What to expect with Evolut FX

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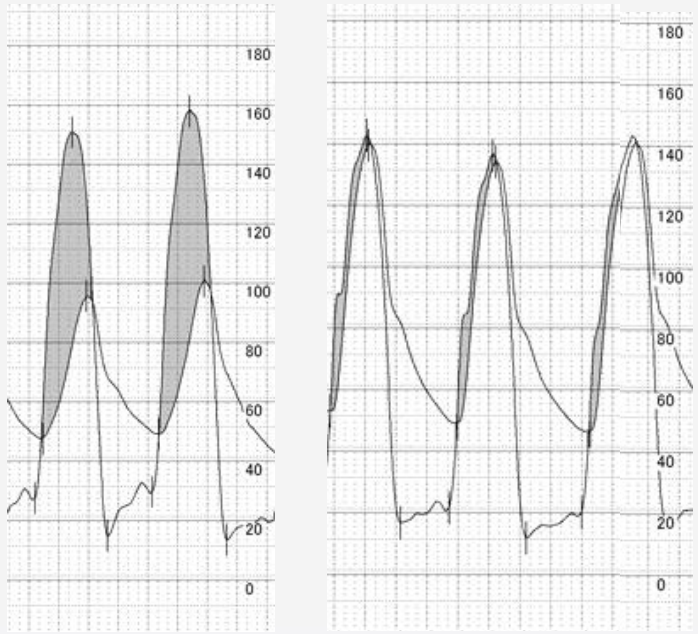
Disclosure

- ✓Receipt of honoraria or consultation fees: Medtronic, Abbott, Edwards Lifesciences

Essential tools for Low-risk TAVI

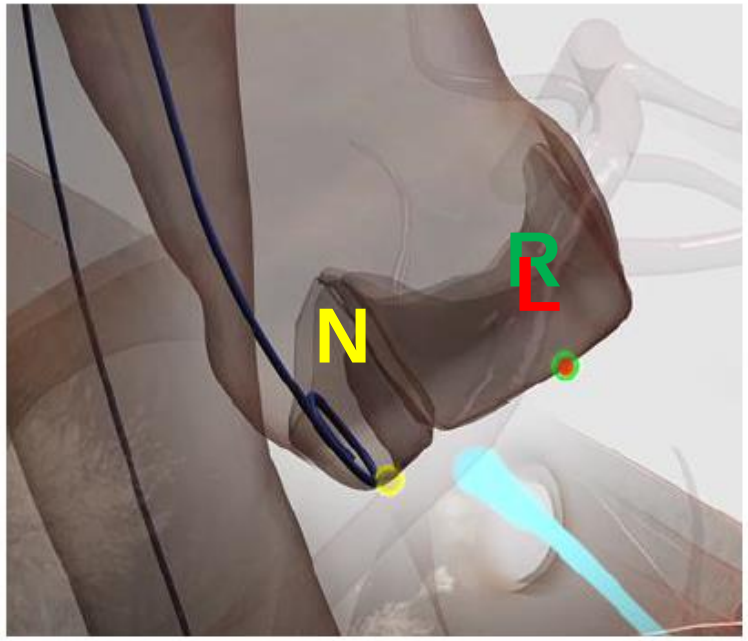
Optimal hemodynamics



- ✓ Low PPM
- ✓ Low SVD rate

O'Hair D et al. JAMA Cardiology 2022
Forrest JK JACC 2023
Herrmann HC NEJM 2024

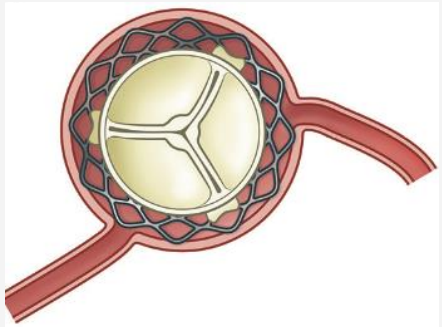
Simple procedure with low PMI

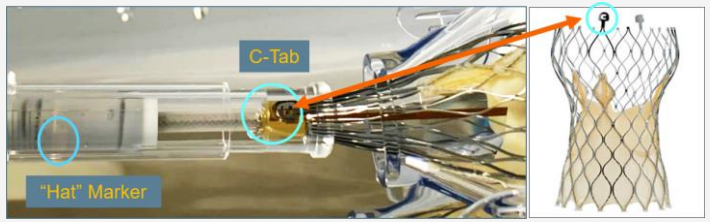


- ✓ Reproducible
- ✓ Precise depth control
- ✓ Reduce PMI

Grubb KJ et al. JACC INT 2023

Coronary access





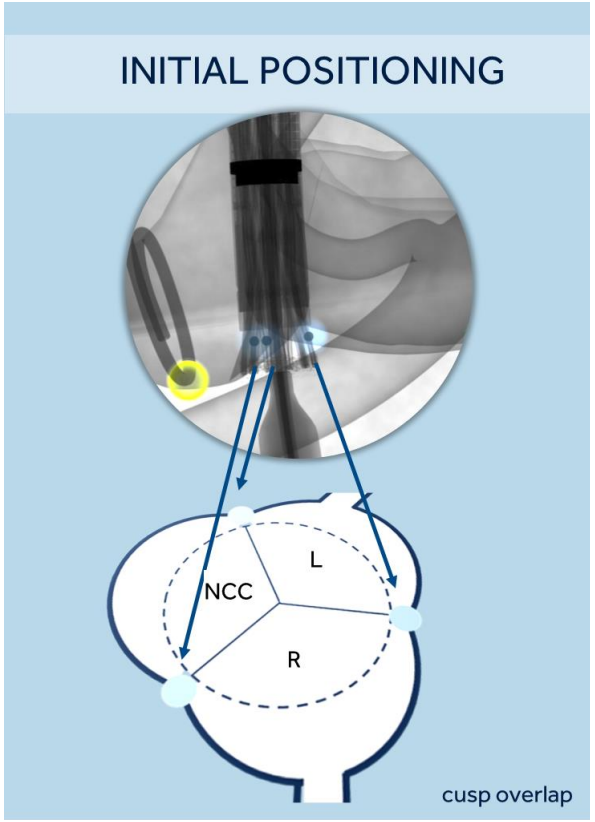
- ✓ Great commissural alignment with Evolut FX

Khera S, et al.,. JACC INT. 2023
Yoon SH et al. Circ INT 2023

29th TCTAP2024
CVRF

FX deployment methodology

✓Cusp overlap technique – Marker orientation identifies alignment



【78 y.o. female】

<Problem List>

Severe AS (DOE+、CP-、syncope-、NYHA 2)

Diabetes

Hypertension

Dyslipidemia

<PE> HT 148.8 cm, BW 38.0 kg, BMI 17.2, BSA 1.23 m^2

EuroScore II 1.59%, STS score 5.56%, Clinical Frailty Scale 3

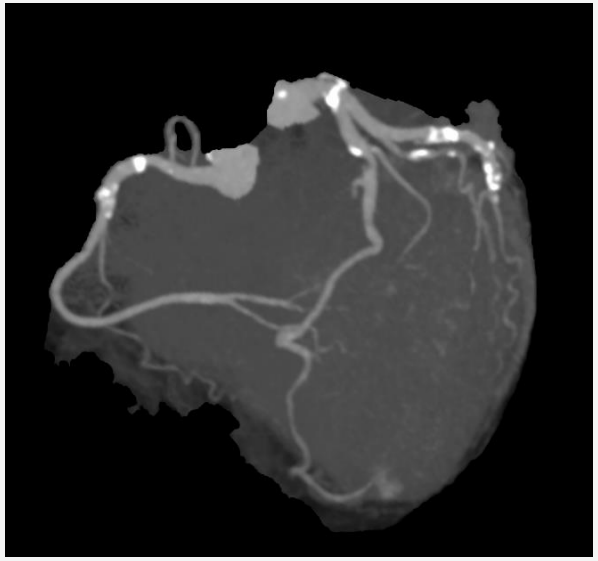
Cr 0.60 (eGFR 72), Hb 13.7, Plt 29.1, Alb 3.7、BNP 66.4

<ECG> SR, no BBB

<ABI> Rt 1.19 /Lt 1.14

<Head MRI> Carotid arteries no stenosis

Coronary / Cardiac echo



- ✓ Coronary CT

  No significant stenosis

- ✓ UCG

  Severe AS, trivial AR、 trivial MR、 mild TR、 TRPG 24.8 mmHg

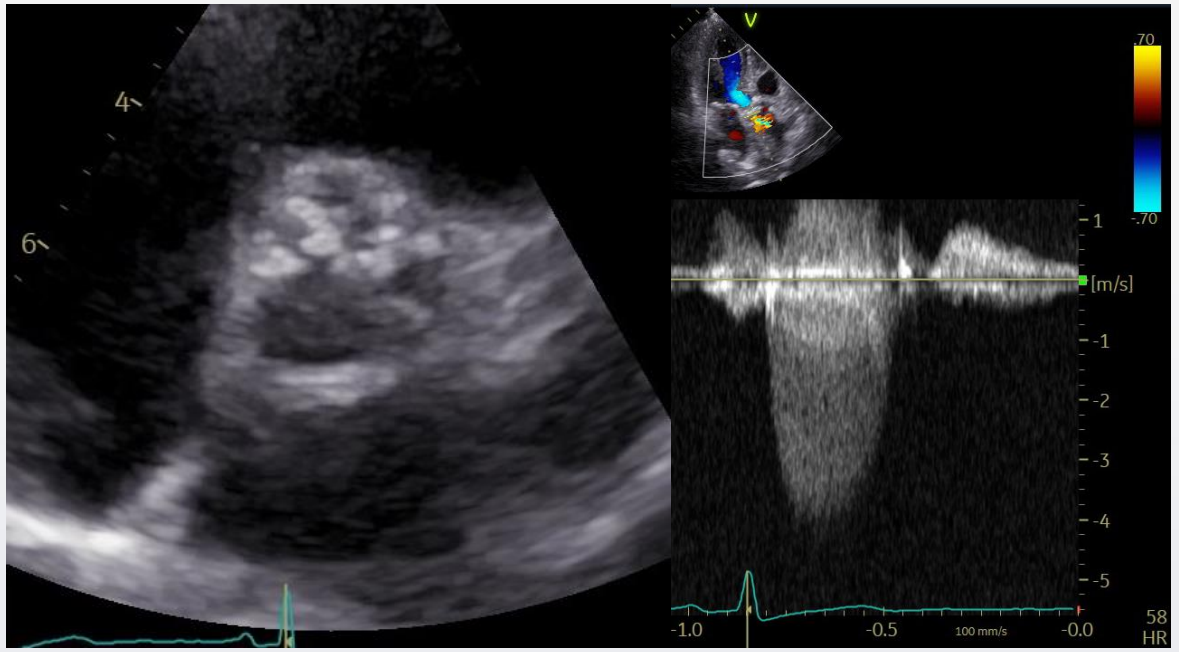
  EF 84 % LV 34/16 mm, IVST/PWT 13/10 mm, LAD 34 mm

  p vel 4.2 m/sec, p/m PG 70.4/47.1 mmHg

  AVA 0.6 cm^2(continuous equation)

  Stroke Volume： 67.9 ml, SVI 53.4 ml/m^2

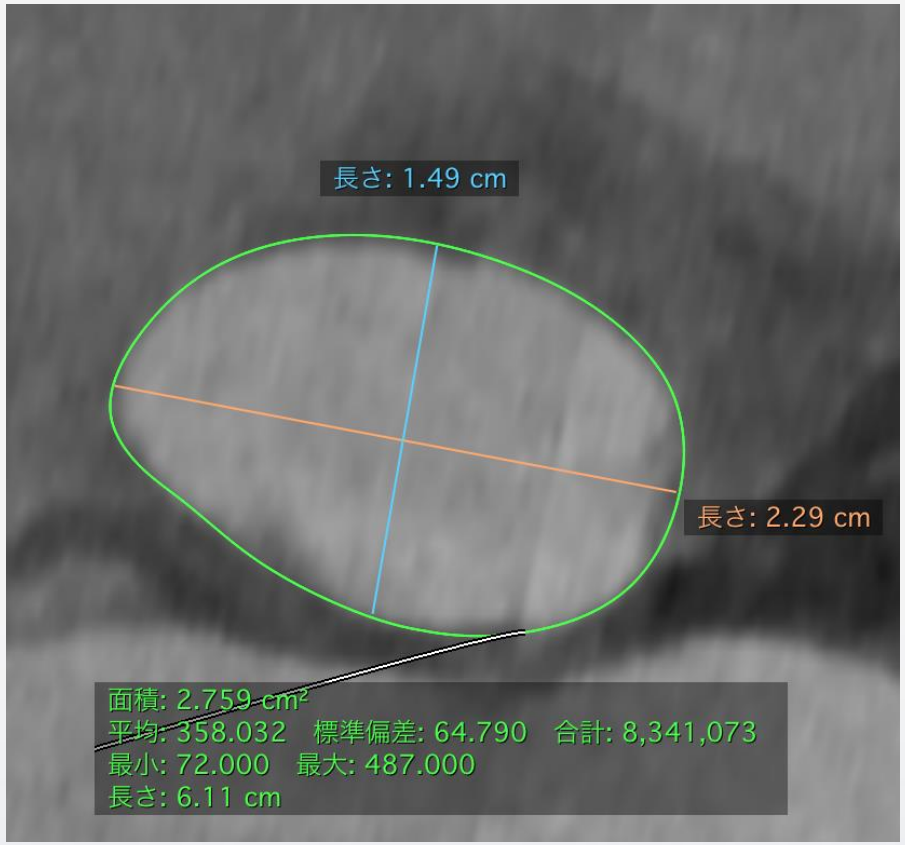
  MVO (2.2m/s)



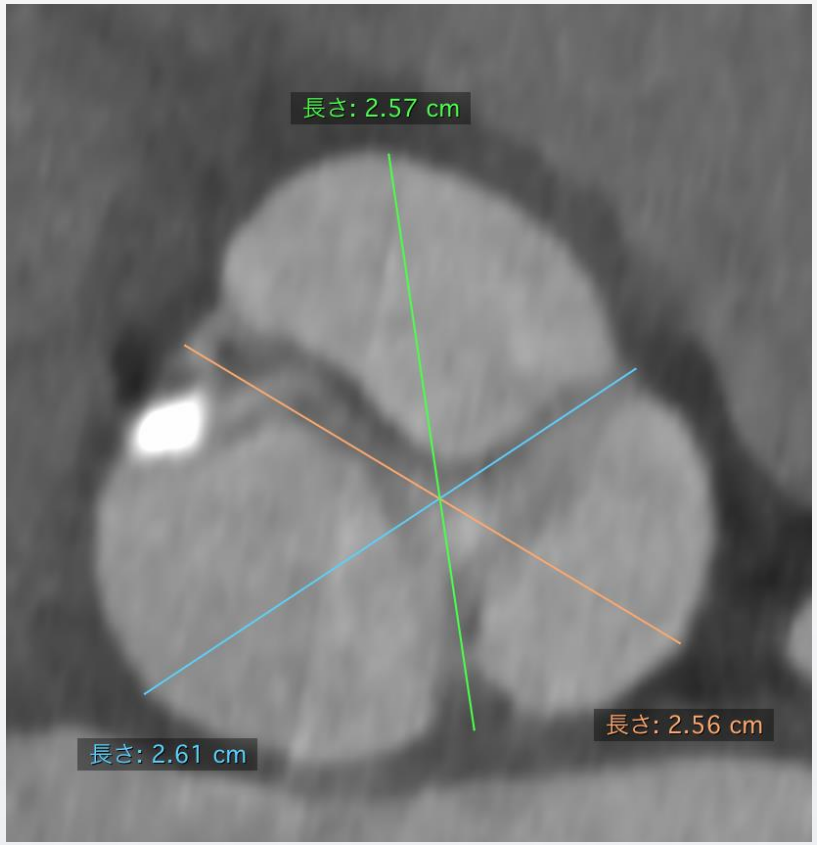
Aorta images - sizing

Aorta

Annulus

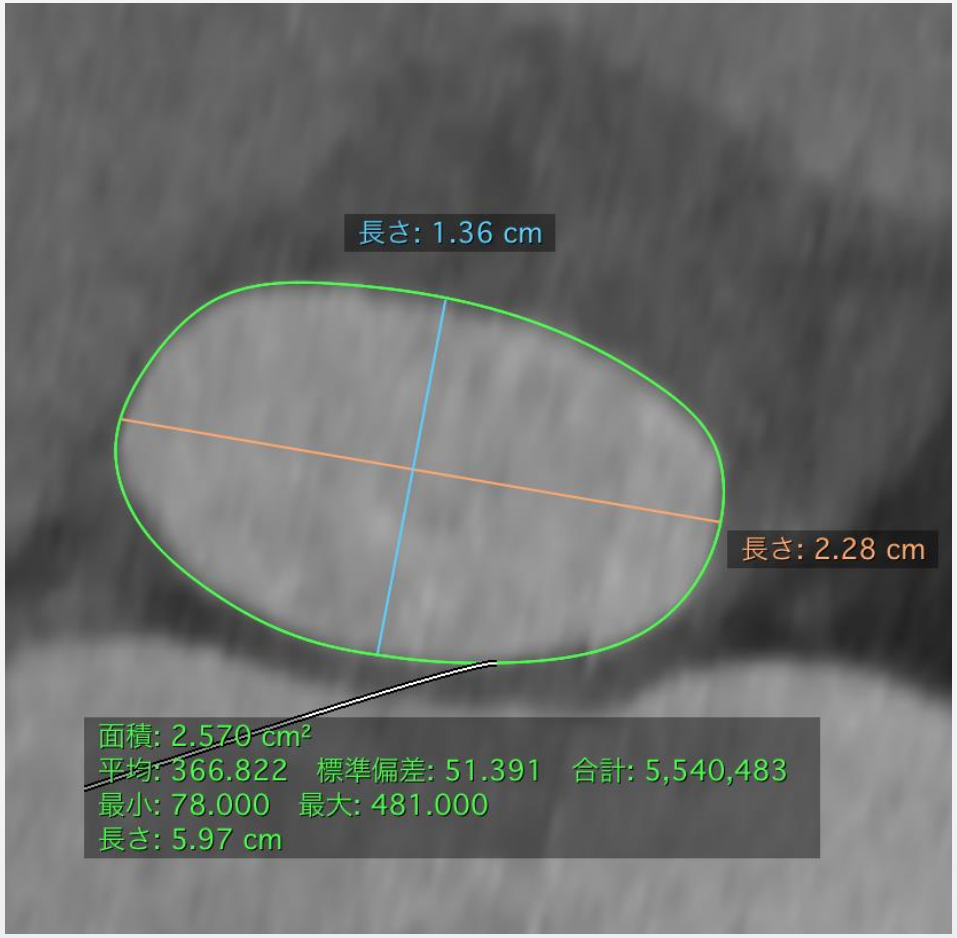


SoV

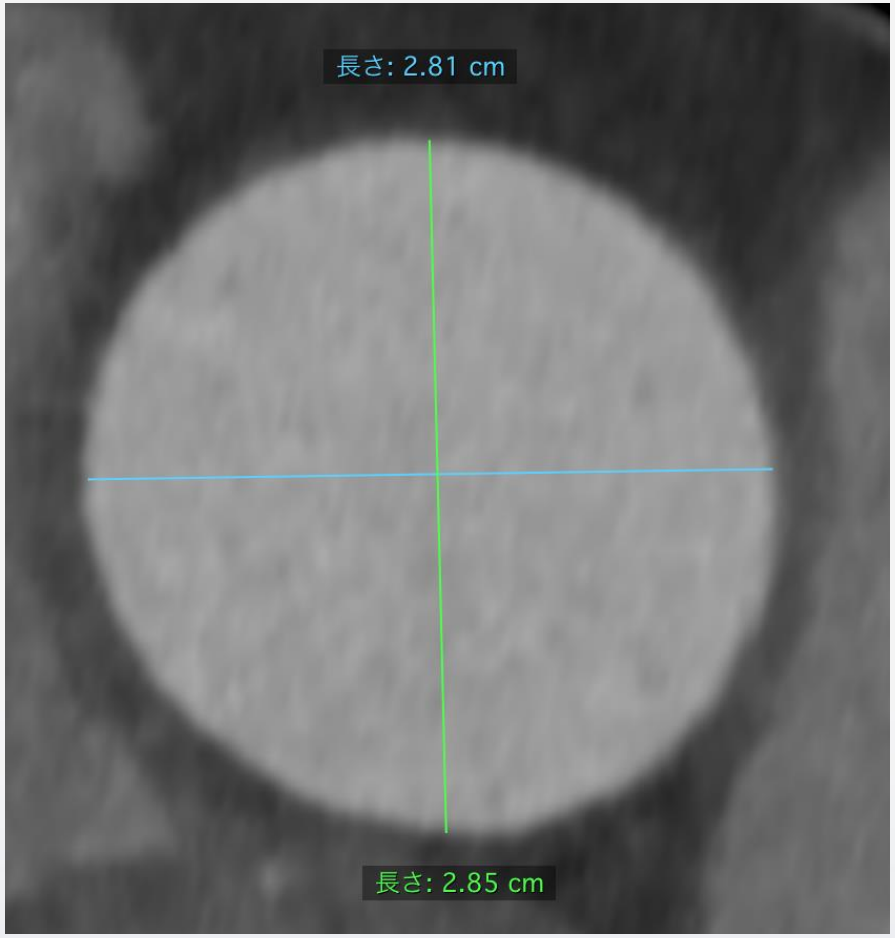


Aorta

LVOT
4 mm below annular basal plane

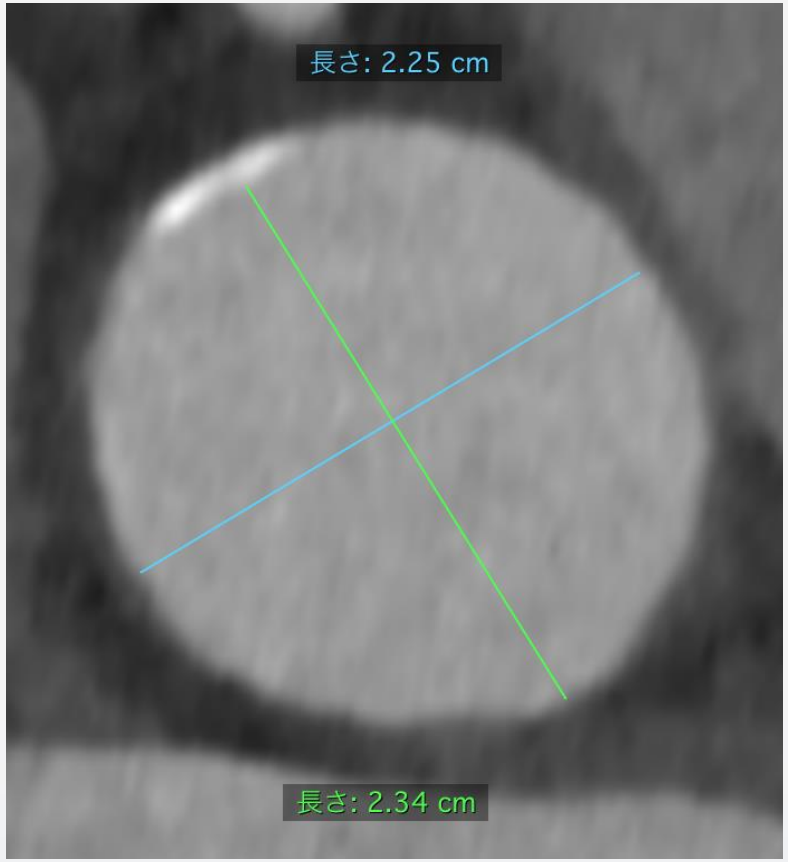


Ascending aorta
40 mm above annular basal plane



Aorta

STJ



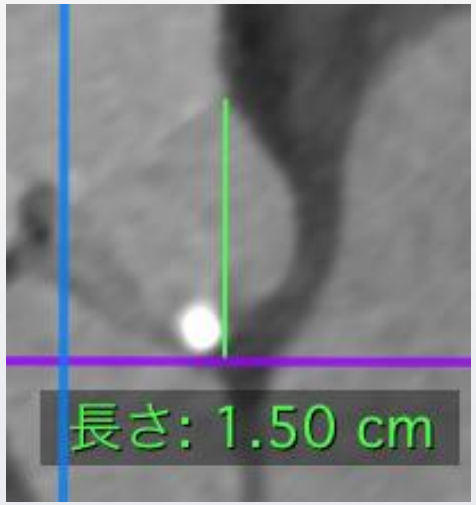
Aortic valve calcification

Sinus of Valsalva Height

LCC

RCC

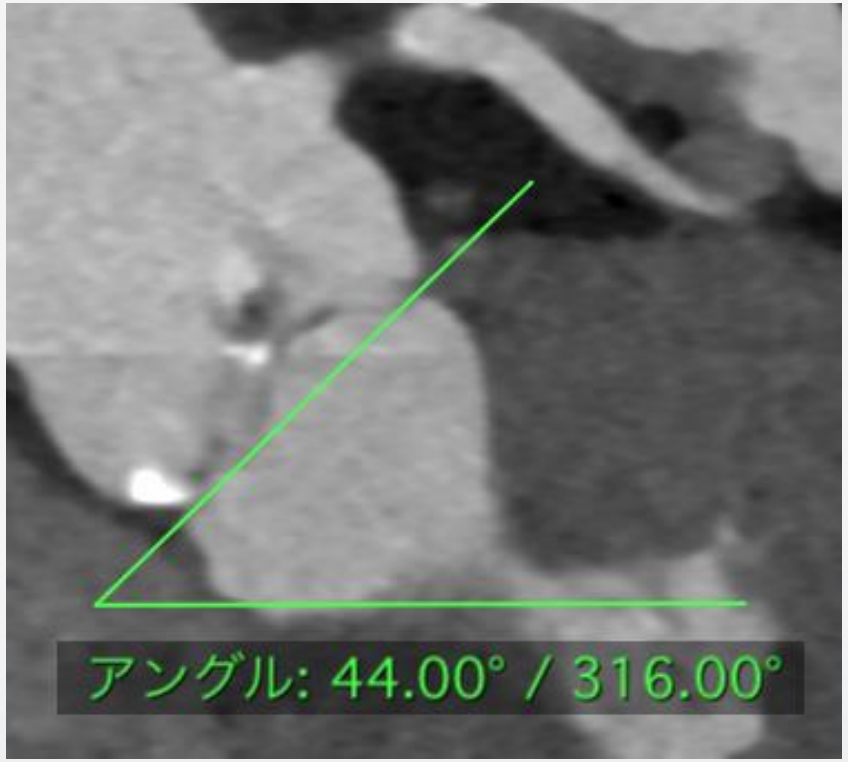
NCC

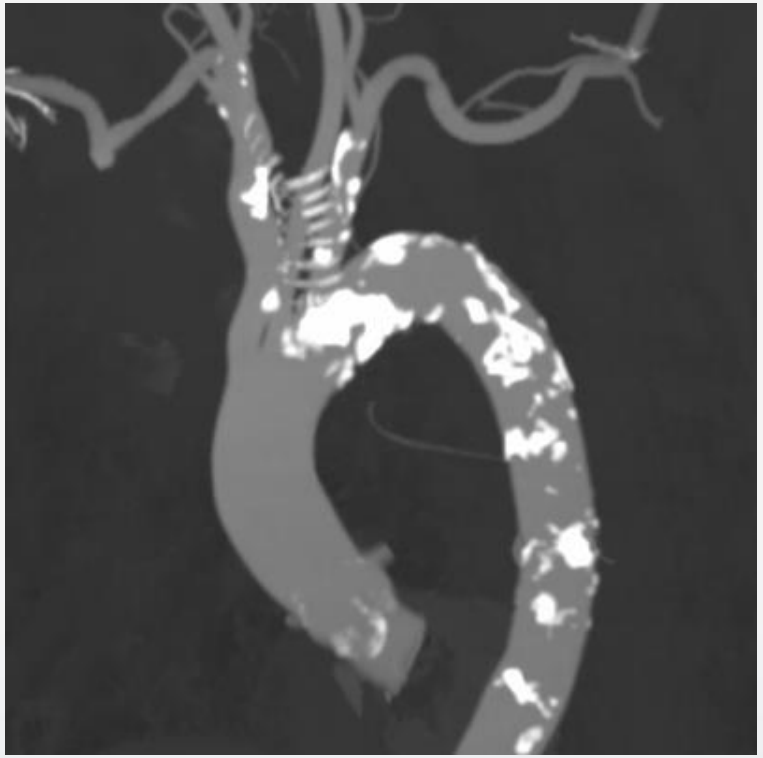


Supplemental aorta images

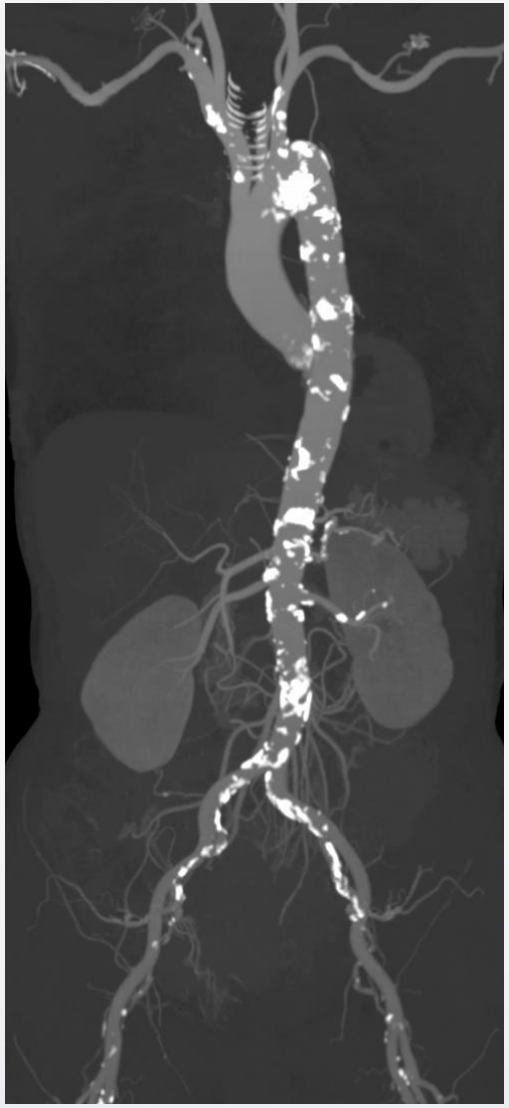
Aorta

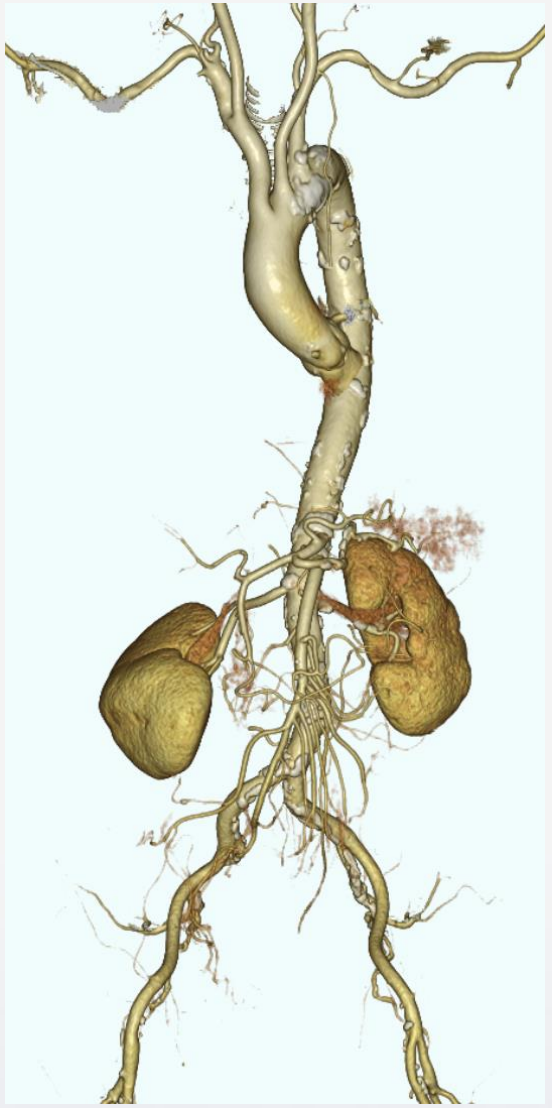
Aortic root angle





Iliofemoral access images





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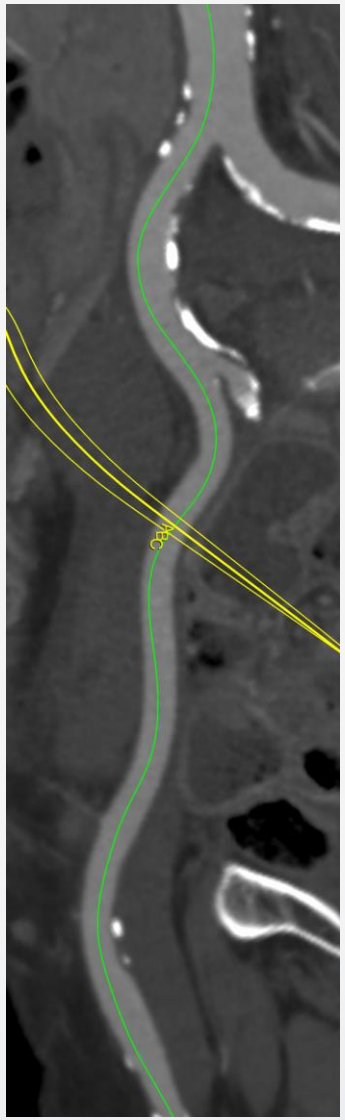
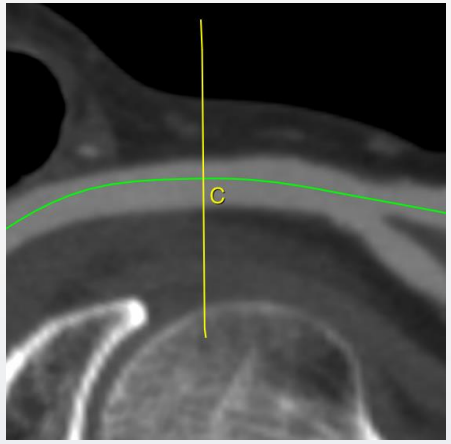
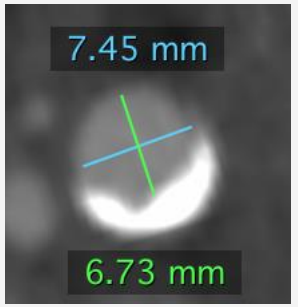


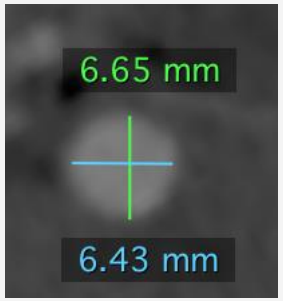
Puncture site



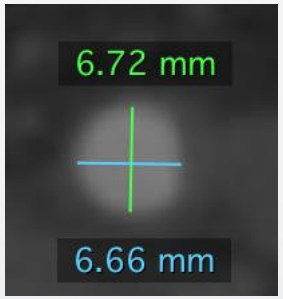
Rt CIA



Rt EIA



Rt CFA



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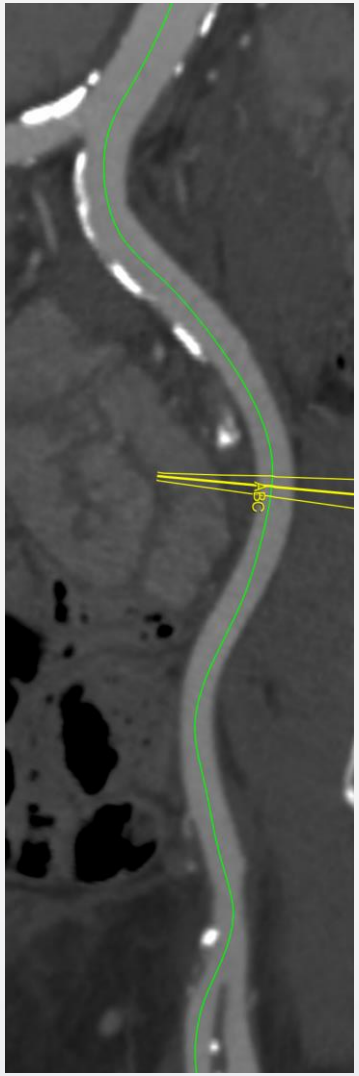
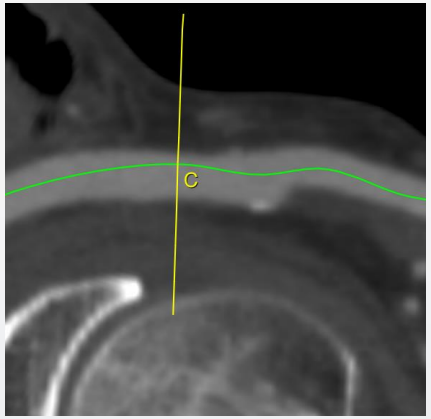
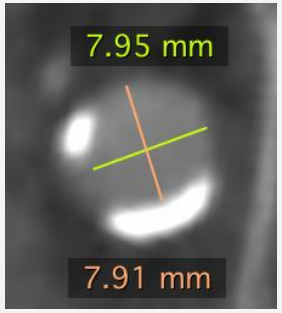


Puncture site



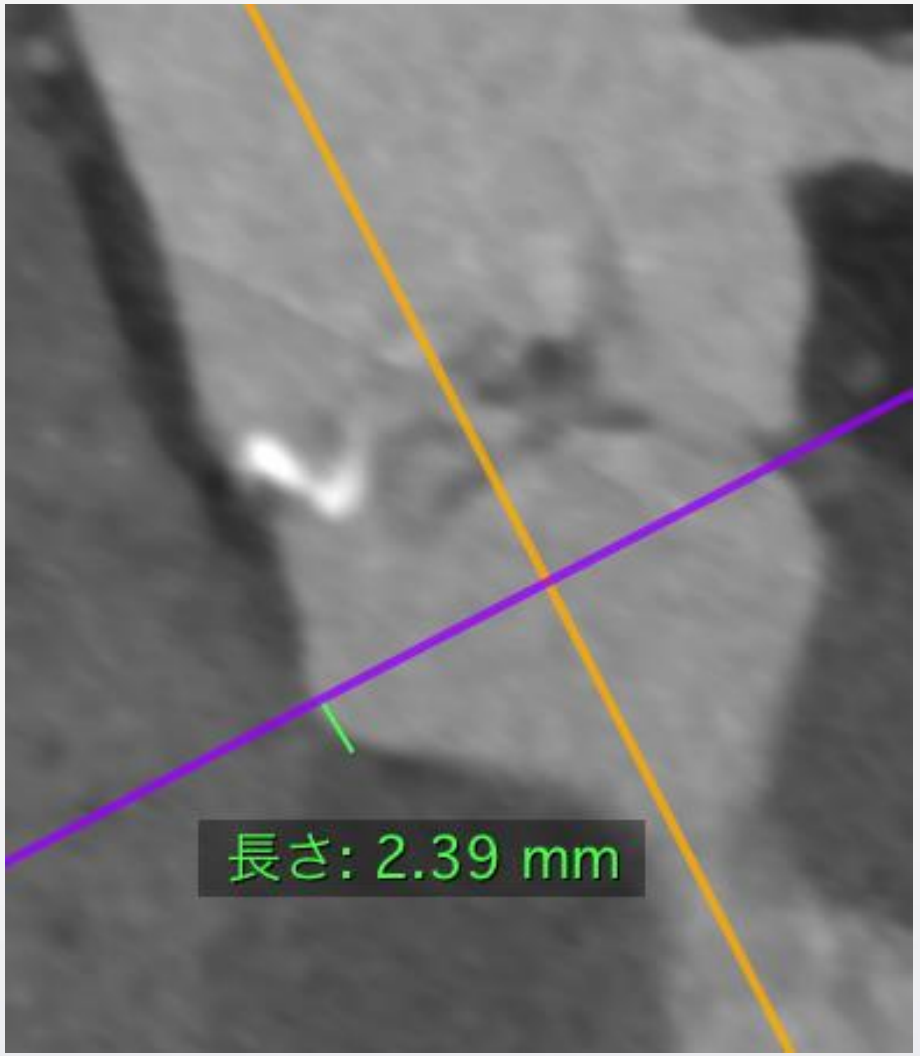
Lt CIA



Lt EIA

Lt CFA

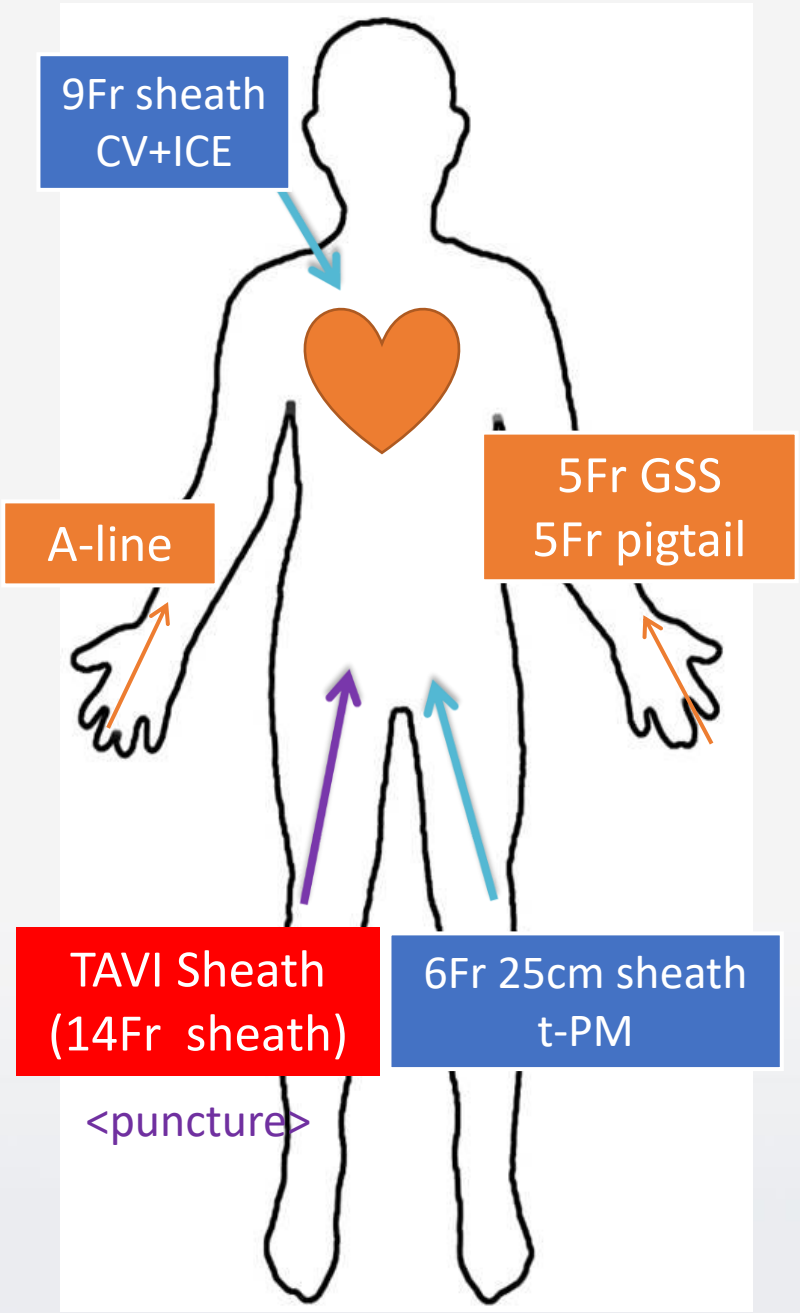
Membranous septum

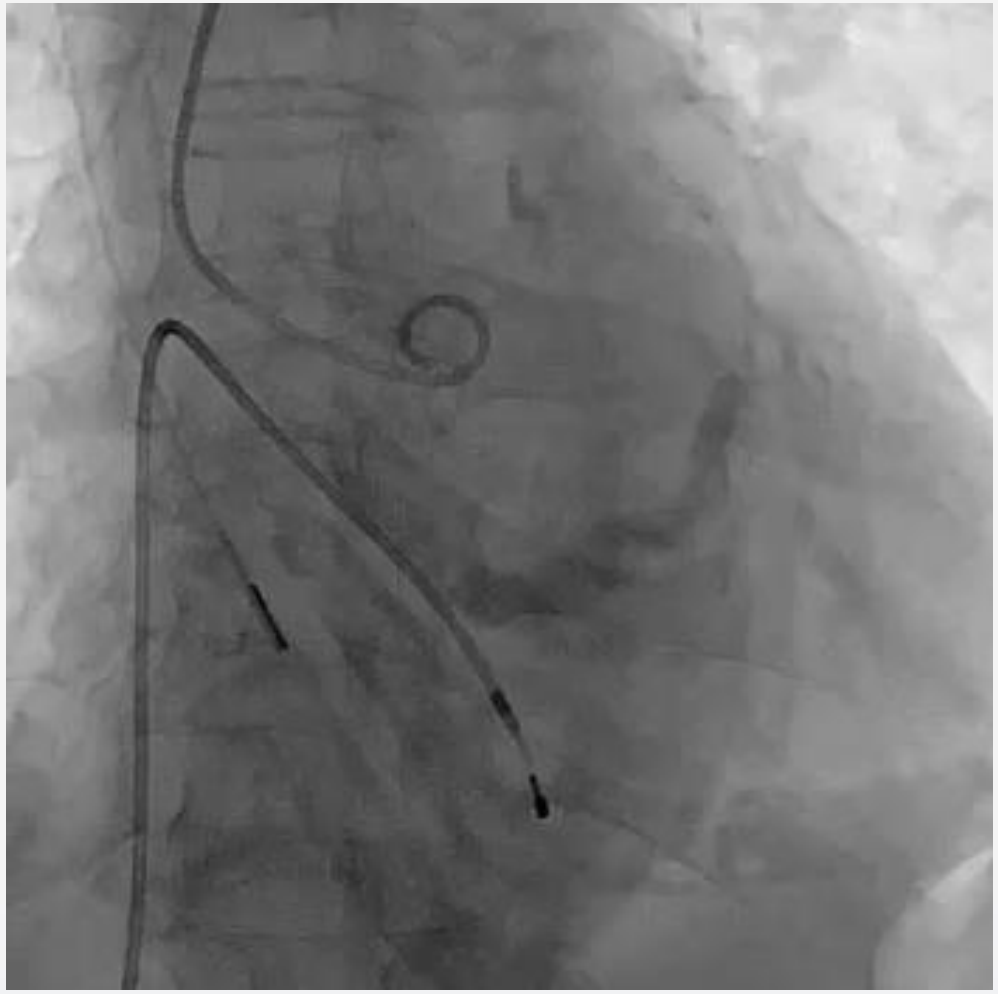


Setup : TF-TAVI

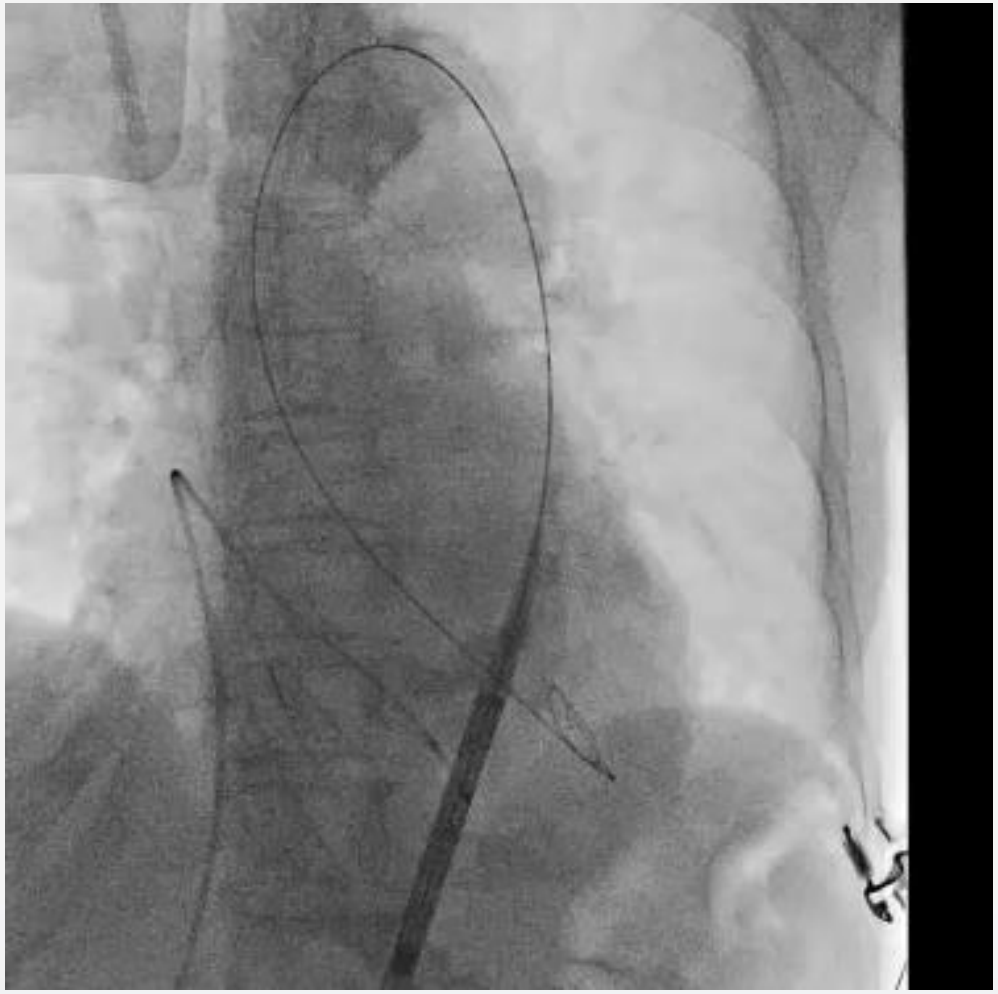
Conscious sedation
LV stiff wire : Safari extra small
Pre-dilatation : inoue balloon 16 mm
Valve size :
23 mm Corevalve Evolut FX
(oversizing rate 18.2 %)
Perpendicular View :
LAO 7 CAU 18 (RAO 4 CAU 35)

☆Caution
- Shallow SoV
- Low LCA

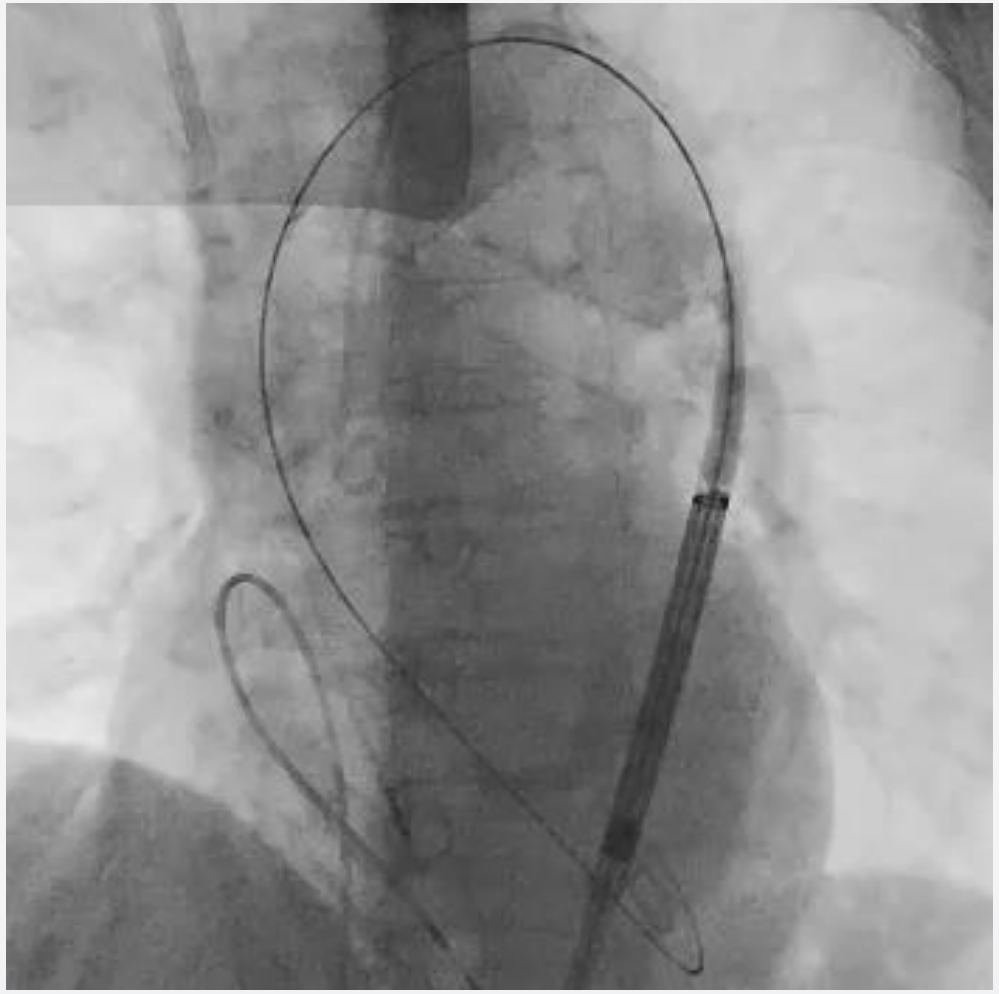




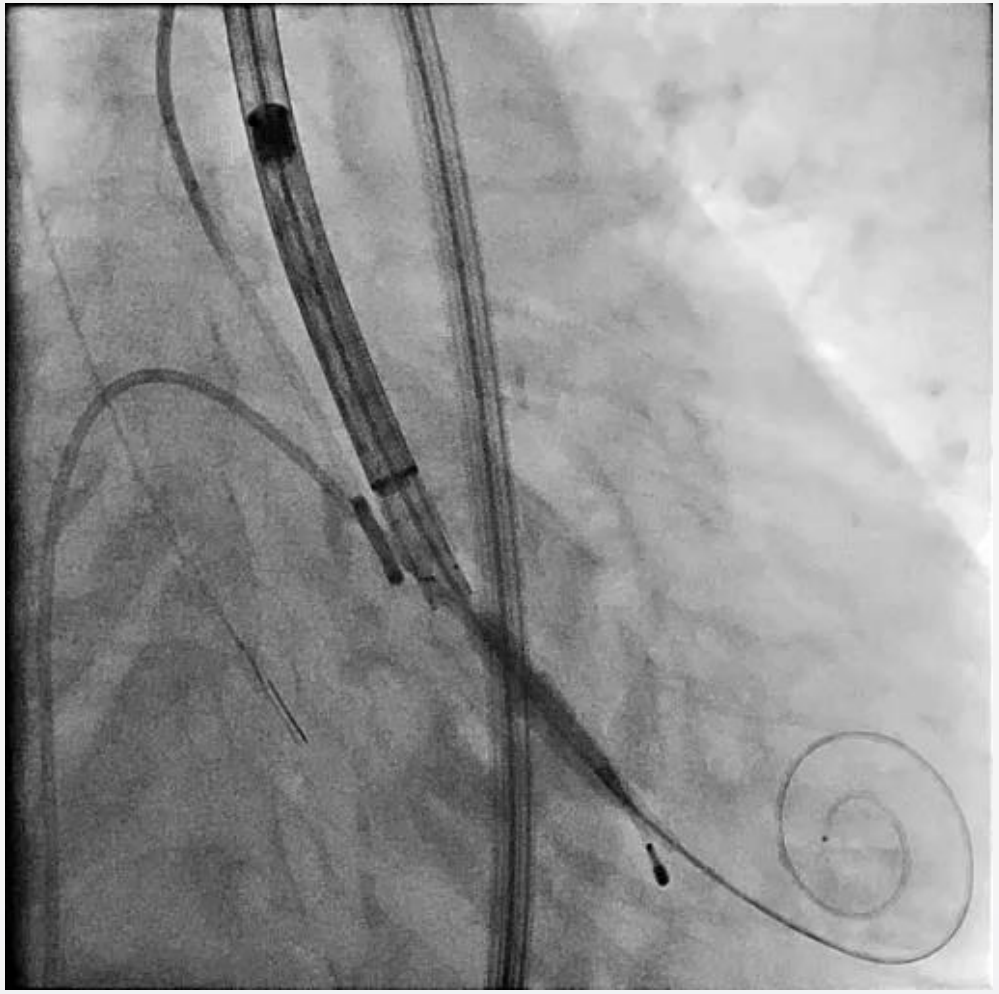
Baseline AoG



Rotation at Desc. Ao.

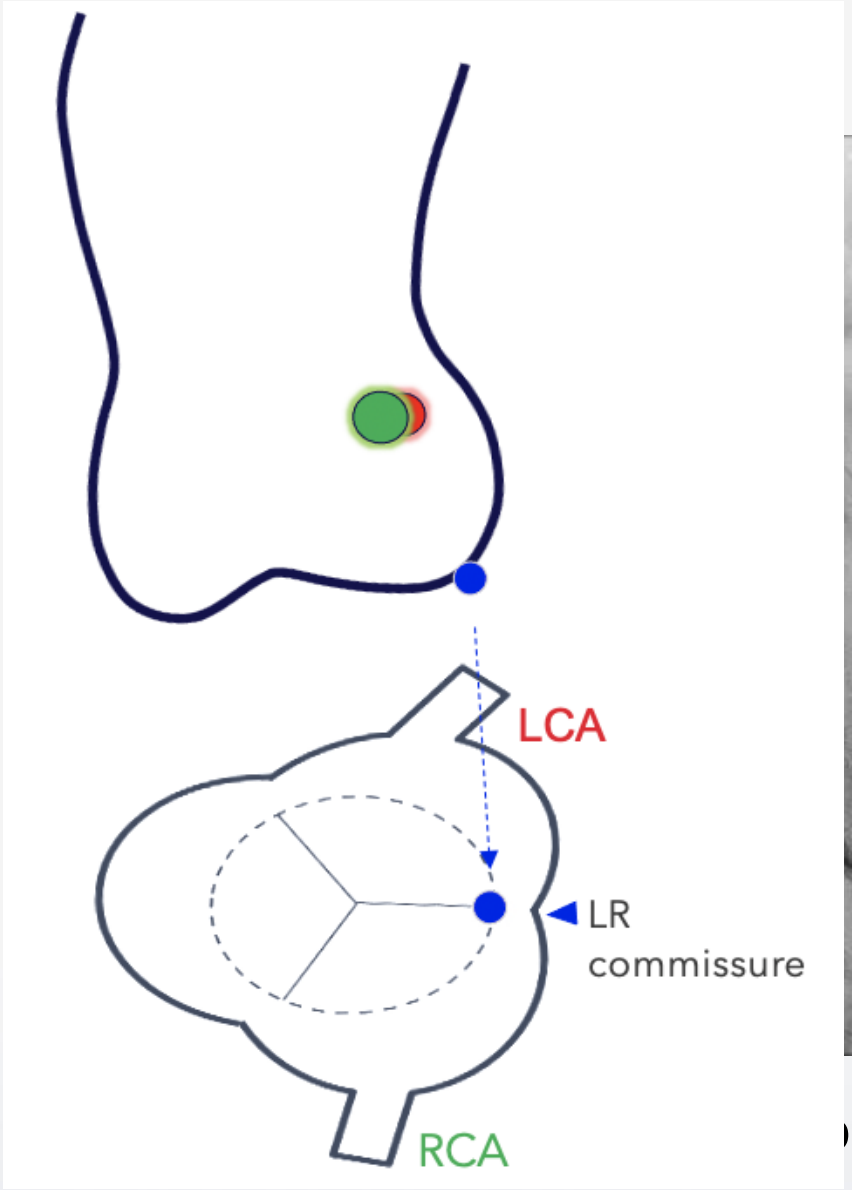


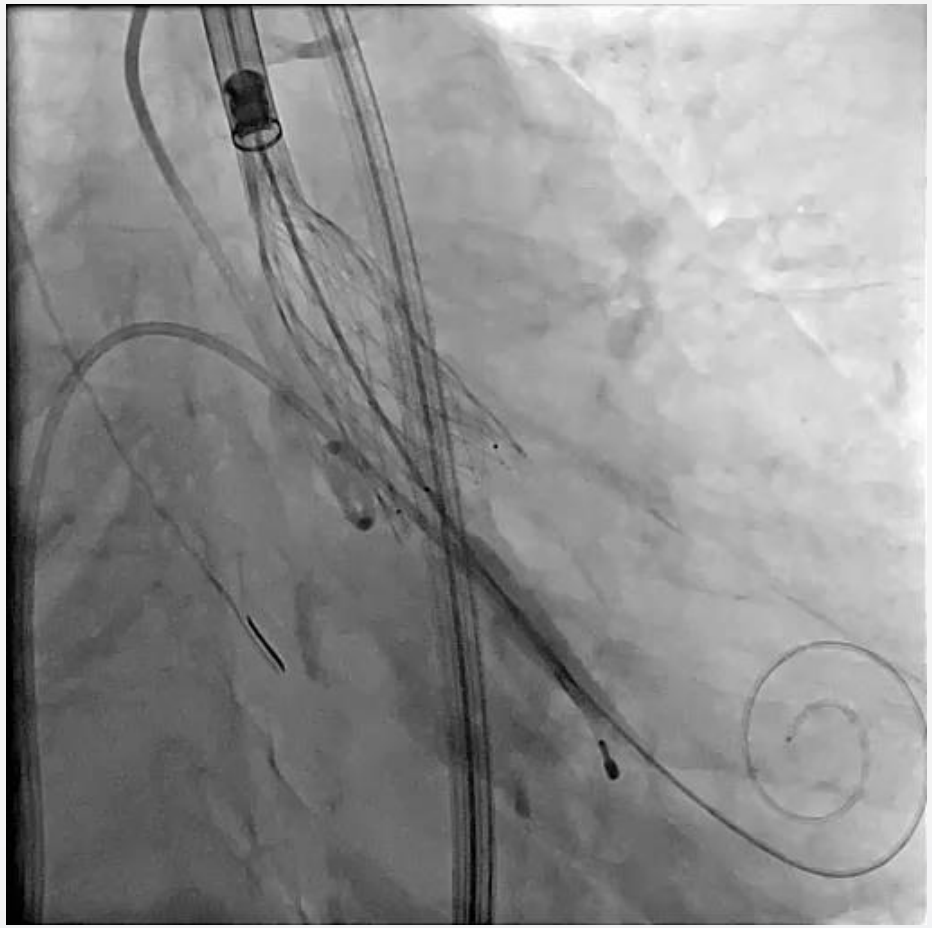
Crossing the arch



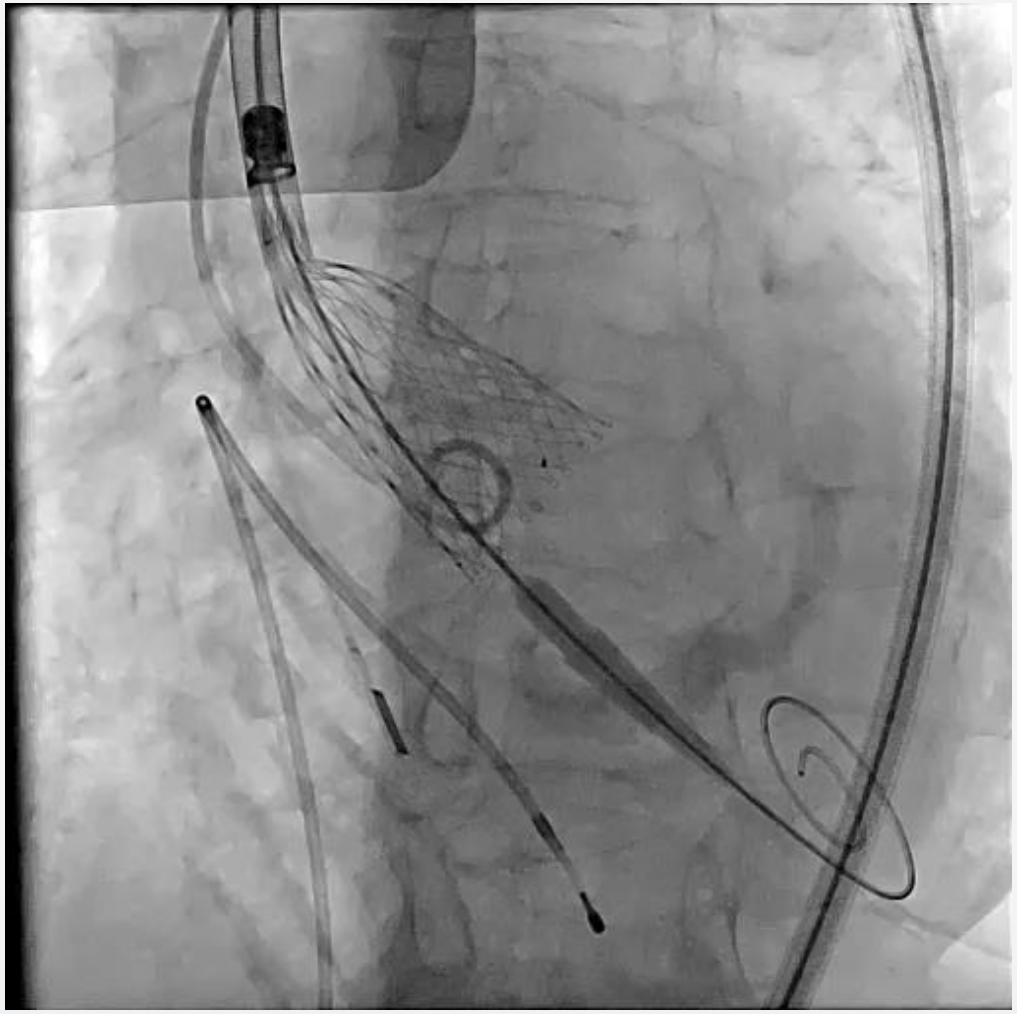
Initial position of FX

Evolut FX 23mm

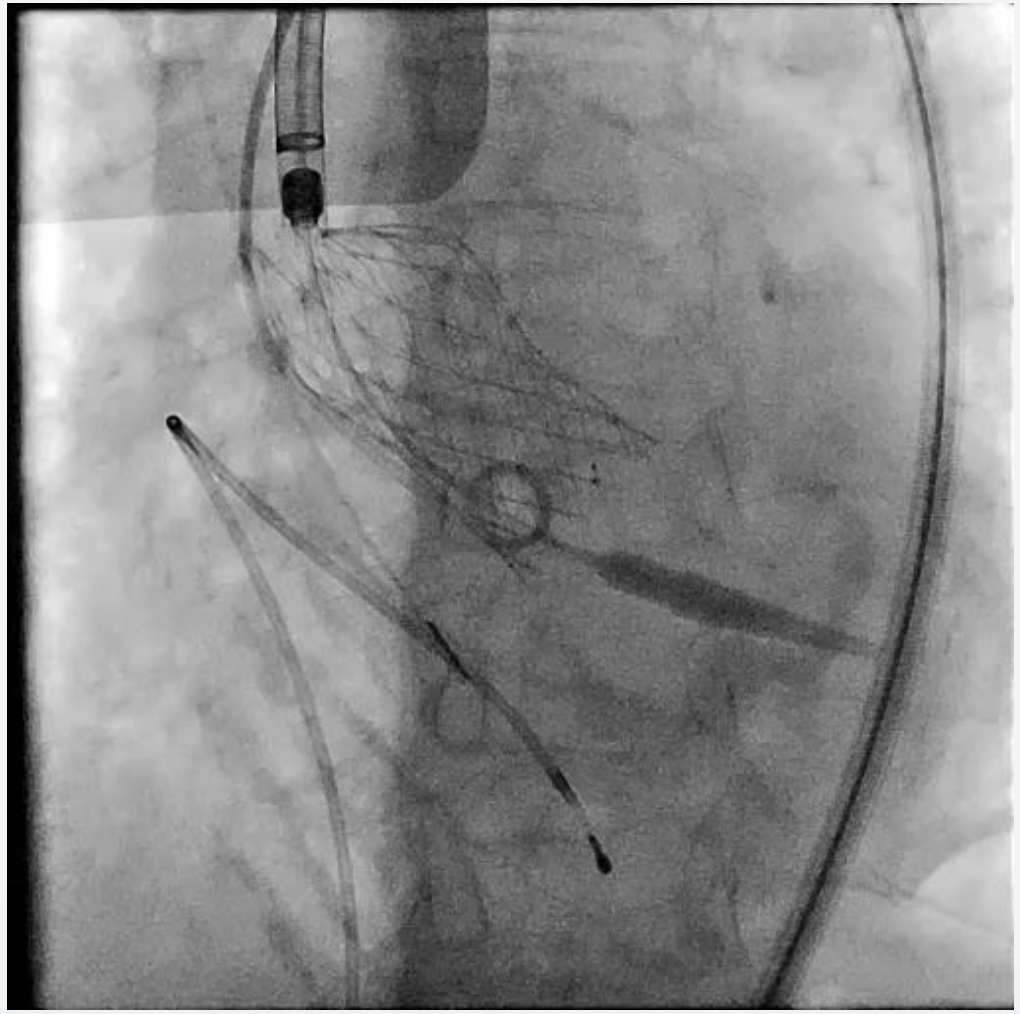




navigate the depth and commissural alignment



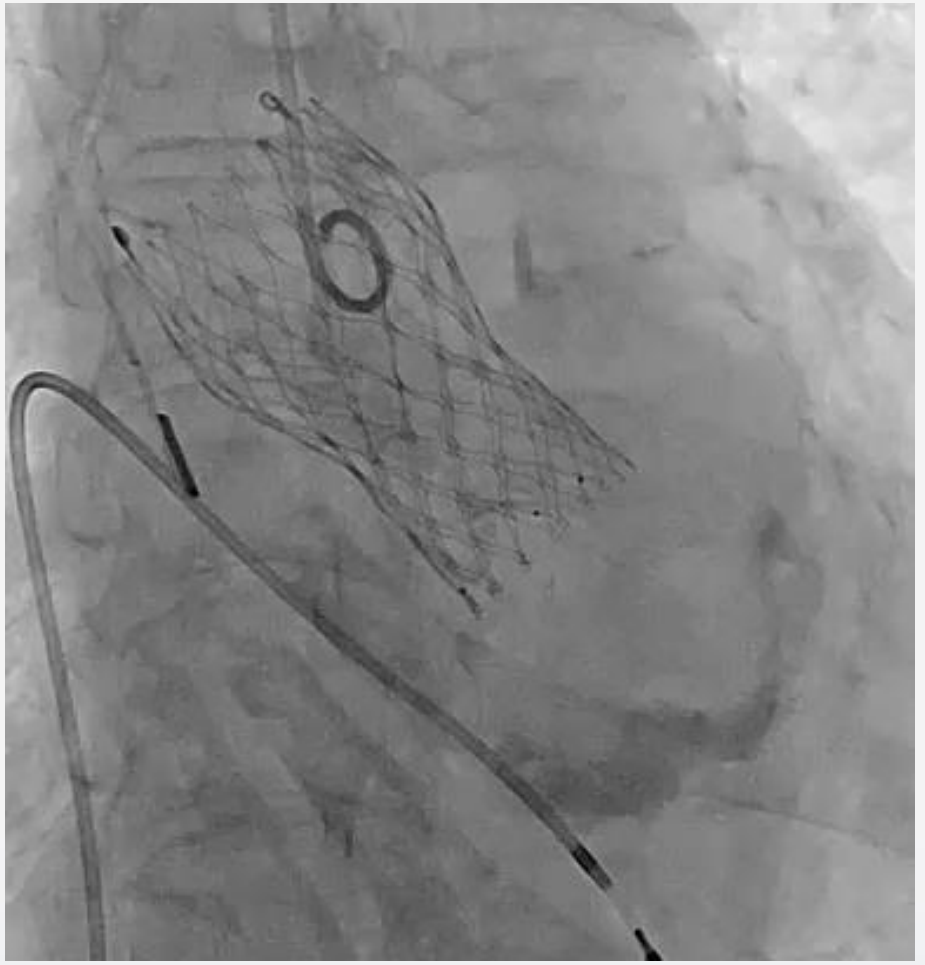
LAO view



Slow final release

Final Angio

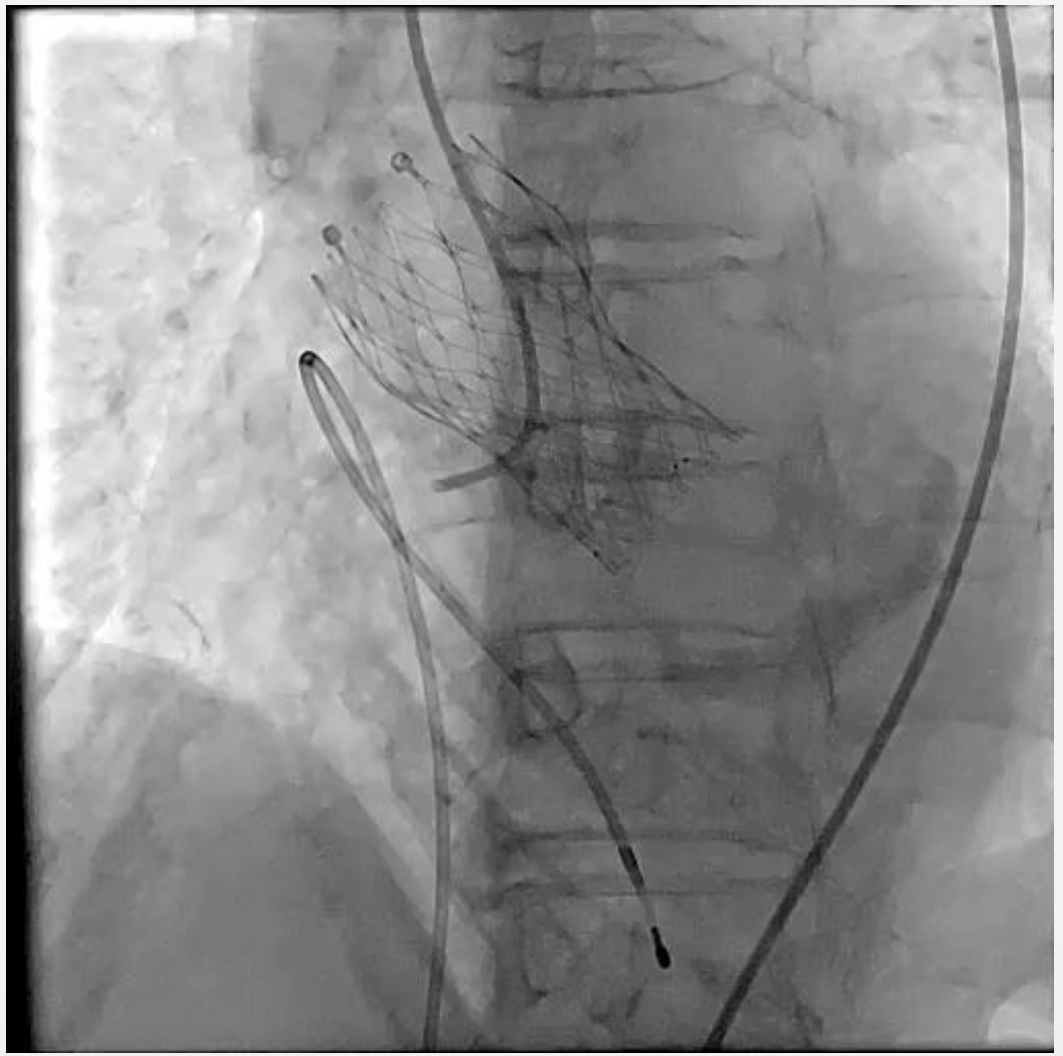
3mm depth at NCC



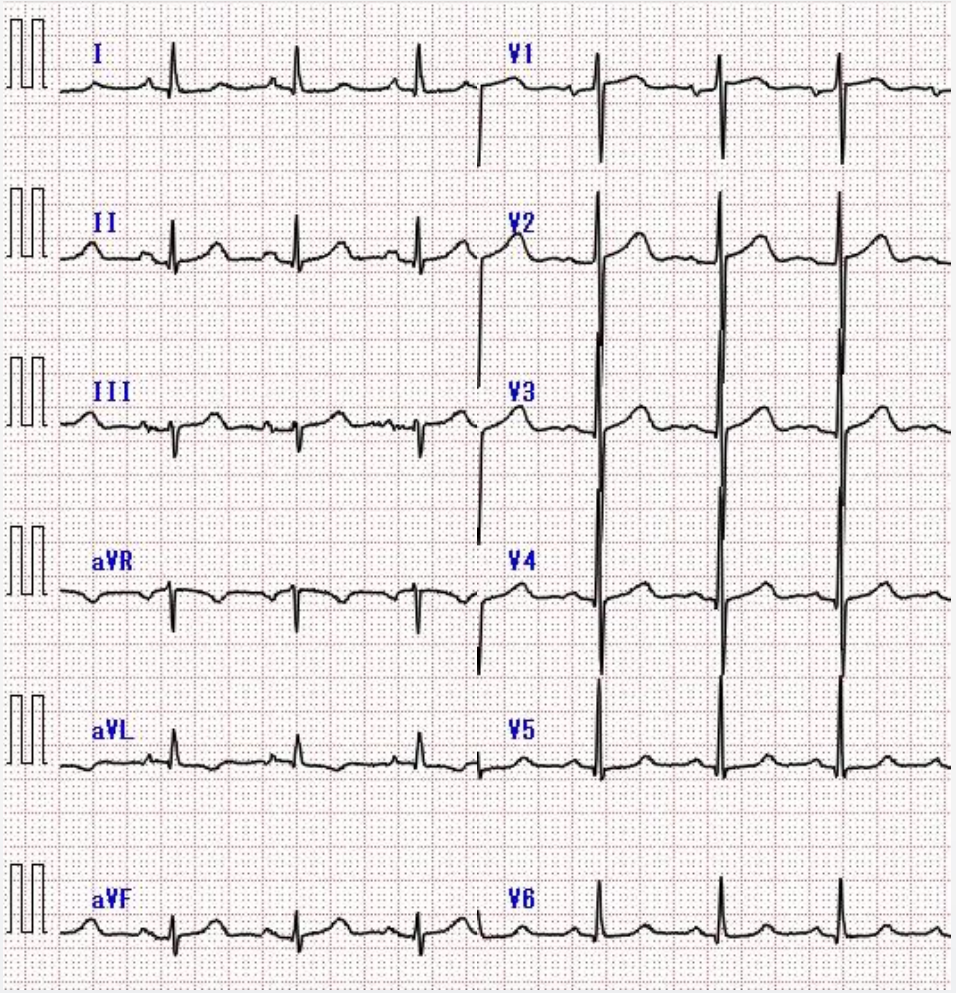
4-5 mm depth at LCC

Coronary Angio

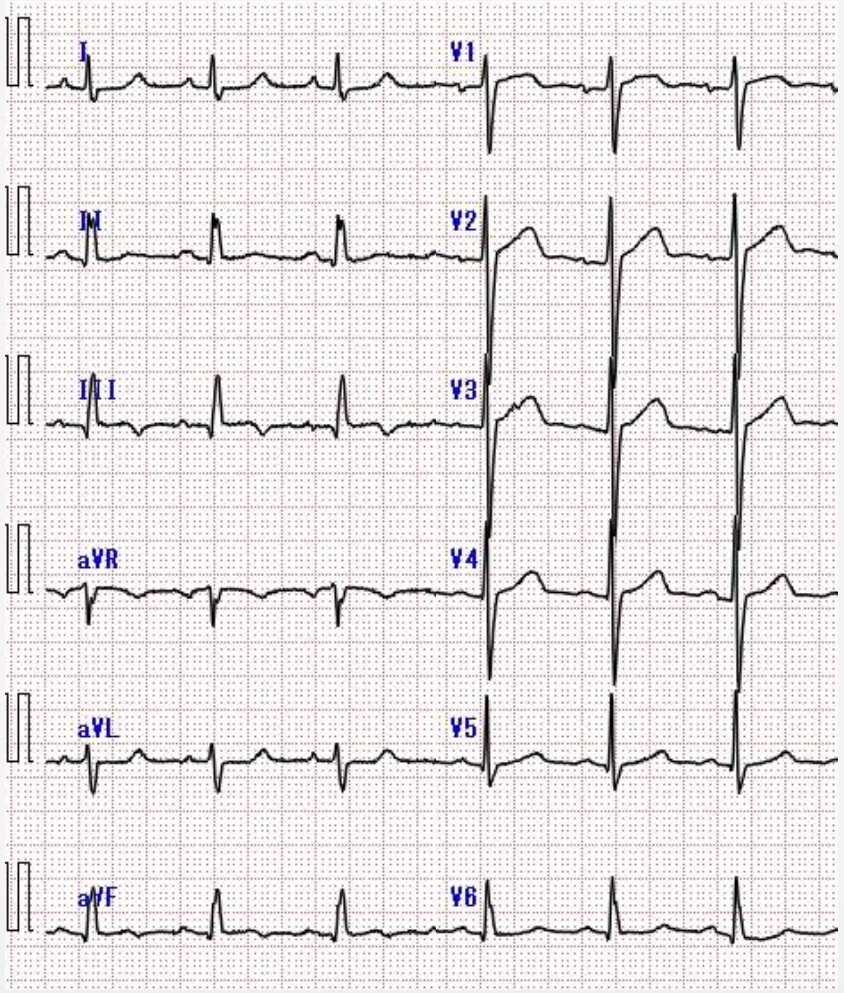
Coronary Angio



ECG

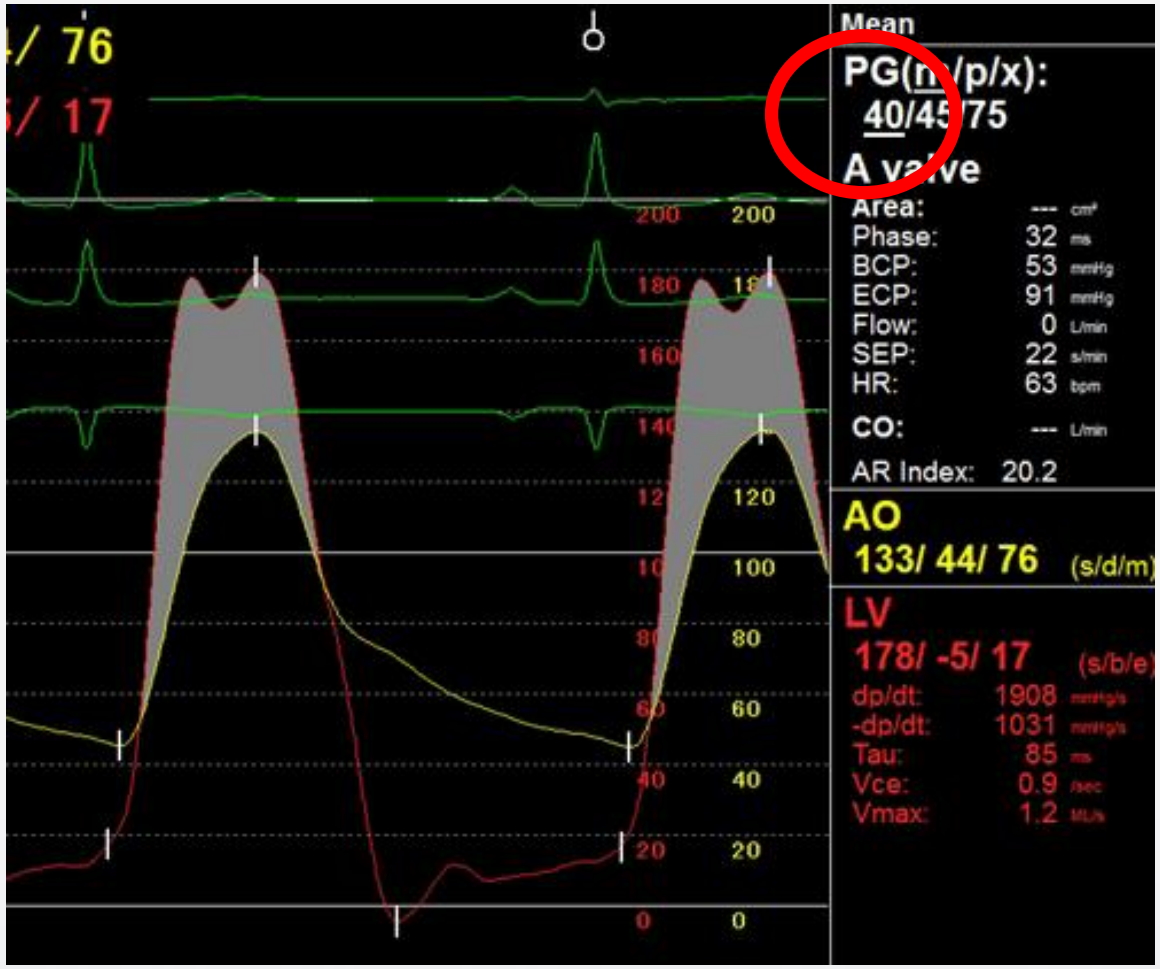

I
V1
II
V2
III
V3
aVR
V4
aVL
V5
aVF
V6

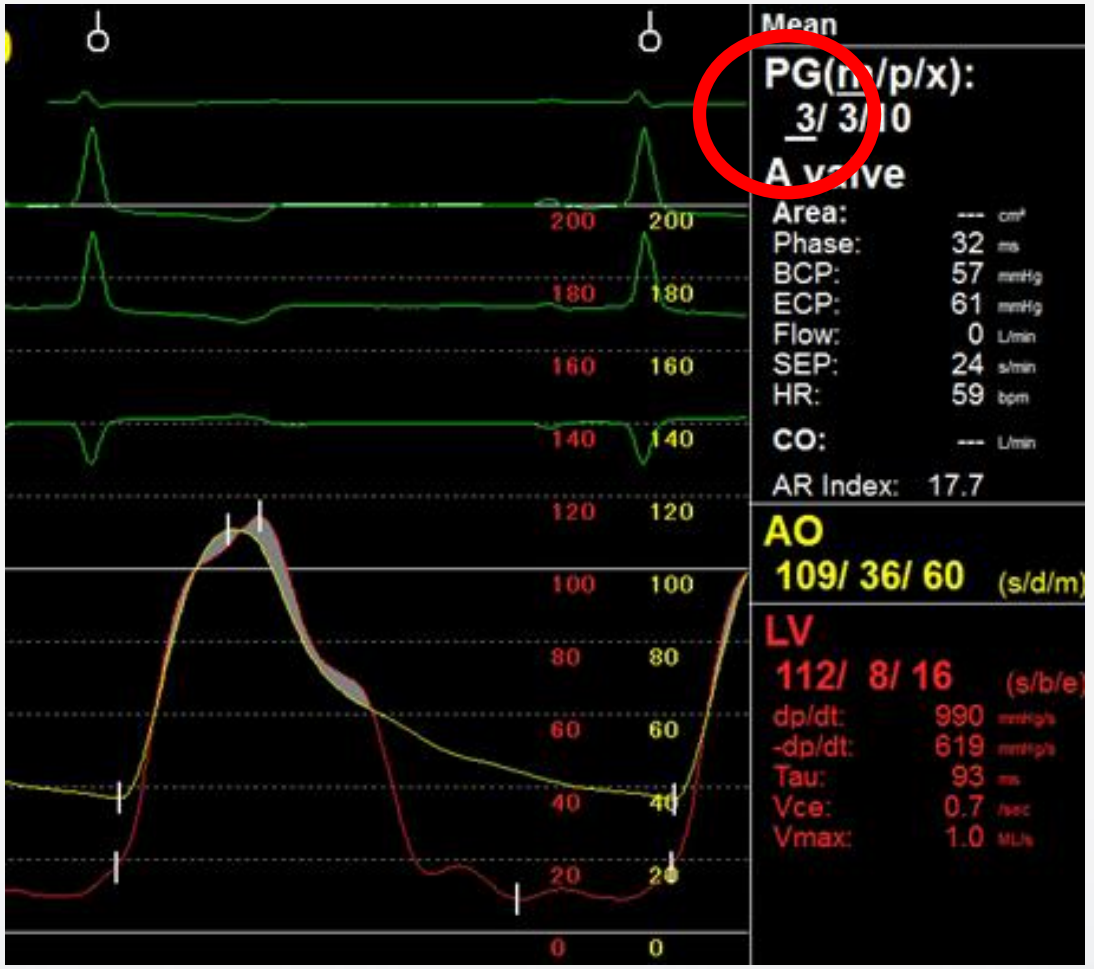
Pre


I
V1
II
V2
III
V3
aVR
V4
aVL
V5
aVF
V6

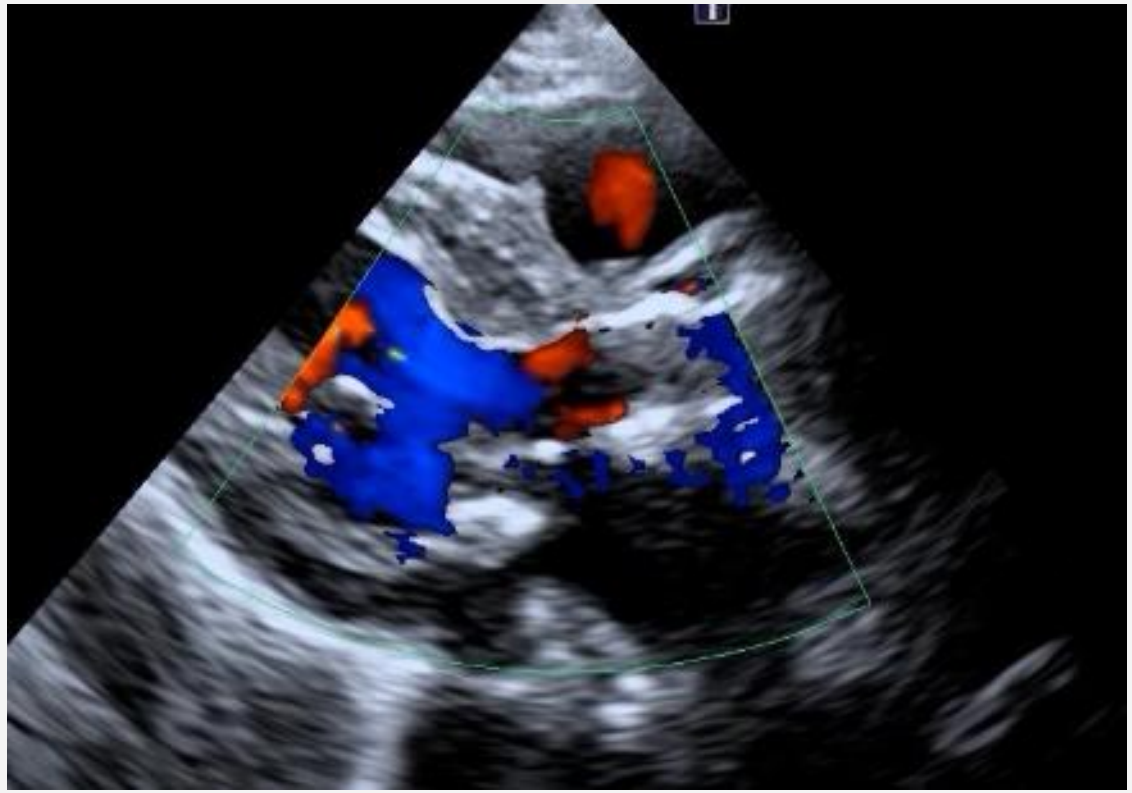
Post

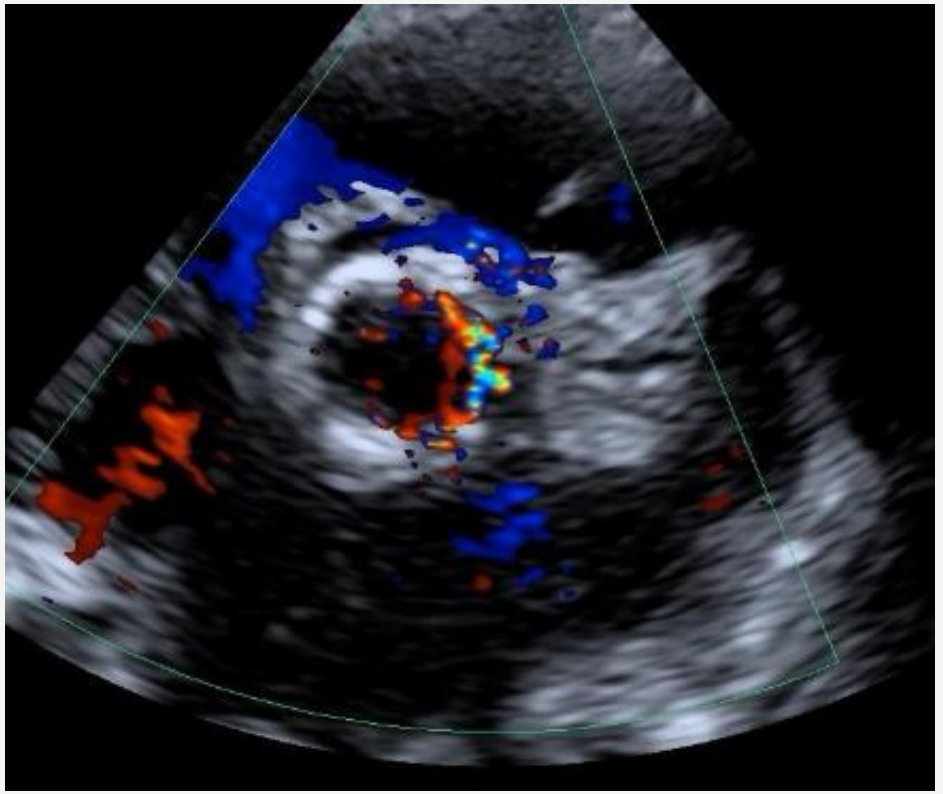
Hemodynamics





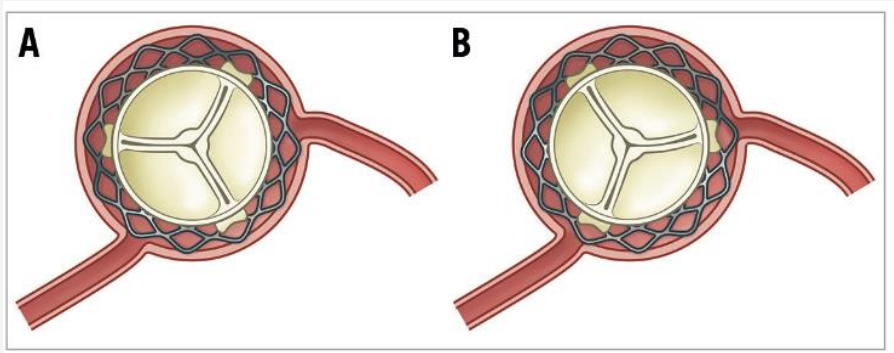
Post Procedural Echo

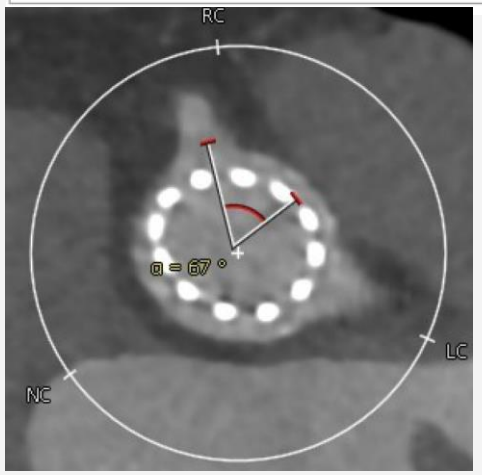


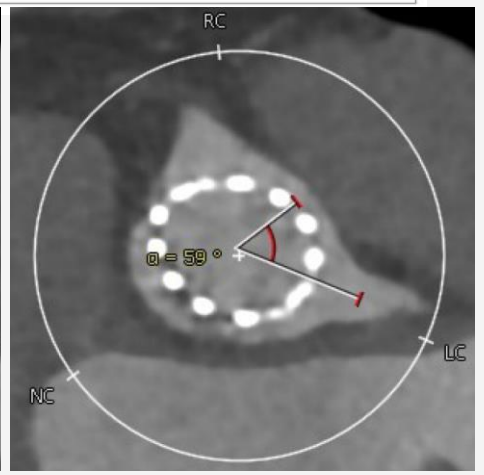


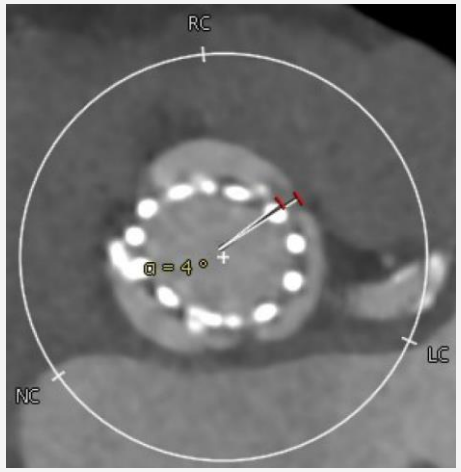
Trivial PVL, mPG 6.1mmHg, EOA 1.6cm^2 , iEOA 1.3 cm^2/m^2

Post TAVI CT









RCA LCA Commissure

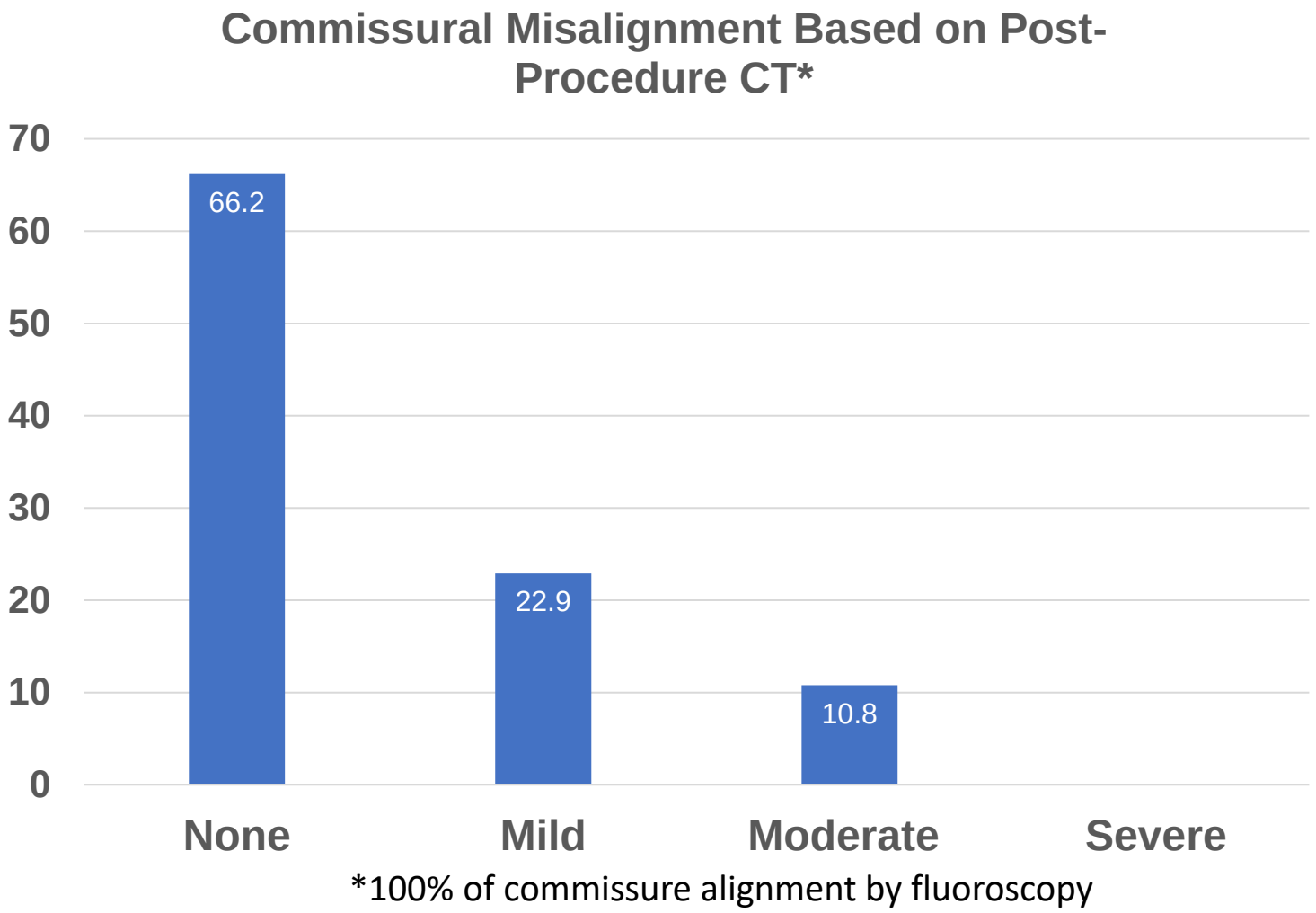
Optimal commissural & coronary alignment 👍

Initial outcome of Evolut FX (Mar.2023-)

	Evolut FX, N=82
Approach	TF 80, TSc 2
Hat marker at Center Front at Cusp OVL View	80/82 (96.1%)
Commissural Misalignment (CMA)	3/82 (3.6%) 3 cases of moderate CMA, no severe CMA
Impant Depth (Mean±SD) - NCC - LCC	 2.9±3.2 mm 4.0±3.0 mm
Coronary cannulation	80/82 (97.6%)
Frequency of Device Recapture	24 (29.2%)
New-onset LBBB	6 (7.3%)
Permanent Pacemaker	2 (2.4%)

29th TCTAP CVRF

What are the essential results?



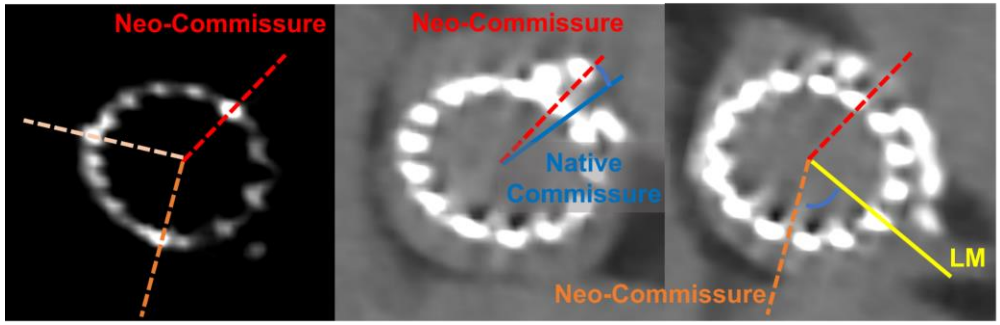
*100% of commissure alignment by fluoroscopy

Definition of Misalignment of Commissure and Coronary Arteries

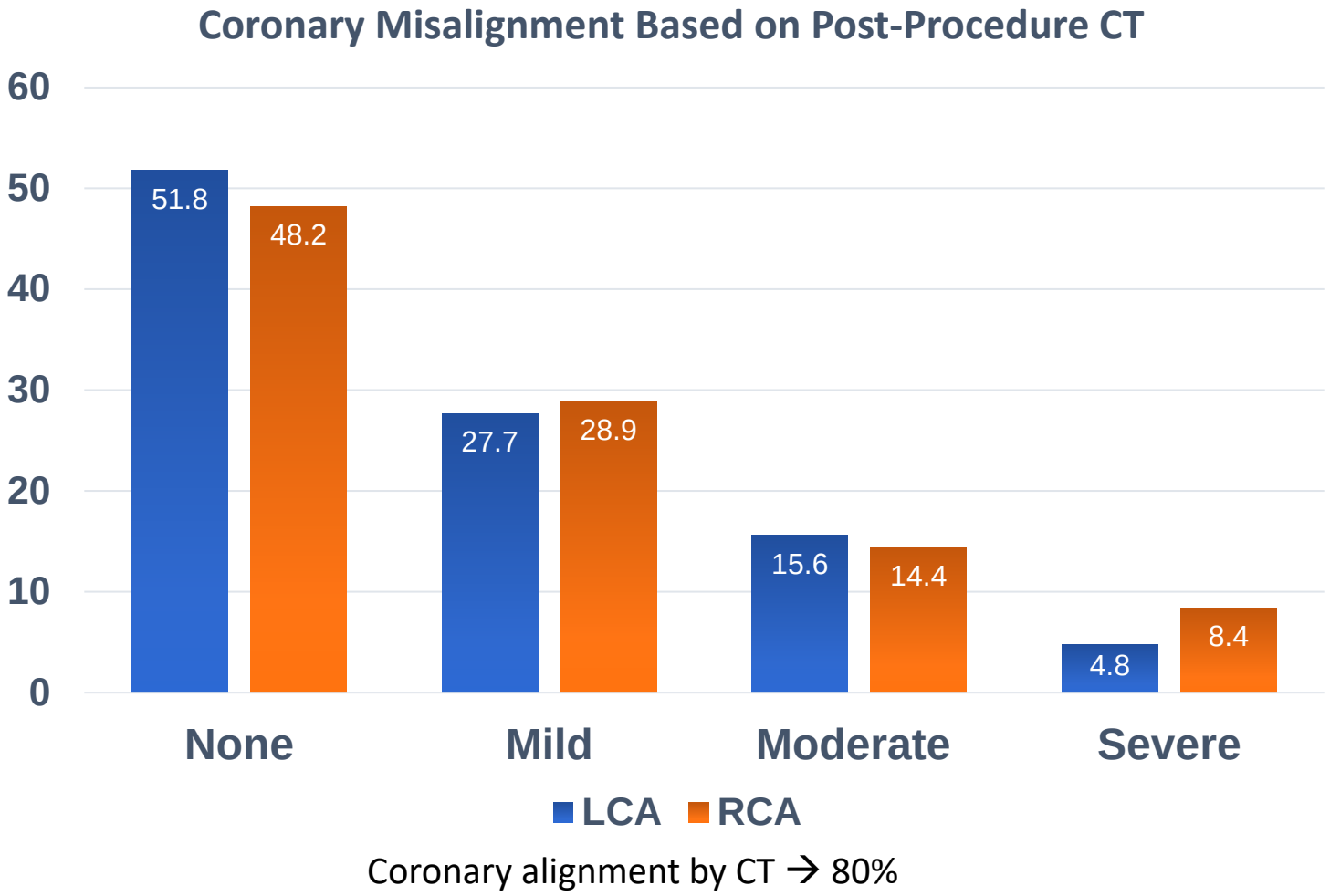
	Alignment	Mild Misalignment	Moderate Misalignment	Severe Misalignment
Commissure	0 - 15°	15.1 - 30°	30.1 - 45°	45.1 - 60°
Coronary Artery	45.1 - 60°	30.1 - 45°	15.1 - 30°	0 - 15°

Angle Between Native- and Neo-Commissure Angle

Angle Between LCA and Neo-Commissure Angle



What are the essential results?



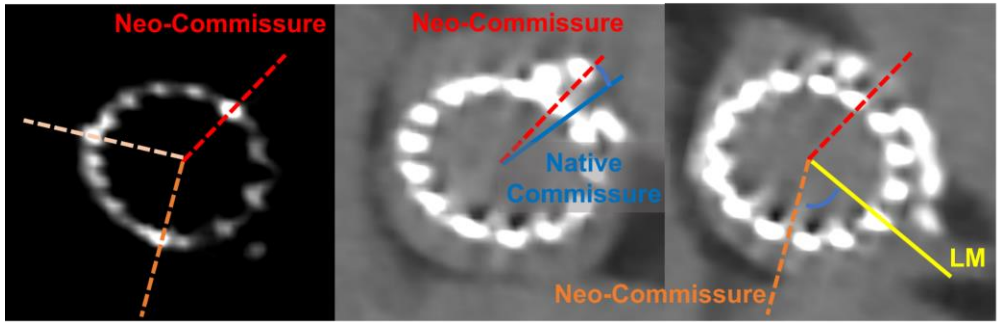
Coronary alignment by CT → 80%

Definition of Misalignment of Commissure and Coronary Arteries

	Alignment	Mild Misalignment	Moderate Misalignment	Severe Misalignment
Commissure	0 - 15°	15.1 - 30°	30.1 - 45°	45.1 - 60°
Coronary Artery	45.1 - 60°	30.1 - 45°	15.1 - 30°	0 - 15°

Angle Between Native- and Neo-Commissure Angle

Angle Between LCA and Neo-Commissure Angle

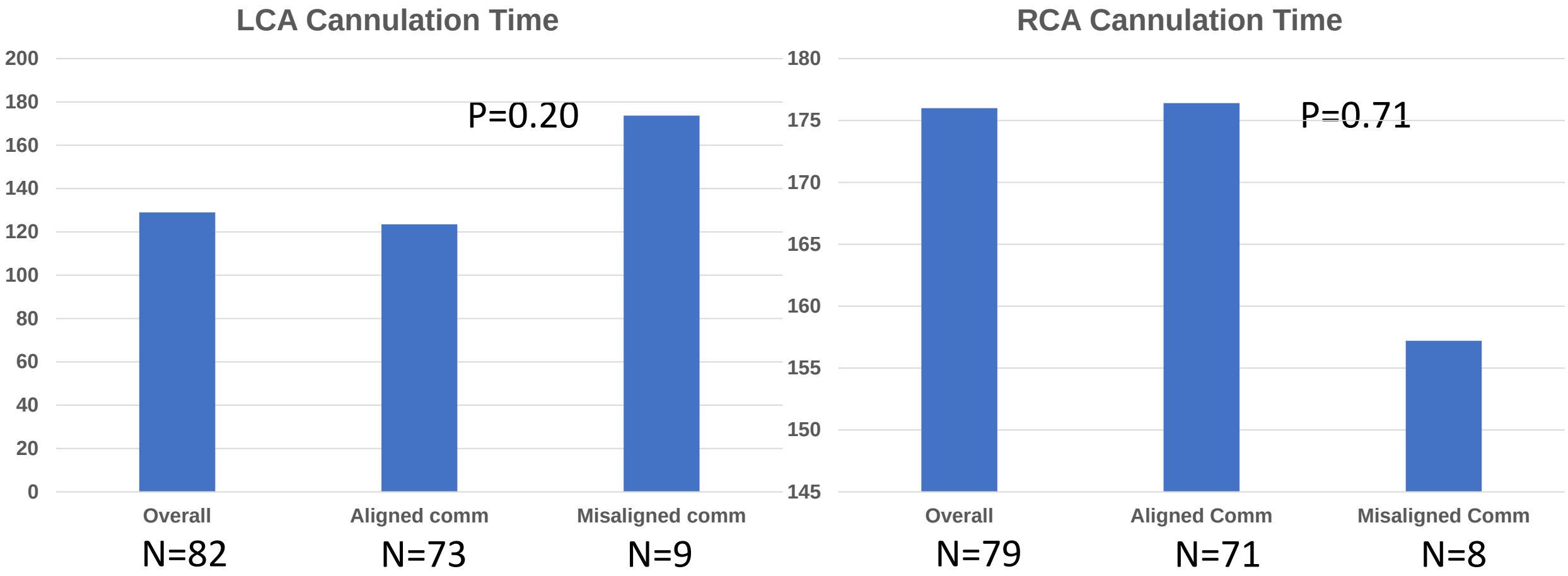


What are the essential results?

- ✓100% of successful coronary cannulation for LCA (66% selective), 99% for RCA (63.5%)
- ✓Valve depth was NCC: 3.1 ± 0.7 mm LCC: 4.9 ± 0.7 mm
- ✓JL 3.5 led to successful cannulation in 82% of LCA (remaining 18% cannulated with JL 4) while RCA cannulation with JR 4 was successful in 99% of patients.

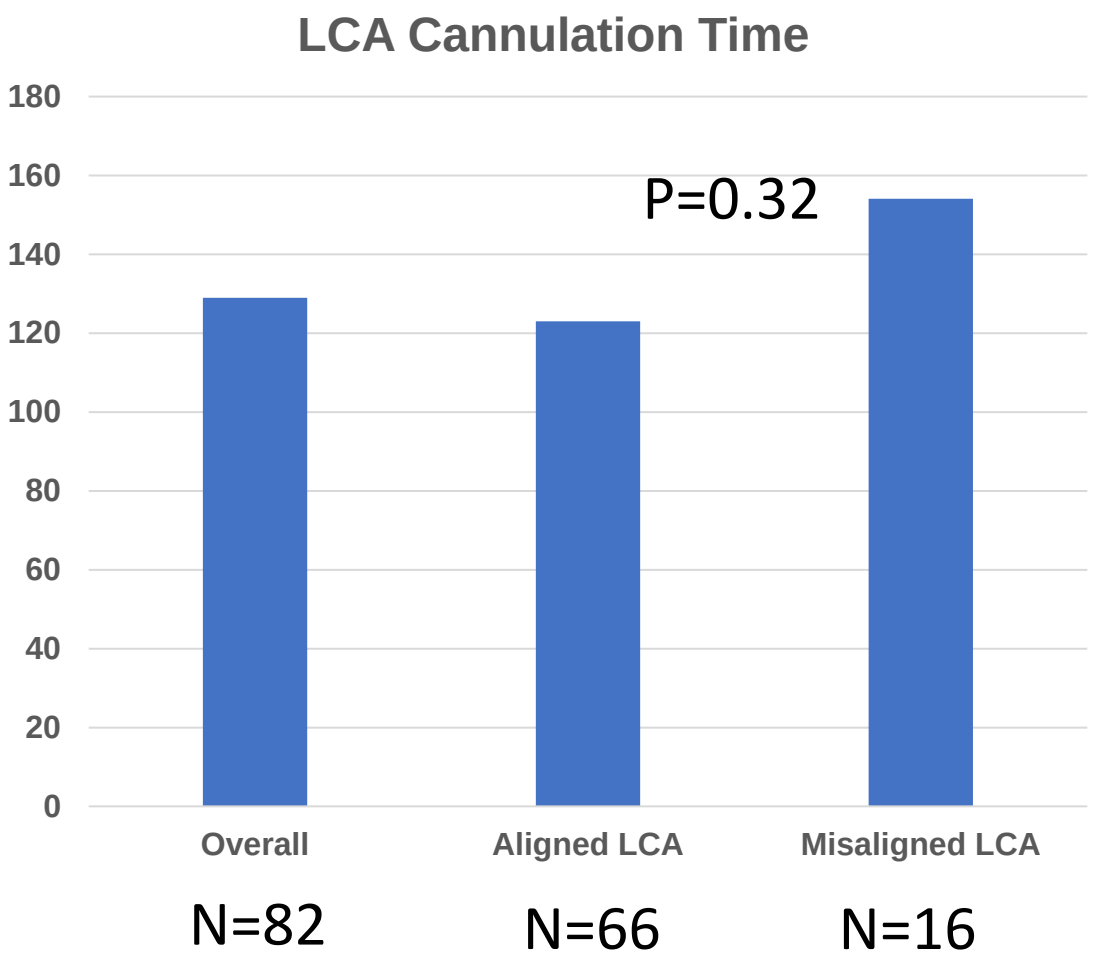
What are the essential results?

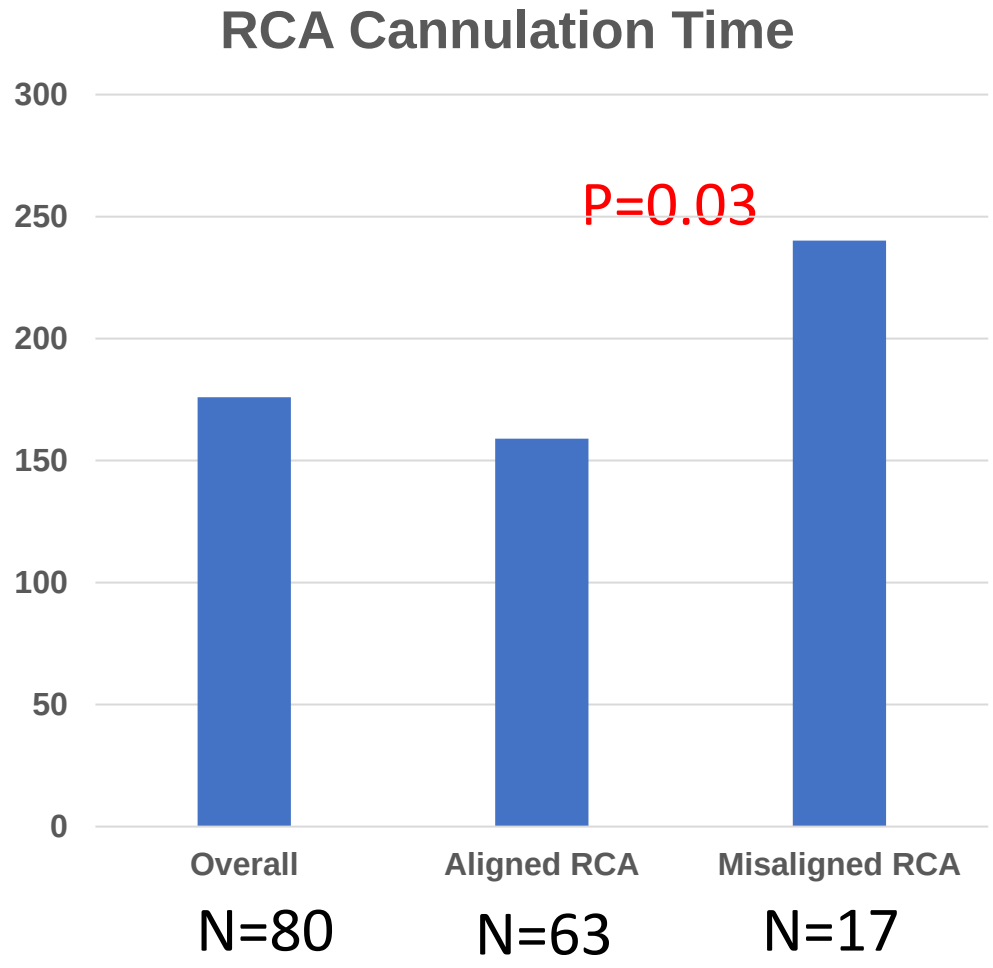
Time for Coronary Cannulation According to Commissural Alignment

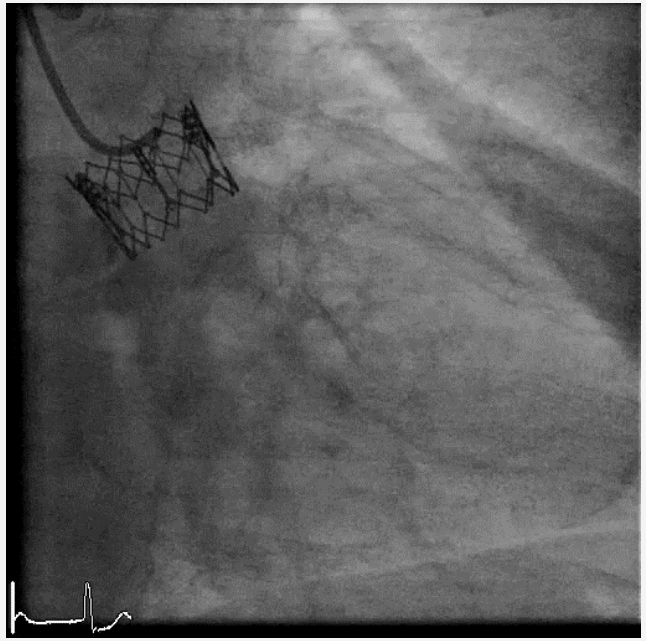


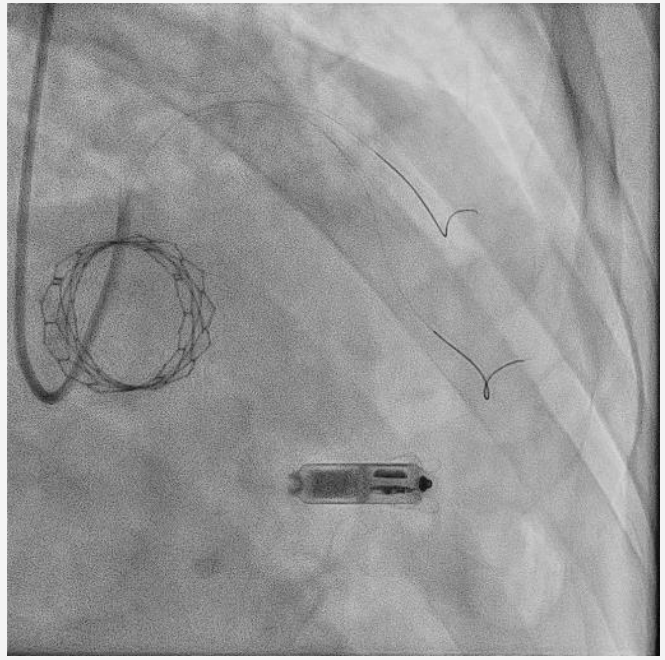
What are the essential results?

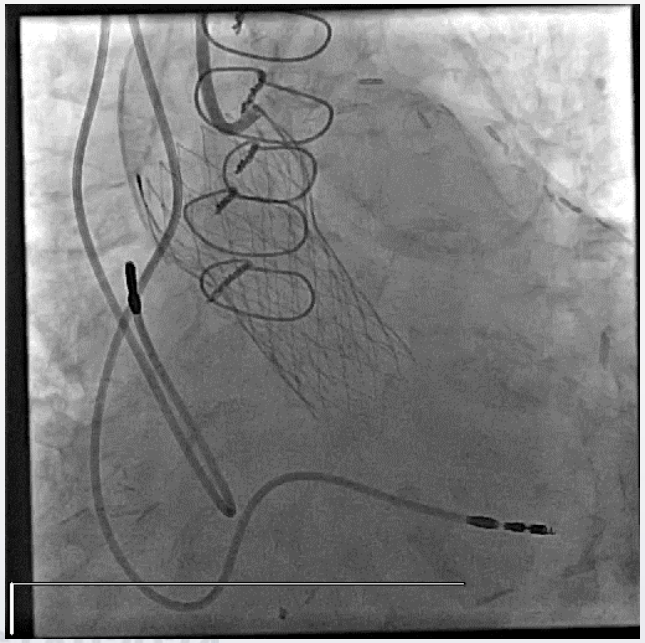
Time for Coronary Cannulation According to Coronary Alignment

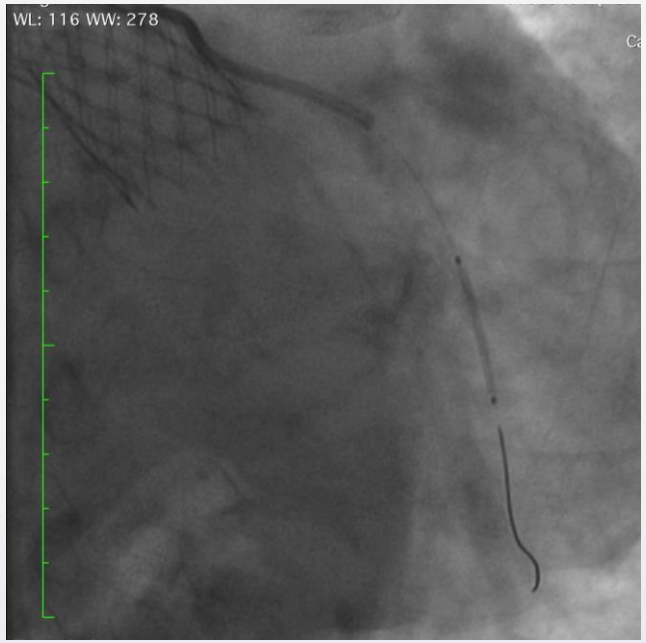








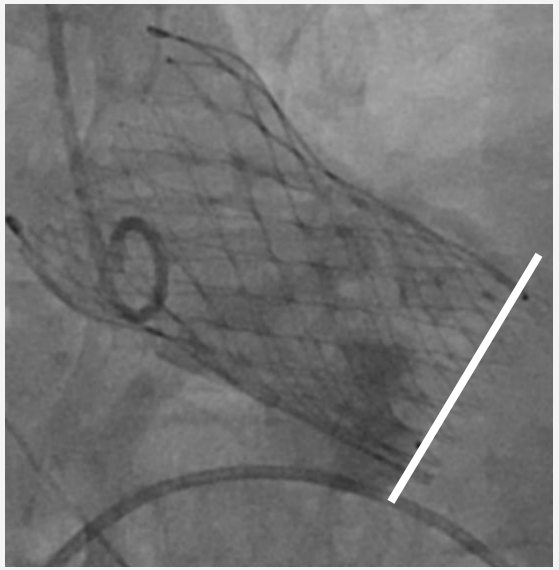



WL: 116 WW: 278

241%

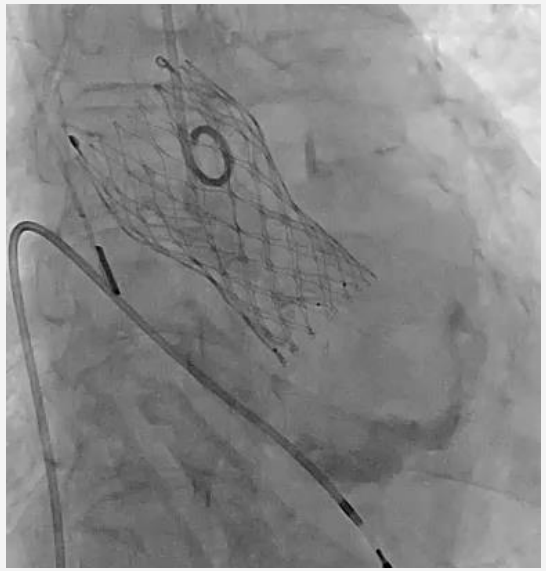
What has improved with Evolut FX

Coaxiality



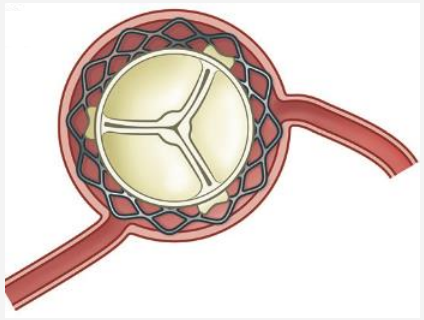
- Improvement in stability shaft has led to more stable deploy (Less LV dive, similar depth in both NCC/LCC)

Depth Control



- Gold marker really effective
- With ICE guidance, we can control even more

Commissural alignment



- Significant improvement with Evolut FX