

# AP VALVES & SH 2023

## My Experience on ACURATE neo2 and its Application for Lifetime Management

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# Disclosure

## Proctor:

- Abbott, Boston Scientific, Meril Life Sciences

## Speaker fees/consultant/advisory board:

- Abbott, Astra Zeneca, Boston Scientific, Daiichi, Edwards Lifesciences, HI-D Imaging, Medtronic, Meril, RCS Technologies, Shockwave Med.

## Institutional research funding:

- Boston Scientific

# Kerckhoff Heart Center ACURATE experience

## 1<sup>st</sup> GENERATION

ACURATE TA (CE 2012)



**ACURATE™**

N=500

## 2<sup>nd</sup> GENERATION

ACURATE *neo* TF  
(CE 2014) & TA (CE 2017)



**ACURATE *neo*™**

N=1500

## 3<sup>rd</sup> GENERATION

ACURATE *neo2* TF  
(CE 2019)



**ACURATE *neo2*™**

N=1200

# Is there a perfect valve?

## SAPIEN 3 Ultra



Ease of use: 👍👍

PVL: 👍👍👍

PPI: 👍

Gradients: 🗨️

Coronary access: 👍👍👍

Femoral access: 👍

## ACURATE neo2



Ease of use: 👍

PVL: 👍

PPI: 👍👍👍

Gradients: 👍👍

Coronary access: 👍👍

Femoral access: 👍

## EVOLUT PRO



Ease of use: 🗨️

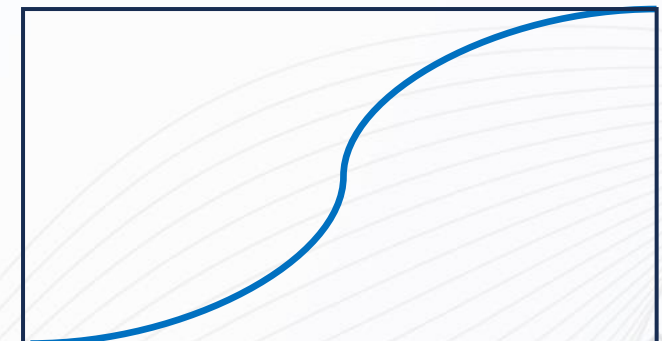
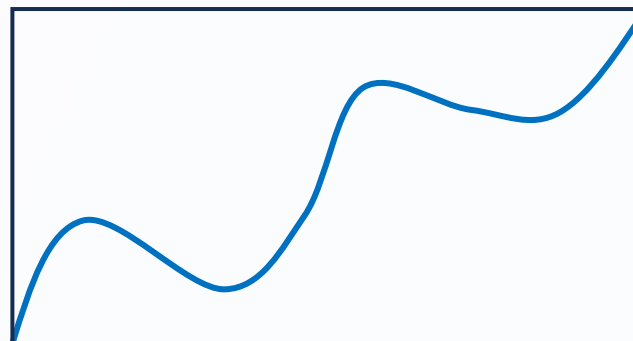
PVL: 👍

PPI: 🗨️

Gradients: 👍👍👍

Coronary access: 🗨️

Femoral access: 👍👍



# ACURATE neo center learning curve

Despite the limitations of the first gen ACURATE neo, with careful sizing and selection it was possible to achieve excellent outcomes!

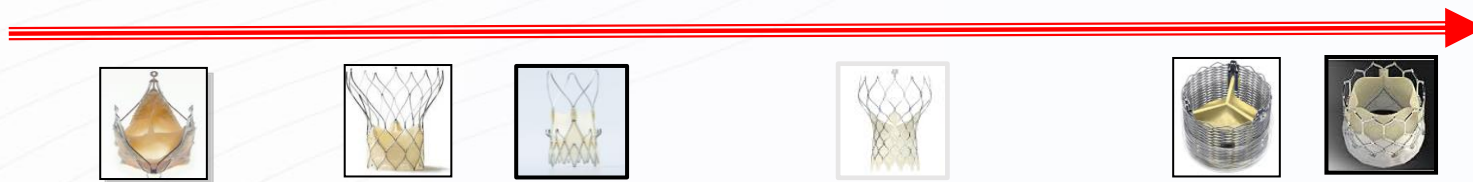
Variable	Quartile 1 (Case 1–250)	Quartile 2 (Case 251–500)	Quartile 3 (Case 501–750)	Quartile 4 (Case 751-1000)	p
Cover index (%)	3.87 [1.86; 6.37]	5.13 [3.04; 7.30]	5.38 [3.39; 7.52]	6.17 [4.20; 7.90]	<0.001
Aortic valve calcium score (AU)	2395 [1646; 3111]	2049 [1494; 2872]	1955 [1385; 2893]	1989 [1280; 2726]	<0.001
Compact peri-annular Ca <sup>++</sup> formation	64 (25.6%)	41 (16.4%)	42 (16.8%)	29 (11.6%)	0.001
Implantation depth at LCC (mm)	5.0 [3.0; 6.0]	6.0 [5.0; 7.0]	6.0 [4.0; 6.0]	5.0 [4.0; 6.0]	<0.001
Device success (VARC-2)	171 (85.5%)	177 (88.5%)	181 (90.5%)	186 (93.0%)	0.002
≥moderate PVL at discharge	18/243 (7.4%)	7/241 (2.9%)	9/246 (3.7%)	2/246 (0.8%)	0.001
Permanent pacemaker	25 (10.0%)	26 (10.4%)	26 (10.4%)	17 (6.8%)	0.444

# Limitations of ACURATE neo 1st gen

Radial force

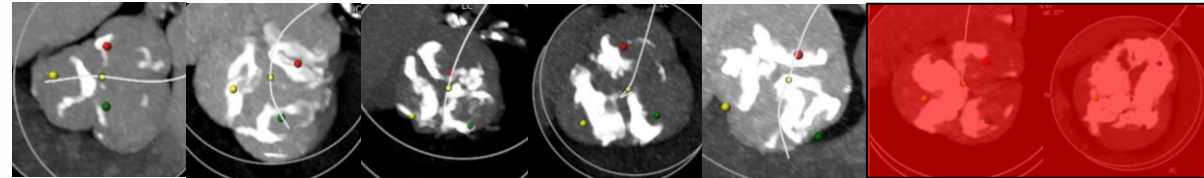
low

high



PVL  
Malexpansion  
Pop-out

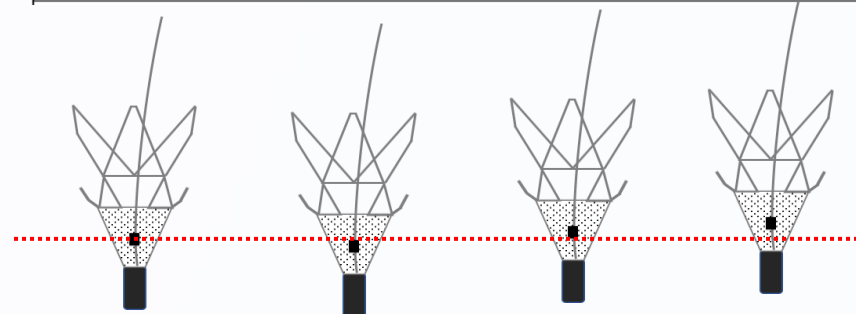
Aortic valve calcification



Appropriate Sizing

ACURATE neo Size	Annular Range According to Official Sizing Recommendation (mm)	Perimeter-Derived Annulus in Diastole (mm) (Oversizing)	Perimeter-Derived Annulus in Systole (mm) (Oversizing)
Small	21.0-23.0	20.0-22.0 (13.0%-4.4%)	20.0-22.4 (13.0%-2.6%)
Medium	23.0-25.0	22.1-23.9 (11.6%-4.4%)	22.5-24.3 (10.0%-2.8%)
Large	25.0-27.0	24.0-25.8 (11.1%-4.4%)	24.4-26.3 (9.6%-2.6%)

Correct positioning

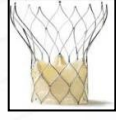


# Limitations of neo 1st gen => neo2

Radial force

low

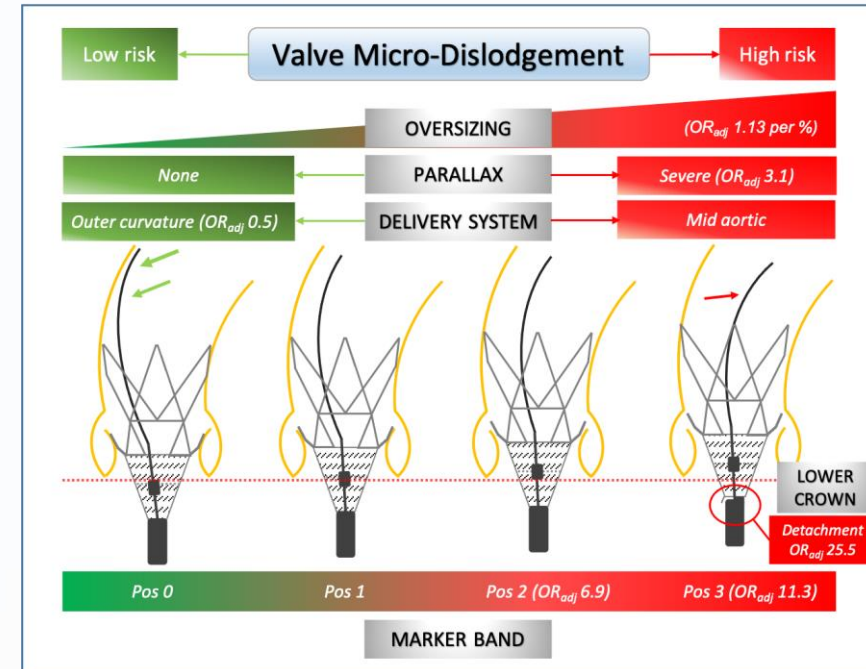
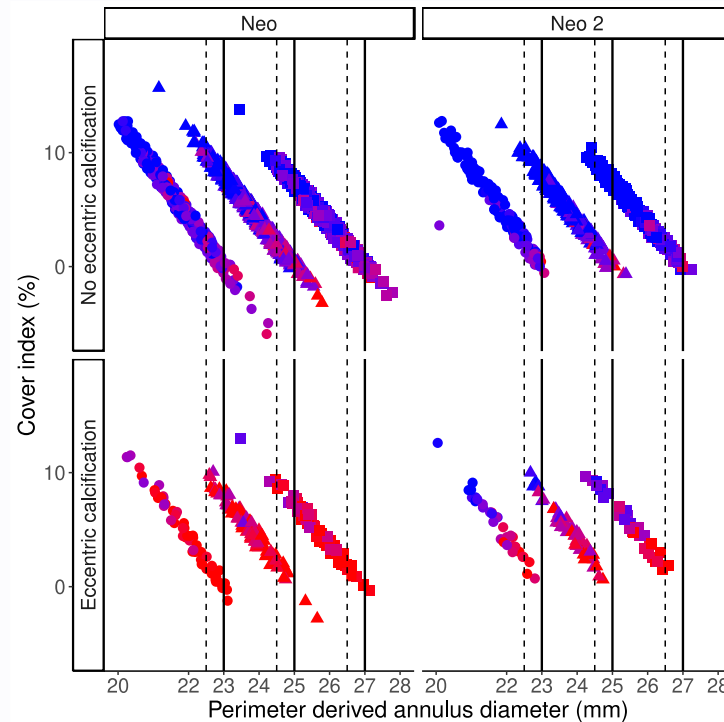
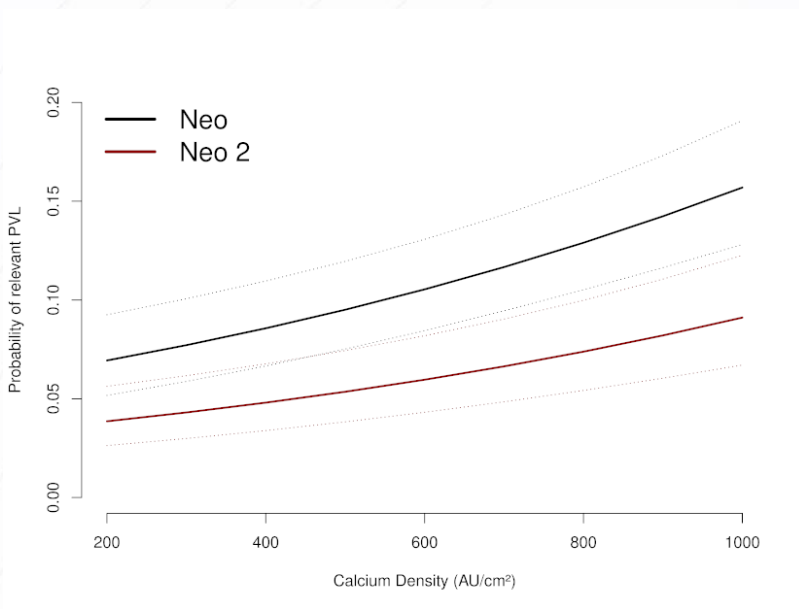
high



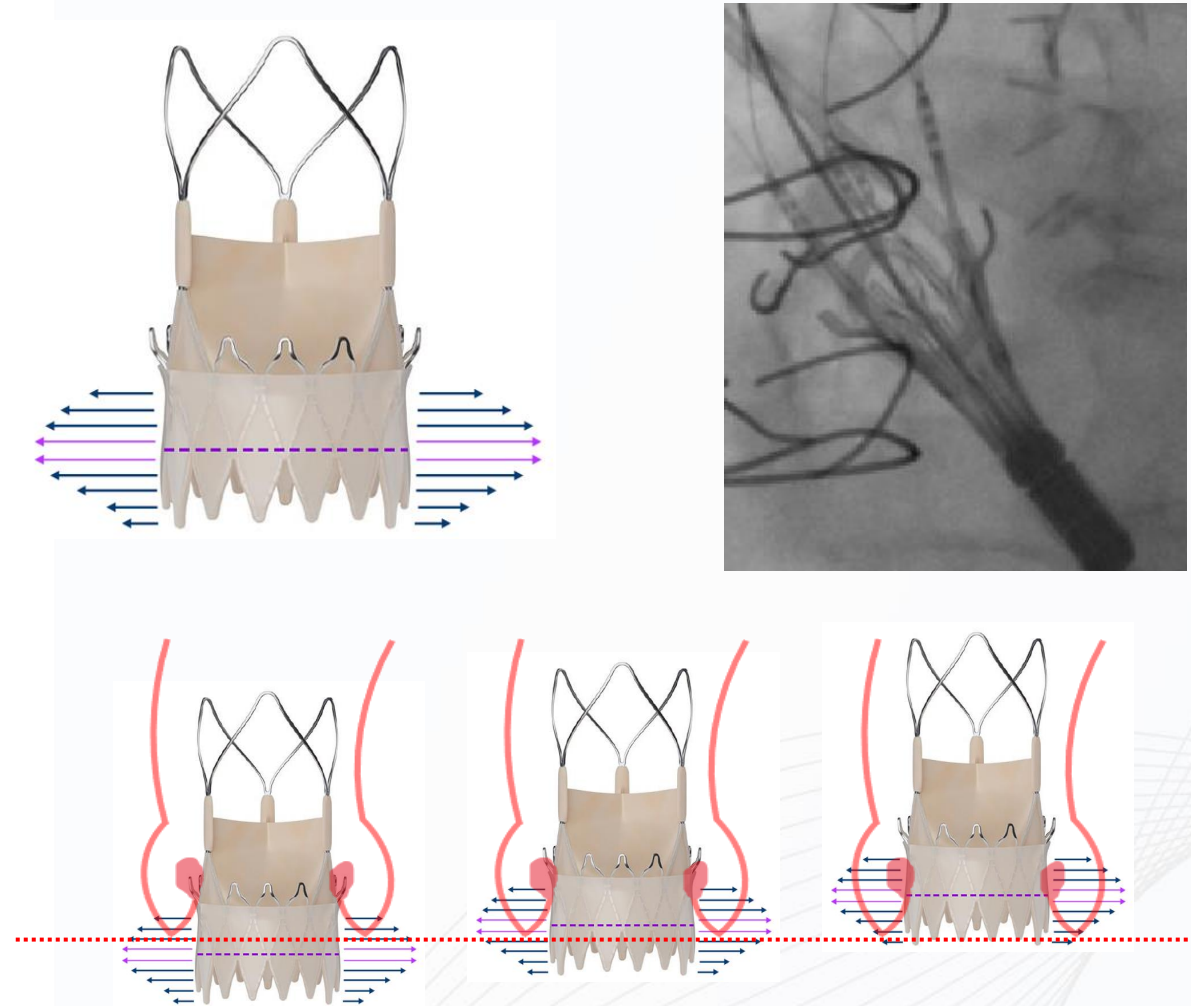
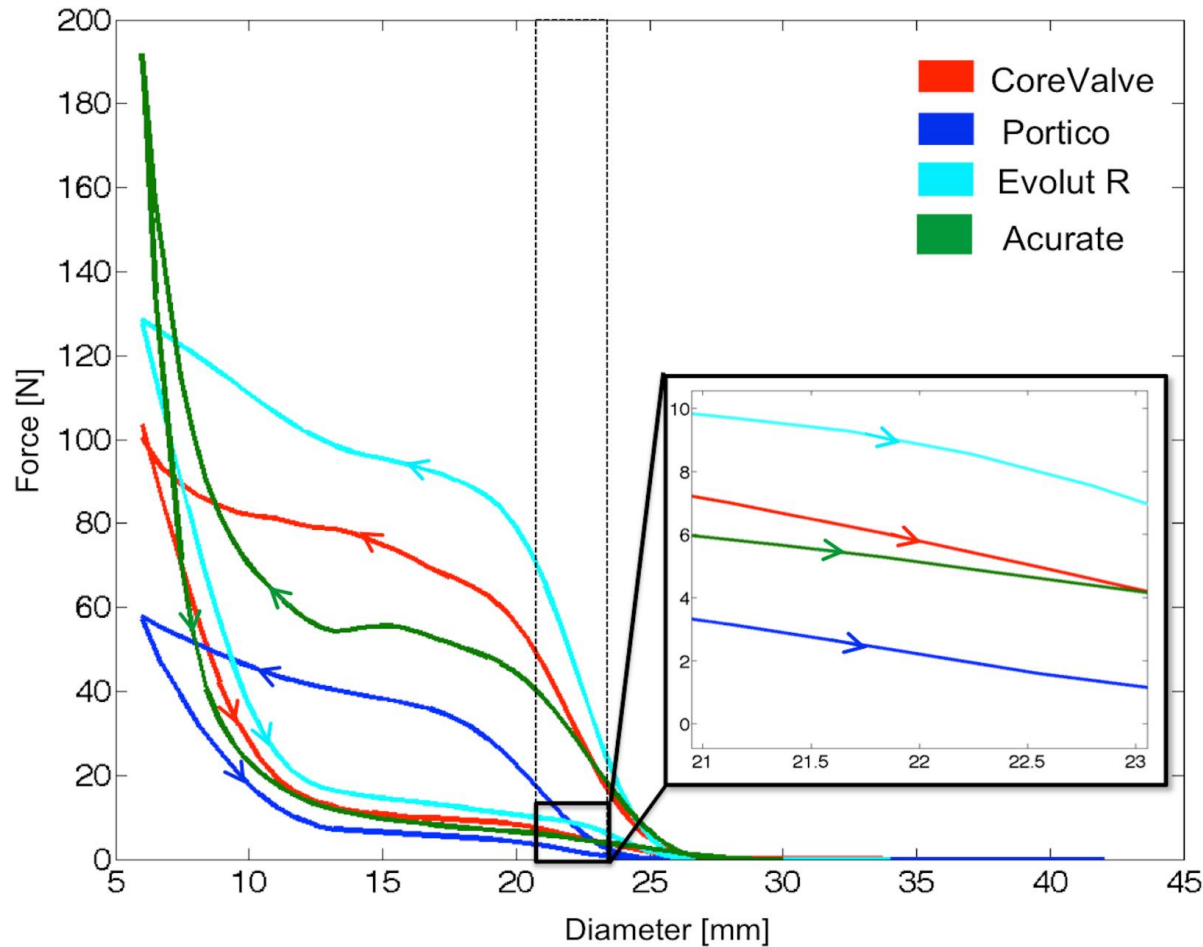
Aortic valve calcification

Appropriate Sizing

Correct positioning

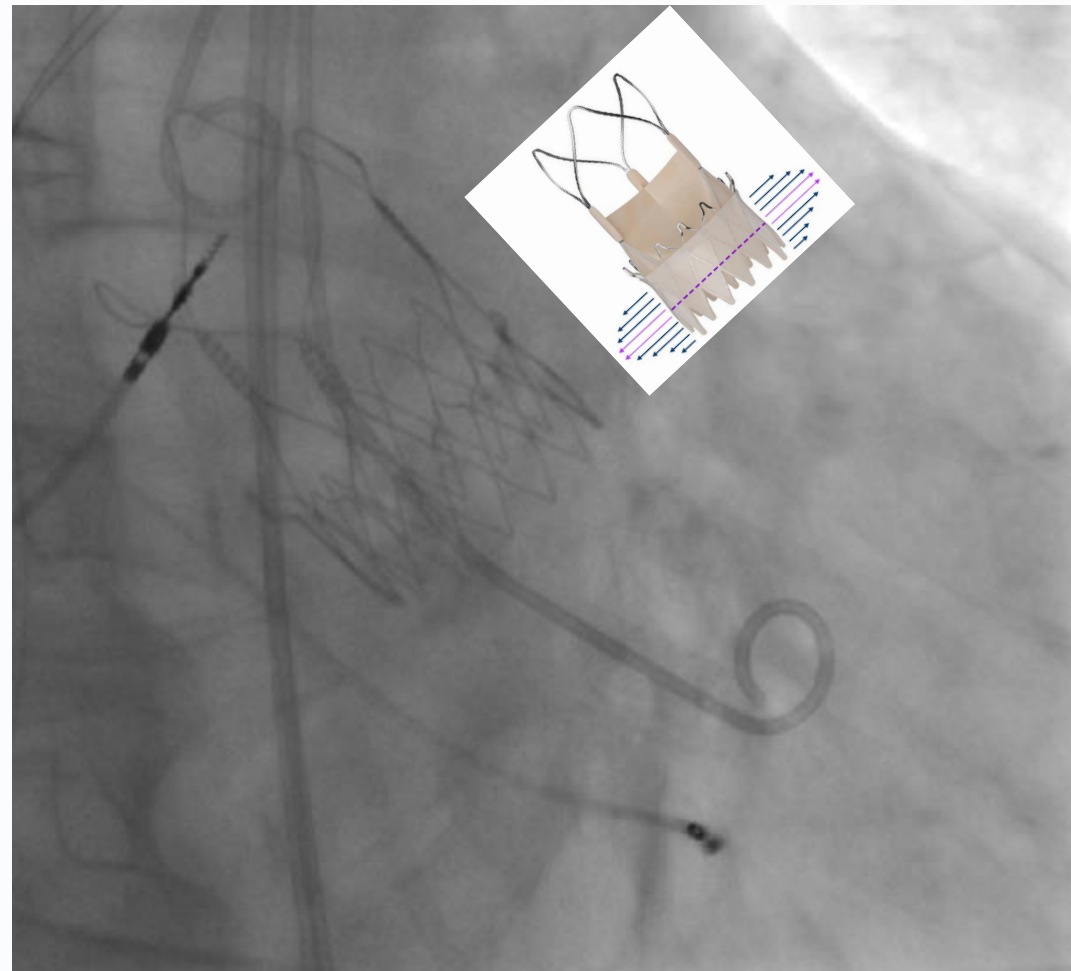
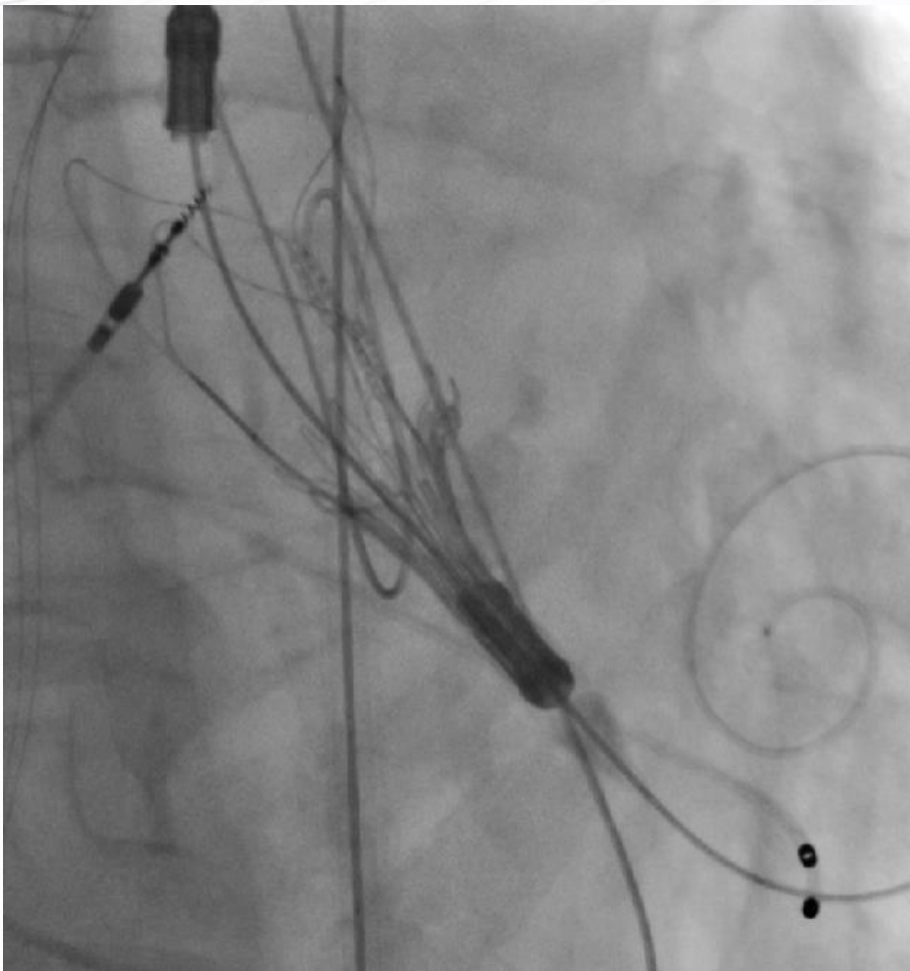


# Radial force & specific distribution

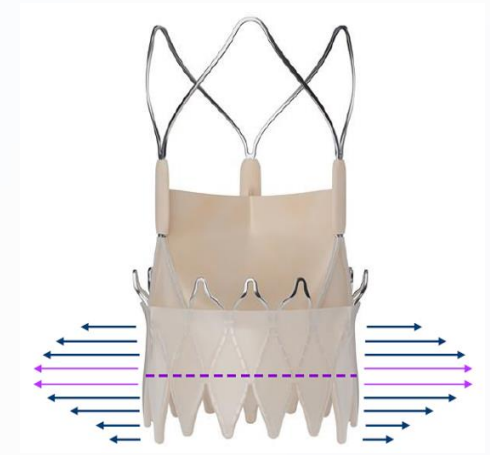
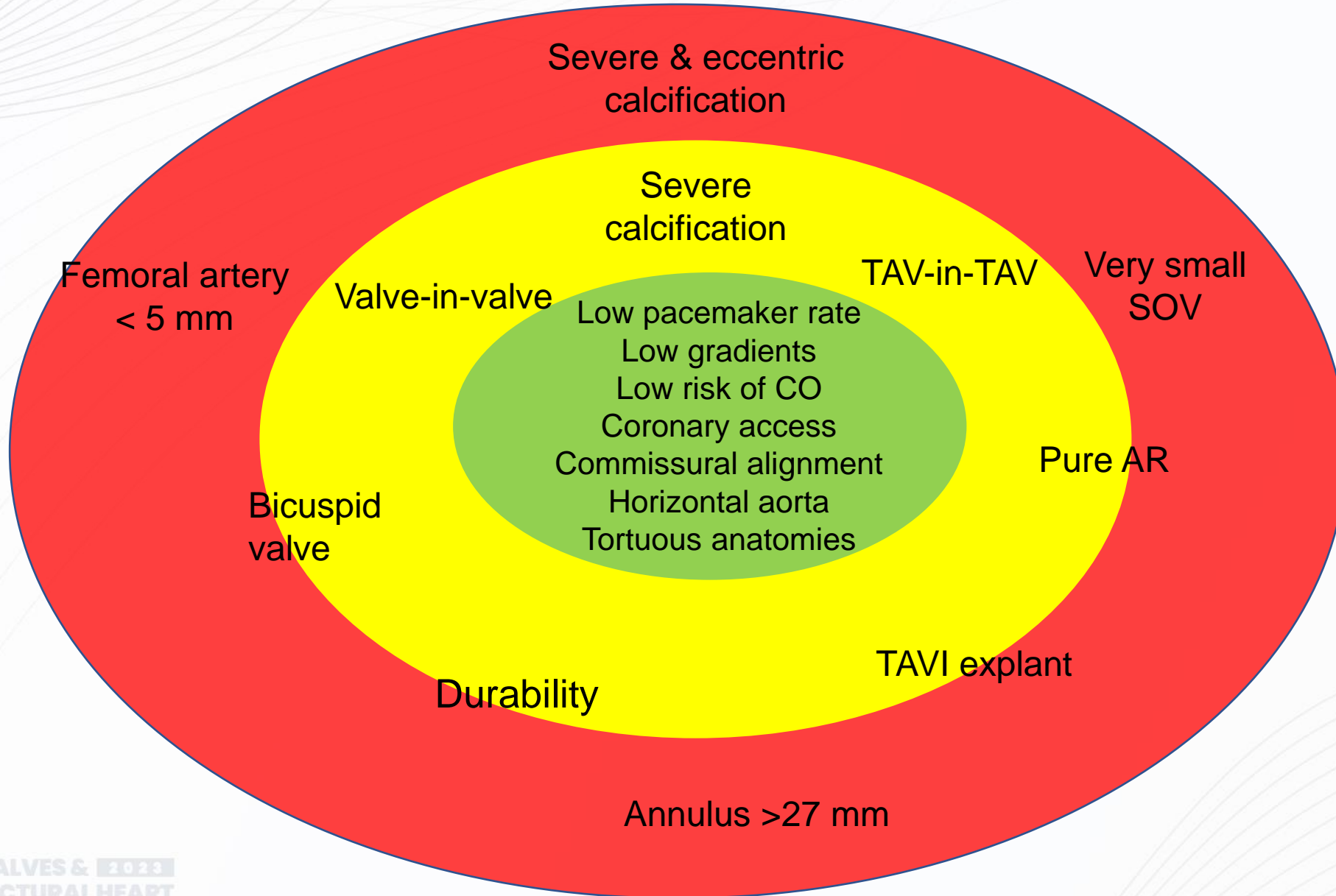




# High position => not necessarily bad

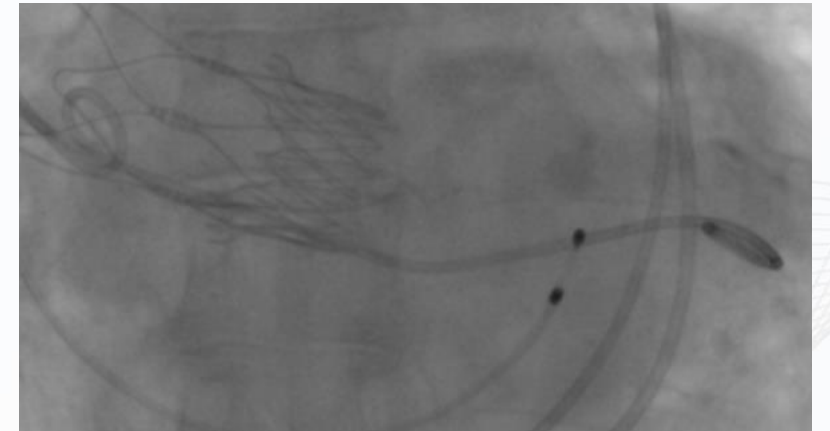
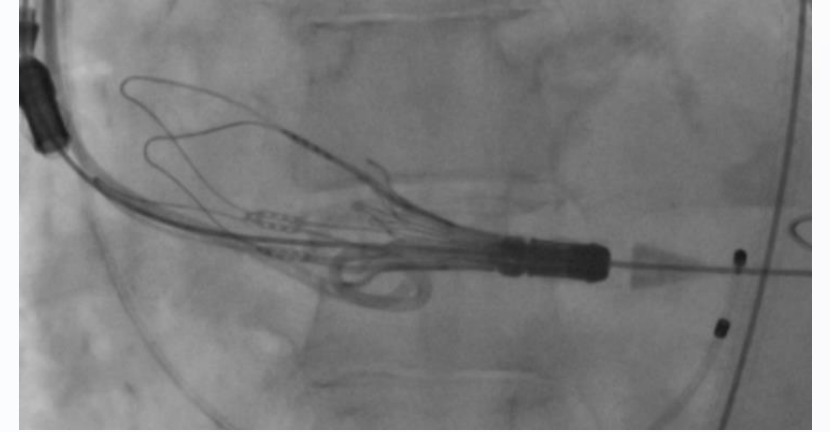
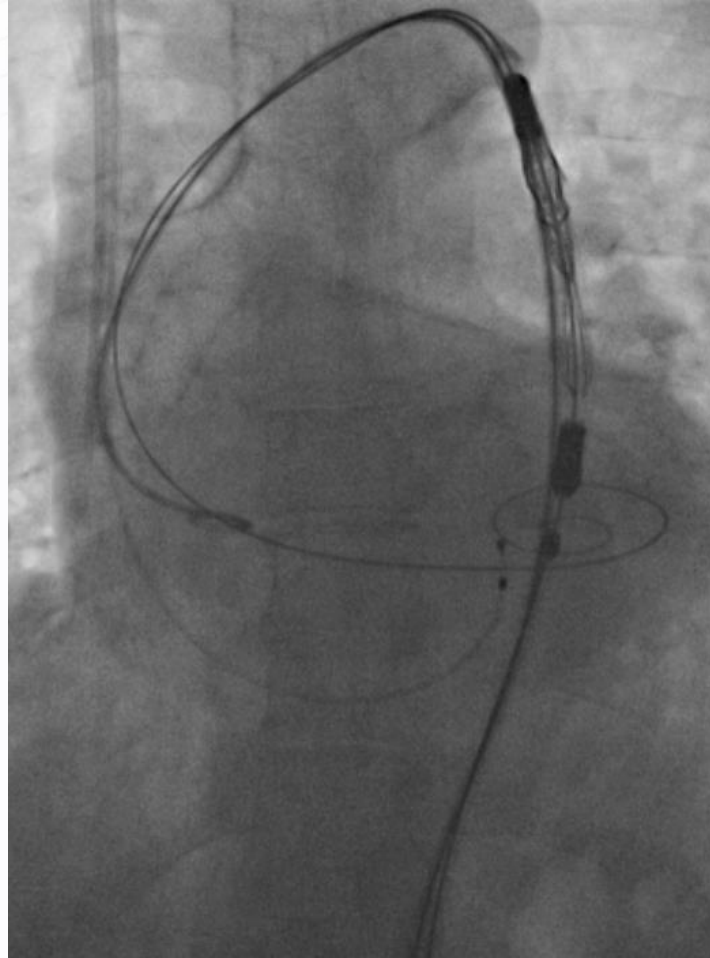
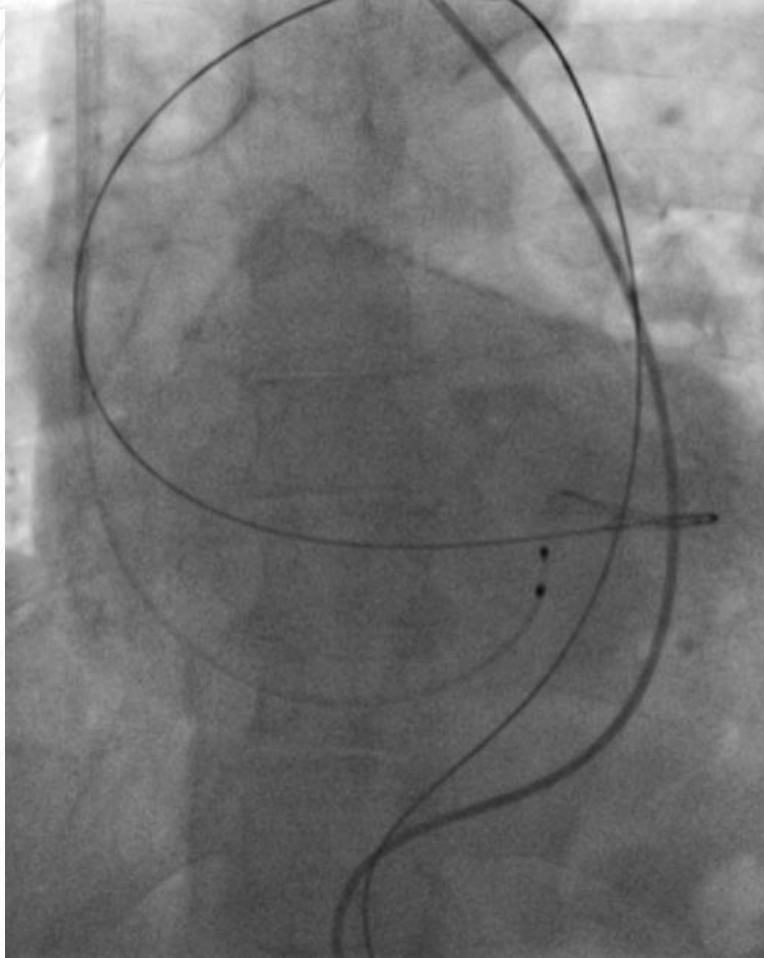


# ACURATE neo spectrum

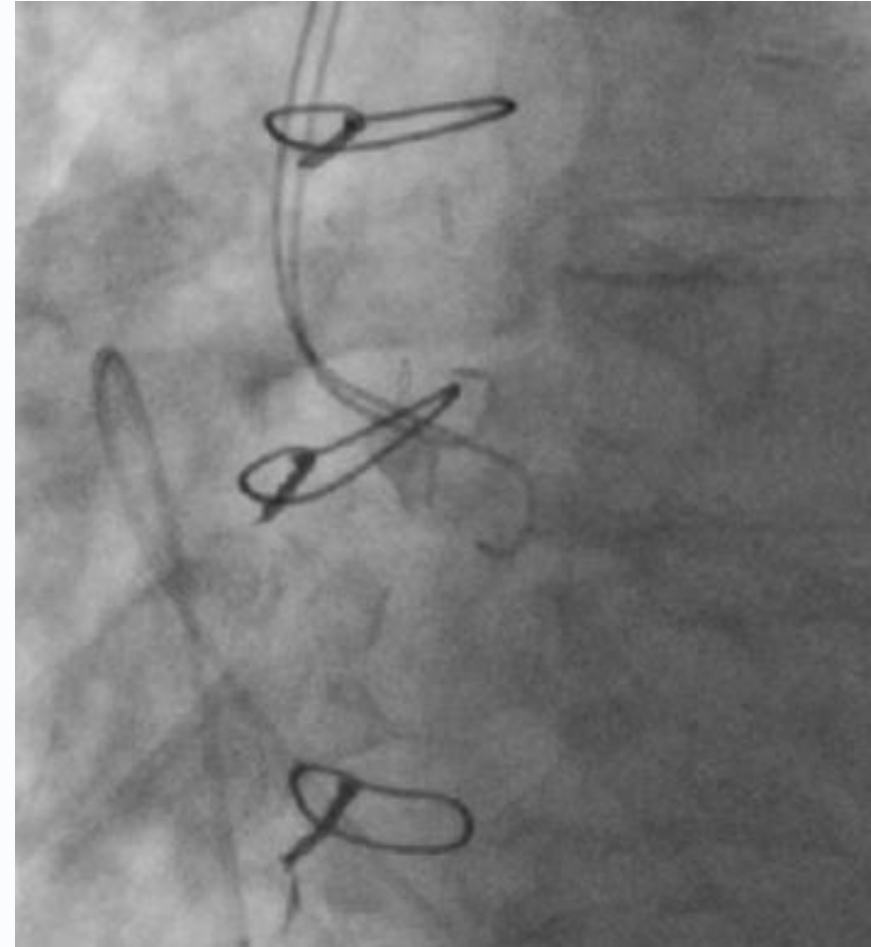
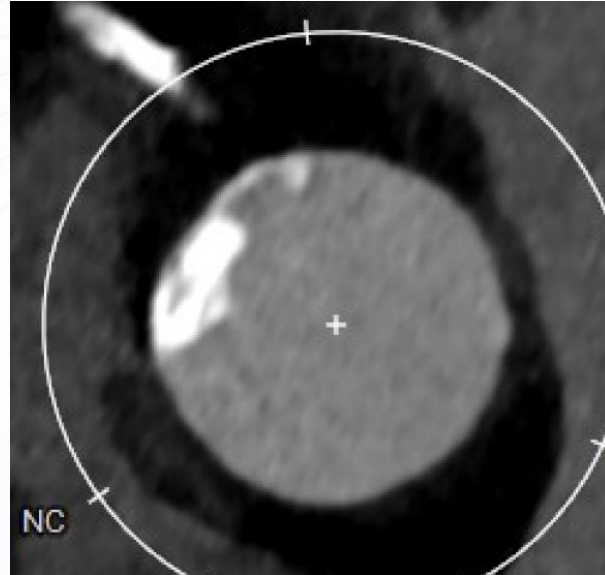


- Core competence
- Pushing limits
- Limitations

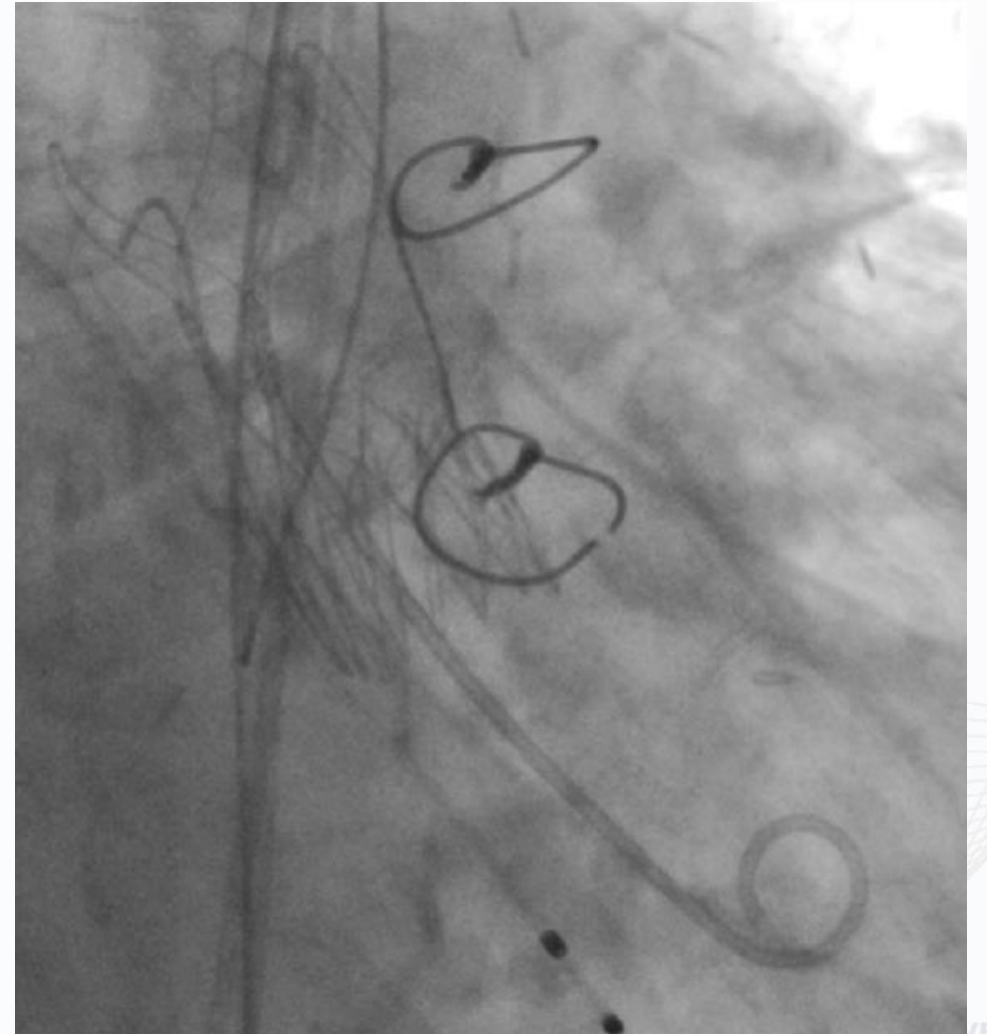
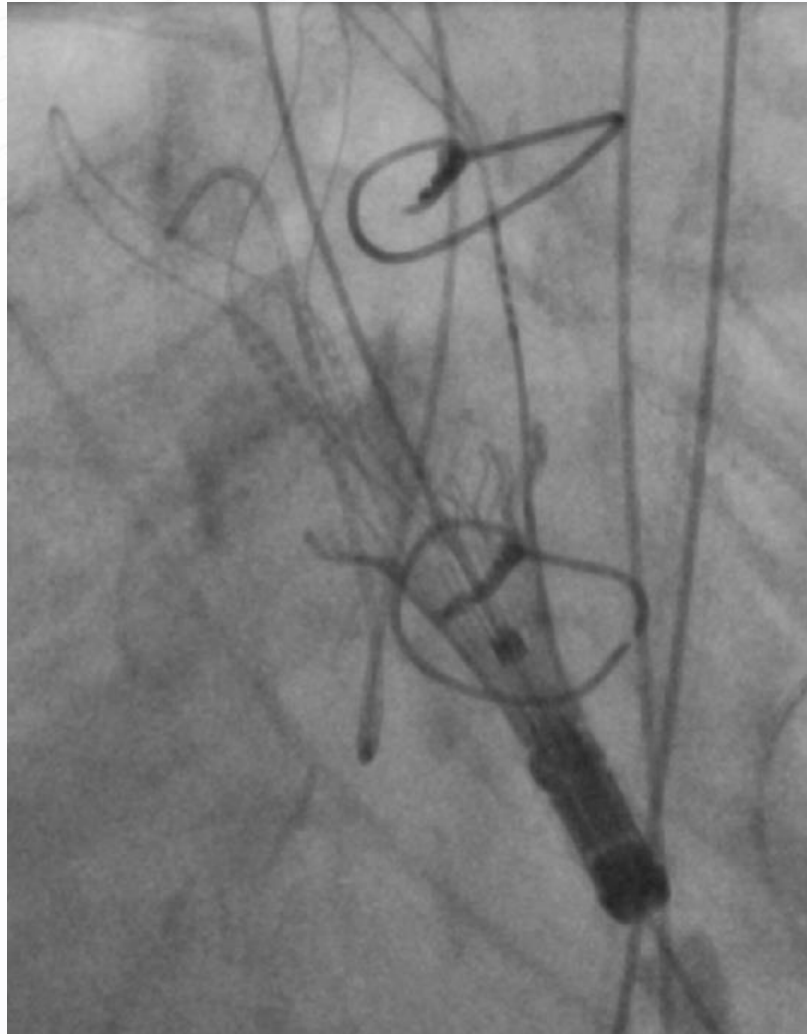
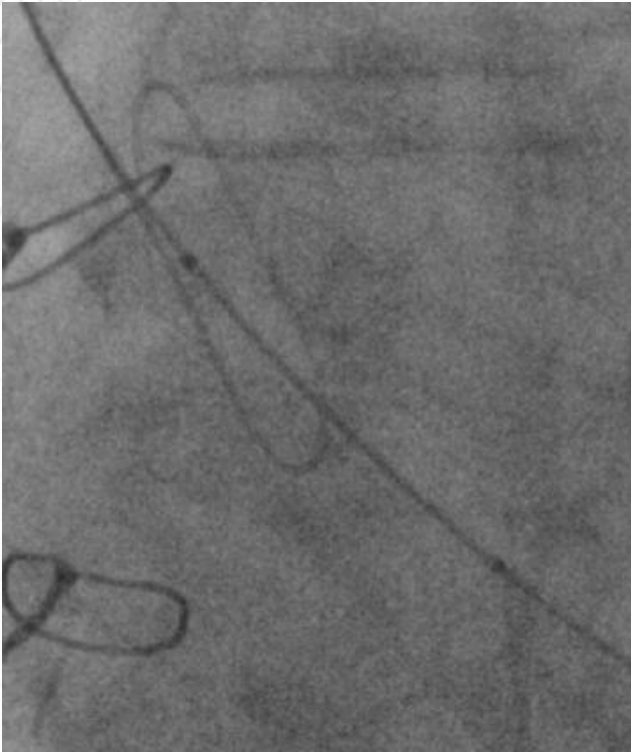
# Case: severe tortuosity



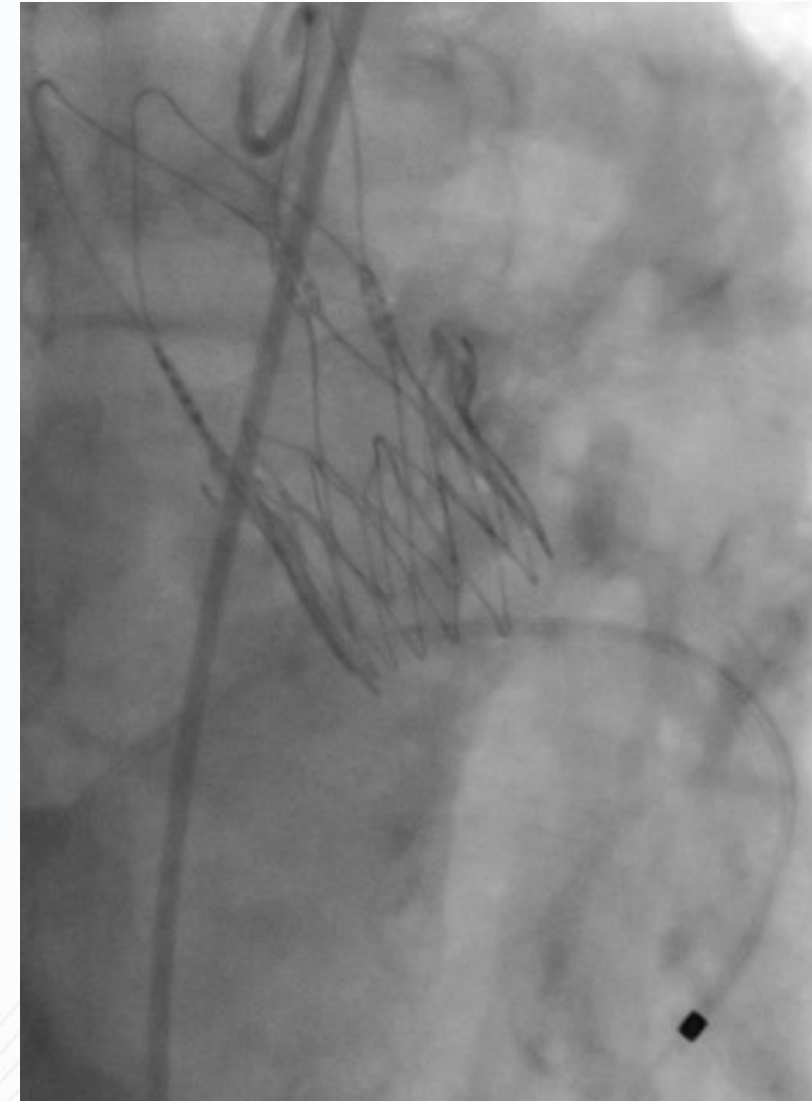
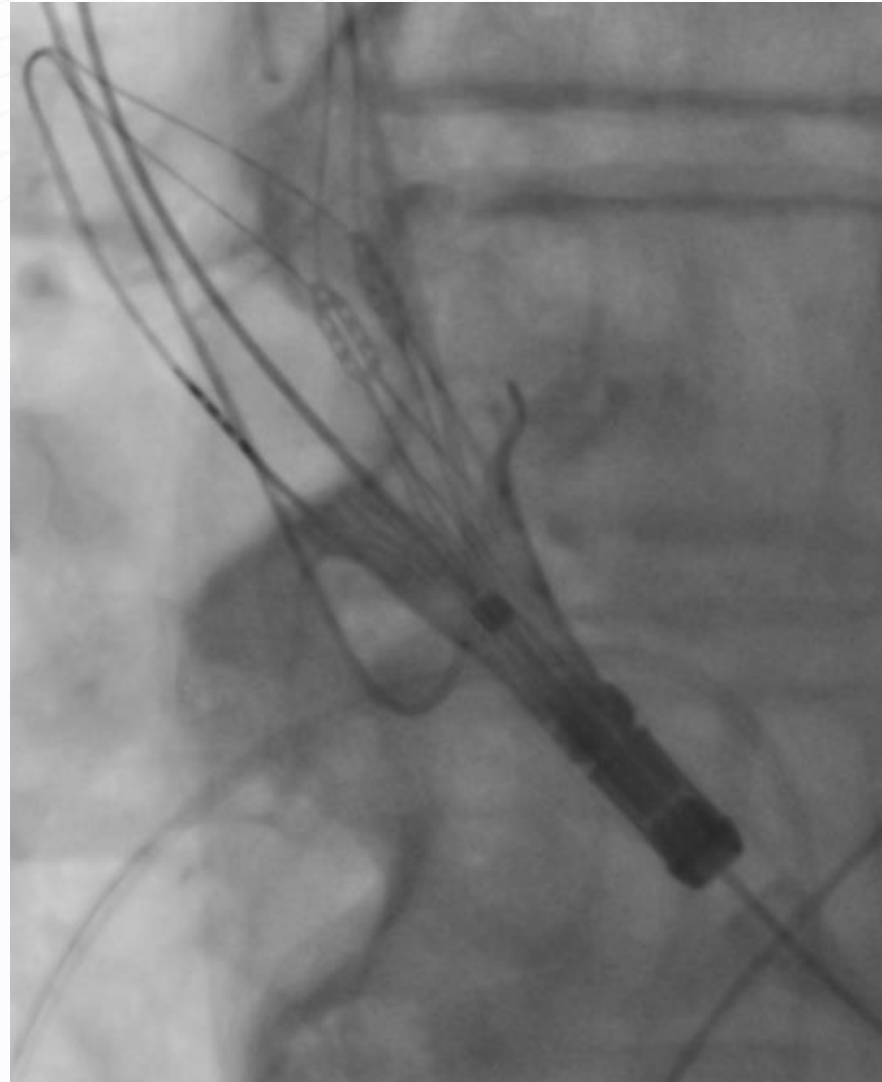
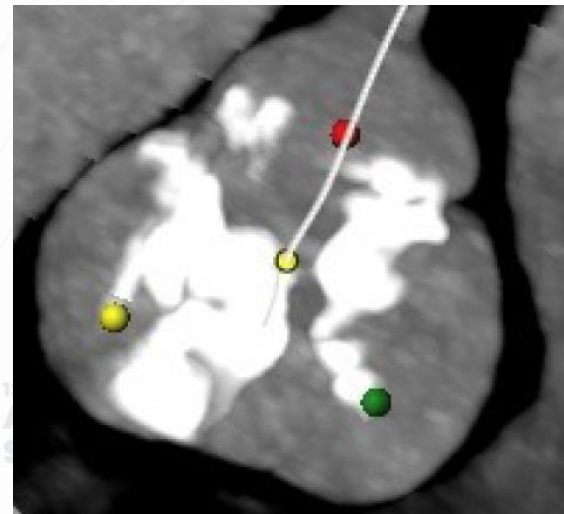
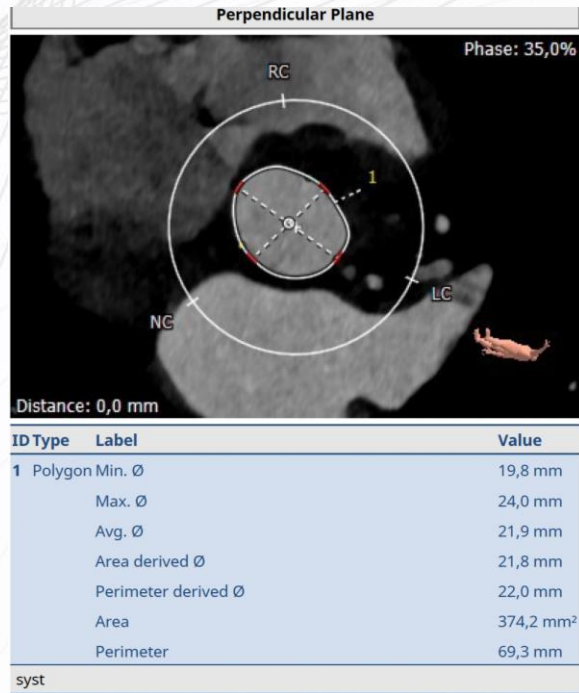
# Case: Commissural alignment for STJ plaque protrusion



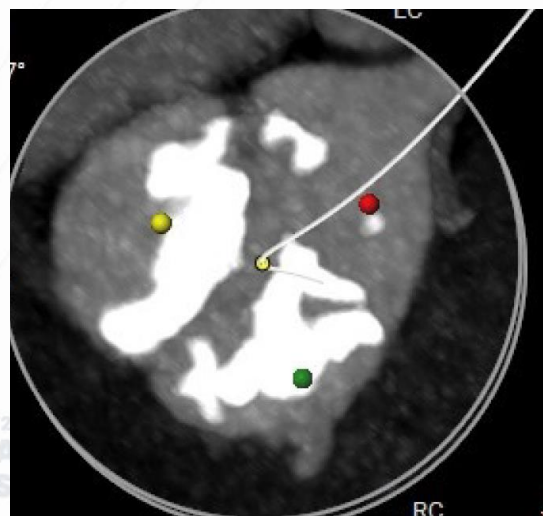
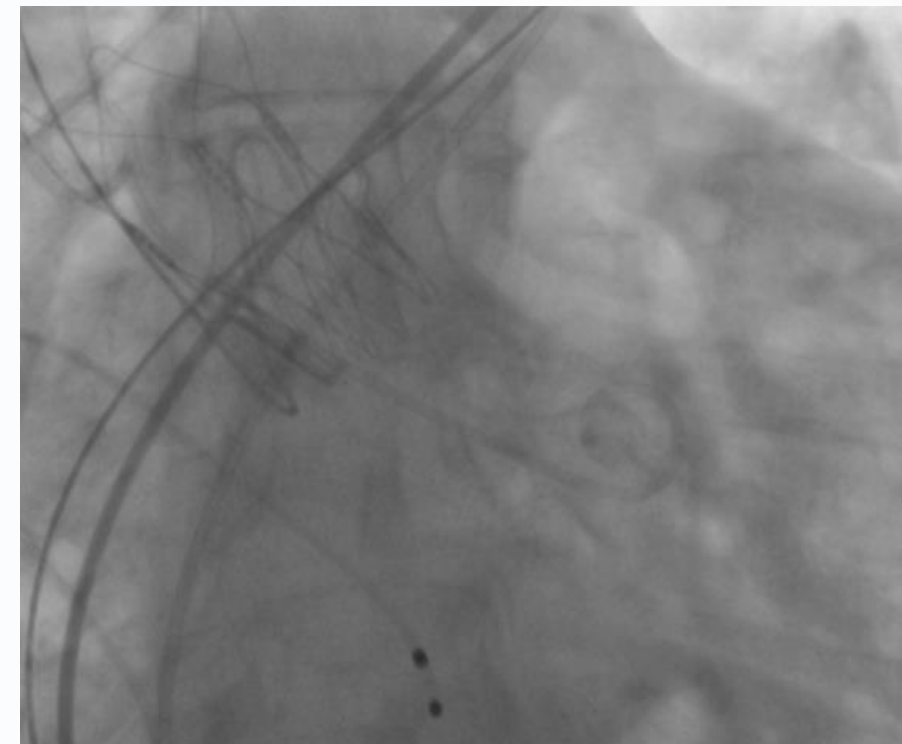
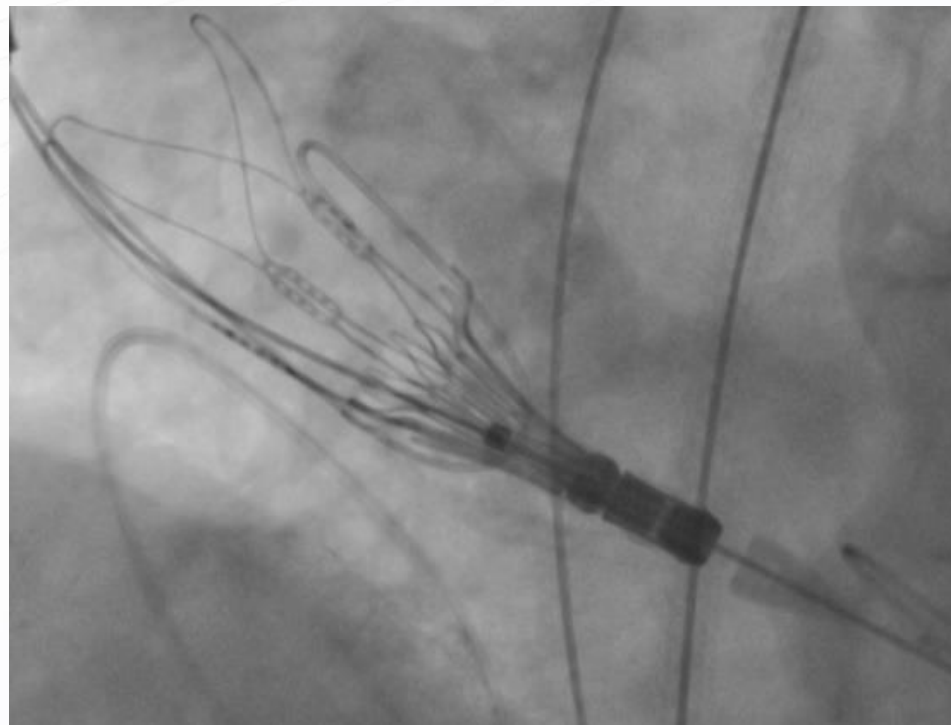
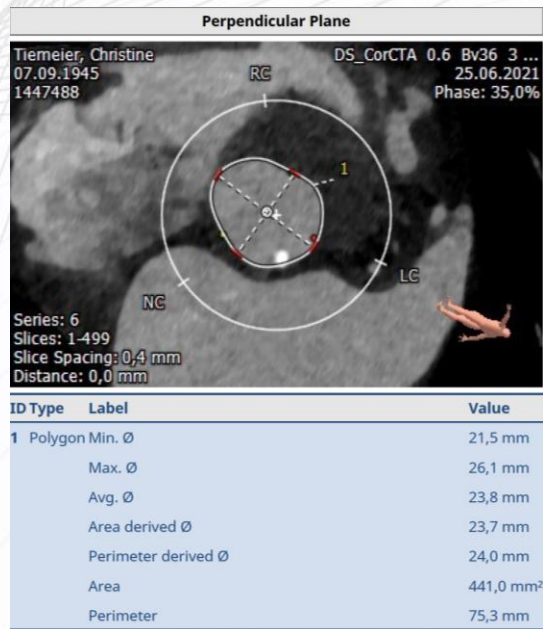
# Case: Commissural alignment for STJ plaque protrusion



# Case: severe calcification



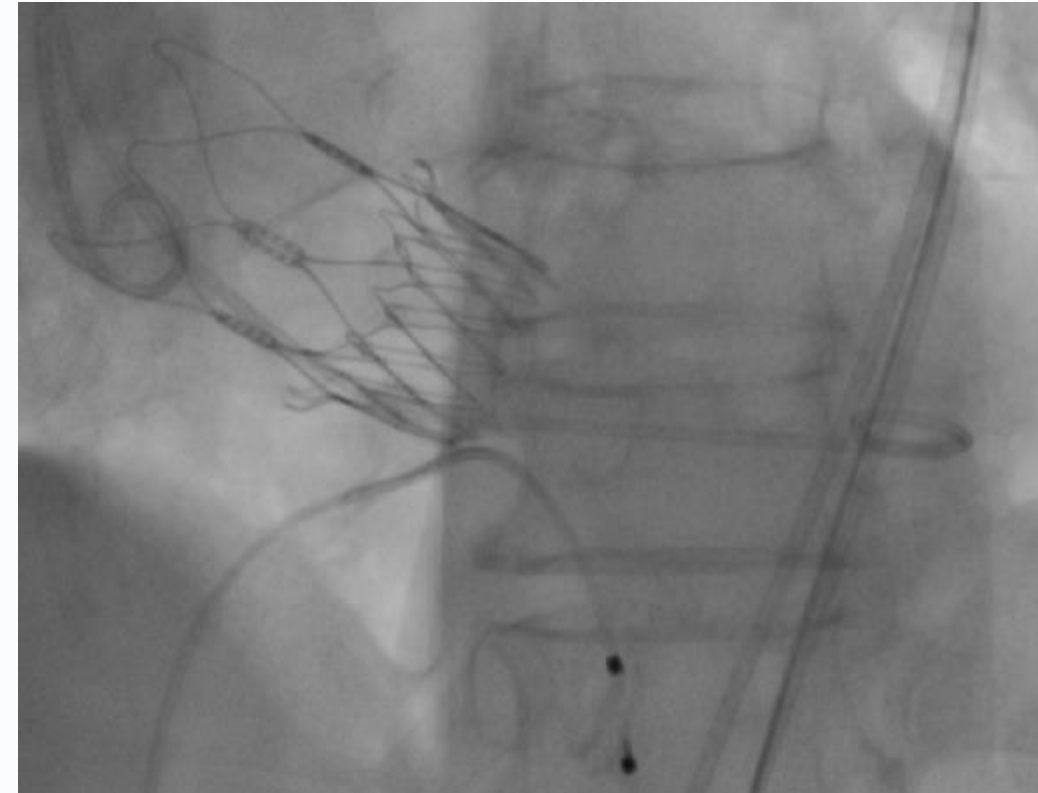
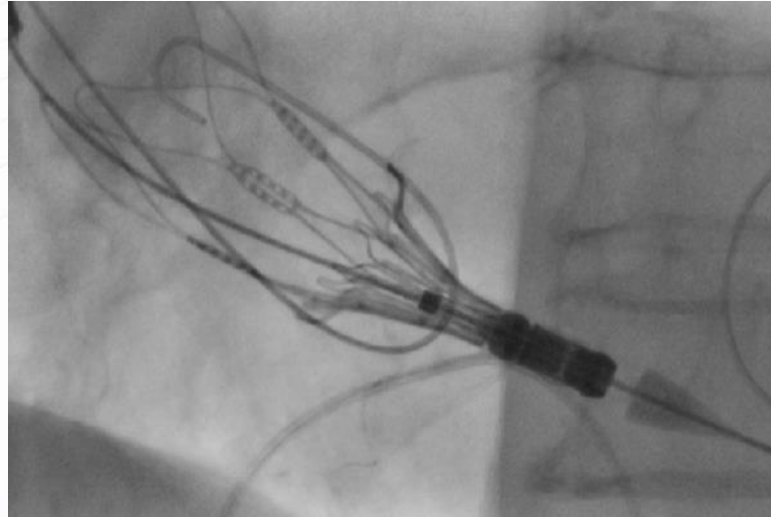
# Case: bicuspid valve



# Case: pure AR



ID	Type	Label	Value
1	Polygon	Min. $\emptyset$	17,0 mm
		Max. $\emptyset$	21,6 mm
		Avg. $\emptyset$	19,3 mm
		Area derived $\emptyset$	19,5 mm
		Perimeter derived $\emptyset$	19,8 mm
		Area	299,2 mm <sup>2</sup>
		Perimeter	62,4 mm



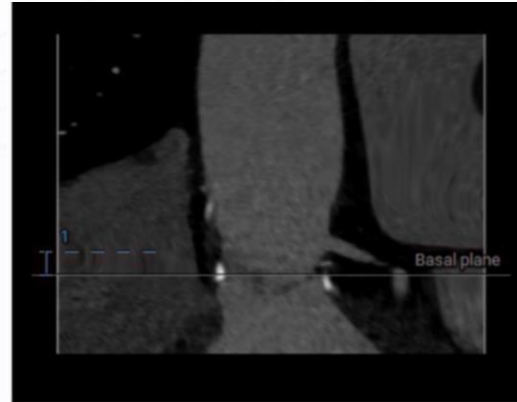


# Case: Valve-in-valve

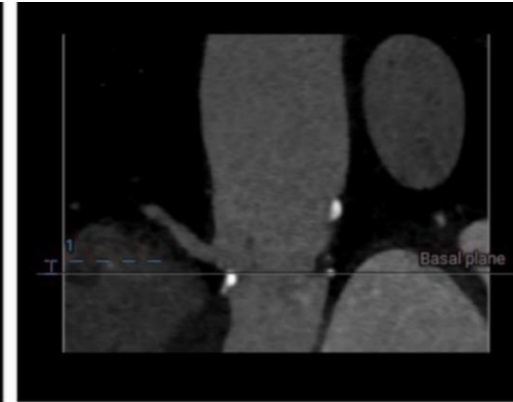
Homograft (Medtronic Freestyle)



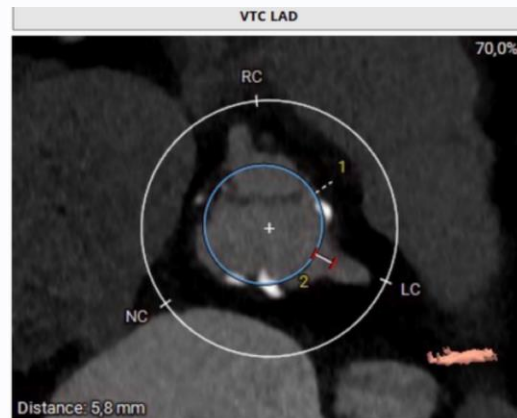
ID Type	Label	Value
1	Polygon Min. Ø	22,2 mm
	Max. Ø	24,8 mm
	Avg. Ø	23,5 mm
	Area derived Ø	23,2 mm
	Perimeter derived Ø	23,3 mm
	Area	421,5 mm <sup>2</sup>
	Perimeter	73,1 mm



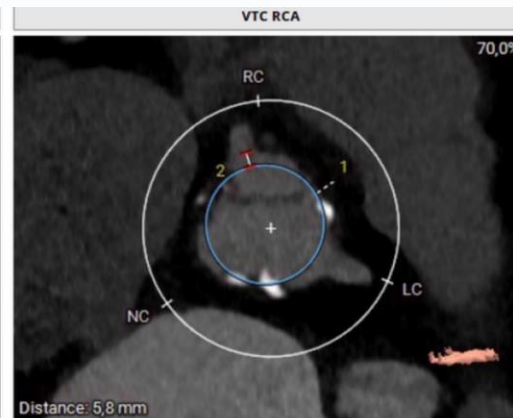
ID Type	Label	Value
1	Vessel Length Left Coronary Height	5,3 mm



ID Type	Label	Value
1	Vessel Length Right Coronary Height	3,1 mm

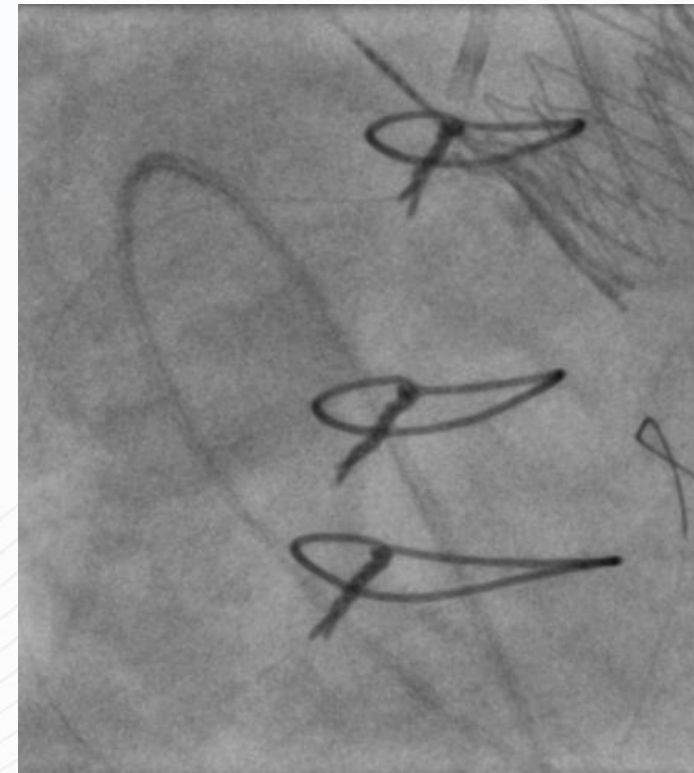
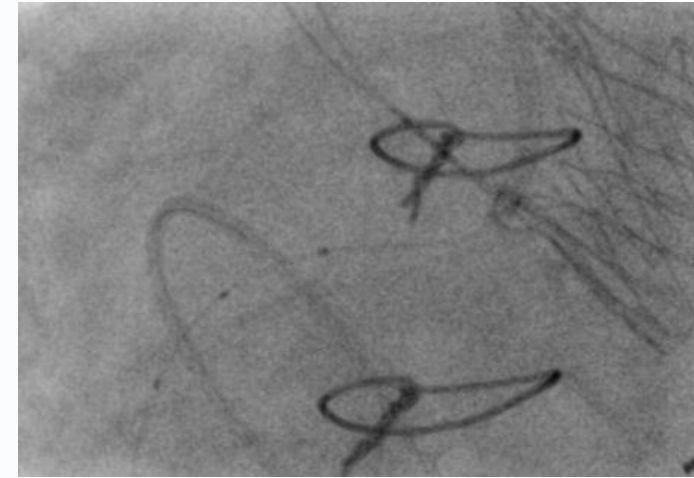
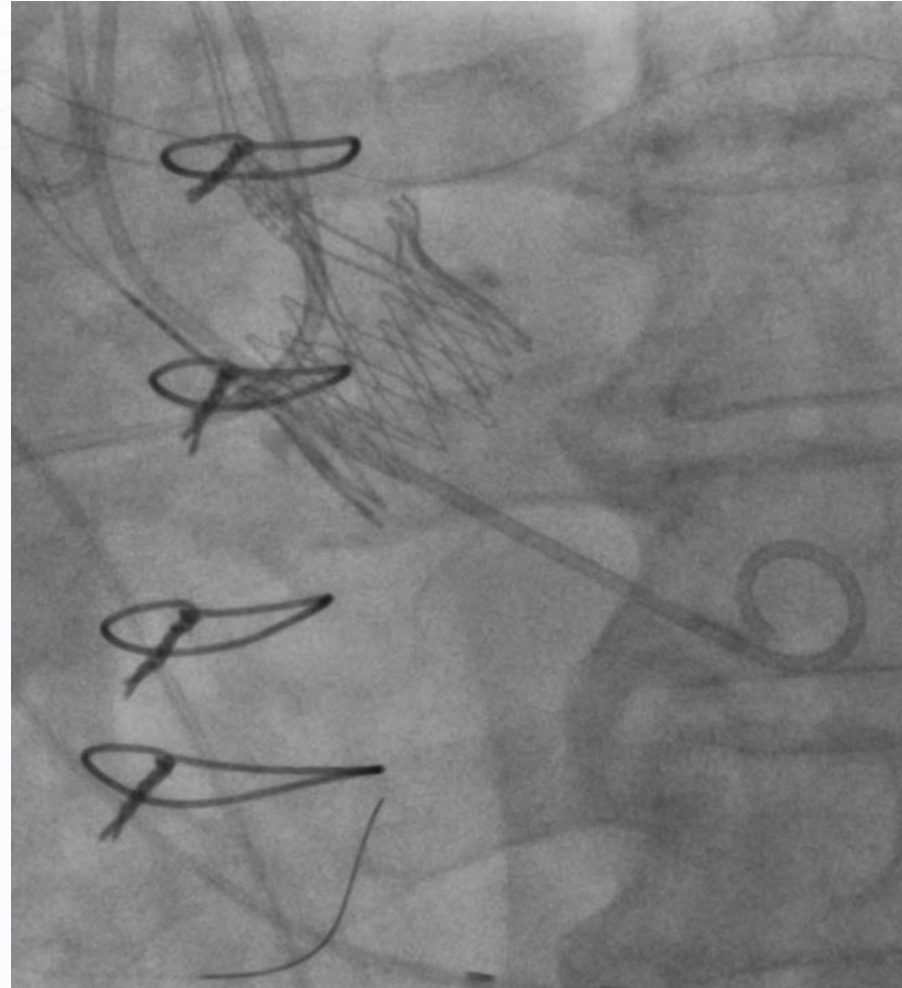
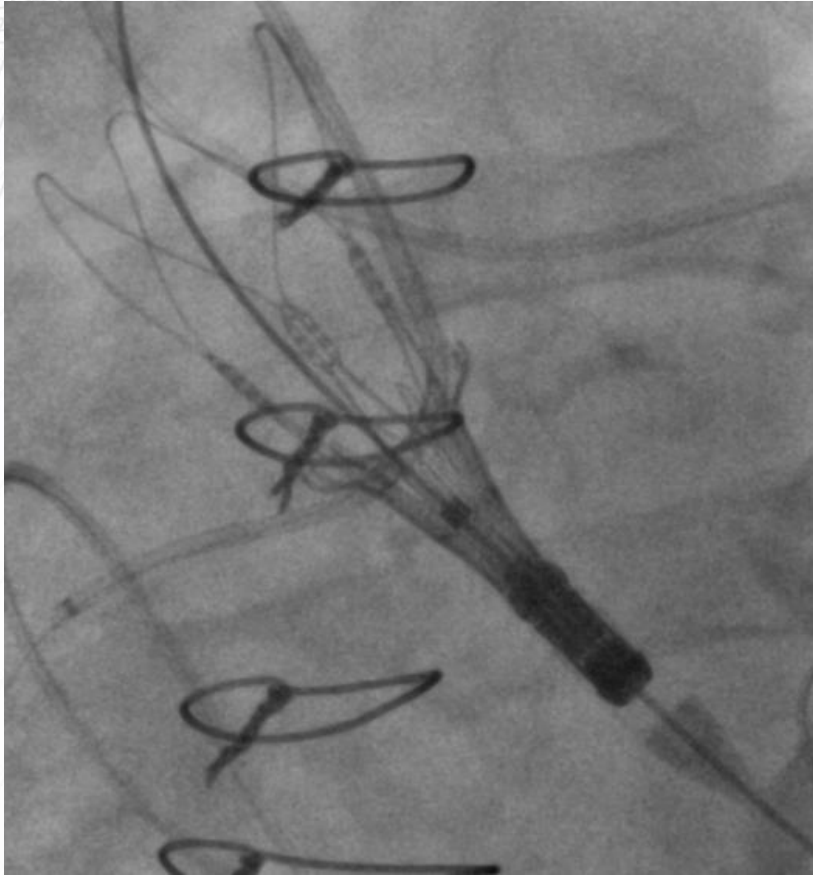


ID Type	Label	Value
1	Ellipse	
	Min. Ø	23,0 mm
	Max. Ø	23,0 mm
	Avg. Ø	23,0 mm
	Area derived Ø	23,0 mm
	Perimeter derived Ø	23,0 mm
	Area	416,3 mm <sup>2</sup>
	Perimeter	72,3 mm
2	Diameter Diameter	4,1 mm

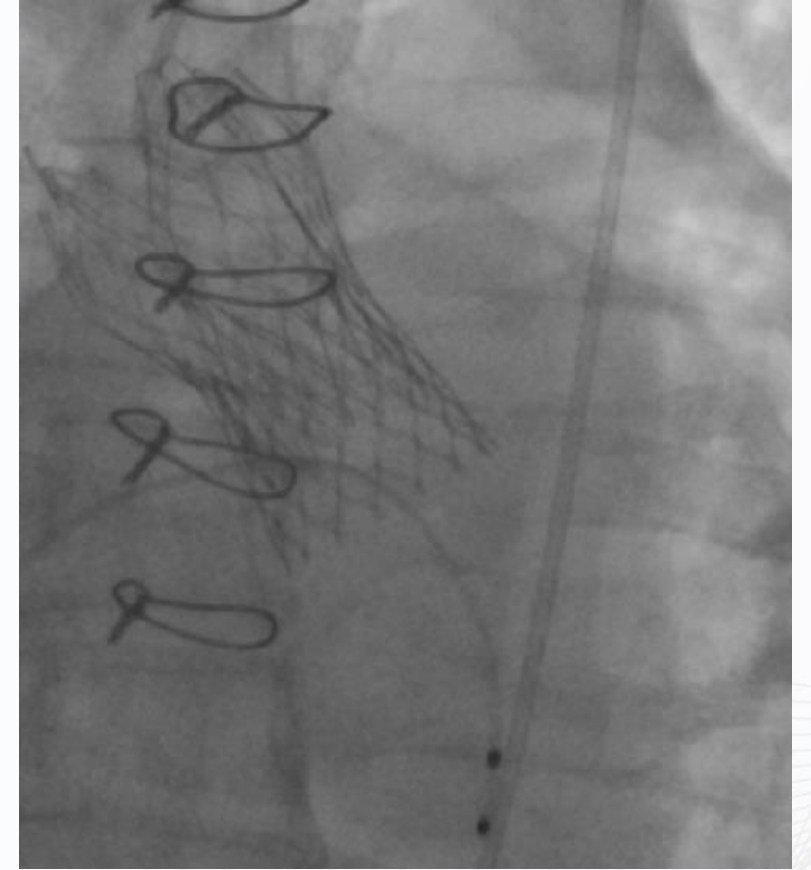
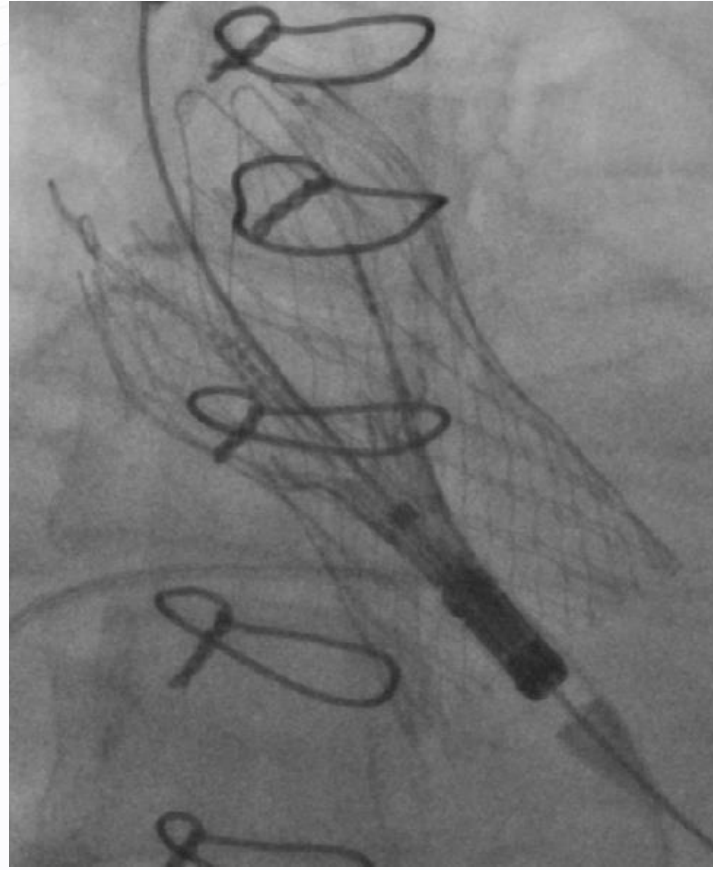
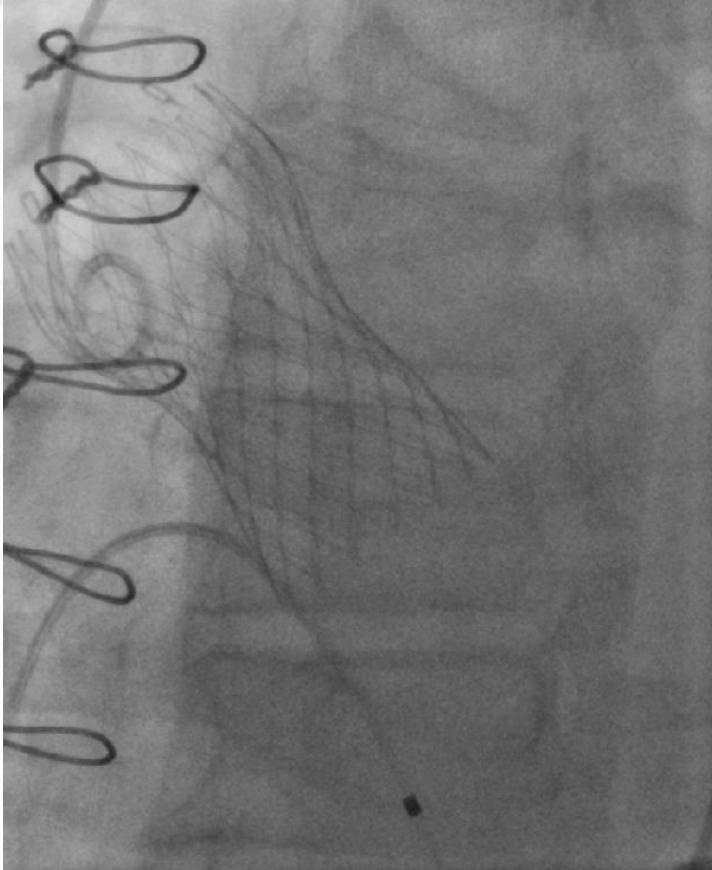


ID Type	Label	Value
1	Ellipse	
	Min. Ø	23,0 mm
	Max. Ø	23,0 mm
	Avg. Ø	23,0 mm
	Area derived Ø	23,0 mm
	Perimeter derived Ø	23,0 mm
	Area	416,3 mm <sup>2</sup>
	Perimeter	72,3 mm
2	Diameter Diameter	2,8 mm

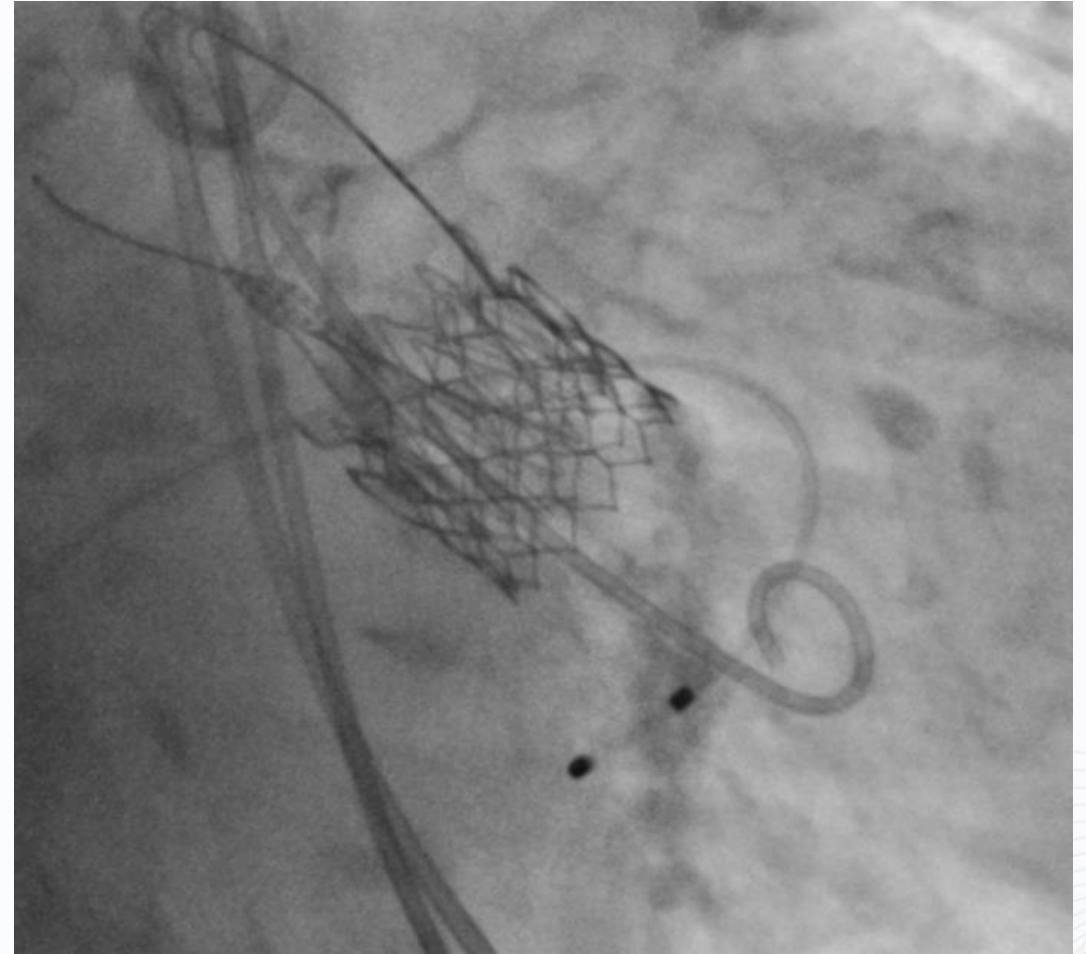
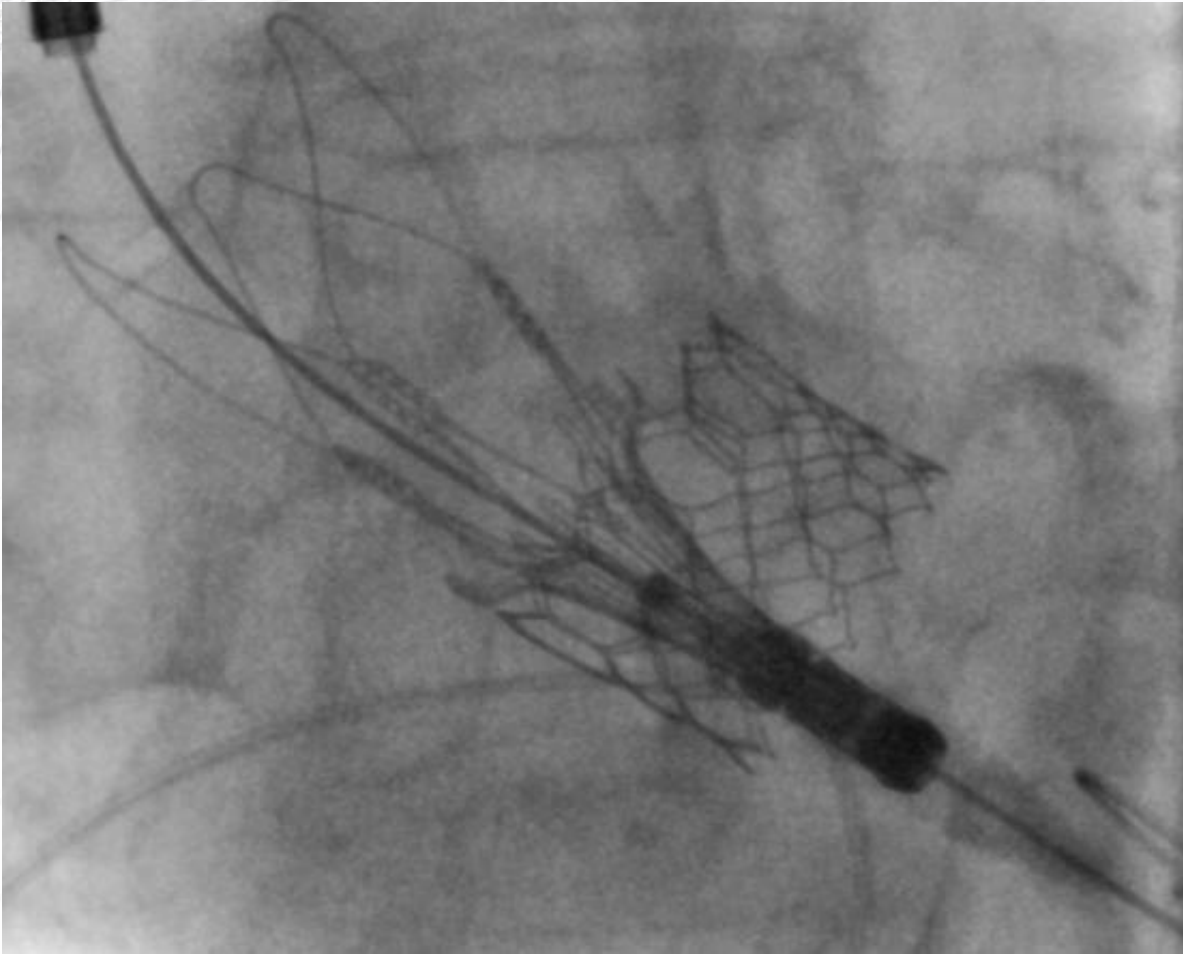
# Case: Valve-in-valve



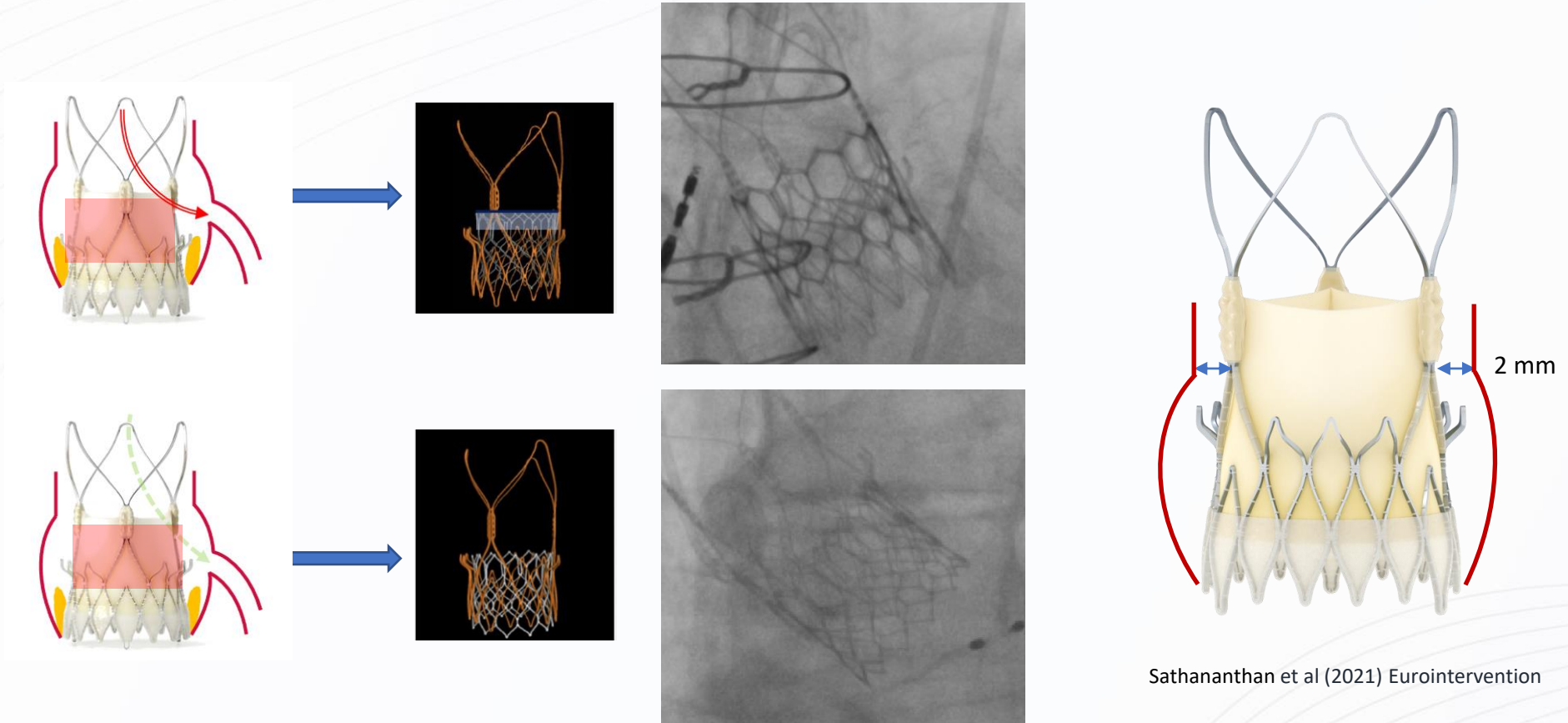
# Case: redo TAVI ACURATE in Corevalve



# Case: redo TAVI ACURATE in Sapien

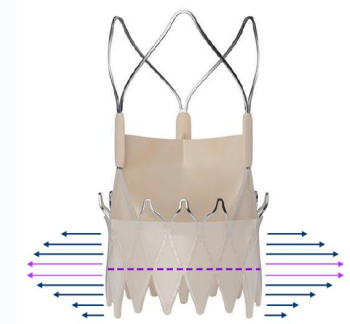


# TAV in ACURATE considerations



# Conclusion

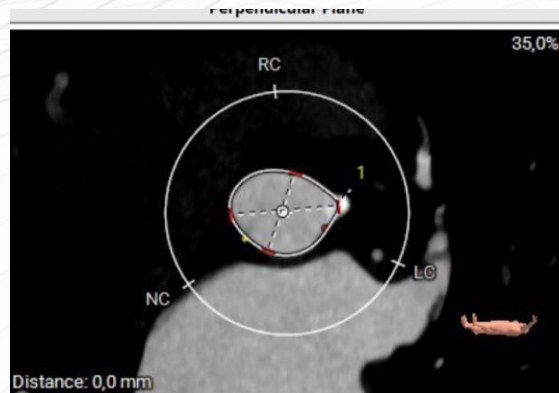
- The ACURATE platform is characterized by a specific distribution of the radial force.
  - ⇒ Should be considered for positioning.
  - ⇒ Explains the low pacemaker rate.
- The ACURATE neo2 addresses some limitations of 1<sup>st</sup> gen ACURATE neo except for the relatively low radial force => ACURATE prime!
- Expansion of indications and aspects of lifetime management include valve-in-valve, more severe calcification, pure AR, and TAV-in-TAV.



# Danke für Ihre Aufmerksamkeit!

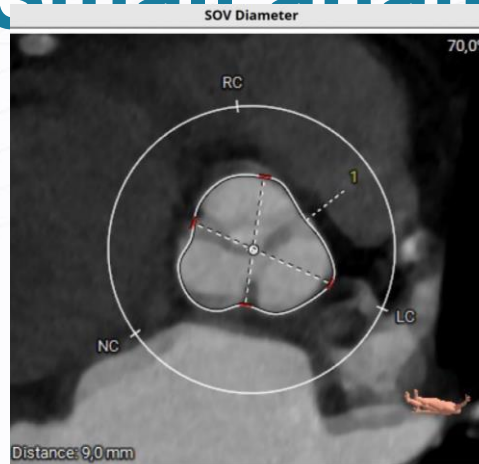


# Small anatomy



ID Type	Label	Value
1	Polygon Min. Ø	17,0 mm
	Max. Ø	22,3 mm
	Avg. Ø	19,7 mm
	Area derived Ø	19,2 mm
	Perimeter derived Ø	19,6 mm
	Area	289,3 mm <sup>2</sup>
	Perimeter	61,6 mm

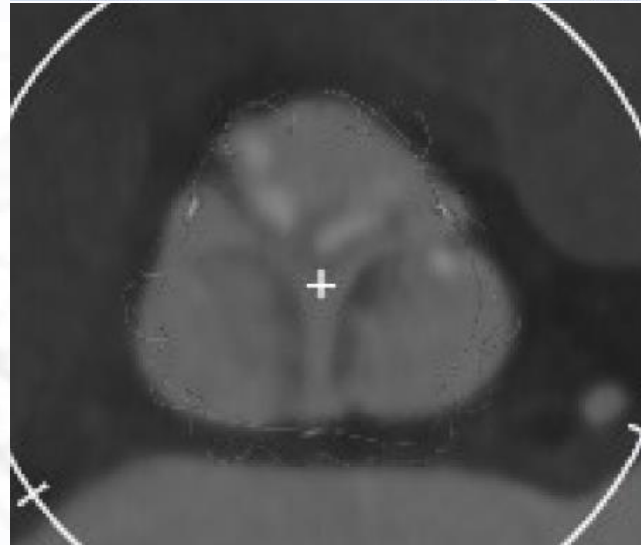
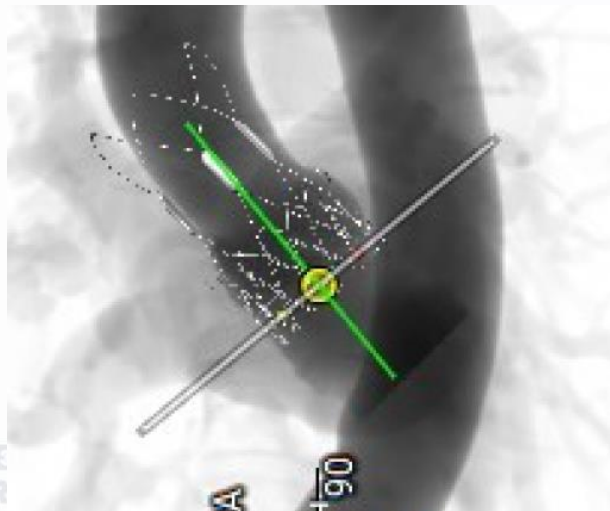
syst



ID Type	Label	Value
1	Polygon Min. Ø	22,6 mm
	Max. Ø	26,1 mm
	Avg. Ø	24,4 mm
	Area derived Ø	24,8 mm
	Perimeter derived Ø	26,0 mm
	Area	484,2 mm <sup>2</sup>
	Perimeter	81,8 mm



ID Type	Label	Value
1	Polygon Min. Ø	20,9 mm
	Max. Ø	22,6 mm
	Avg. Ø	21,7 mm
	Area derived Ø	21,4 mm
	Perimeter derived Ø	21,5 mm
	Area	360,5 mm <sup>2</sup>
	Perimeter	67,5 mm





# Further expansion: AR & gradient

