

TAVR in Bicuspid Mega-annulus with VSD

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Disclosure of Relevant Financial Relationships

I, Tulika Garg DO NOT have any financial relationships to disclose.

History

- 57-year-old male evaluated at an outside facility for dyspnea and chest pain
- Background-
 - Bicuspid valve aortic stenosis
 - LVEF – 20%
 - Severe pulmonary hypertension (PASP 80mmHg)
 - Moderate sized peri-membranous VSD
 - Multi-vessel coronary artery disease (CAD) (Severe RCA)
- Transferred to CSMC for further evaluation.

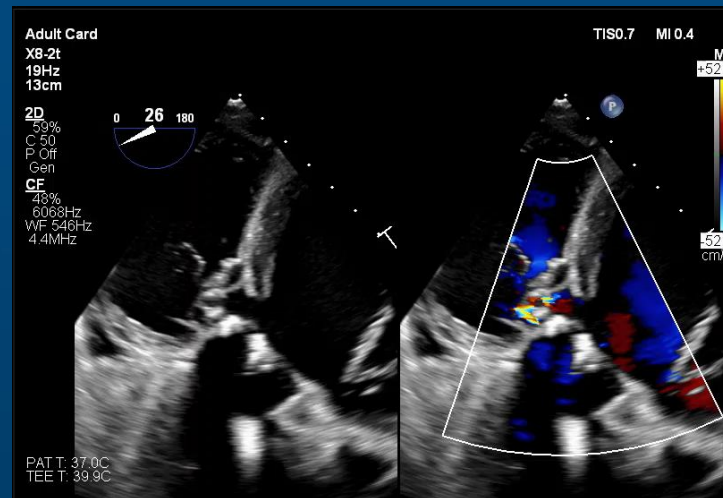
- Cardiothoracic Surgery Consult planned for:
 - CABG + SAVR
- Surgery aborted post-induction. TEE findings:
 - Severe LV dysfunction (Low EF – 20%)
 - Moderate RV dysfunction and mitral regurgitation
 - Severe aortic stenosis
- Patient underwent evaluation for Transcatheter intervention.

Pre-Procedure Echocardiography (TTE)



Severely depressed LV function with EF - <20% and restricted aortic valve opening

Mean AV gradient: 27 mmHg
 Vmax: 316 cm/s
 AVA: 0.74 cm²
 AoV DI: 0.23



Peri-membranous VSD

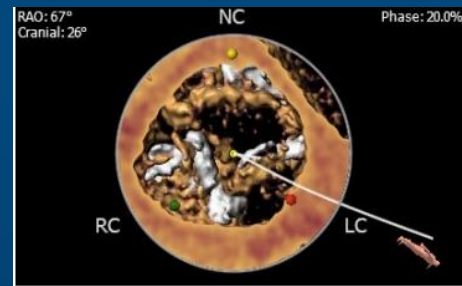
Pre-TAVR CT - Bicuspid Mega-annulus



Annulus: 809.5 mm²



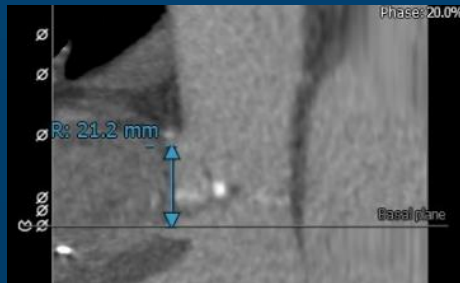
Aorta annulus angle and length



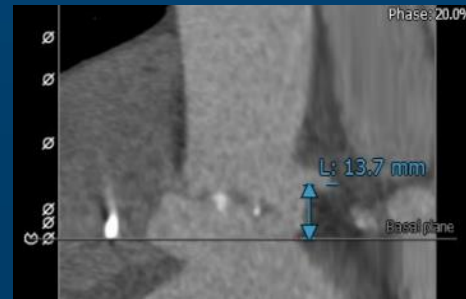
Hockey Puck



LVOT: 780 mm²



Right Coronary Height



Left Coronary Height

Procedure

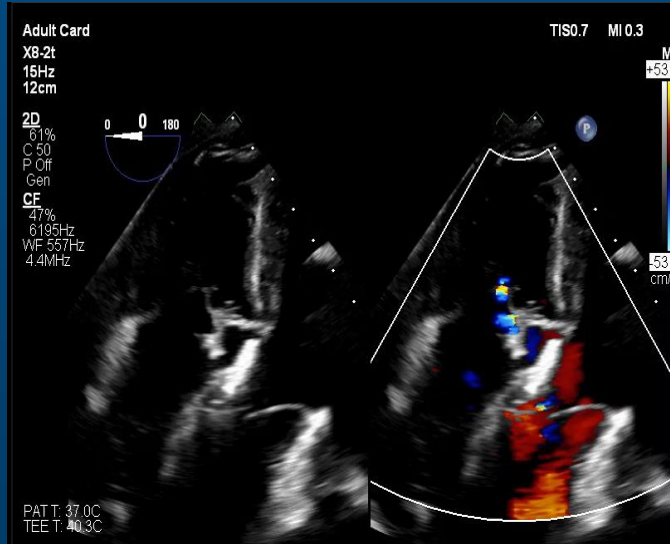


- Medtronic Evolut Pro+ 34mm valve attempted
- Interacted with the patient's known VSD, leading to hypoxemia

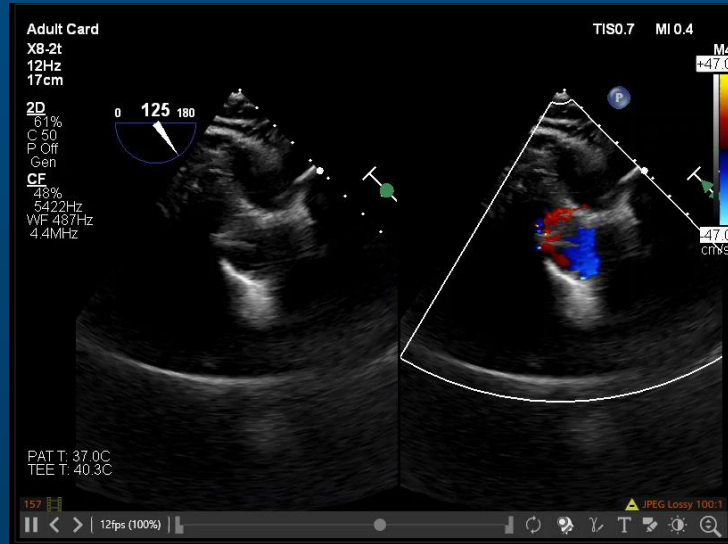


- 29 Sapien 3 Ultra Resilia valve deployed at nominal +2cc with no immediate complications

Intra-procedure TEE



Post-Procedure Echocardiography (TTE)



Mean aortic valve gradient – 5mmHg
without significant transvalvular
regurgitation

PCI

- His post-TAVR course was overall unremarkable.
- The patient underwent LHC with PCI to the RCA. He was started on ASA and Plavix.

Follow up

- The patient has been feeling well and improved from a functional standpoint.
- Denied any recent heart failure hospitalizations or ER visits.

Conclusion

- Managing TAVR in patients with large annuli presents notable challenges.
- TAVR devices can potentially interact with peri-membranous VSD.
- Sapien 3 can be overexpanded to fit larger annuli to large anatomy.