Managing Complex Post TAVR PVL: Redo Short in Short and Plug Strategy

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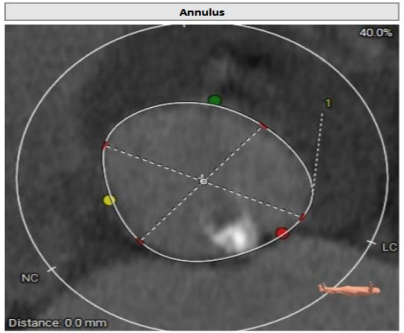
TRANSCATHETER CARDIOVASCULAR THERAPEUTICS®

Disclosures

Consultant , Speakers Bureau, or Proctor : Medtronic, Edwards Life Sciences , WL Gore and Associates, Zoll Medical, Abbott Structural Heart

86 Male

- Prostrate Cancer in remission (s/p XRT+ Chemo)
- Hypertension
- Dyslipidemia
- Recently diagnosed mild dementia
- Independent in ADLs
- Deemed Extreme Surgical Risk due to Age, Frailty and Comorbidities
- Bicuspid AV (mixed valve disease), NYHA Class III



ID	Type	Label	Value
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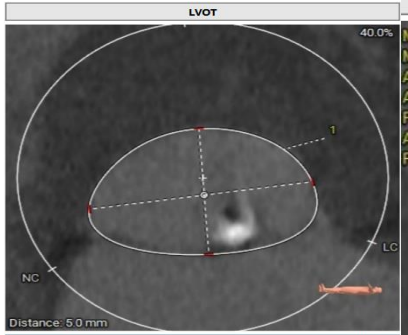
		Annulus Dimensions - Max. Ø	29.0 mm
		Annulus Dimensions - Avg. Ø	26.9 mm
		Annulus Dimensions - Area derived Ø	26.4 mm
		Annulus Dimensions - Perimeter derived Ø	26.7 mm
		Annulus Dimensions - Area	549.0 mm²
		Annulus Dimensions - Perimeter	83.9 mm



ID	Type	Label	Value
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		LVOT Diameter - Avg. Ø	25.3 mm
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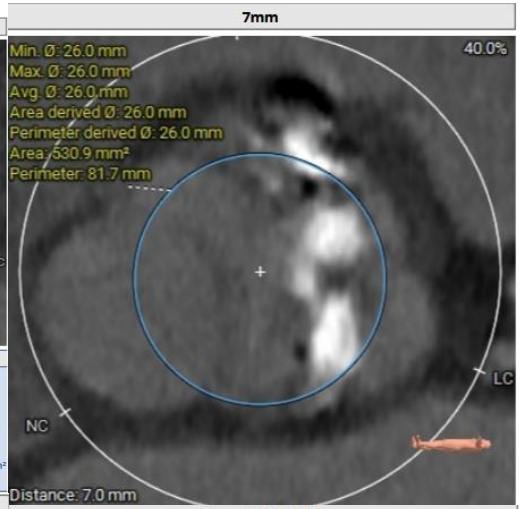
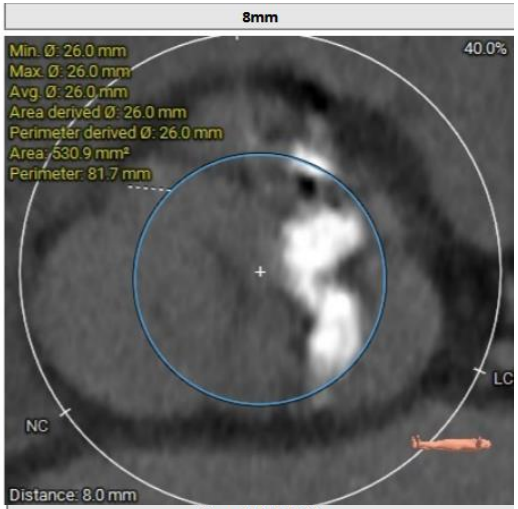
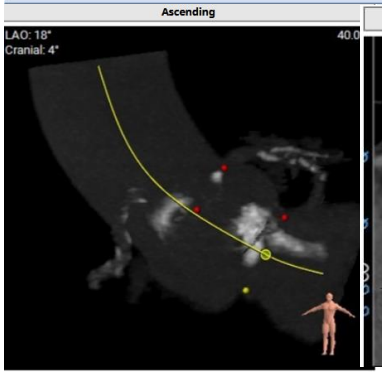
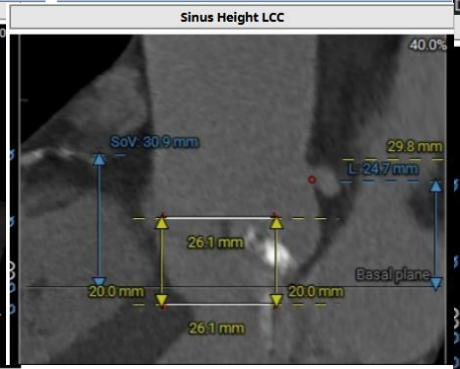
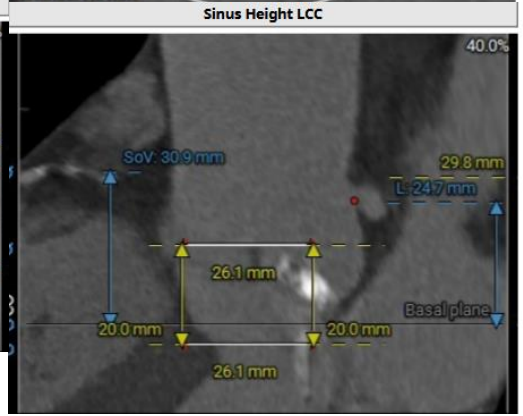
		Perimeter derived Ø	25.9 mm
		Area	488.1 mm²
		Perimeter	81.4 mm





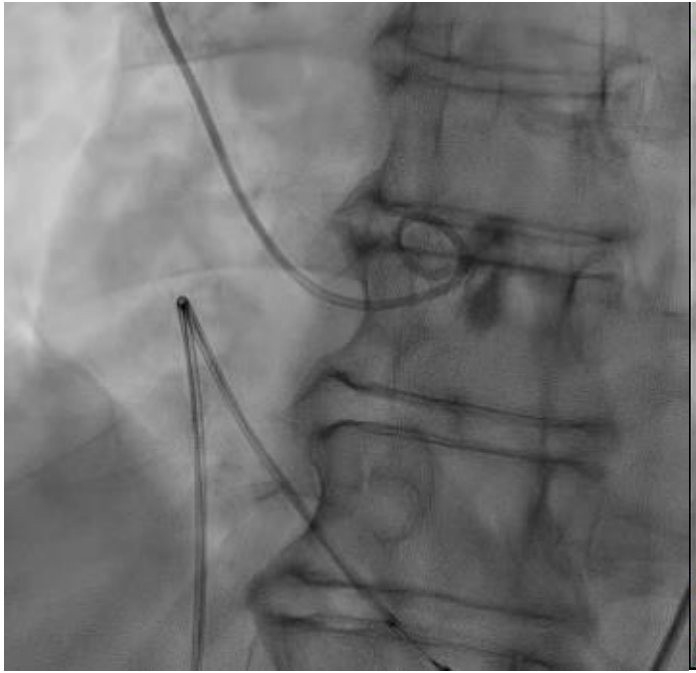






CRF® TCT®

Pre-TAVR CT: Bicuspid L/R Raphe with Nodular Annular and LVOT Calcification

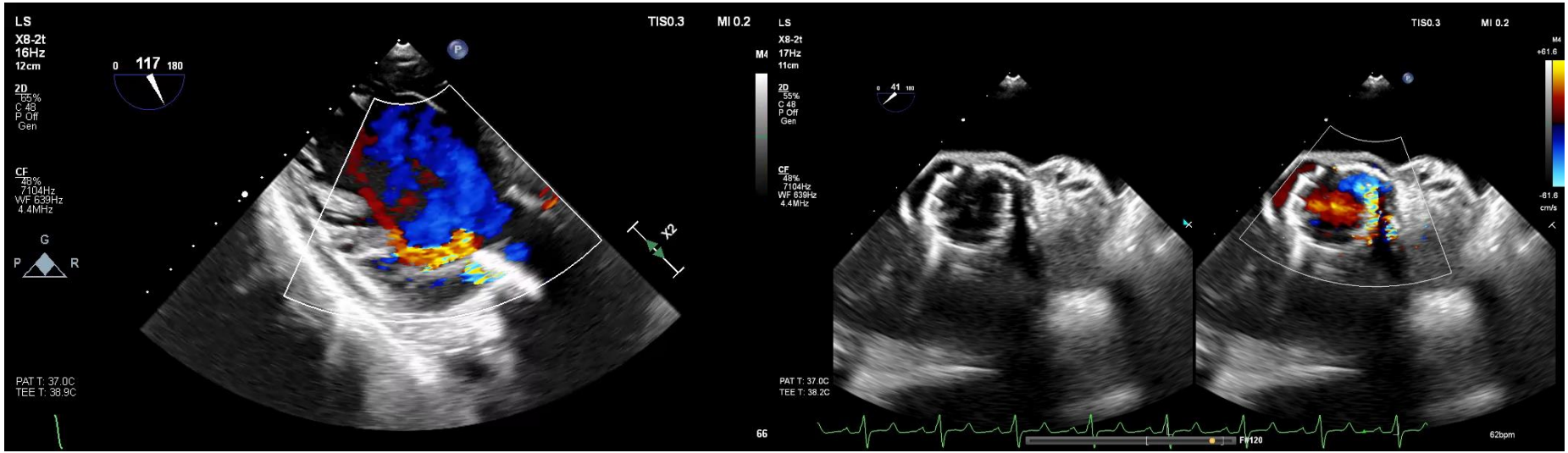


Aortogram

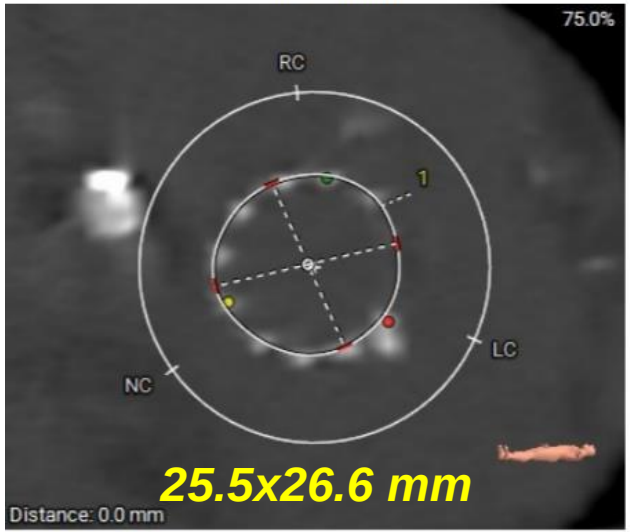
26 (+2 cc) S3UR

Final: mild PVL

86 Male s/p TF TAVR c/b CHB and Hemolytic Anemia (due to Severe PVL)



26S3UR +2cc inflow



ID	Type	Label	Value
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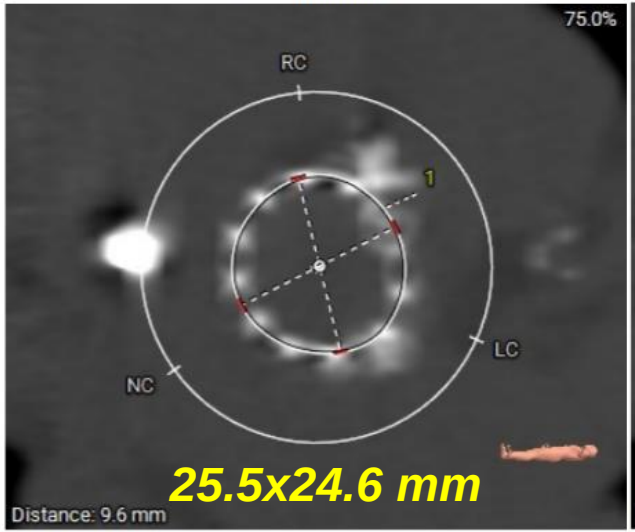
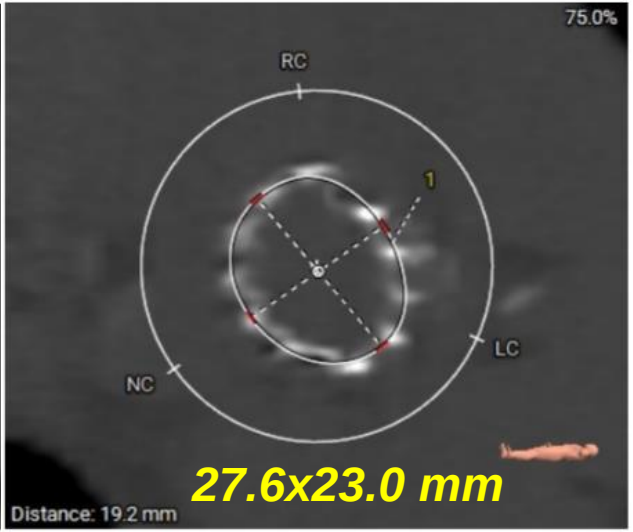
		Annulus Dimensions - Max. Ø	26.6 mm
		Annulus Dimensions - Avg. Ø	26.1 mm
		Annulus Dimensions - Area derived Ø	26.1 mm
		Annulus Dimensions - Perimeter derived Ø	26.1 mm
		Annulus Dimensions - Area	533.8 mm²
		Annulus Dimensions - Perimeter	82.0 mm

26S3UR Mid Frame



ID	Type	Label	Value
1	Polygon	Min. Ø	24.6 mm
		Max. Ø	25.5 mm
		Avg. Ø	25.1 mm
		Area derived Ø	25.0 mm
		Perimeter derived Ø	25.0 mm
		Area	490.2 mm²
		Perimeter	78.6 mm

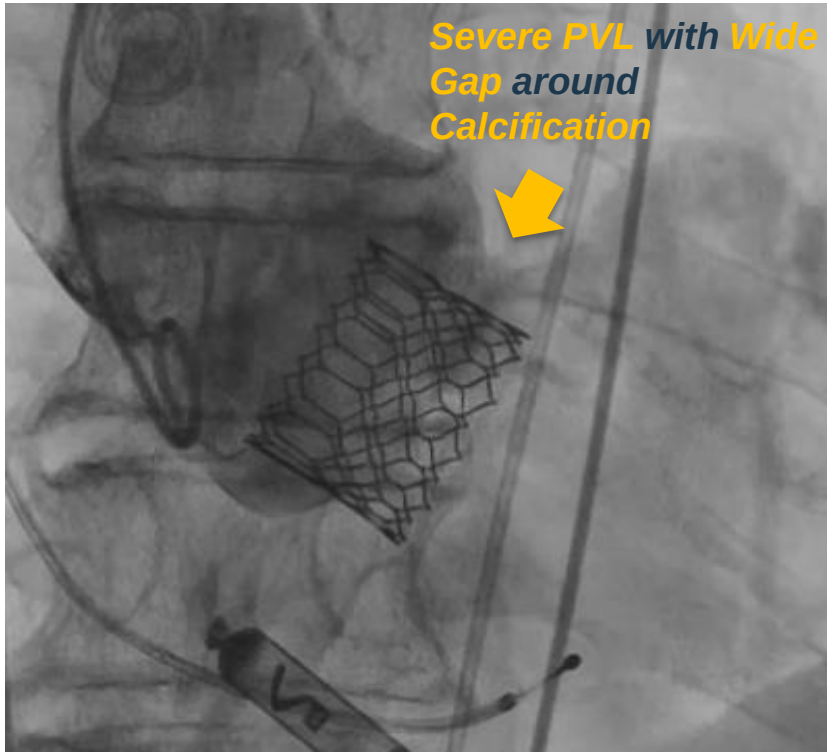
26S3UR outflow (distorted)

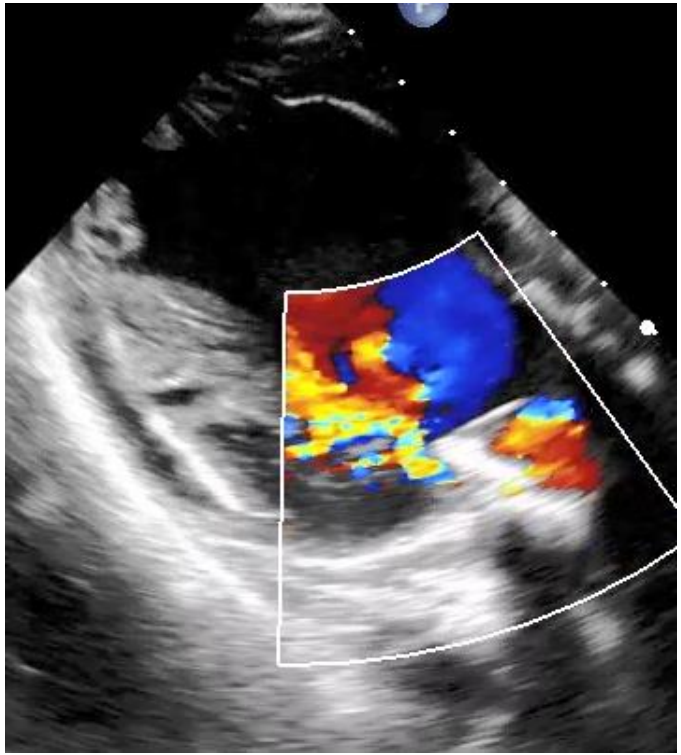


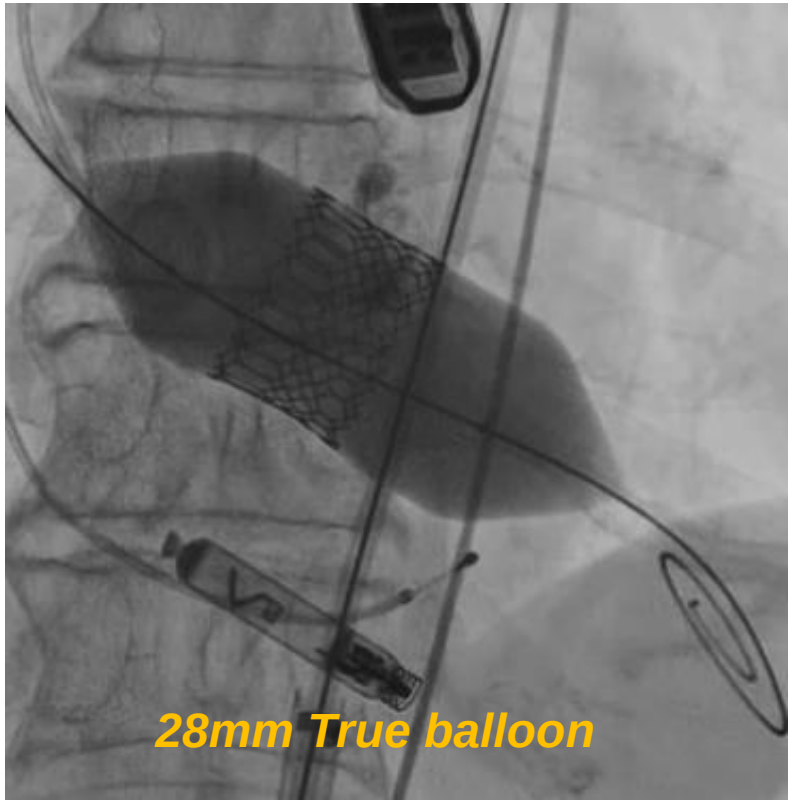
ID	Type	Label	Value
1	Polygon	Min. Ø	23.0 mm
		Max. Ø	27.6 mm
		Avg. Ø	25.3 mm
		Area derived Ø	25.4 mm
		Perimeter derived Ø	25.6 mm
		Area	506.8 mm²
		Perimeter	80.4 mm

Plan: Redo Short in Short TAVR with 29 S3UR +/- Plug

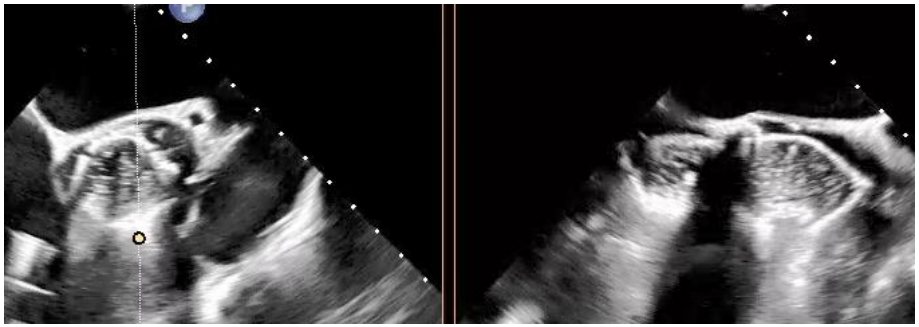
Redo TAVR : Pre



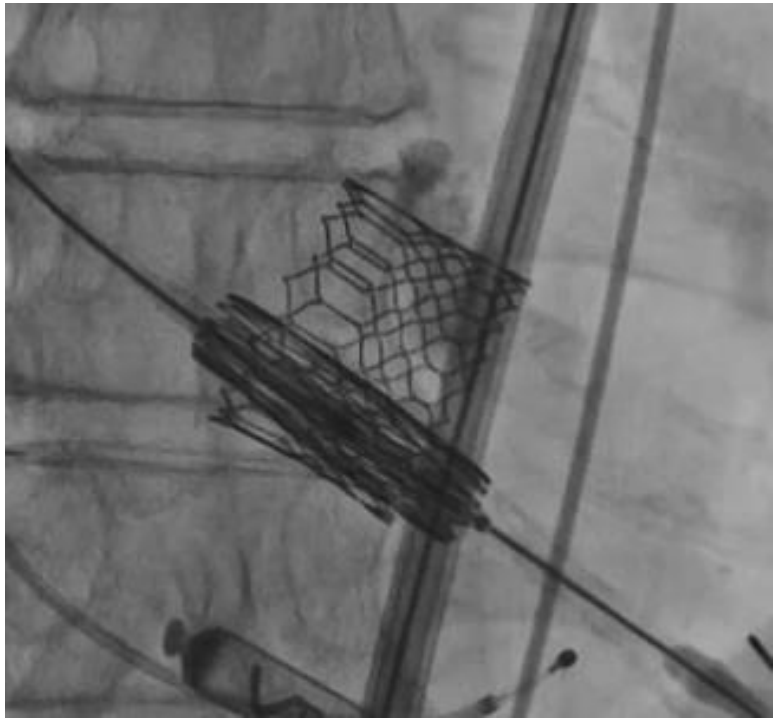




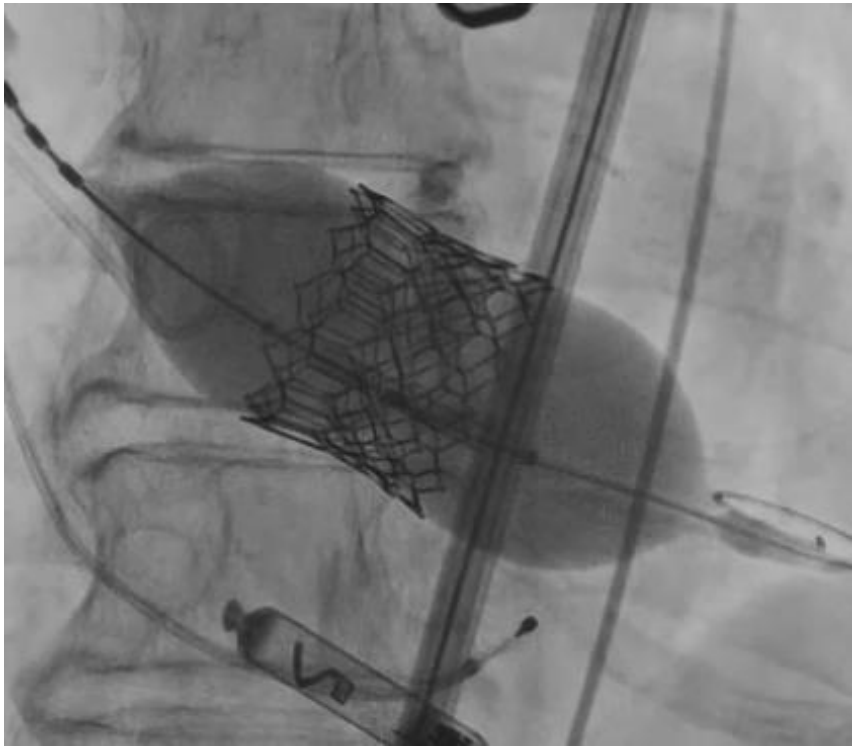
Pre-dilation



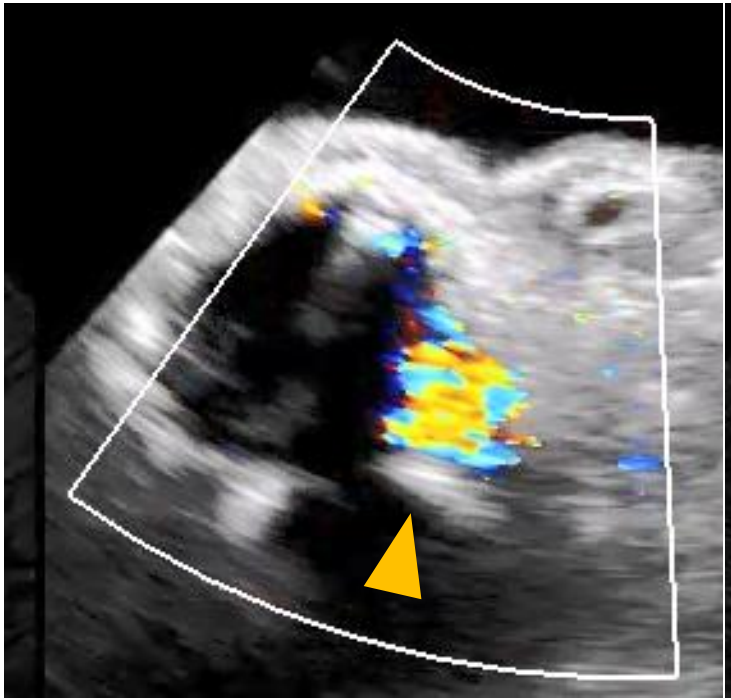
Pre deployment position: 29S3UR in 26S3UR

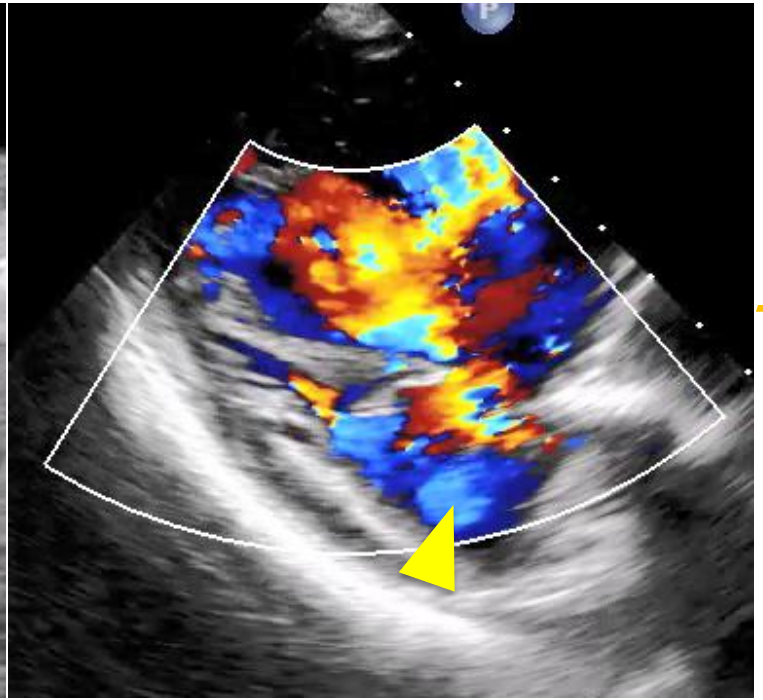


Post-dilation: Nominal volume



Post Post-dilation

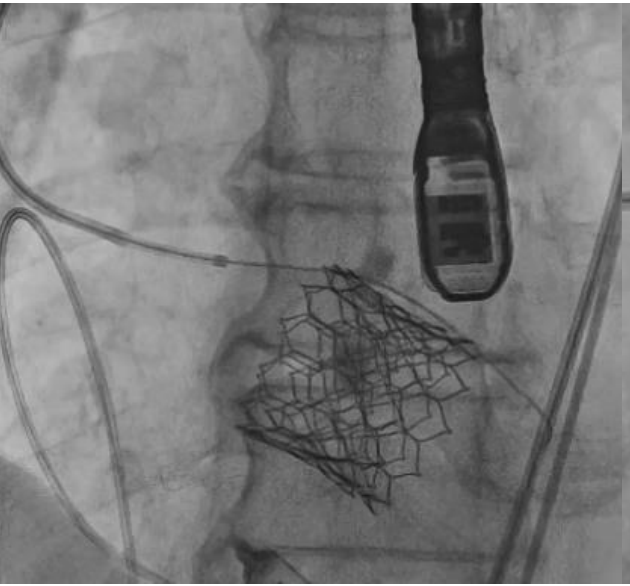




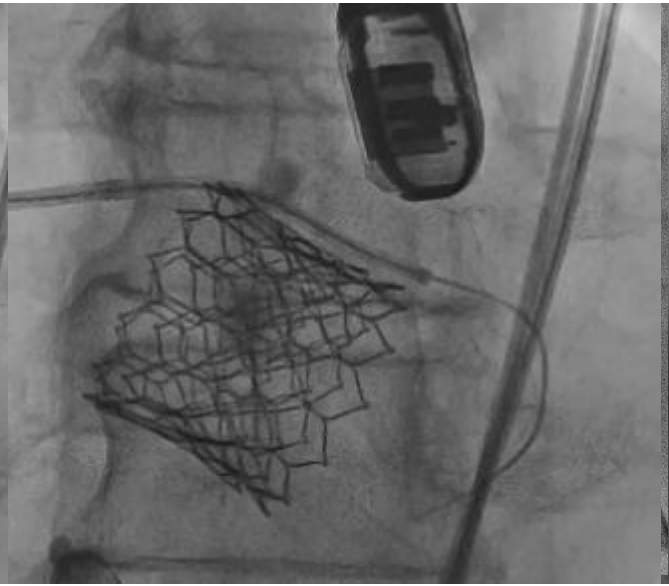
→ *Plug closure*

Crossing PVL

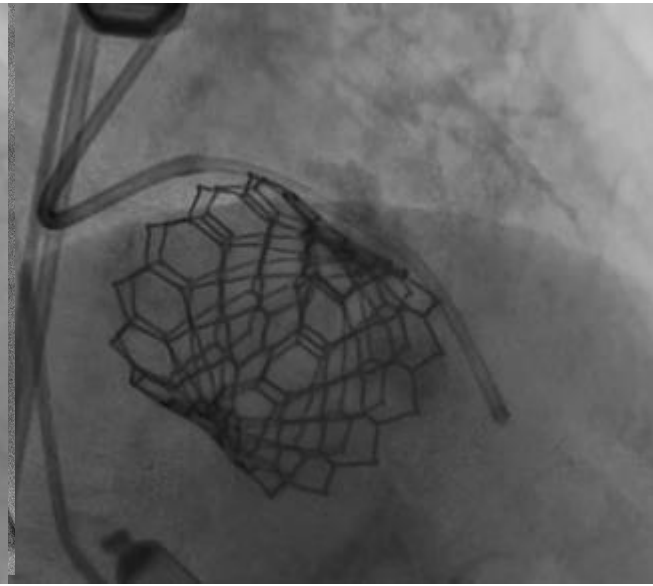
6F AL3 + 5F MP + Glidewire



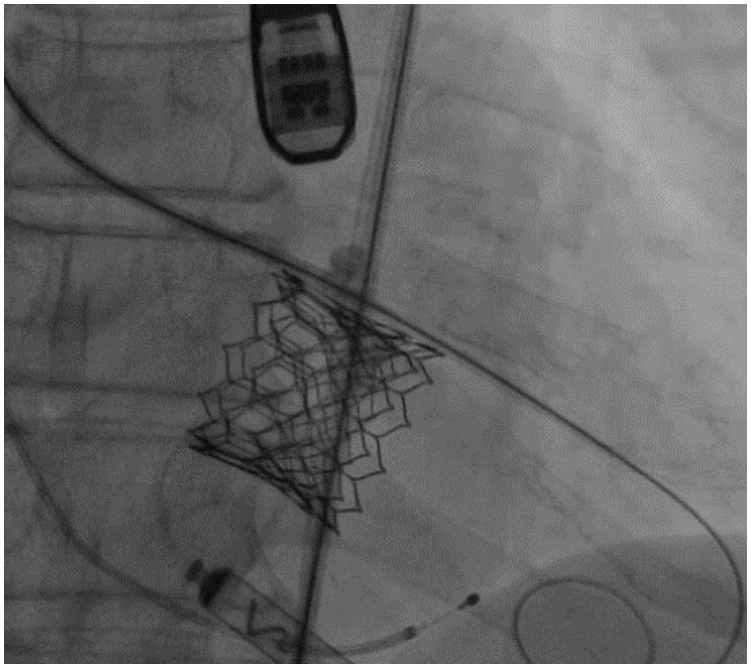
5F MP crossing PVL site



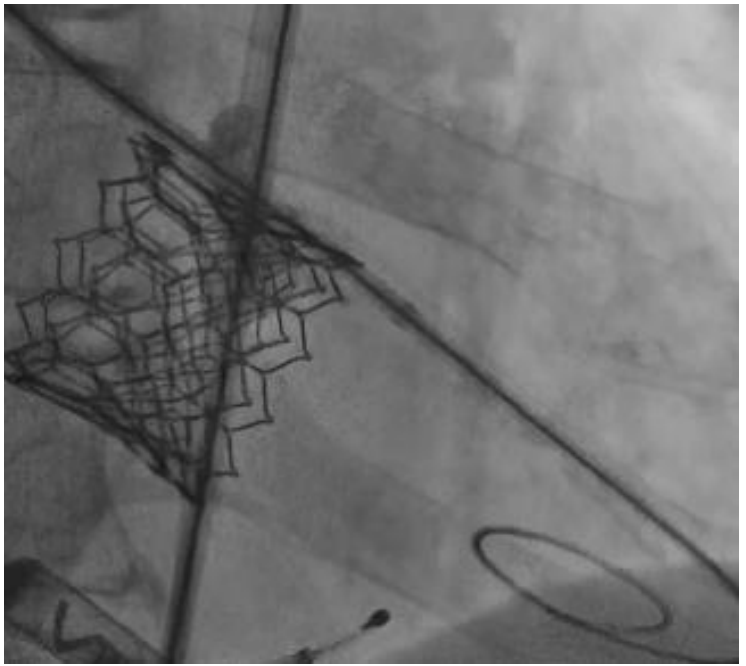
Confirming Outside stent



Safari XS through PVL into LV

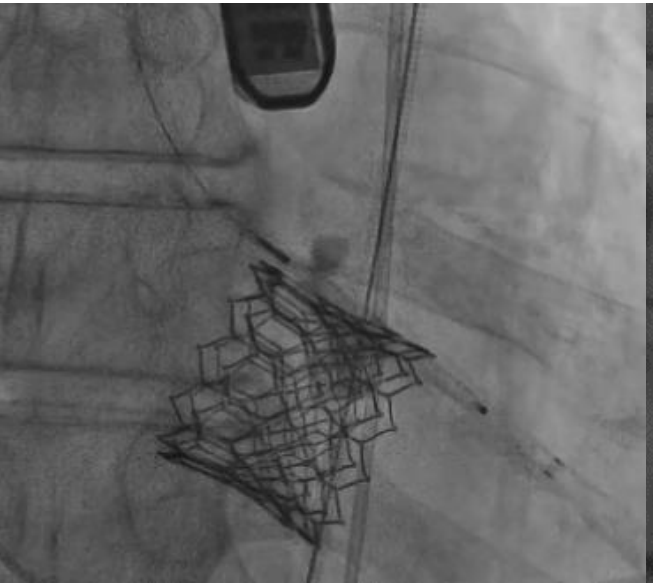


6F R2P Destination crossing PVL

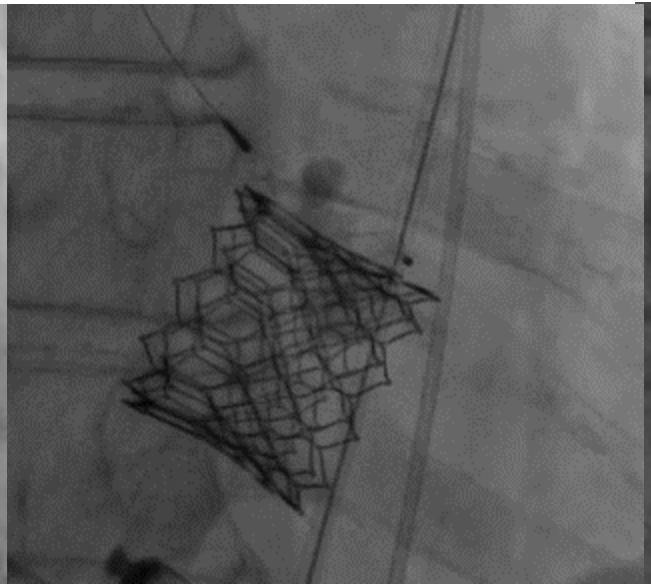


PVL closure with AVPII Plug

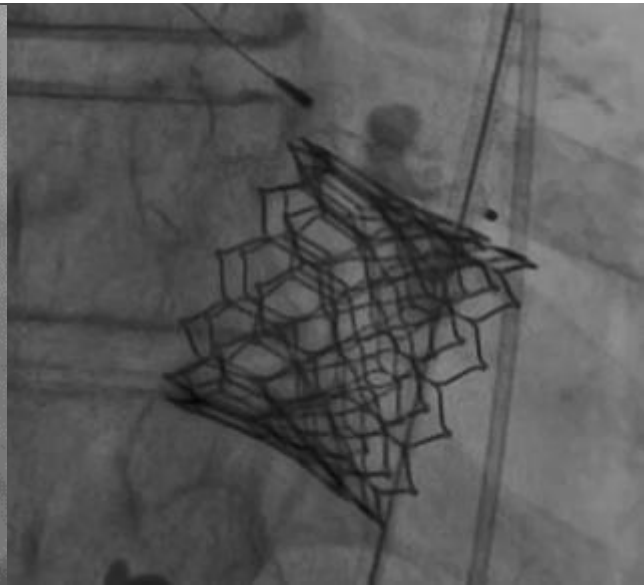
AVPII delivery into LV



Retrieving Ao side to anchor PVL entry

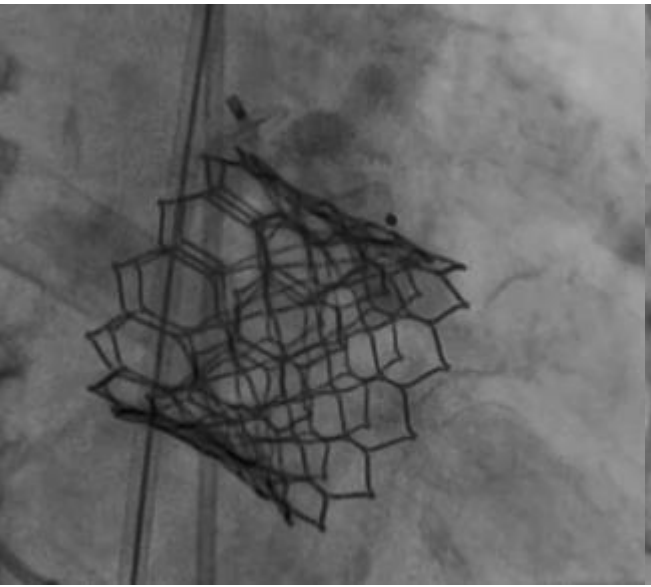


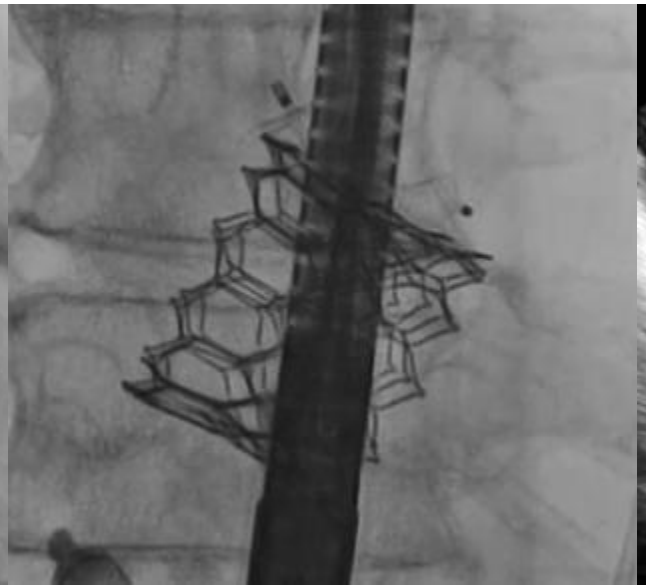
Deployment

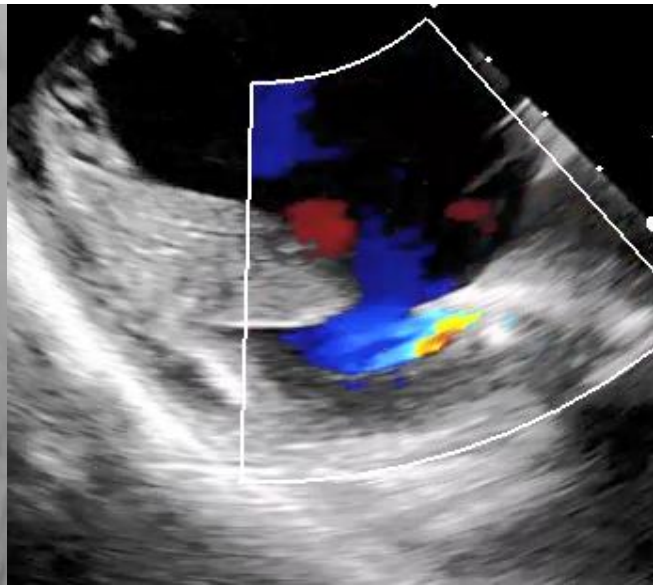


Post AVPII Placement

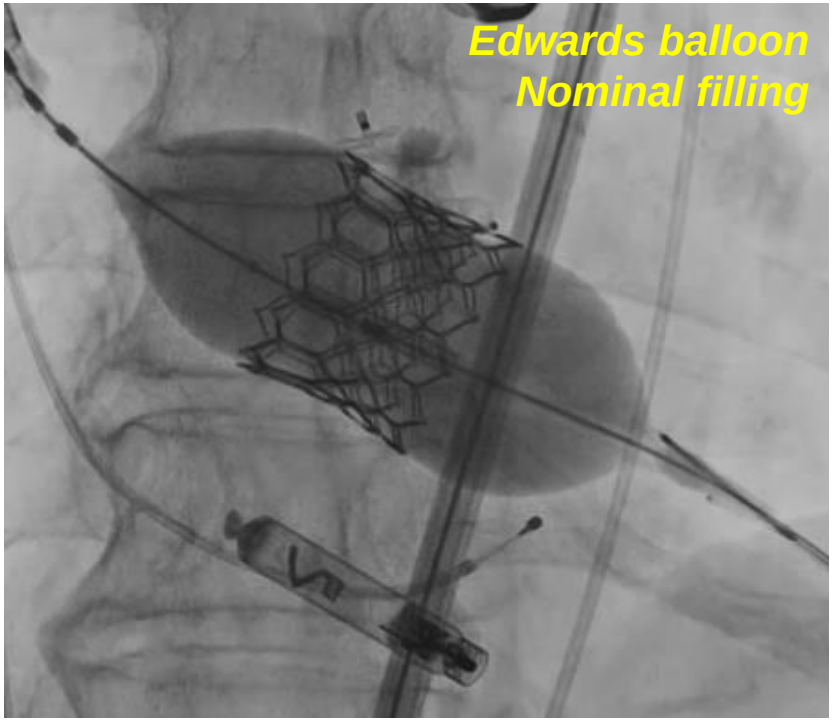
TEE

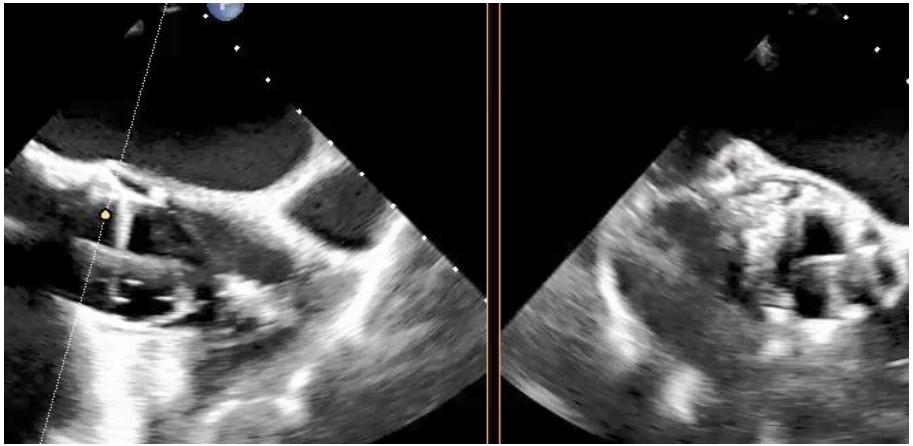




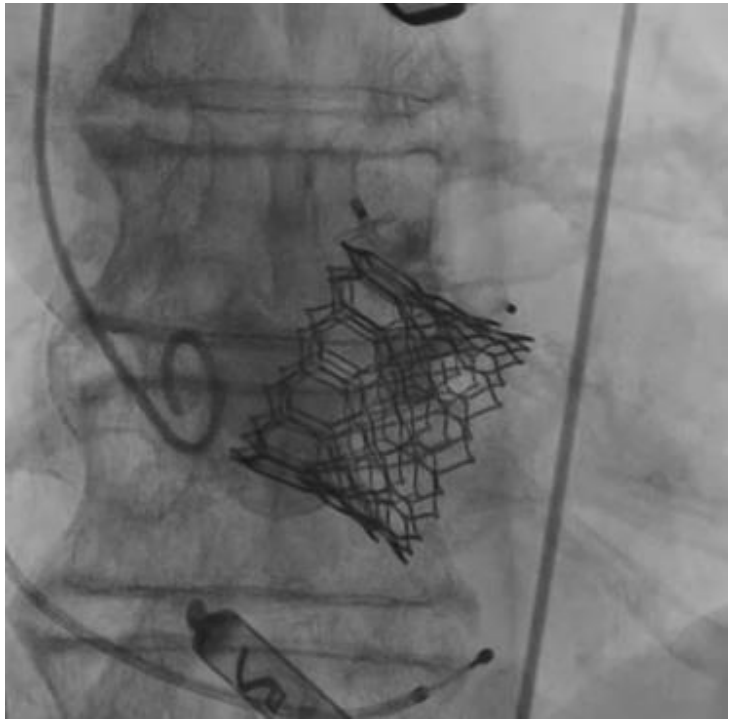


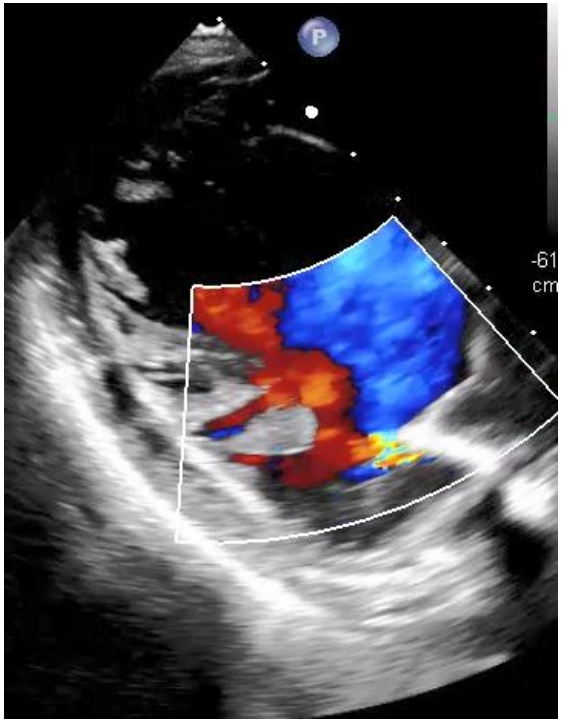
Additional Post-dilation after AVPII Placement



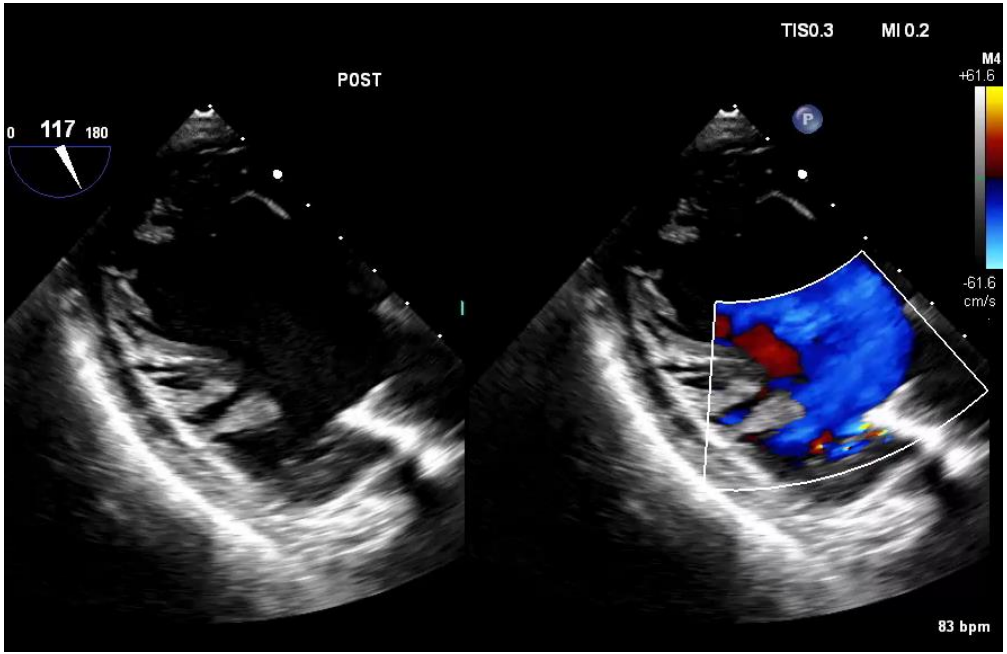


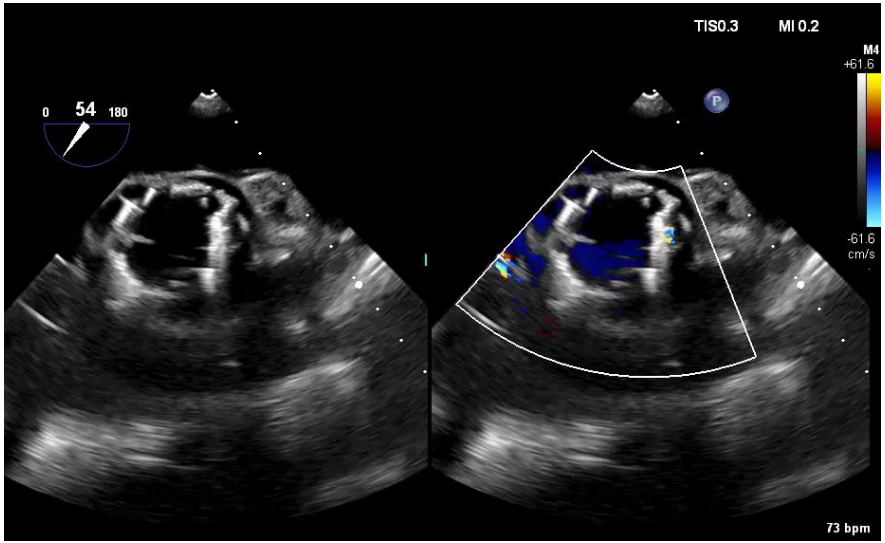
Final AoG: 29S3UR in 26S3UR with AVPII



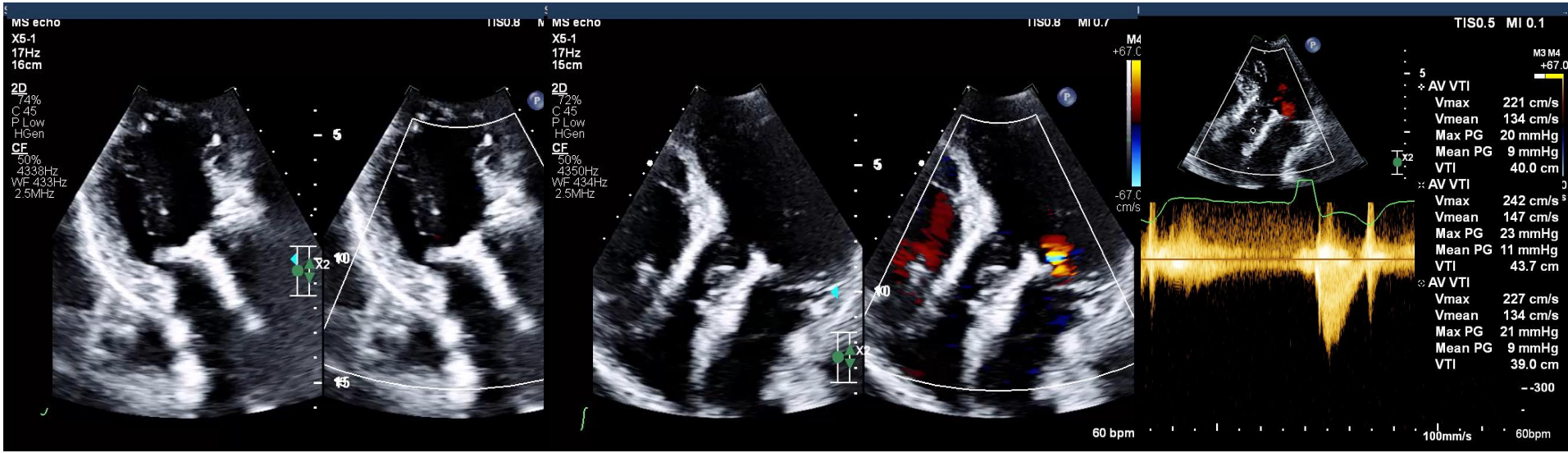


Final TEE : Trivial PVL

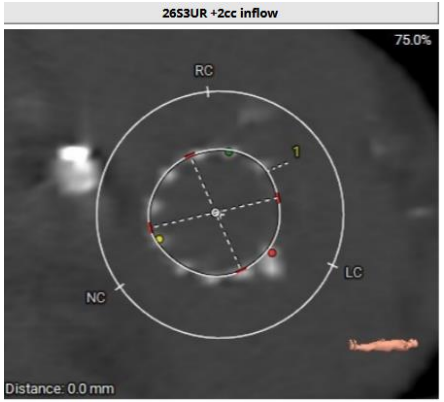




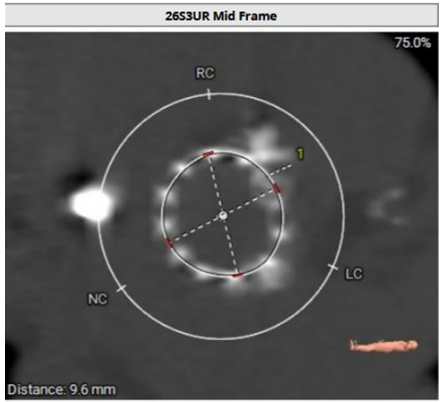
LDH, Haptoglobin, CBC start Normalizing
Redo TAVR POD 1 TTE



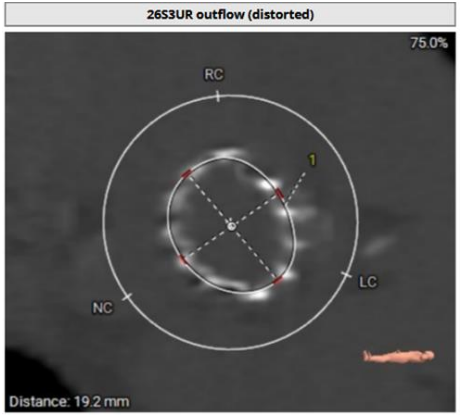
No PVL, Normal LVEF, Mean Gradient 9 mmHg



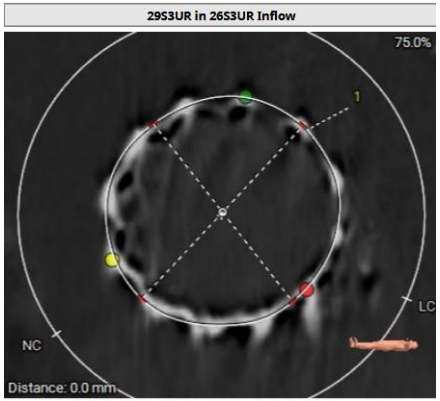
26 mm → 28.4 mm

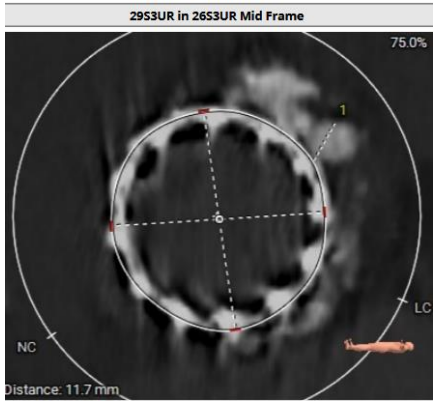


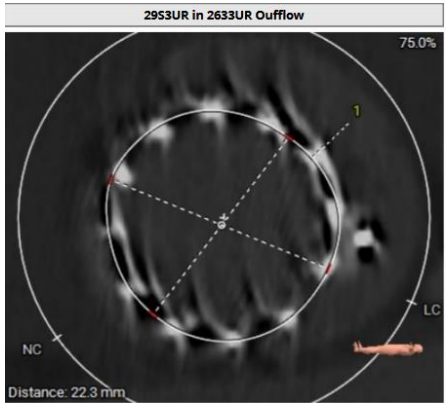
25 mm → 26.7 mm



25.3 mm → 27.9 mm







Post 29 S3UR in 26+2cc S3UR TAVR CT: Frame Expansion

Key Takeaways

- Bicuspid anatomies are associated with higher rates of PVL.
- Hemolysis is not uncommon in setting of high velocity PVL jets.
- Oversizing for redo TAVR in acute valve recoil and deformation may be needed and can be safely done in selected cases (risk benefit assessment for coronary obstruction ΔVTC and root injury).
- Residual paravalvular leak can be tackled safely with transcatheter PVL closure at time of redo TAVR to effectively reduce/eliminate high velocity jets.