

Valve & Endovascular Theater, Vista 1, B2

How to Overcome Difficulty in Delivering Transcatheter Heart Valve During TAVR?

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Valve & Endovascular Theater, Vista 1, B2

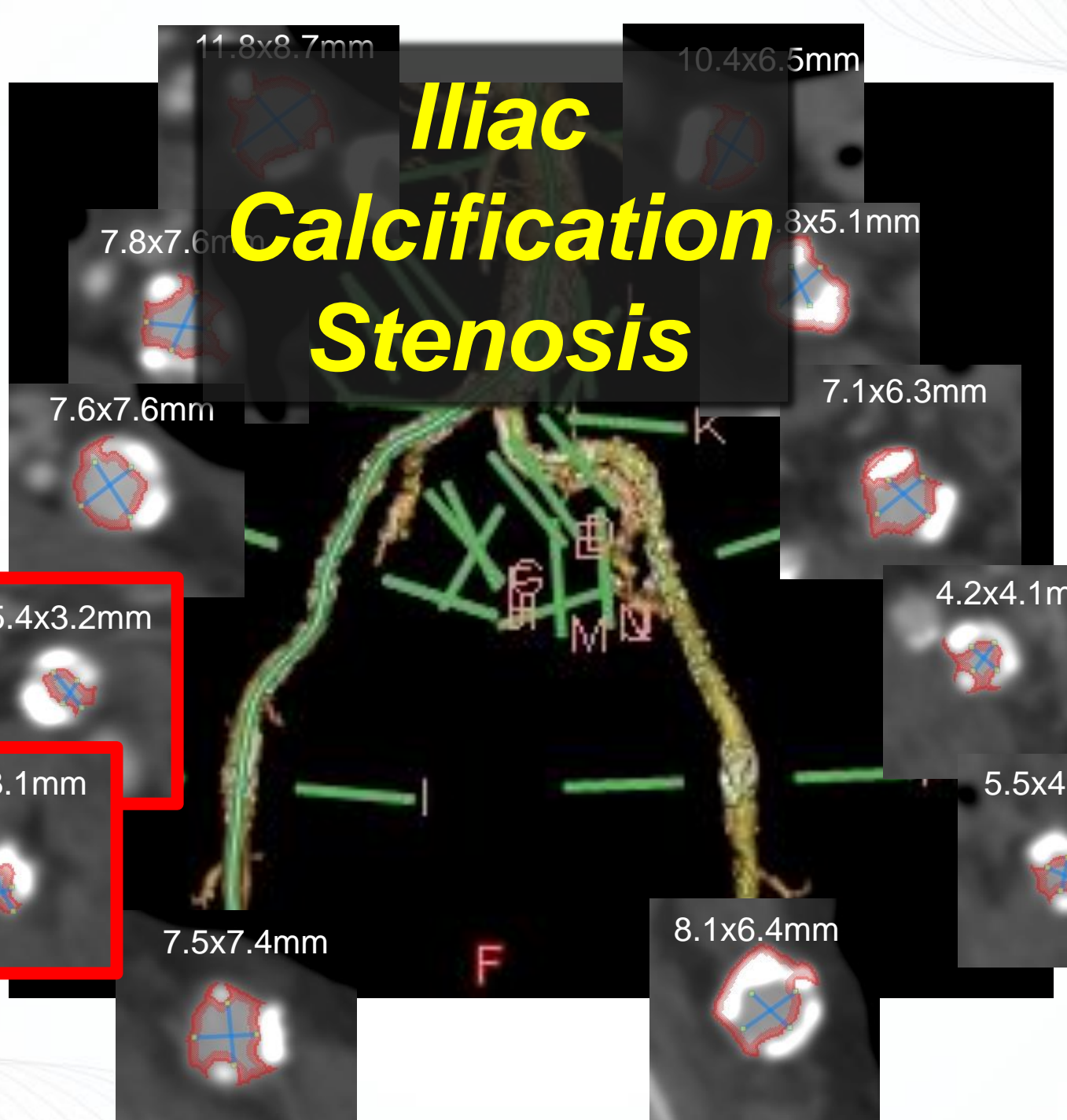
COI Disclosure

Daisuke Hachinohe

Edwards Lifesciences TAVI Clinical Proctor
Medtronic TAVI Clinical Proctor

Aorta Tortuosity





11.8x8.7mm

10.4x6.5mm

7.8x7.6mm

8x5.1mm

7.6x7.6mm

7.1x6.3mm

5.4x3.2mm

4.2x4.1mm

5.4x3.1mm

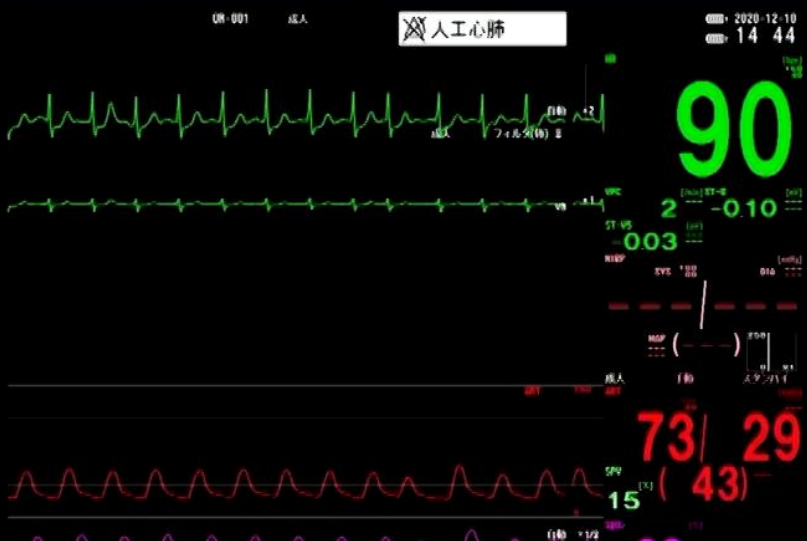
5.5x4.0mm

7.5x7.4mm

8.1x6.4mm

At the native Aortic valve





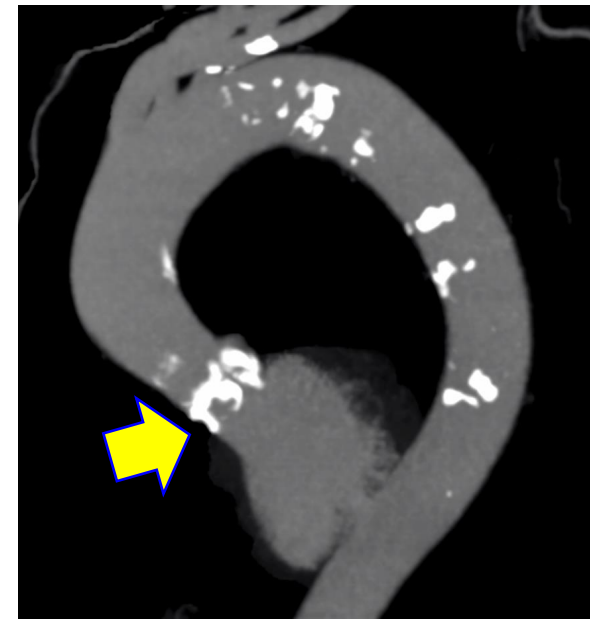
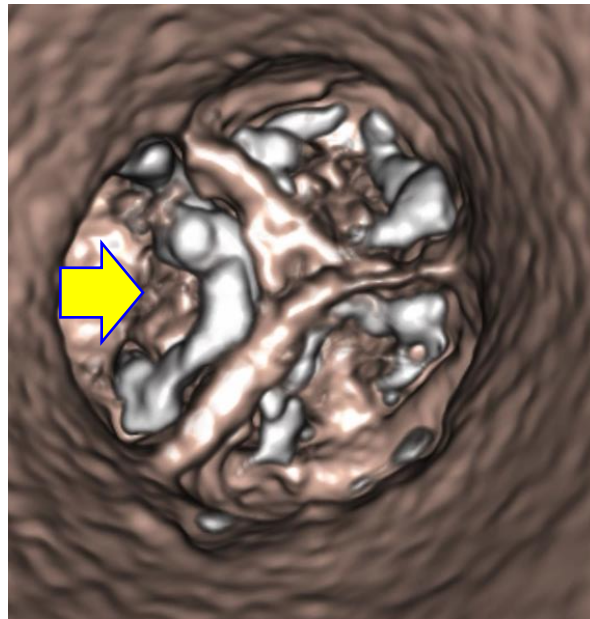
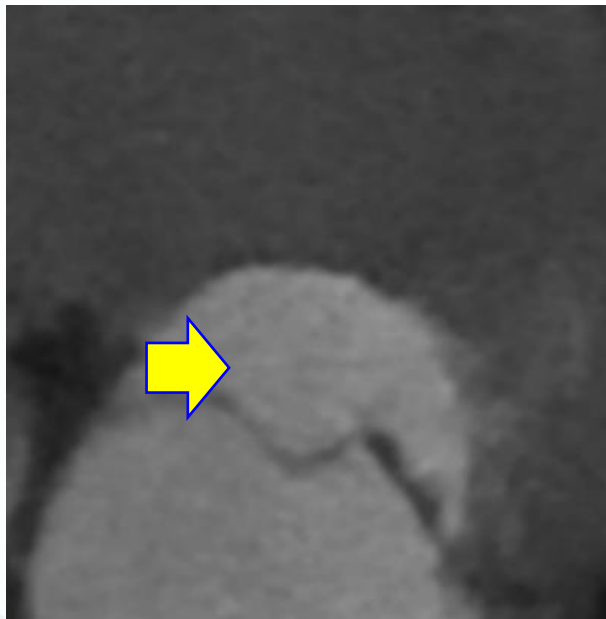
SAPIEN3 23mm could not cross the aortic valve

Case; 91 year-old female

#Very severe AS
#AP post PCI
#Paroxysmal atrial fibrillation

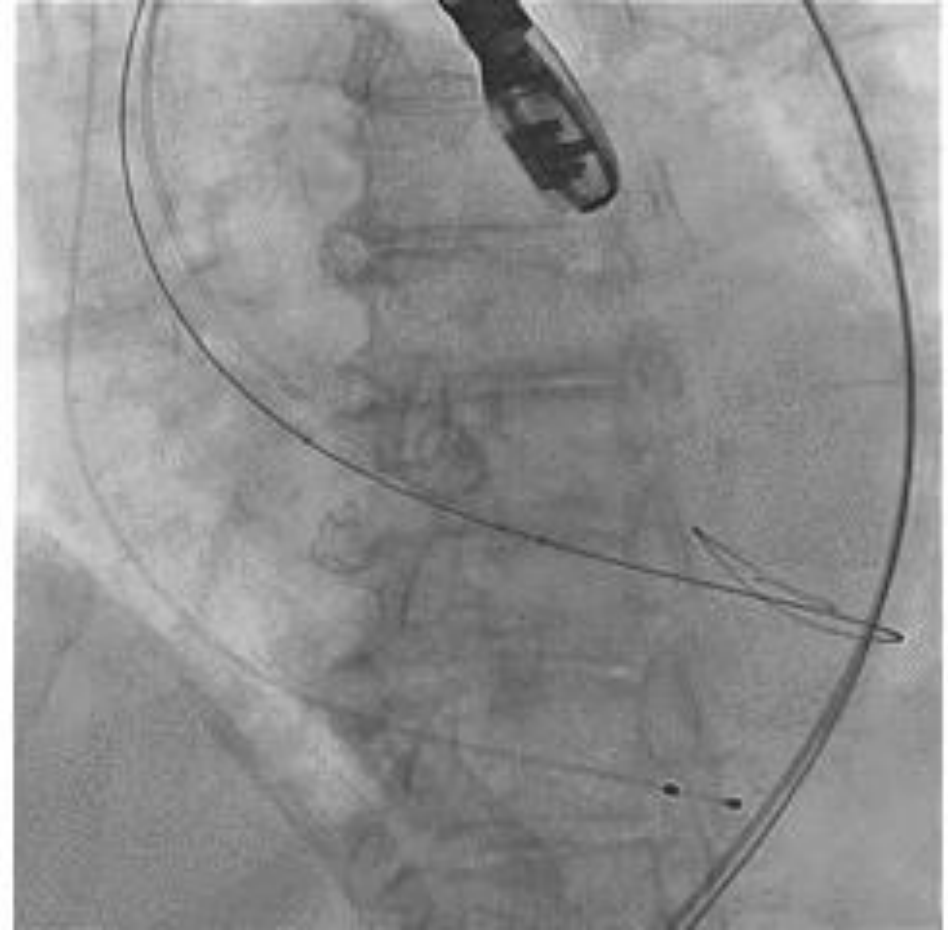
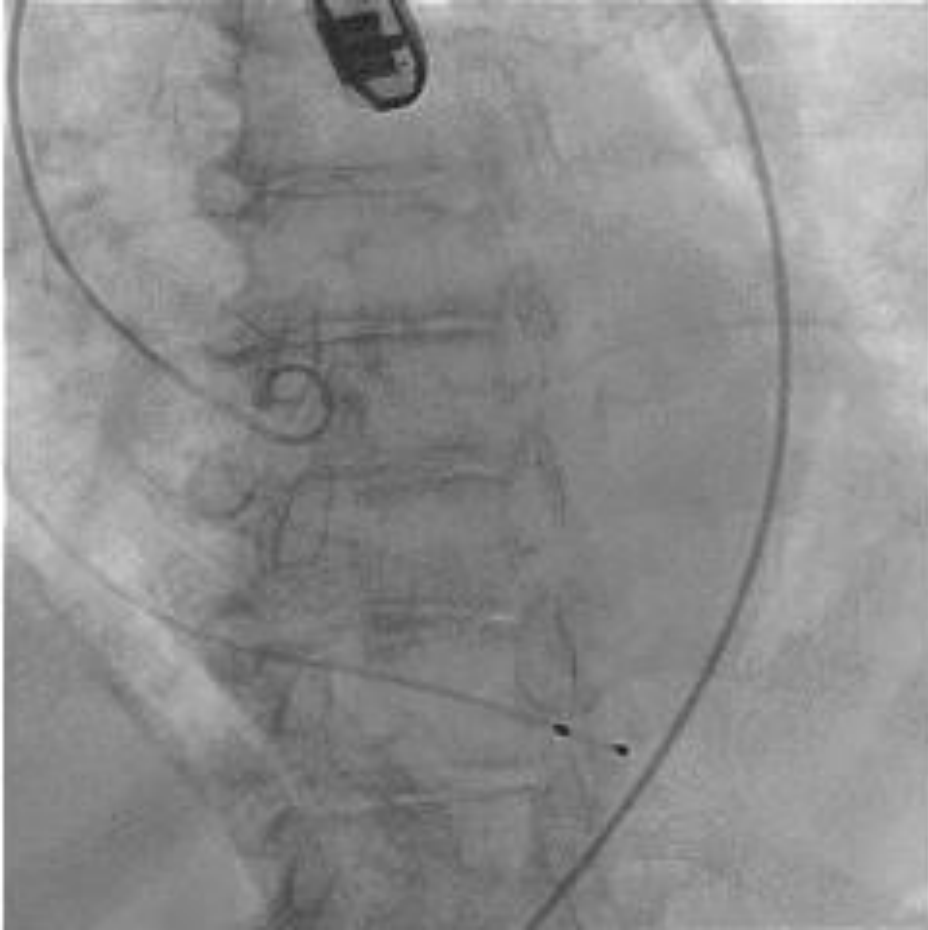
[TTE]
AVA 0.57cm²、AVA index 0.35、
PeakV 5.1m/s、 Mean gradient 66mmHg

[CT]

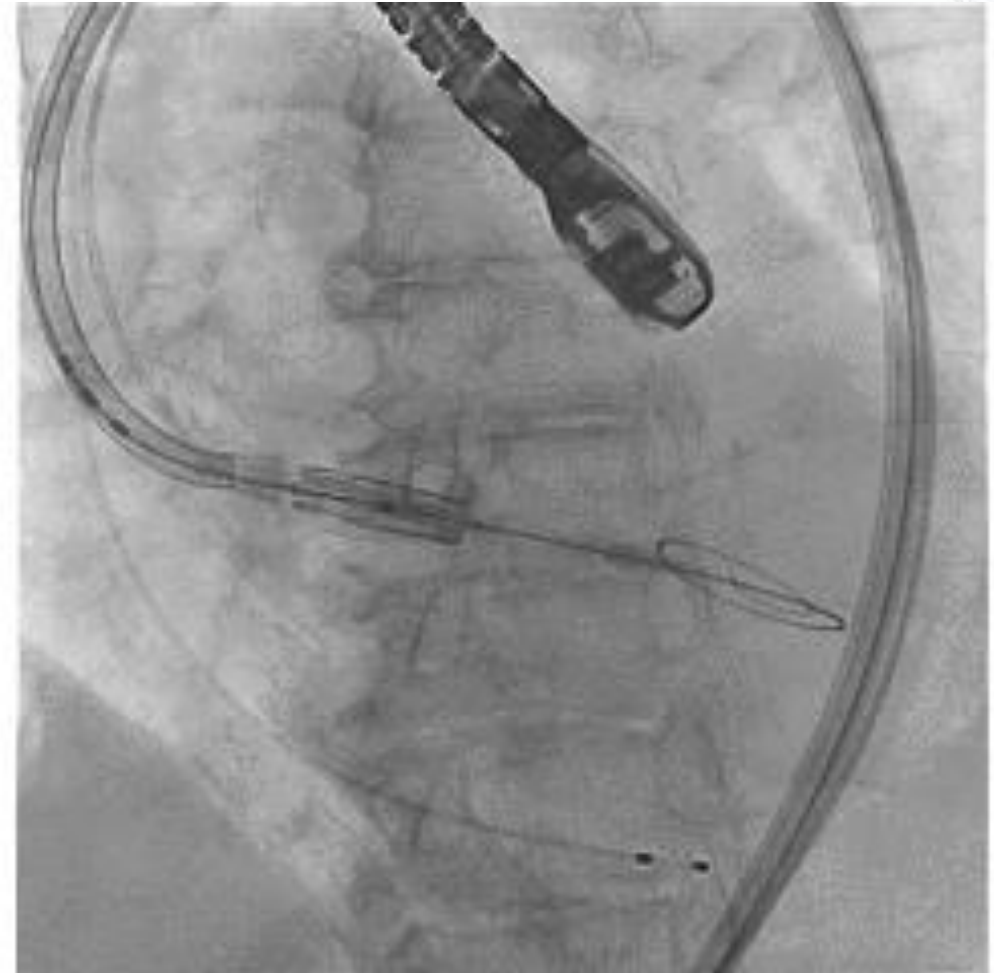
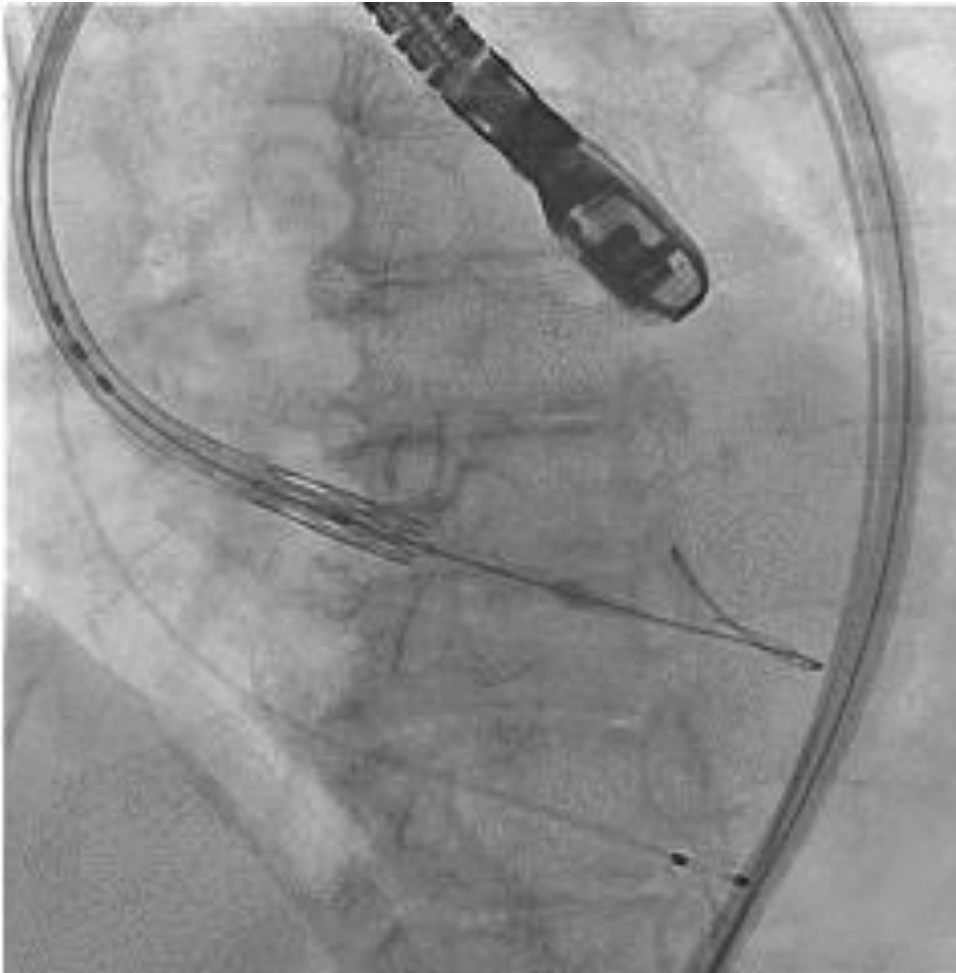


Severe calcification at NCC

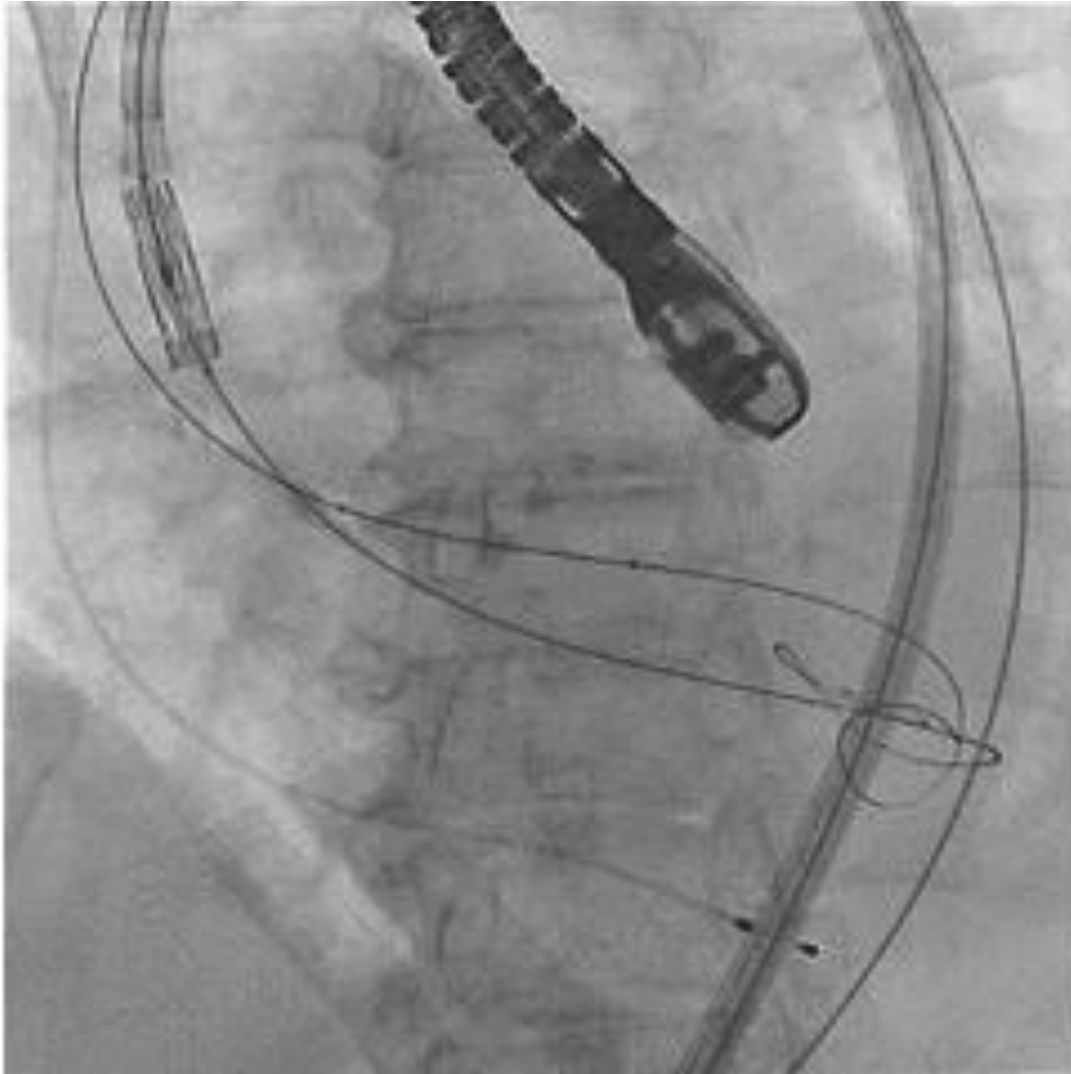
BAV



SAPIEN 3 23mm would not cross...

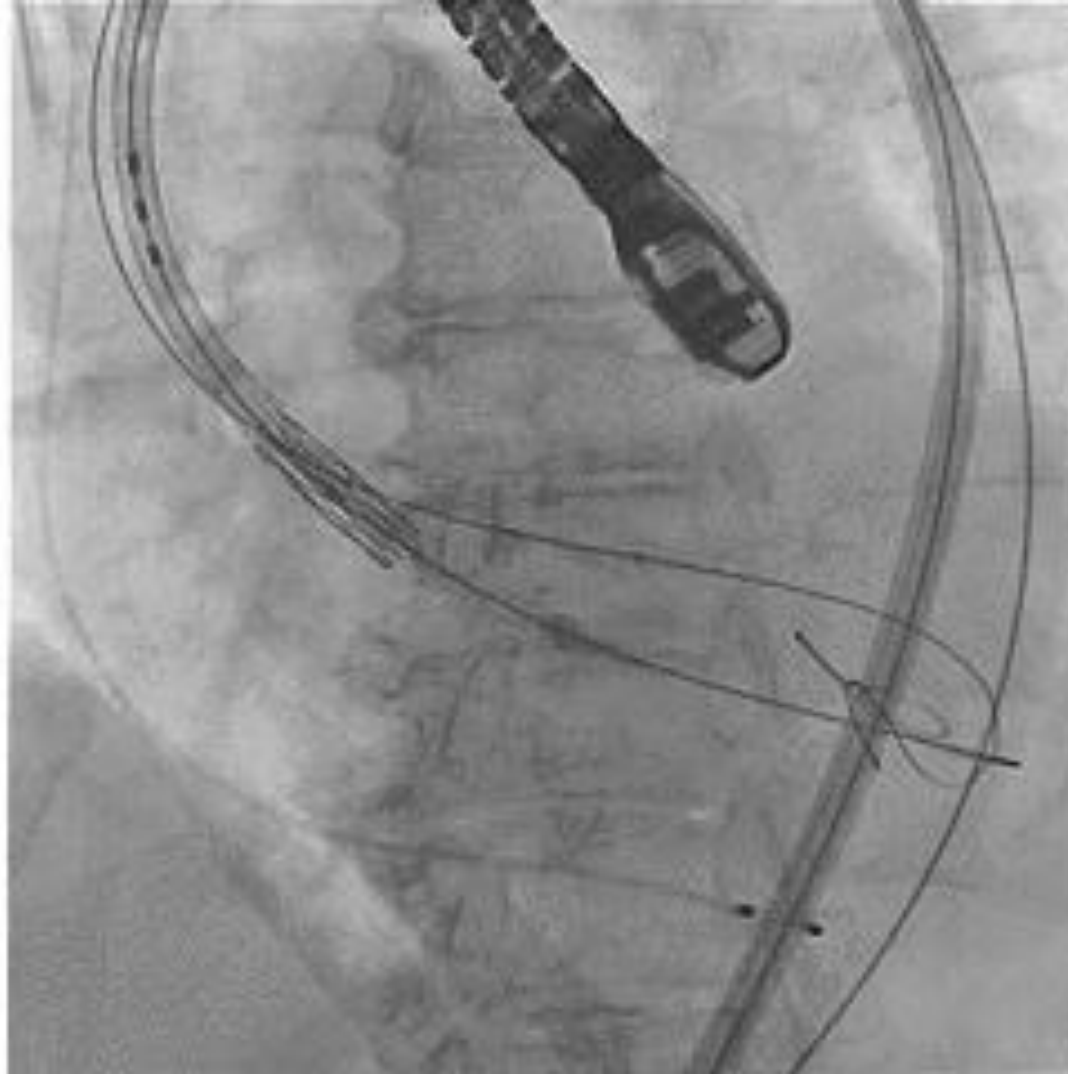


BAV again

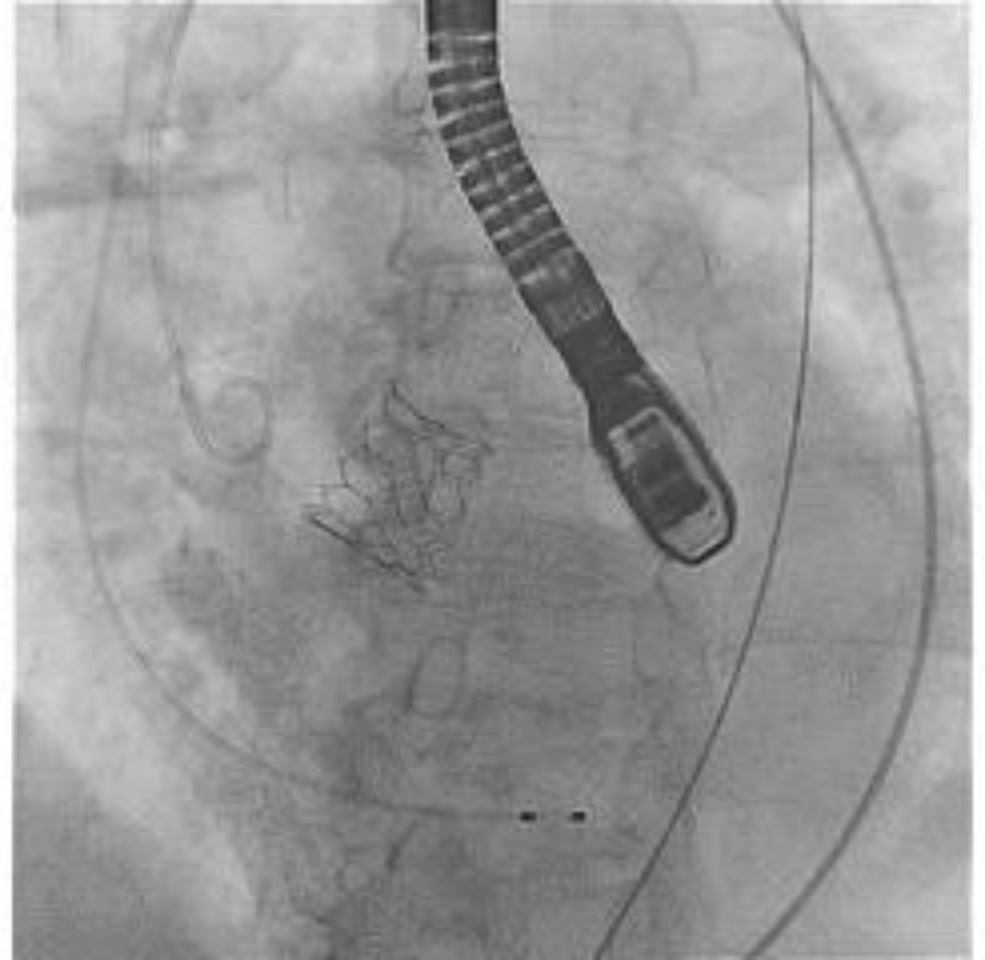
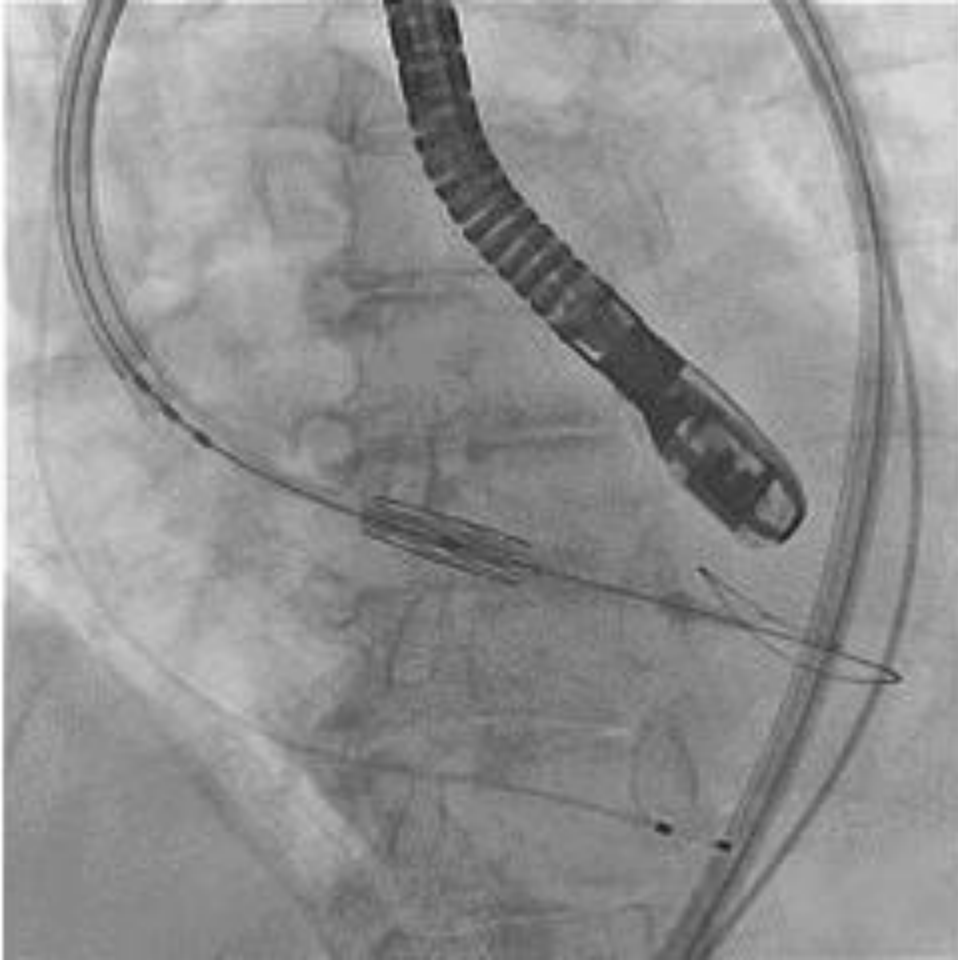


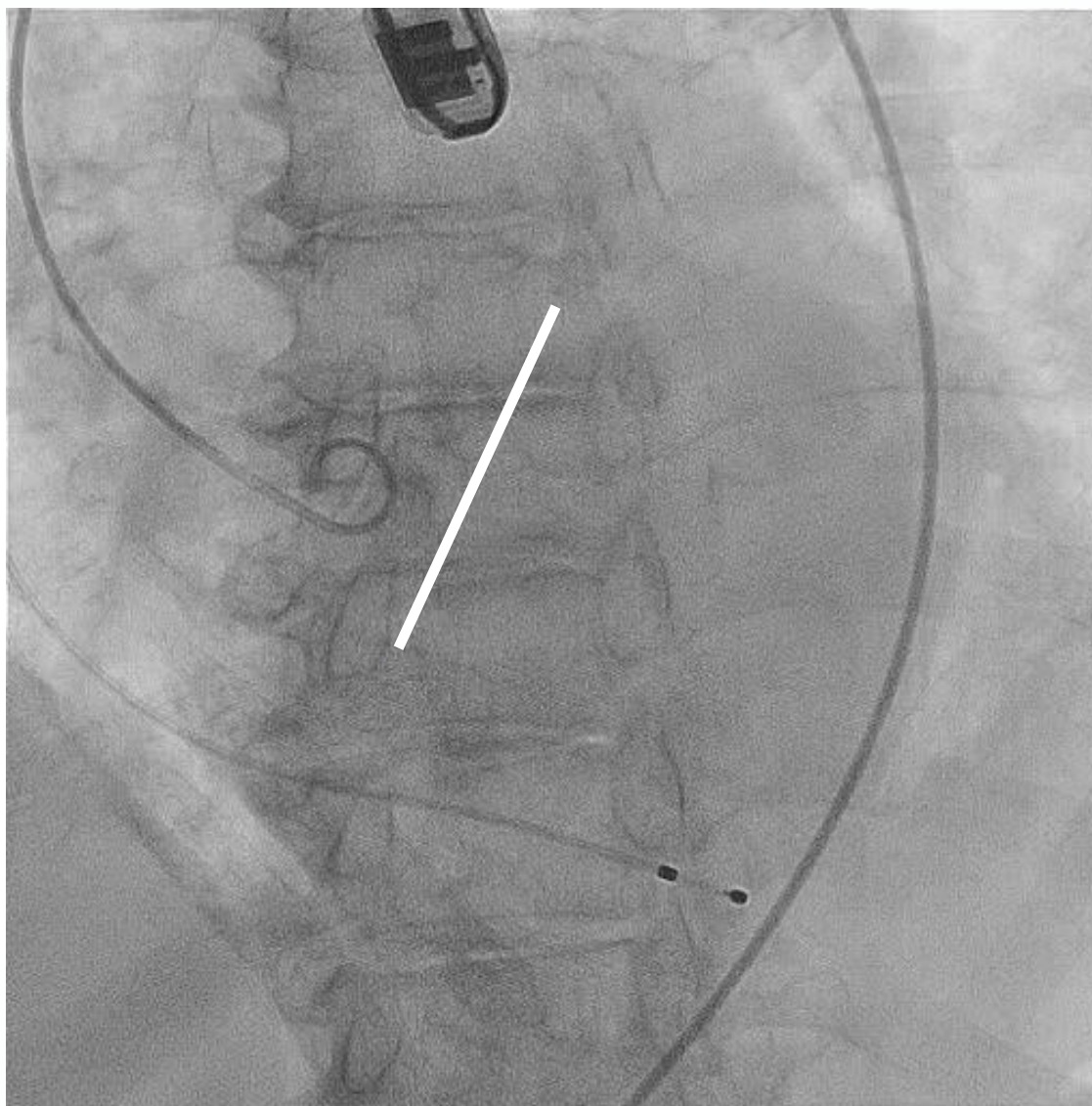
But not cross...

Valve slip-in with BAV



TAVI





Controlled valve slide over using a buddy balloon

- Enable to deliver THV through bulky native aortic valve
- Easy to do
- Safe to use
- No need transapical approach or snare technique

as with a shoehorn?



Images in
Cardiovascular Medicine



Controlled Valve Slide-Over Using a Buddy Balloon: “Shoehorn Technique”

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OPEN ACCESS

Received: Oct 20, 2020
Revised: Nov 26, 2020
Accepted: Jan 12, 2021

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A 91-year-old woman with severe aortic stenosis was referred for transfemoral transcatheter aortic valve implantation (TAVI). Multi-detector computed tomography imaging revealed severe calcification at the non-coronary cusp (NCC) (Figure 1A-C). After placing a Safari2 (Boston Scientific, Marlborough, MA, USA) small curve wire in the mid-left ventricle (LV), balloon aortic valvuloplasty (BAV) was performed using VACSII 16×40 mm (OSYPKA, Rheinfelden, Germany) (Figure 1D). A SAPIEN 3 (Edwards Lifesciences, Irvine, CA, USA) 23 mm was unable to cross the aortic valve (AV) (Figure 1E). Changing bias by pulling or pushing the Safari2 wire or flexing the Commander delivery system (Edwards Lifesciences) did not allow the transcatheter heart valve (THV) to pass. Consequently, we inserted another stiff wire (EGoist; Asahi Intecc, Nagoya, Japan) into the LV via contralateral femoral artery, and performed repeat BAV (Figure 1F); however, the THV system did not cross. Then, we repeated BAV while simultaneously pushing the THV during balloon deflation. The system was successfully slipped over the AV (Figure 1G, Supplementary Video 1), and the SAPIEN 3 was implanted (Figure 1H).

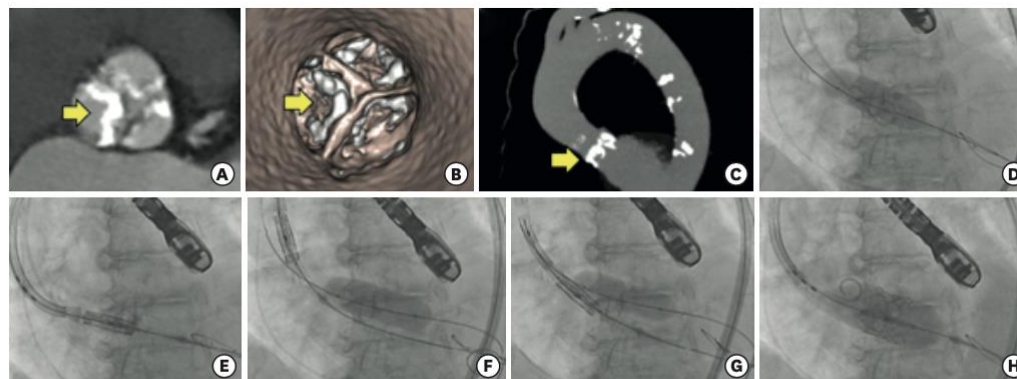
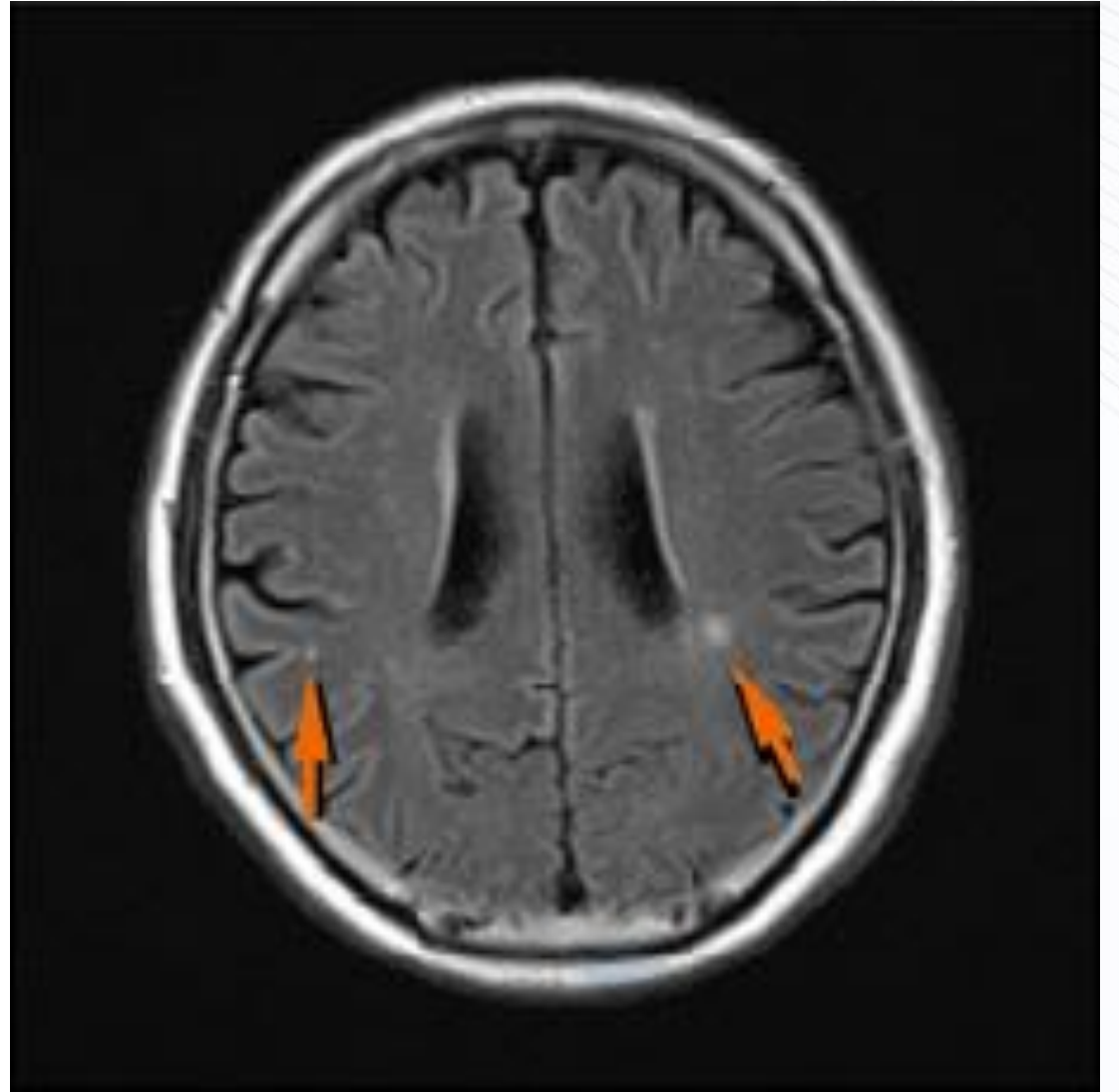
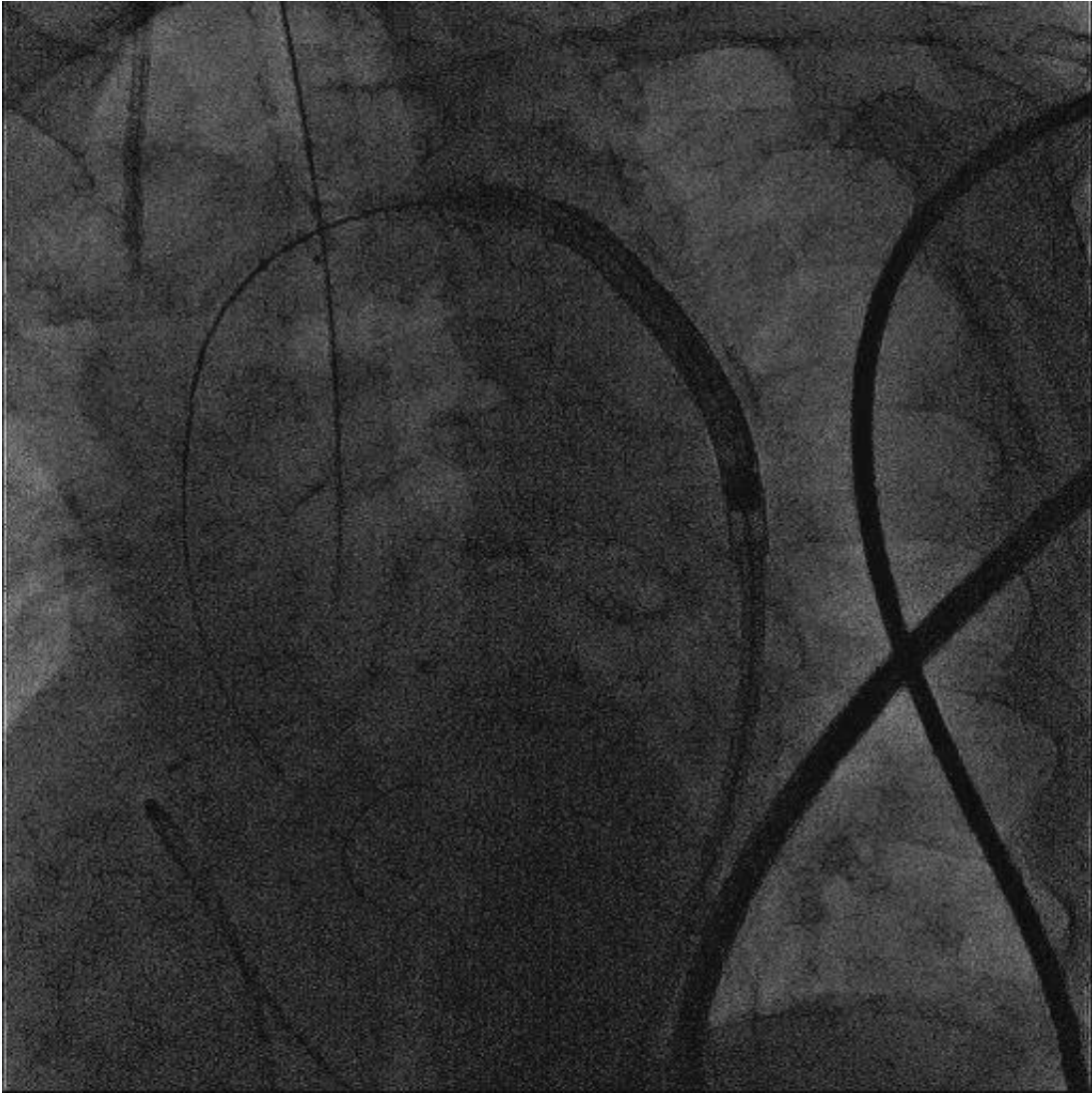
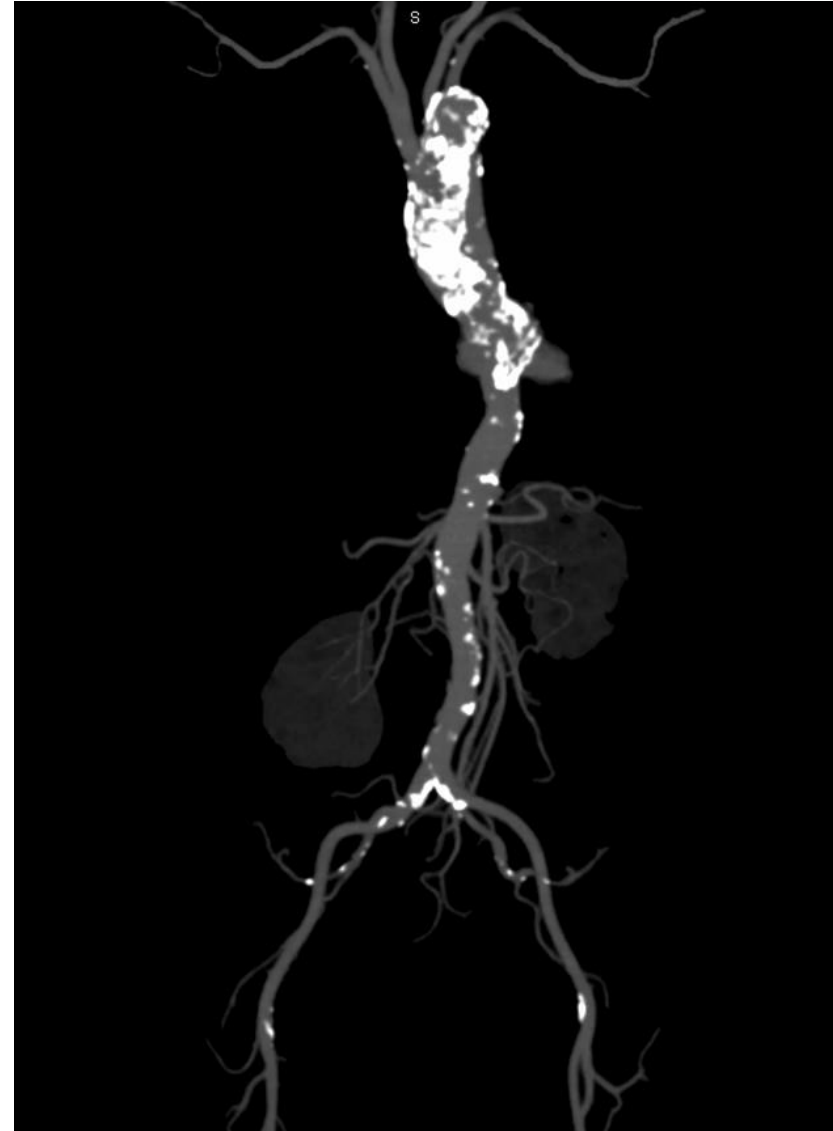


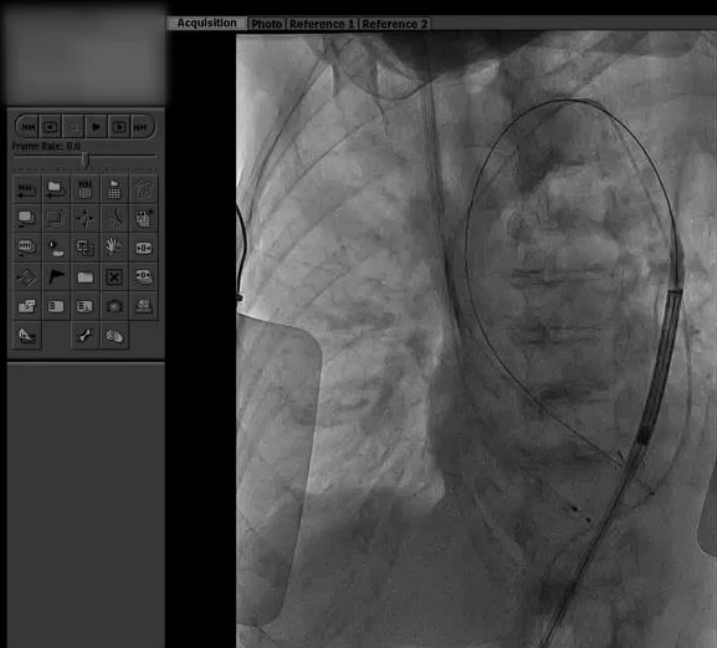
Figure 1. Transfemoral TAVI for very severe aortic stenosis. (A-C) 3D computer tomography reconstruction shows severe calcification at non-coronary cusp (yellow allow). (D) BAV was performed. (E) Failure of a SAPIEN 3 (Edwards Lifesciences) 23 mm to cross the AV. (F) Repeat BAV. (G) Simultaneous pushing the system during balloon deflation and slipping over the AV. (H) Implantation of the SAPIEN 3 23 mm. AV = aortic valve; BAV = balloon aortic valvuloplasty; TAVI = transcatheter aortic valve implantation.



by courtesy of Dr.Yamawaki

Case; 89 year-old female





Evolut could not cross

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Received: Aug 28, 2020
Revised: Oct 9, 2020
Accepted: Nov 25, 2020

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Funding

The authors received no financial support for
the research, authorship, and/or publication
of this article.

Conflict of Interest

The authors have no financial conflicts of
interest.

Snare-Assisted Valve Delivery to Overcome a Severely Calcified Aortic Arch during Transcatheter Aortic Valve Replacement

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An 89-year-old woman underwent transfemoral transcatheter aortic valve replacement with a 26-mm Evolut PRO (Medtronic, Minneapolis, MN, USA) bioprosthesis because of severe aortic stenosis.

As shown in **Figure 1**, the delivery catheter failed to pass through the severely calcified aortic arch, because of a dense calcified mass in the outer curvature of the aortic arch (**Supplementary Video 1**). Eventually, a snare-assisted delivery using a 35-mm loop Amplatzer Goose Neck Snare kit (ev3 Endovascular, Inc., Plymouth, MN, USA) was attempted. We tightened the snare to grasp and retain the stiff wire and the nose cone of the delivery catheter. Further, we advanced the delivery catheter while simultaneously pulling the snare catheter downward. Finally, the delivery catheter was passed and the valve implantation was successful without major aortic complications (**Supplementary Videos 2 and 3**).

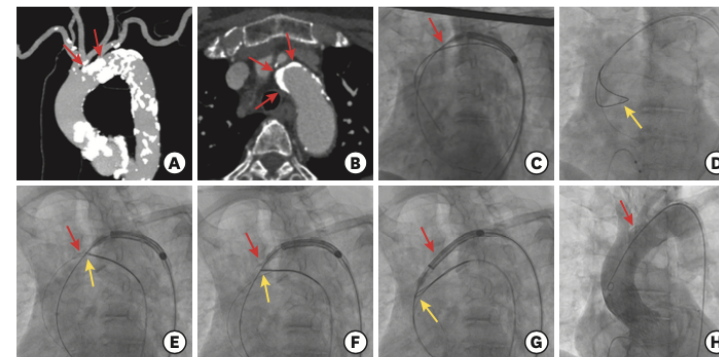
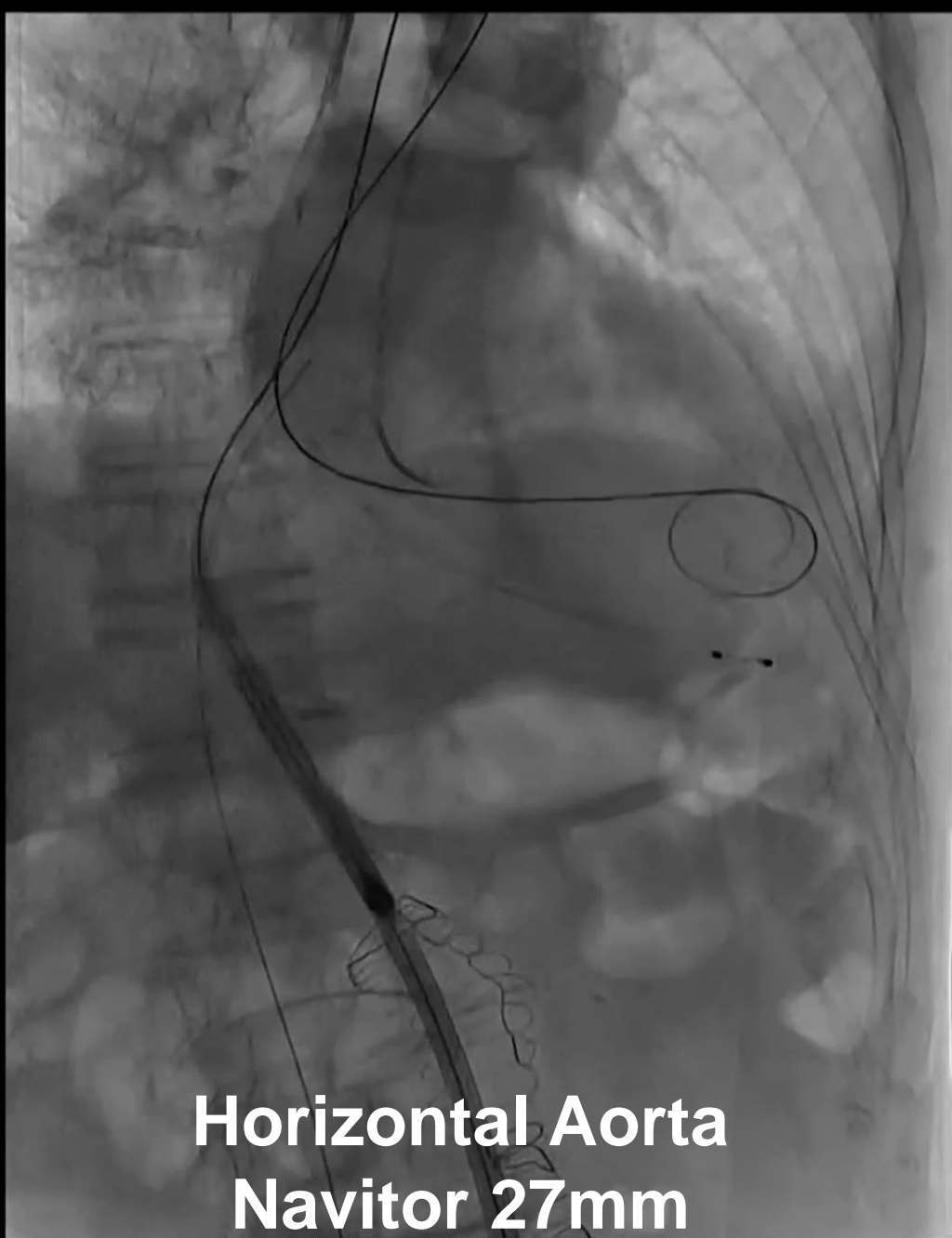
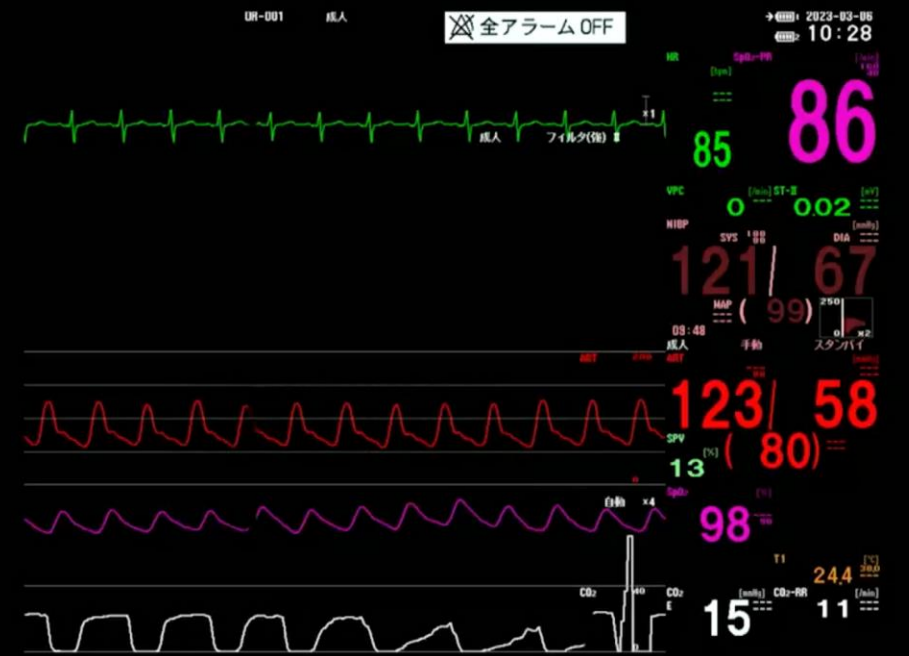


Figure 1. Snare-assisted delivery of a self-expanding valve. (A, B) Baseline computed tomography reveals a severely calcified aortic arch with dense calcified plaques protruding into the lumen. (C) The protruding calcification hampers the passage of a delivery catheter. (D) First, we insert a standard wire inside the snare introduced from the contralateral femoral access. Second, the standard wire inserted in the left ventricle is exchanged with the stiff wire. (E-G) Next, the snare is tightened and the stiff wire and nose cone of the delivery catheter are retained. Simultaneous pulling of the snare results in successful passage of the delivery catheter. (H) Final angiography shows an optimal valve position without aortic complications. Red arrows indicate the dense calcified plaque of the aortic arch, and yellow arrows indicate the snare position.

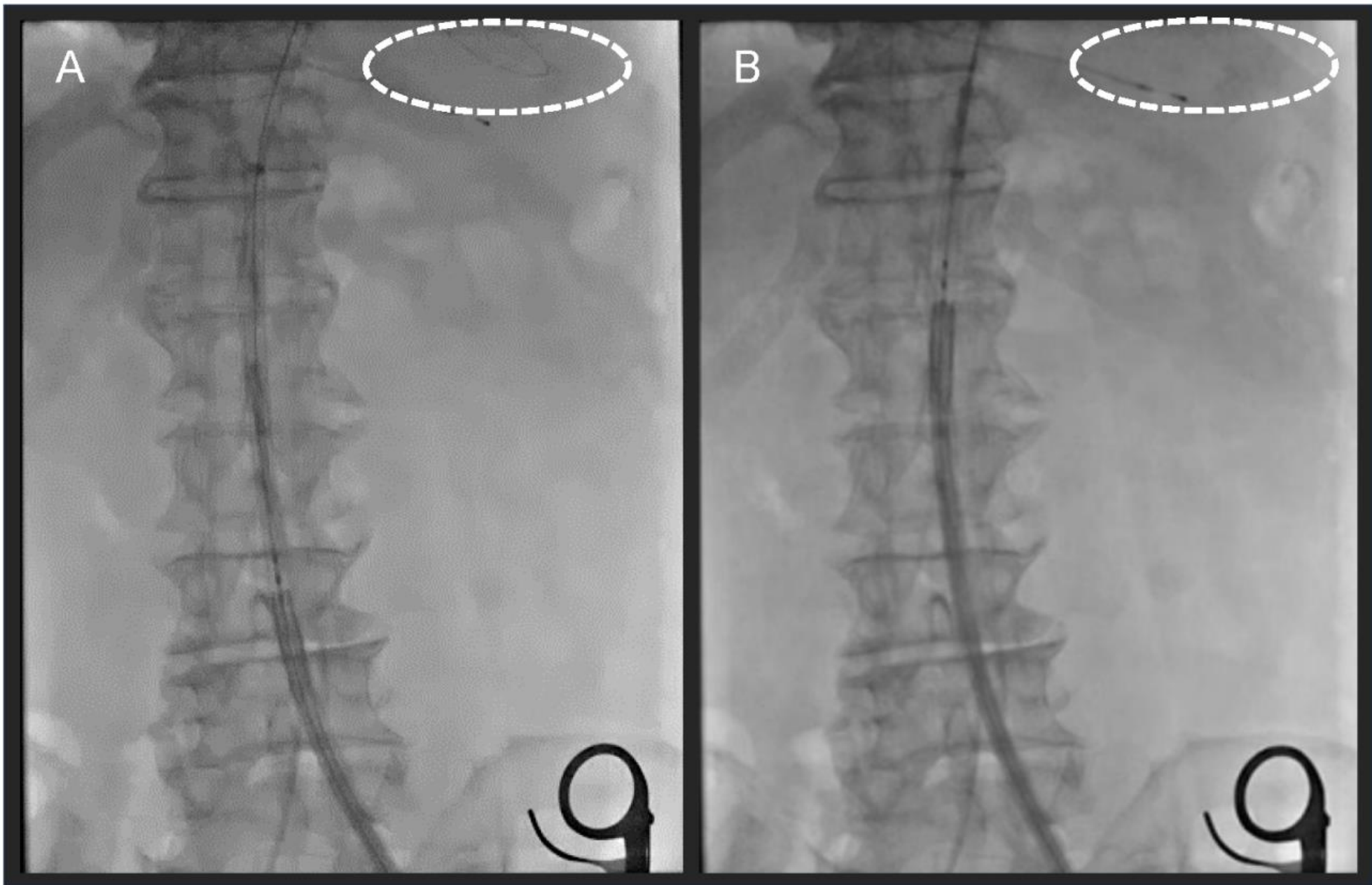


Horizontal Aorta
Navitor 27mm

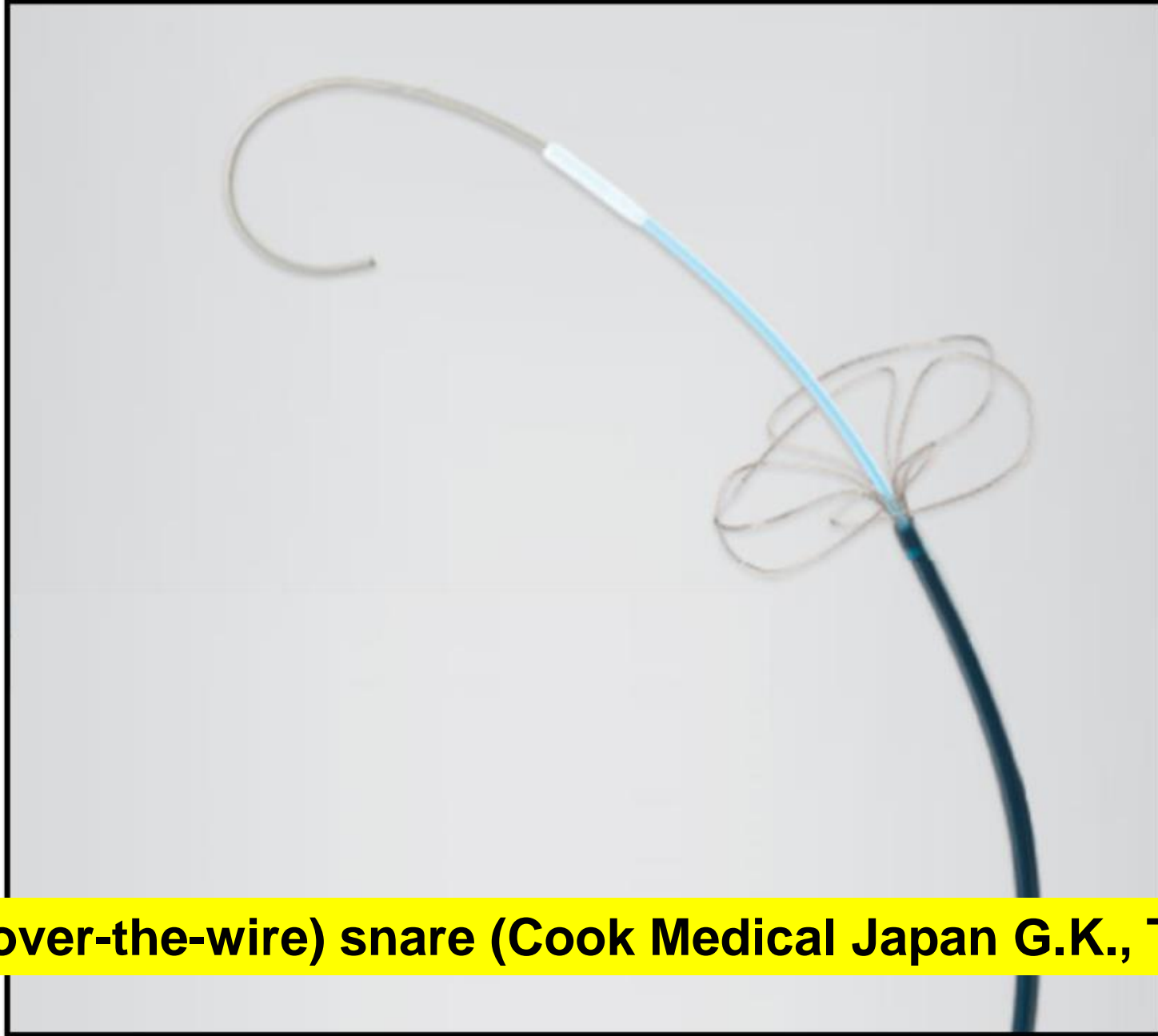


Special case

By courtesy of Akimitsu Tanaka, MD, Masayuki Nakamura, MD, Hidekazu Aoyama, MD, PhD, Ryosuke Kametani, MD, PhD at Nagoya Tokushukai General Hospital

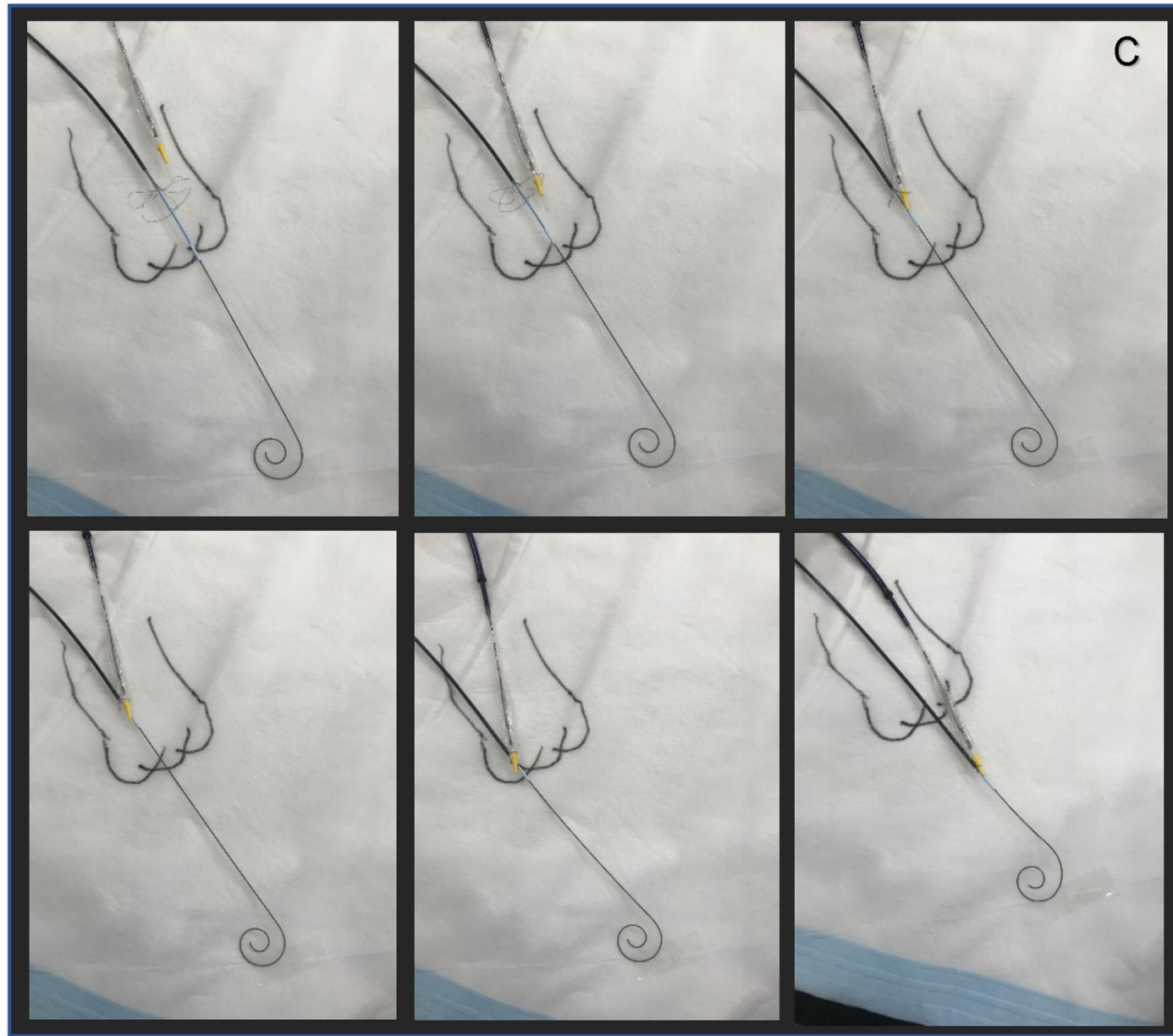


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Nagoya Tokushukai General Hospital

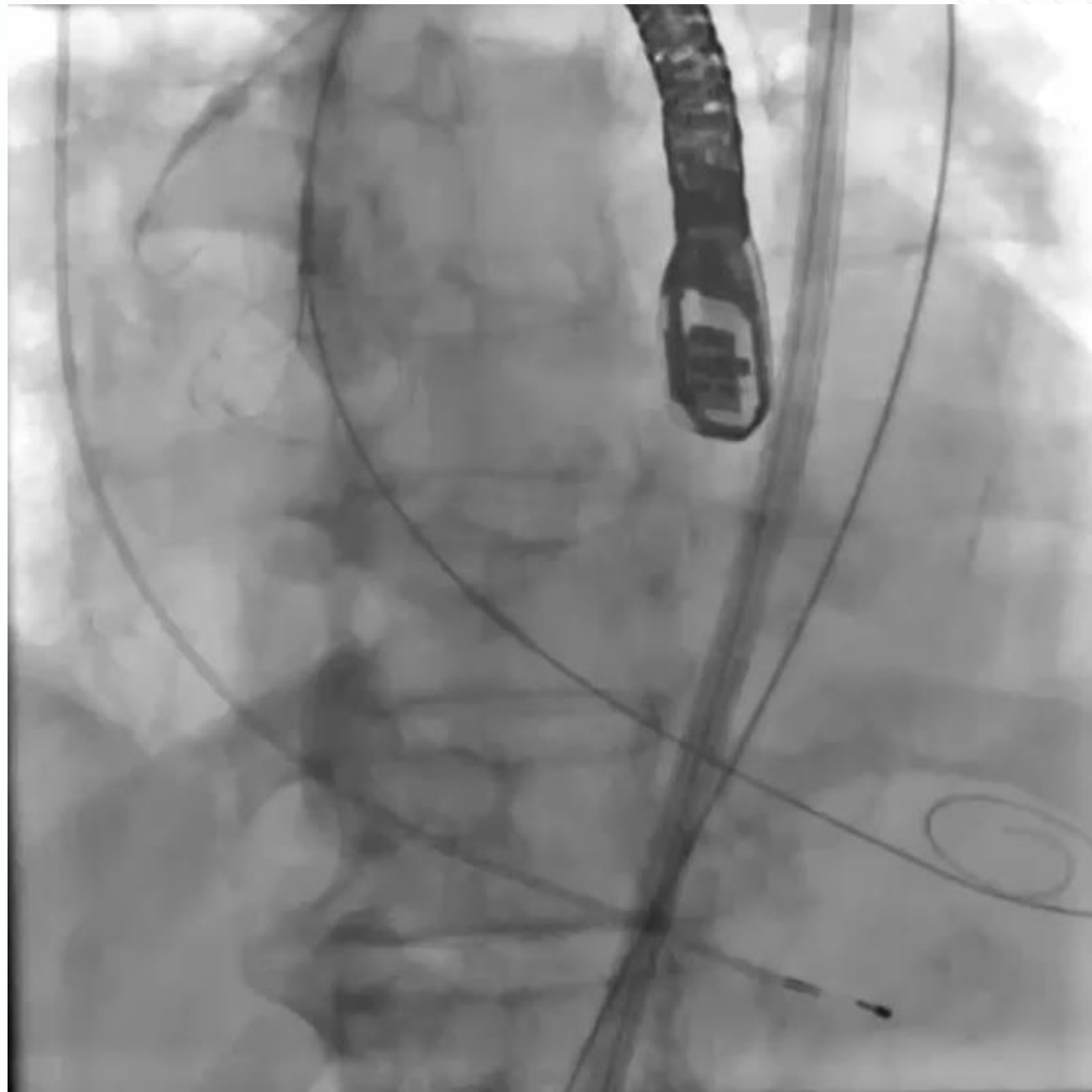


INDY™ OTW (over-the-wire) snare (Cook Medical Japan G.K., Tokyo, Japan)

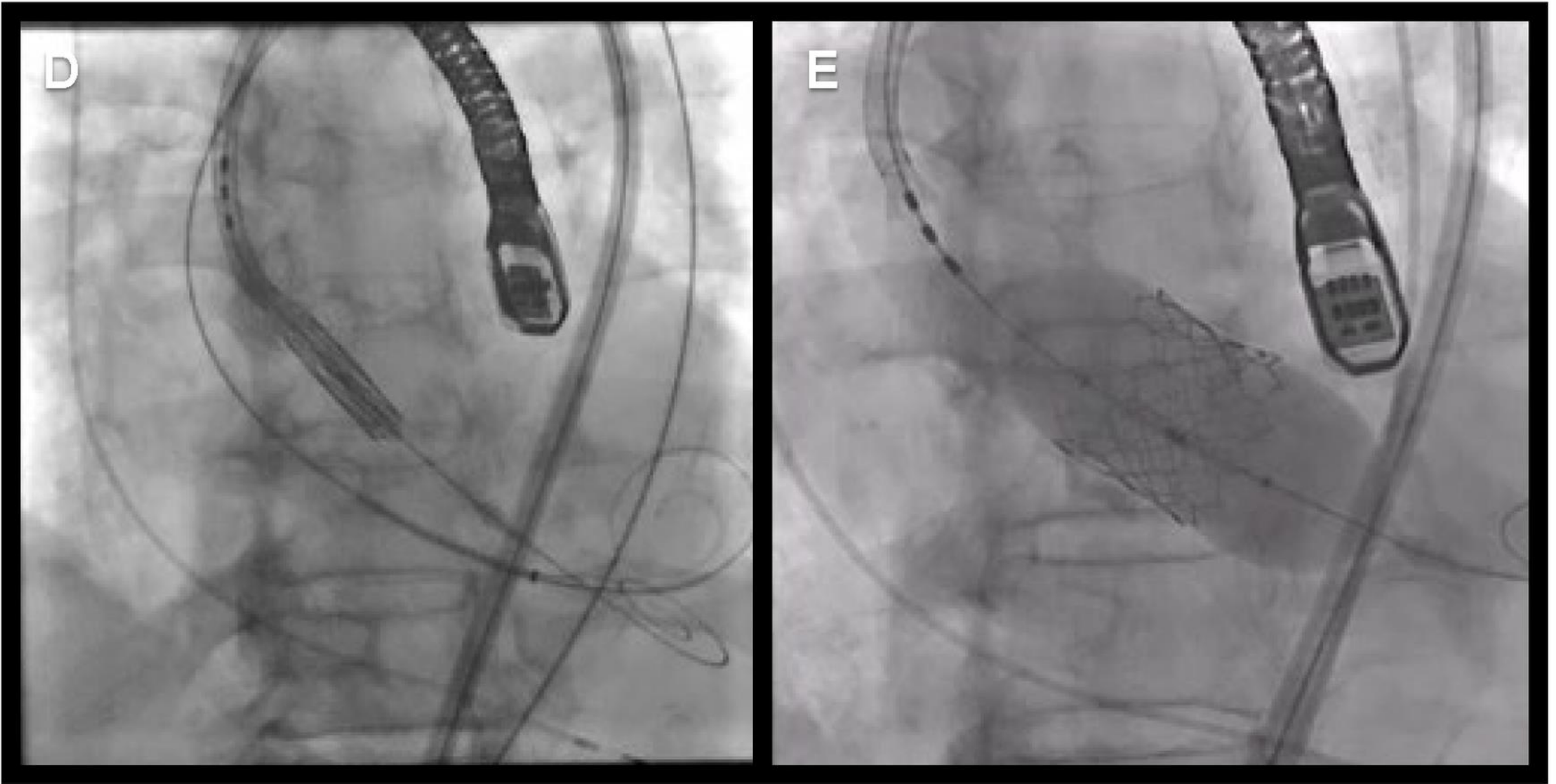
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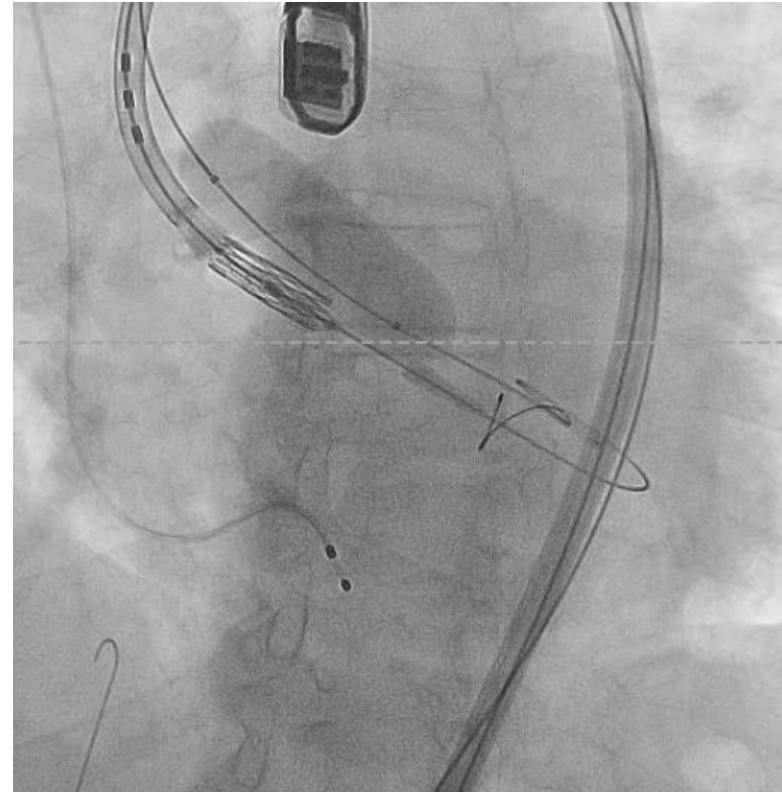
Summary

How to overcome difficulty in delivering transcatheter heart valve during TAVI?

At the native Aortic valve



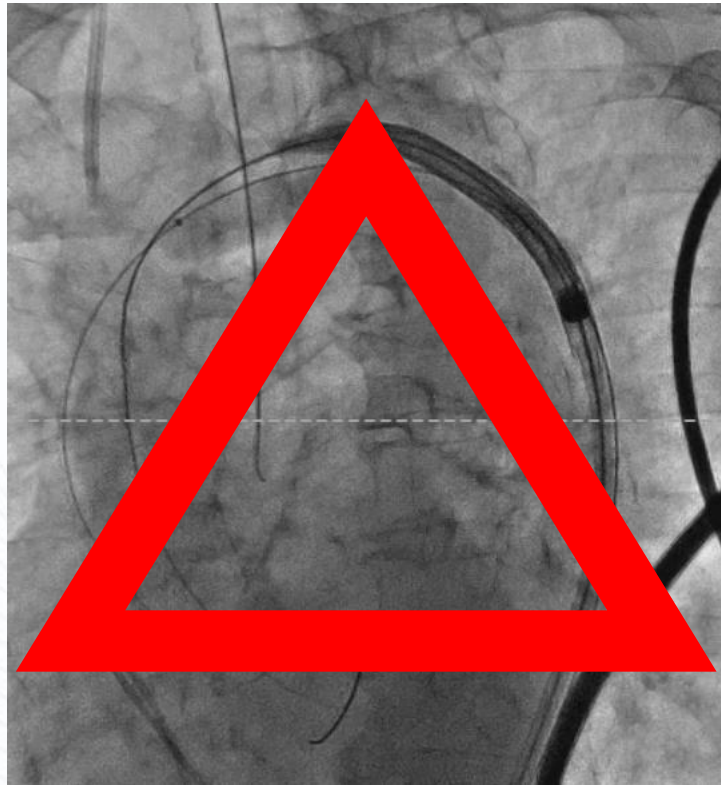
Tip inflation



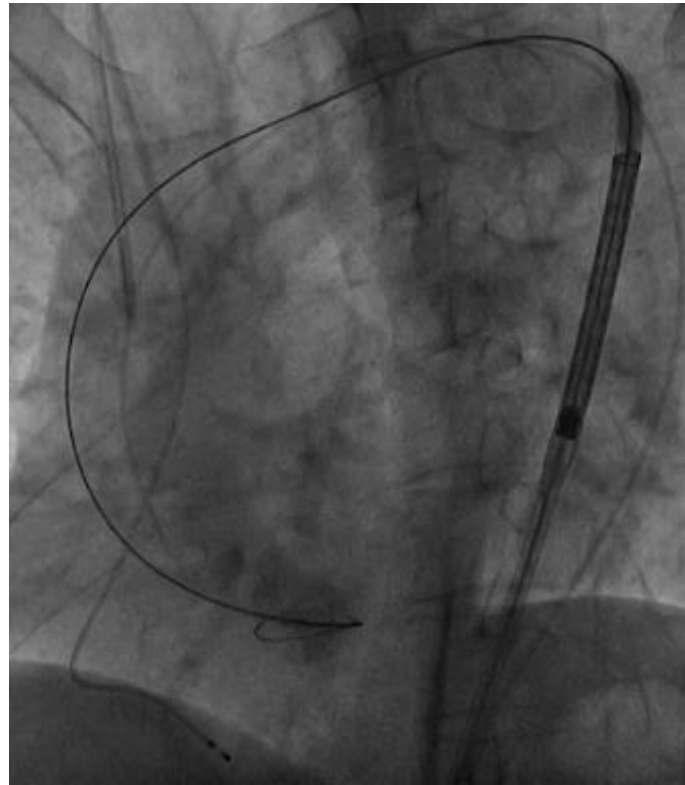
Shoehorn technique

How to overcome difficulty in delivering transcatheter heart valve during TAVI?

At the Aortic Arch



Shoehorn technique



Bias change



Lasso technique

Thank you for your kind attention

**Cath Lab 10
OR 5
(Hybrid OR 2)**

2022SCVC case
PCI 2208
EVT 569
TAVI 208
MitraClip 16
WATCHMAN 48
ASDO 10
PFOO 5
Ablation 547
Device 340

