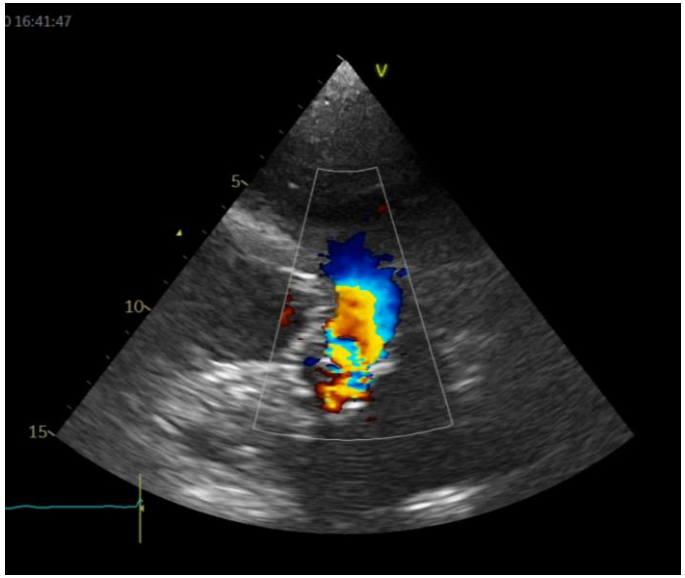
Transcatheter aortic valve-in-valve case with a novel self-expanding device

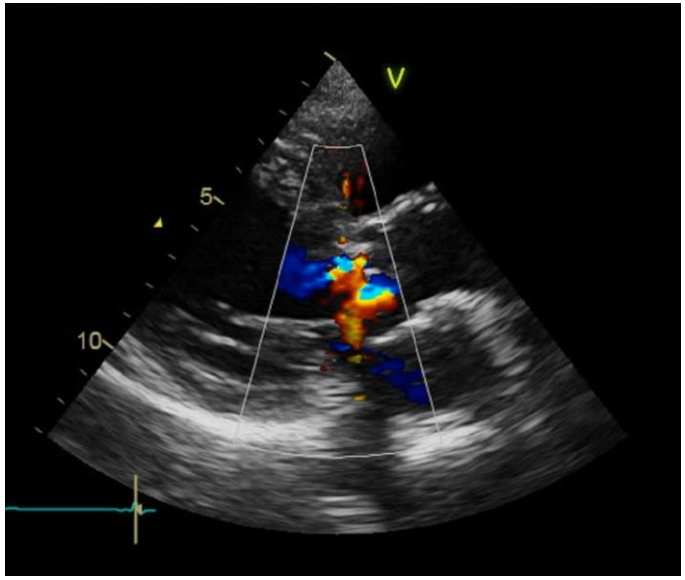
Left coronary protection and stenting using mini-chimney technique

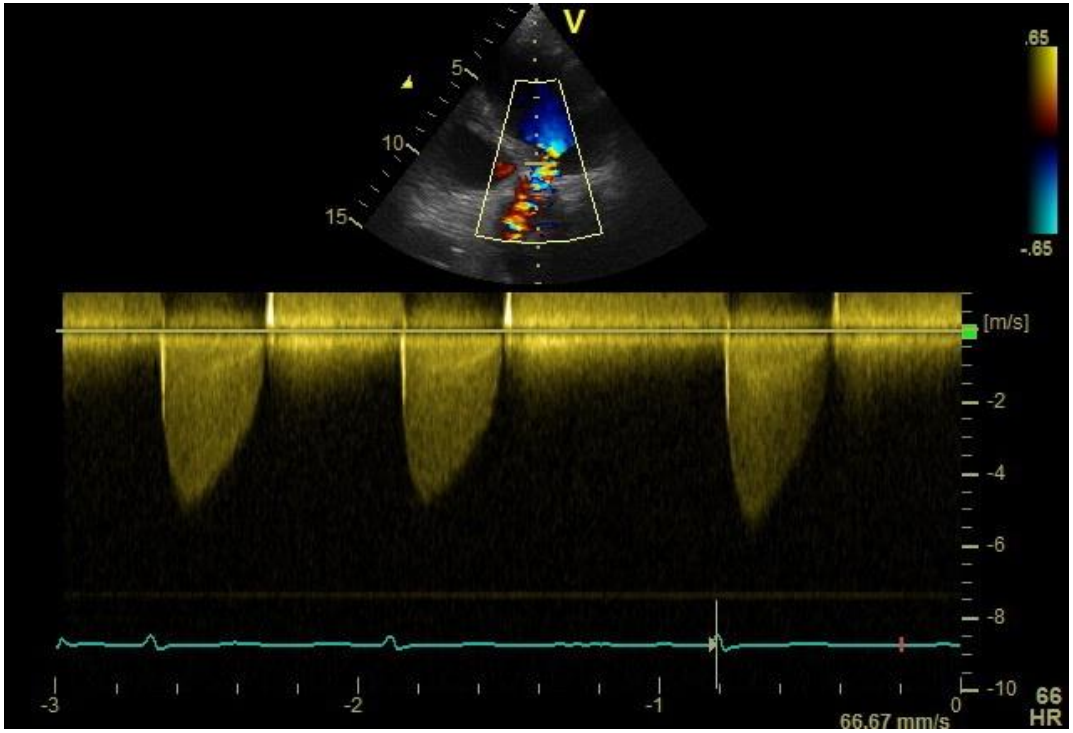
Patient Summary

- 80 years old lady
- CVRF: dyslipidemia, hypertension
- Exertional dyspnea NYHA III since 6 months, asthenia
- 2012: Previous surgical aortic valve and root replacement for severe AS and ascending aorta dilation in native bicuspid anatomy (Mitroflow 21 mm)
- History of breast cancer

TT Echocardiogram

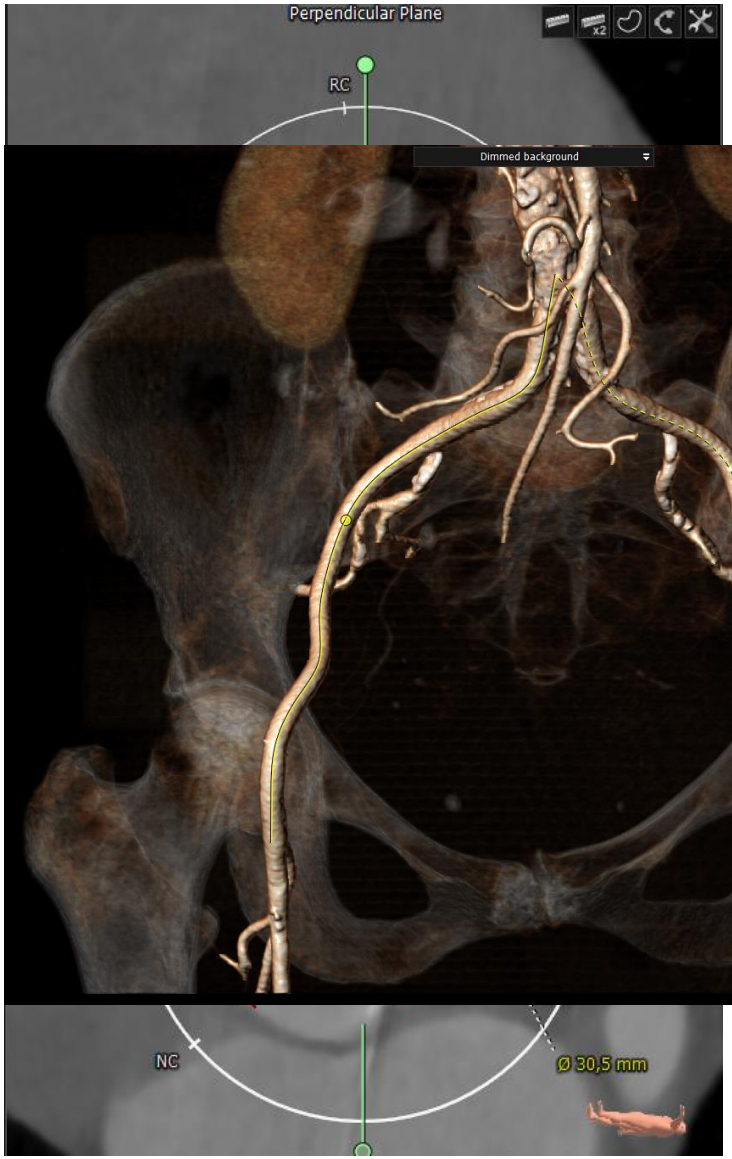






- Bioprosthesis degeneration with severe stenosis and regurgitation (mean PG 70 mmHg)
- LVEF 64%
- Mild MR

Aortic MS Angio-CT



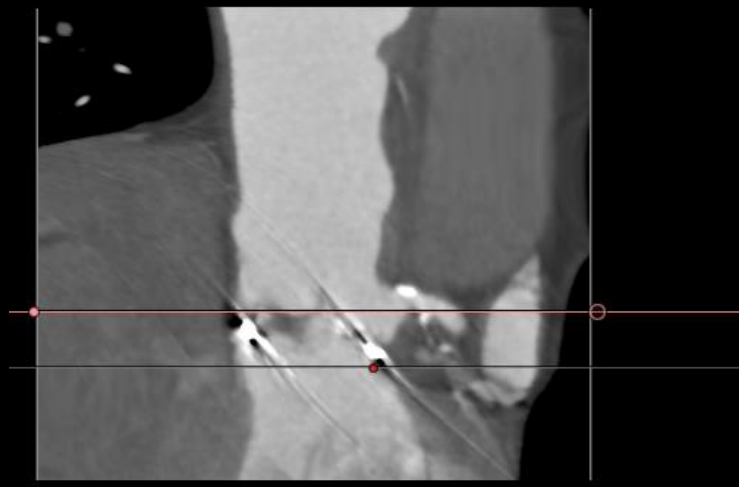
- Surgical bioprosthesis inner diameter of 19 mm

8 mm

neter 29,3 mm

height <10 mm

- Right common femoral artery mean diameter > 5,5 mm
- No calcifications



Device selection

Acurate Neo 2

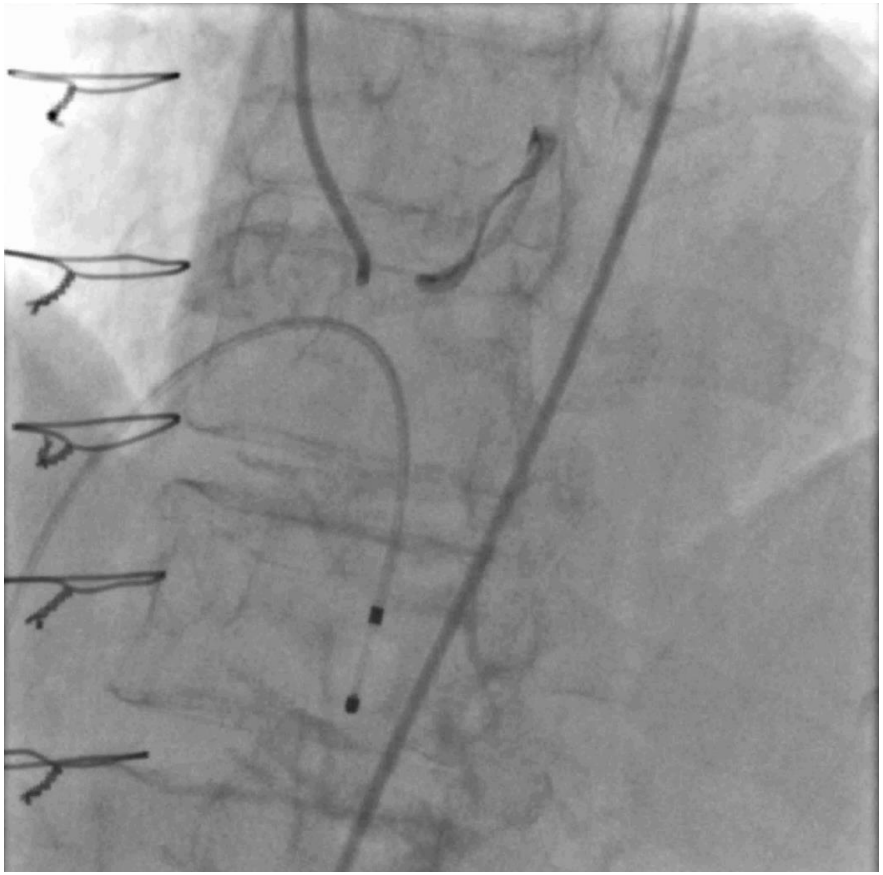
- Self-expanding, supra-annular design
- Top-down deployment
- Extended skirt to reduce PVL
- Open cells allow for easier coronary access after implant

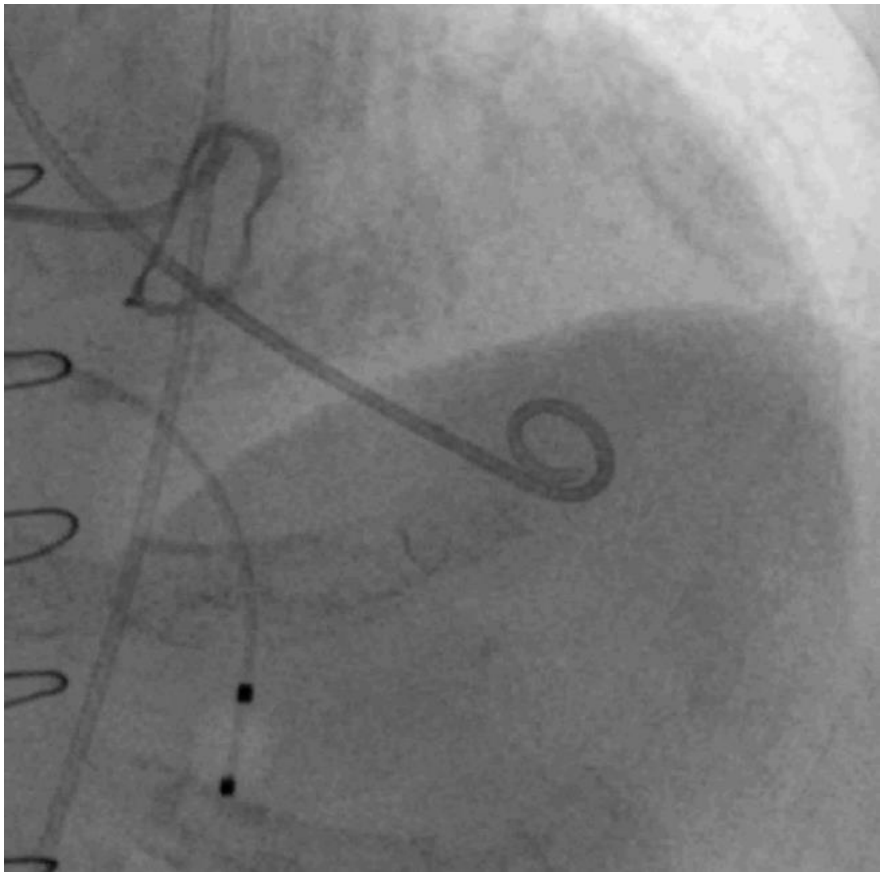
Valve Size	S – 23 mm	M – 25 mm	L – 27 mm
Aortic annulus diameter*	21 mm ≤ annulus ≤ 23 mm	23 mm < annulus ≤ 25 mm	25 mm < annulus ≤ 27 mm
Aortic annulus perimeter	66 mm ≤ annulus ≤ 72 mm	72 mm < annulus ≤ 79 mm	79 mm < annulus ≤ 85 mm

TF – TAVI + Coronary protection

- Right femoral artery 14fr sheath for device implantation
- Left femoral vein 7fr sheath for temporary pacing
- Left radial artery 6fr sheath for JL 4 guiding catheter (workhorse wire in distal LAD during TAVI to protect the LM)
- No need for diagnostic pigtail in NC cusp
- Safari XS pre-shaped guidewire
- Predilatation with 20 mm SC balloon
- Acurate Neo 2 S implant
- Possible valve postdilation\LM stent implantation

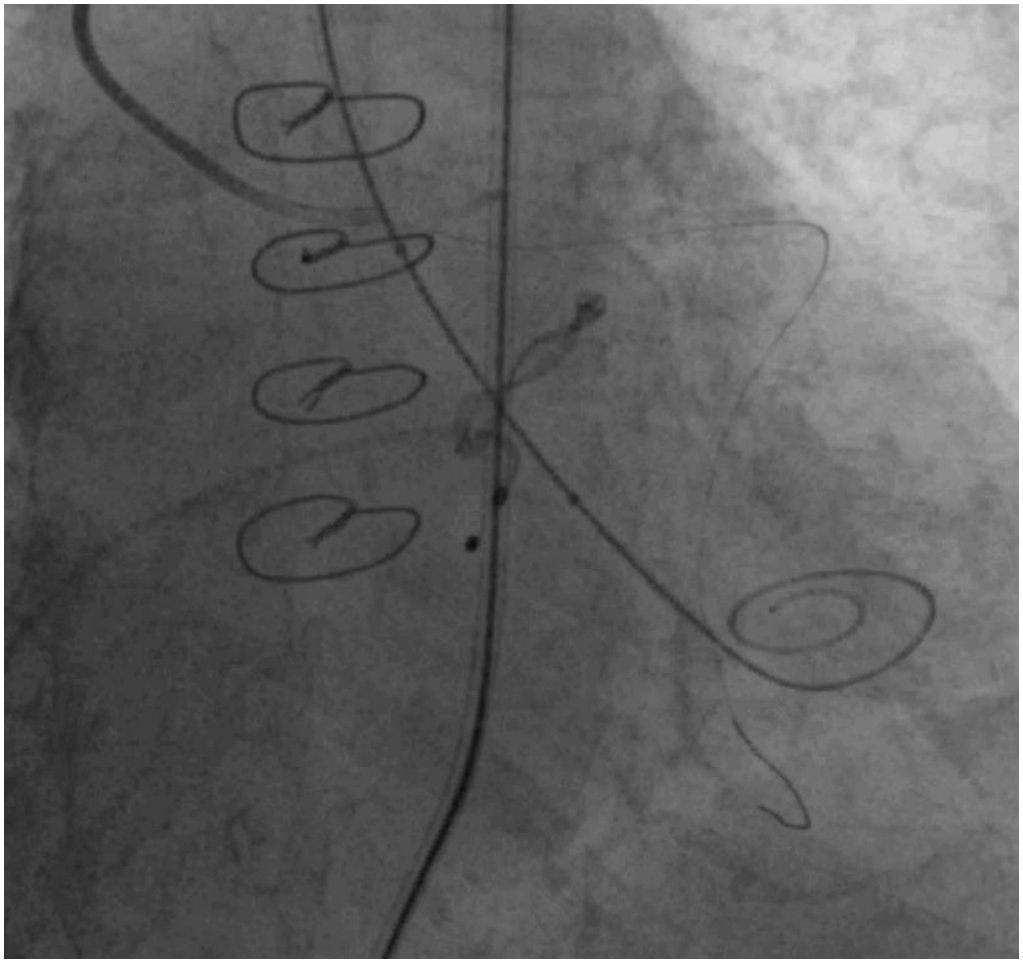
Coronary Angiography





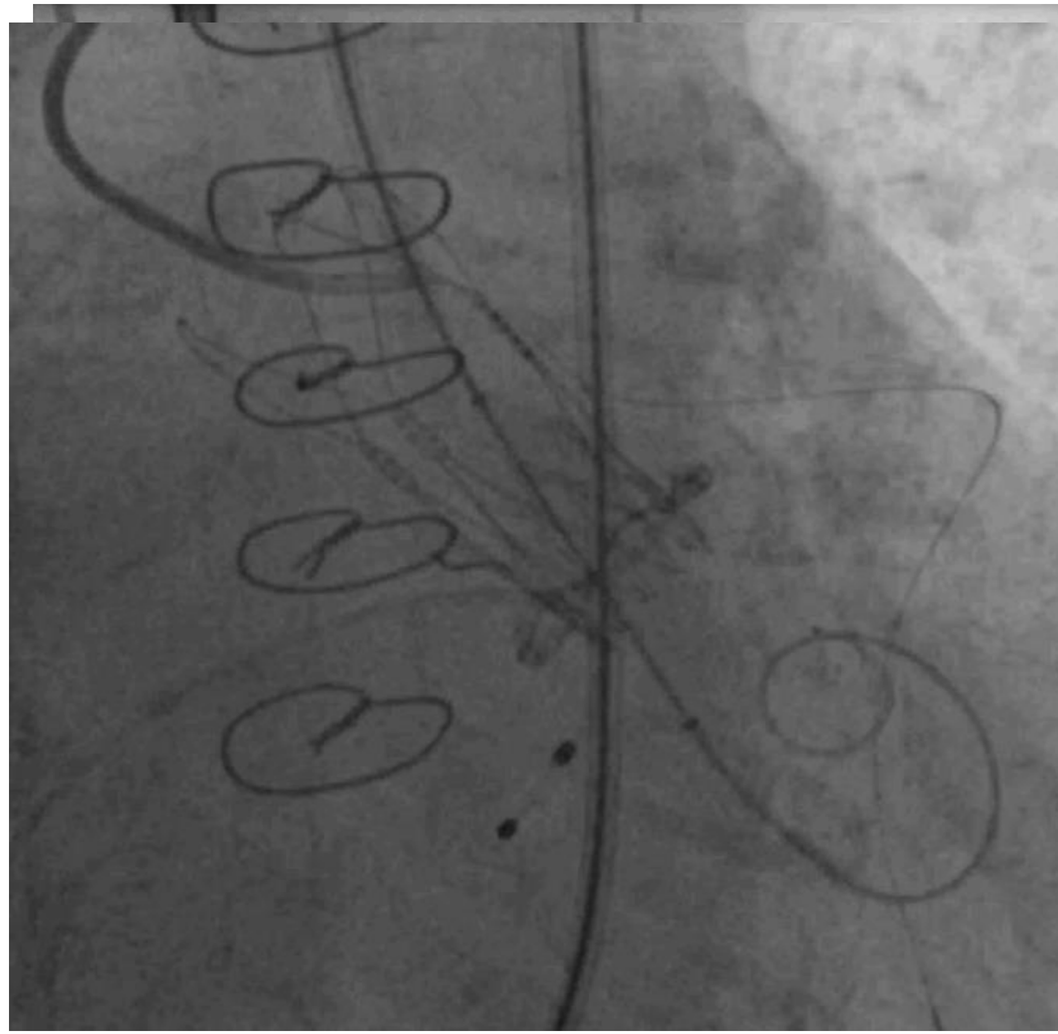
Valve Predilation

- Predilation with SC 20 mm balloon
- Rapid pacing at 180 bpm



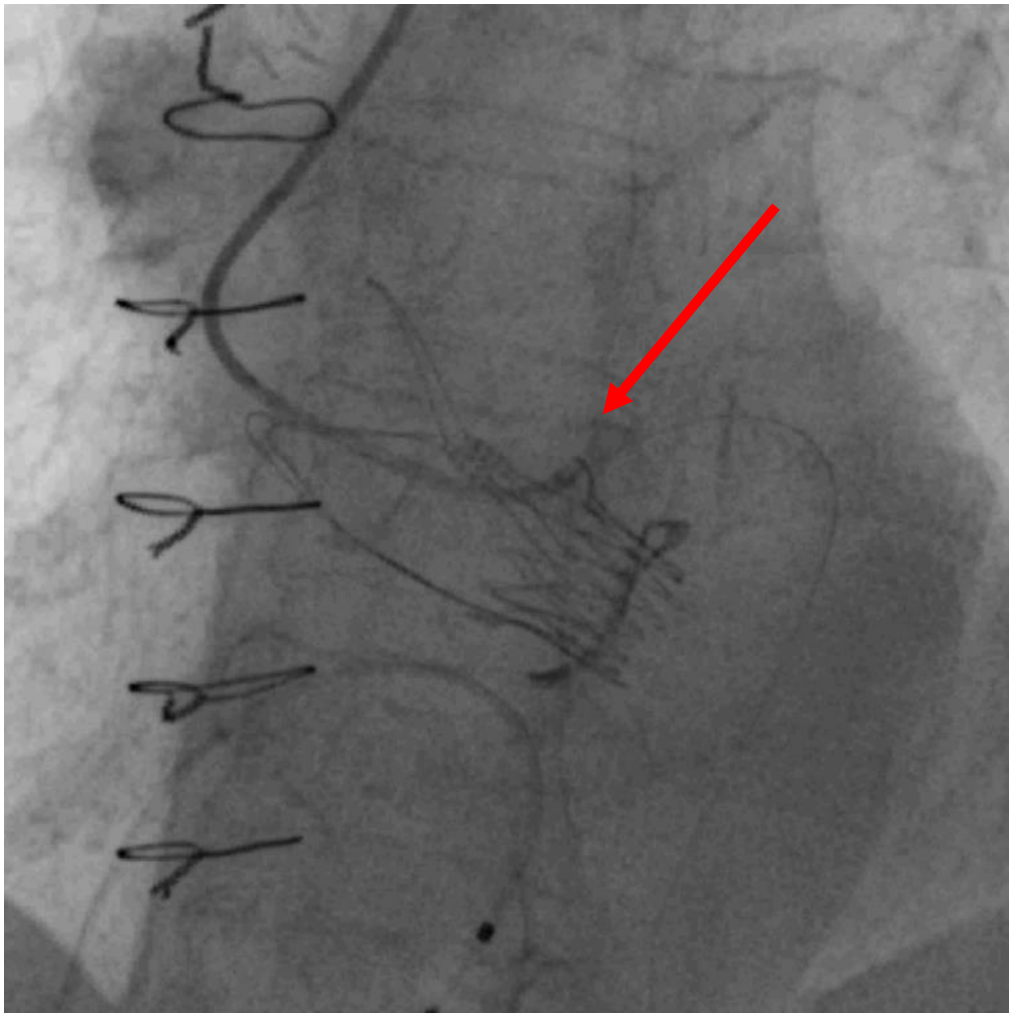
Implant

- Valve implant with SC 20 mm balloon
- Postdilatation during fast pacing (120 bpm)
- Rapid pacing at 180 bpm



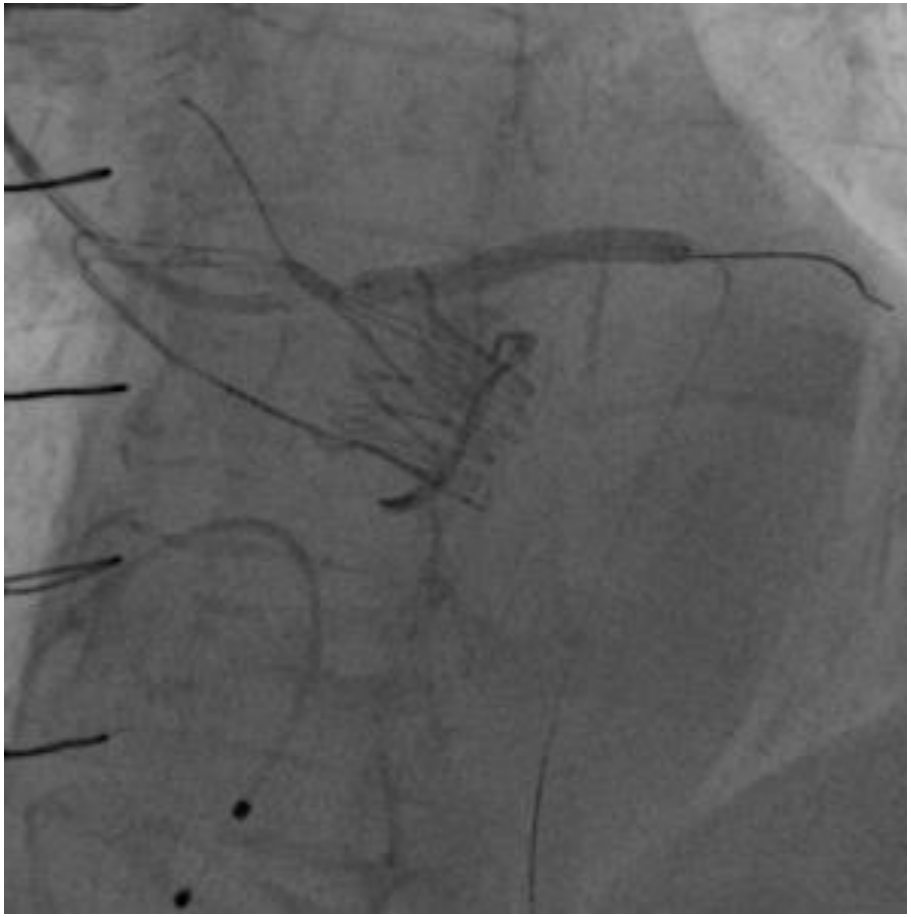
LCA angio control

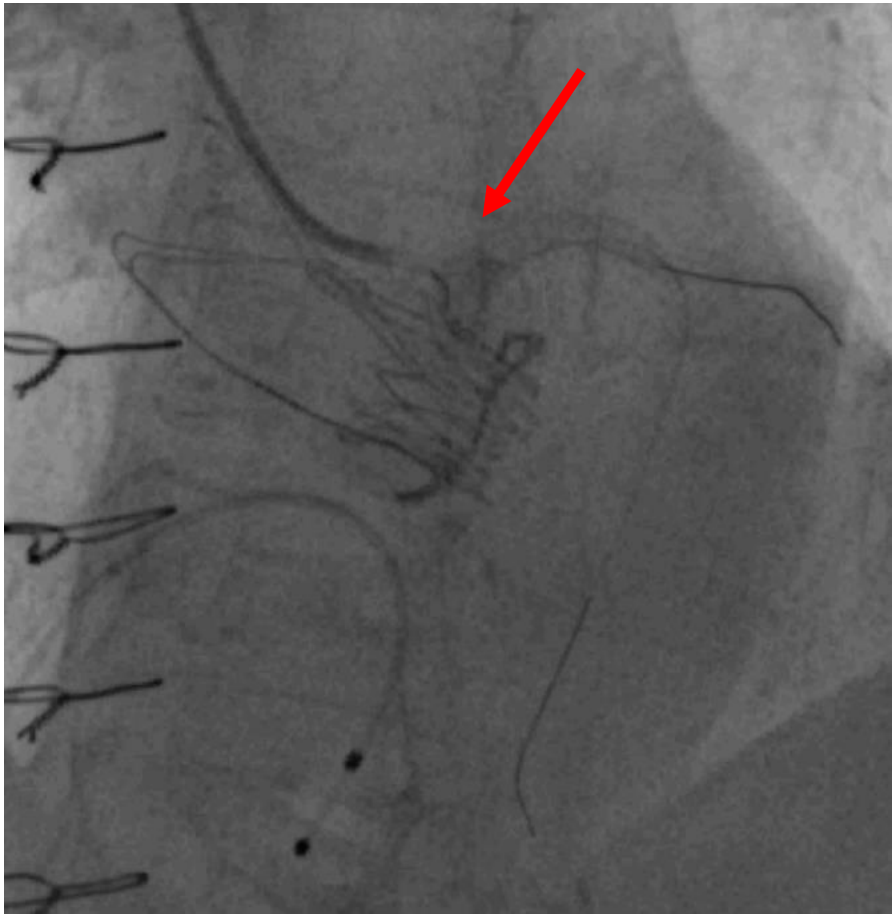
- LCA angio control: filling defect in front of LM ostium due to the surgical bioprosthesis' left leaflet being pushed into left sinus



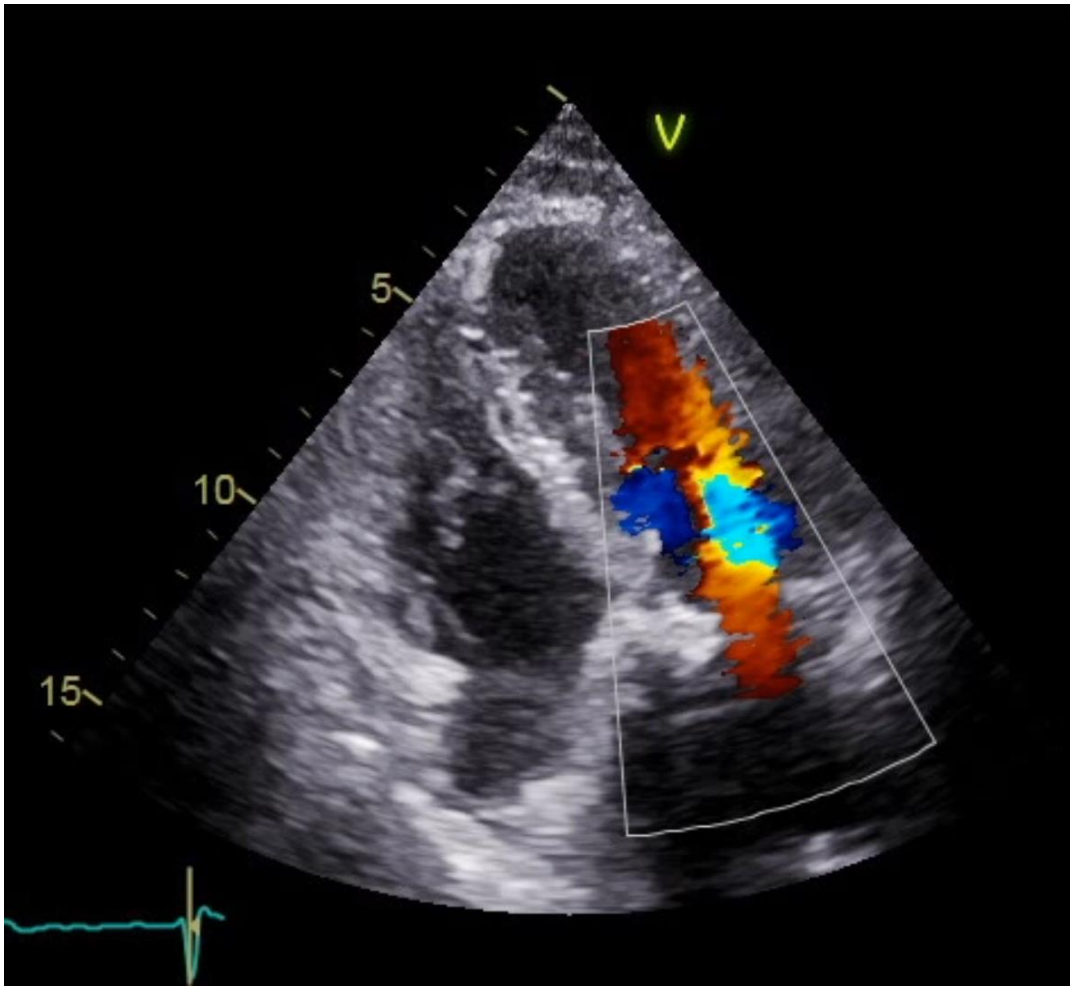
LCA Mini-Chimney

- Megatron 3,5 x 38 mm DES protruding in aorta to displace Mitroflow's leaflet from LM ostium

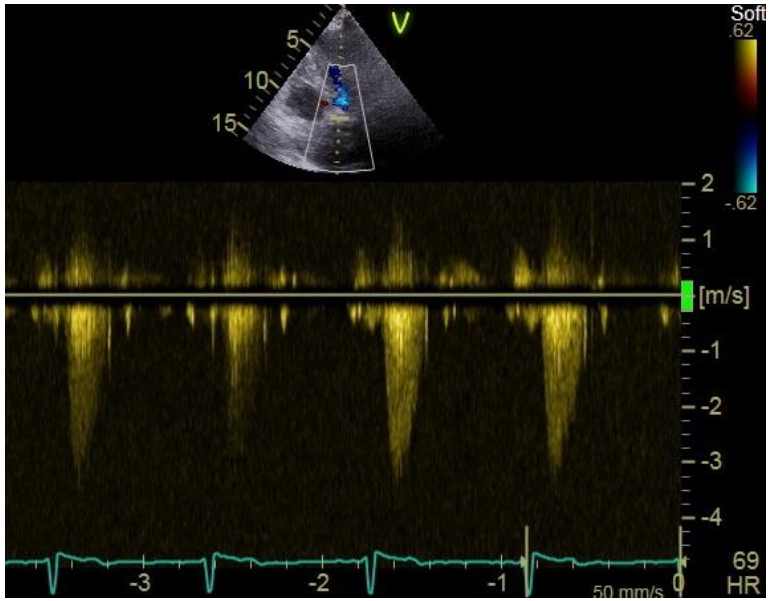




TT Echo post-TAVI



- Postprocedural TT Echo: no PVL
- Mean aortic gradient 24 mmHg



Take Home Messages

- ViV TAVI is feasible with the new iteration of Acurate NEO bioprosthesis
- Supra-annular design improves postprocedural mean gradient and valve area
- Coronary protection should be done in ViV TAVI in the case of low LM ostium (<10 mm)
- Studies are needed to understand the oucomes of ViV TAVI, in particular way in case of chimney stenting