

Video Case Presentation

Balloon- vs. Self-expandable Valve

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1st case (Horizontal aorta & Tortuous des. aorta)

- 81/M CMD
- Cancer of prostate with operation done
- AF on warfarin
- Admitted for Loss for consciousness and cardiogenic shock, inotropes dependent in CCU
- Echocardiogram
- LV size normal
- EF 55-60%
- Severe AS with mean gradient 43 mmHg, AVA: 0.7 cm²

Assessment

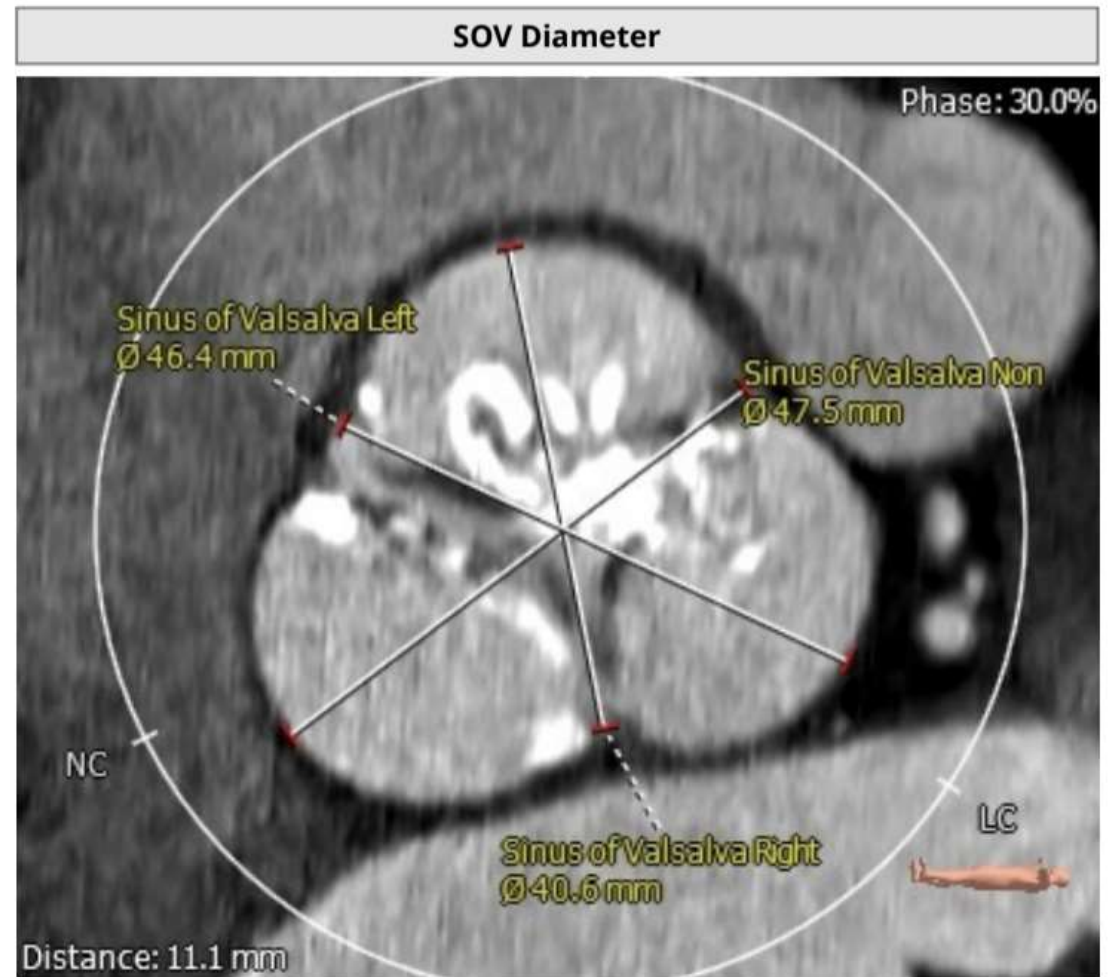
- Coronary angiogram:
- Minor disease only
- STS: 7 %
- Logistic Euroscore: 40 %
- Euro II: 9.4%
- Frailty: 6-7
- Heart team discussion:
For TAVI

CT measurement



Perimeter 104mm, Area 856mm²

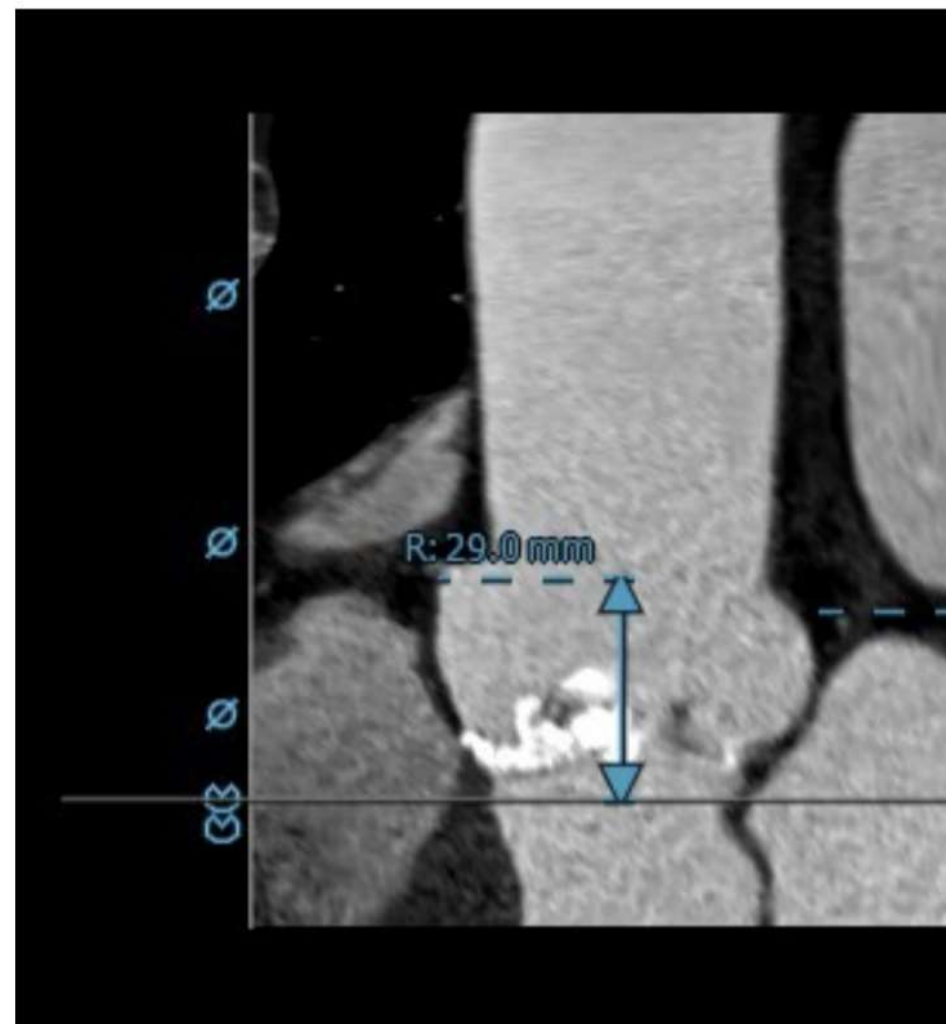
Type 1 Bicuspid case



LMN height



RCA height



LMN 24mm
RCA 29mm

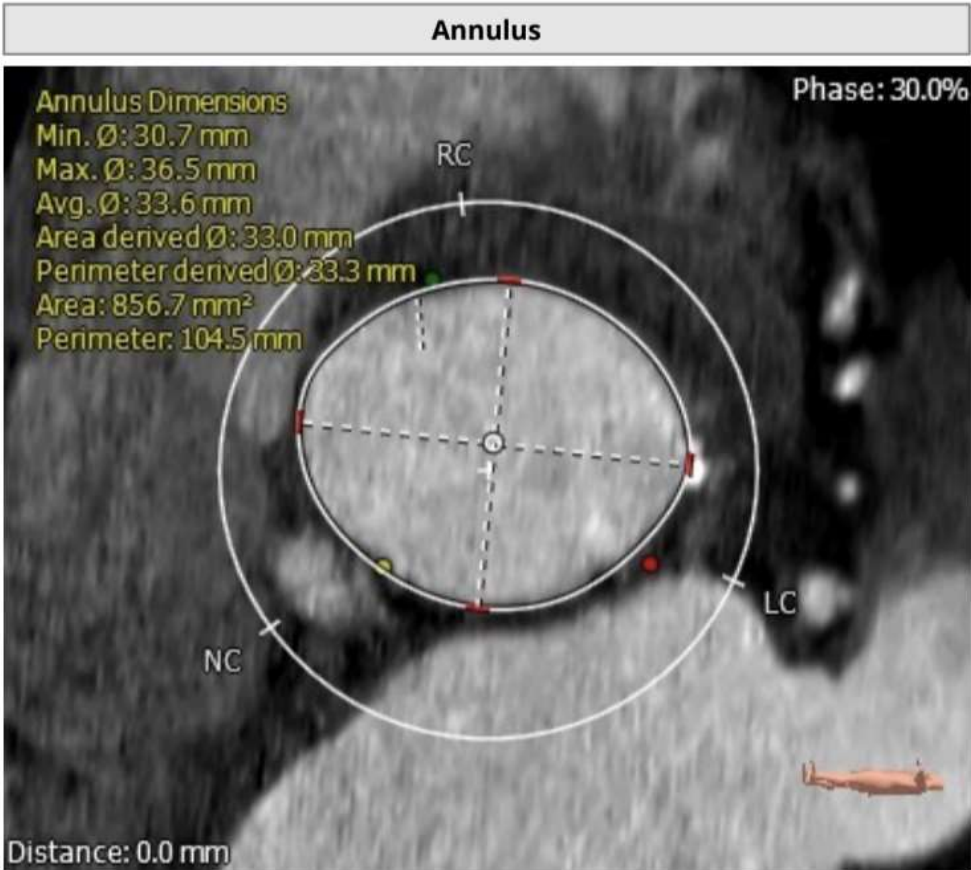
Challenge 1

- Bicuspid aortic valve (type 1)
- Big anatomy (size over Indication of usage of all commercially available valve)
- Area 856mm²
- Perimeter 104mm

- Sizing method ?
- Annular ? Supra-annular ?
- Which type of valve?



Annulus measurement



Valve Size Selection	CoreValve Evolut R Bioprosthesis			
Size	23 mm	25 mm	29 mm	34 mm
Annulus Diameter (A)	18-20 mm	20-23 mm	23-26 mm	26-30 mm
Annulus Perimeter ^f	56.5-62.8 mm	62.8-72.3 mm	72.5-81.7 mm	81.7-94.2 mm
Sinus of Valsalva Diameter (Mean) (B)	≥25 mm	≥27 mm	≥29 mm	≥31 mm
Sinus of Valsalva Height (Mean) (C)	≥15 mm	≥15 mm	≥15 mm	≥16 mm

f Annulus Perimeter = Annulus Diameter x π

94.2mm

26.2	26.4	26.5	26.7	26.9	27.2	27.4	27.6	27.9	28.0	28.1	28.3	28.5	28.8	29.0	29.2	29.4	29.5
540	546	550	560	570	580	590	600	610	615	620	630	640	650	660	670	680	683
-3.9	-4.9	-5.6	-7.3	-8.9													
20.2	18.9	18.0	15.9	13.9	11.9	10.0	8.2	6.4	5.5	4.7	3.0	1.4	-0.2	-1.7	-3.1	-4.6	-5.0

683mm²

Perimeter 104mm, Area 856mm²

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683mm²

Perimeter 93mm, Area 640mm²

Perpendicular Plane

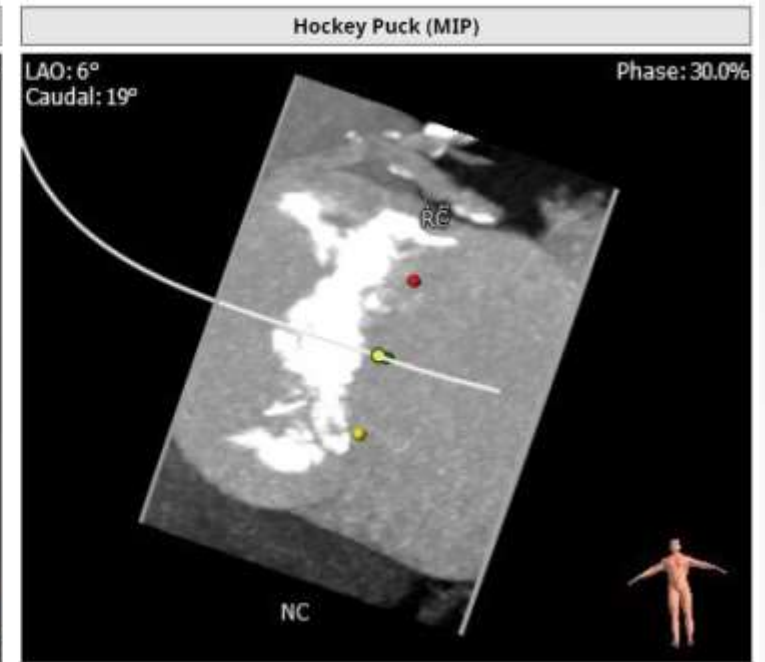
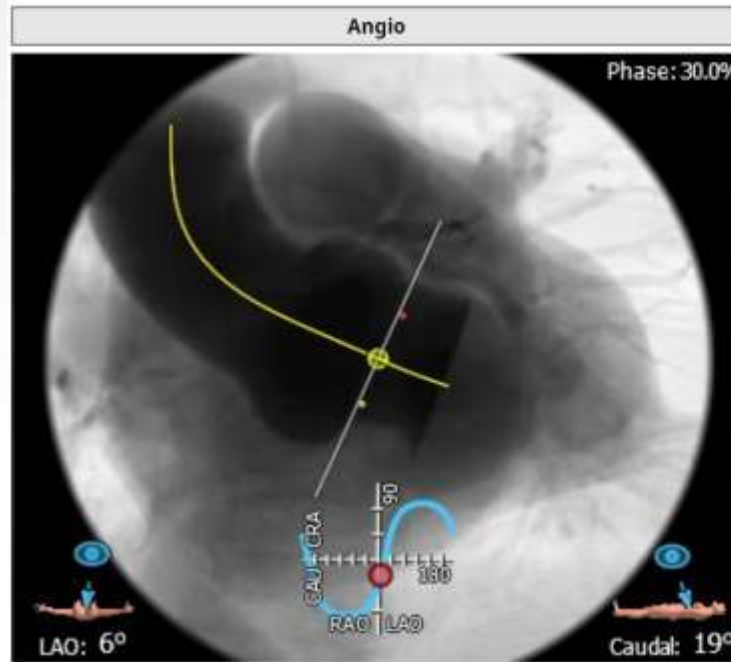


Perpendicular Plane



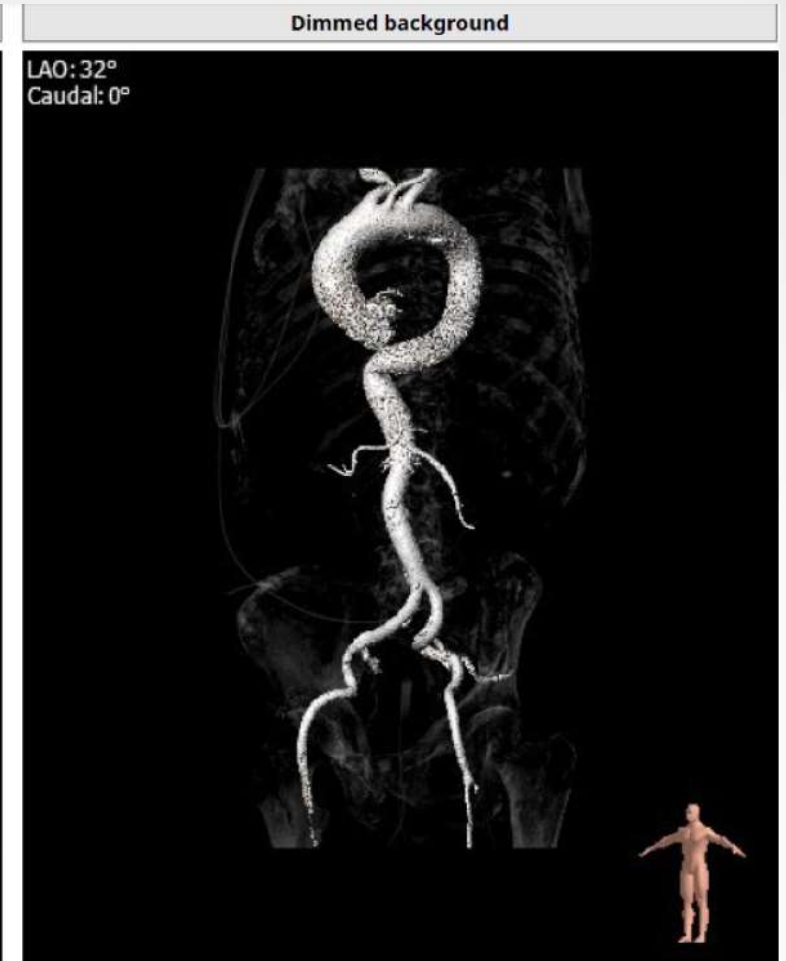
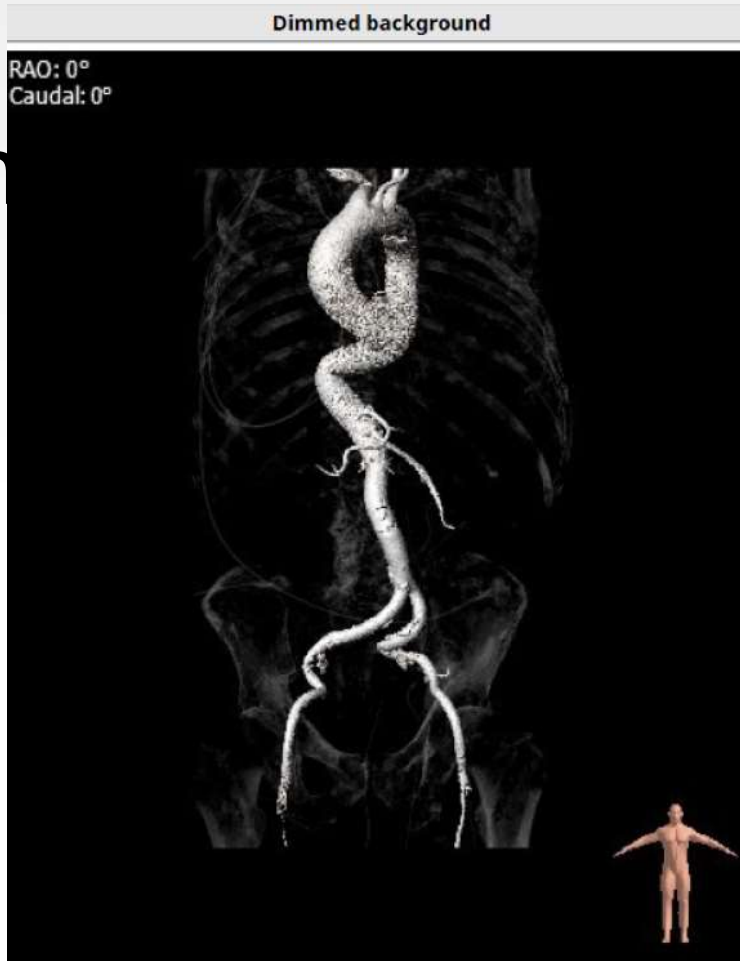
Challenge 2

- Extreme horizontal aorta
- Severe calcification



Challenge 3

- >90 degree kink in descending aorta



Valve of choice

Balloon expandable valve

- Stronger frame strength
- Ability to flex the delivery system

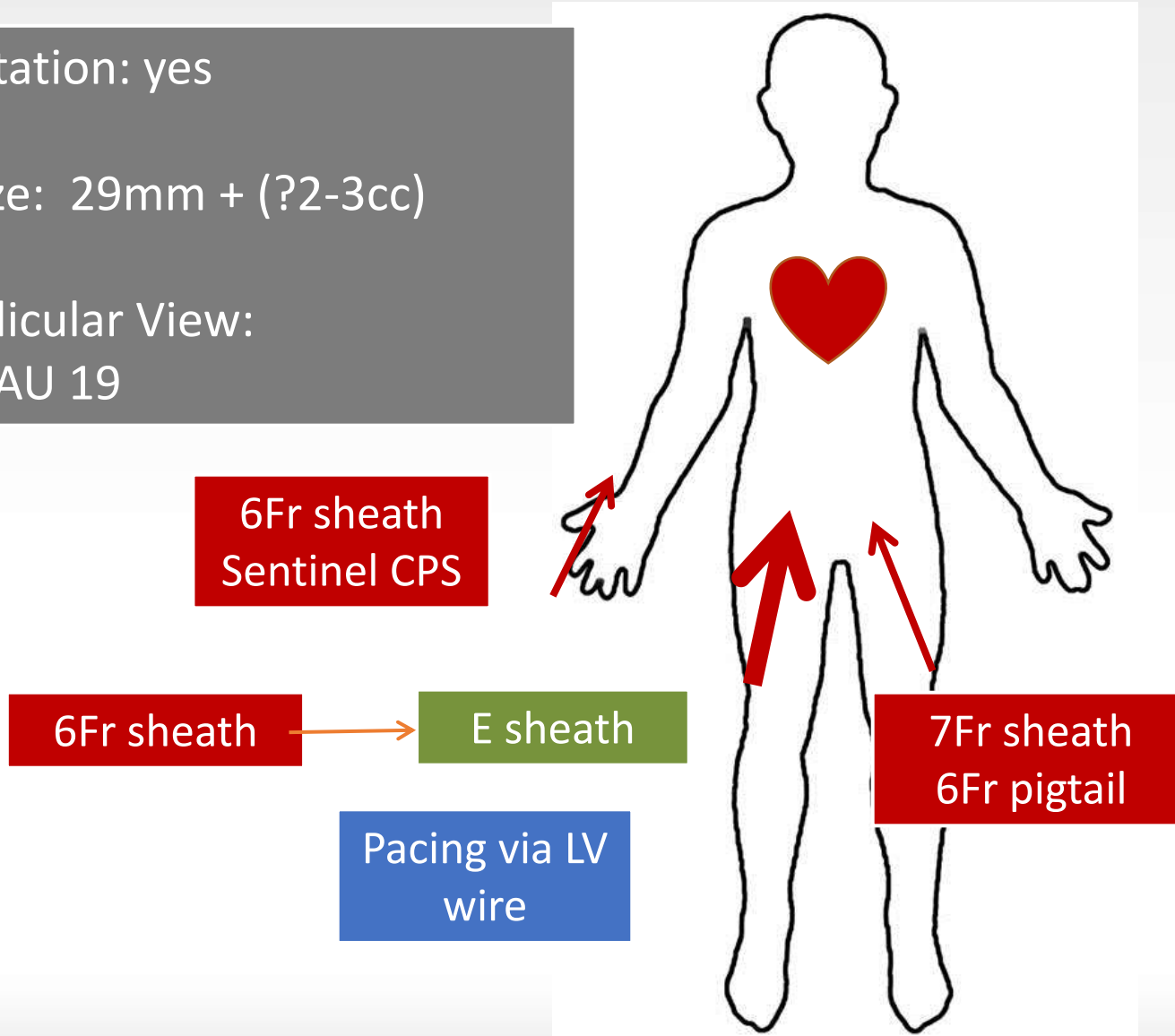
Self expanding valve

- Reposition and Retrievable

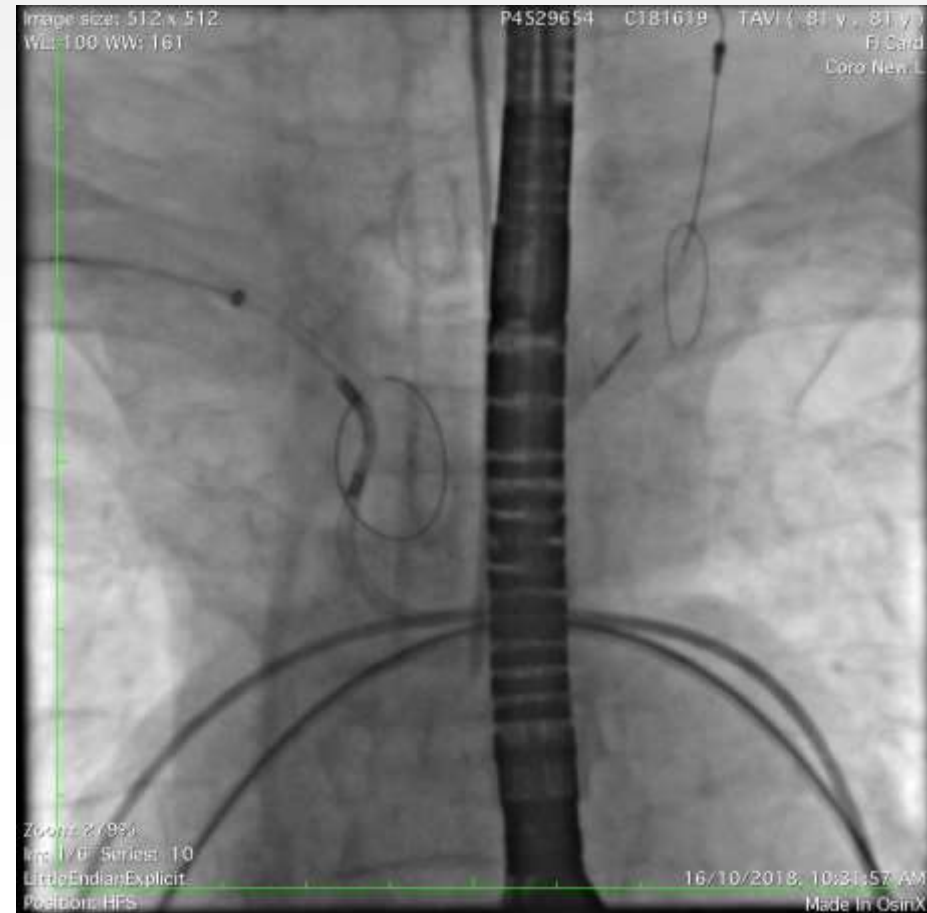
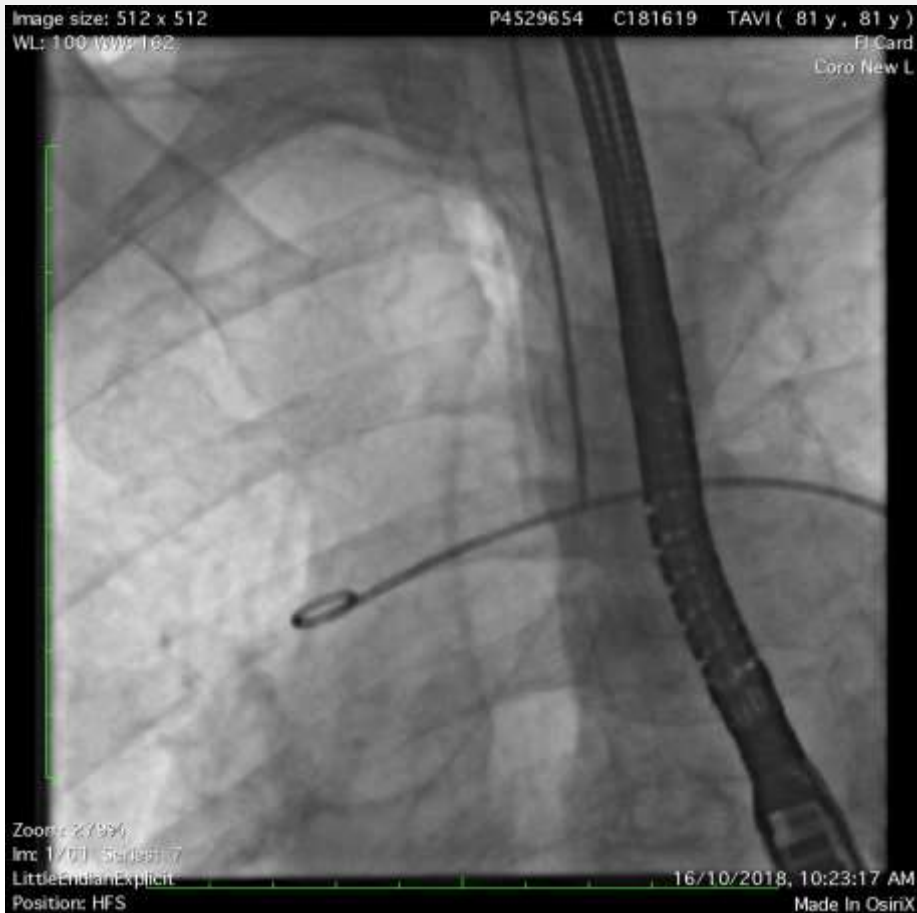
Pre-dilatation: yes

Valve size: 29mm + (?2-3cc)

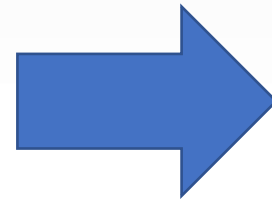
Perpendicular View:
LAO6 CAU 19

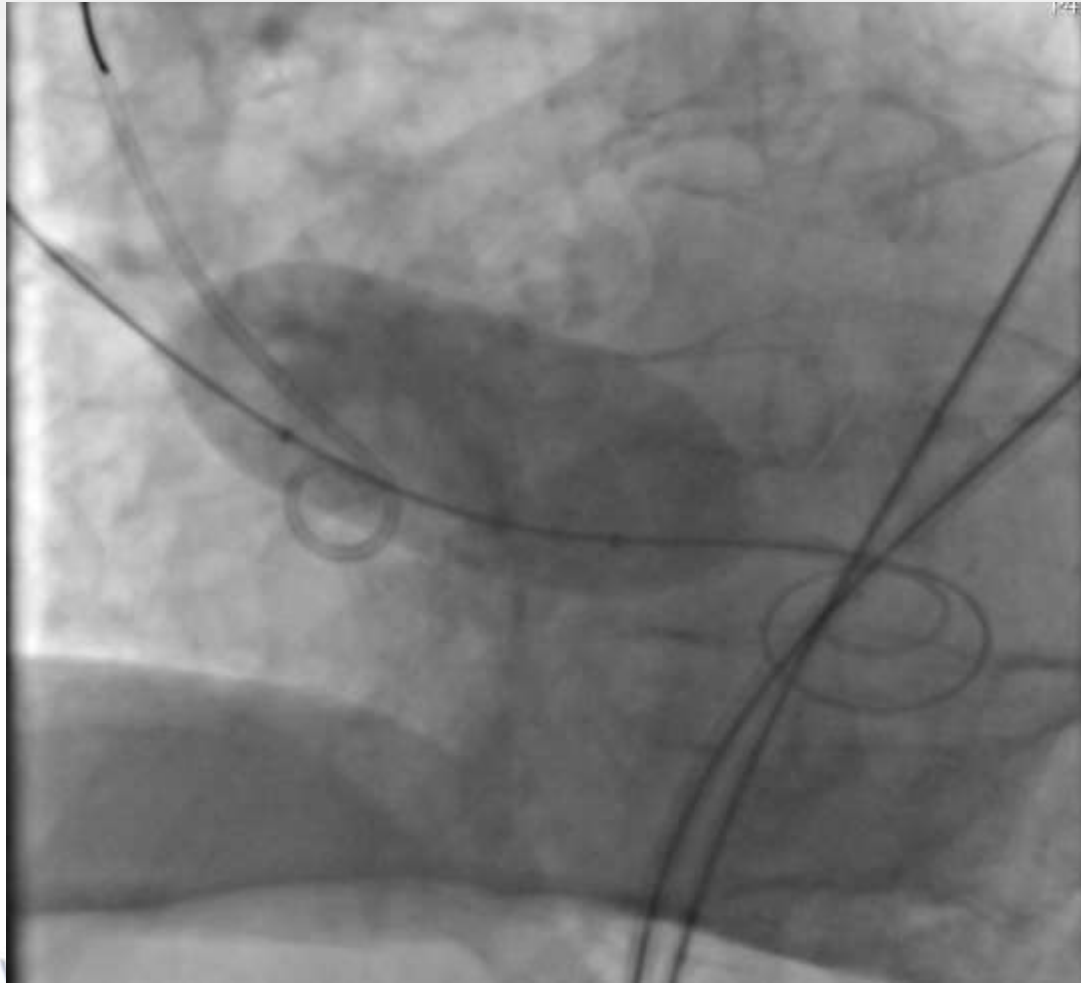


Cerebral protection with Sentinel Device



Buddy wire (Lunderquist Wire in pigtail)





- Predilated with 25mm Balloon

Balloon loading



- Descending aorta straightened

Image size: 512 x 512
WL: 104 WW: 162

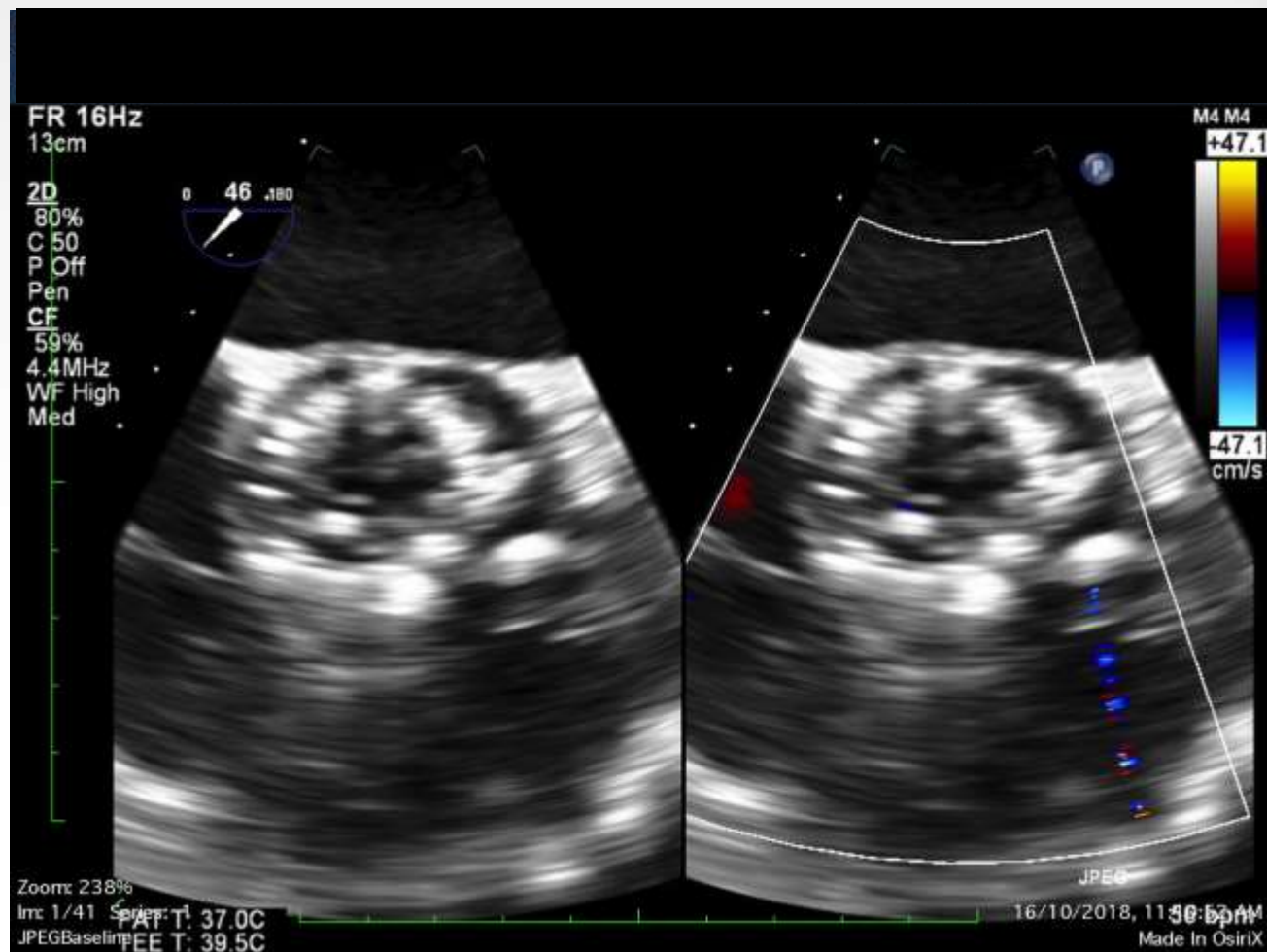
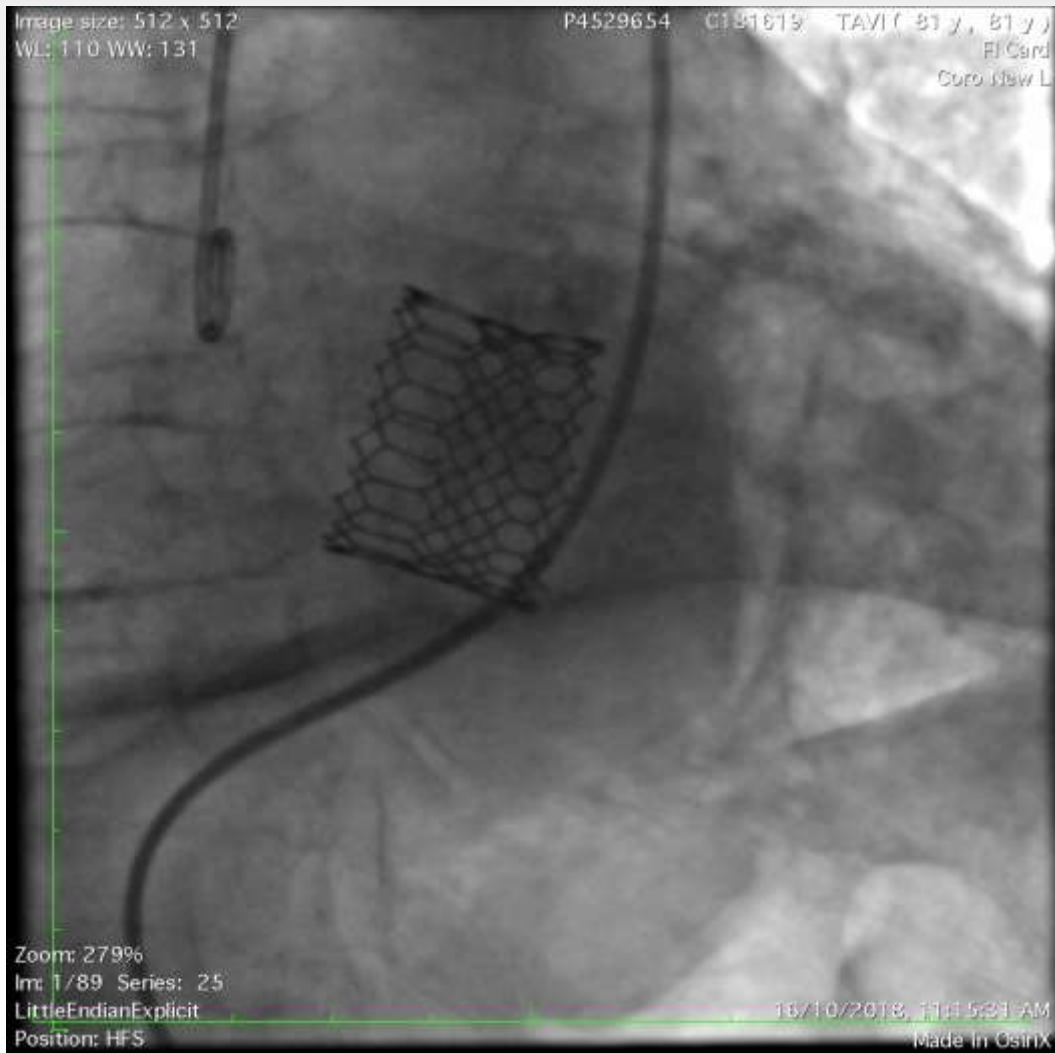
P4529654 C181619 TAVI (81 y , 81 y)
Fl Card
Coro New L

Zoom: 279%
Im: 1/341 Series: 22
LittleEndianExplicit
Position: HFS

16/10/2018, 11:00:53 AM
Made In OsiriX

29mm valve
(+2cc)

29mm valve (+2cc)



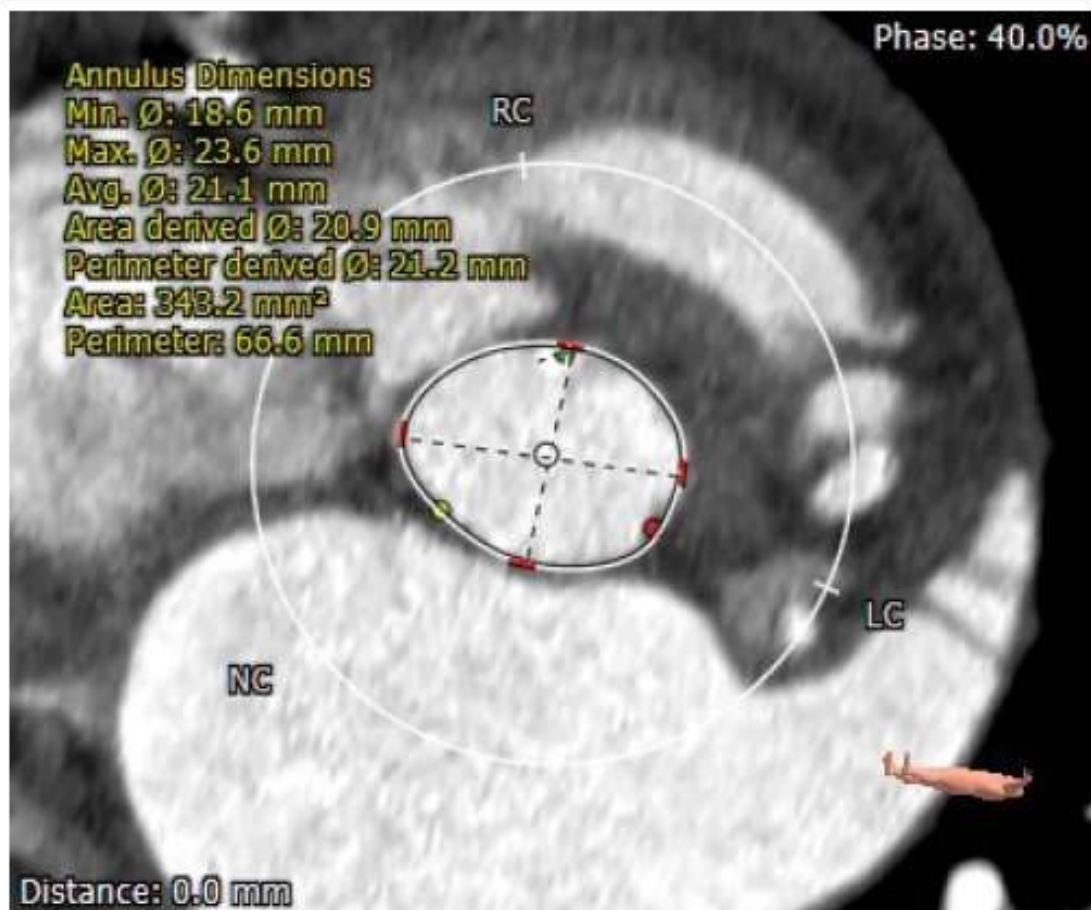
2nd Case (ostial RCA stent kissing balloons)

- F/73 LYM
- Turned down for SAVR because of Porcelain Aorta
- HT, Hyperlipidaemia, IGT, old CVA
- Recurrent syncope 2018
- ECG: SR, LBBB, QRS 134 ms
- BW: 38 kg, BH: 146 cm, BSA: 1.2 m²

Echocardiogram:

- Normal LV size, LVEF 35-40% by Simpson's
- Heavily calcified AV, trileaflet
- Severe AS, AVA 0.53cm², MnGr 37mmHg
- Mild AR

Annulus



LVOT



SOV Diameter

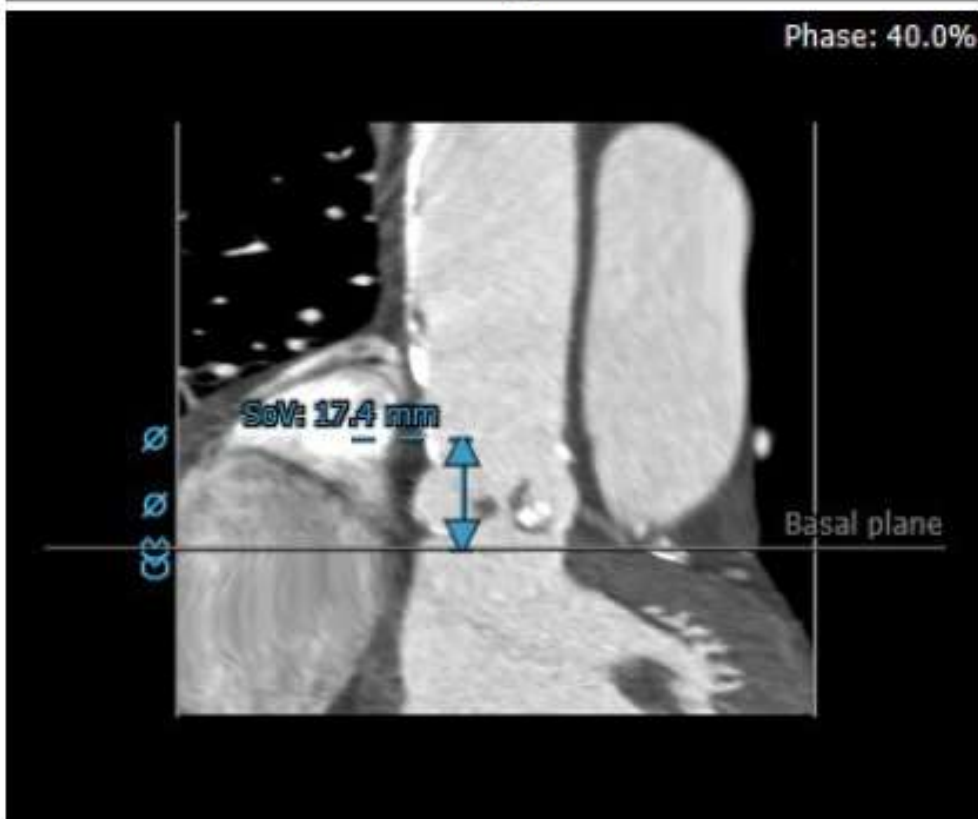


Sinotubular Junction



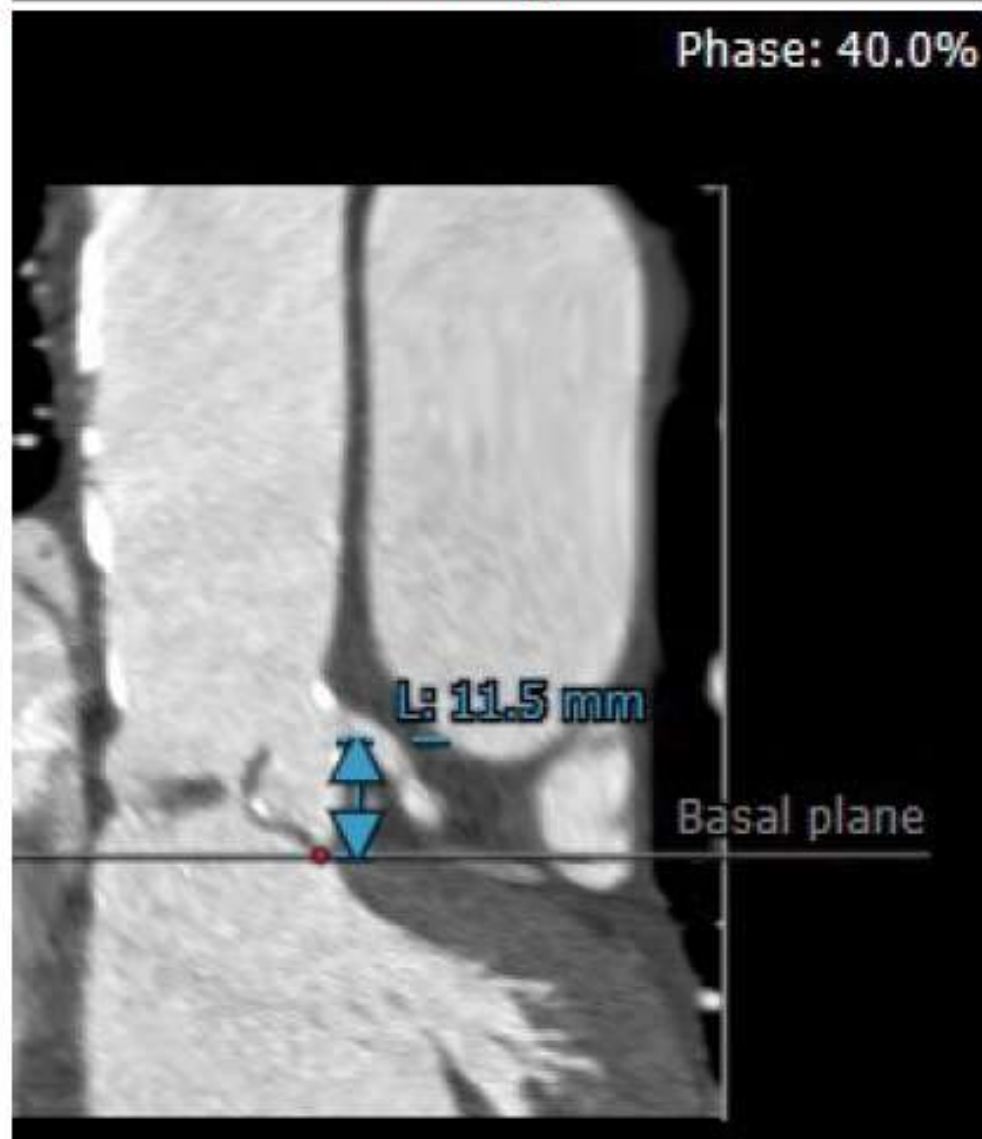
STJ height

Phase: 40.0%



LMN height

Phase: 40.0%



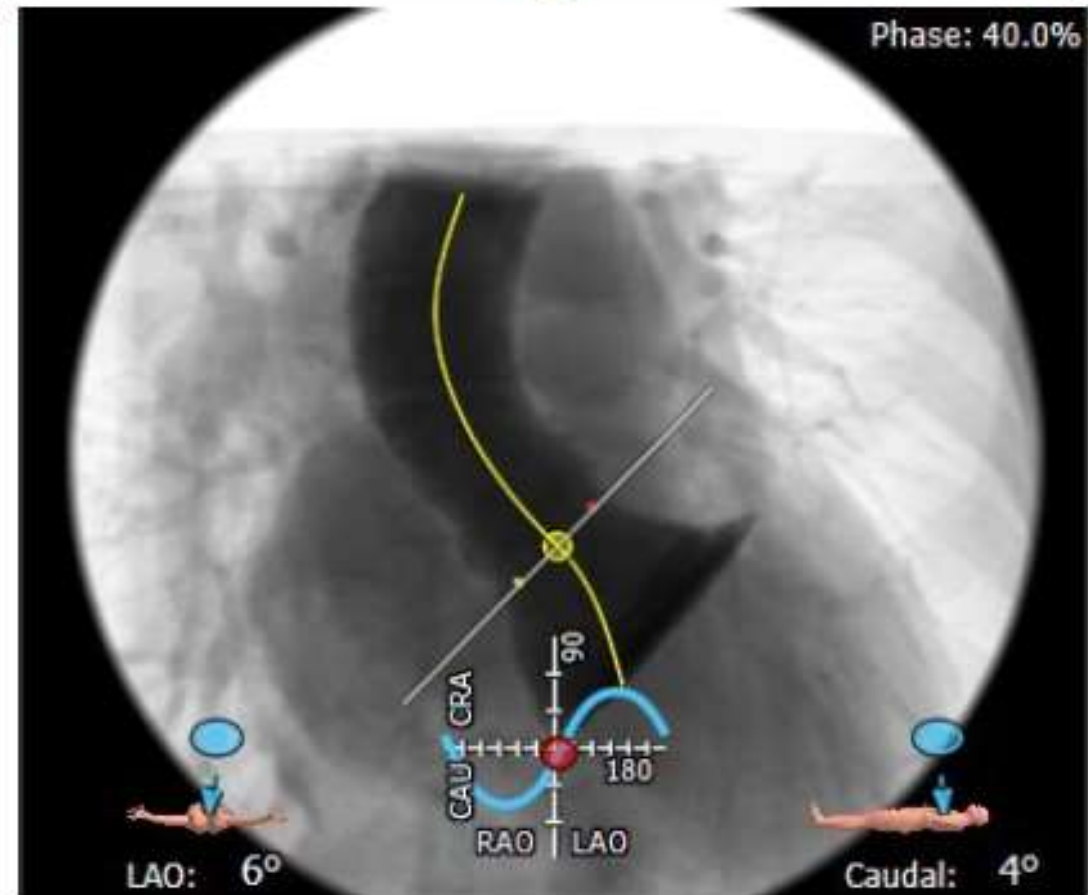
RCA height

Phase: 40.0%

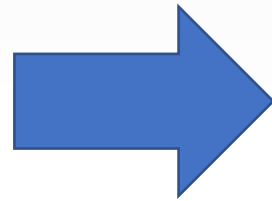


Angio

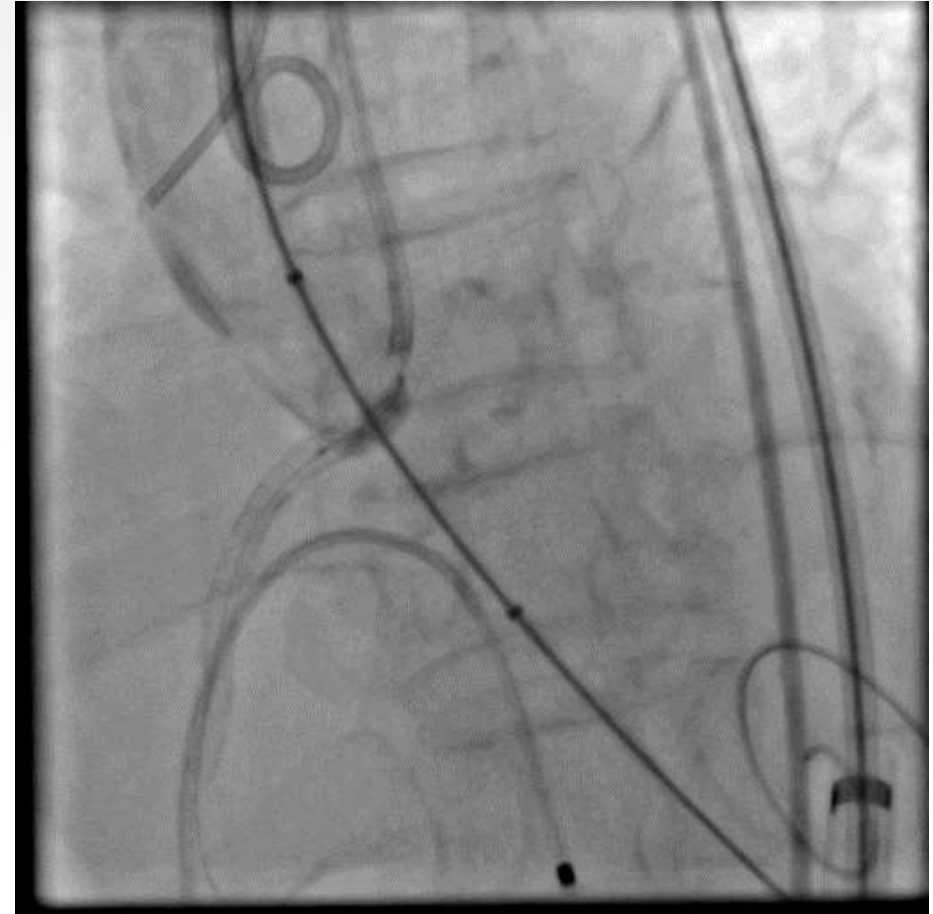
Phase: 40.0%



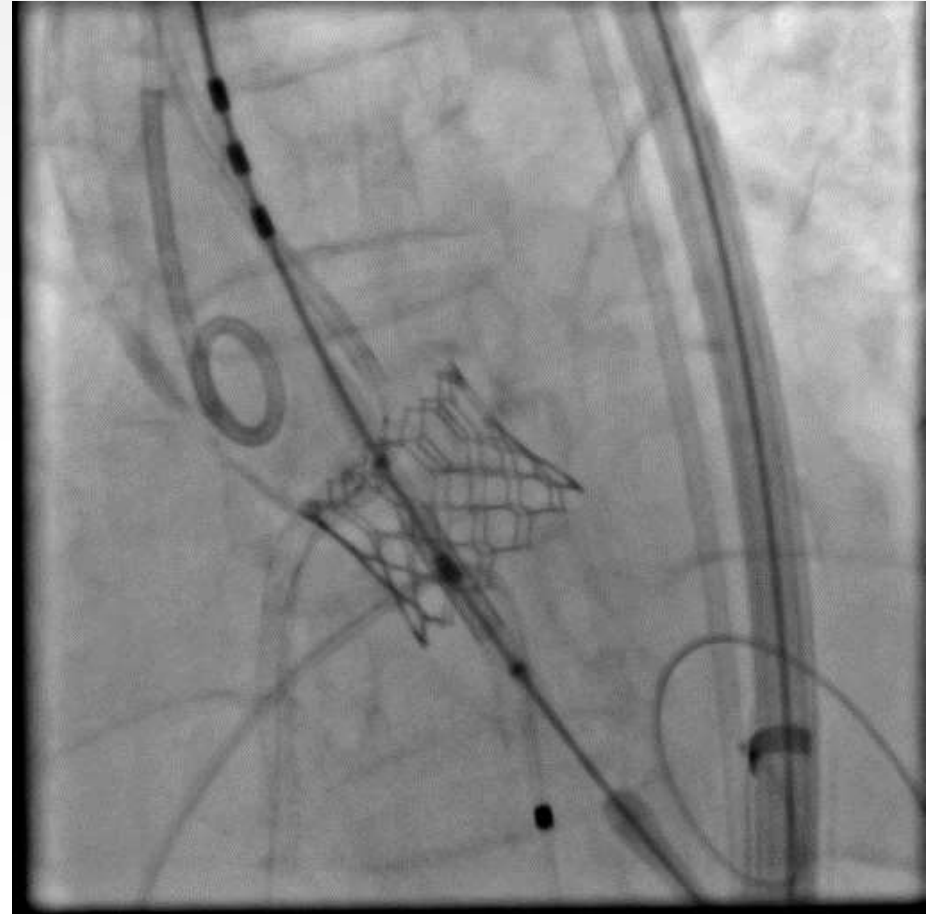
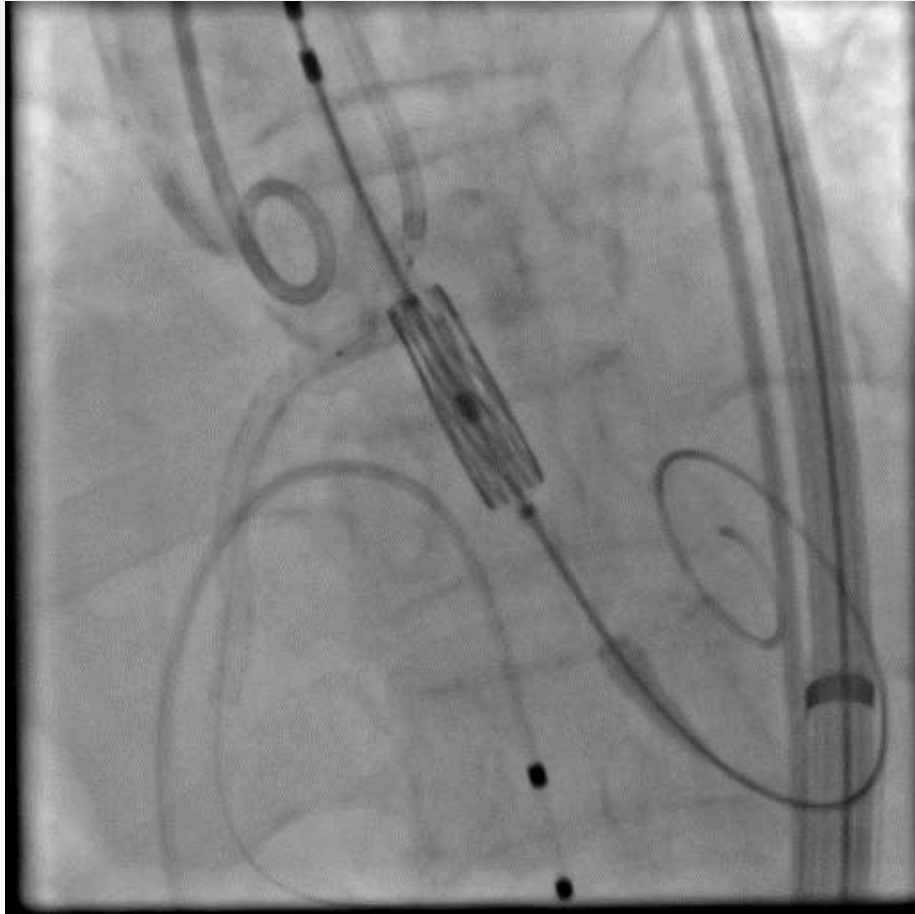
Ostial RCA stenting (DES 3.0 x 30 & 3.5 x 26)



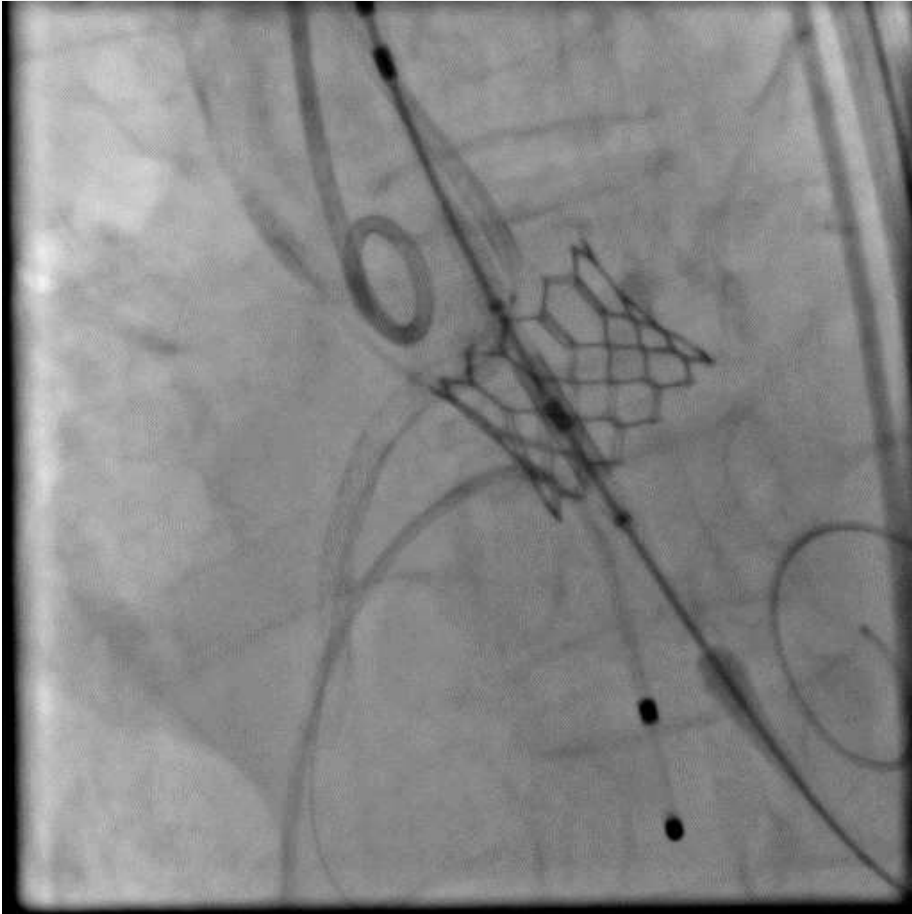
Pre-Kissing balloons (3.5x20 NC balloon & 16mm Edwards balloon)



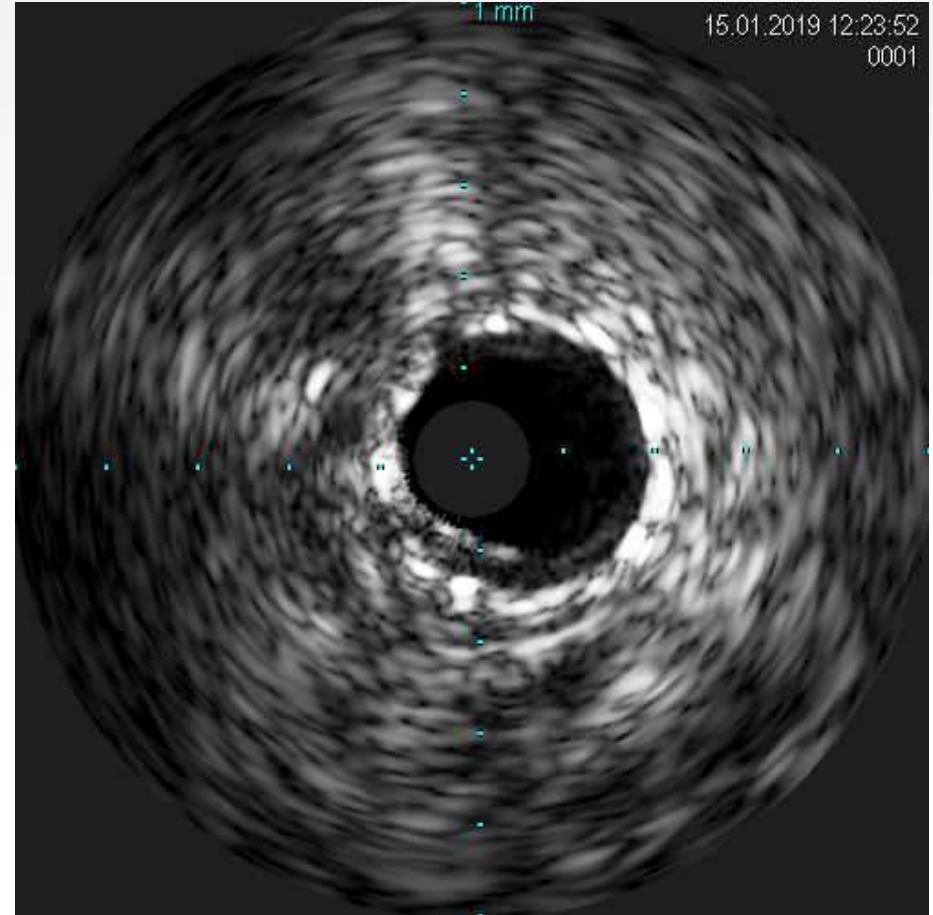
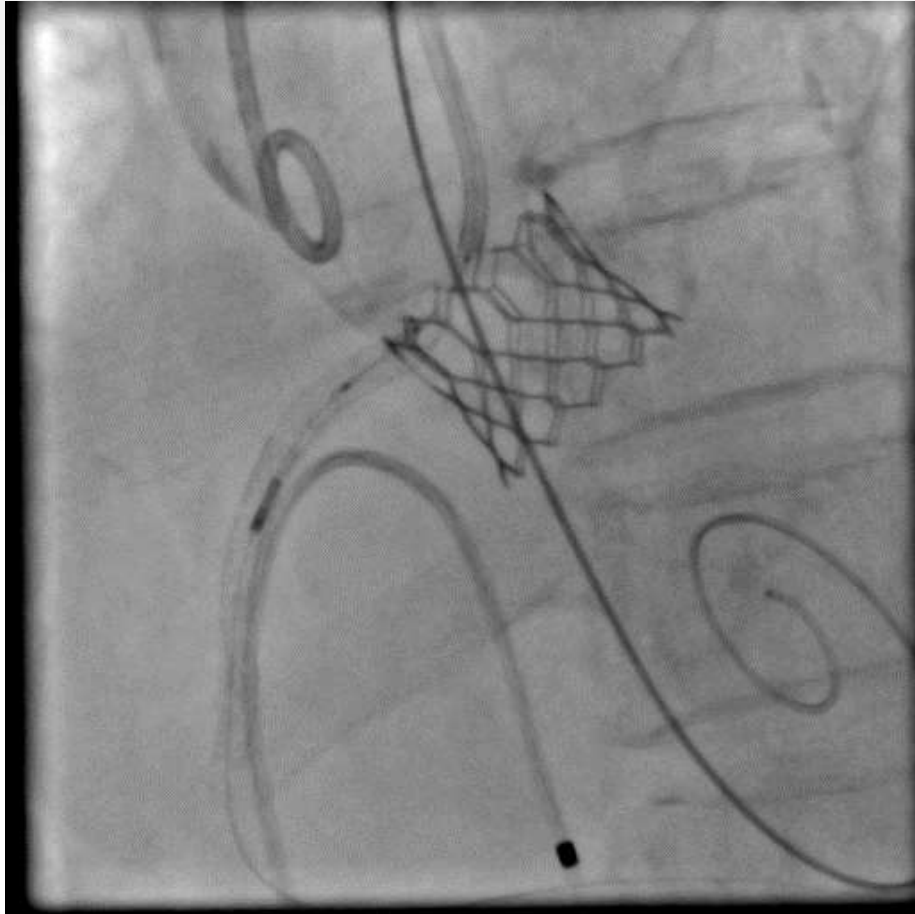
20mm S3



Post-Kissing balloons (4.0x15 NC balloon & +1cc S3 balloon)



Final IVUS



3rd Case (LVOT calcium, low LM, large annulus)

- M/81 WYW
- Hx of Ca prostate, known mod to severe AS in 2017
- Subjective ↓ ET from 5 to 3 FOS, mild ankle edema
- ECG: SR, RBBB, PR 262 ms, QRS 150 ms
- BW: 80kg, BH: 170 cm, BSA: 1.92m²

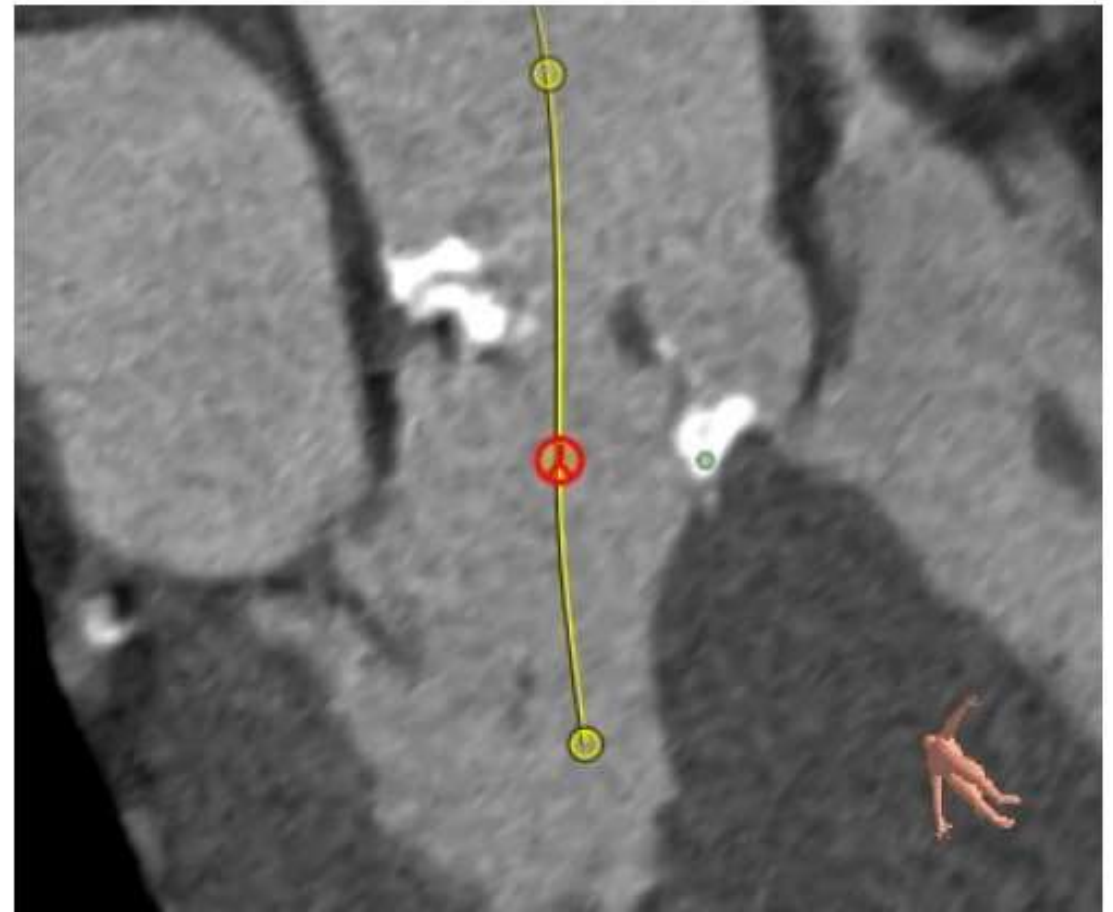
Echocardiogram:

- EF 55-60 %
- Calcified AV, mean gradient 37mmHg, AVA 0.9cm², mod AR

calcification along LVOT



LVOT calcification

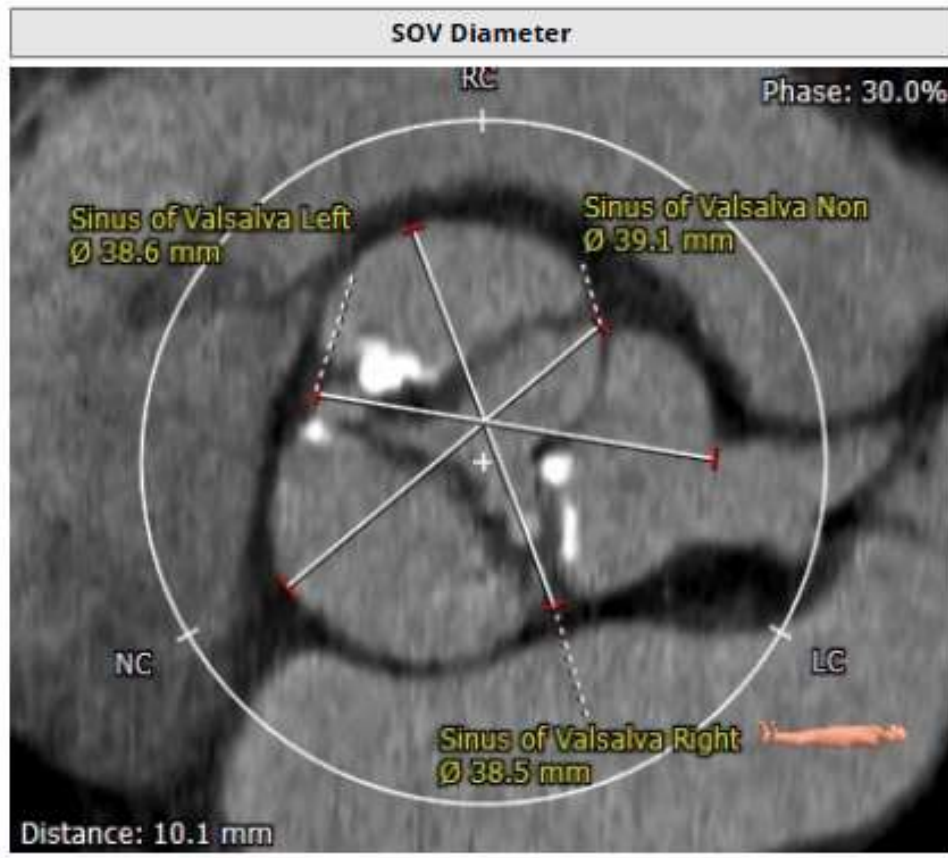


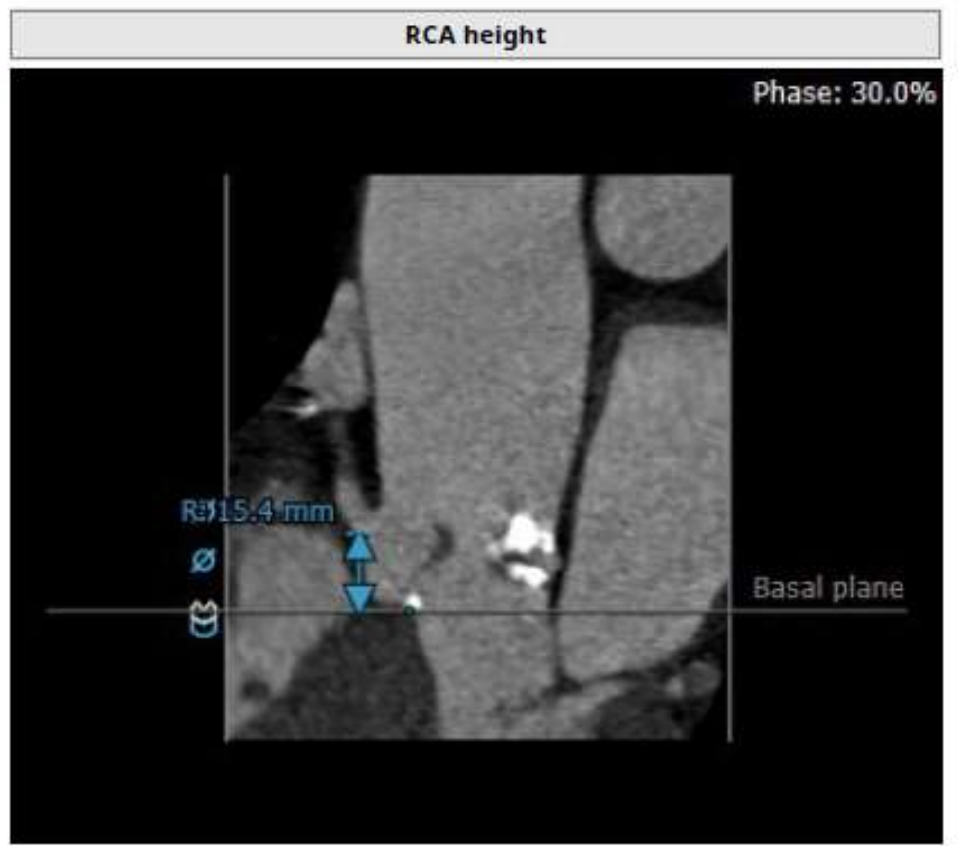
Annulus



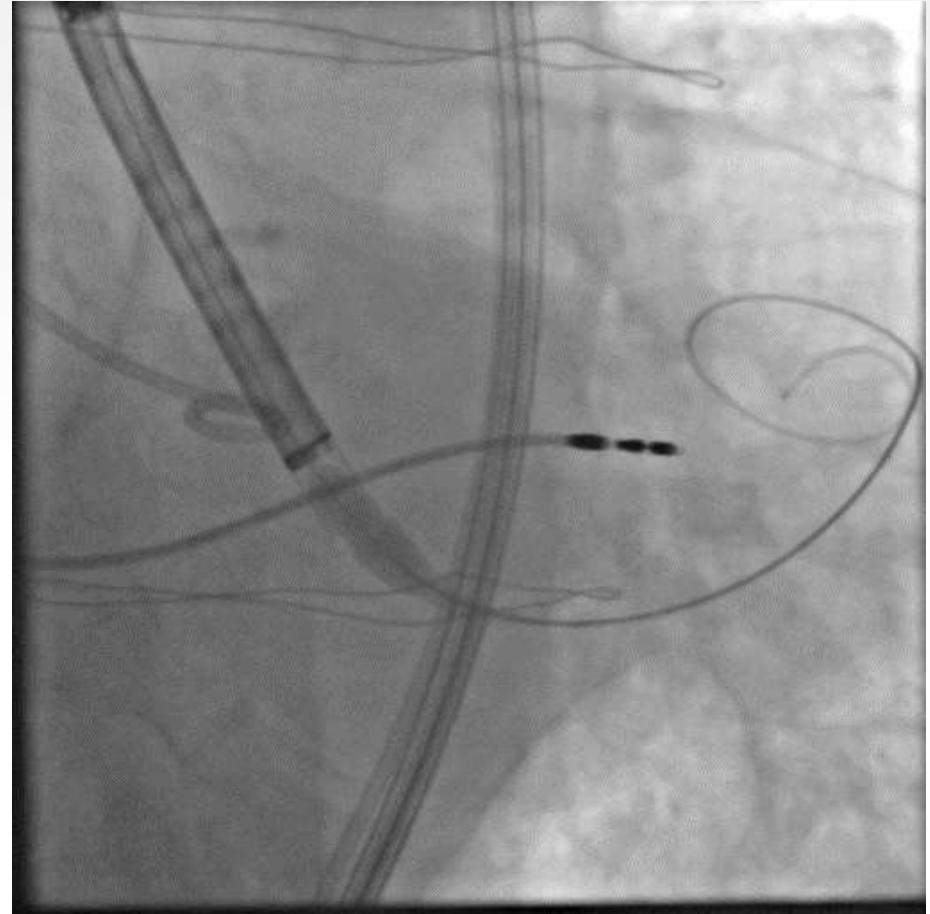
LVOT



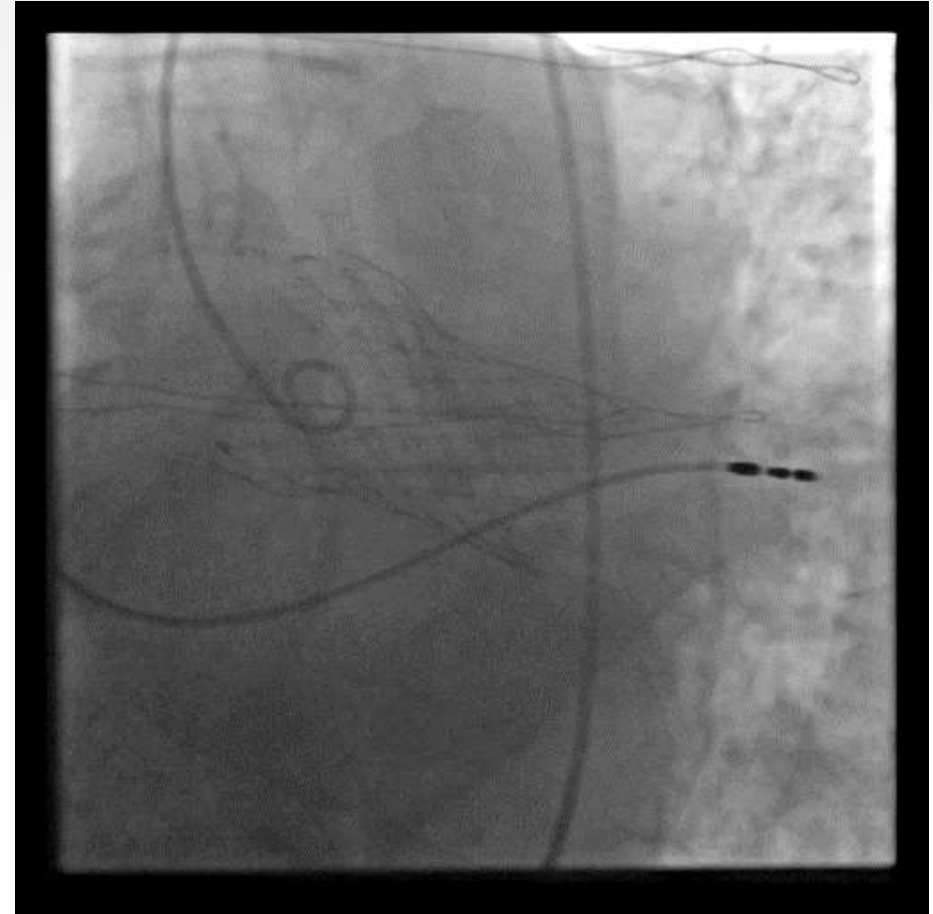
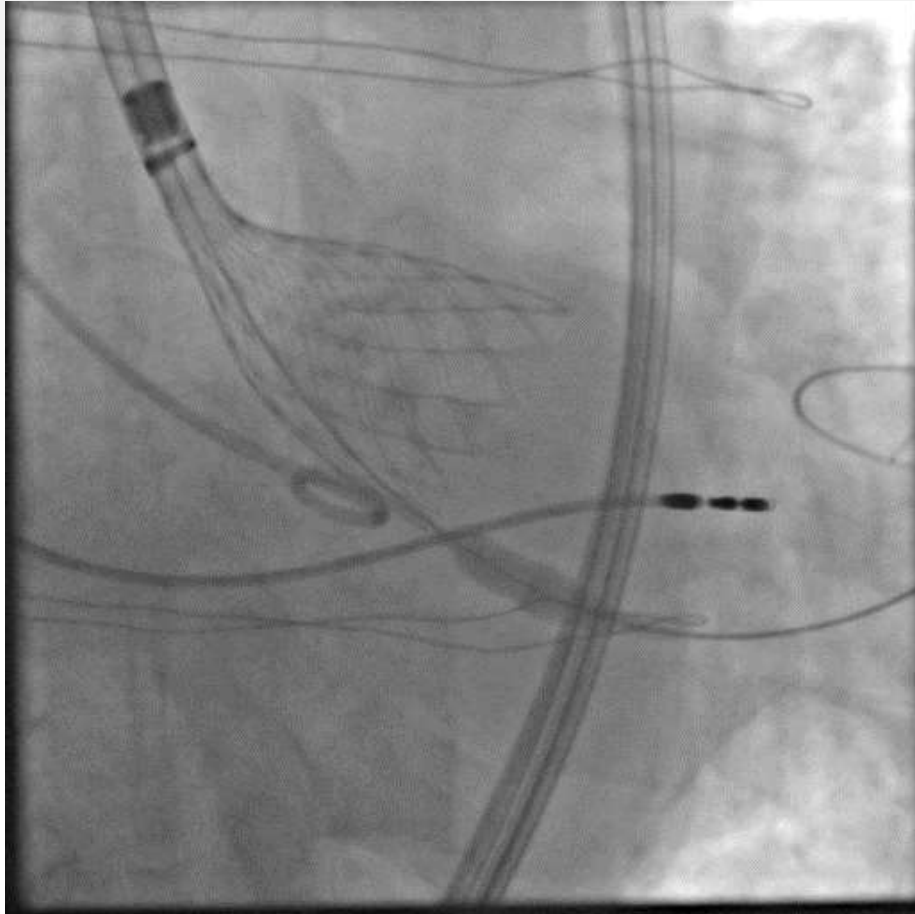




Evolut R 34mm



Push on the catheter & wire together

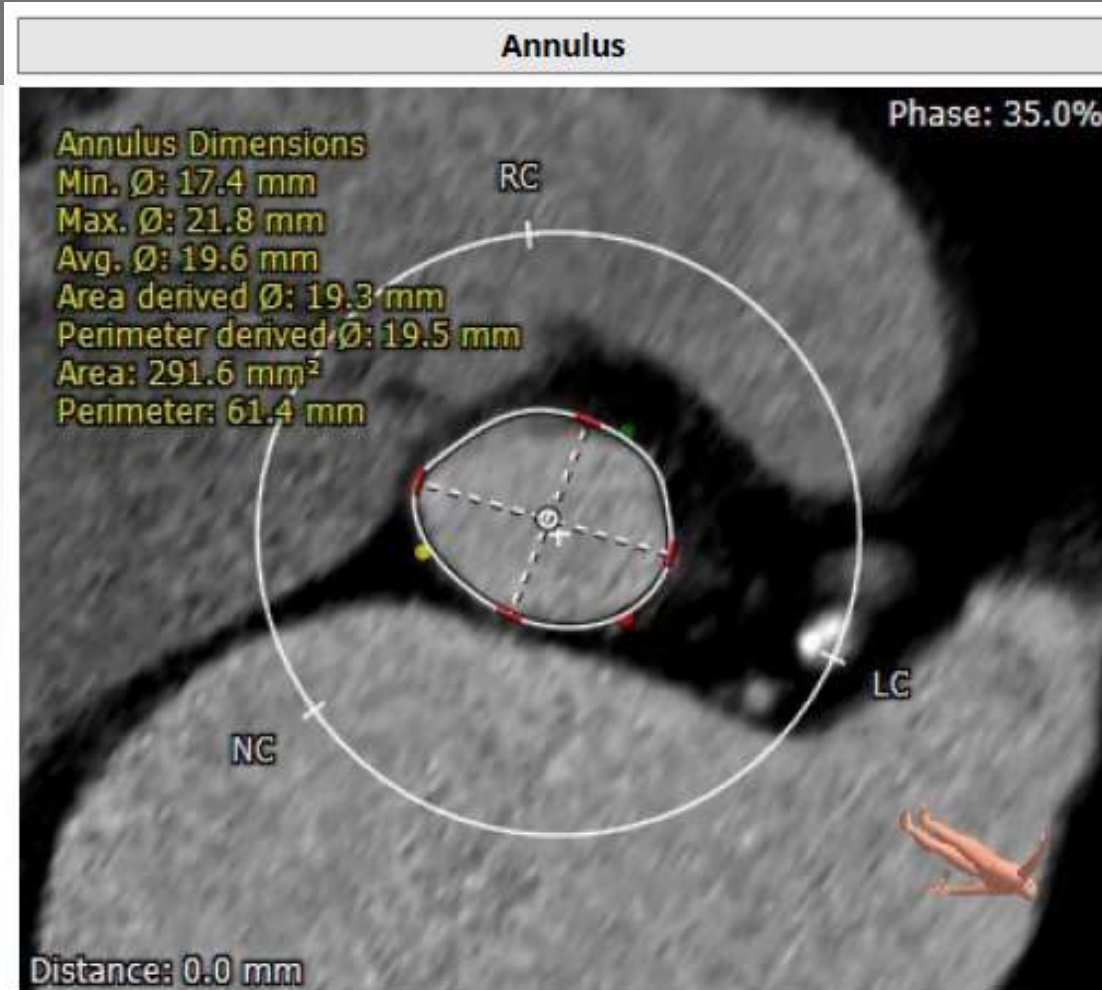


4th Case (Small anatomy)

- F/83 MSM
- HT, gout, AF on NOAC, Hypothyroidism, NIDDM
- Decreased exercise tolerance with chest pain
- ECG: AF, QRS 88ms
- BW: 43 kg, BH: 153 cm, BSA: 1.34m²

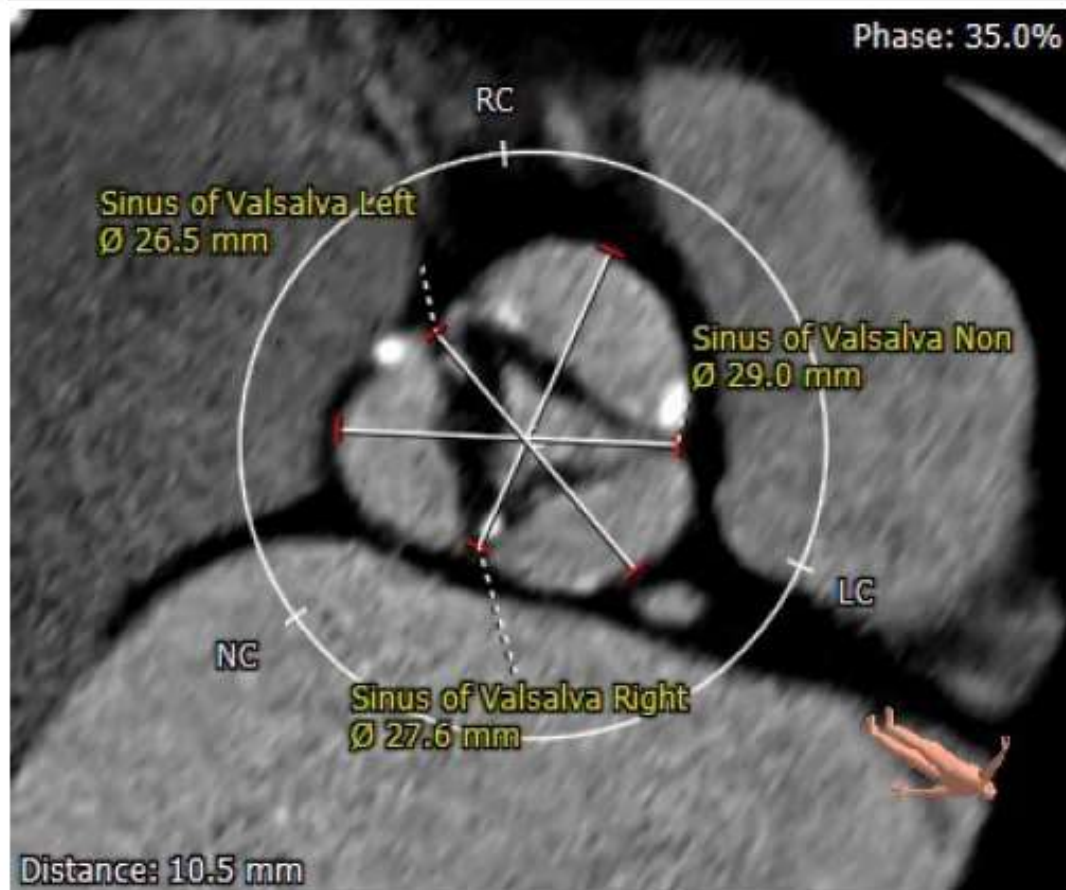
Echocardiogram:

- EF 55-60 %
- Calcified AV, trileaflet, mean gradient 41mmHg, AVA 0.87cm², mod AR



Perimeter 61.4mm, Area 291mm²
 S3 20mm (13% oversize) OR Evolut 23/26

SOV Diameter

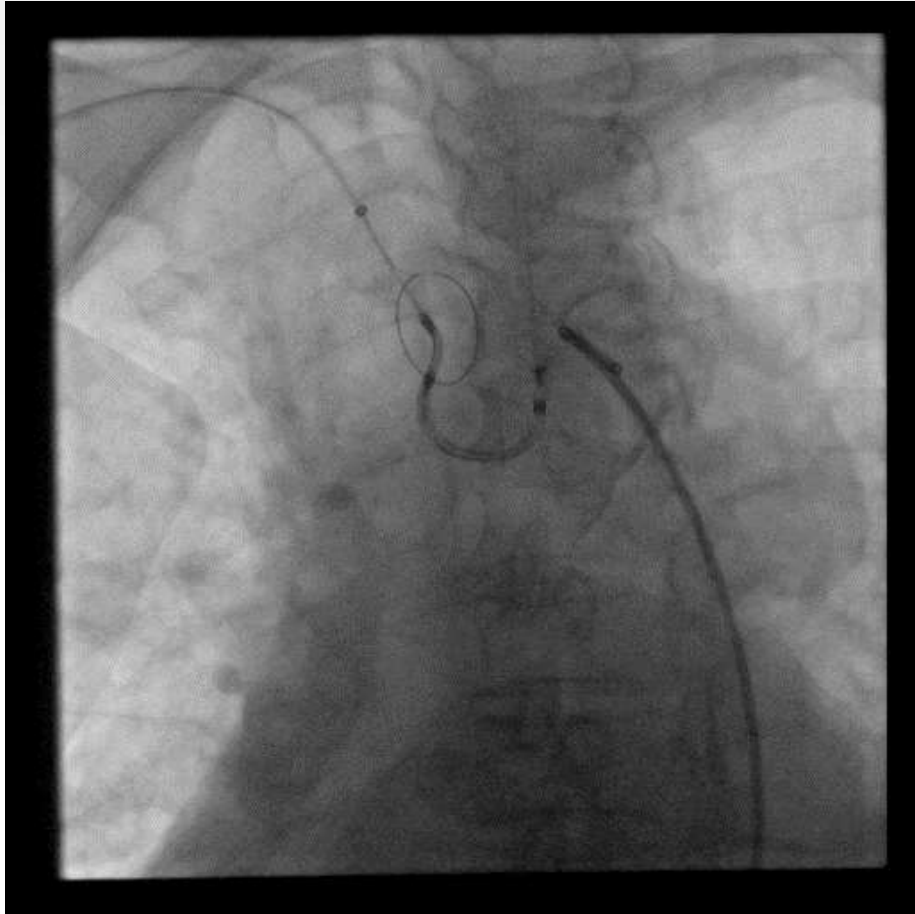


Sinotubular Junction

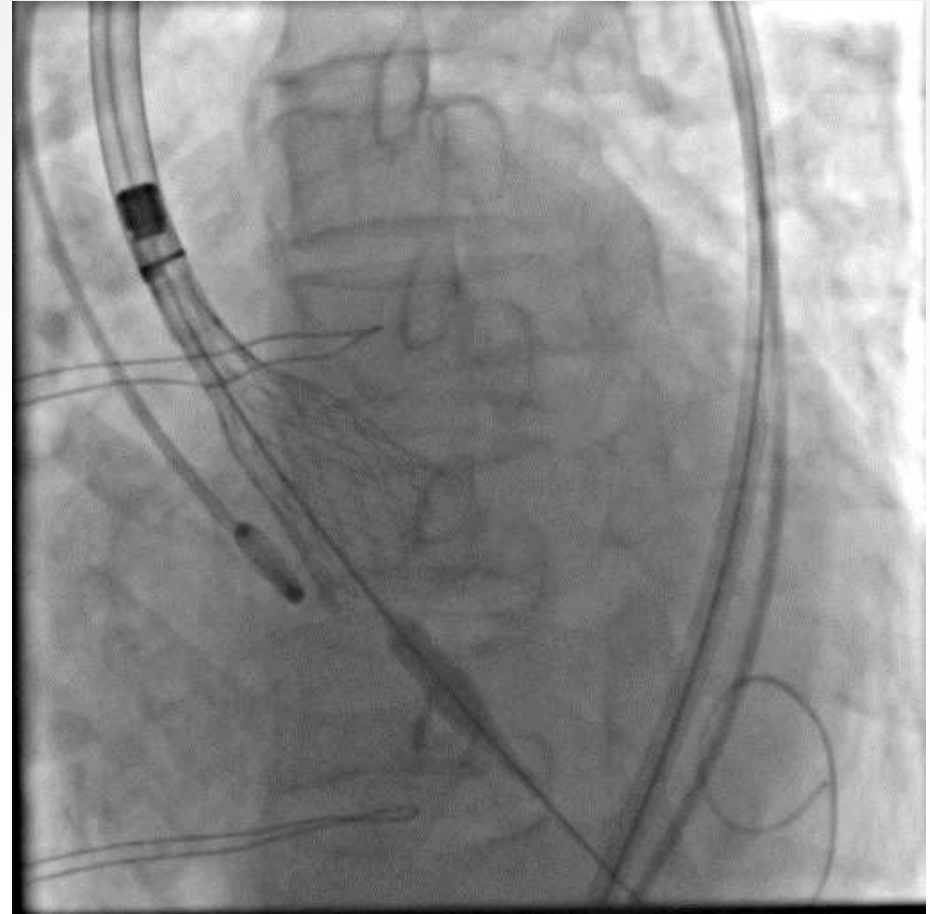
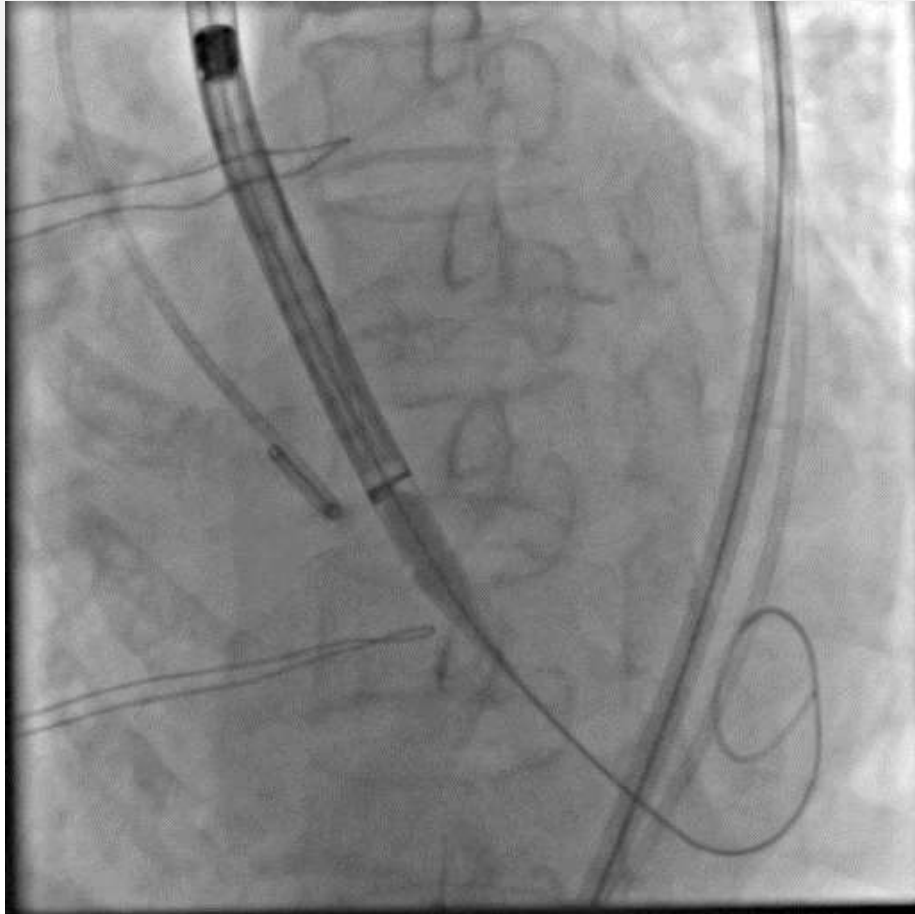


Sentinel CPS

Setup Aortogram



Evolut PRO 26mm



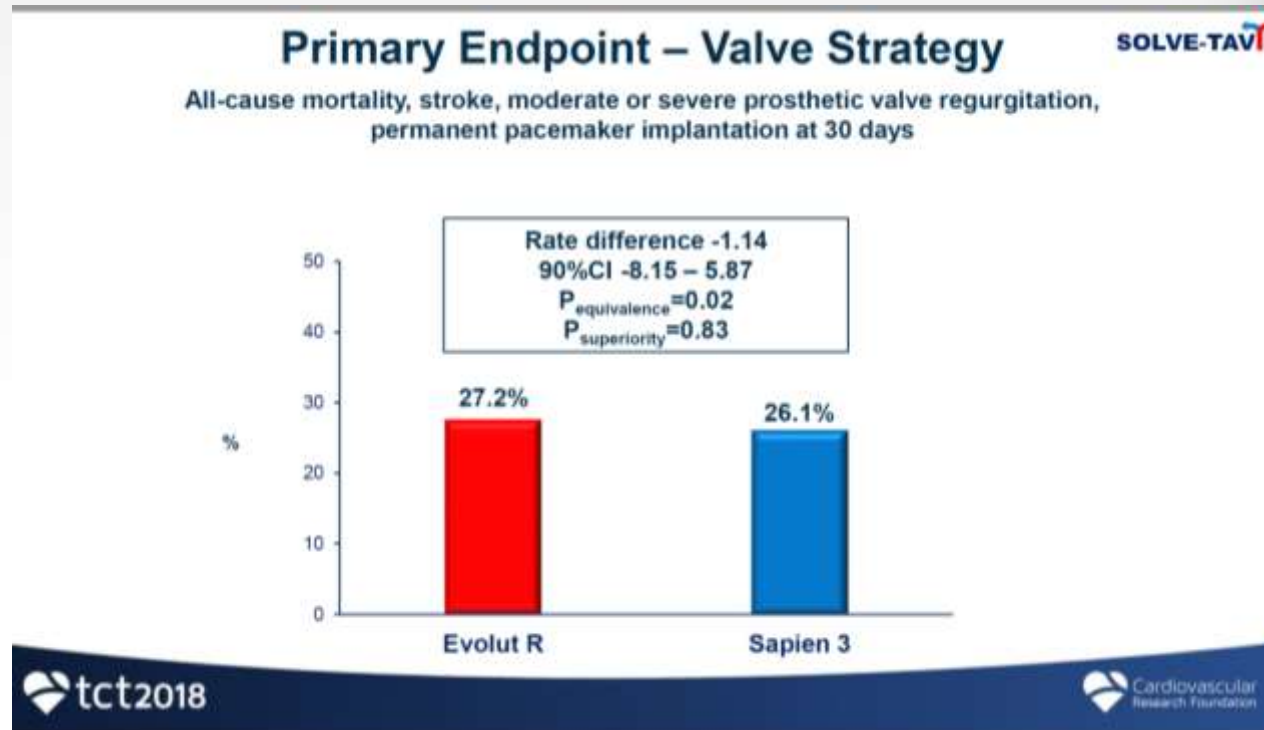
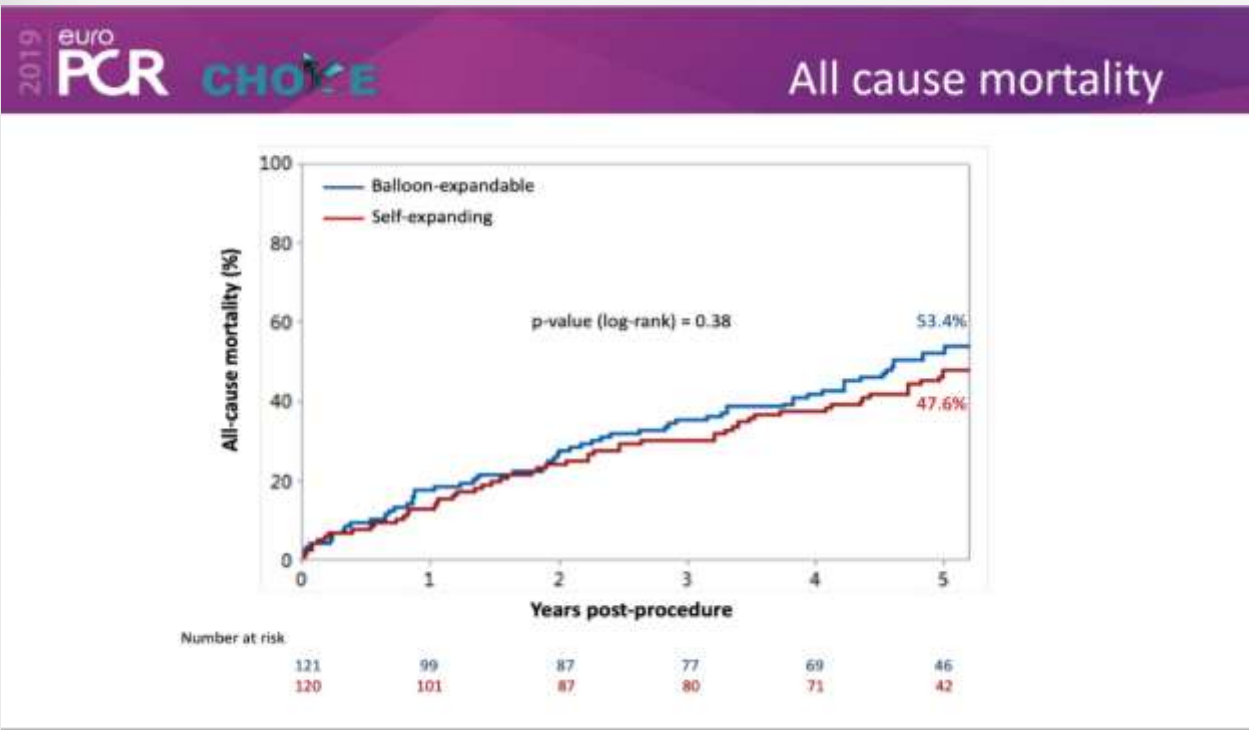
Final Position

Wound closed with 1 Proglide
& 1 Angioseal (8F)



CHOICE Trial

SOLVE-TAVI



Points to consider....

- Deflatable catheter
 - Horizontal Aorta
- Retrievability, Repositionability
- Low lying coronaries
- Amount of calcium, esp. LVOT calcium
- Size of annulus – avoid small device to ↓ PPM
- Future coronary access