Transfemoral TAVI and mitral clipping for prevention of a SAM-phenomenon

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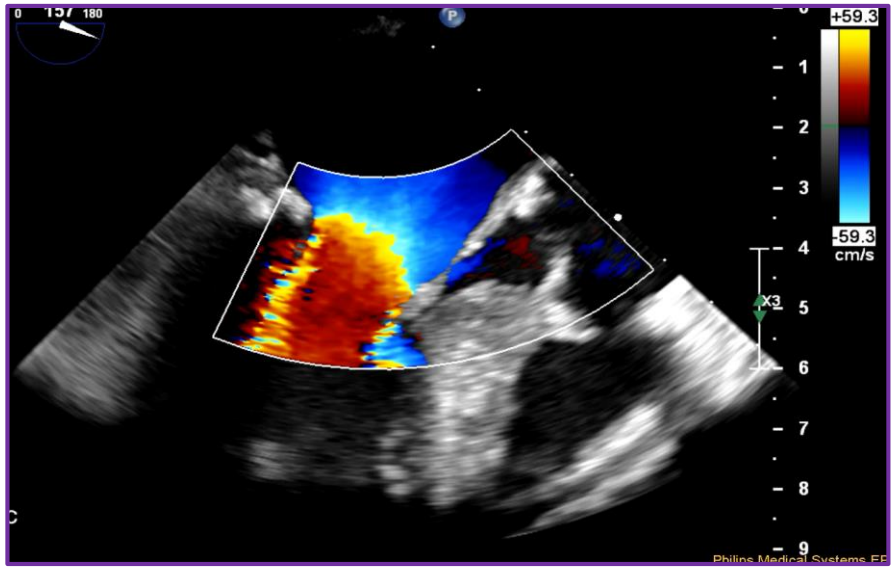
Patient history

- 81 years; female
- Surgical correction of pertrochanteric femur FX after fall with intraoperative hemodynamic instability & postoperative cardiac decompensation
- Cryptogenic liver cirrhosis (Child B), right carotid stenosis (60-70%), autoimmune hypothyreosis
- Coronary angiogram: No relevant stenosis

Pre-Implant TEE



TTE

AV MPG 49 mmHg, Vmax 4.4 m/s, Agatston 1378,

LVOT Vmax 3.4 m/s, LVOT PPG 46 mmHg

Mitral regurgitation II-III, heavily calcified annulus

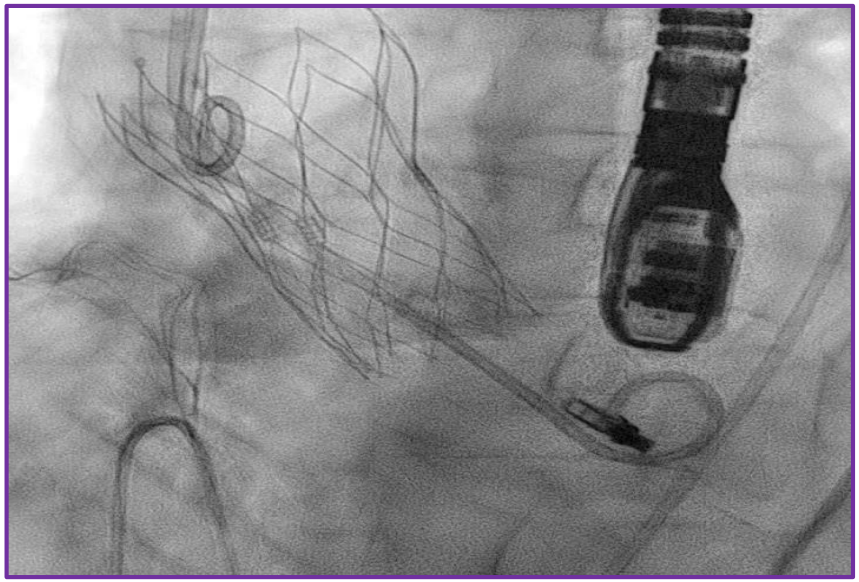
SAM Risk Parameters

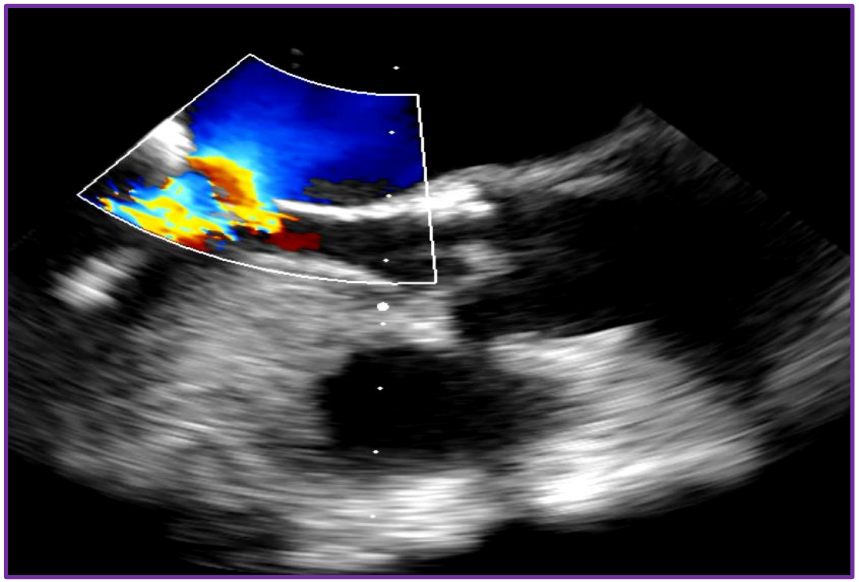
Coaptation-Septum	10 mm (< 25 mm)
Basal IVS	17 mm (> 15 mm)
Aorto-mitral angle	100.6 ° (< 120°)
LVEDD	32 mm (< 45 mm)

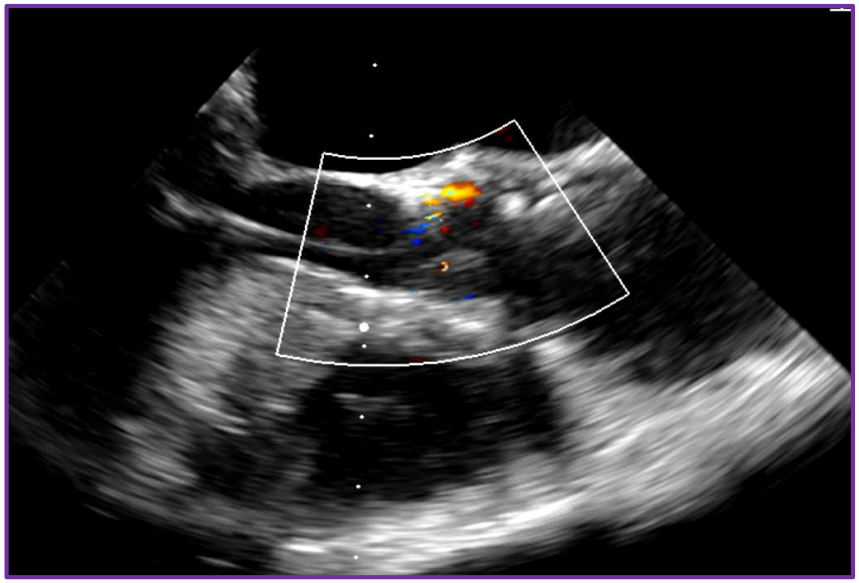
Procedural Data

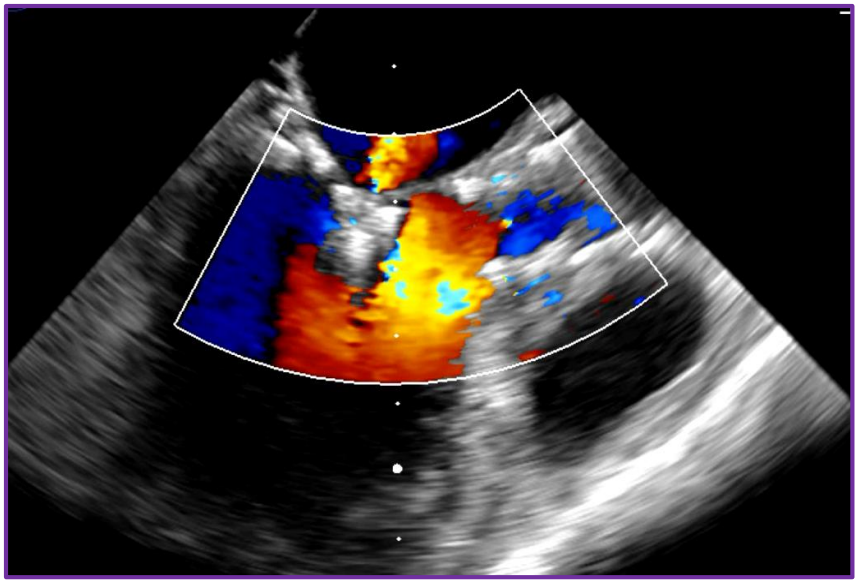
- Femoral & radial access
- Placement of neuroprotection device (filter in brachiocephalic trunk and left carotid)
- Placement of 1 Clip (NTR) in A2-P2 position
- Implantation of 23 mm self-expandable TAVI
- Pre (18mm) and Post-dilatation (20 mm)
- **Final Result: invasive transaortic MPG 8 mmHg, mild PVL, new LBBB**

Postinterventional Echo & Fluoroscopy









Postoperative course 1

- Initially uneventful postoperative course & transfer to peripheral clinic on 1st postop. Day (POD)
- Transfer from cardiology to trauma surgery on POD 4 in good condition for continuous care

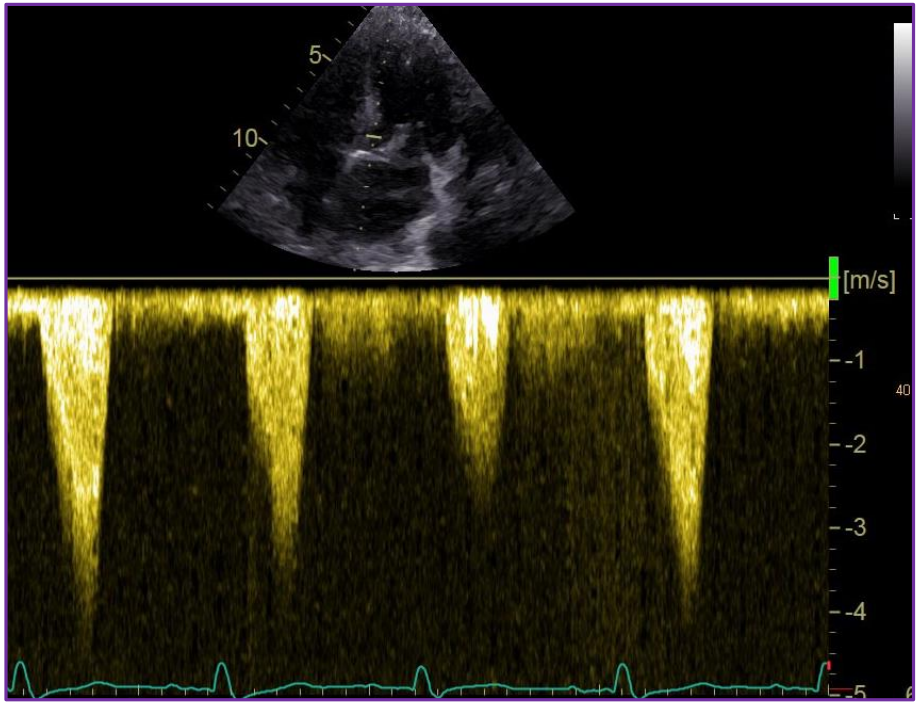
HOWEVER

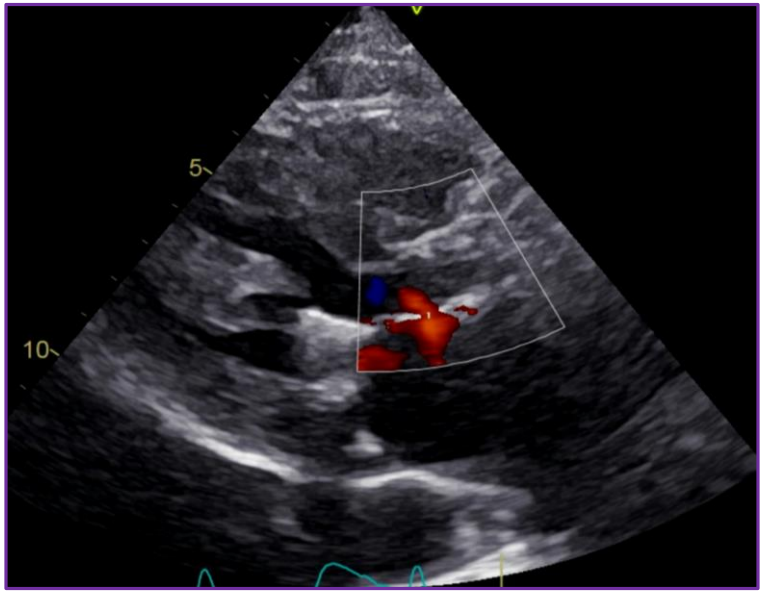
- Worsening of patients condition after POD 4, progressive pleural effusions and cardiac decompensation with hypotension
- Death on day POD 14 in hospital (trauma surgery ward)

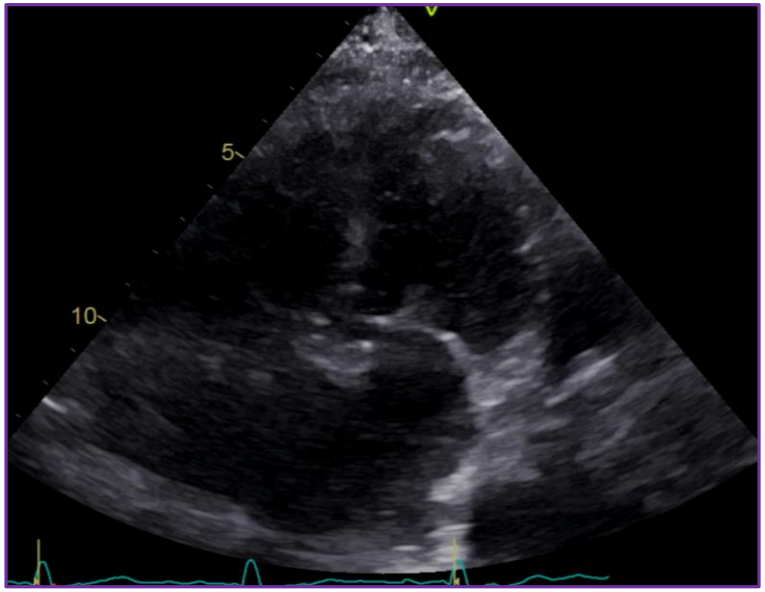
Postoperative course 2

Postoperative TTE on POD 4

- Aortic: TAVI with good visual function
- LVOT: Vmax 3.5 m/s, PPG 49 mmHg
- Mitral: MR I, MPG 7.8 mmHg
- Trikuspid:TI I, sysPAP 41 mmHg







What happened?

- Sudden re-occurrence of LVOT obstruction ?

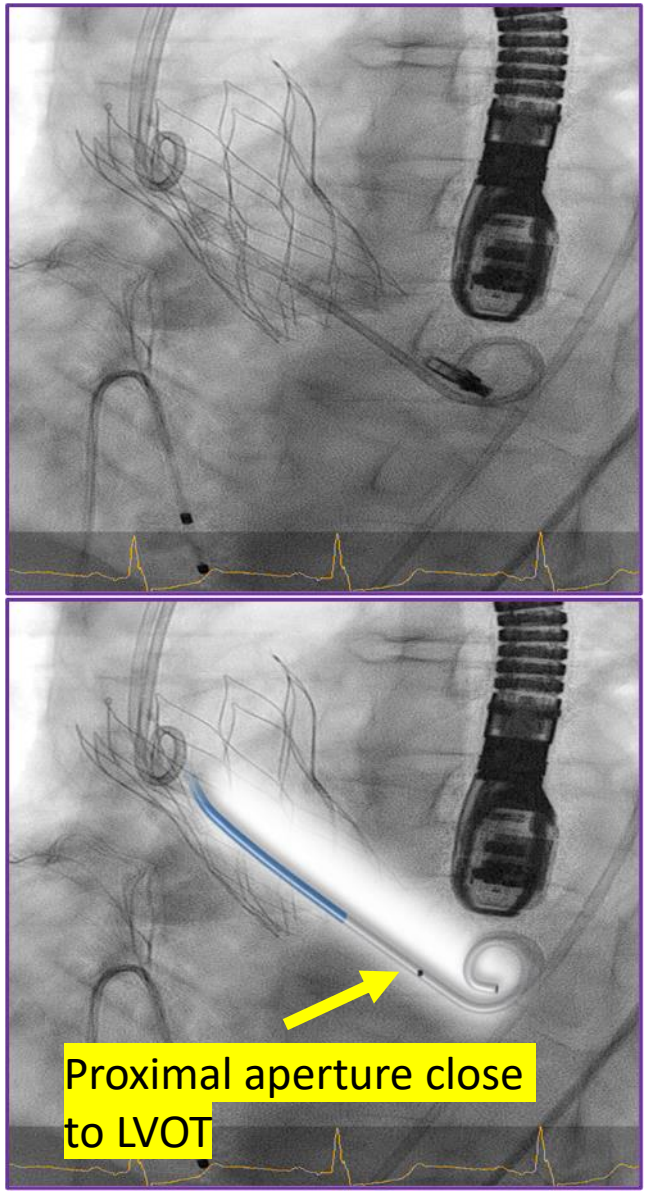
→*Unlikely, however intraprocedural invasive measurement might be unable to detect persisting LVOT/mesoventricular obstructions in certain pigtail positions*

- Change of intravascular fluid status?

→ *Intravascular fluid status might attribute to different hemodynamics observed few days after intervention*

- Unfavourable geometry ?

→ with a long PMVL, clipping might be unable to prevent LVOT obstruction



Learning objectives

- During invasive hemodynamic assessment, pigtail placement near the LVOT may be unable to detect LVOT/ mesoventricular obstruction and should be avoided
- MI clipping + TAVI for prevention of a SAM phenomenon is currently unclear & cannot be recommended as a standard procedure
- Patients who do not express excessive surgical risk should undergo surgical treatment (myectomy) for sufficient relief of LV obstruction