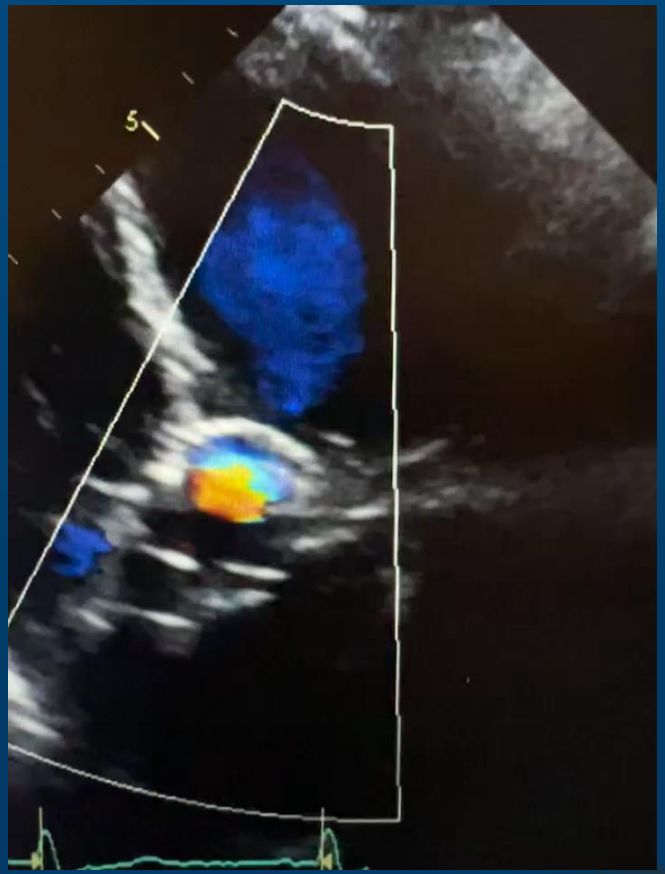
- Further balloon dilatation (risk of further damage to leaflets)
- Valve in valve in valve (risk of patient prosthesis mismatch and elevated gradients, especially with an already small 20 mm valve)
- Redo surgical procedure (High risk patient with high-risk procedure)
- Leaflet manipulation (via pigtail)
- Watchful waiting (since patient was hemodynamically stable)

Patient Update

- Patient was hemodynamically stable and compensated (likely due to a preprocedural moderate AR)
- Decision was made to clinically observe patient and assess her symptoms as an outpatient and if she becomes symptomatic or if regurgitation worsens/persists, we always have the option of bringing her back for Valve in valve in valve procedure.
- TTE POD#1 with MG 19 mmHg, with a persistent moderate AR.

TTE 1 month post procedure





Conclusion

- *Our case* is the first that shows Transvalvular AI (intra-prosthetic) with spontaneous resolution on the 1-month follow up imaging
- Proposed mechanism is a stuck leaflet with spontaneous restoration of normal movement.
- Possibly related to the new Resilia dry-storing technology
- Watchful waiting with periodic clinical and echocardiographic reassessment may be appropriate
- Recommended for hemodynamically stable patients
- Aims to avoid unnecessary repeat valve-in-valve procedures
- Prevents added procedural risk and hemodynamic compromise and helps maintain effective orifice area and reduce risk of prosthesis–patient mismatch.

Sources

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