

Tips and Tricks for Ostial LM PCI

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Disclosure

I have the following potential conflicts of interest to report:

Grant/Research Support: Asahi Intecc

Proctoring Fees/ Speakers Honoraria: Boston Scientific, Abbott

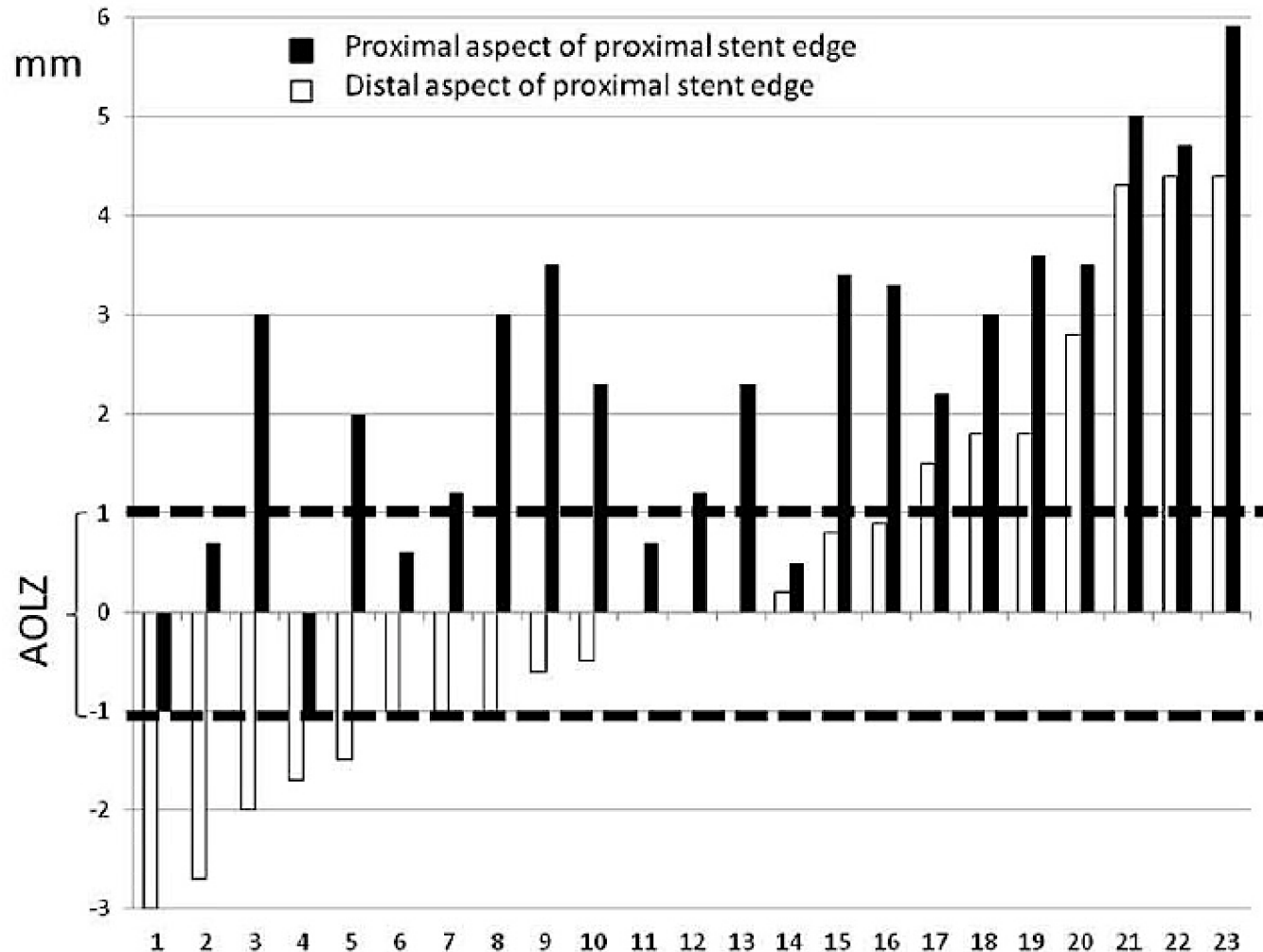
Vascular, Medtronic, Bio-Excel, Teleflex Medical

Challenges in Ostial Stenting

Major Problems:

1. Accurately identifying the ostial location
2. Stent motion making accurate positioning difficult
3. High concentration of muscle / elastic fibers increasing recoil
4. Calcification

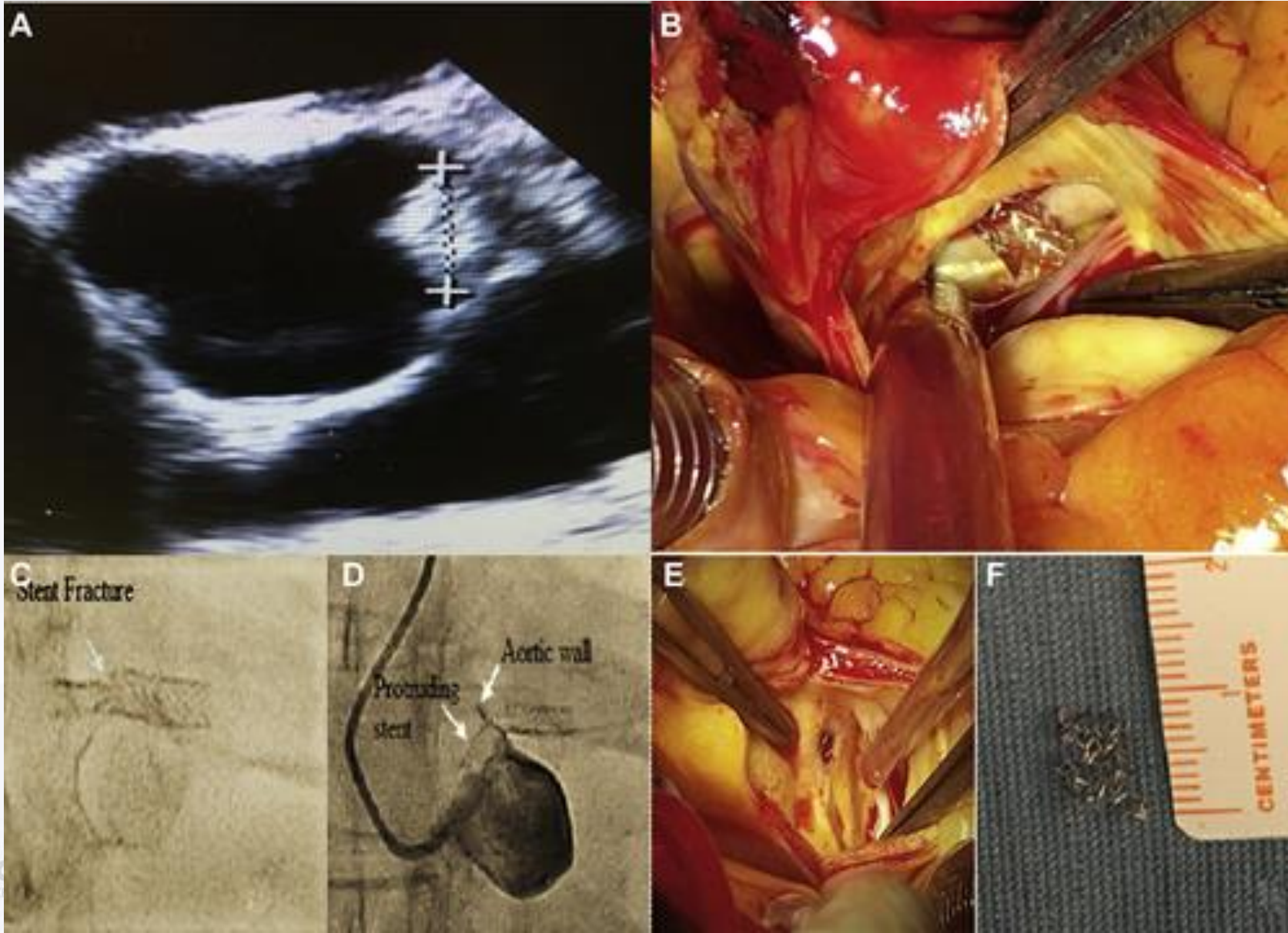
Outcomes of ostial stenting



23 patients who has aorto-ostial stenting assessed with CTCA
Only 13% of stents proximal edge located within 1 mm of ostium

Rubinshtein R, et al. JACC 2013. Volume 61, Issue 10

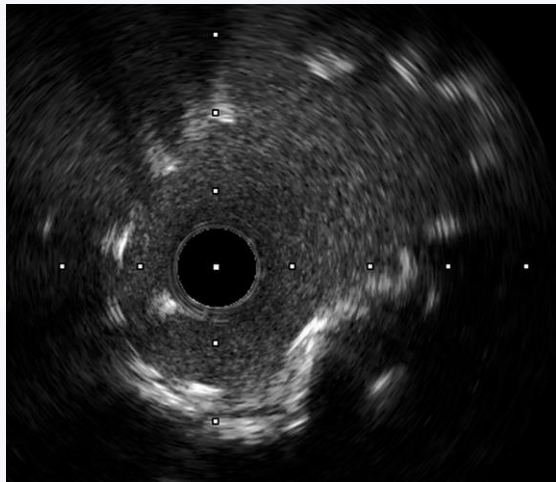
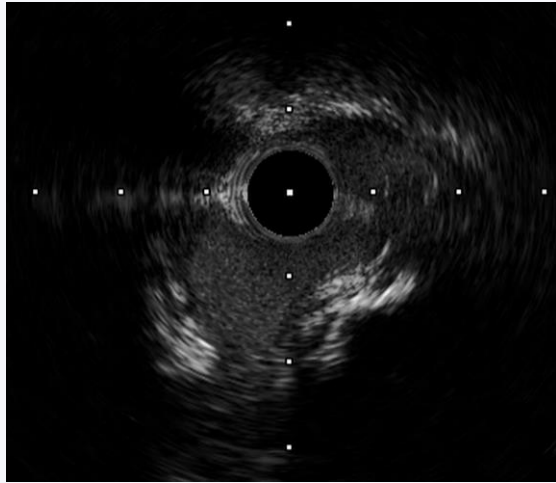
Challenges in Ostial Stenting



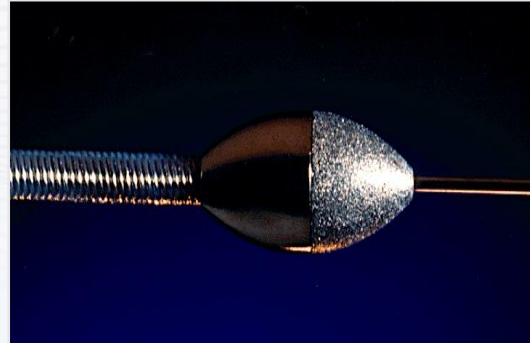
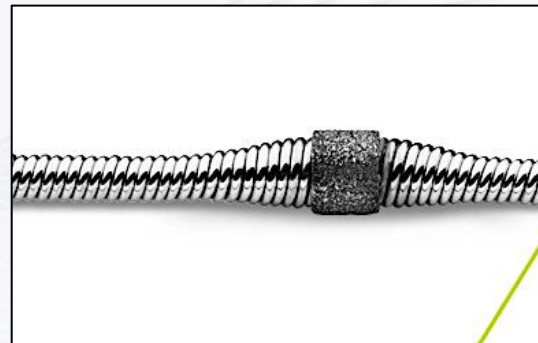
Left Main Coronary Artery
Stent Misadventure, JACCAS.
2020;Volume: 2, Issue: 12,
Pages: 1905-1906.

Use the Right Tools

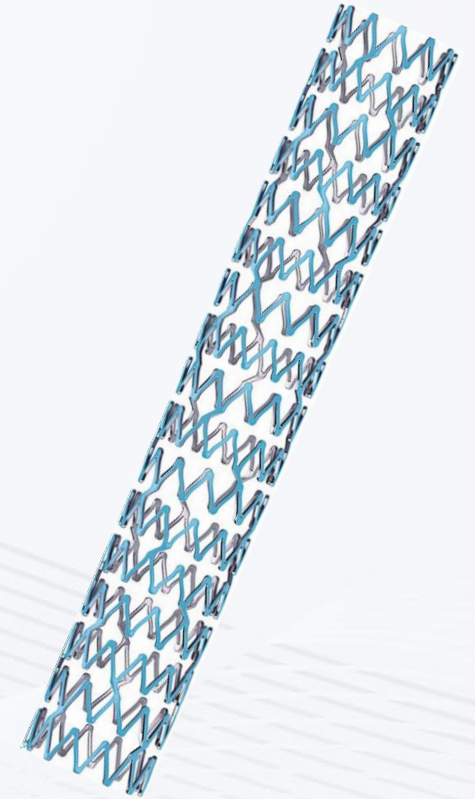
IVUS



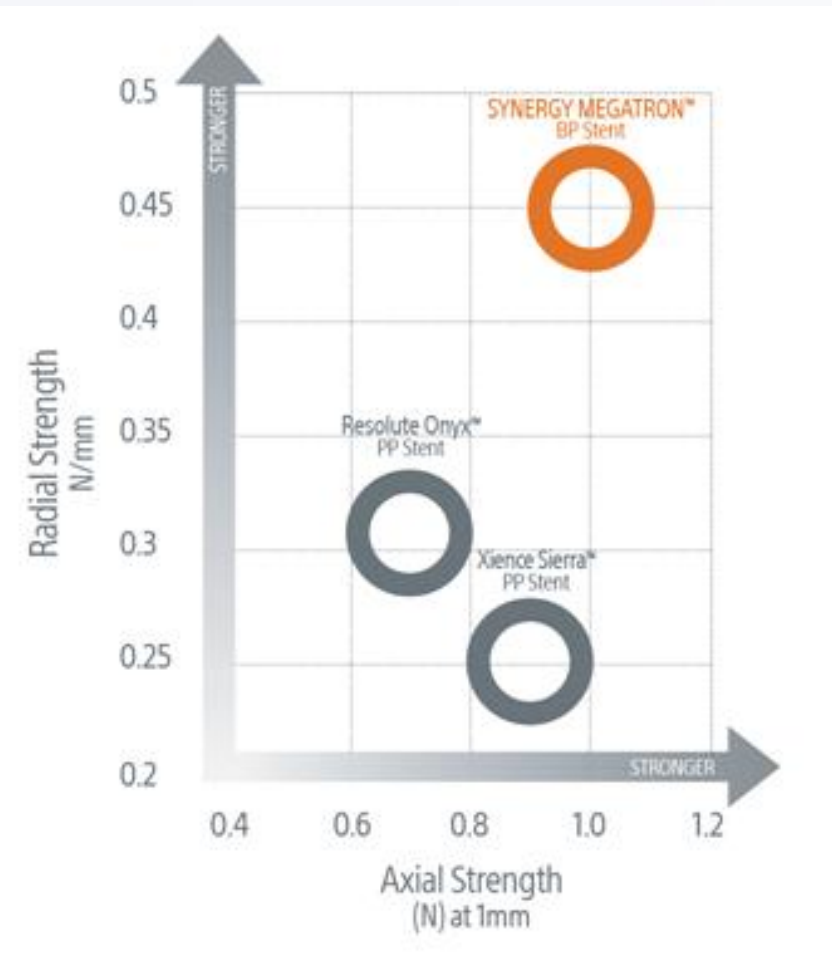
Plaque / Calcium modification



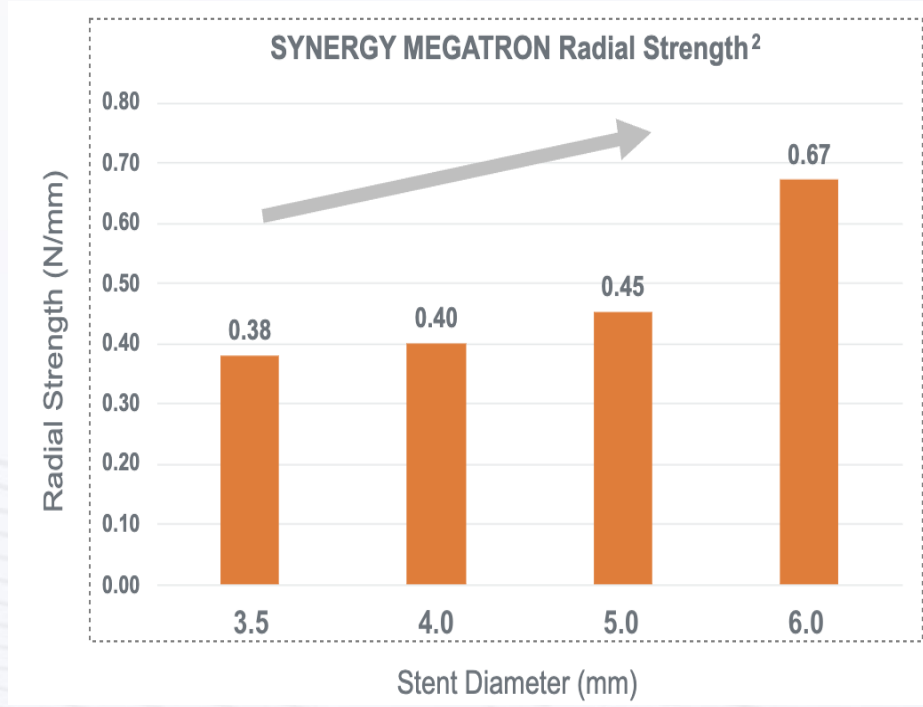
Stent Design



Use the Right Tools – Stent Design

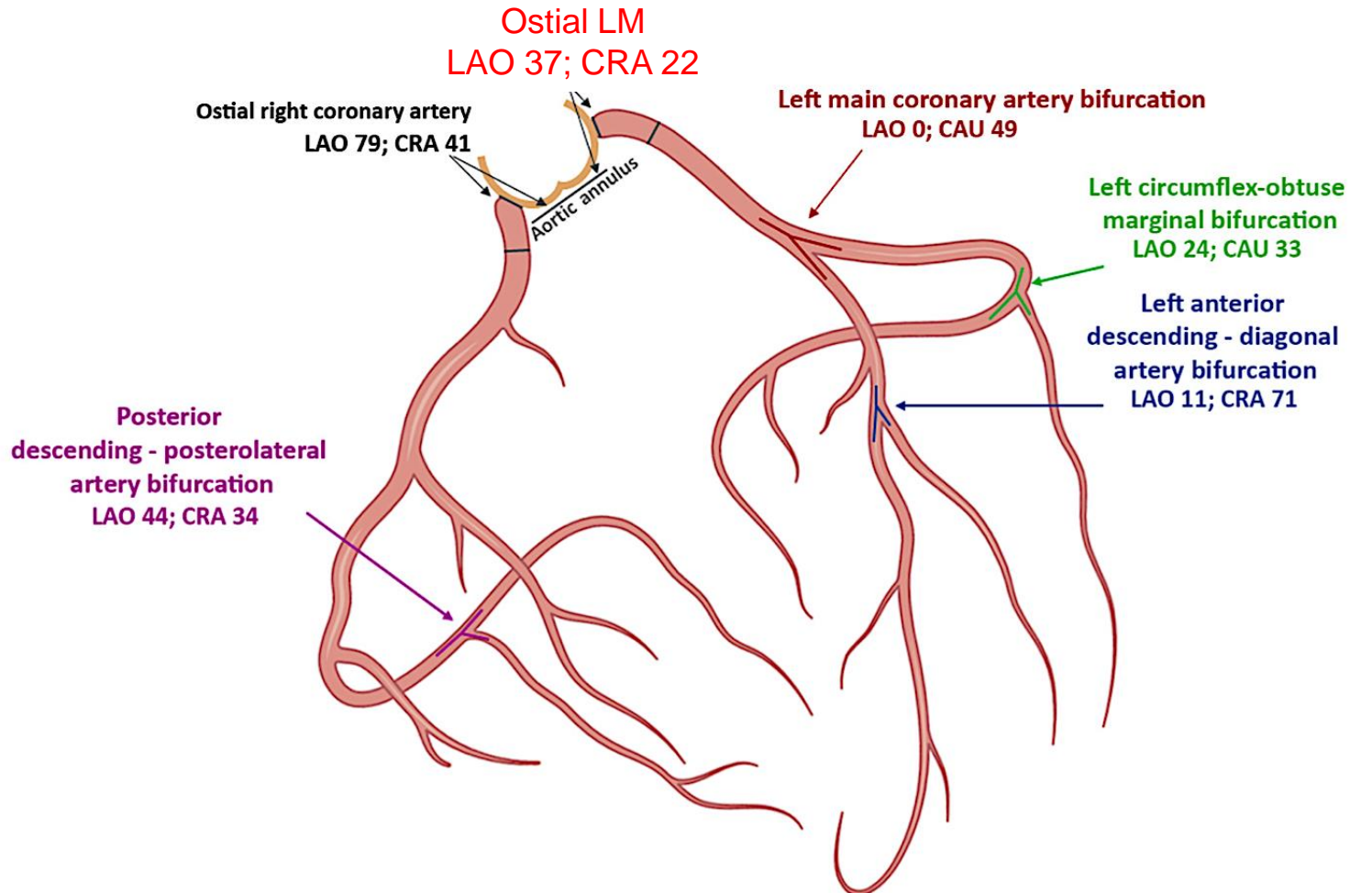


Diameter (mm)	Overexpansion Capabilities (mm)
3.50	6.00
4.00	6.00
4.50	6.00
5.00	6.00



Increased Radial Strength at Overexpansion

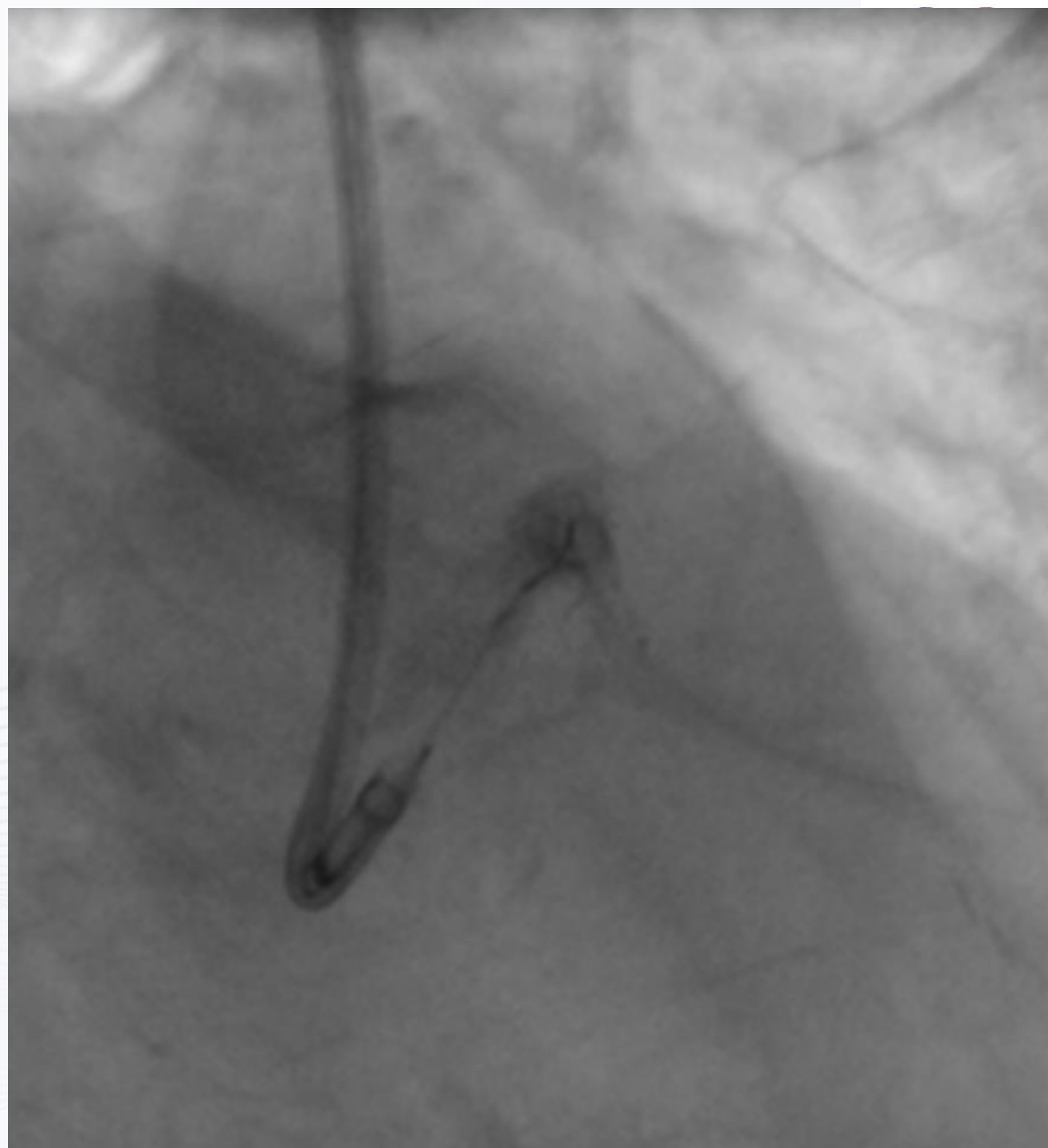
Optimal Fluoroscopic Projections of Coronary Ostia and Bifurcations Defined by Computed Tomographic Coronary Angiography



Kocka V, et al. J Am Cardiol
Intv. 2020;13(21):2560-70

IVUS ostial marking

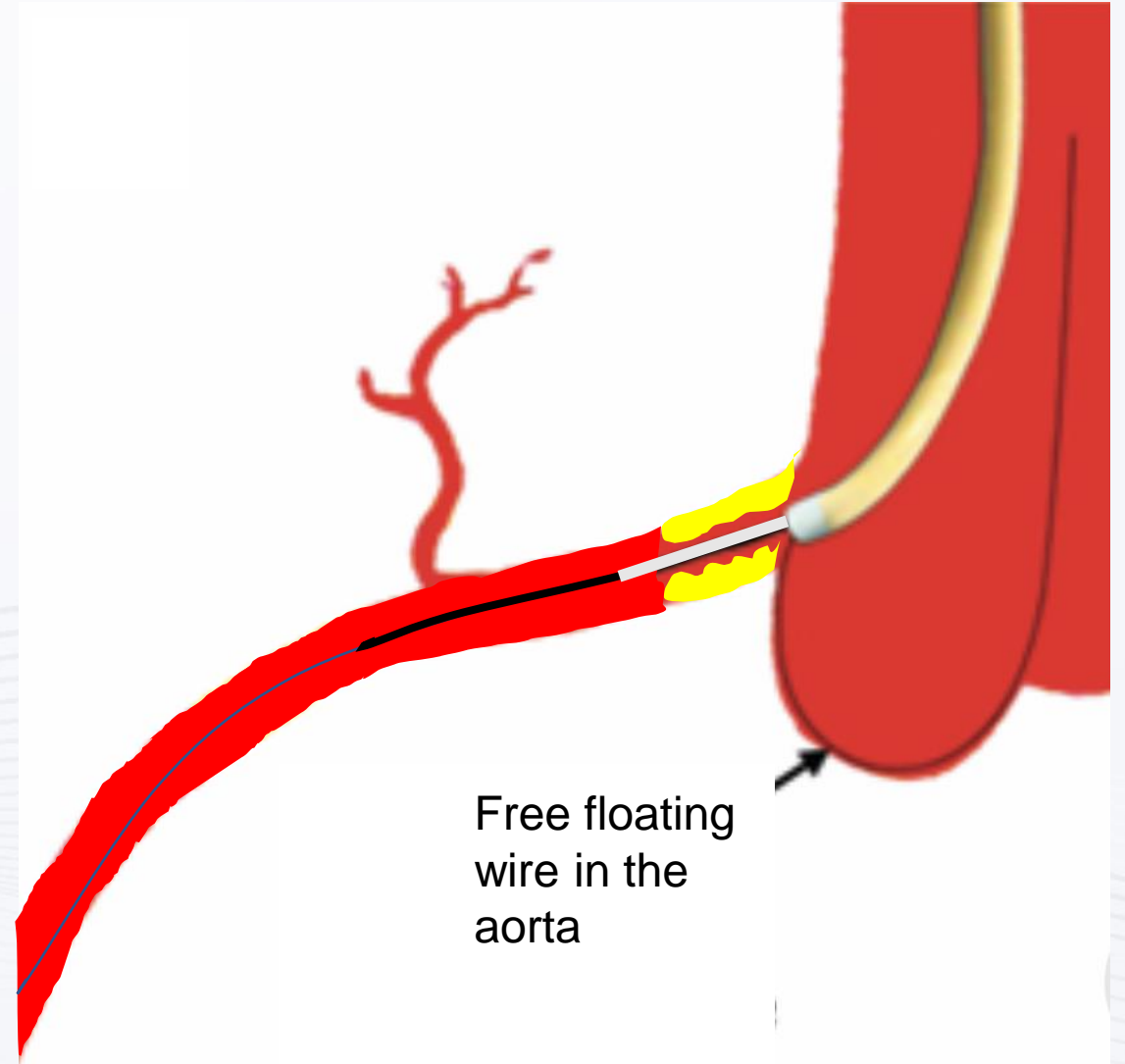
IVUS positioned in the ostium
and correlated with angiographic
view



Floating wire technique

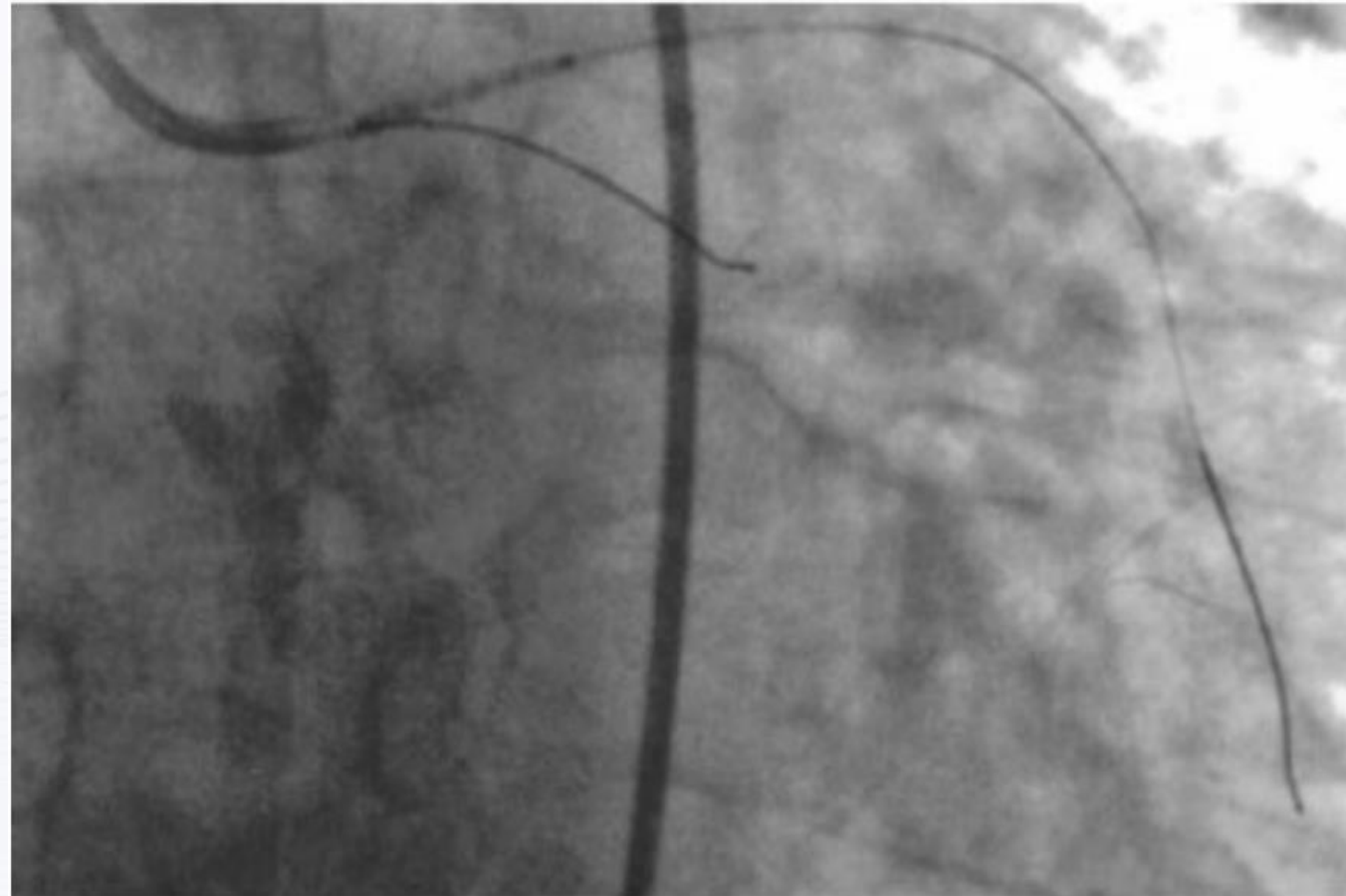
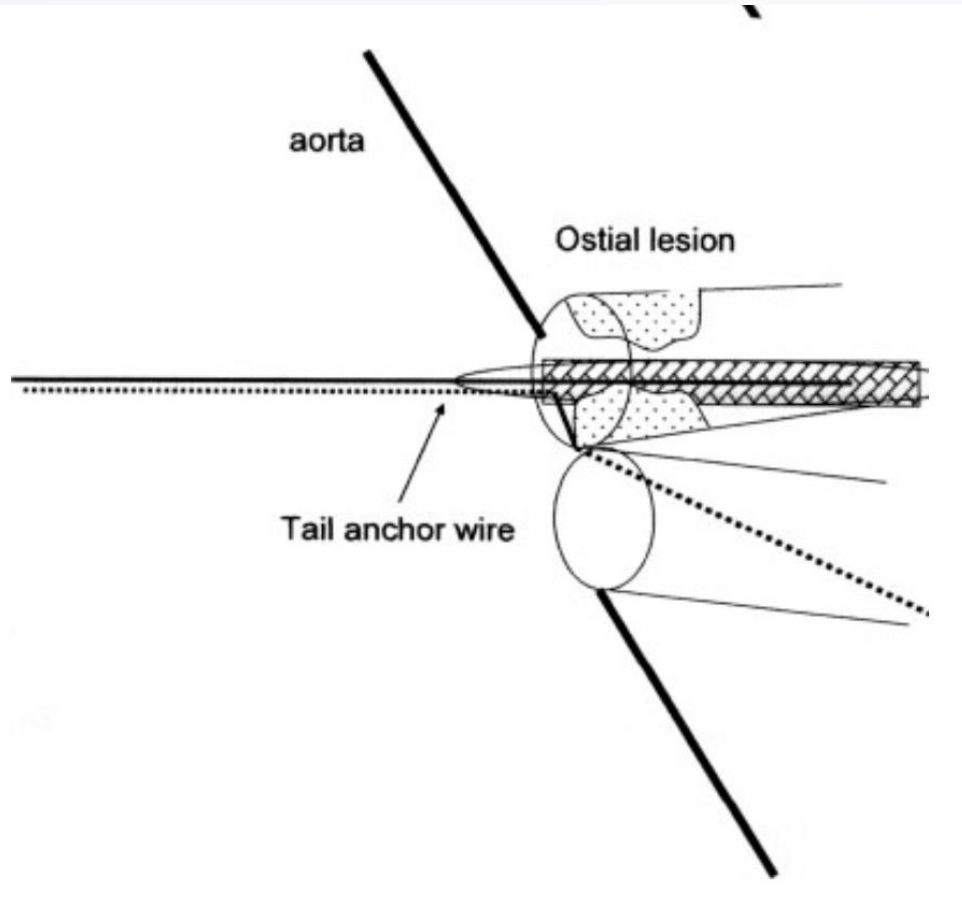
Free floating wire in the aorta

- Helps reduce stent motion
- Does not accurately identify ostial location

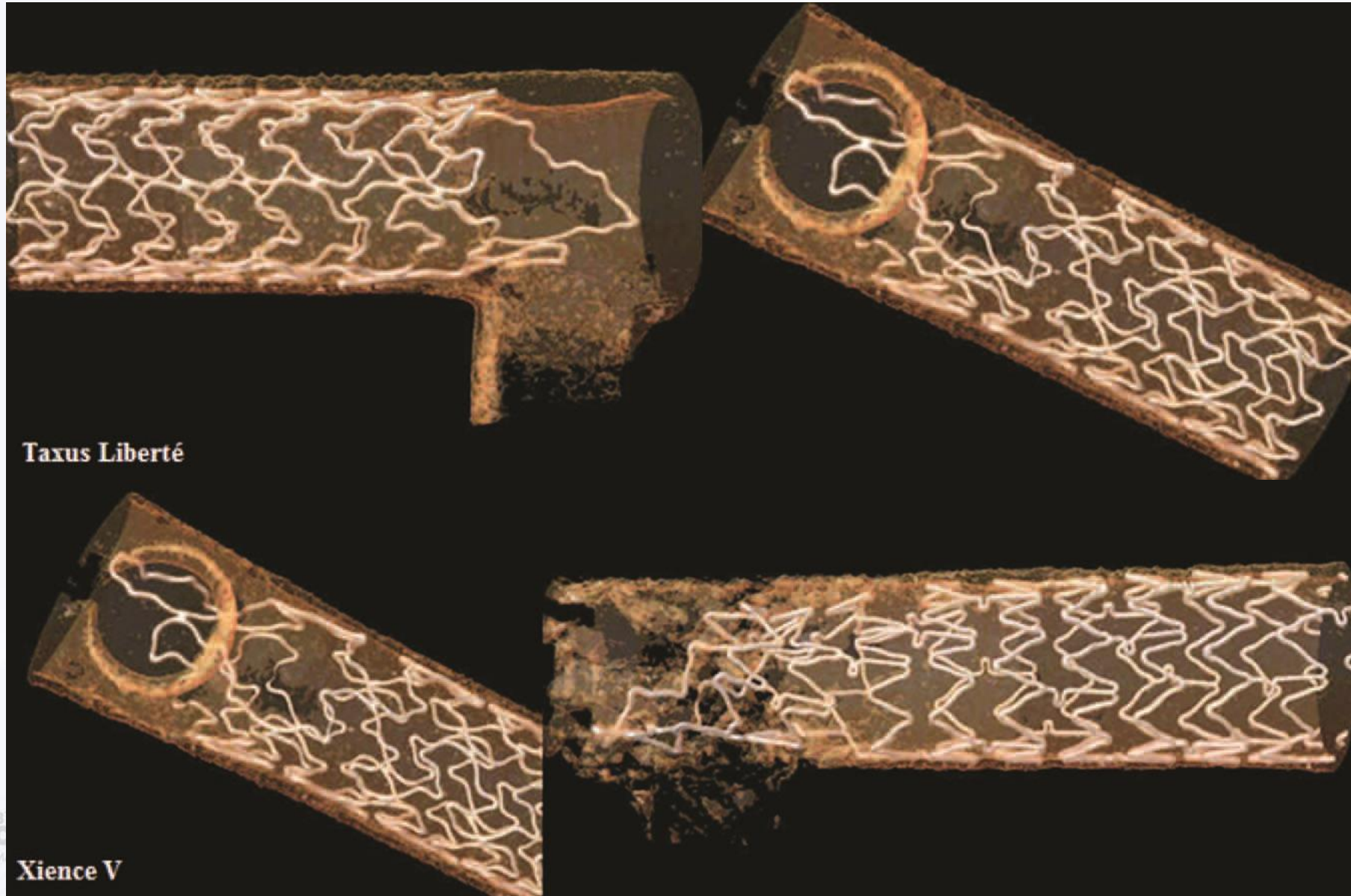


Techniques for ostial stenting

Szabo technique



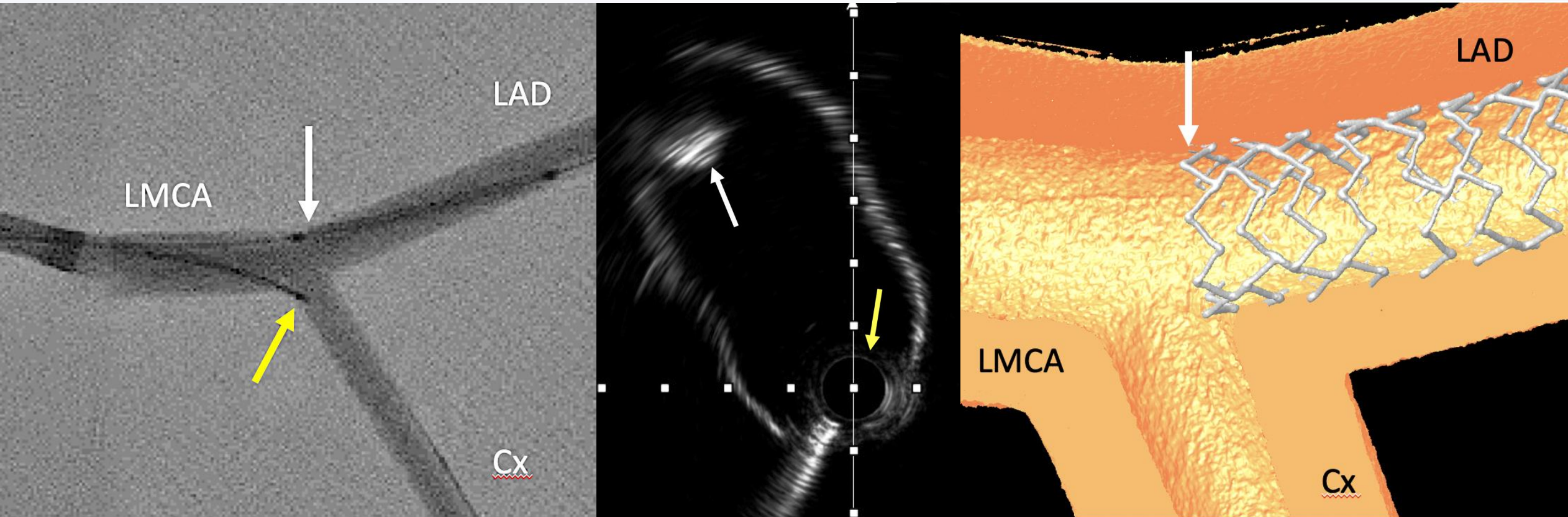
Szabo Technique for ostial Stenting



Limitations include:
Stent dislodgement
Stent deformation
Imprecise ostial

Vaquerizo B et al, Cath
Cardiovasc Interventions 2012

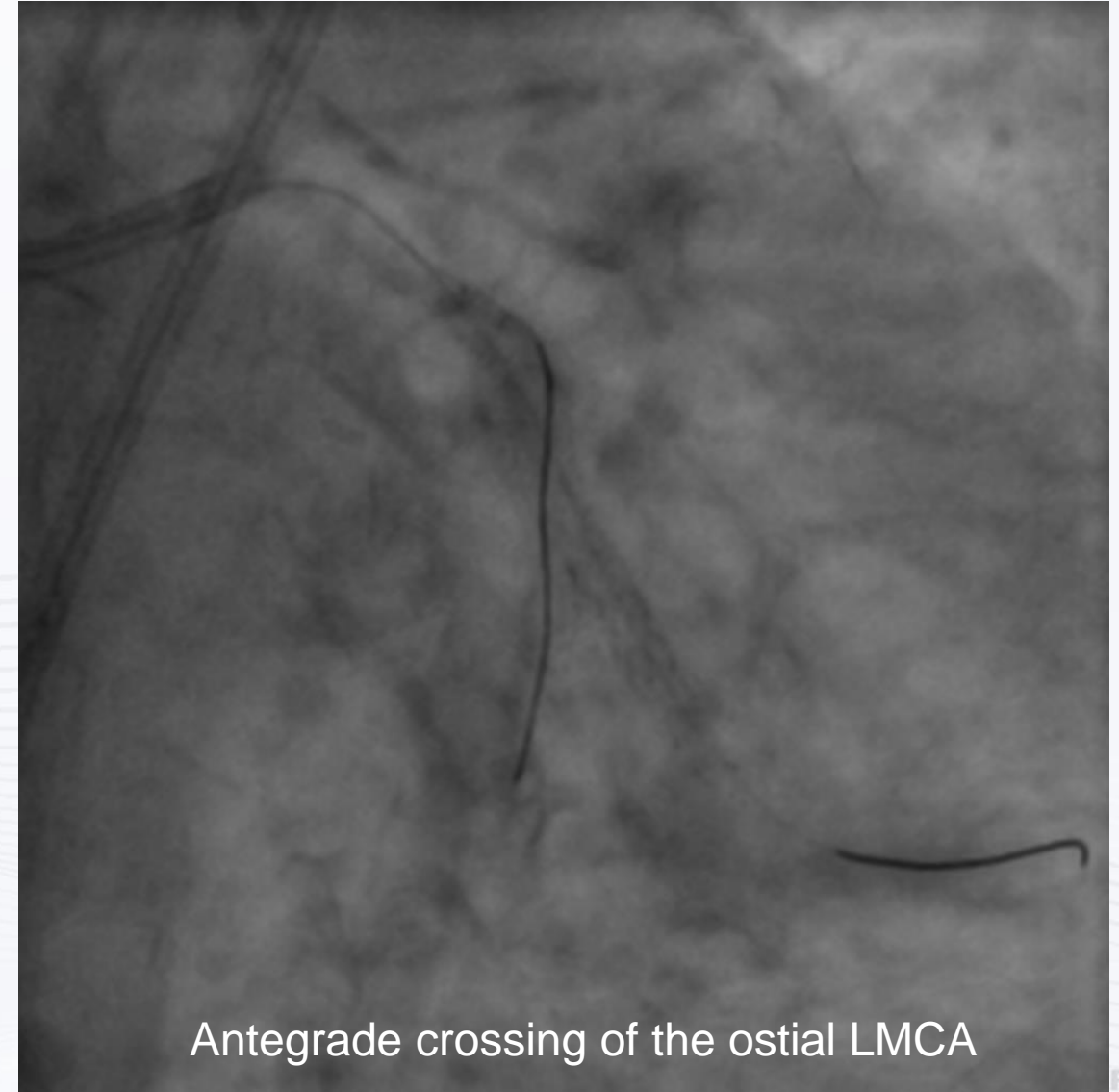
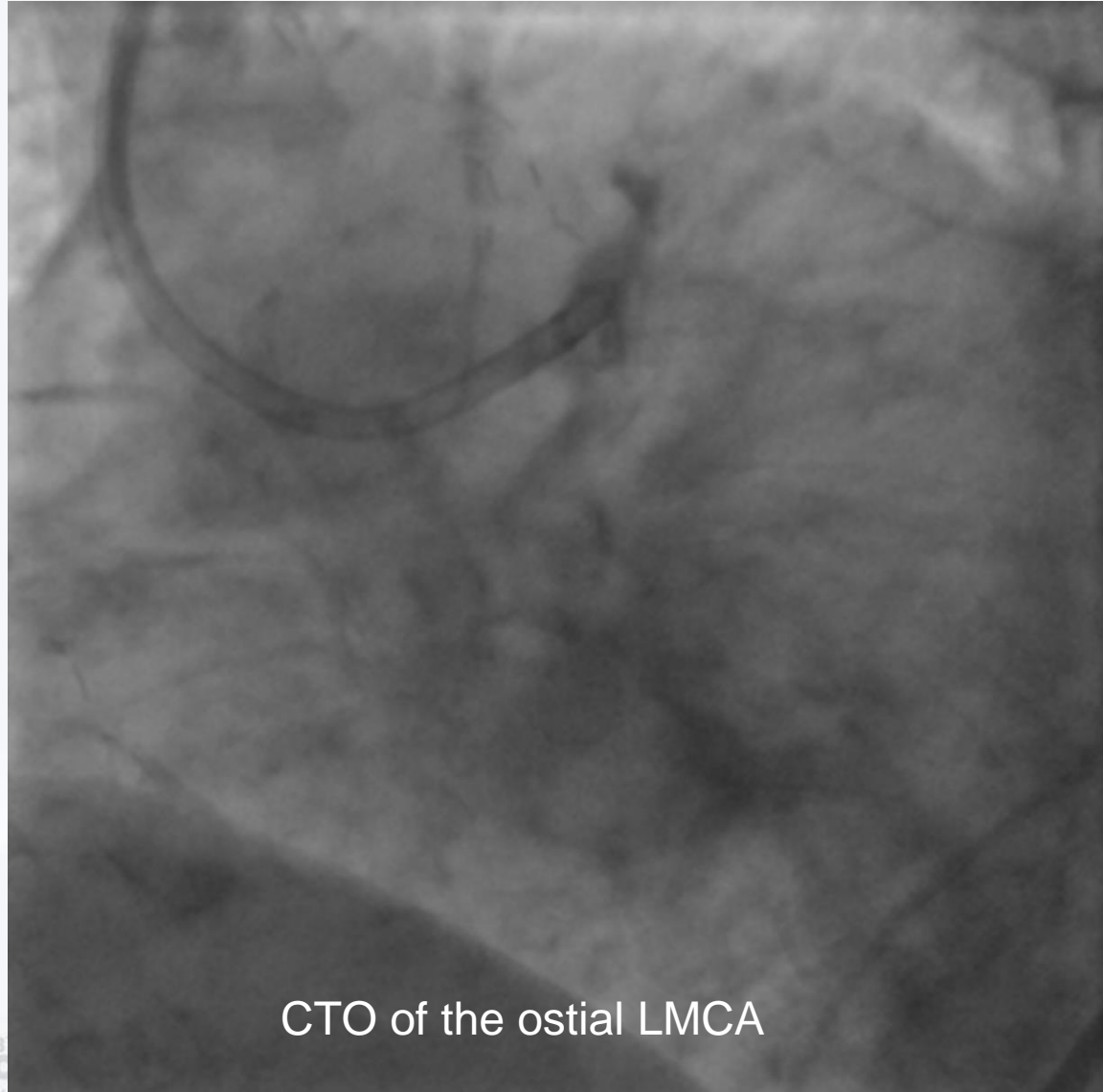
Bench testing of real-time IVUS guided ostial stent placement



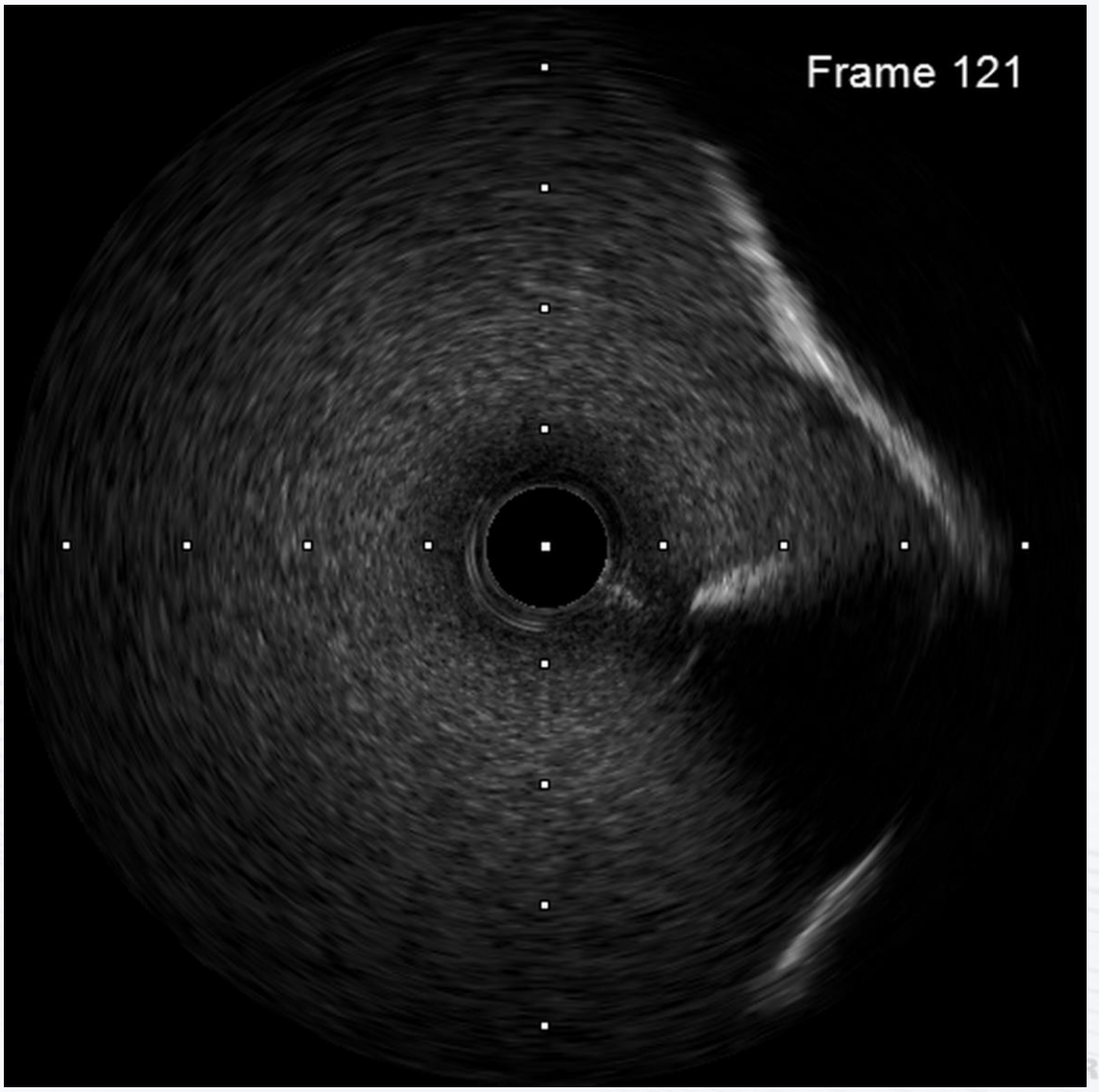
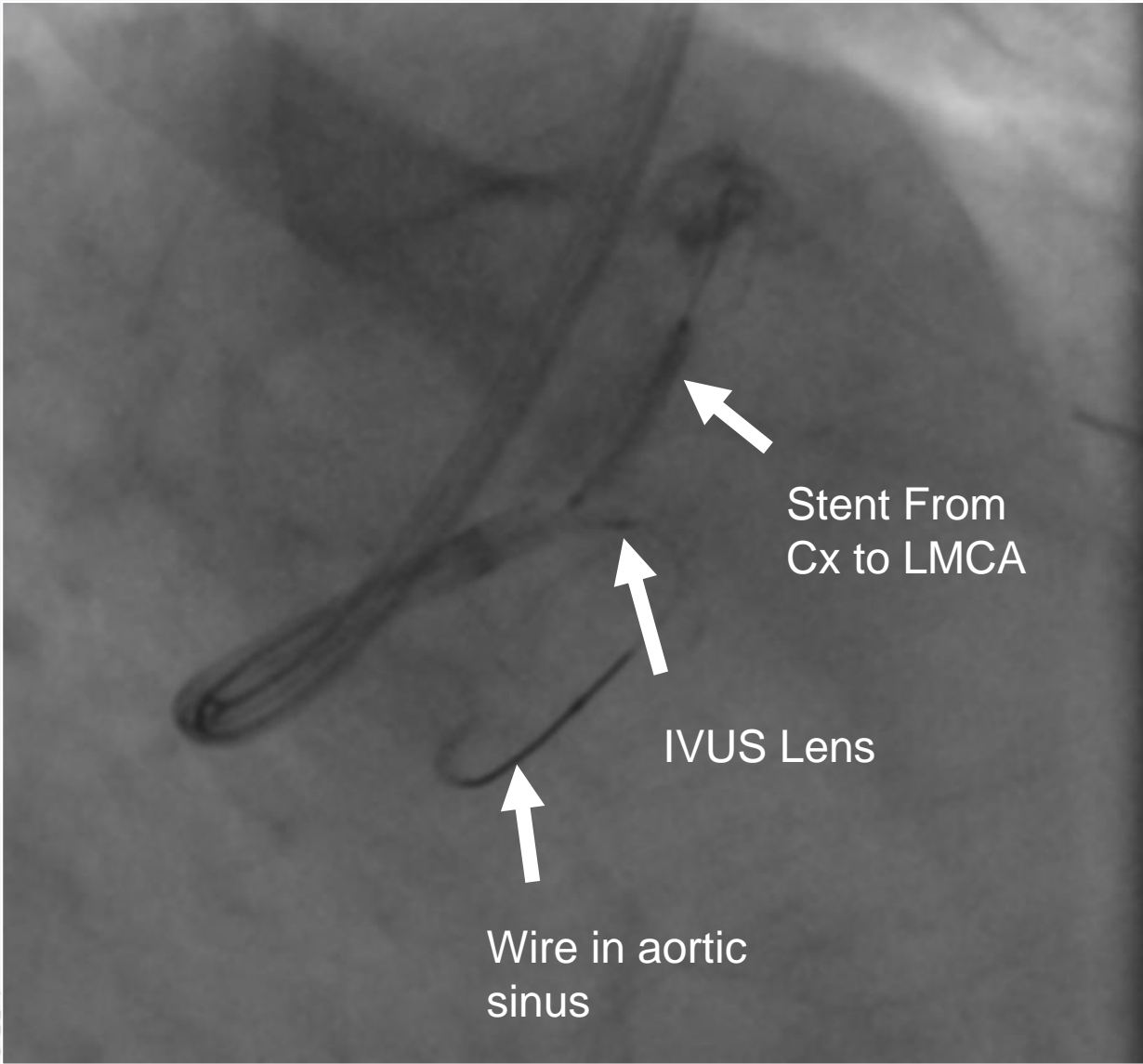
Real-time IVUS guided ostial stent placement in Phantom with OptiCross HD 60MHz catheter in the Cx

Micro-CT of phantom in which stent was deployed using real-time IVUS guided PCI

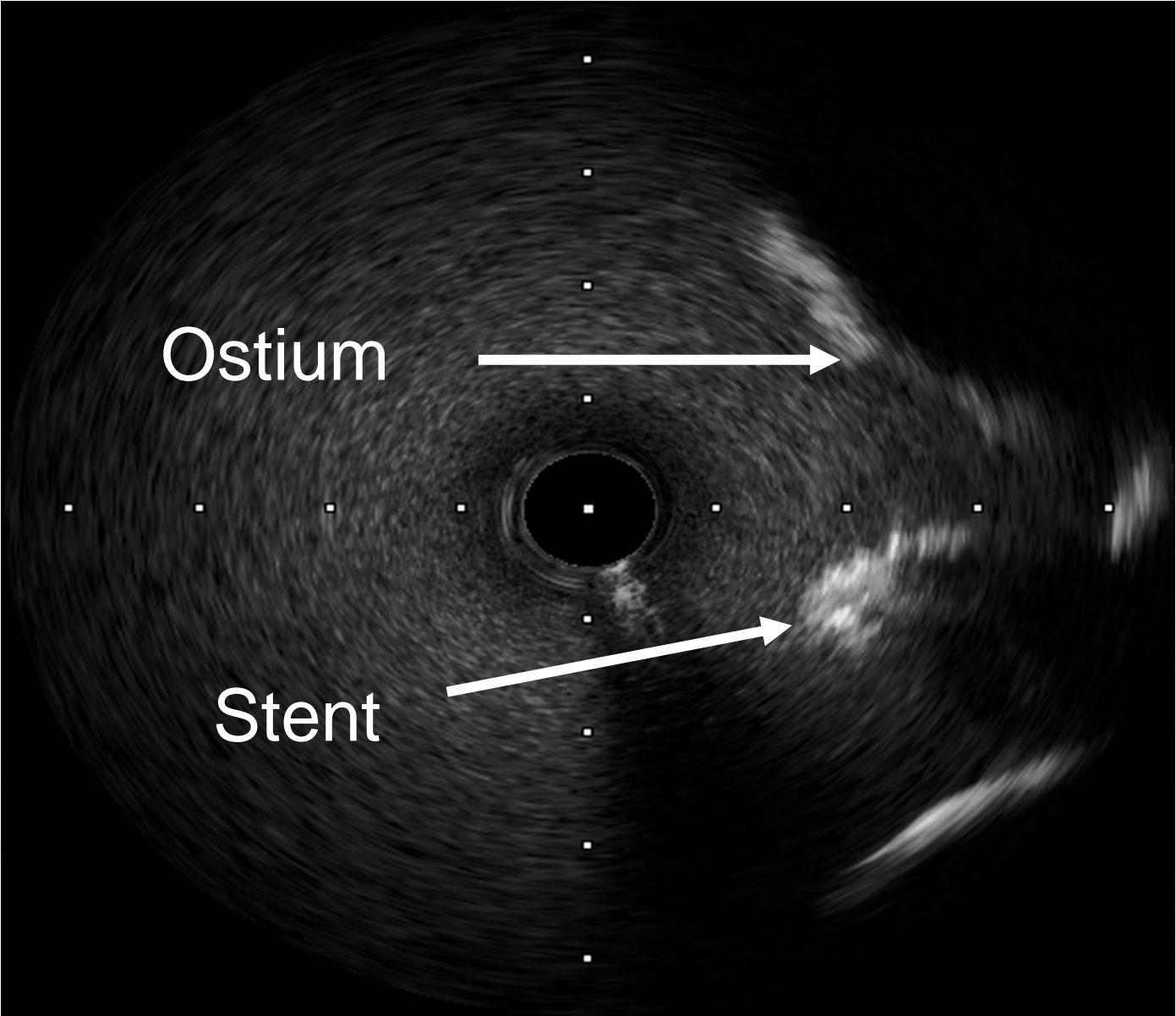
Real time IVUS guided ostial stenting: Case



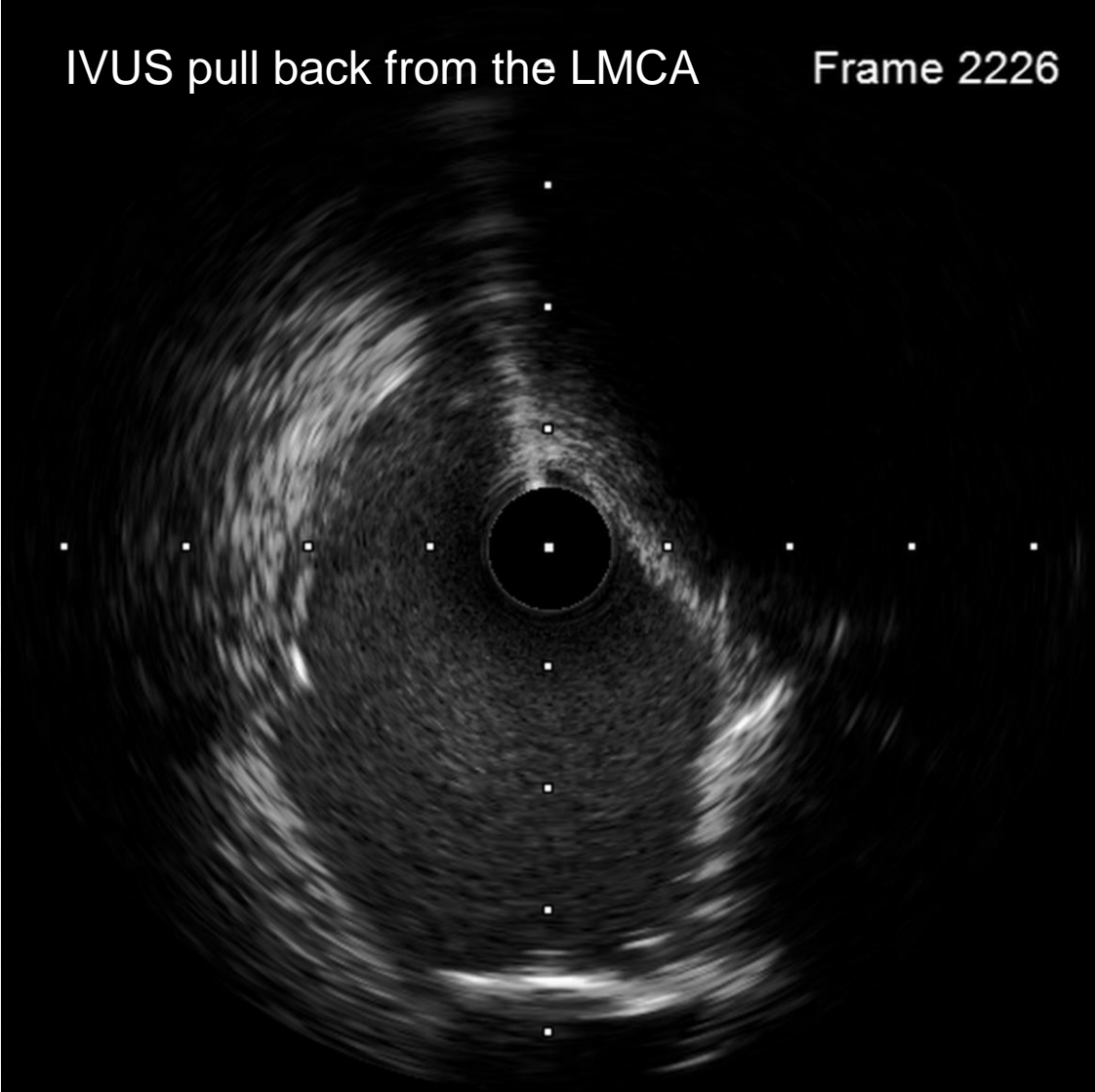
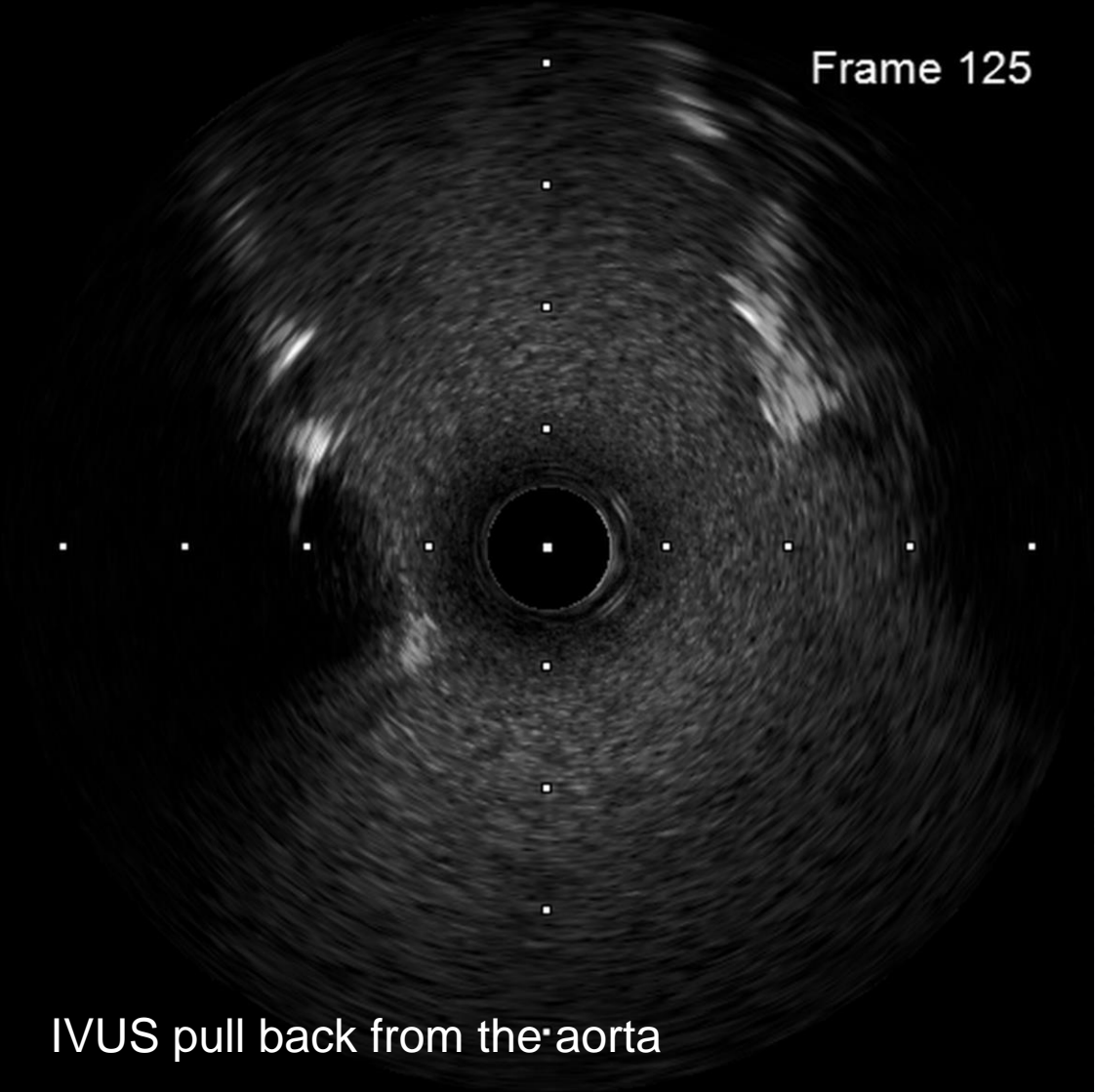
Real time IVUS guided ostial stenting: Case



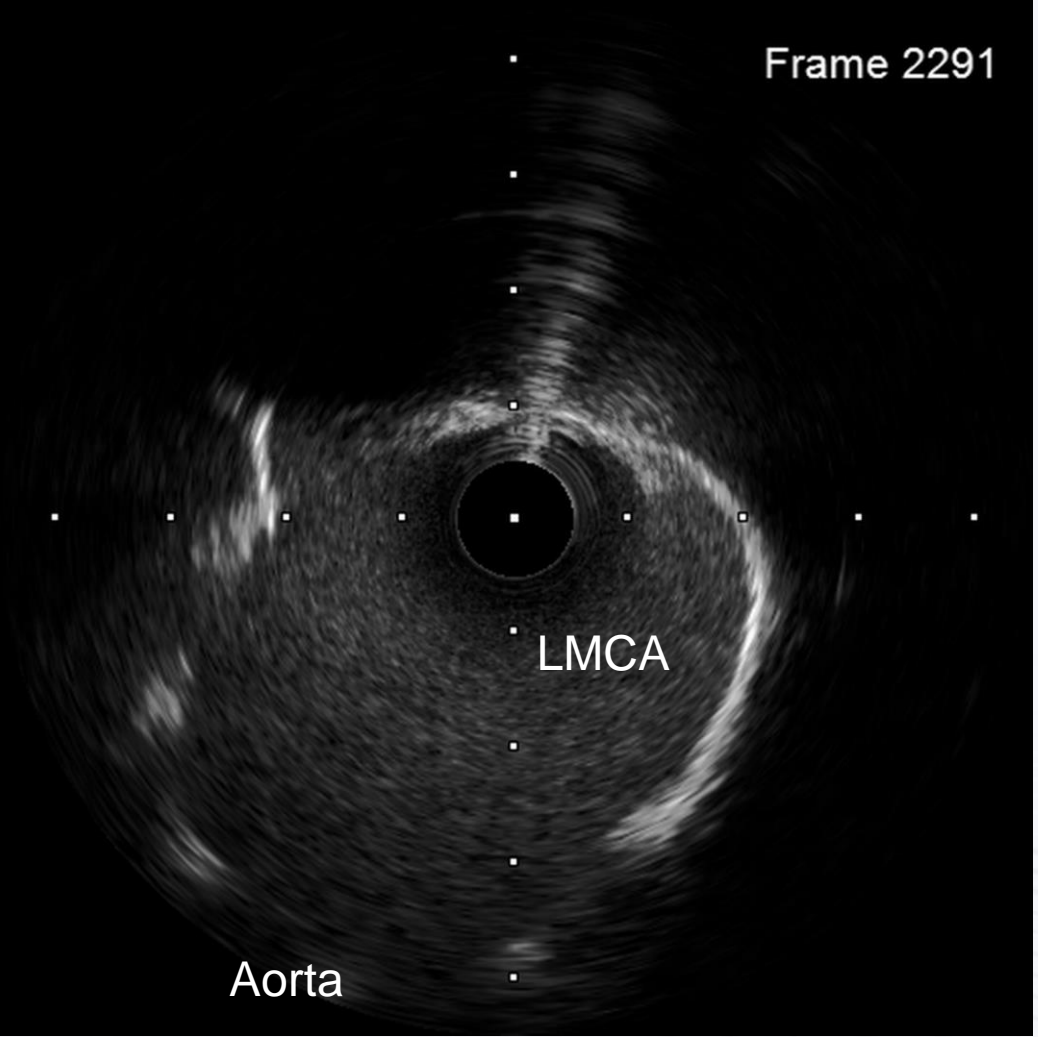
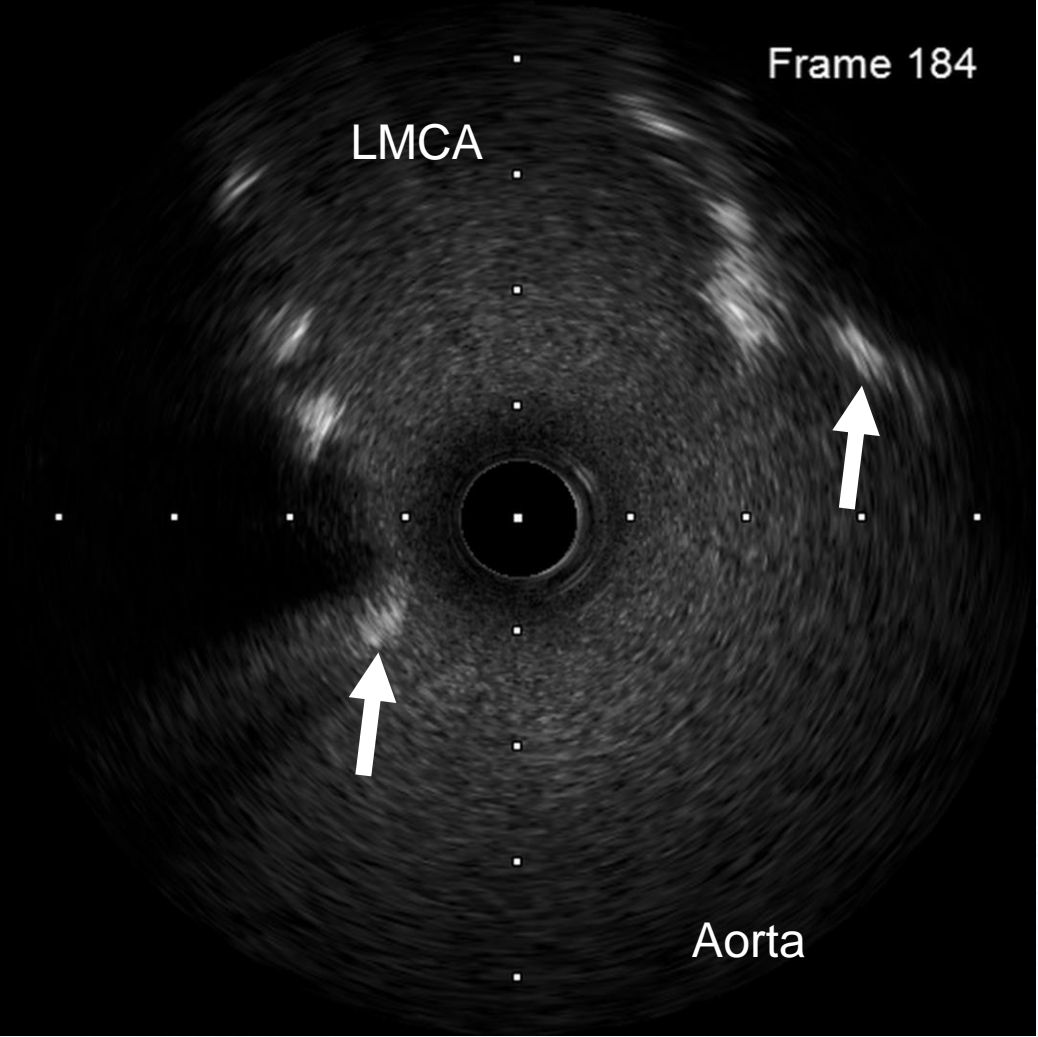
Real time IVUS guided ostial stenting: Case



Real time IVUS guided ostial stenting: Case

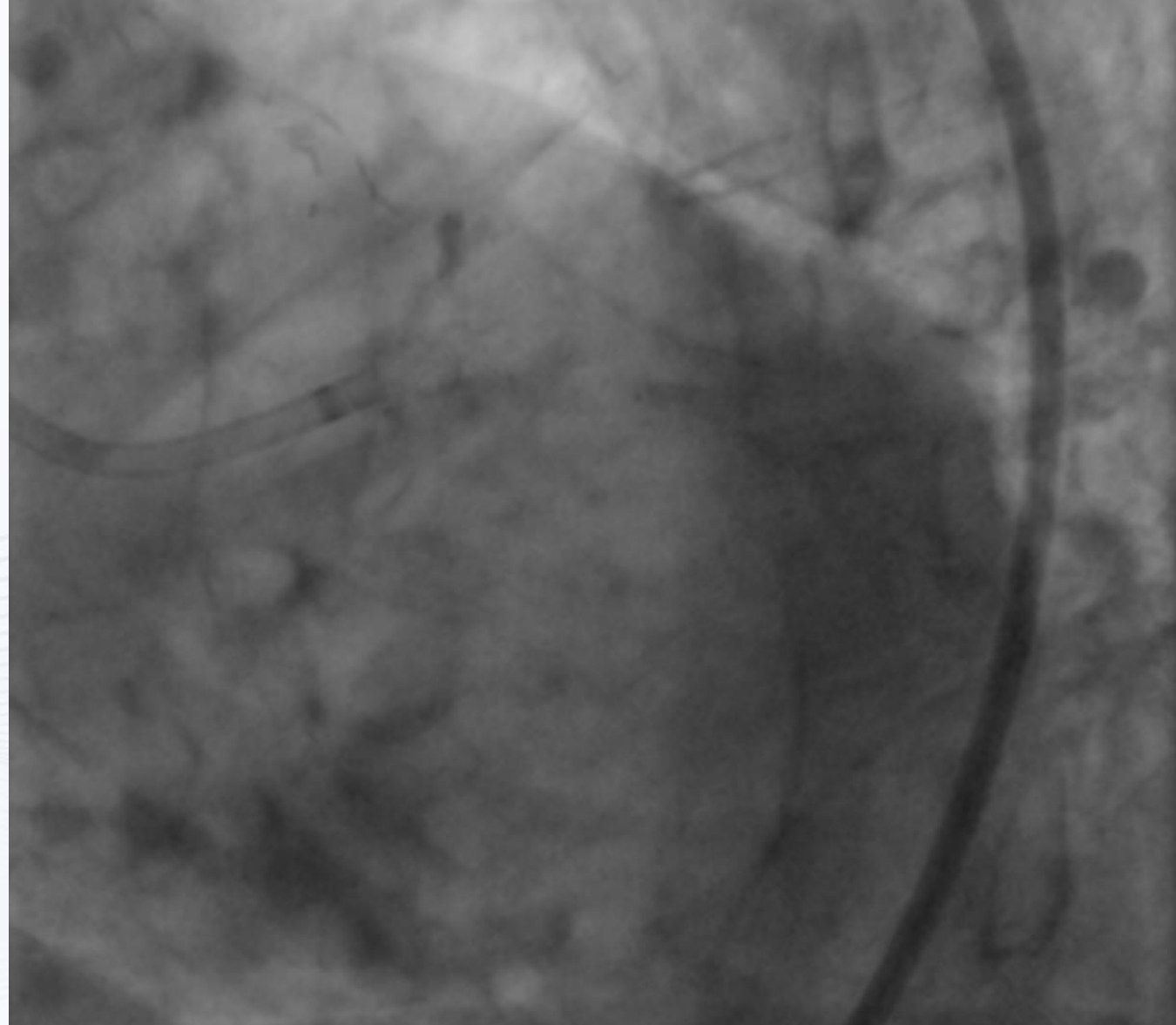


Real time IVUS guided ostial stenting: Case



Real time IVUS guided ostial stenting: Case

Final result



Real-time IVUS guided ostial stenting

Advantages

- Accurate identification of ostium and guidance of stent placement
- Reduced stent motion
- Accurate assessment of calcium
- Accurate vessel sizing
- Stent optimization

Disadvantages

- Requires at least 7F guide
- Only been test with low profile Opticross IVUS catheter
- Suitable only for 0,1,0 or 0,0,1 bifurcation lesion with a large B angle

Conclusions

- Ambiguity of the ostial location, motion of the stent prior to deployment and calcification can lead to suboptimal outcomes in ostial stenting
- Optimising angiographic angles and use of intravascular imaging can help to accurately locate the ostium
- Real-time IVUS guided ostial stenting allow for precise stent placement and stent optimization