

# A Challenging TAVI Case Using a “Pig Tail Catheter Pulling Technique” for Trans-femoral Access TAVI with Severely Calcified Aortic Arch

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# Disclosure of Relevant Financial Relationships

I, [\[Hirotsugu Mitsuhashi\]](#) DO NOT have any financial relationships to disclose.

# Case Summary

- 90year-old female
- Past history: Hypertension
- She was admitted to our hospital due to congestive heart failure.
- Trans-thoracic echocardiogram showed normal left ventricular wall motion and ejection fraction (61%).
- Severe aortic stenosis (peak velocity: 4.1m/sec, mean PG: 43mmHg) was identified as well, and it was considered as a main cause of her heart failure.

# Aortic CT



Severely calcified and tortuous aortic arch was observed

# Good anatomy for TAVI



Annulus size: 382mm<sup>2</sup>/72.8mm  
Coronary height: LCA 14.7mm,  
RCA 18.4mm  
Valsalva: 28.2mm  
STJ: 26.3mm

# Heart team discussion

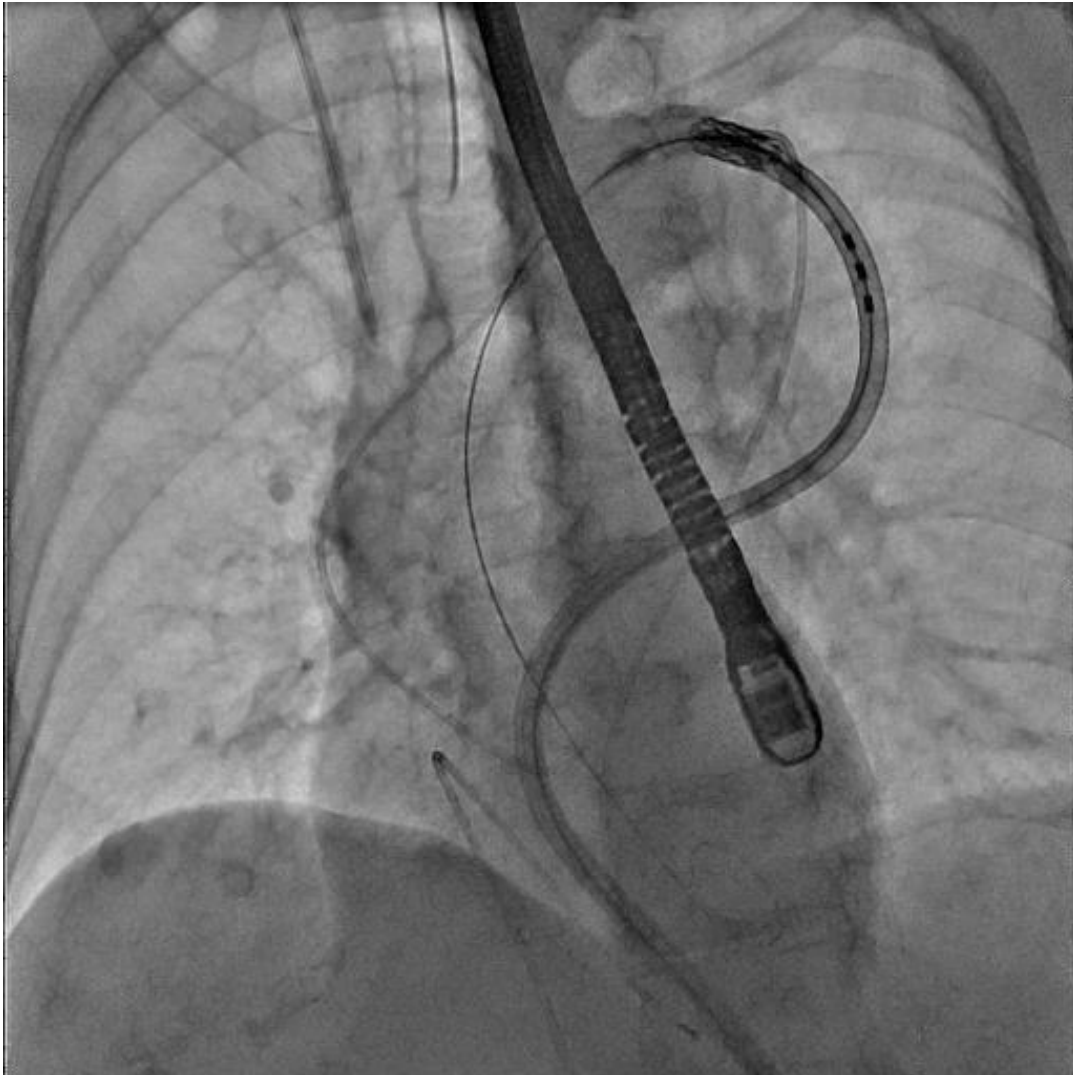
- Heart team decided trans-catheter aortic valve implantation (TAVI) was the best treatment of choice for her severe aortic stenosis based on her age and frailty.
  - Cardiac CT showed her anatomy was suitable for TAVI, however her aortic arch was tortuous and severely calcified.
  - Her subclavian arteries were too small and tortuous for 14Fr sheath. Direct aortic access was an option, but surgeons turned down because she was too old and frail even for small thoracotomy.
- We performed TAVI with trans-femoral access.



# Procedure

- Right Femoral artery puncture with 2 Proglides
- 14Fr e-sheath
- Safari extra small curve guide wire
- Pre-dilatation with 18mm balloon
- Sapien 3 Ultra Resilia™ 23mm with 5atm inflation

# The valve system stuck in her aortic arch



The fully flexed valve system did not cross even when

- We pushed the valve system by pulling the guide wire
- We put the Lunderquist <sup>TM</sup> guide wire in the pig tail to change the angle of aorta
- We rotated the catheter and changed the angle of the tip of the valve system



# Pig pulling technique



When we pushed the valve system by pulling the guide wire and the pig tail, the valve system crossed. 23mm Sapien3 UR™ was implanted

## After the procedure

- No complication took place
- The patient was discharged home 5 days after the procedure
- Her ADL was vastly improved.

# Conclusion

- A pig tail catheter pulling technique may be safe and effective when TAVI delivery systems stuck in the calcium.
- Trans-carotid access might be effective in this case although the patient was old and frail.

Ayase Heart Team  
Thank you for your attention!

