I Wish I Had Done It Before TAVR

Ostial RCA Calcification and TAVR Stent Struts Obstruction with Rotablation and Snorkel Stenting

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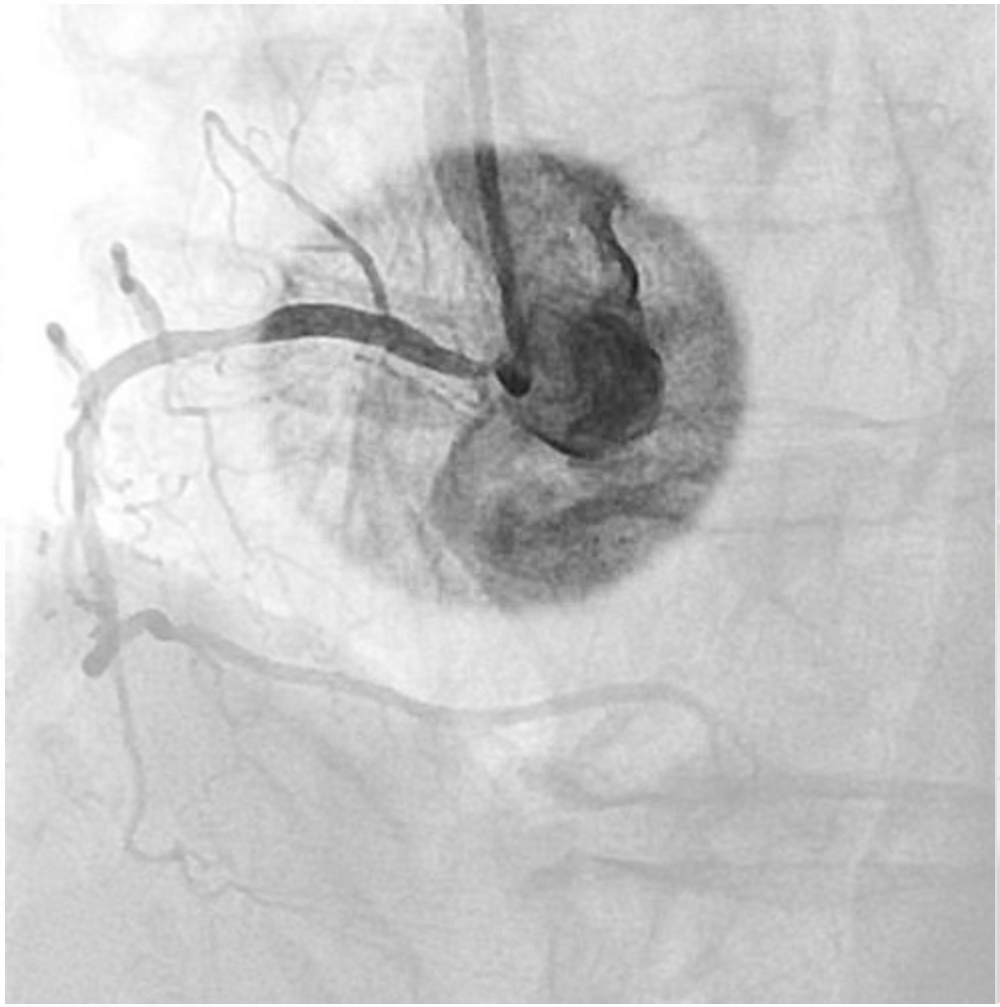
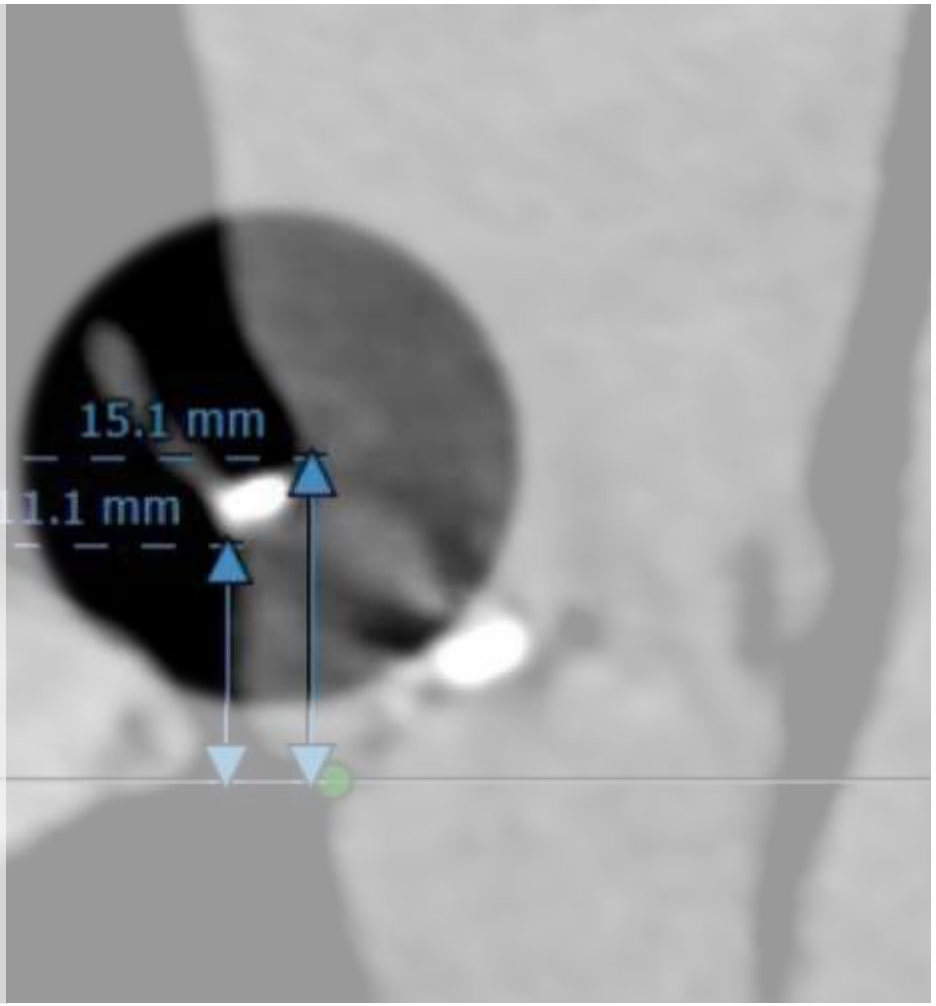
Would You Perform PCI ?





Brief Summary

90 years old female

Effort related chest tightness
Shortness of breath
Relieved by rest and NTG

Coronary artery disease with triple vessel disease, s/p PCI & stenting to LCX (2019), under Clopidogrel

Severe aortic stenosis s/p TAVR (Medtronic **Evolut PRO 26 mm**)

Brief Summary

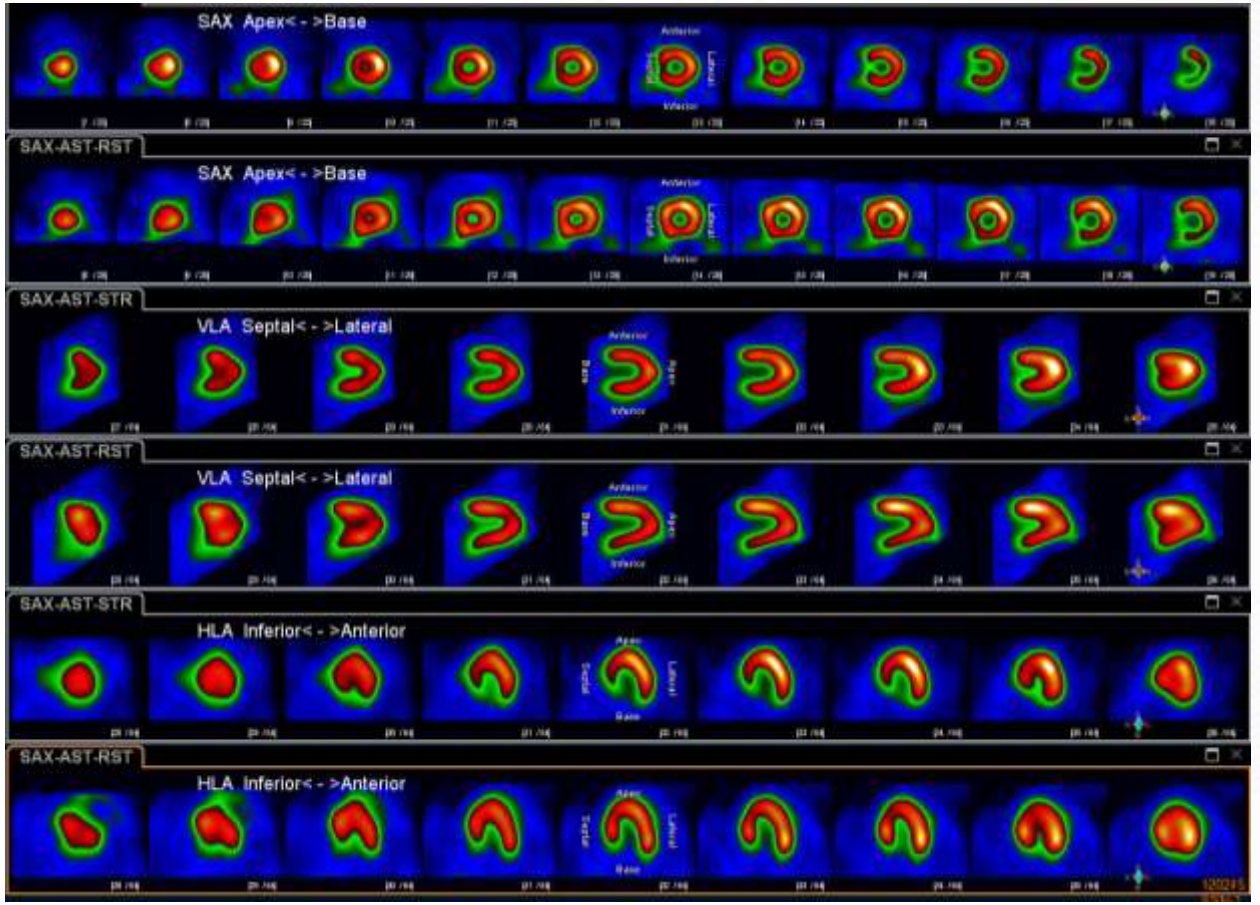
Baseline TTE

Preserved LV and RV systolic function, LVEF = 63 %

Prosthetic AV (TAVR):
MPG 8 mmHg, PPG 15 mmHg
No valvular AR nor PVL
AVA 1.6cm2

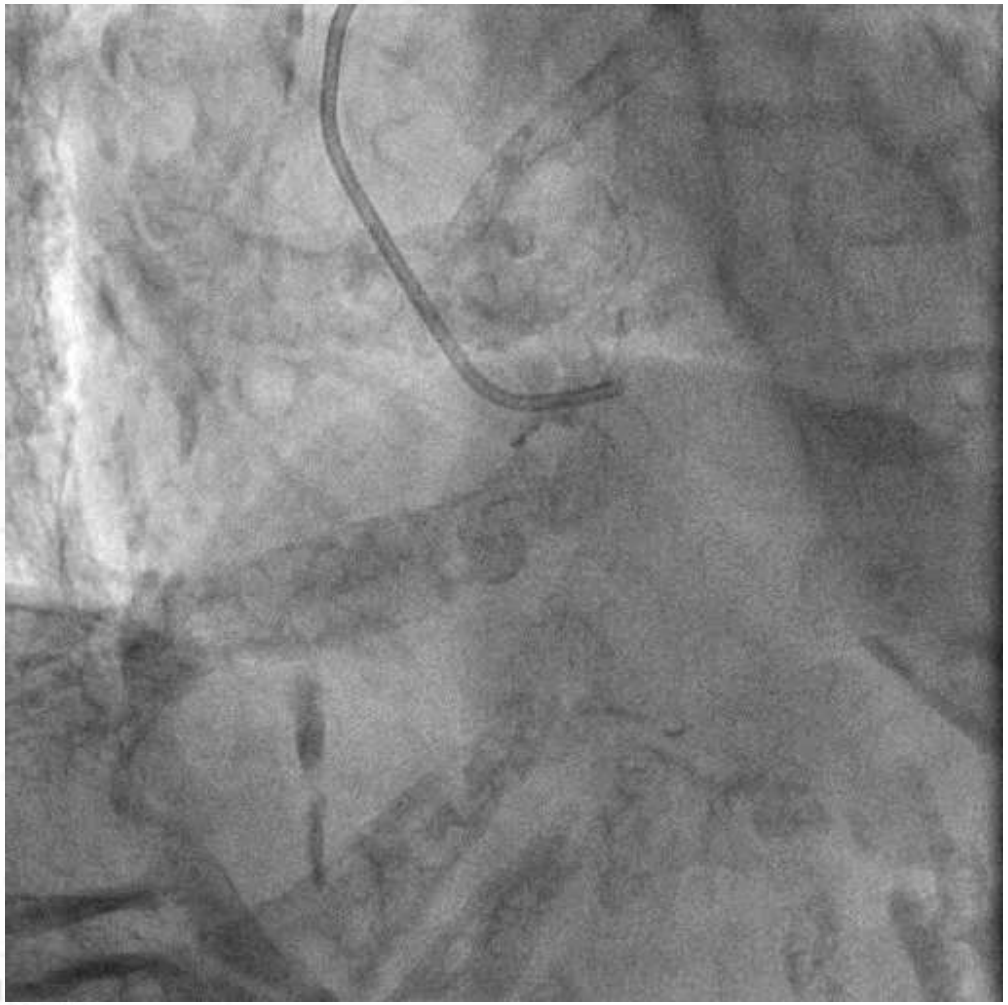
Minimal MR
Moderate TR

Tl-201 myocardial perfusion



Coronary angiogram before TAVR

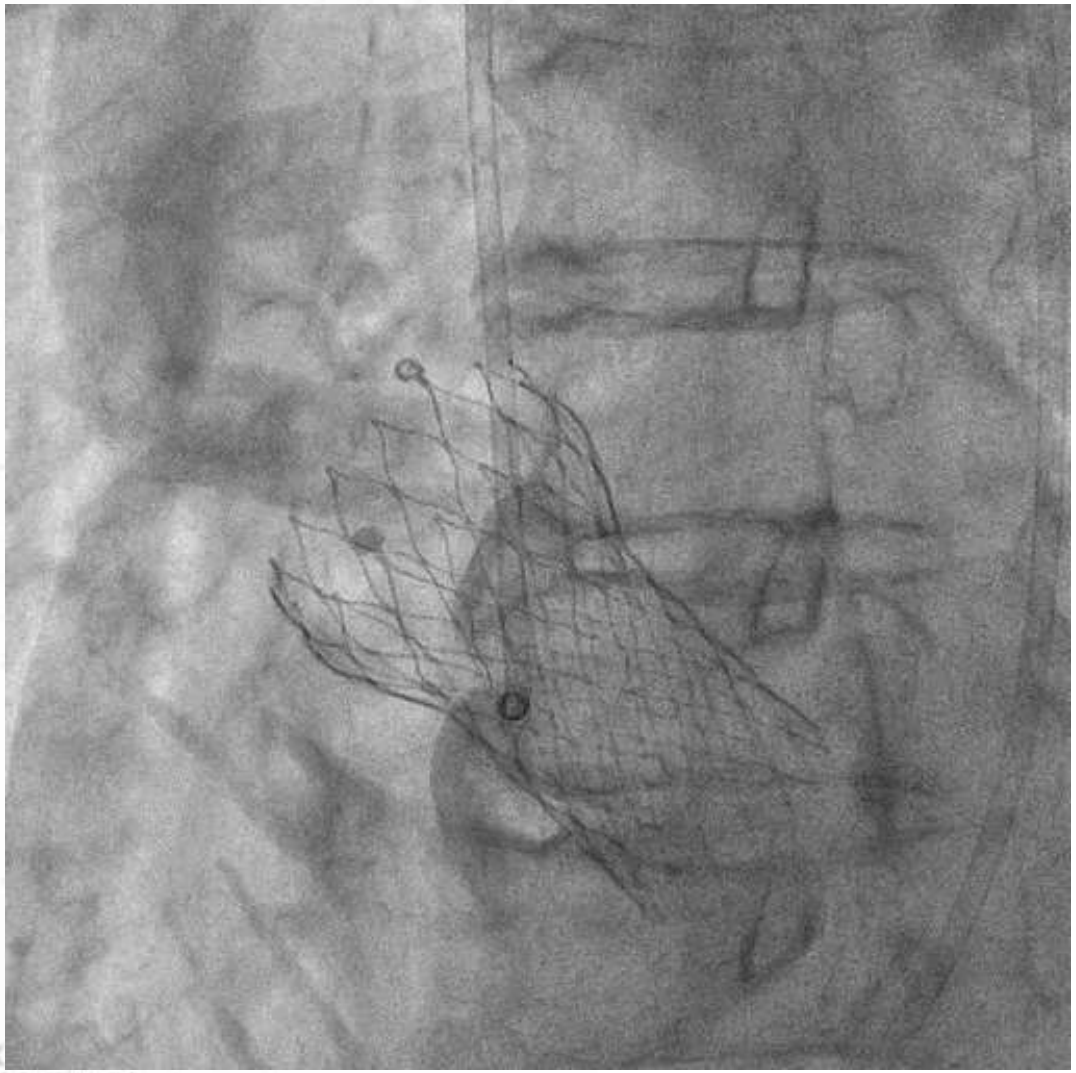
Coronary angiogram before TAVR



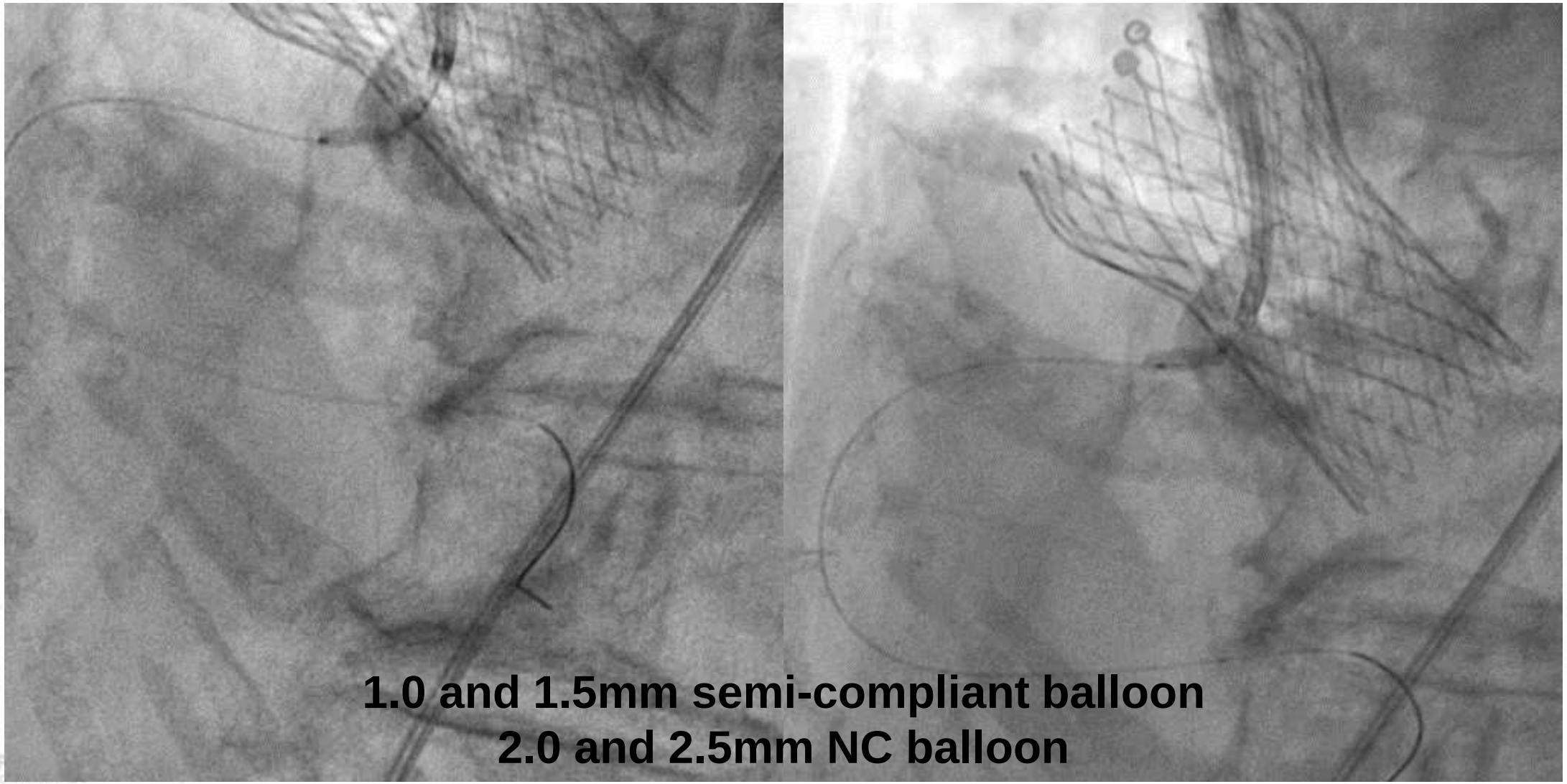
TAVR (Evolut PRO 26 mm)

Coronary angiography

Angiogram via Right femoral artery

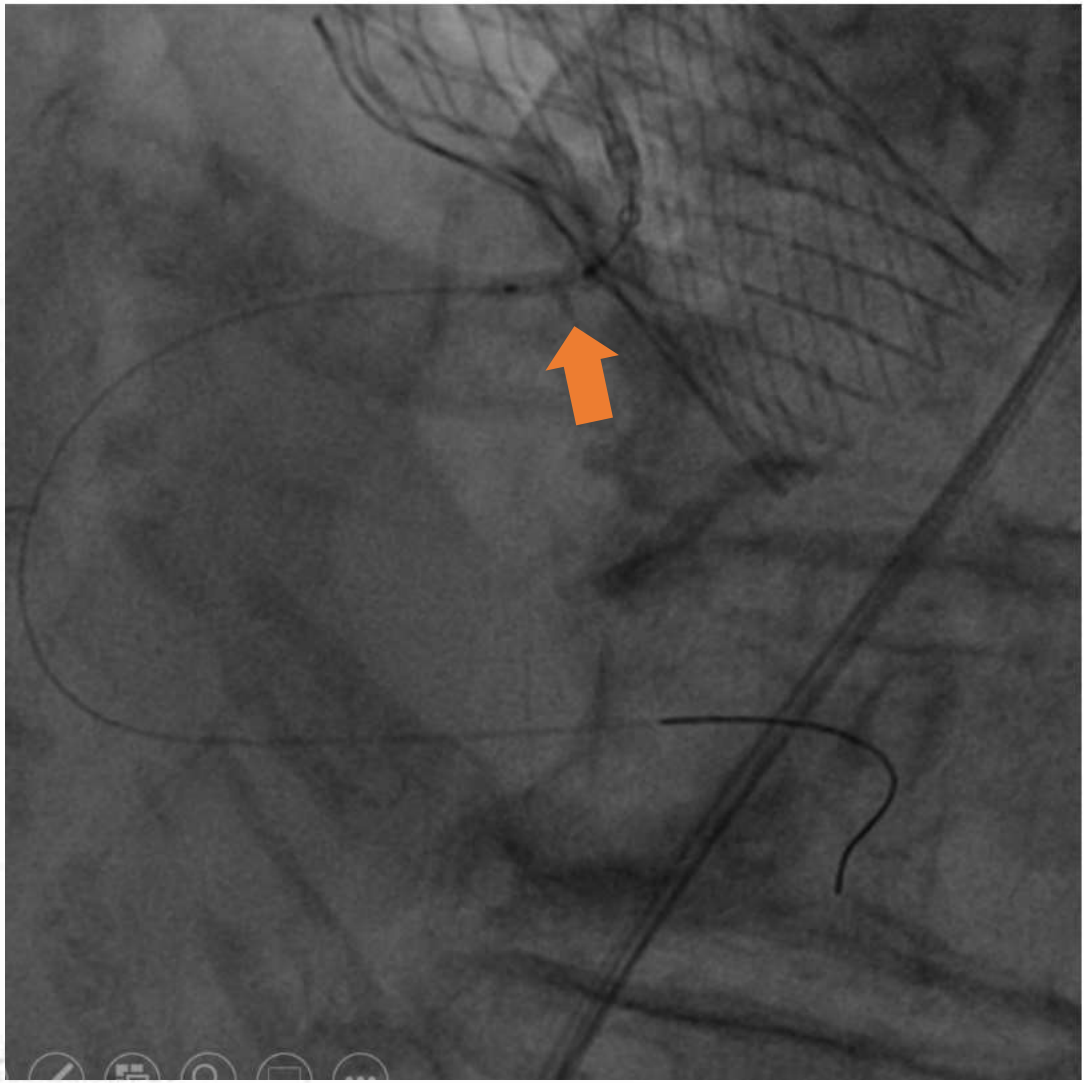


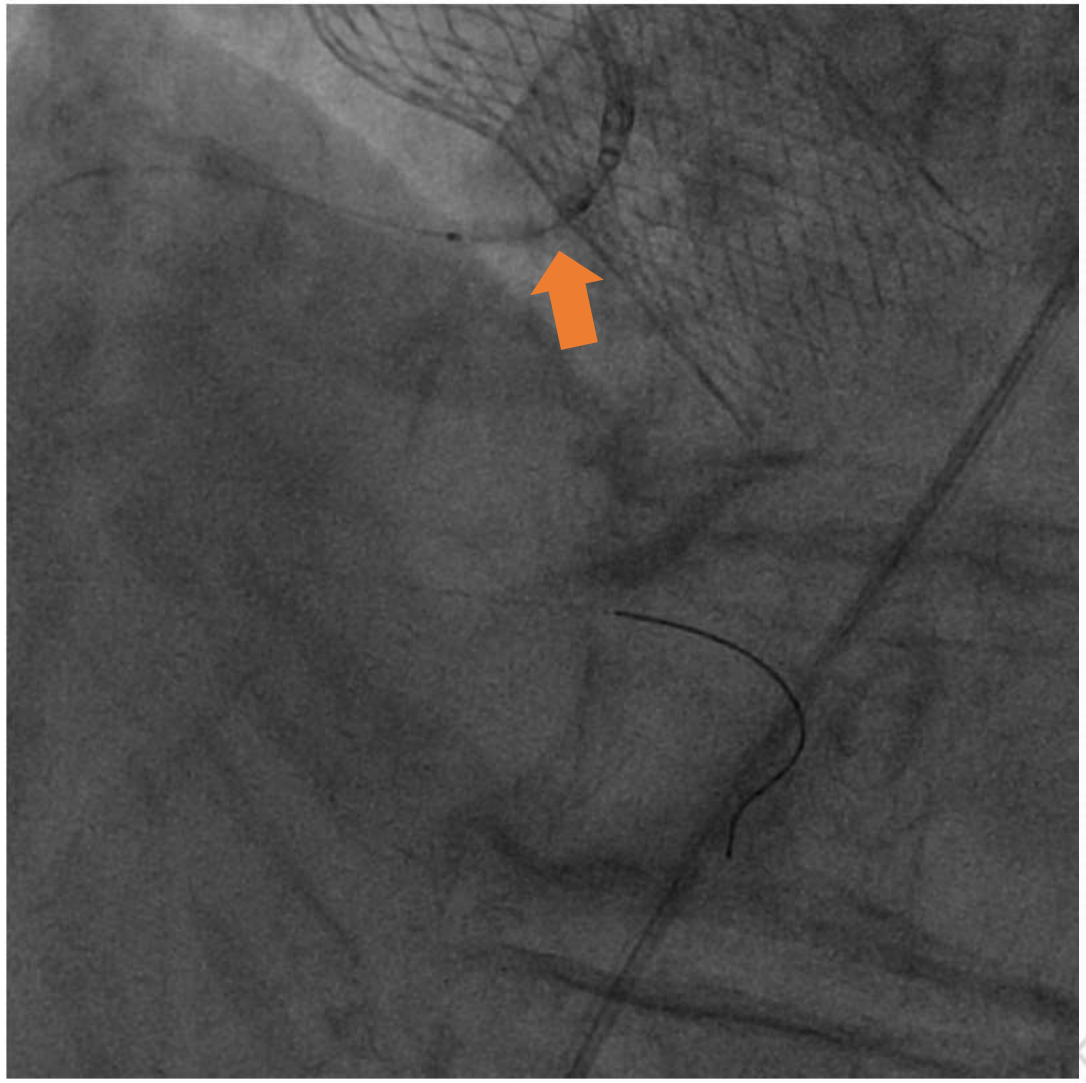
Balloon dilation



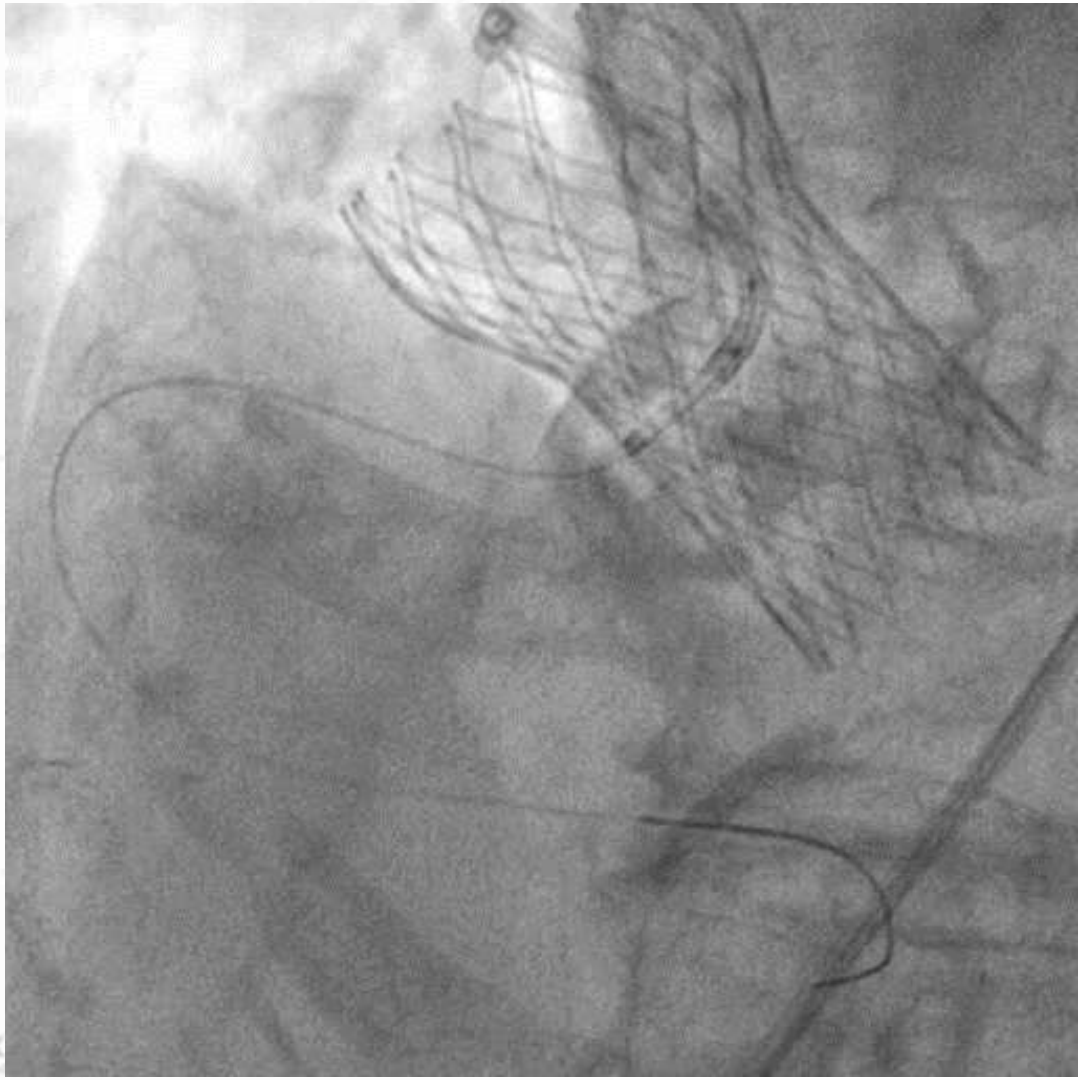
1.0 and 1.5mm semi-compliant balloon
2.0 and 2.5mm NC balloon

Balloon Un-dilatable Lesion

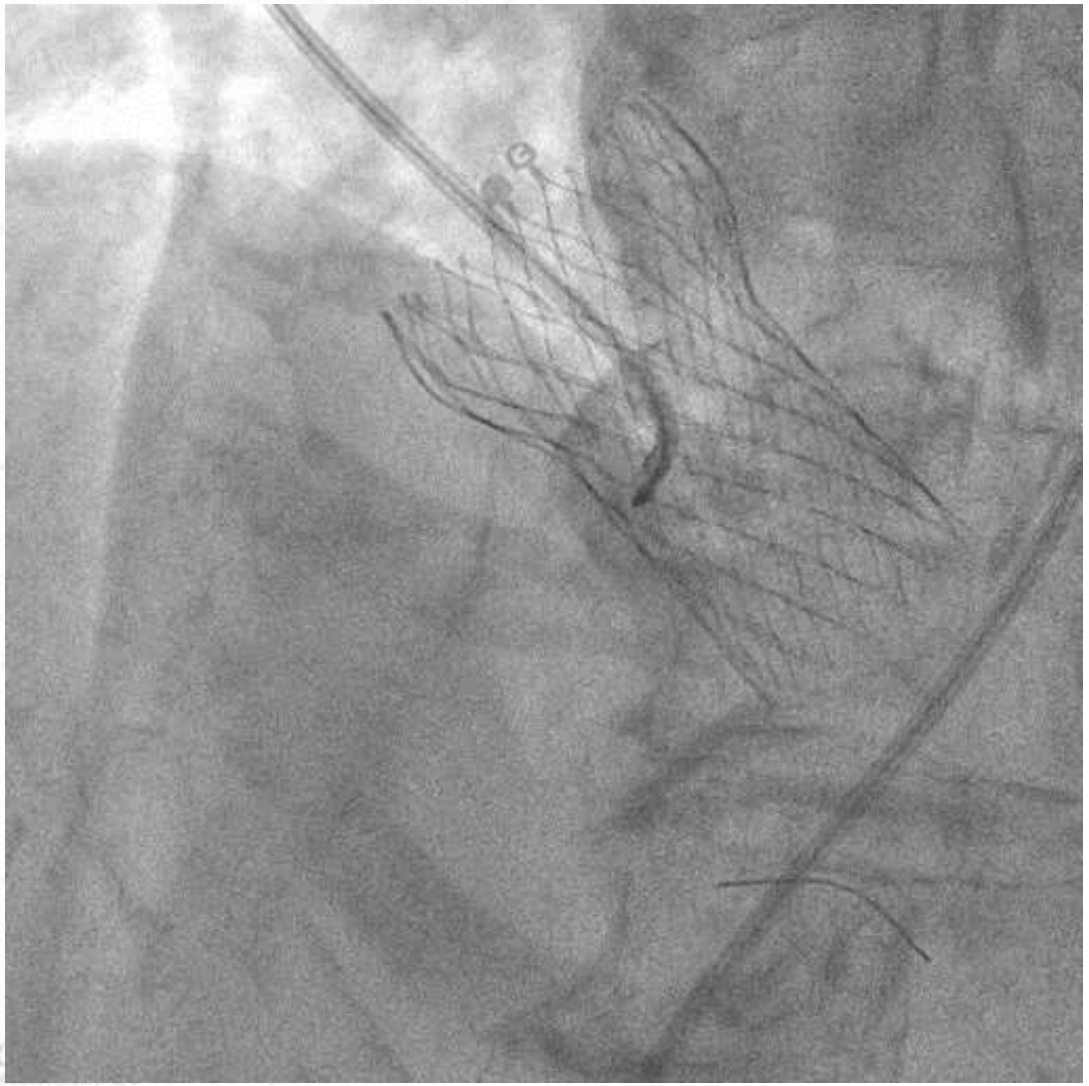




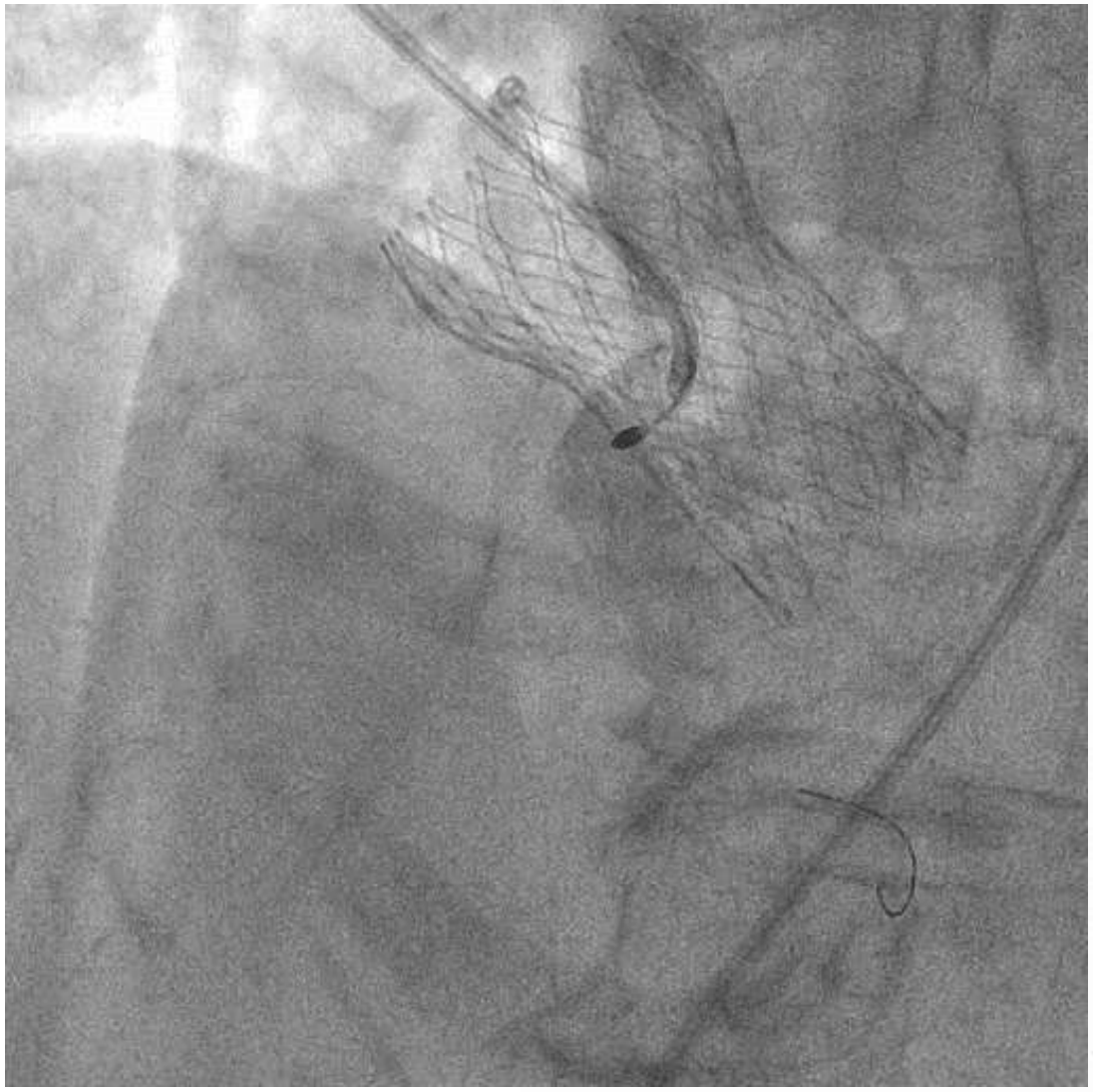
IVUS Failed to Cross Lesion



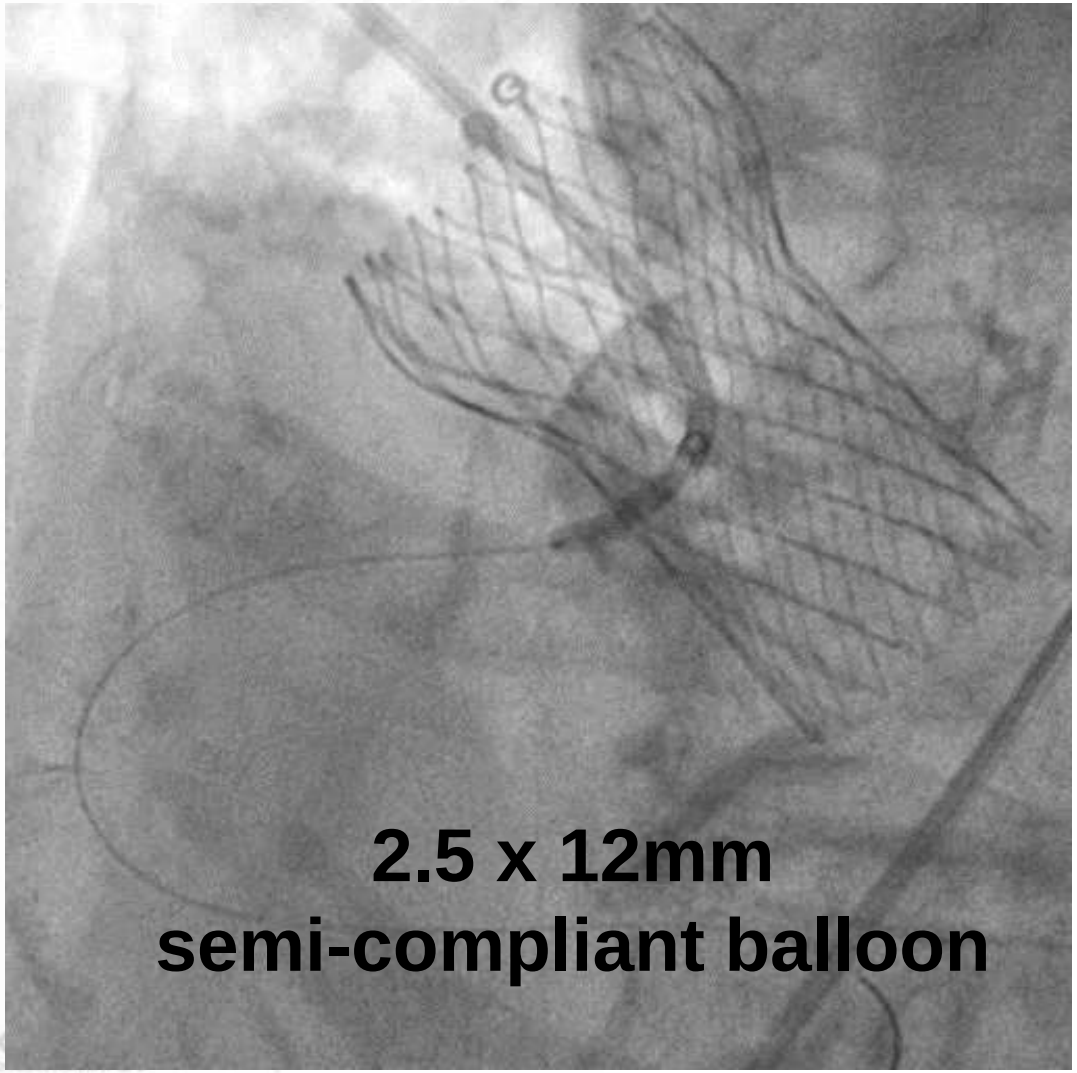
Rotablation 1.25mm burr

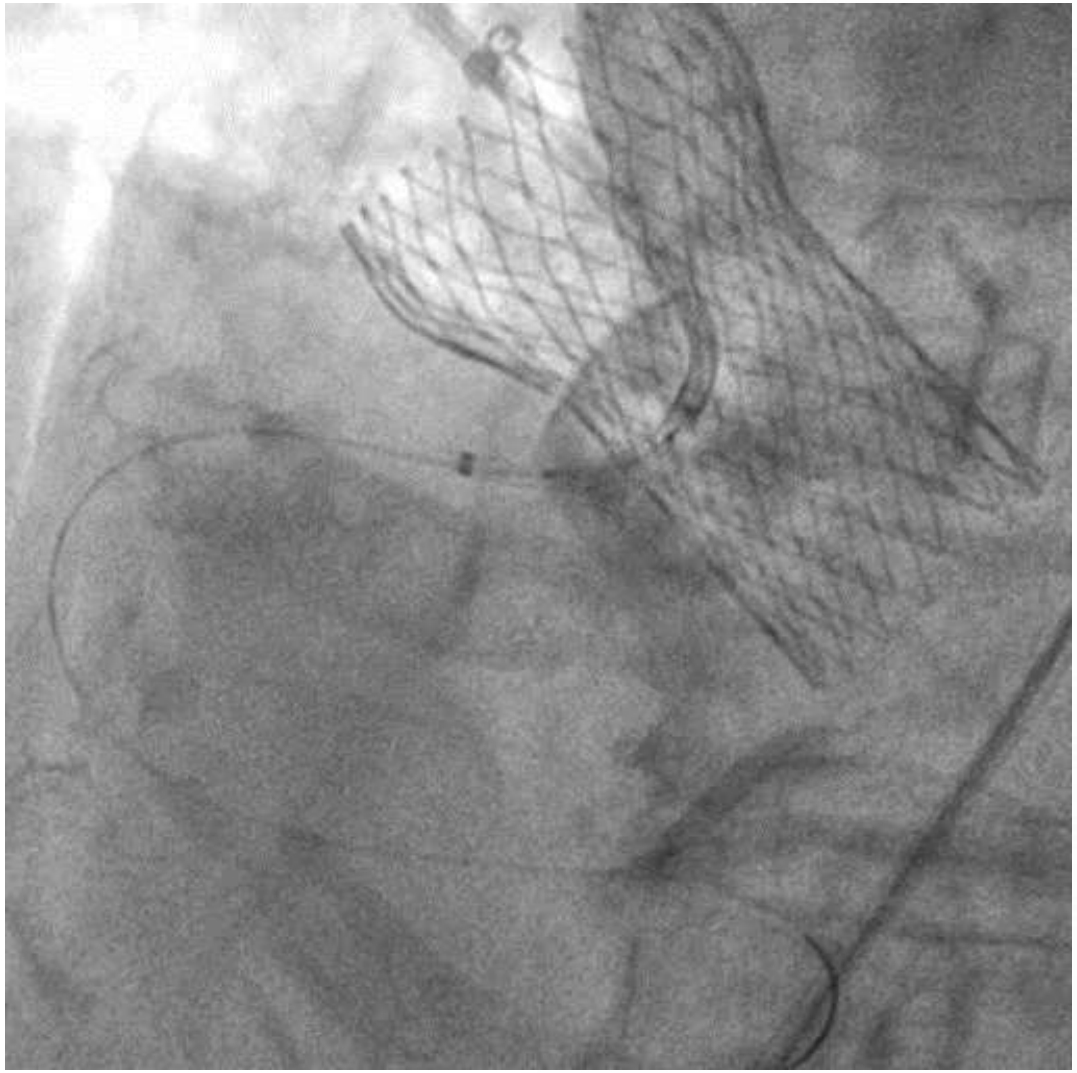


Rotablation 1.75mm burr

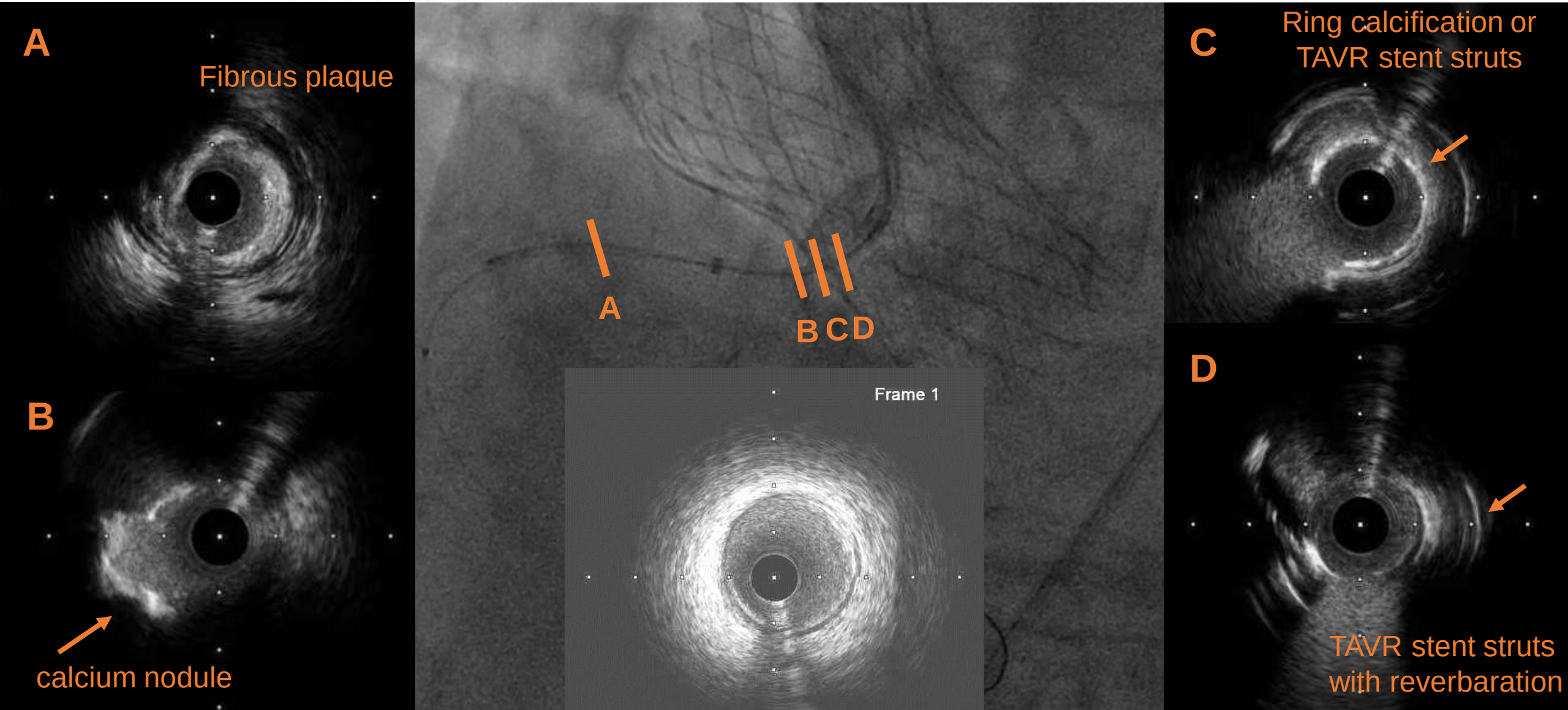


POBA and Balloon anchor technique

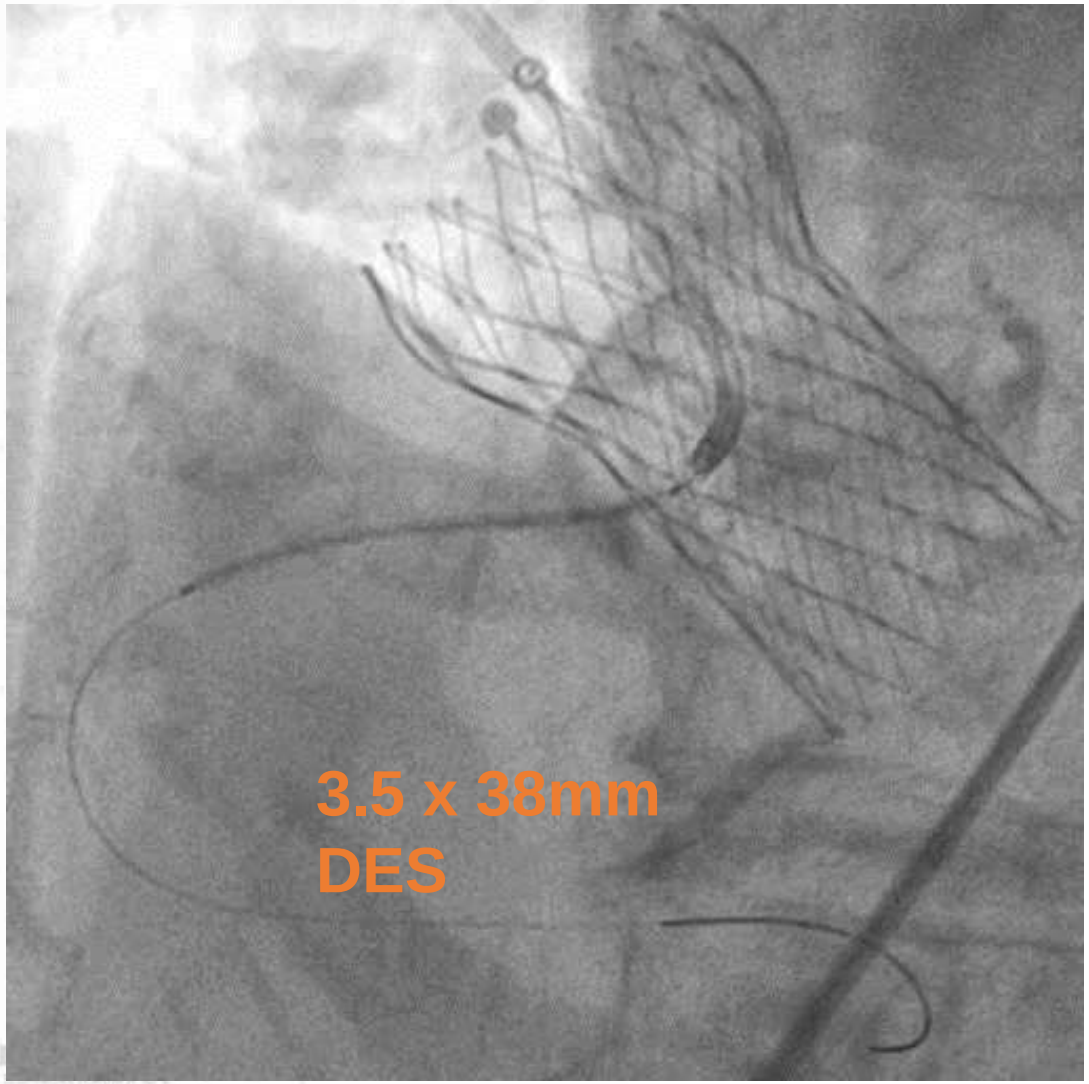


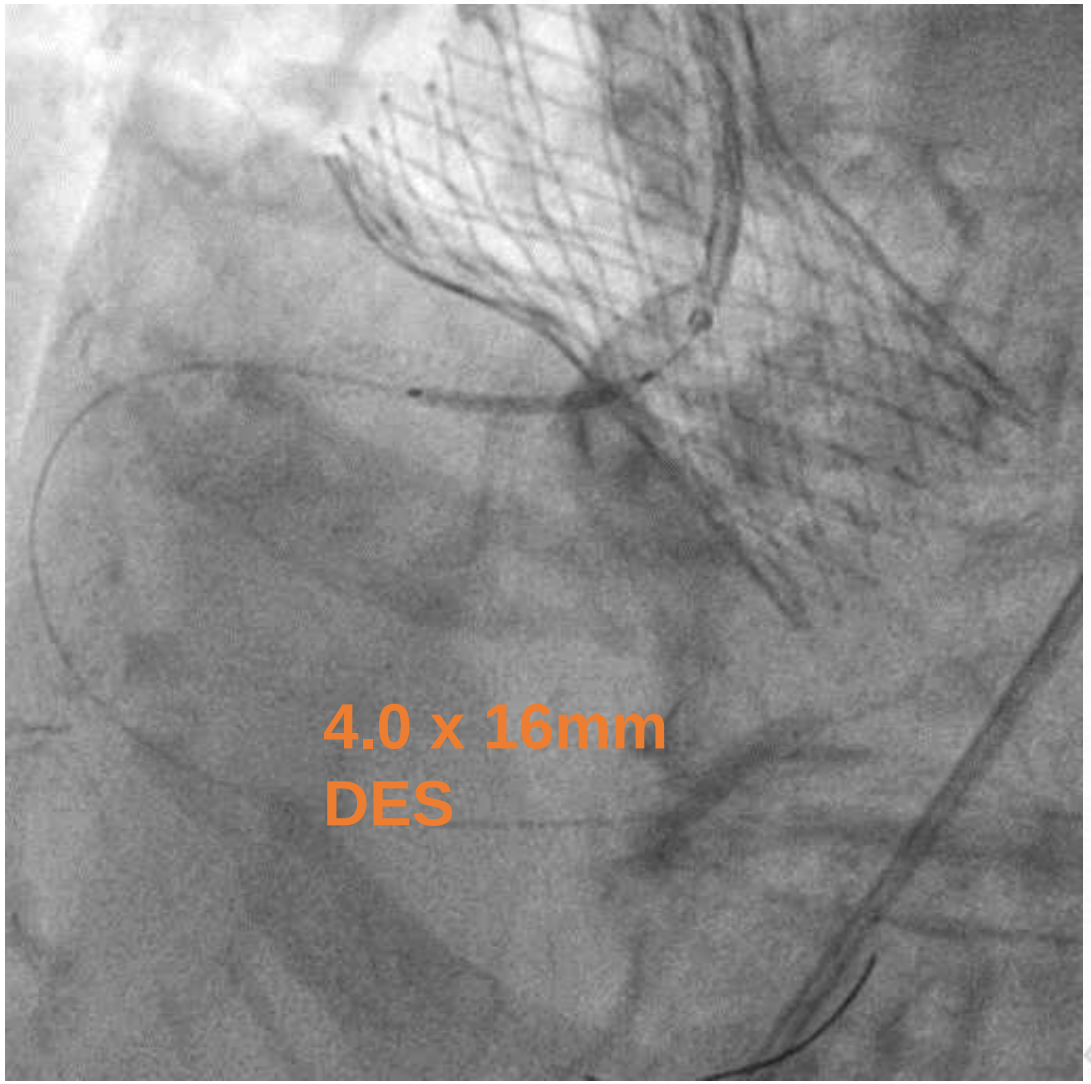


IVUS

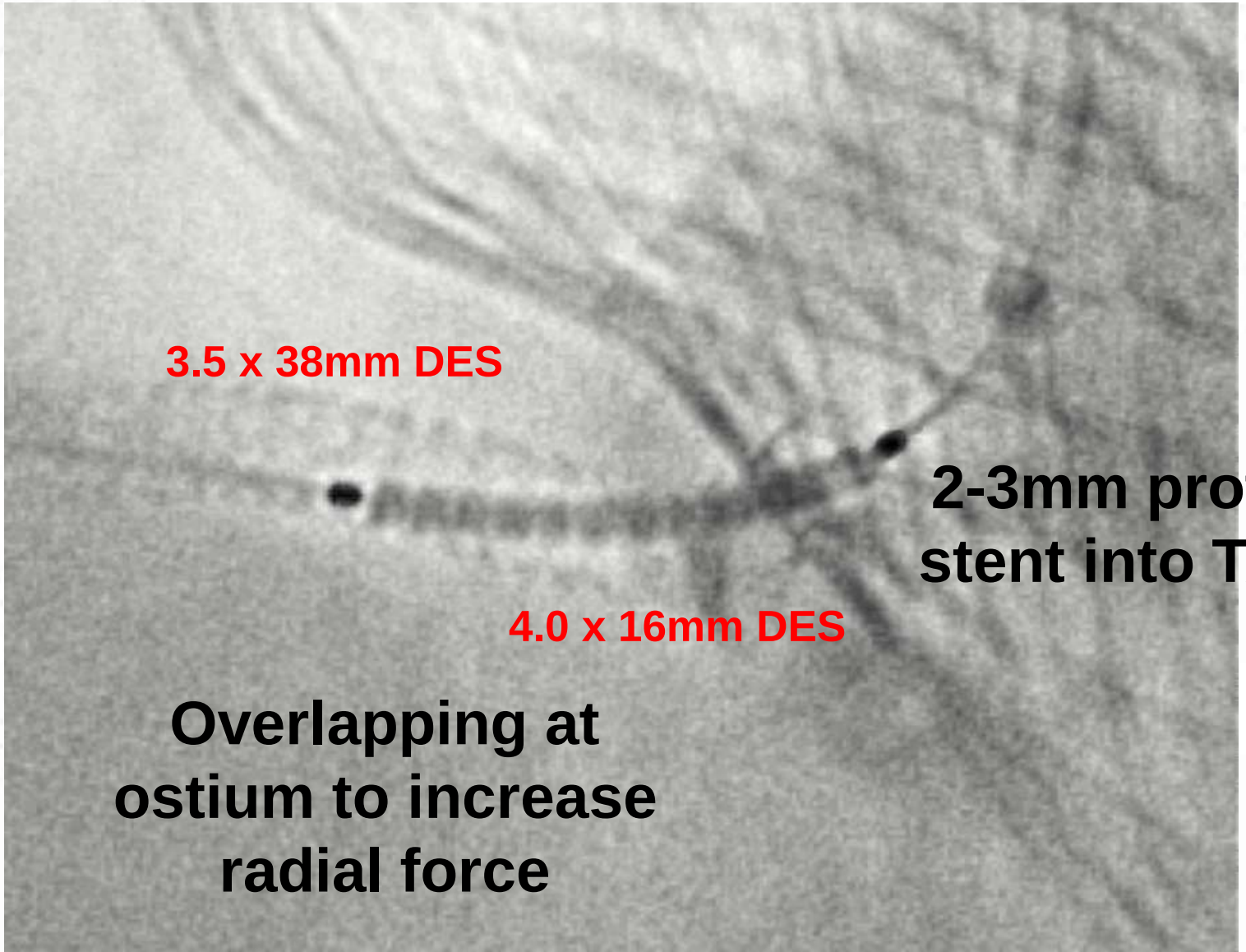

A
Fibrous plaque
B
calcium nodule
A
B C D
Frame 1
C
Ring calcification or
TAVR stent struts
D
TAVR stent struts
with reverbaration

Stenting

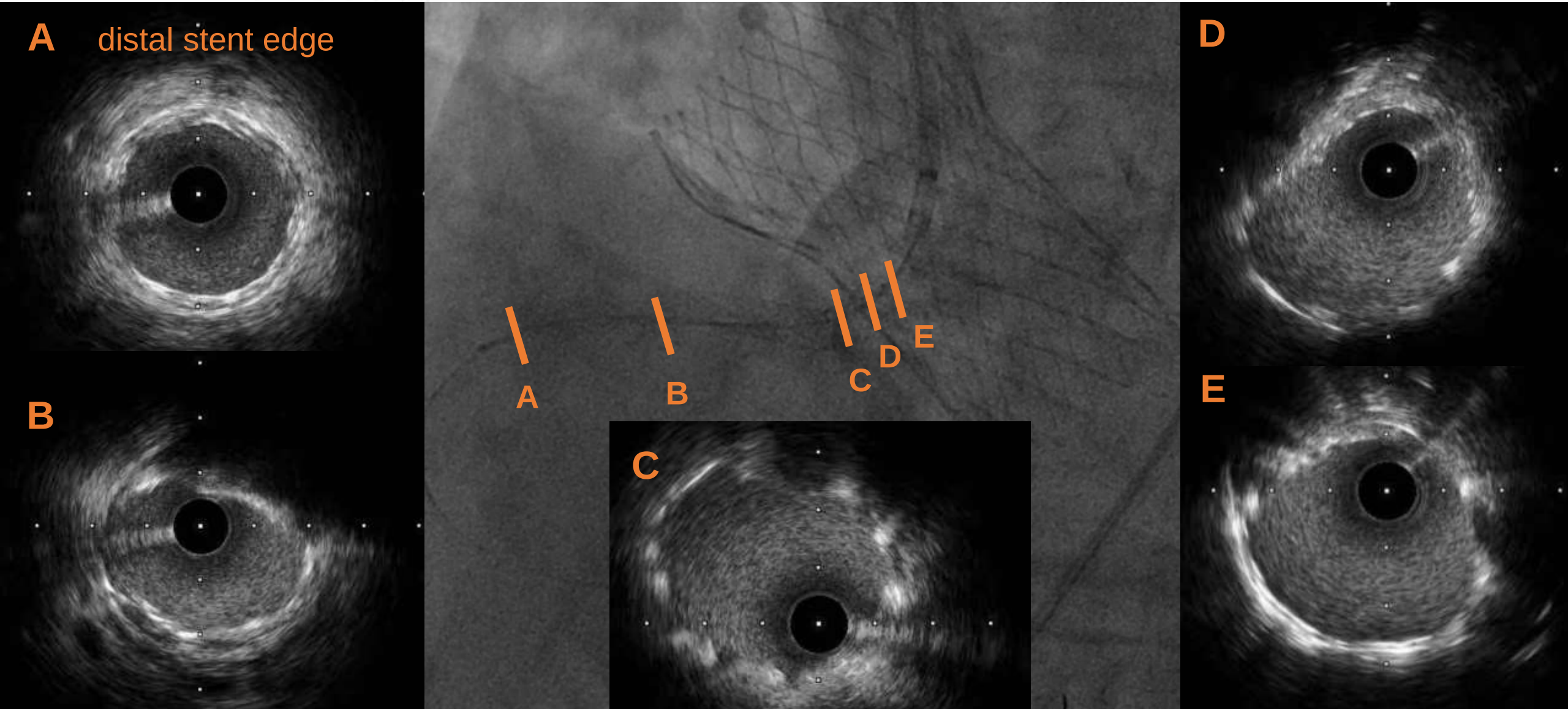




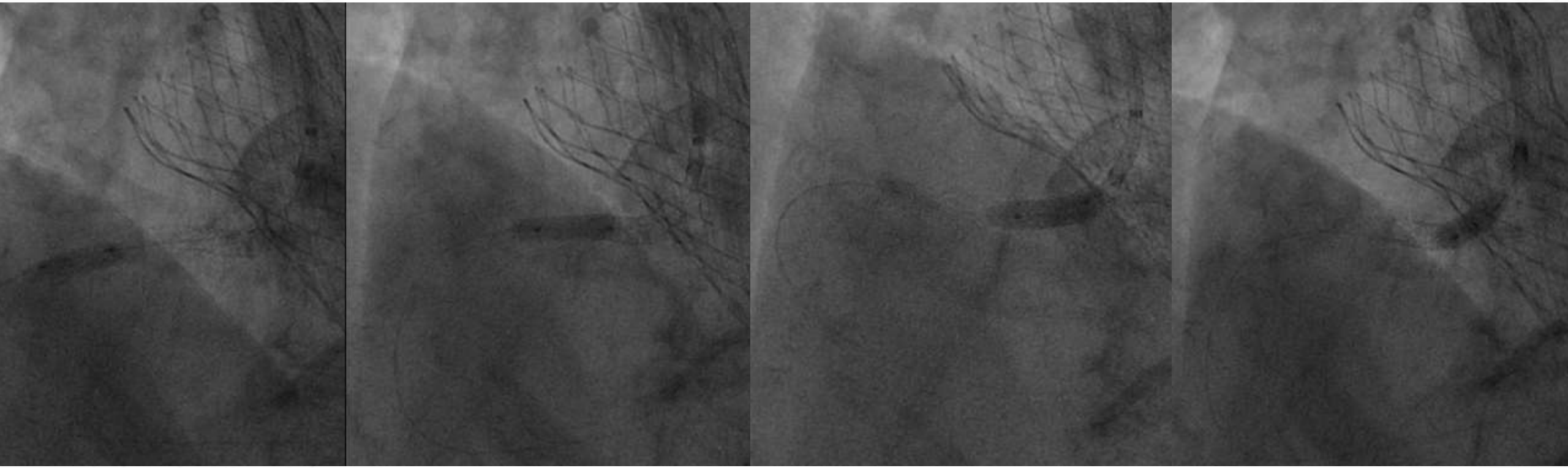
Stenting


3.5 x 38mm DES
4.0 x 16mm DES
Overlapping at ostium to increase radial force
2-3mm protrusion of stent into TAVR valve

Post-stenting IVUS

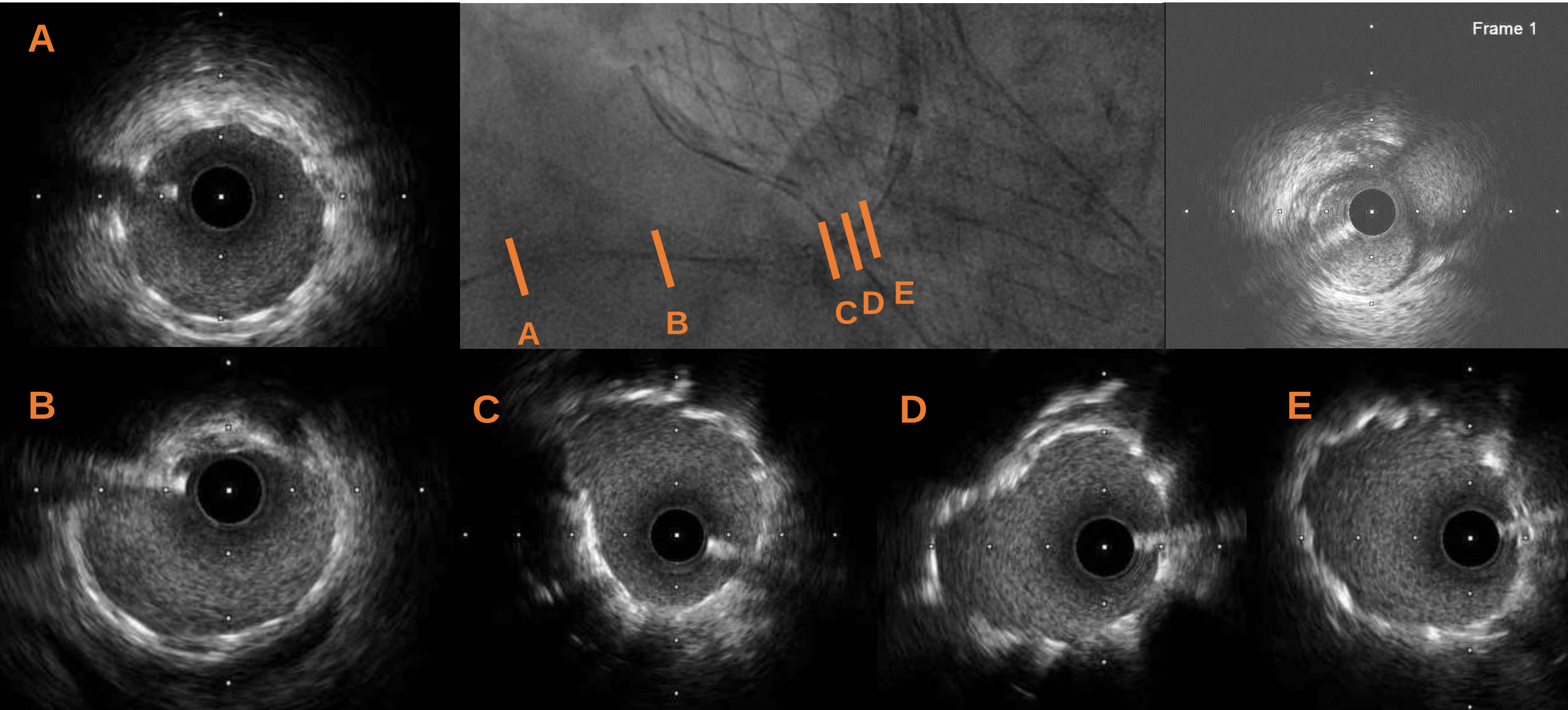


Post-dilatation and POT



4.0 x 12mm NC balloon

Final IVUS



Final Angiogram

Discussion

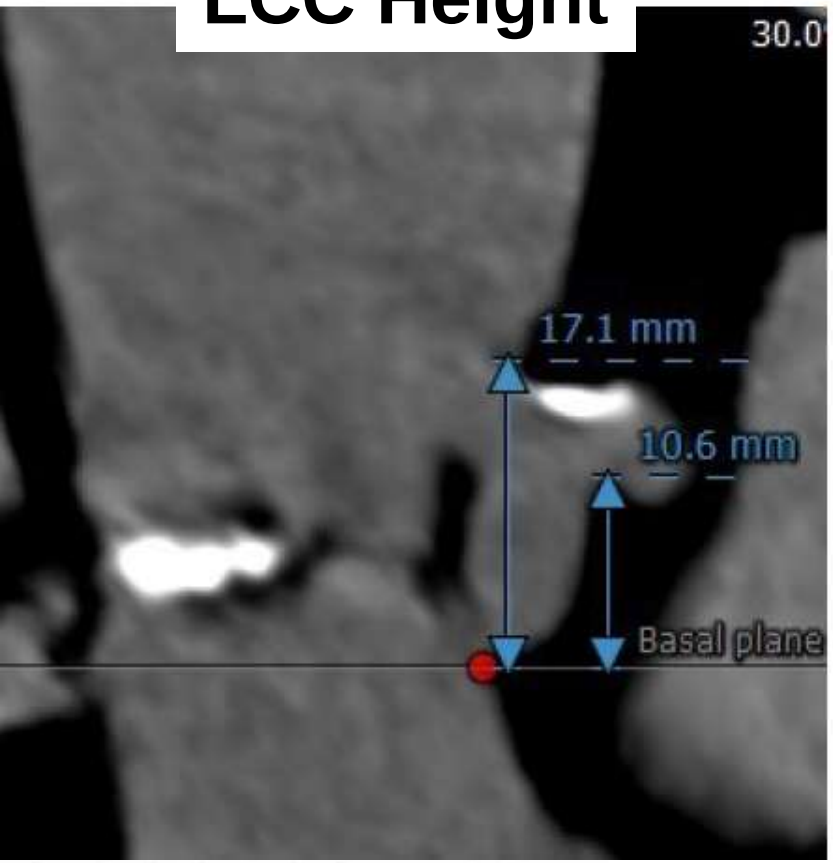
In This Case

We preferred

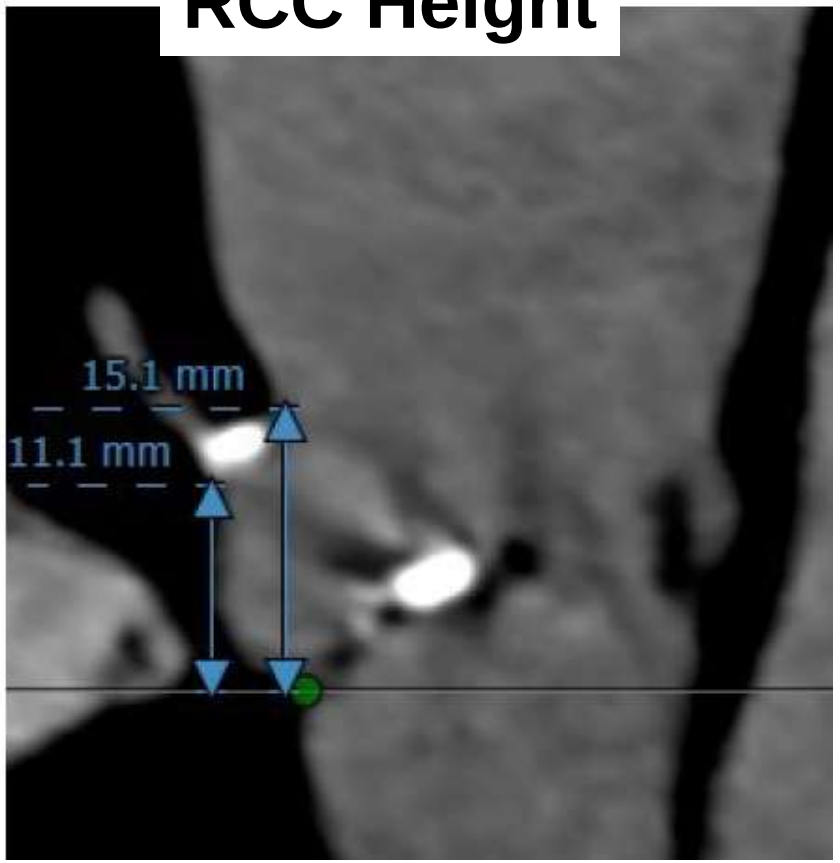
Late Delay Coronary Obstruction

Risk Factor – 1

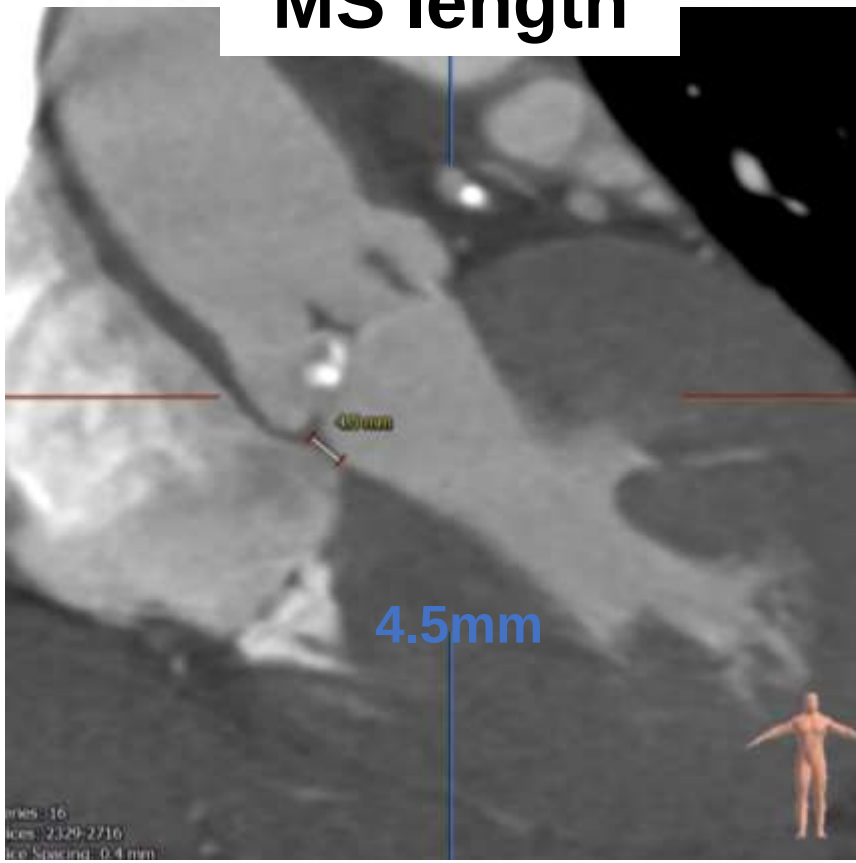
LCC Height



RCC Height



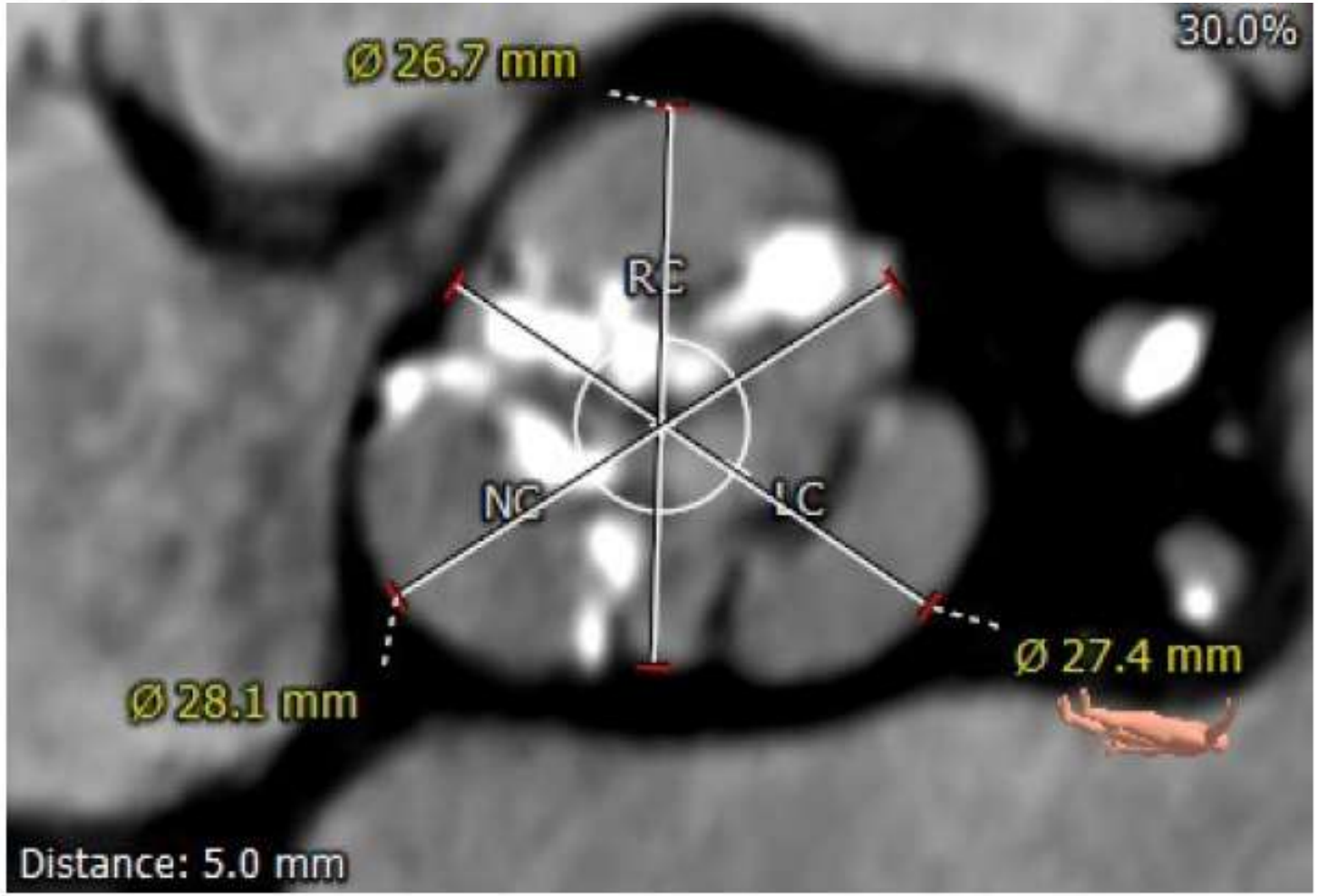
MS length



Low Coronary Ostial Height

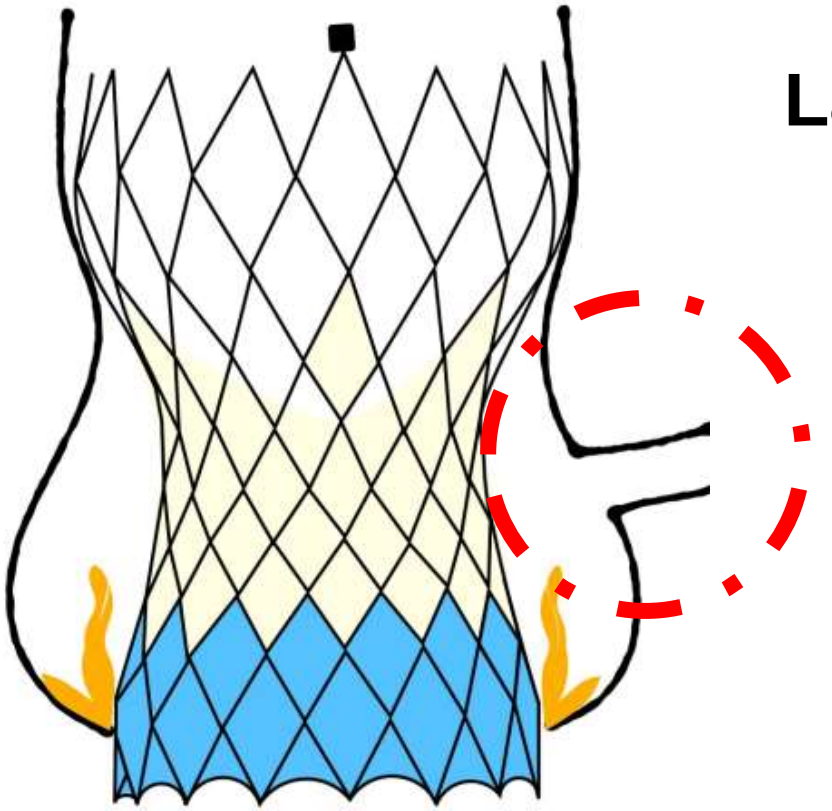
Heavy Calcification at RCA Ostium

Risk Factors -2



Small Sinus of Valsalva

Late Delay Coronary Obstruction



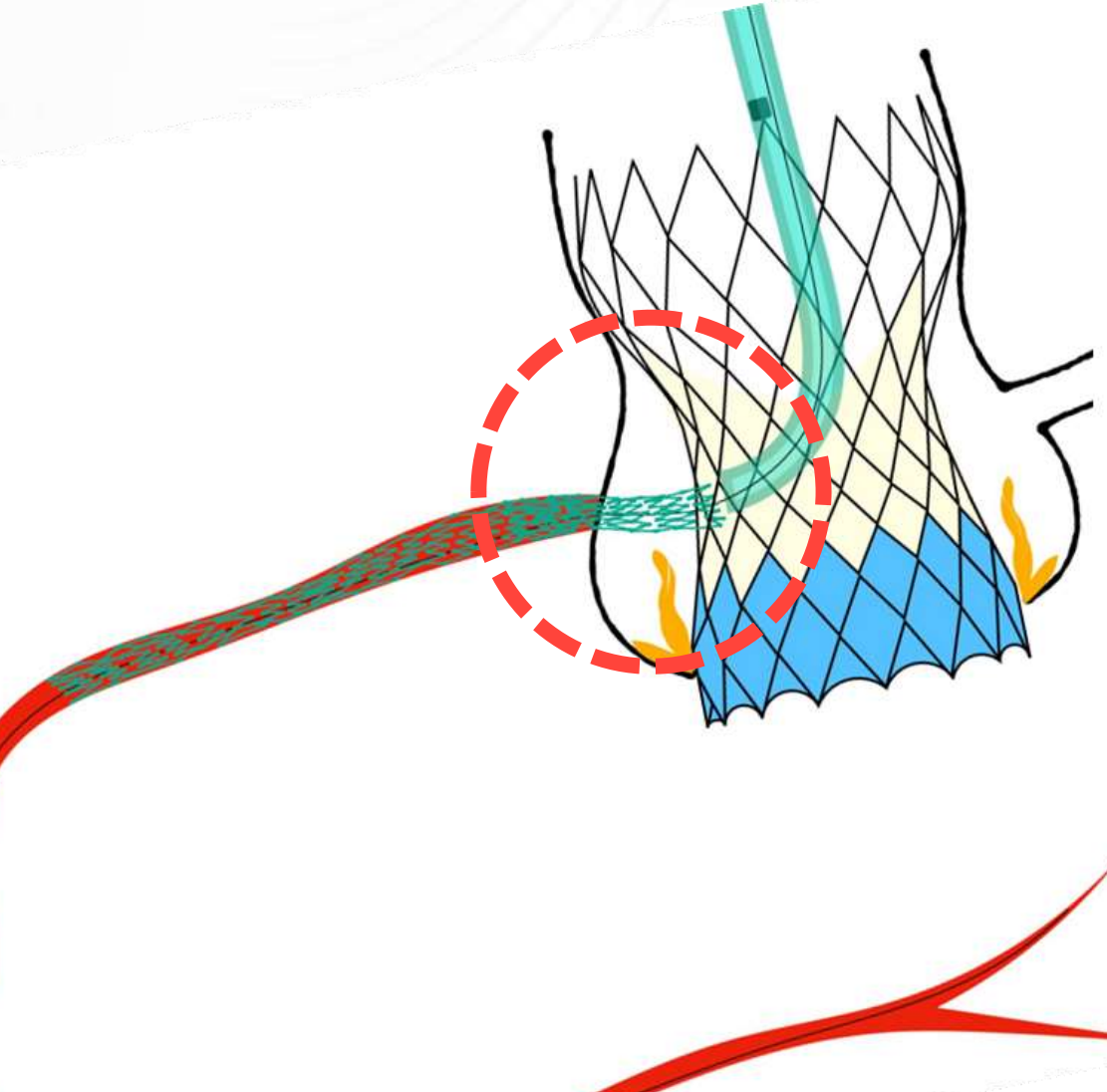
Late (> 7 days) Delay Coronary Obstruction

Fibrosis

Endothelialization

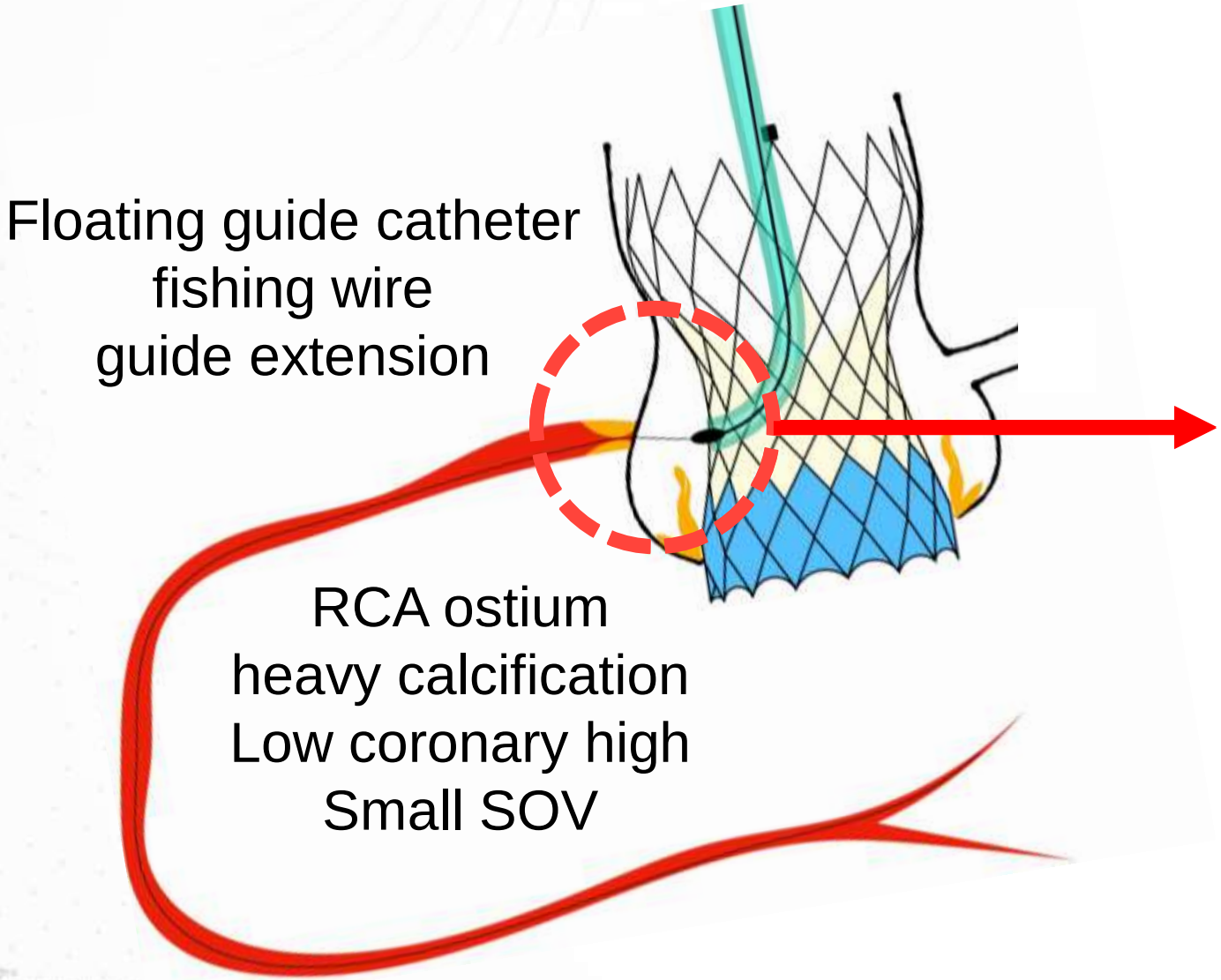
~~**Thrombus**~~

In This Case



1. Orthotopic Snorkel Stenting
2. Two stents overlap at ostium
3. More physiologic” TAVR frame – coronary stent configuration
4. Facilitate coronary re-cannulation

Summary



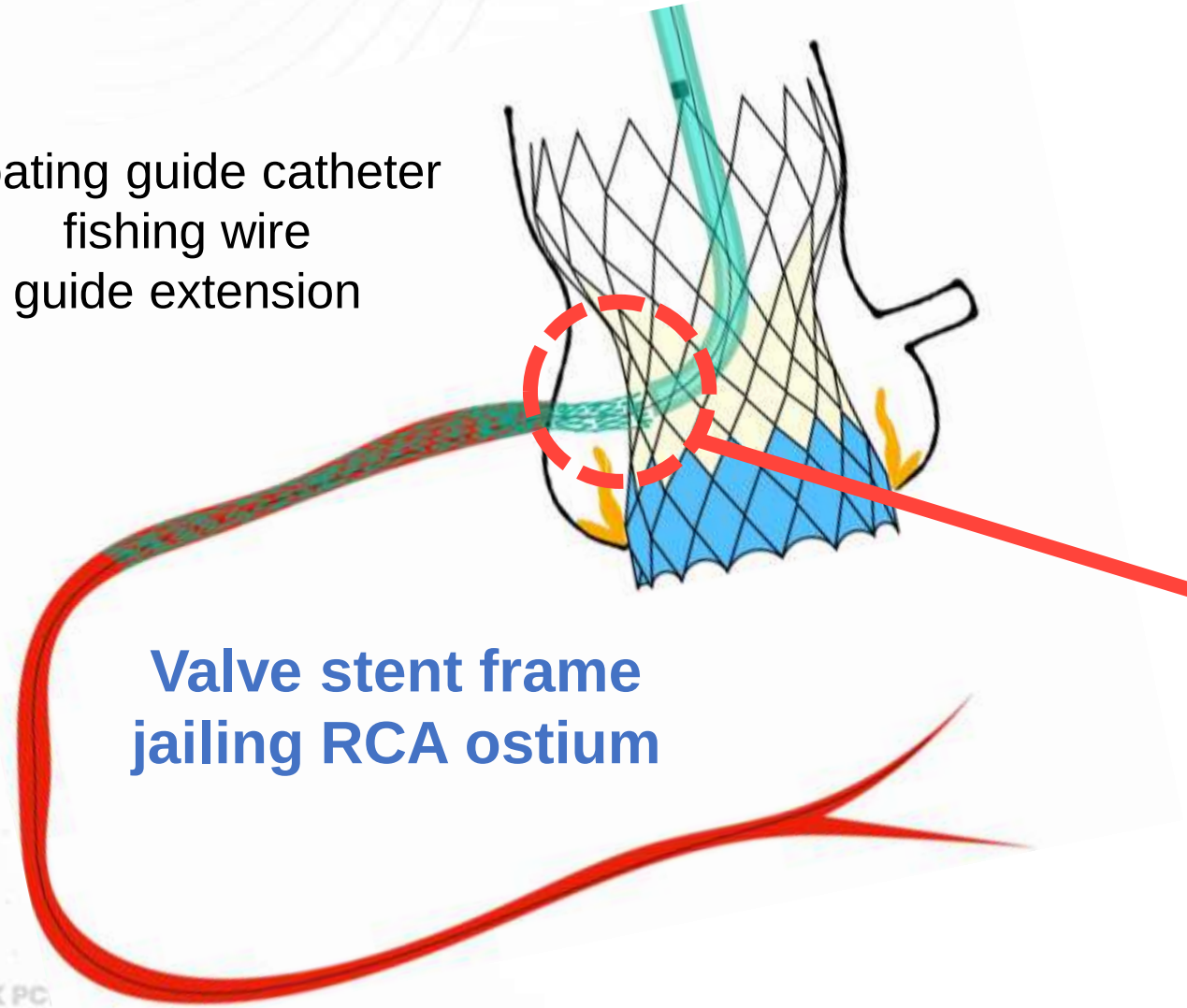
Late Delay Coronary Obstruction

Fibrosis

Endothelialization

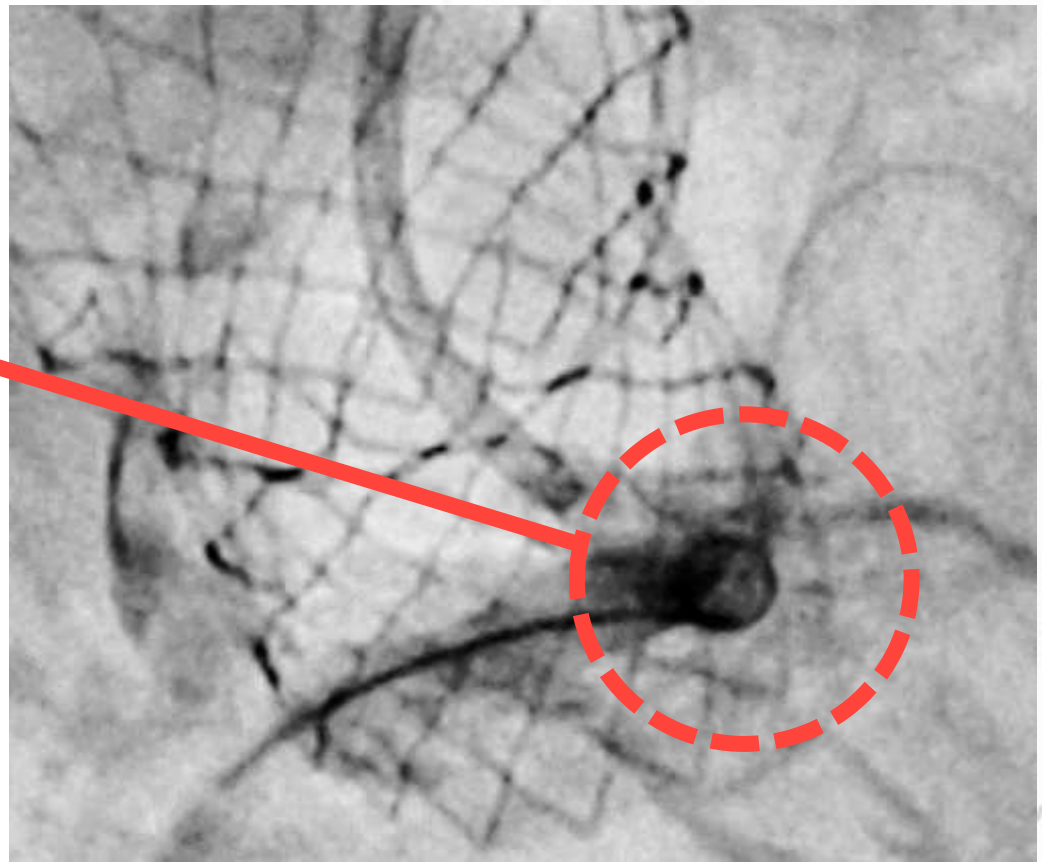
Summary

Floating guide catheter
fishing wire
guide extension



Valve stent frame jailing RCA ostium

Orthotopic Snorkel Stenting

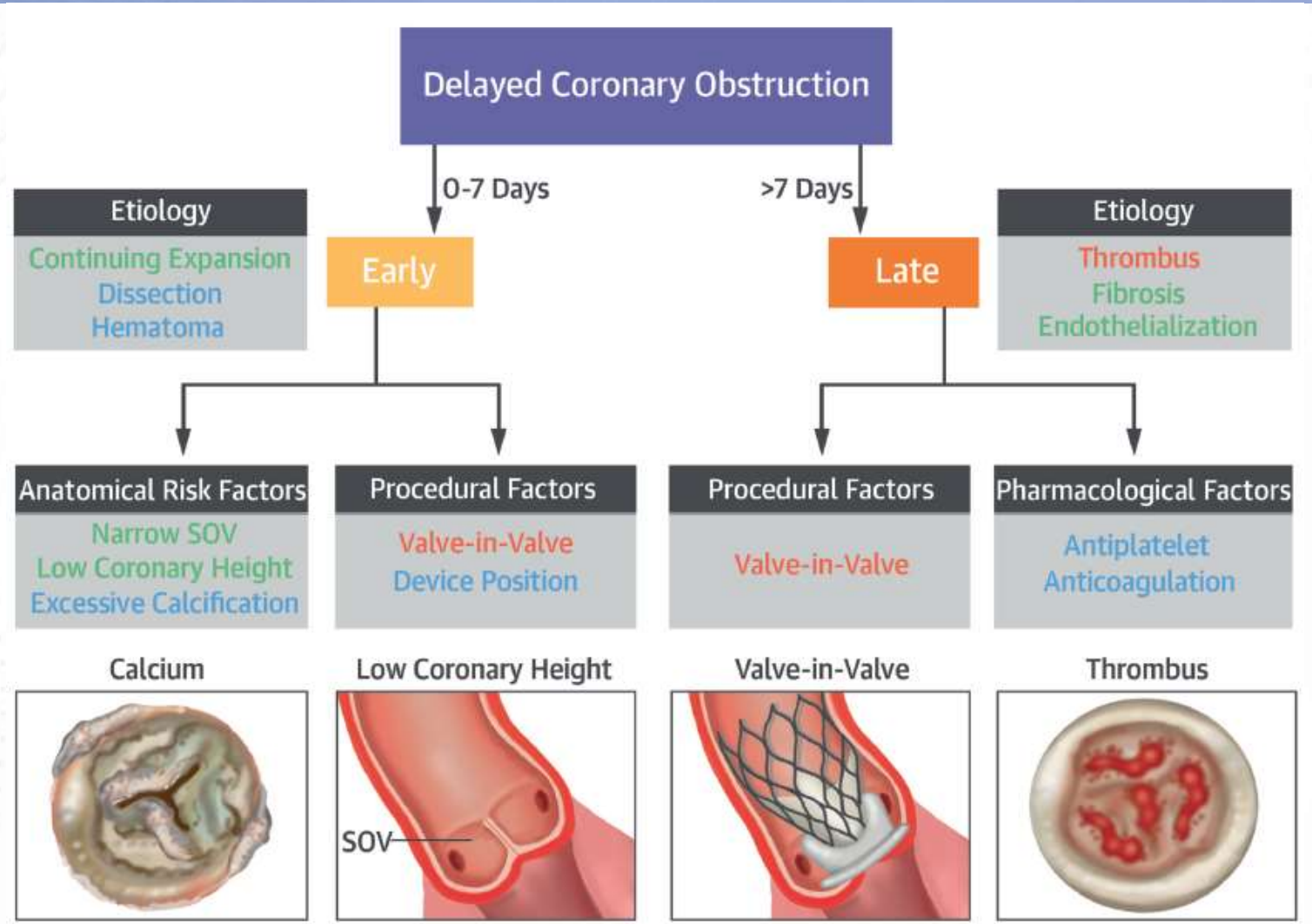


Disclosure

No potential conflicts of interest

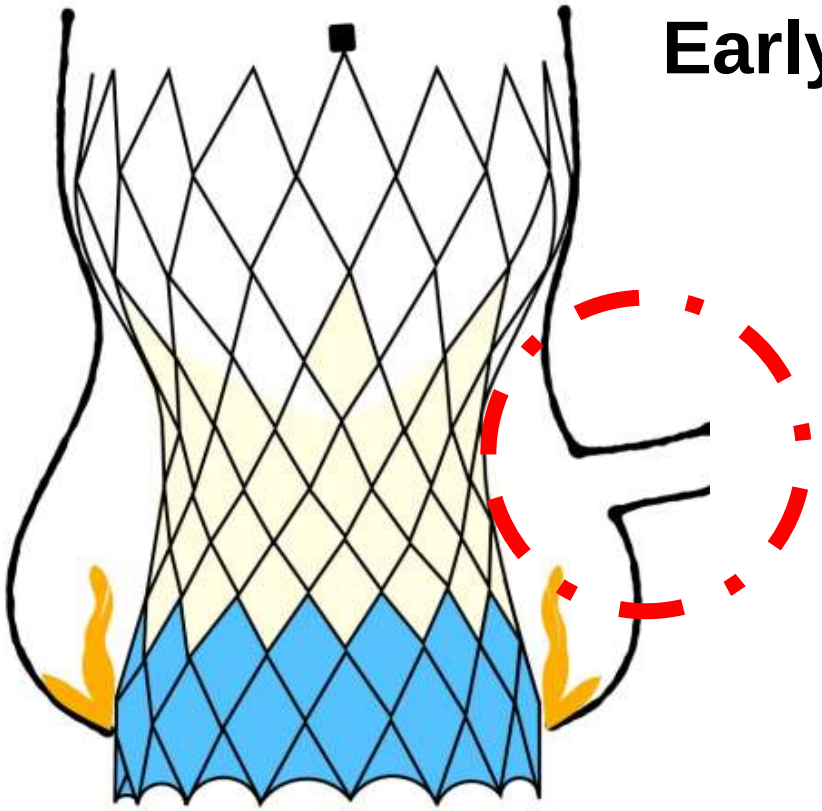
Thank You

Delay Coronary Obstruction



Jabbour, R.J. et al. J Am Coll Cardiol.

Early Delay Coronary Obstruction



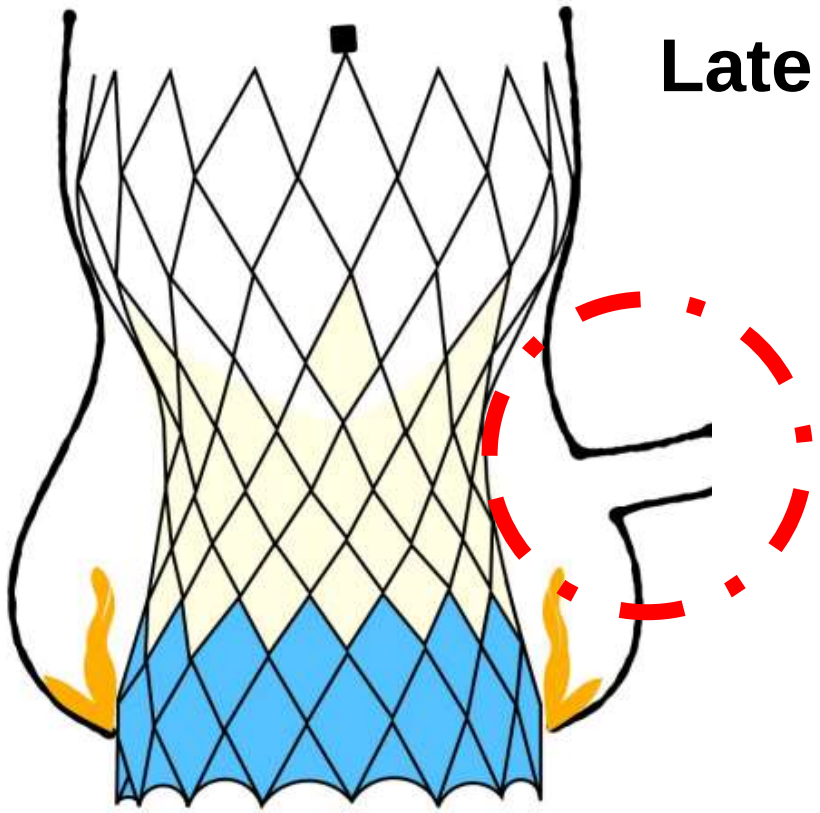
Early (0 - 7 days) Delay Coronary Obstruction

Continuing Expansion

Dissection

Hematoma

Late Delay Coronary Obstruction



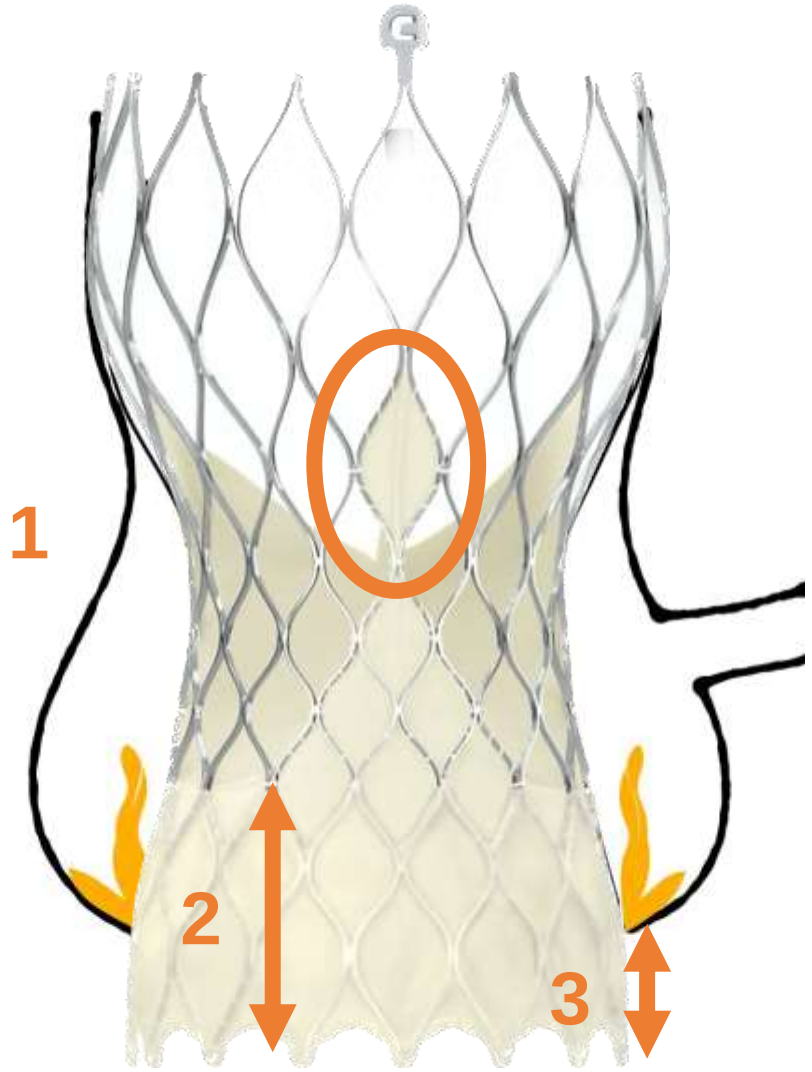
Late (> 7 days) Delay Coronary Obstruction

Fibrosis

Endothelialization

Thrombus

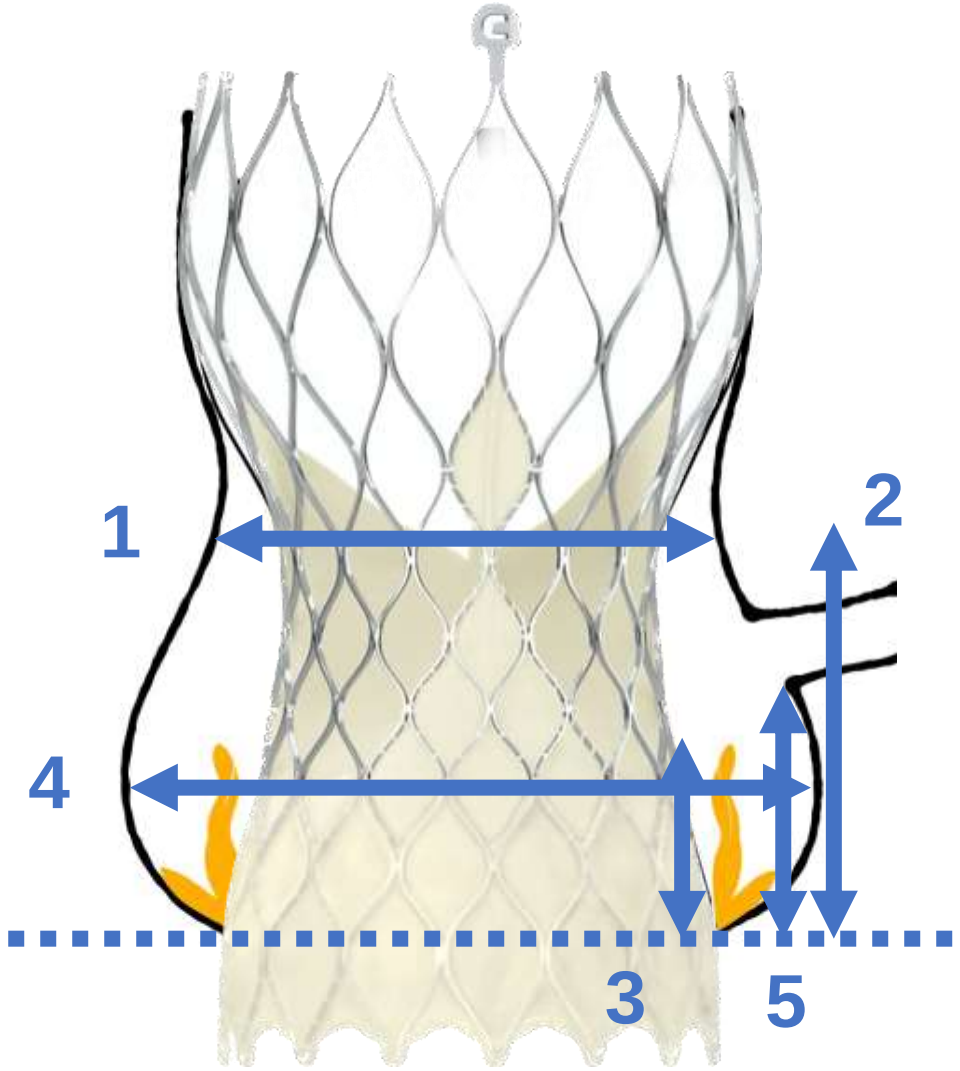
Device Factors



Early **Delay Coronary Obstruction**

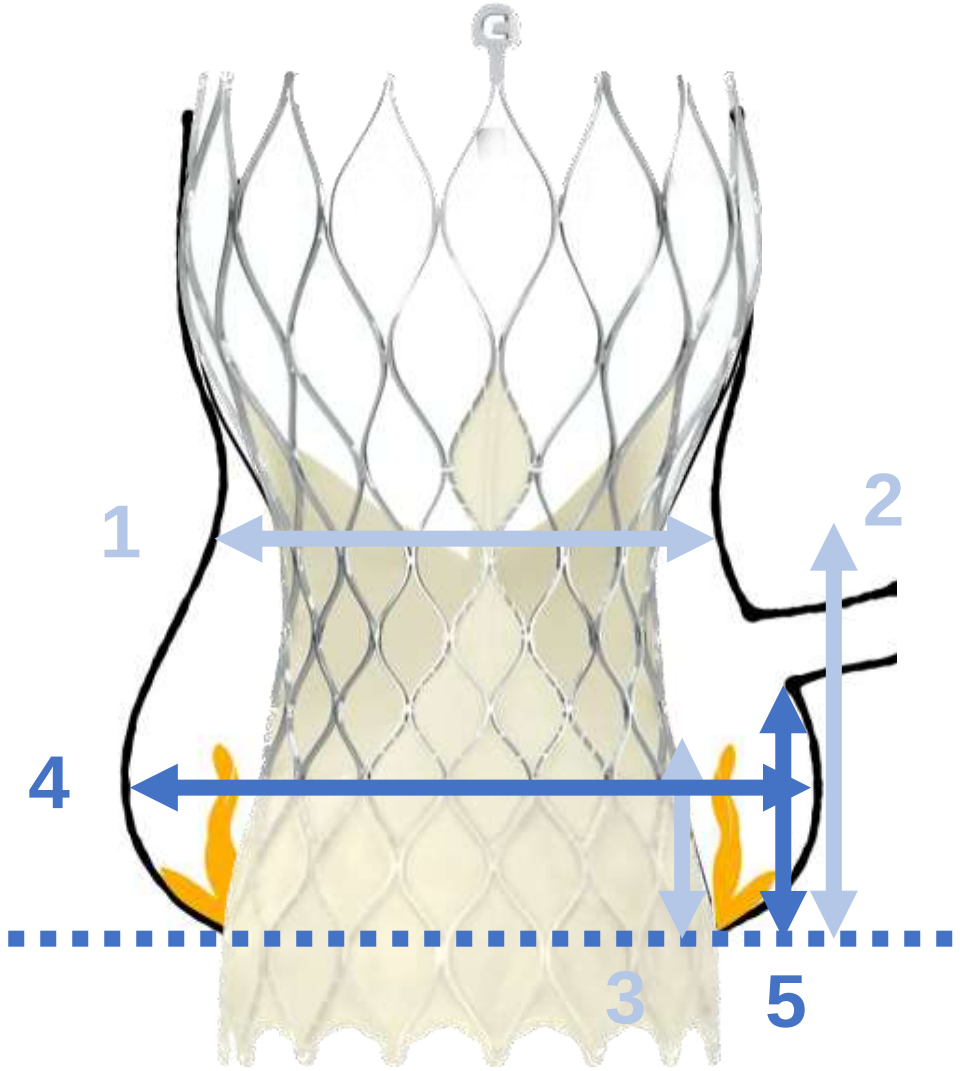
1. **Commissural tab orientation**
2. **Sealing skirt height**
3. **Valve implant depth**

Anatomical Factors



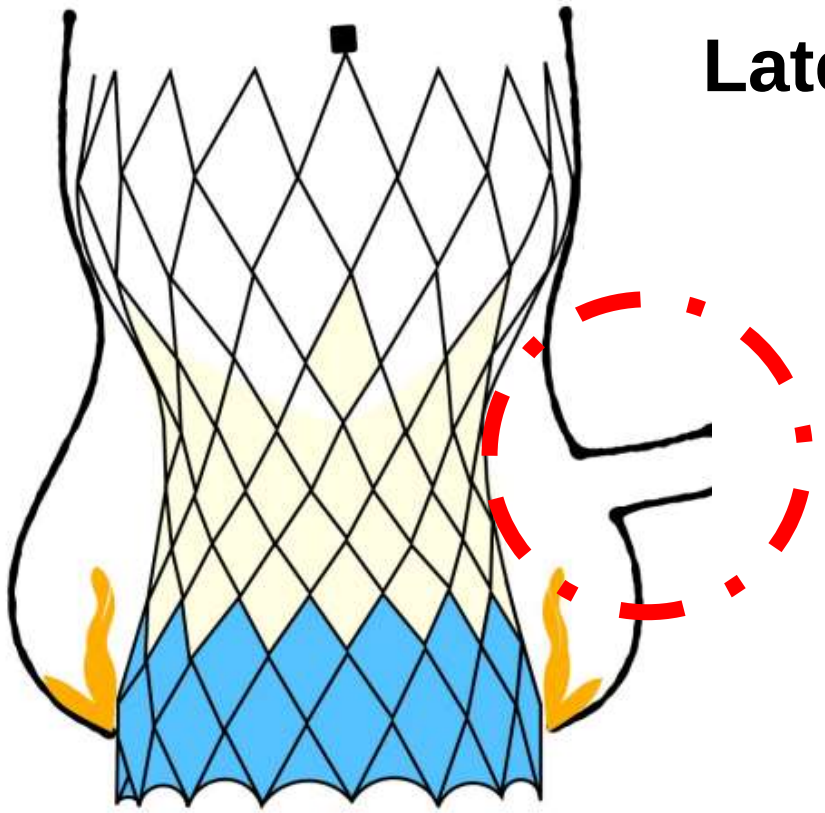
1. Sinotubular junction dimensions
2. Sinus height
3. Leaflet length and bulkiness
4. Sinus of Valsalva width
5. Coronary height

Anatomical Factors



1. Sinotubular junction dimensions
2. Sinus height
3. Leaflet length and bulkiness
4. **Sinus of Valsalva width < 28mm**
5. **Coronary height < 10mm**

Late Delay Coronary Obstruction



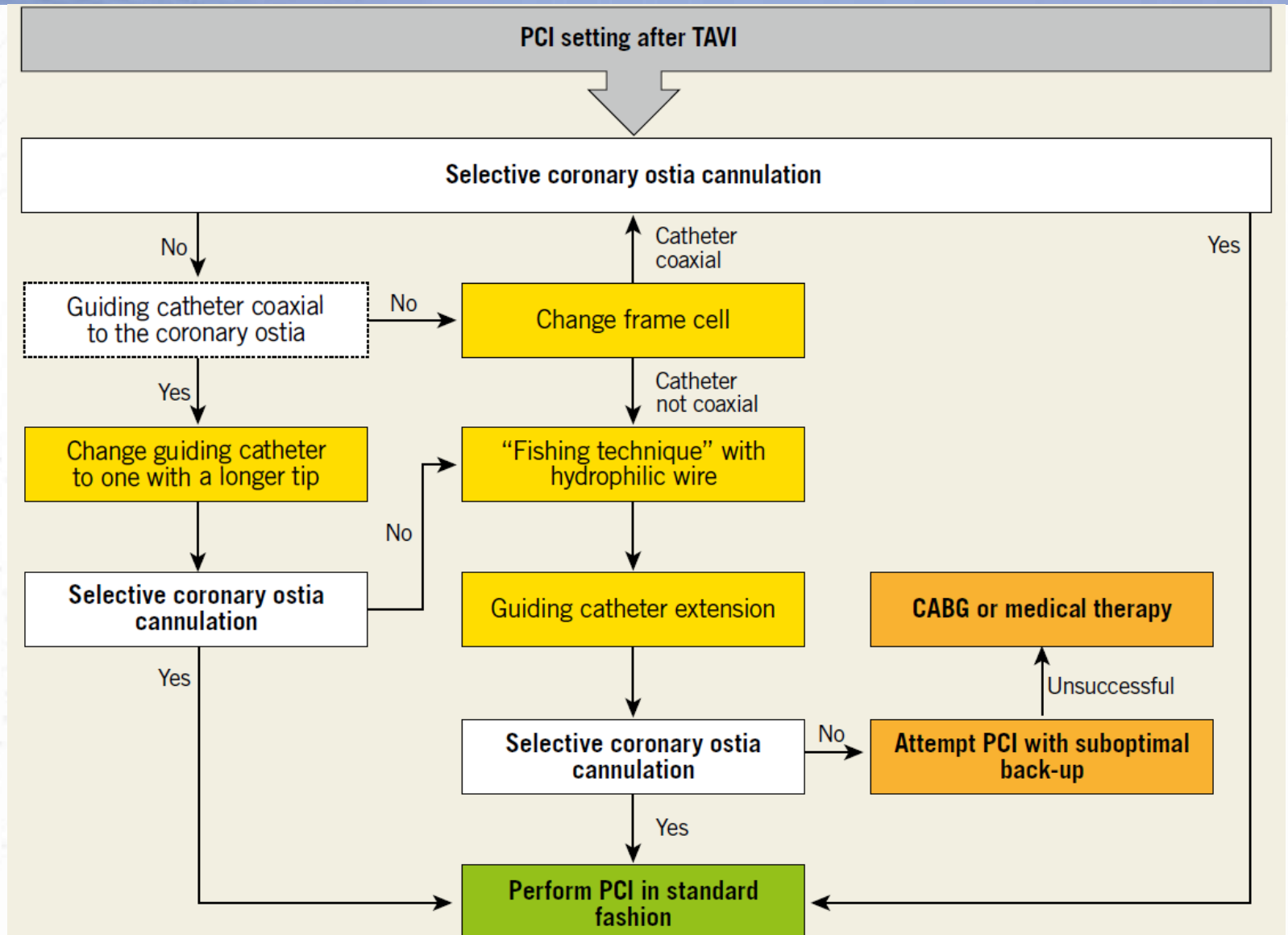
Late (> 7 days) Delay Coronary Obstruction

Fibrosis

Endothelialization

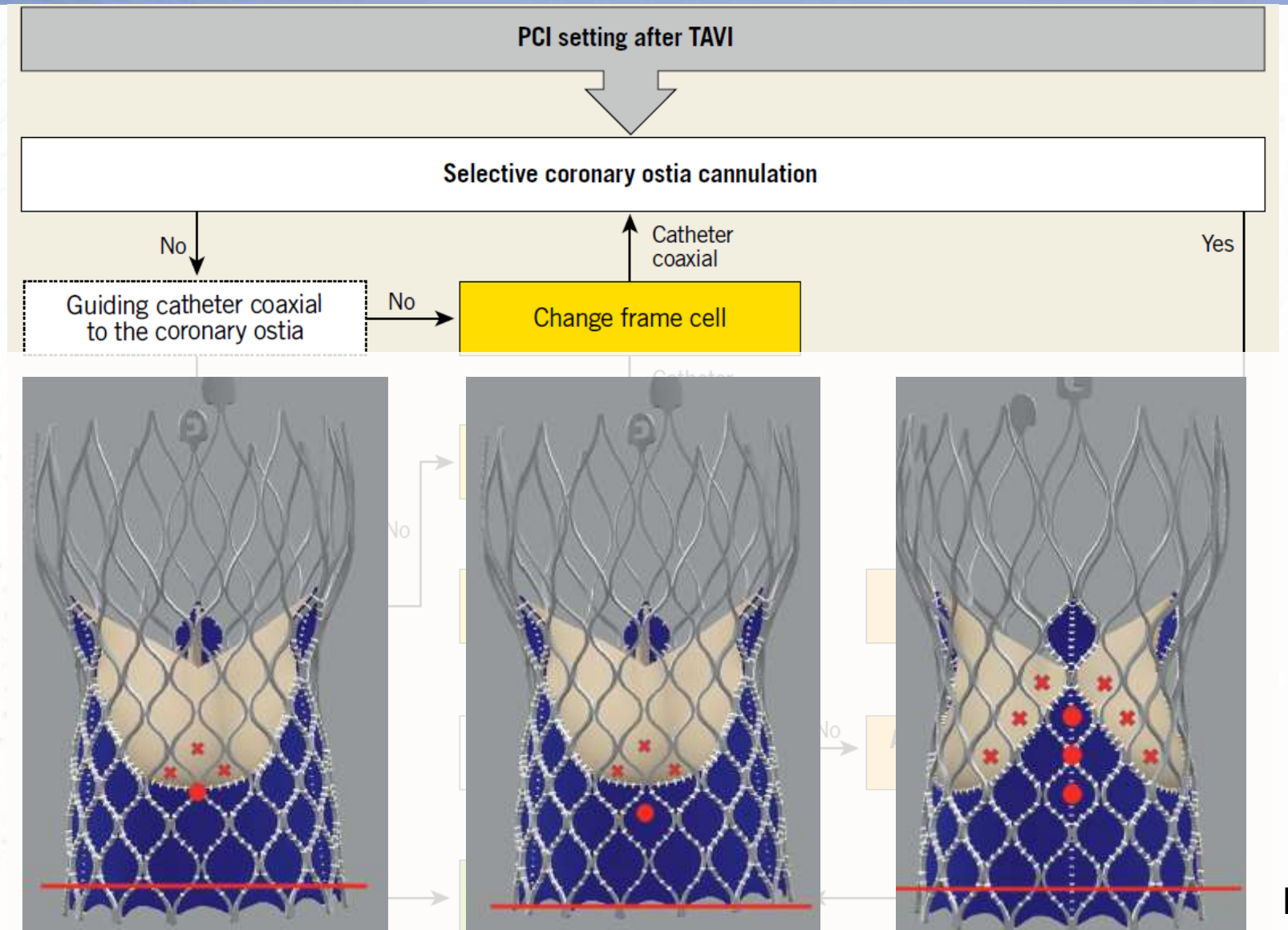
~~**Thrombus**~~

PCI After TAVR



EuroIntervention 2021;

PCI After TAVR – Selective Cannulation



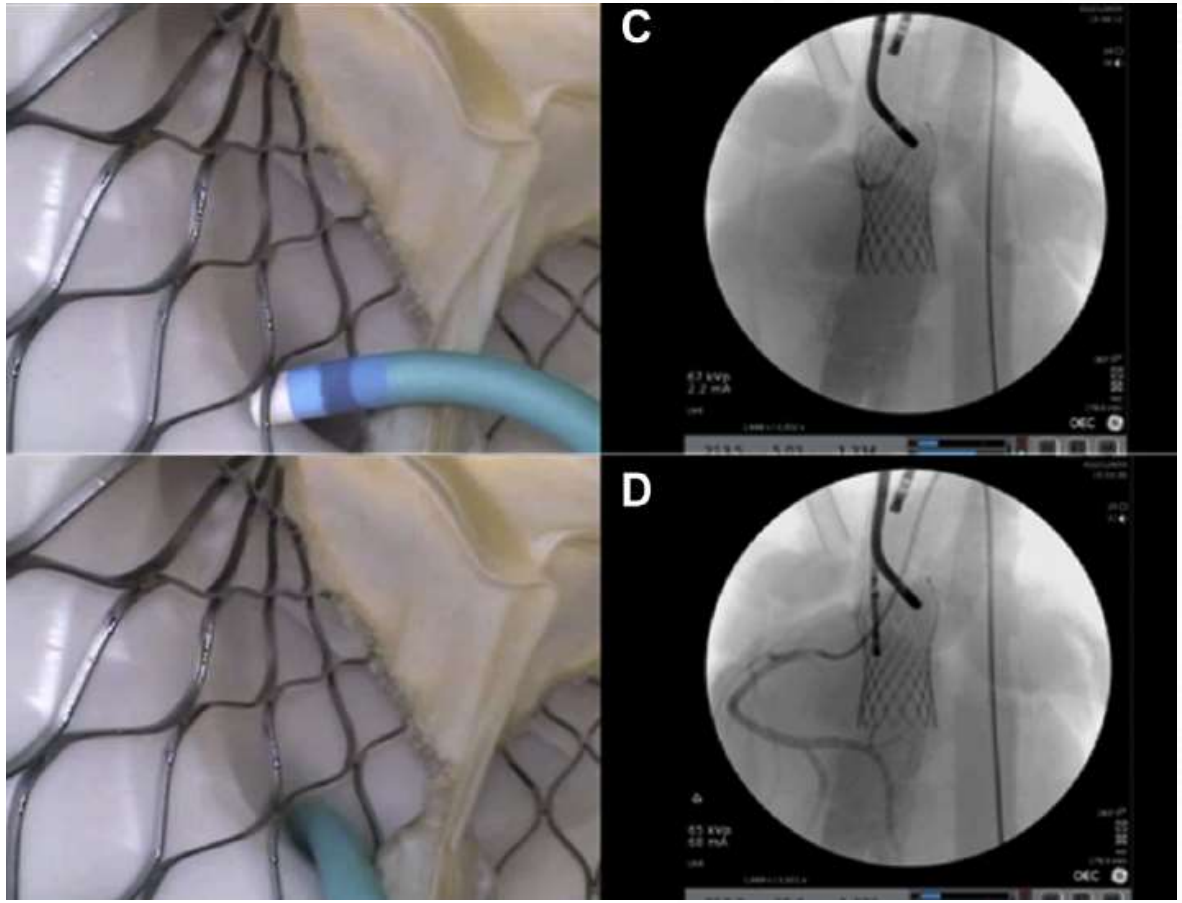
EuroIntervention 2021;

PCI After TAVR – Selective Cannulation

Select Frame Cell

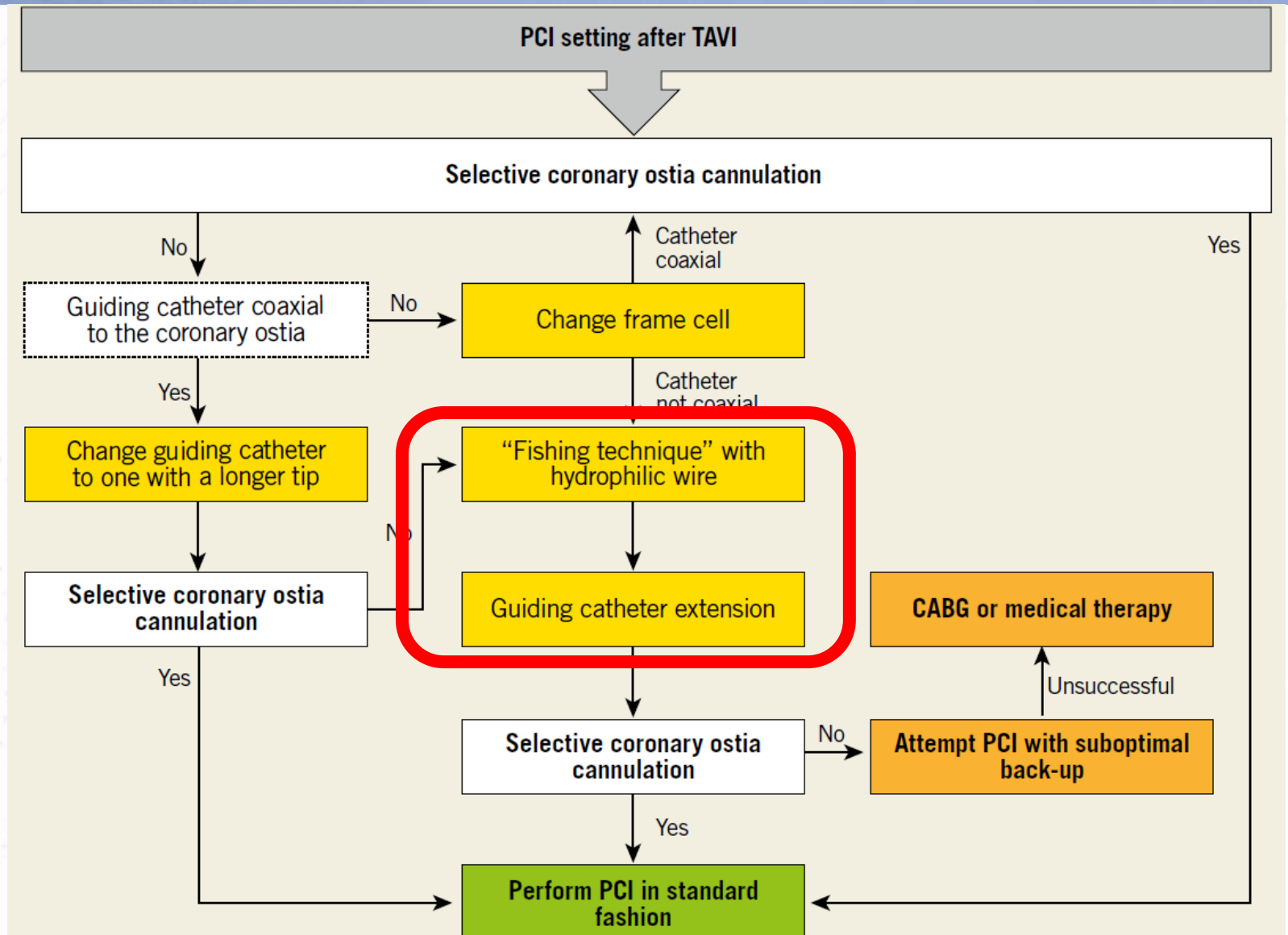
LM
JL 3.5 JL 3.0
JR 4 MP

RCA
JR 4 JR 4.5
AR 2 (wide sinuses)



JACC : CARDIOVASCULAR INTERVENTIONS VOL. 14, NO. 9, 2021

PCI After TAVR
Fishing Technique & Guide Cathteter Extension



EuroIntervention 2021;

PCI After TAVR – Selective Cannulation

Select Frame Cell

LM
JL 3.5 JL 3.0 JR 4
Multipurpose (MP)

RCA
JR 4 JR 4.5
AR 2 (wide sinuses)

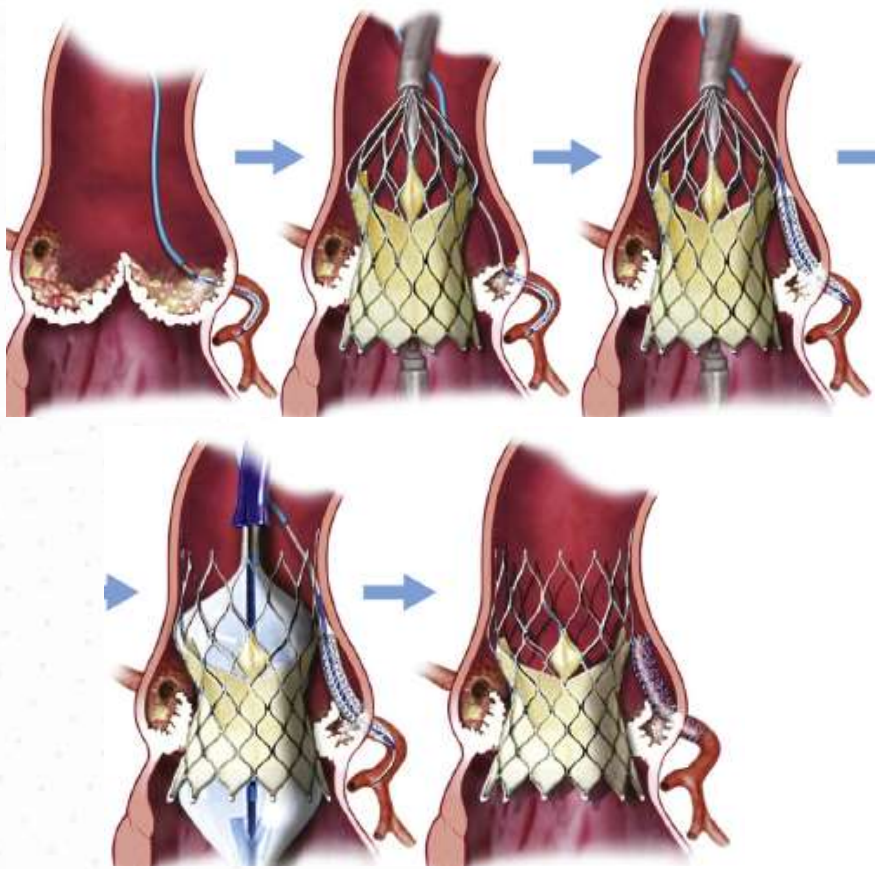
Fishing Technique

Hydrophilic wire

Guide Catheter Extension

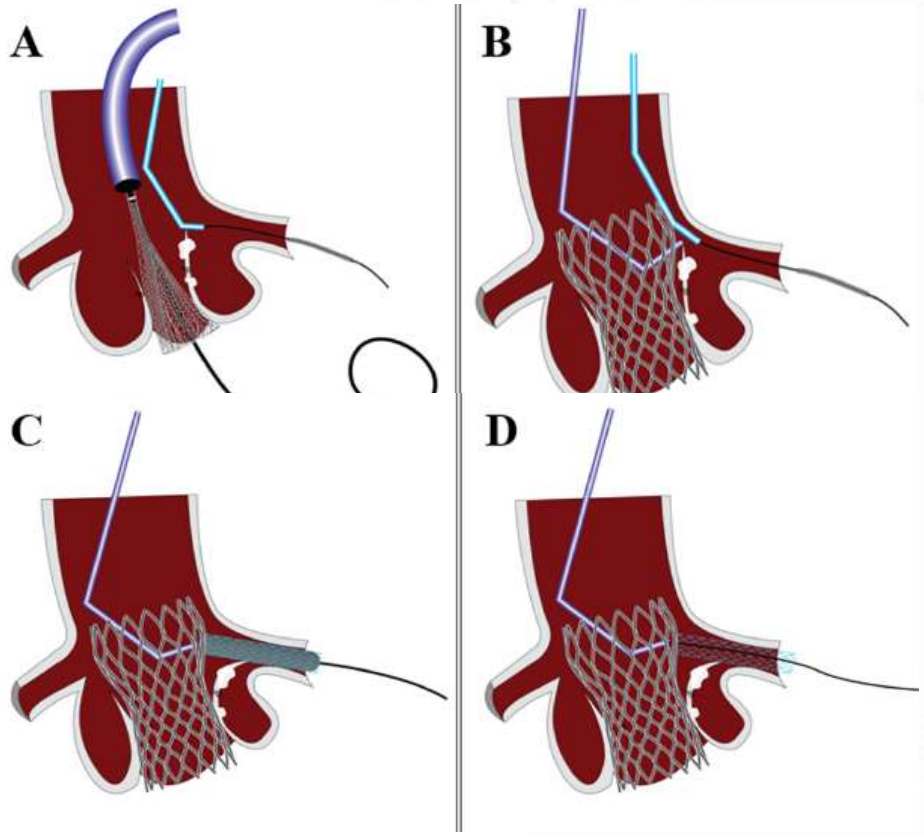
Prevent Coronary Artery Obstruction
Snorkel Technique & Orthotopic Snorkel Technique

Snorkel Technique



Mercanti, F. et al. J Am Coll Cardiol Intv. 2020

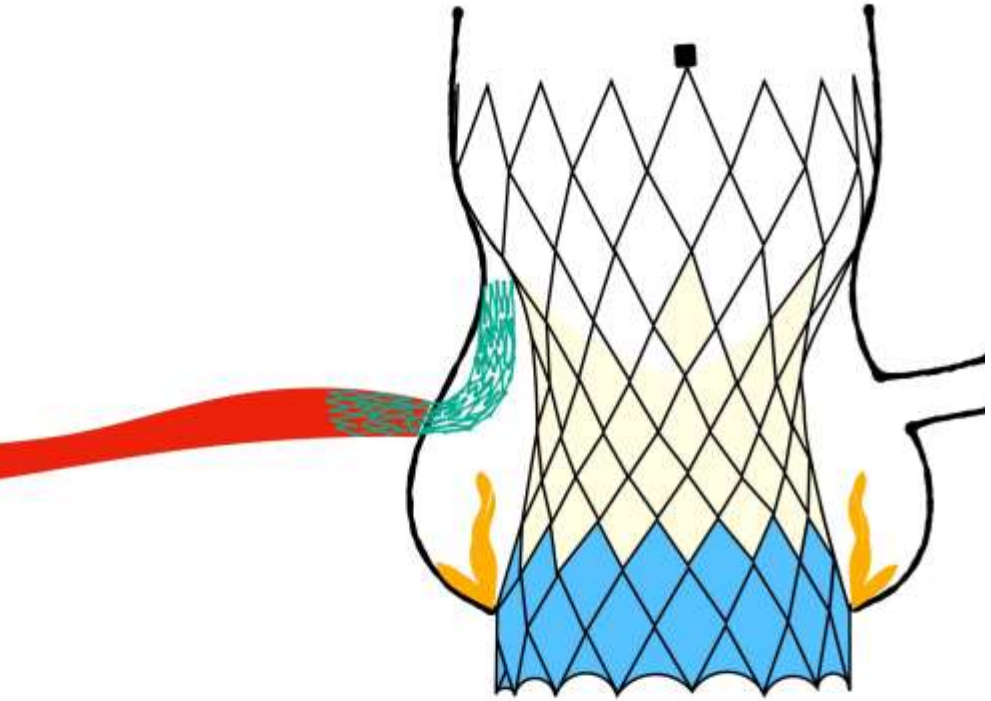
Orthotopic Snorkel Technique



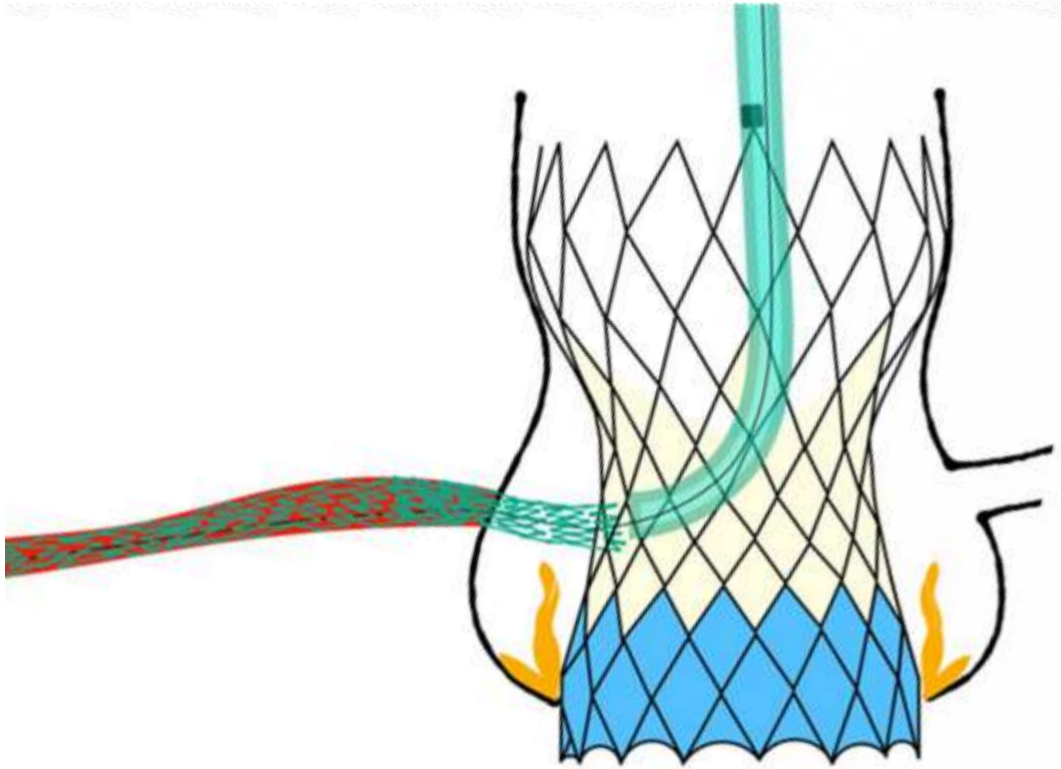
Cardiovascular Revascularization Medicine (2020)

Prevent Coronary Artery Obstruction
Snorkel Technique & Orthotopic Snorkel Technique

Snorkel Technique



Orthotopic Snorkel Technique



Chimney/Snorkel Technique

60 /12800 Patients

42 ViV

73.5% coronary height < 10mm

58.4% SoV < 30mm

Anatomical risk factors **93%**

CAO if No Coronary protect **3x**

Late stent thrombosis at 1 year **3.5%**

Mercanti, F. et al. J Am Coll Cardiol Intv. 2020