

Trans-aortic trans-catheter aortic valve implantation

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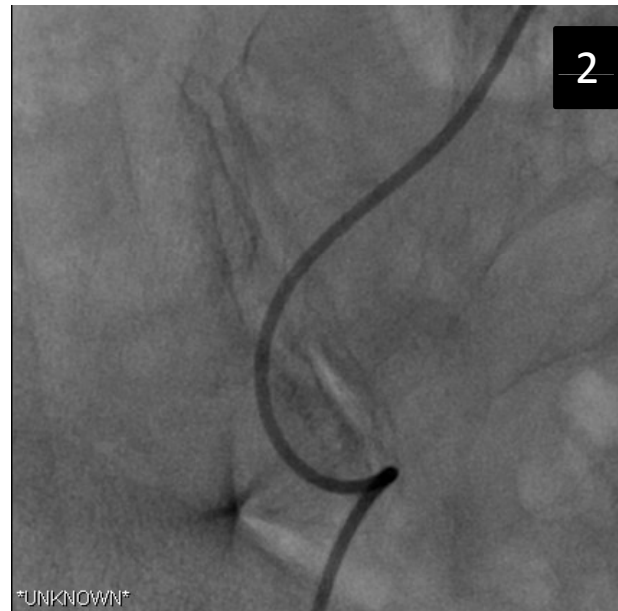
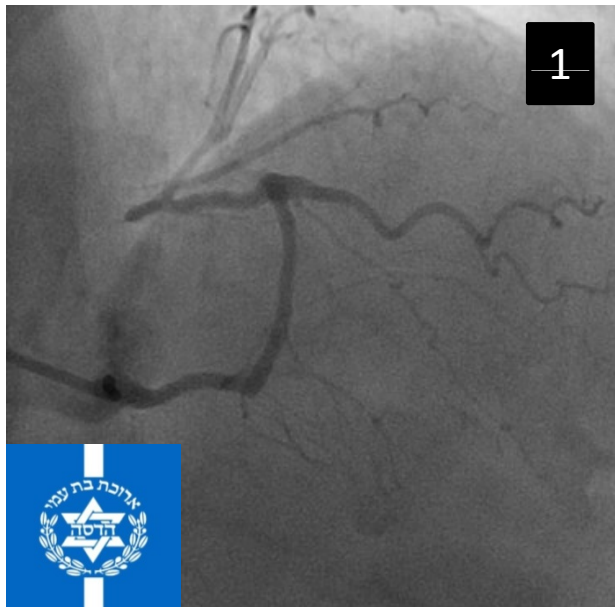
A.C. 85-year-old female

- Severe symptomatic AS, FC III
 - AVA 0.5 cm²
 - Max grad: 90 mmHg, mean: 60 mmHg
 - Good LVF
- COPD
- Log. EuroSCORE 18%
- High “frailty index”



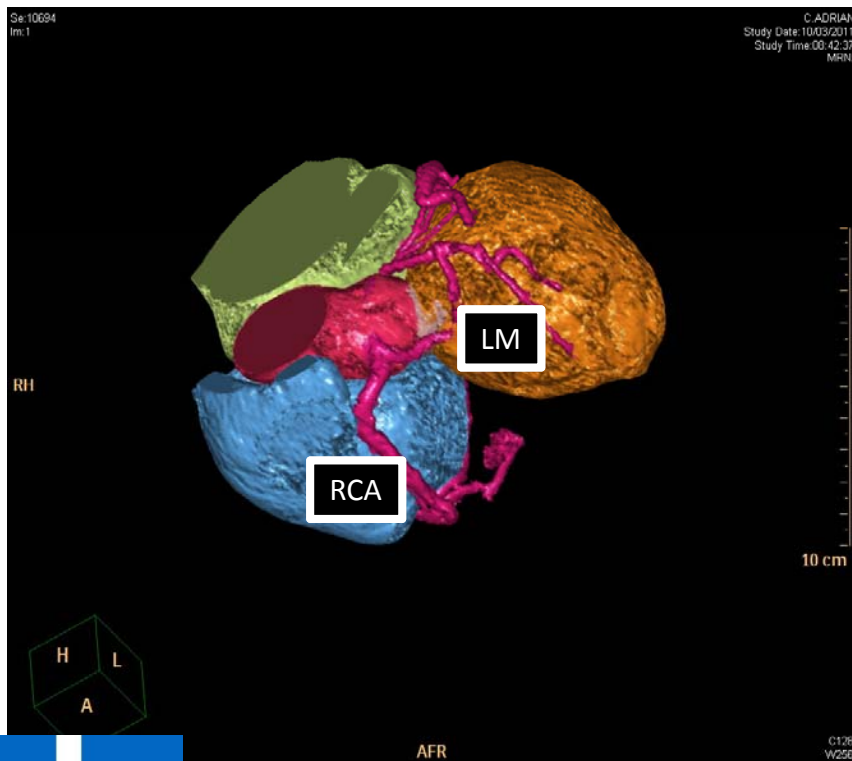
Pre-procedural angio

1. Aberrant LM originates from rt. Coronary sinus. Patent coronaries.
2. Highly tortuous and calcific femoral arteries
3. Lt. subclavian narrowing.

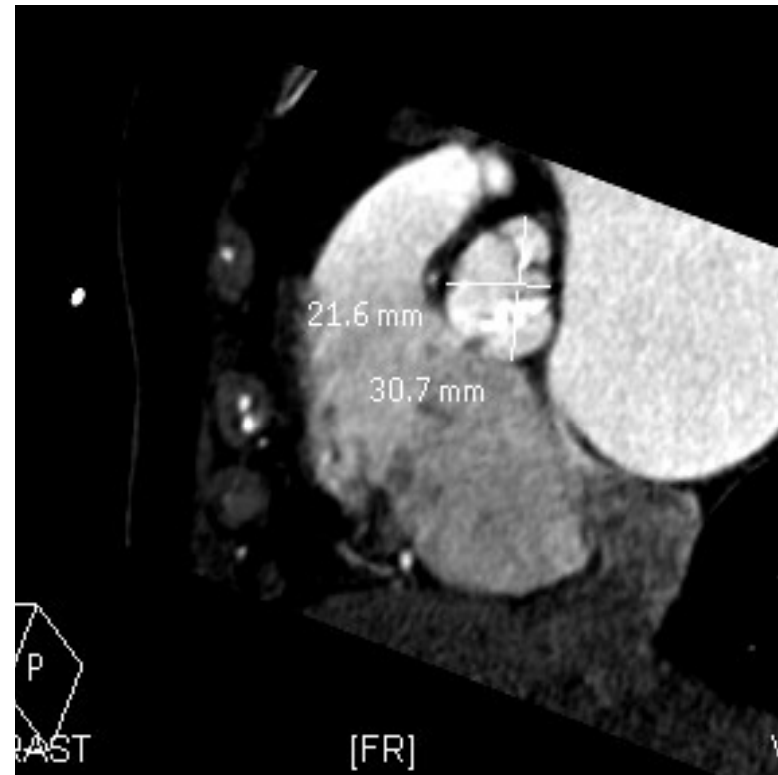


Pre-procedural CT

Verify aberrant anterior LM course



Annulus measures 22x30mm



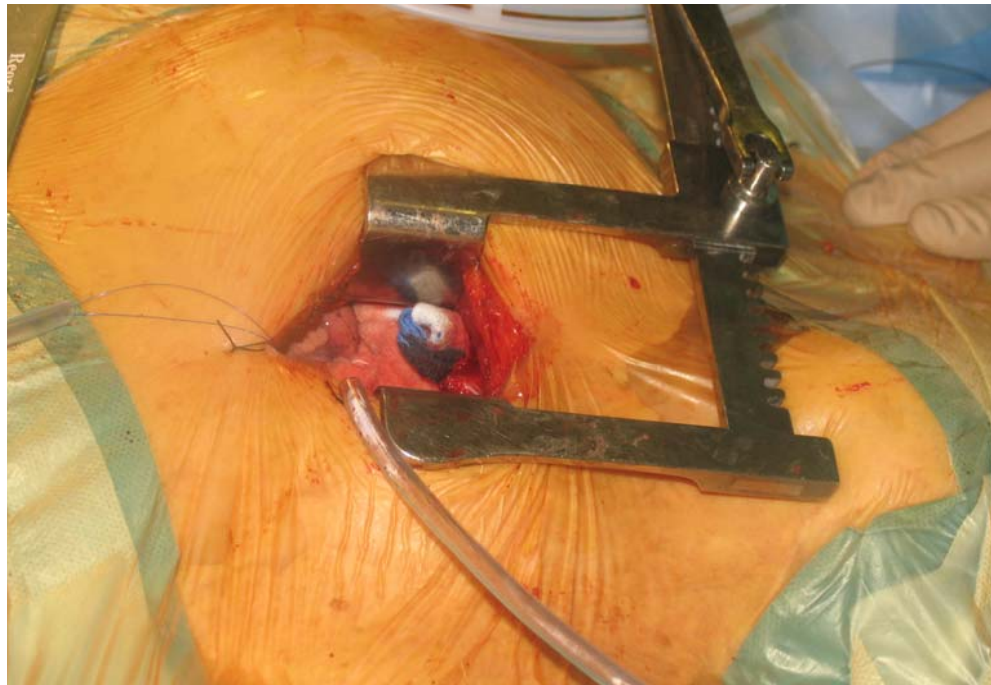
Heart team discussion

- Severe symptomatic AS, high surgical risk
- Therefore, referred to TAVI
 - No femoral / subclavian approach
- Possible TAVI approaches:
 - Trans-apical (Edwards-Sapien) – abundant worldwide experience
 - Trans-aortic (Medtronic-Corevalve) – less experience, appears less traumatic.
- Decision: TAVI via the trans-aortic approach



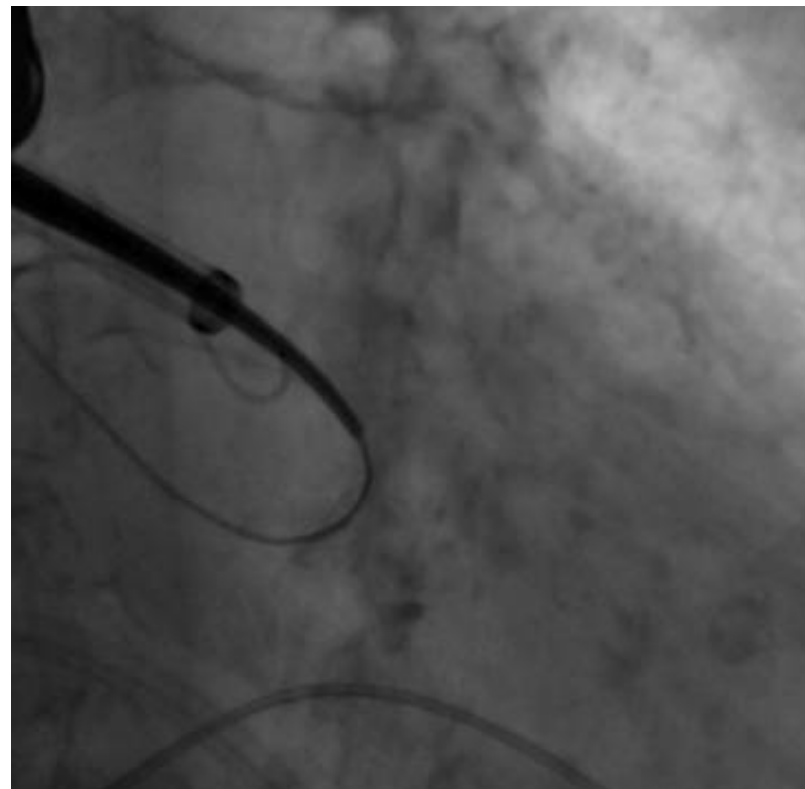
Procedure #1

- Rt. mini-thoracotomy via the 2nd intercostal space & exposure of the ascending aorta.
- Placing a purse-string (supported by pericardial pledgets) below the brachicephalic branching.



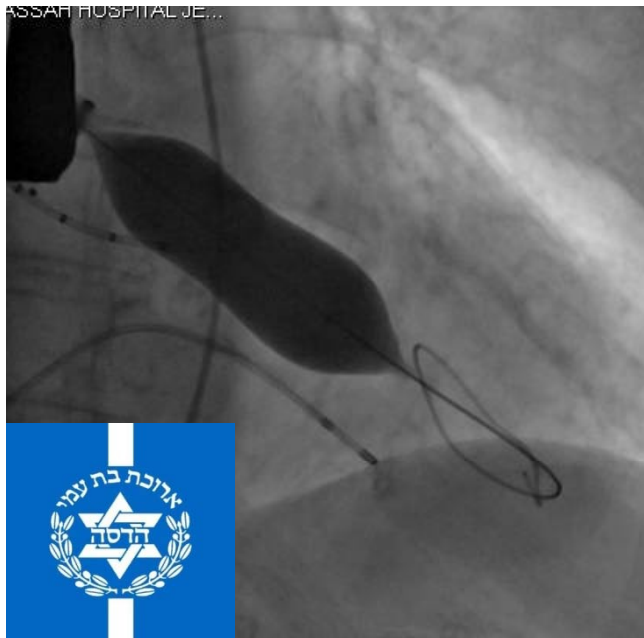
Procedure #2

- Direct puncture of the aorta and insertion of 18F Cook sheath to the Asc. Aorta (1cm in) – tightly secured to chest wall.



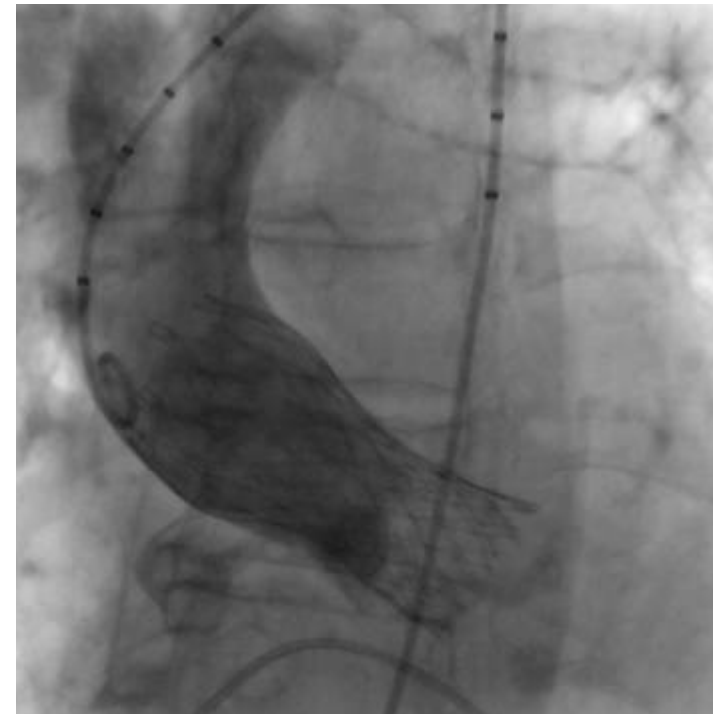
Procedure #3

- Implantation of a Medtronic-Corevalve 29mm:
 - Crossing valve (MP cahteter), gradient (P2P) 80 mmHg.
 - Balloon dilatation (nucleus 22mm)
 - Step-wise valve implantation (5-6 mm below annulus).



Procedure #4

- No gradient, LVEDP 18 mmHg.
- Post-procedure supra-aortic injection & TEE: minimal AR.
- Sheath retrieval and purse-string closure, hemostasis, pericardial & pleural drains, skin closure.
- Short uneventful ambulation.



Conclusions

- **Trans-aortic implantation of the self-expandable Medtronic-corevalve valve system is feasible and safe in cases in which peripheral vascular approach is impossible.**
- **The procedure warrants tight multi-disciplinary collaboration of cardiologists, surgeons, anesthesiologists and cathlab personnel, calling for special re-organization of the team and the cathlab.**
- **This novel approach will definitely benefit from dedicated equipment rather than the devices that are designed for femoral approach.**
- **TAVI revolution is an evolving one, there is a lot more to come..**

