Impella supported complex PCI and TAVI on the same sitting

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Conflict of interest: None

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- A 88 year-old gentleman was referred to our institution with severe low flow- low gradient aortic stenosis and significant coronary artery disease for a combined complex PCI and TAVI procedure .

- TTE: severe aortic stenosis AVA= 0.95cm², LVEF=30%, SV= 43ml, peak pressure gradient=28mmHg, mean pg= 15mmHg, DVI = 0.2

- Computed tomography: Heavily calcified aortic valve leaflets with a calcium score of 4489.

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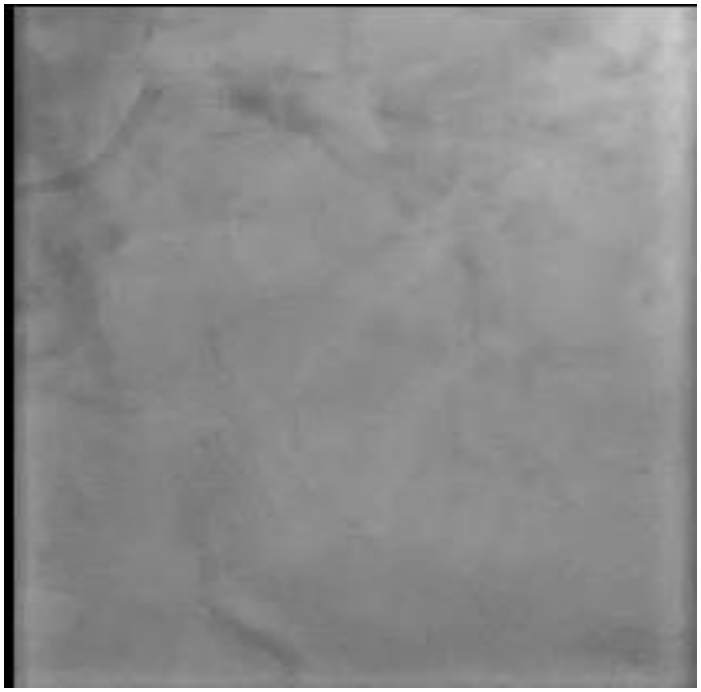
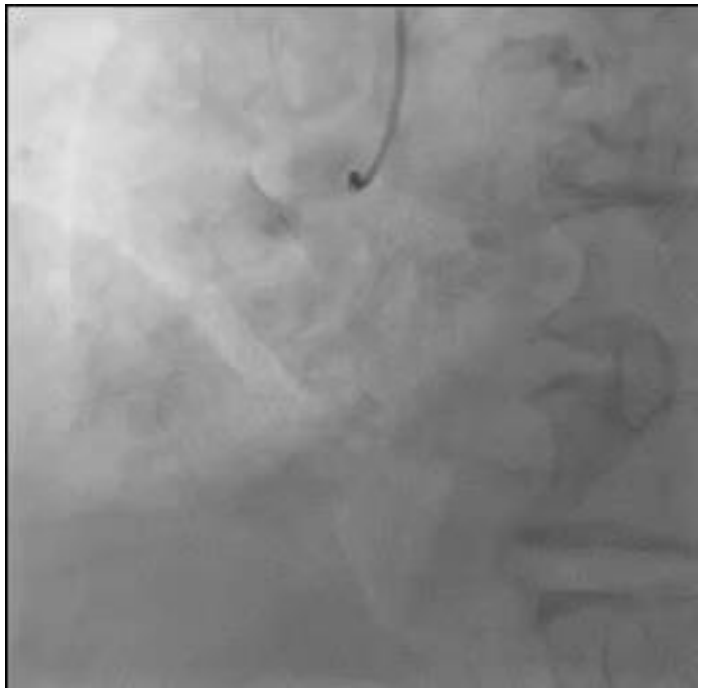
Coronary Angiogram





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- Multidisciplinary discussion led to the decision to perform high risk LMS PCI using the Impella CP system (Abiomed, Danvers, MA, USA) followed by a transfemoral transcatheter aortic valve implantation using the SAPIEN 3 29mm valve (Edwards Lifesciences)

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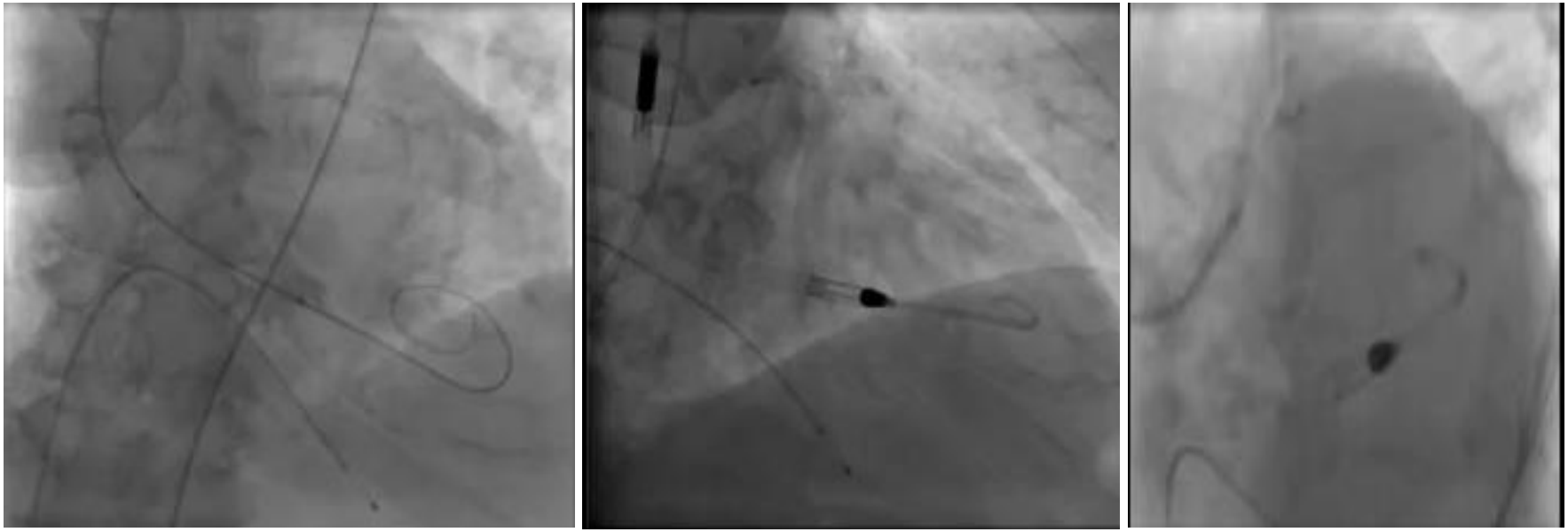
- The aortic valve was crossed via LFA and a BAV was performed with a 20x50mm VACS II balloon x2 at 200bpm

- Impella CP was railroaded to the ventricle.



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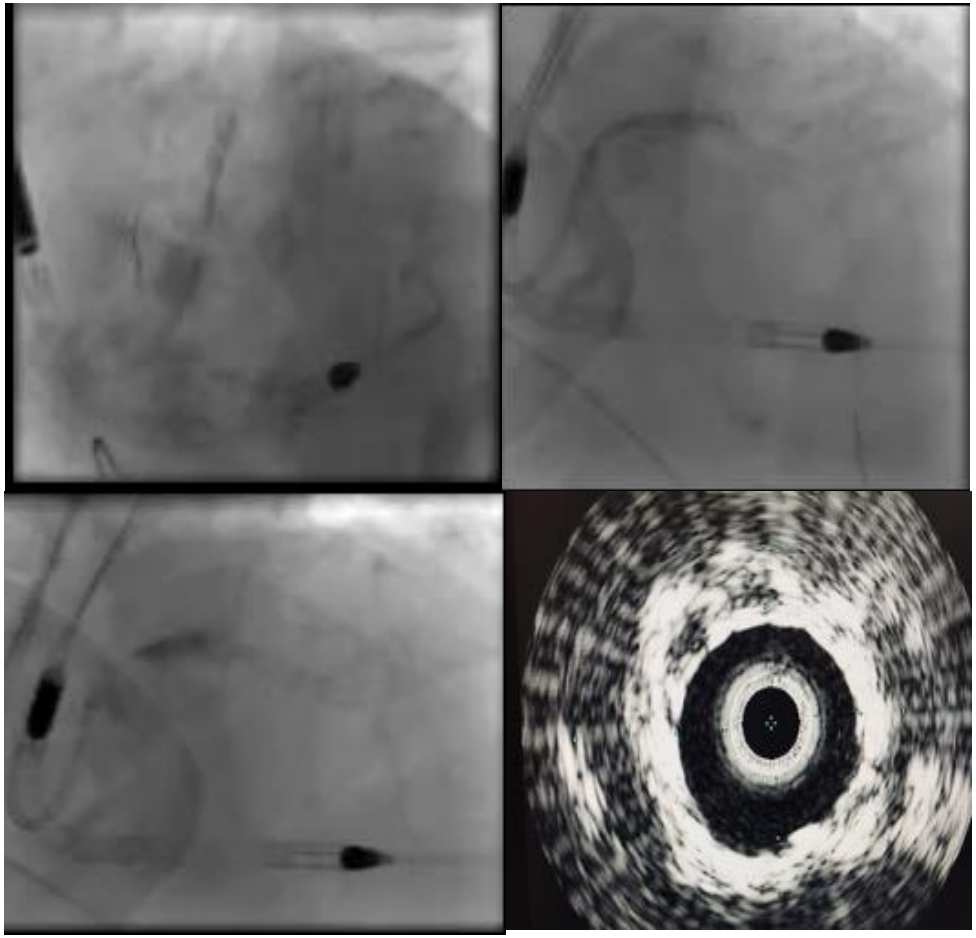

- The LMS lesion was tackled progressively with semi-compliant and non-compliant balloons and ultimately shockwave intravascular lithotripsy (IVL) 3.5x12 80 pulses.
- A 4.0x12 DES was implanted at 16atm and post-dilated with a 4.0 NC
- IVUS showed a well apposed and expanded stent covering the LMS ostium.

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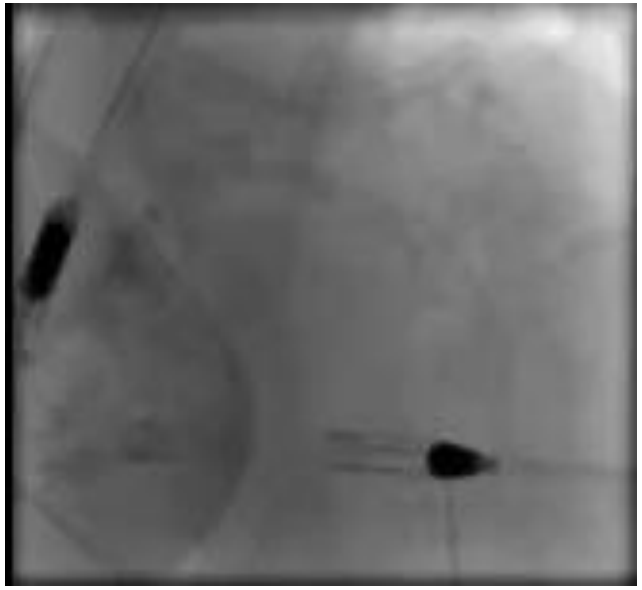
POT in LMS to 24atm with 4.0 NC with good final angiographic result.



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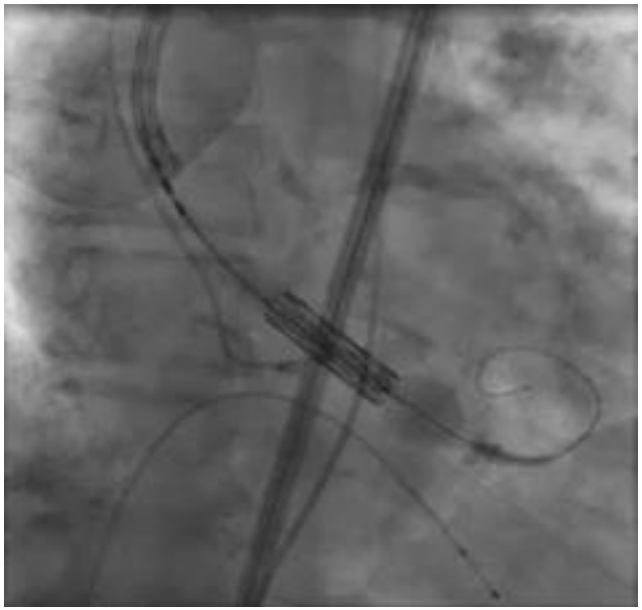
- Edwards SAPIEN 3 29mm valve was successfully implanted at optimal height at 200bpm

- The LFA was sealed with a 18F MANTA device without any complications.



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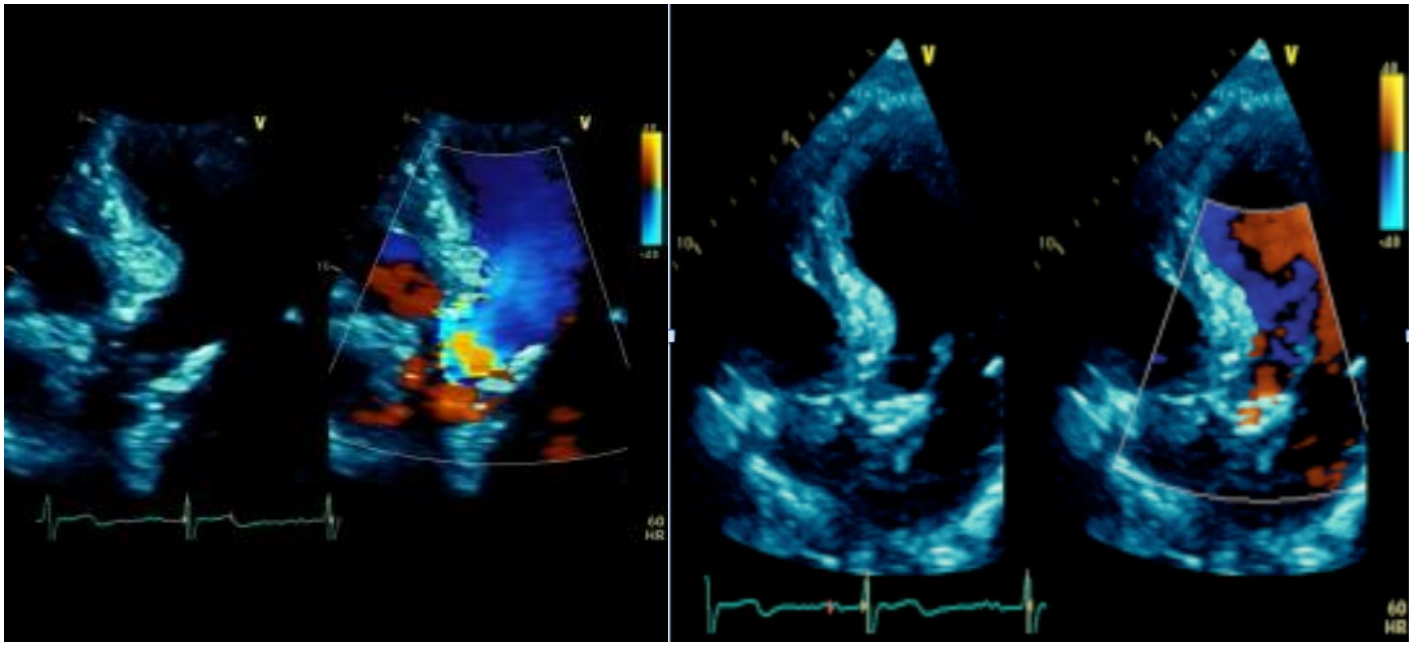
- There was mild PVL after deployment on final aortogram and echocardiogram.
- Echo showed a well seated valve with only trivial ant / posterior leak. The mean gradient was only 9.46 mmHg.
- The patient went home after a 2-day in-hospital stay and is doing well 3-months post-operatively.



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- This case highlights the importance of LV support in a last remaining vessel with a critical calcified stenosis in a patient with severe aortic stenosis.

- Impella CP can be used as hemodynamic support in patients with severe AS following percutaneous BAV and may help operators optimise their PCI outcomes with judicious use of decalcification strategies and intravascular imaging

- Simultaneous TAVI and PCI is feasible avoiding the need for large bore access in two separate procedures.

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Thank you for your attention