TAVI in AMC

Seung-Jung Park, MD, PhD

Professor of Medicine, University of Ulsan College of Medicine,
Heart Institute, Asan Medical Center, Seoul, Korea

Procedural Steps

- Selection of patient
- Selection of device
- Femoral artery access
- Retrograde wire crossing of AV
- Device crossing of AV
- Valve positioning
- Valve deployment
- Device retrieval
- Femoral artery closure

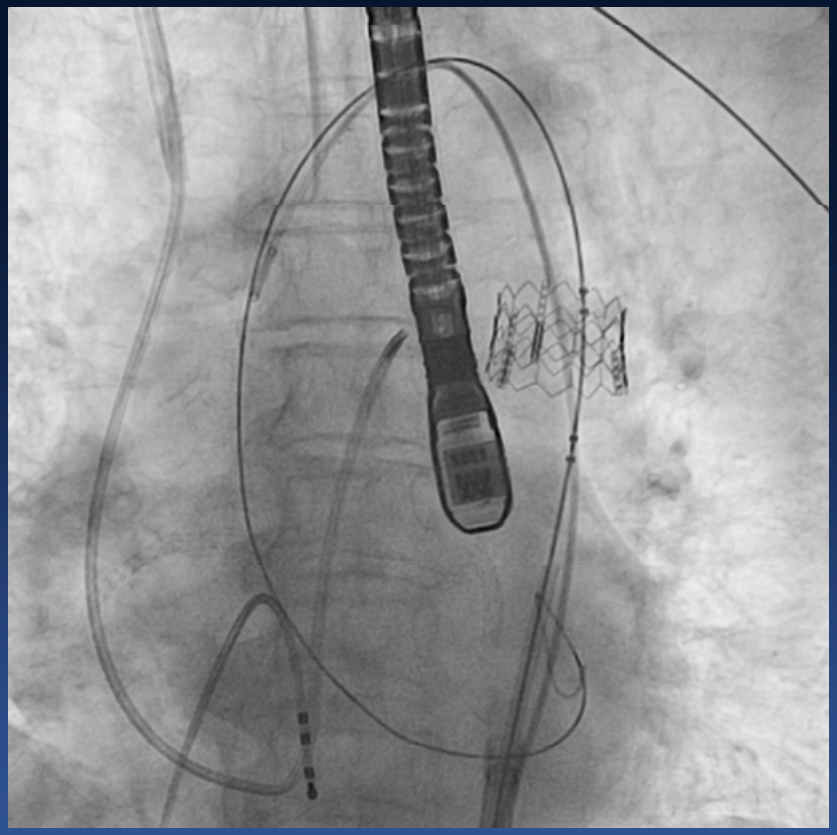
Edwards Sapien Balloon Expandable System, 18F

The Ugly,

With Old System (RF1,3)

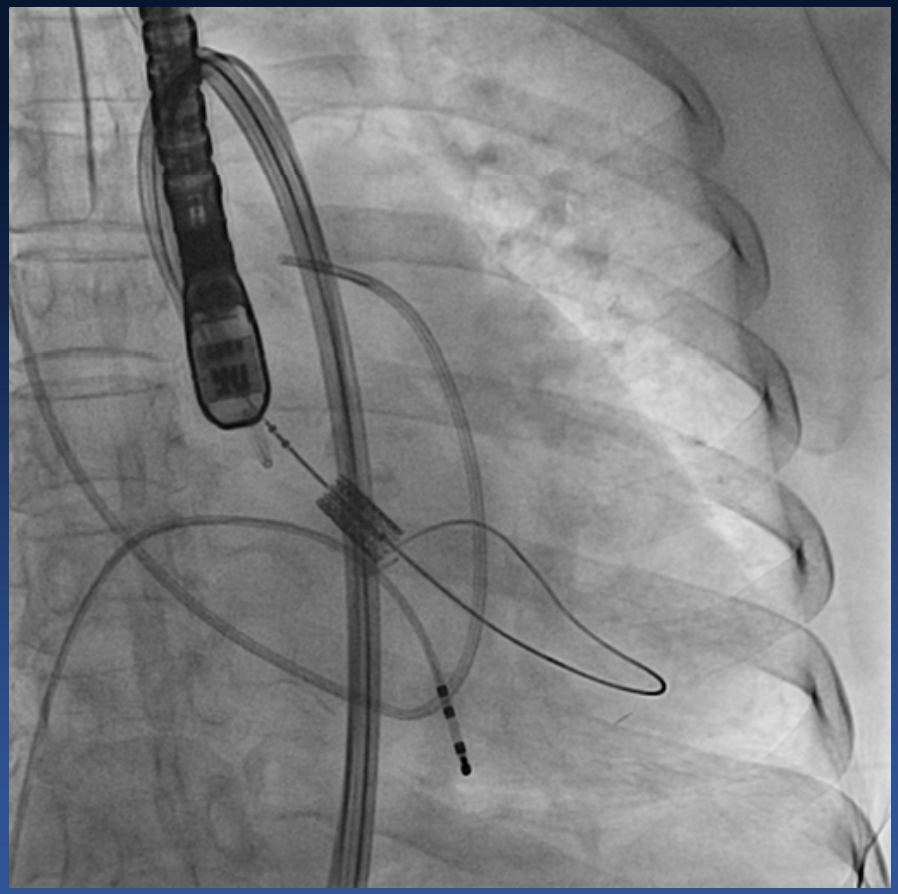
22-24F

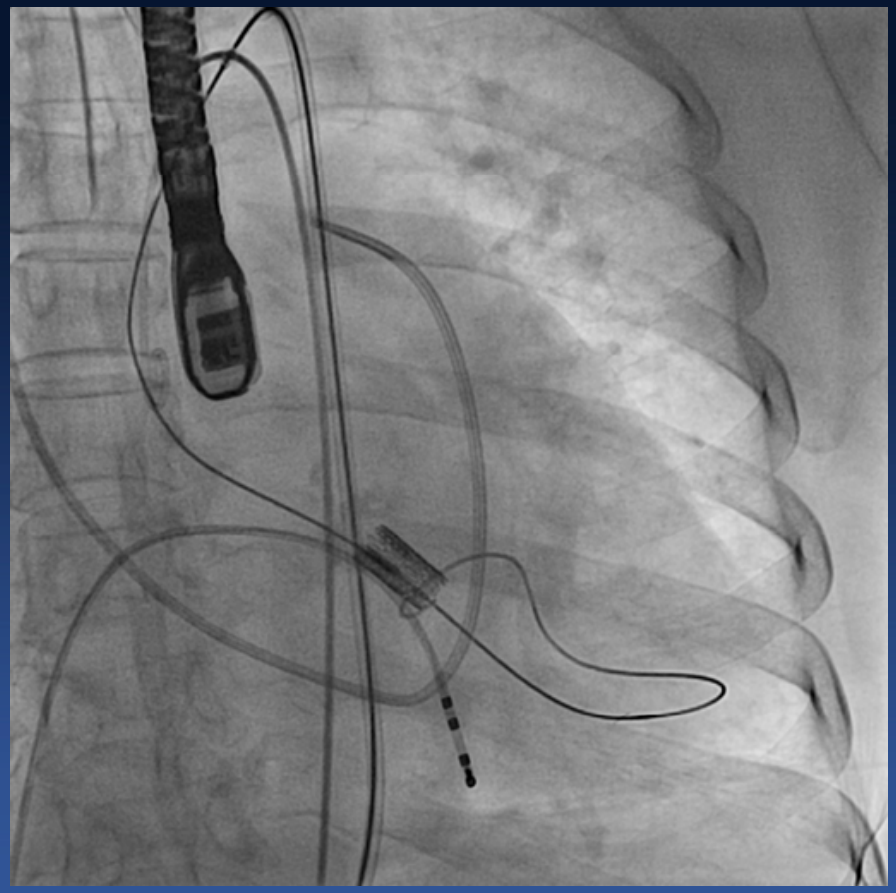
Device Embolism into the Aorta (RF1)



Early termination of rapid ventricular pacing may push up the device into the aorta.

Device Embolism into the LV (RF1)

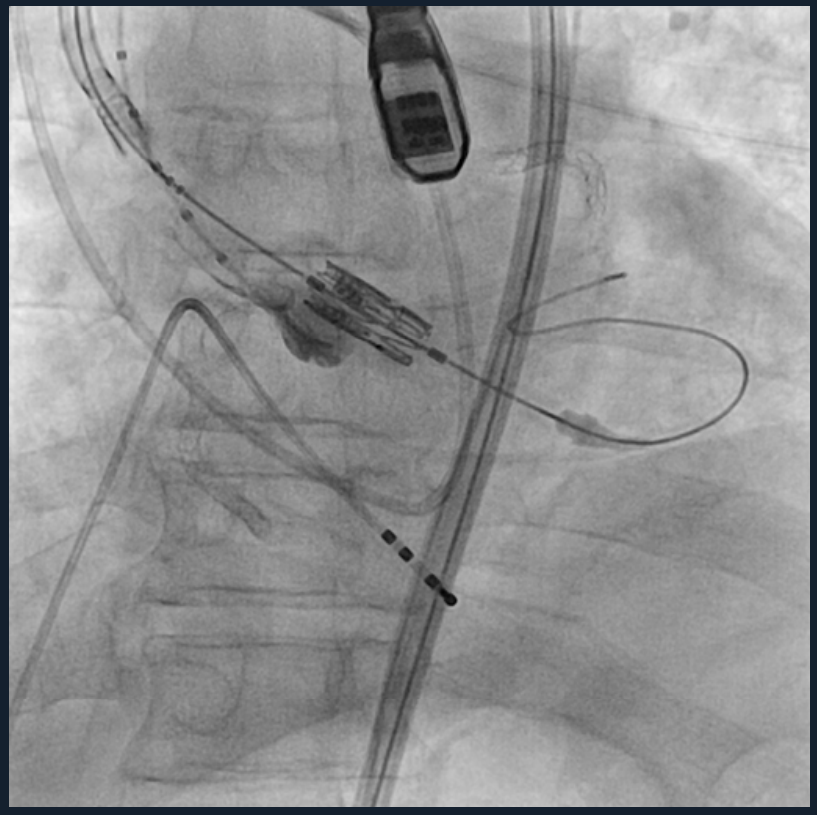




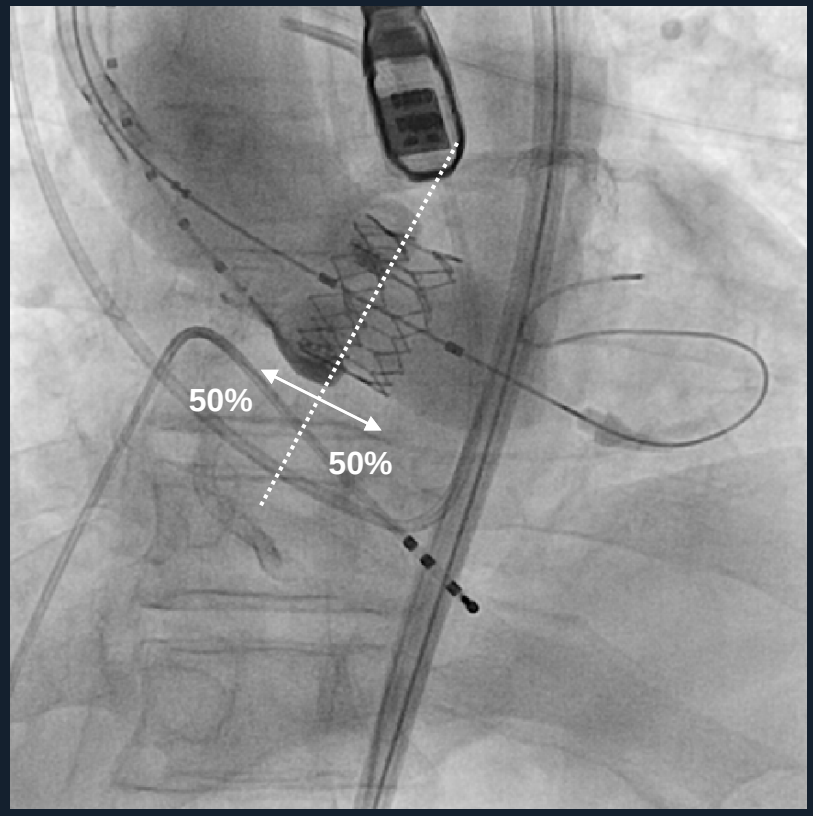
The Good,

With New System 18F

Successful !
Edward - NovaFlex

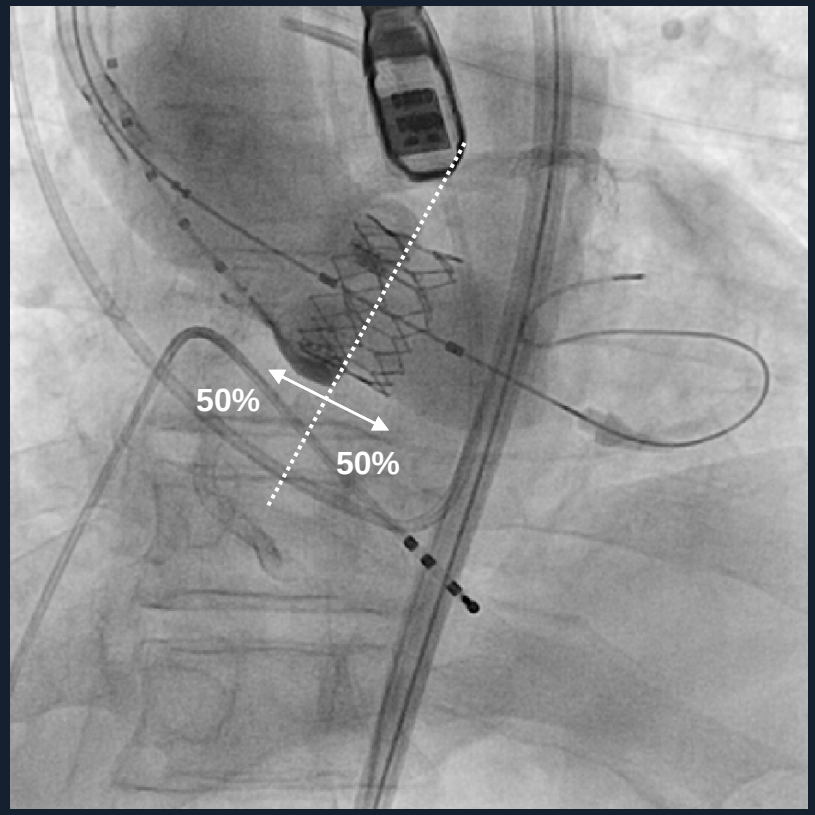


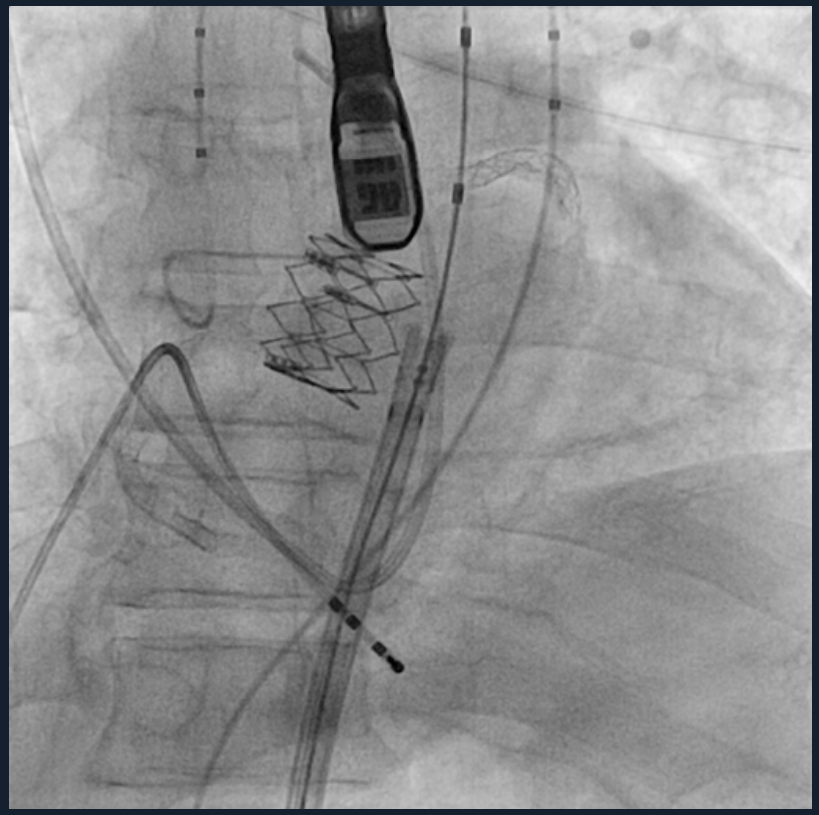
26mm Valve



Perfect Position

Successful !
Edward - NovaFlex





26mm Valve

AMC TAVI Registry

(RF1=5, RF3=5, NovaFlex=17, CoreValve=7)	N=34
Age, years	77.2±5.5
Logistic EuroSCORE, %	25.5±7.8
Implanted valve size, mm	
23 mm	17
26 mm	11 (2*)
29 mm	5*
Transfemoral approach	31
Surgical closure	4
Percutaneous closure	27
Transapical approach	3

* CoreValve

Old vs. New Delivery System

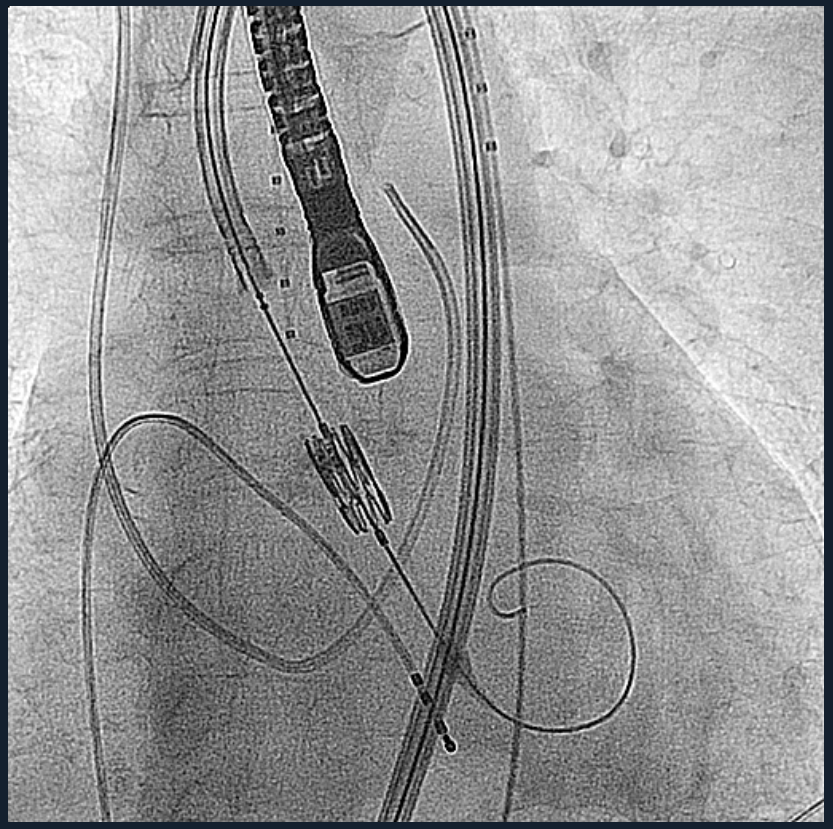
AMC Registry

Characteristic	RF I or III N=9	NovaFlex N=15	P
Procedural success	88.9	100	0.20
Mortality	0	0	-
Stroke	0	0	-
Permanent pacemaker	0	0	-
Vascular Complication			
Access site	1	0	-
Iliac artery perforation	1	0	-
Device Embolization	2	1	-

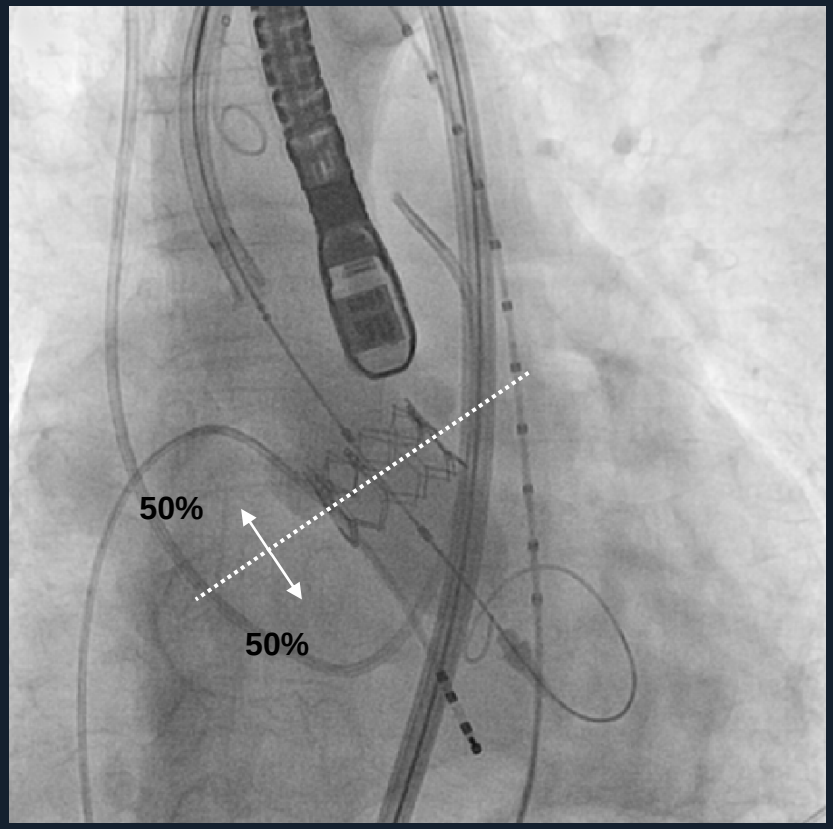
The Bad,

Only 1 Case of Distal Embolism with NovaFlex

50 to 50
Valve Positioning

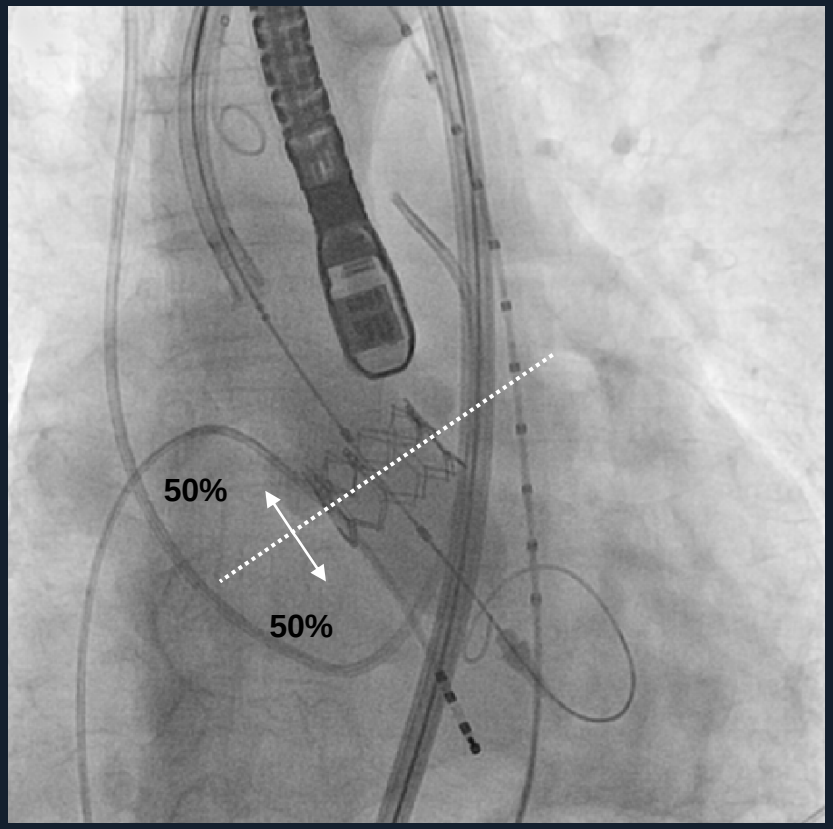


26mm Valve

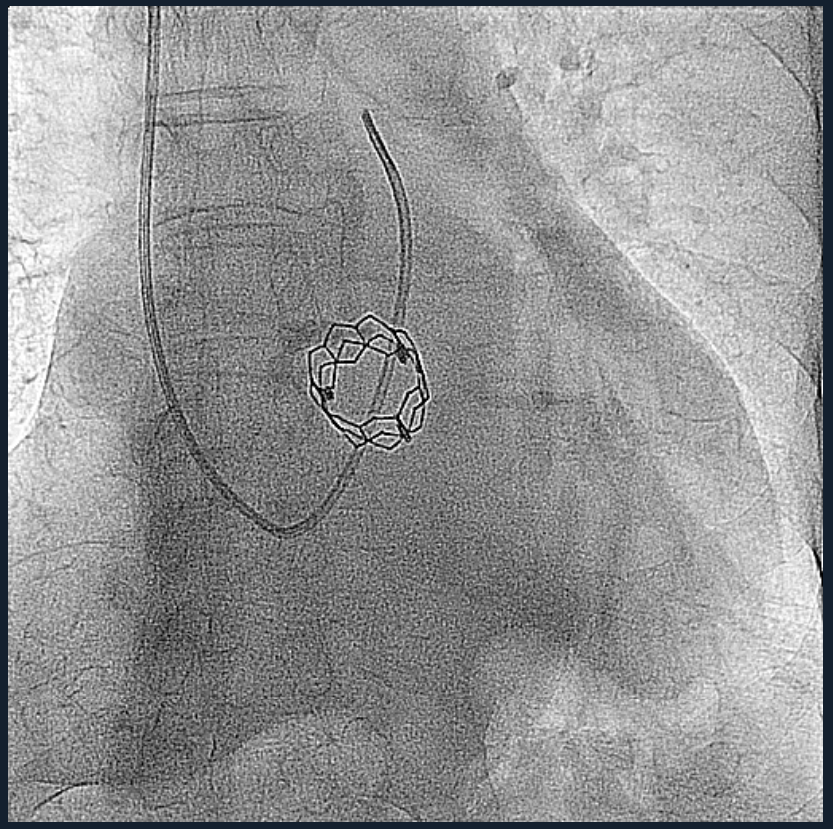


Perfect Position

Perfect Positioning, But...



Perfect Position



2 hours later

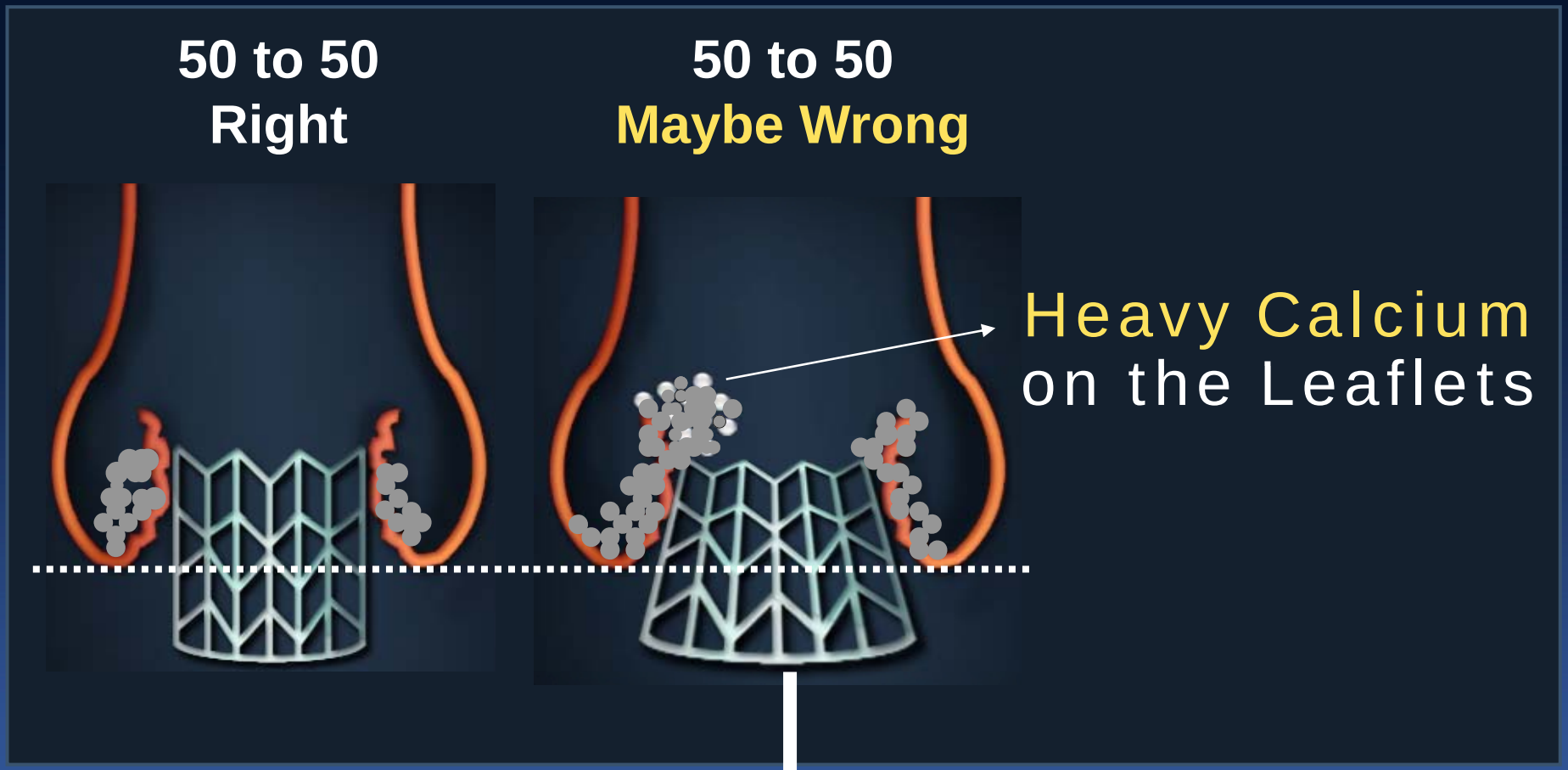
What we‘ve Learned

“Device Positioning is Crucial”

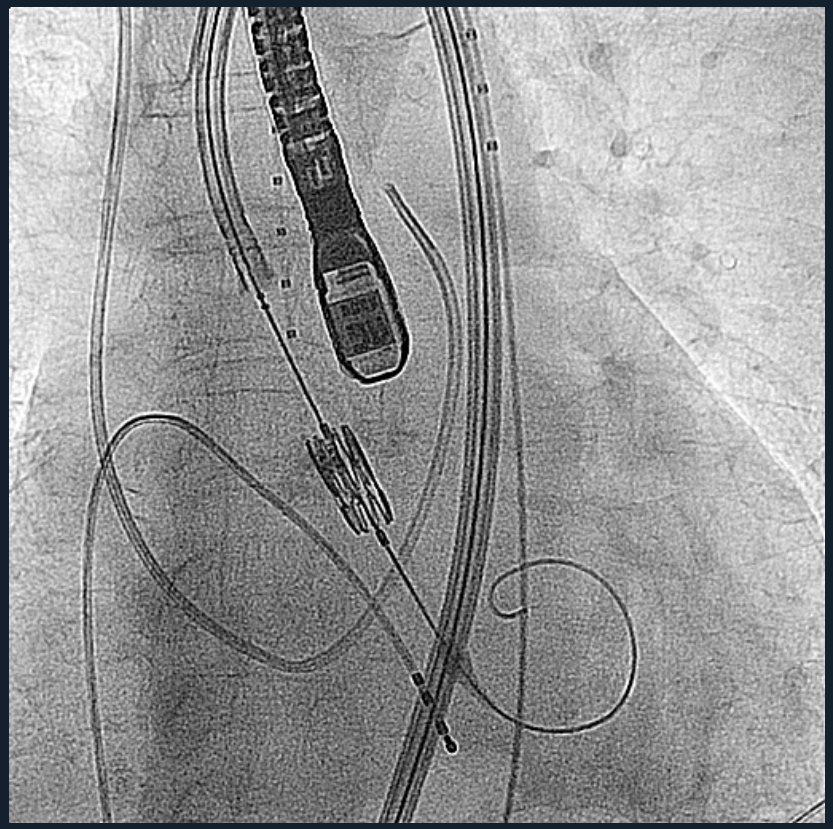
The Rule of 50 to 50%

is Not Always Right !

Recommended Valve Positioning

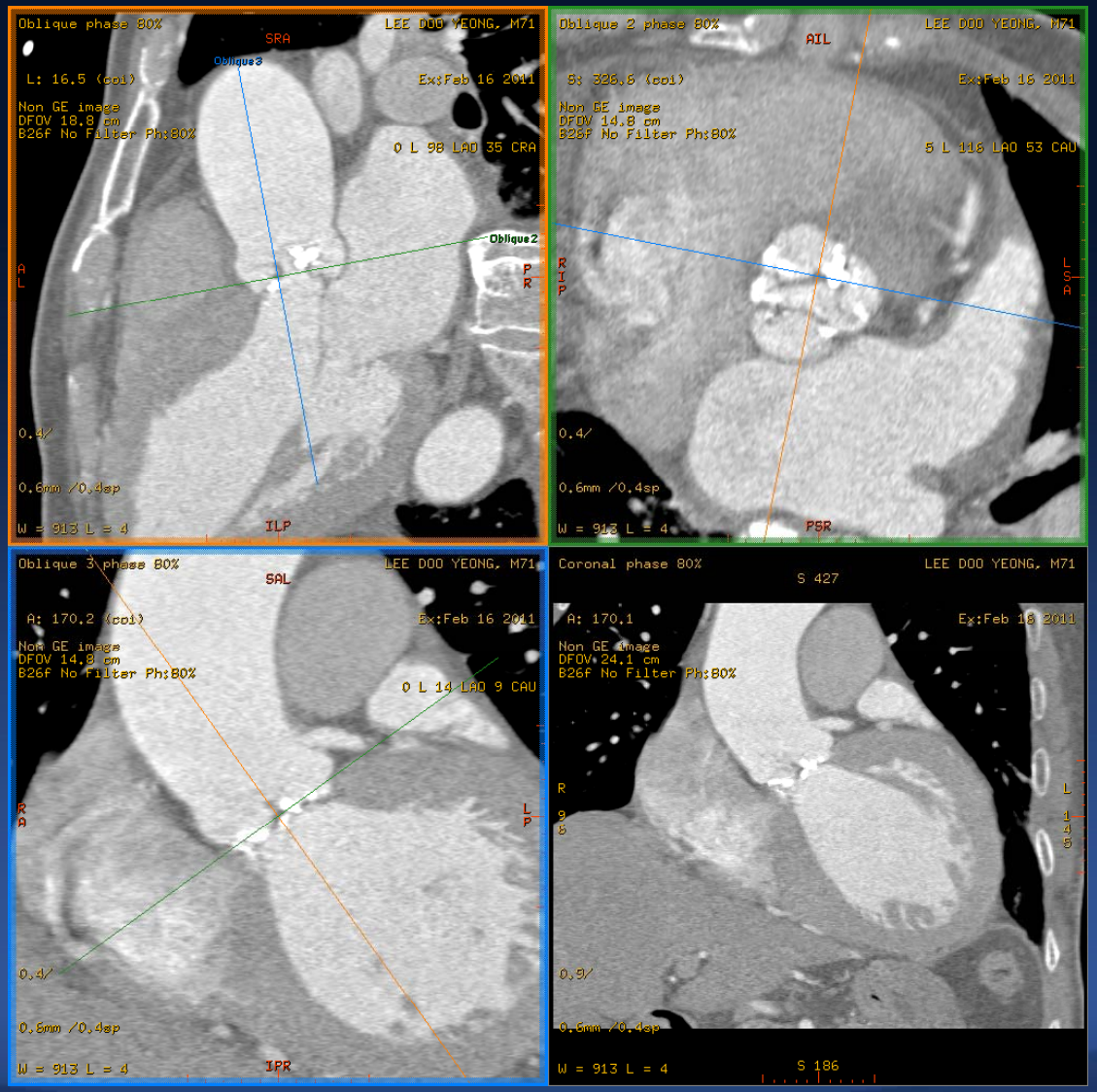


50 to 50
May be Not Enough !

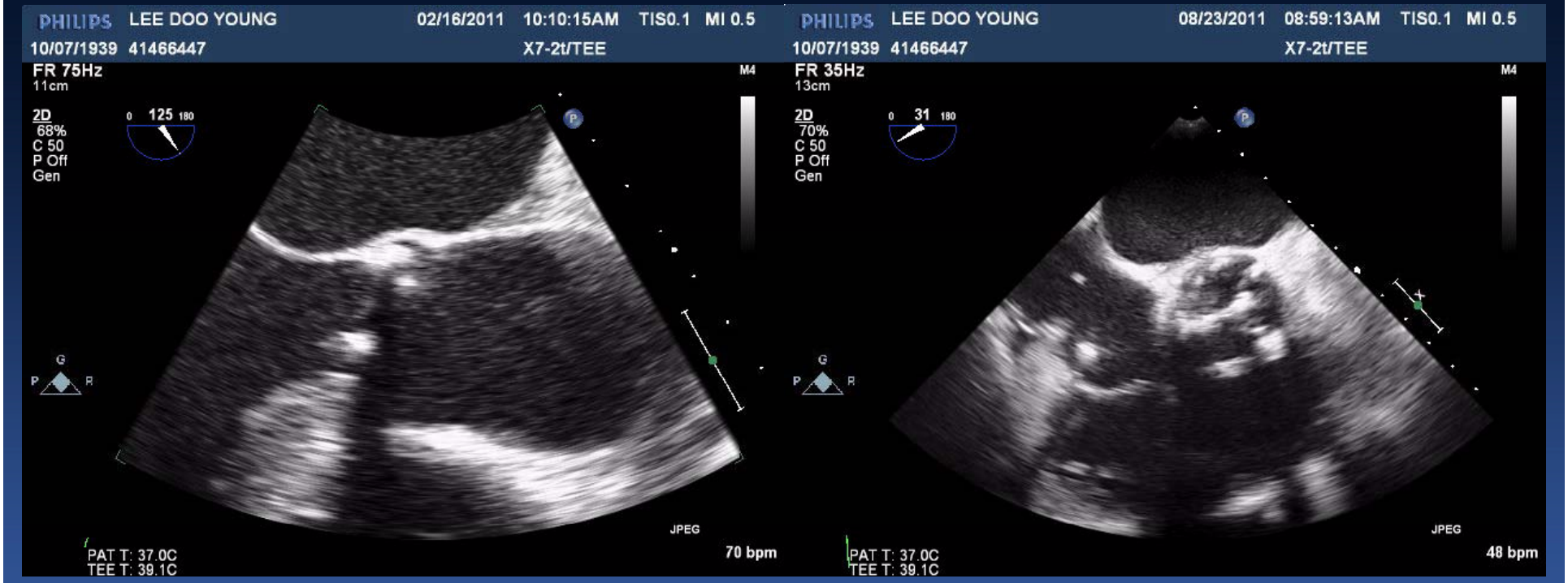


Heavy Calcium on Non-Coronary Cusp

Heavy Calcium in 4D CT



TEE showed Heavy Calcium in the Annulus base and Leaflets



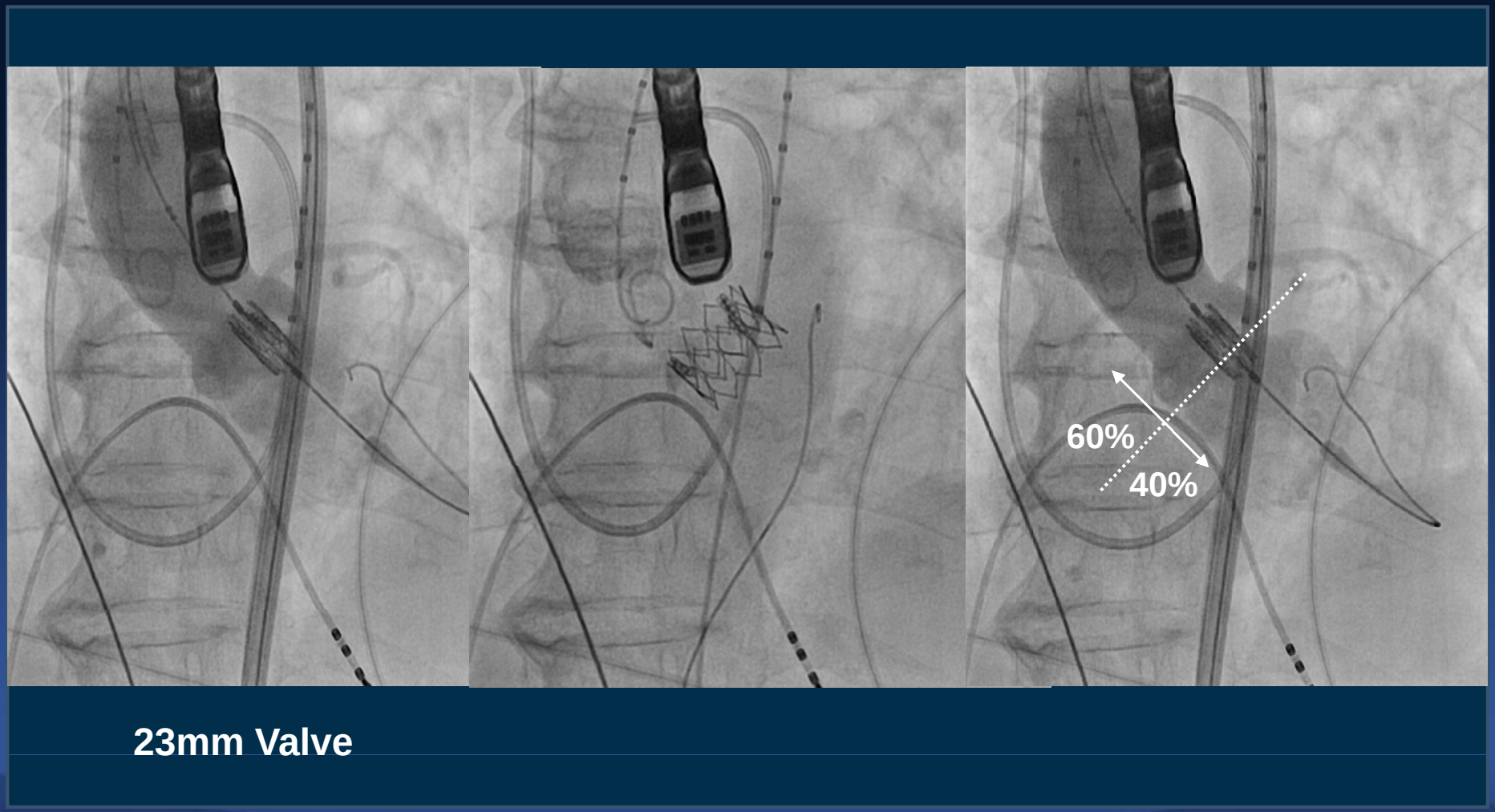
Heavy Calcium on the Leaflets

Upper End of Leaflet Should Be Covered

Prevention of Device Migration

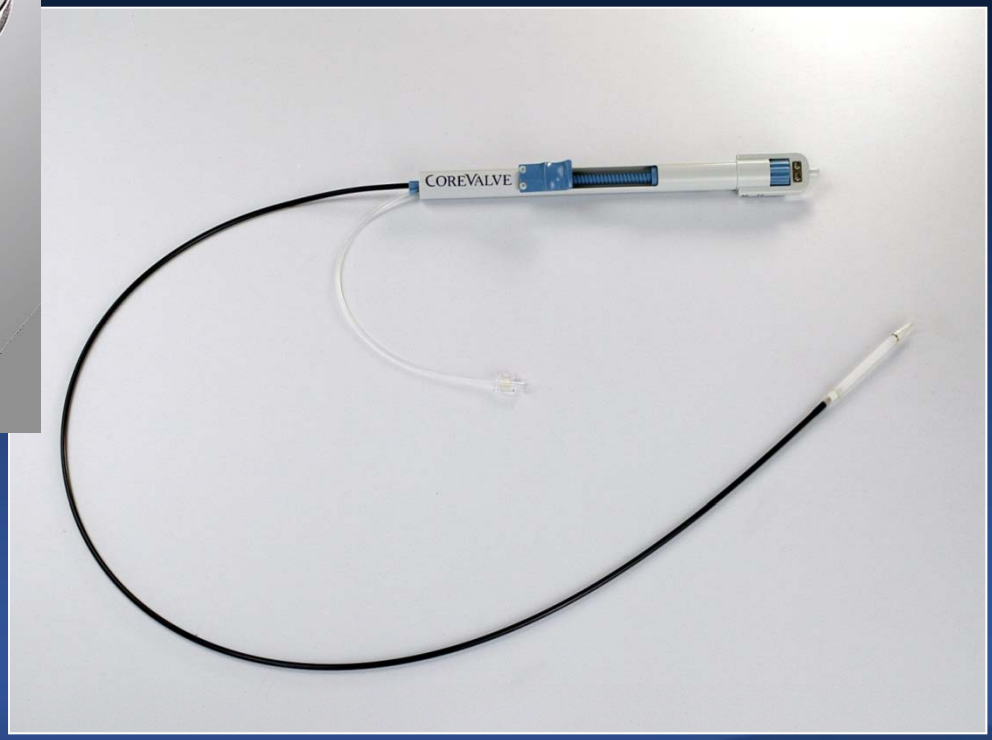
1. Coaxial alignment of Device is important.
2. Complete inflation of balloon is important.
3. However, you know that device in-deflator is volume dependent (only 4 atm. in maximal inflation).
4. In some heavily calcified case, device should be positioned upto calcified upper end of leaflets.

60 to 40 in Routine ?



23mm Valve

Medtronic CoreValve
Self Expanding
18F

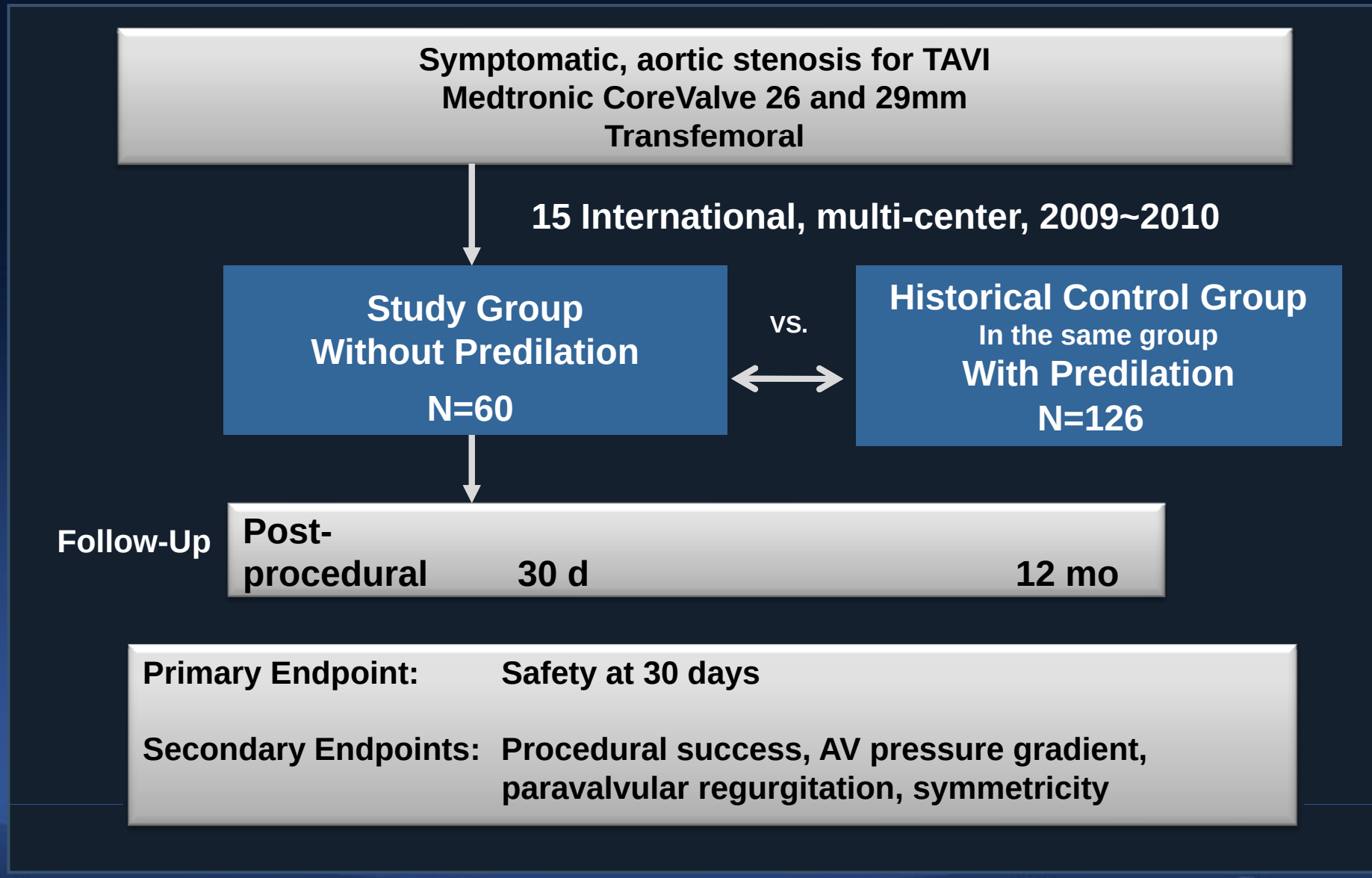


CoreValve
Without Pre-dilatation

CoreValve
Without Pre-dilation

- TAVI using CoreValve without pre-dilation is feasible and safe.
- Escape from hemodynamically unstable situation.
- Reduction of repeatedly diseased valve injury.
- May expand the indication of TAVI and reduce the complication.

CoreValve Without Pre-dilatation



Grube E, *JACC Interv* 2011; 4:751-7

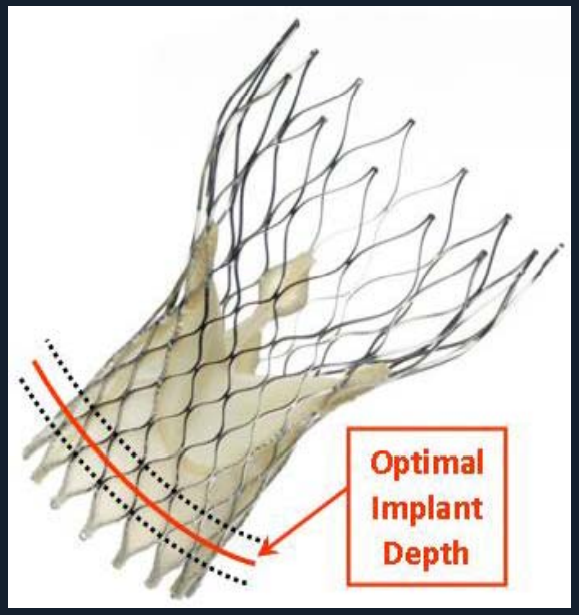
Procedural Results & 30-Day Outcomes

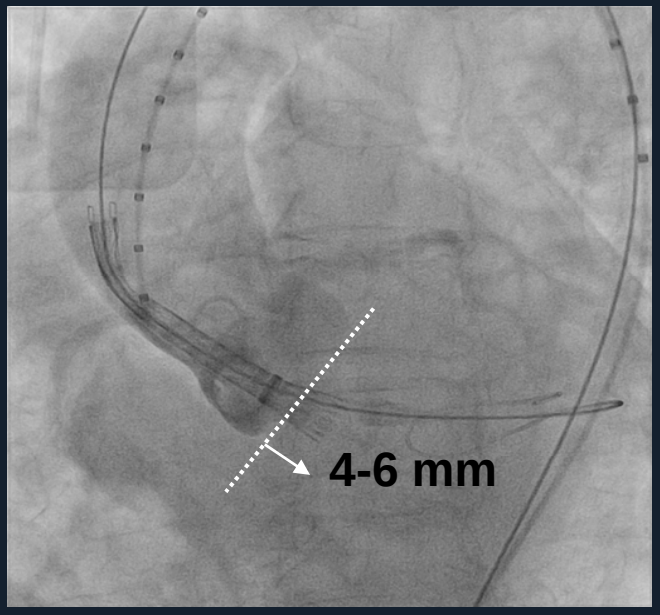
	Study group N=60	Control group N=126
Technical success rate	96.7% (58)	81.7% (103)
Valve migration	0	0
Conversion to surgery	1.7% (1)	5.6% (7)
Postdilation	16.7% (10)	NA
Clinical Outcomes		
All-cause mortality	6.7% (4)	14.3% (18)
Myocardial infarction	0	5.6% (7)
Stroke / TIA	5.0% (3)	11.9% (15)
Need for permanent pacemaker	11.7% (10)	27.8% (35)
Vascular access problem	10.0% (6)	9.5% (12)

Grube E, *JACC Interv* 2011; 4:751-7

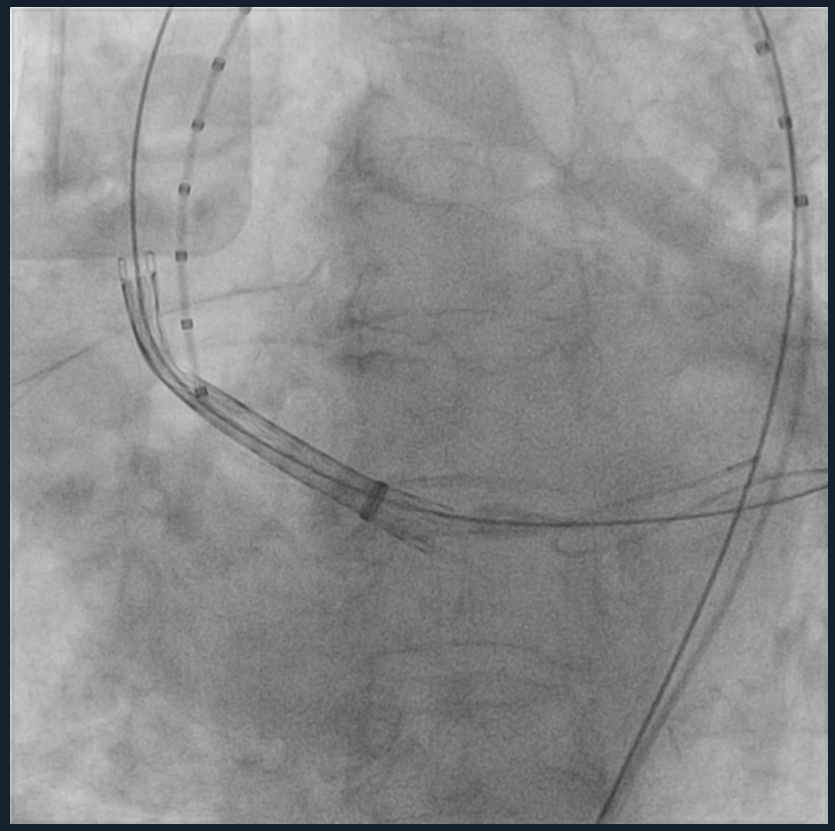
Valve Positioning is Still Crucial !

Implantable range is 8 mm

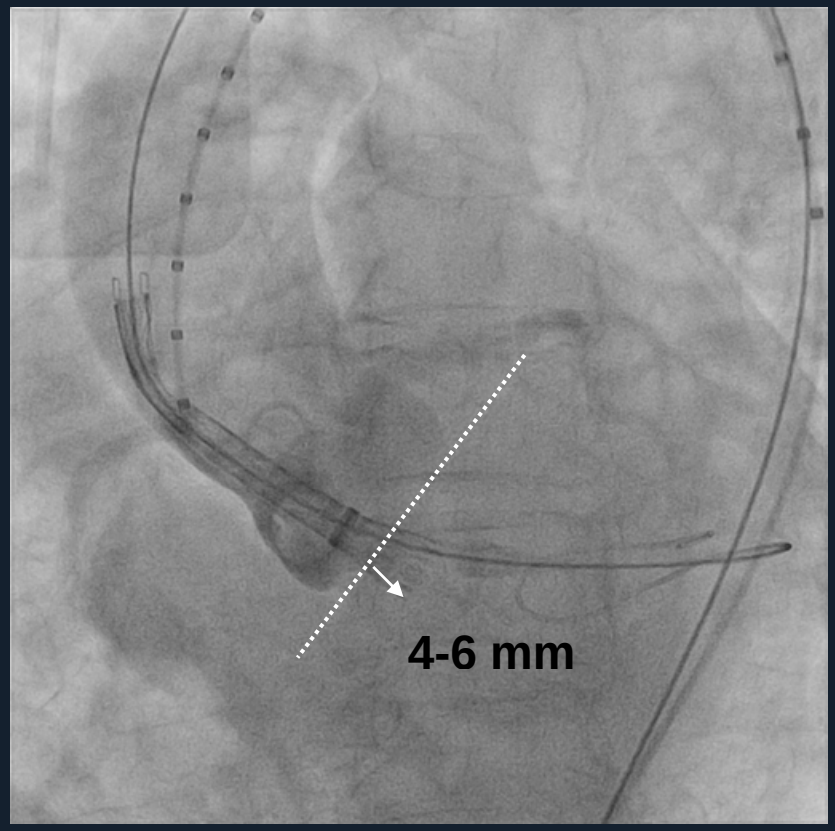




CoreValve
Without Pre-dilation

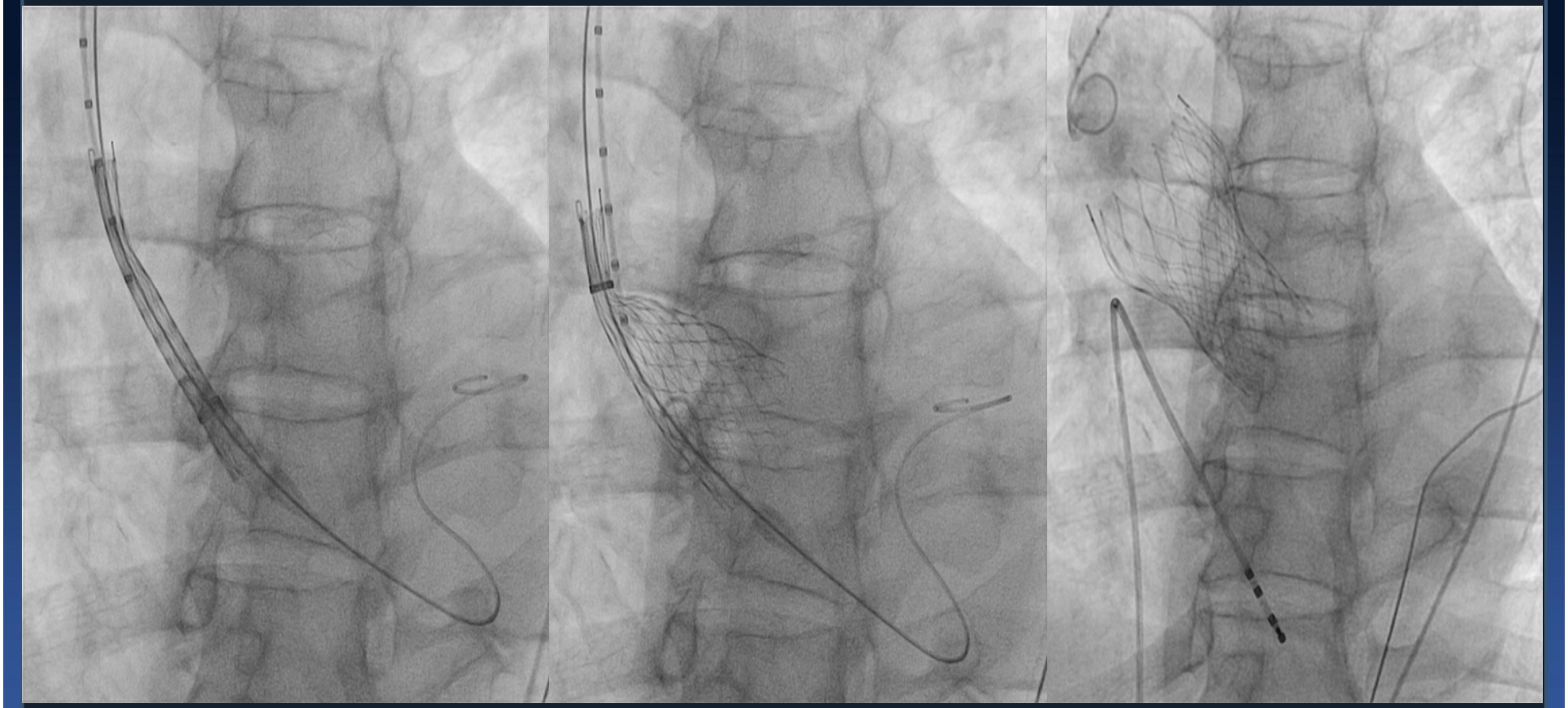


29mm Valve

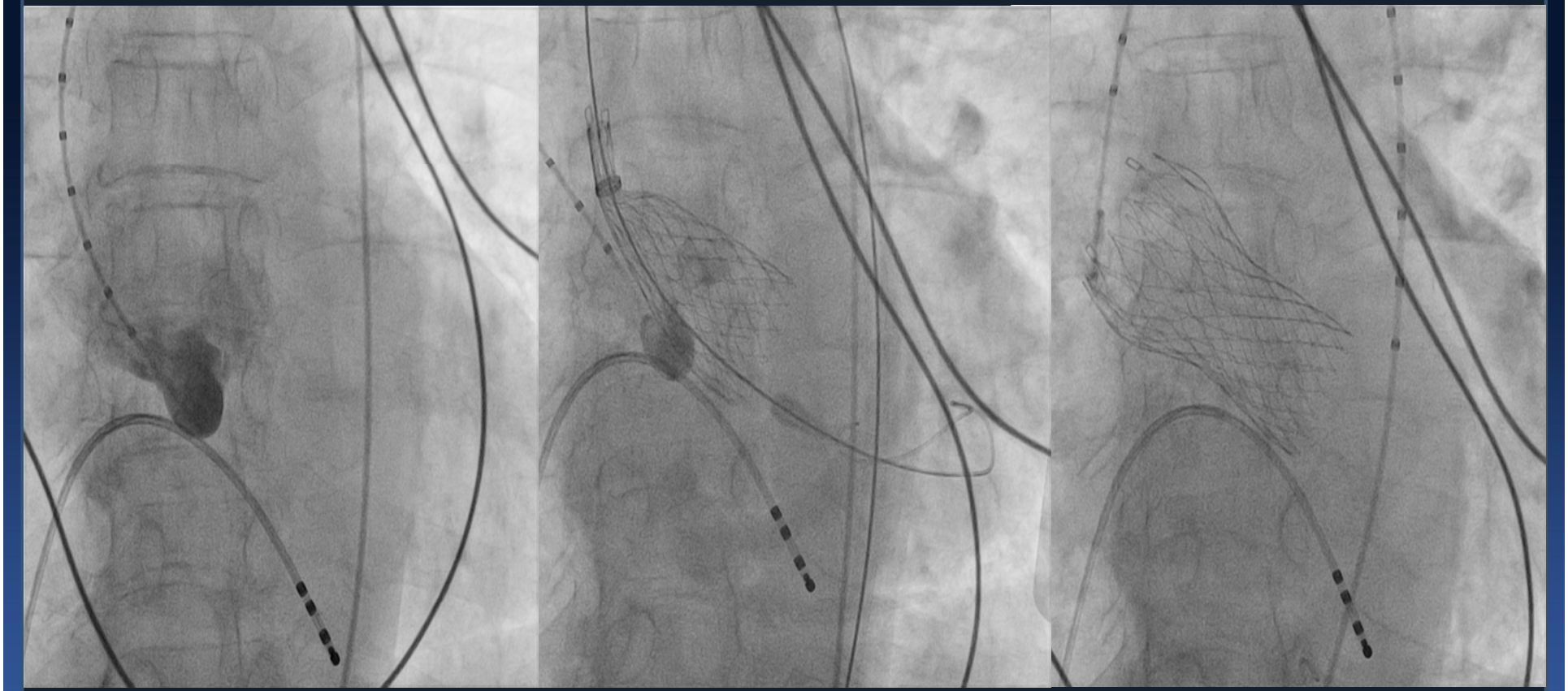


Perfect Position

Too High

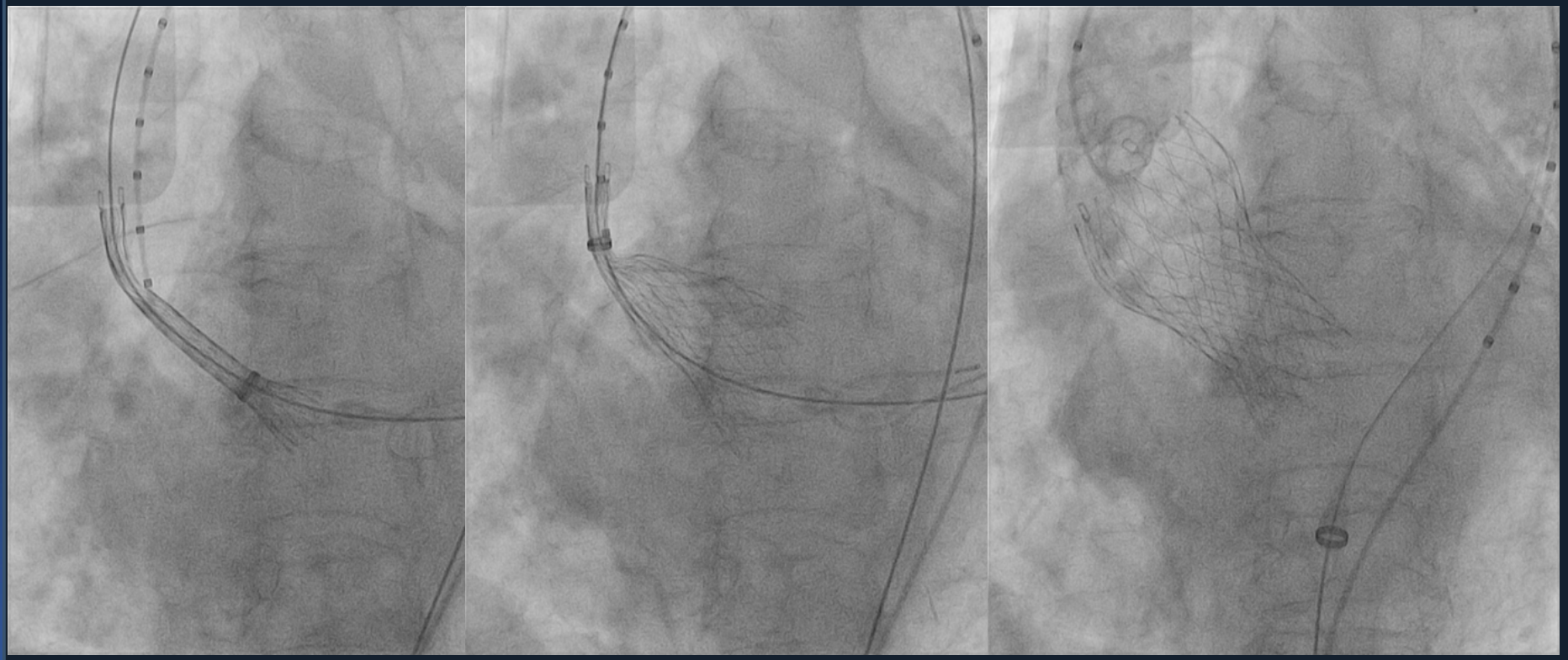


Too Low



Complete AV block -> Permanent Pacemaker

Perfect Positioning



29mm Valve

Complete AV block -> Permanent Pacemaker

Complete AV Block is Still Problem (25%) !

TAVI 2012

Future Perspectives

In the next 10 years, most patients with severe AS requiring AVR will be treated using TAVI !

cost-effectiveness assessments.