Clinical Utility of Telescope™ Guide Extension for Ostial Calcified Lesion

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COI Disclosure

Name of First Author :
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③patent fees: none
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⑦scholarship fund: none
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⑨Other remuneration such as gifts: none

★Advantages & disadvantages of OCT & IVUS
★OCT-guided may be better than IVUS-guided for calcified lesion

Table. Lesion-Specific Benefits of IVUS Versus OCT

	IVUS	OCT
Left main	+++	±
Ostial lesions	+++	–
ISR	+	+++
Calcium	+	+++
CTO	+++	+
Stent sizing and optimization	+++	+++
Ruptured plaque and thrombus	+	+++
Impaired renal function	+++	–

+++, optimal; +, favorable; –, not preferred. CTO indicates chronic total occlusion; ISR, in-stent restenosis; IVUS, intravascular ultrasound; and OCT, optical coherence tomography.

Shlofmitz E, et al. Circ cardiovasc Interv. 2020

★OCT clearly visualize the detailed morphologies of calcified lesion
★OCT enables to assess the requirement of intensive lesion preparation

Spotty calcification

< 90°, (length< 4mm)

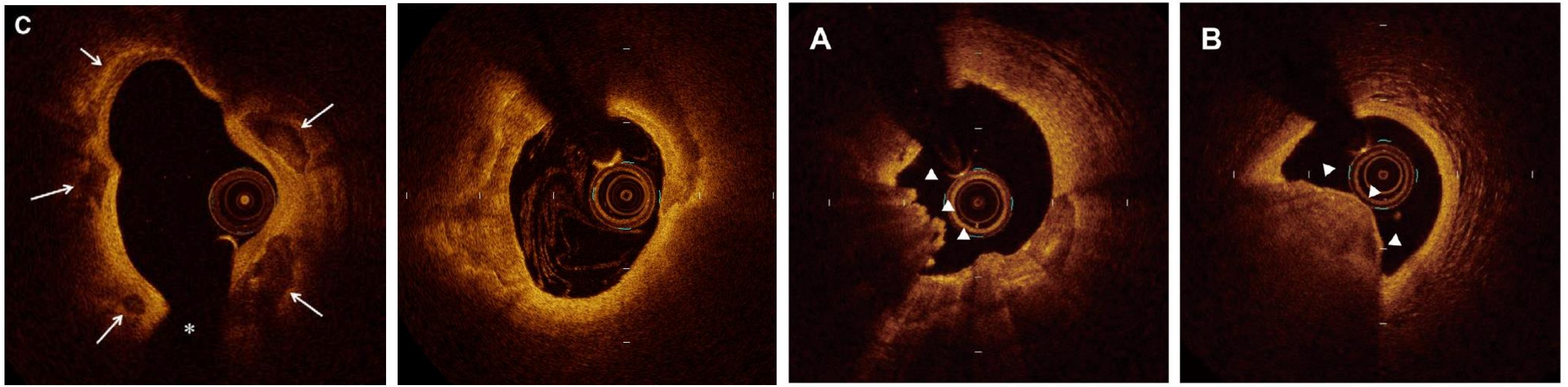
(Superficial) calcific sheet

Calcified nodule

Expulsion of clustered small calcific nodules

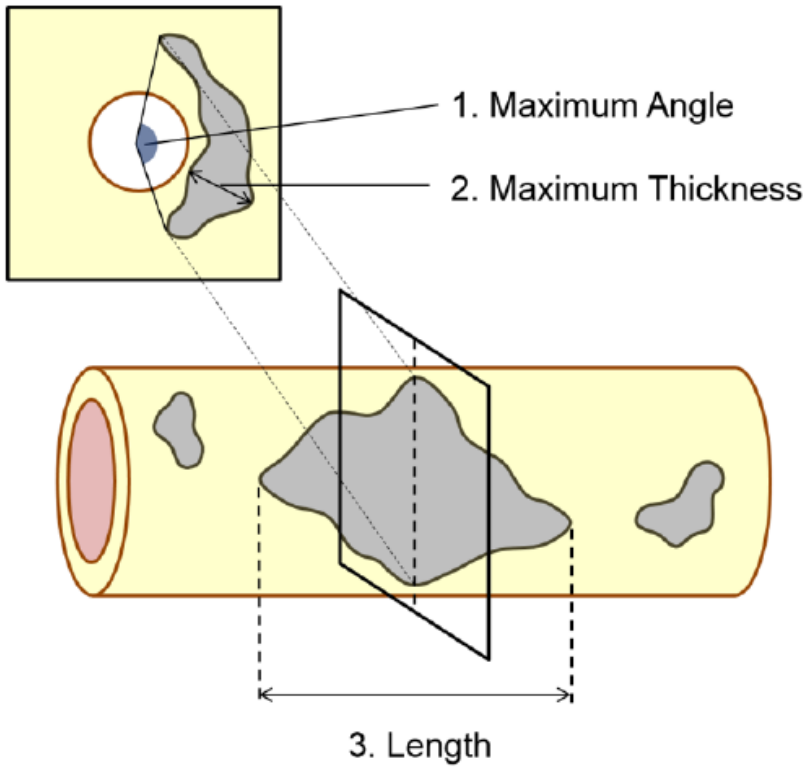
Calcified protrusion

Protruding calcific mass without nodules



Ong DS, Minami Y, et al.
Circ Cardiovasc Imaging 2016

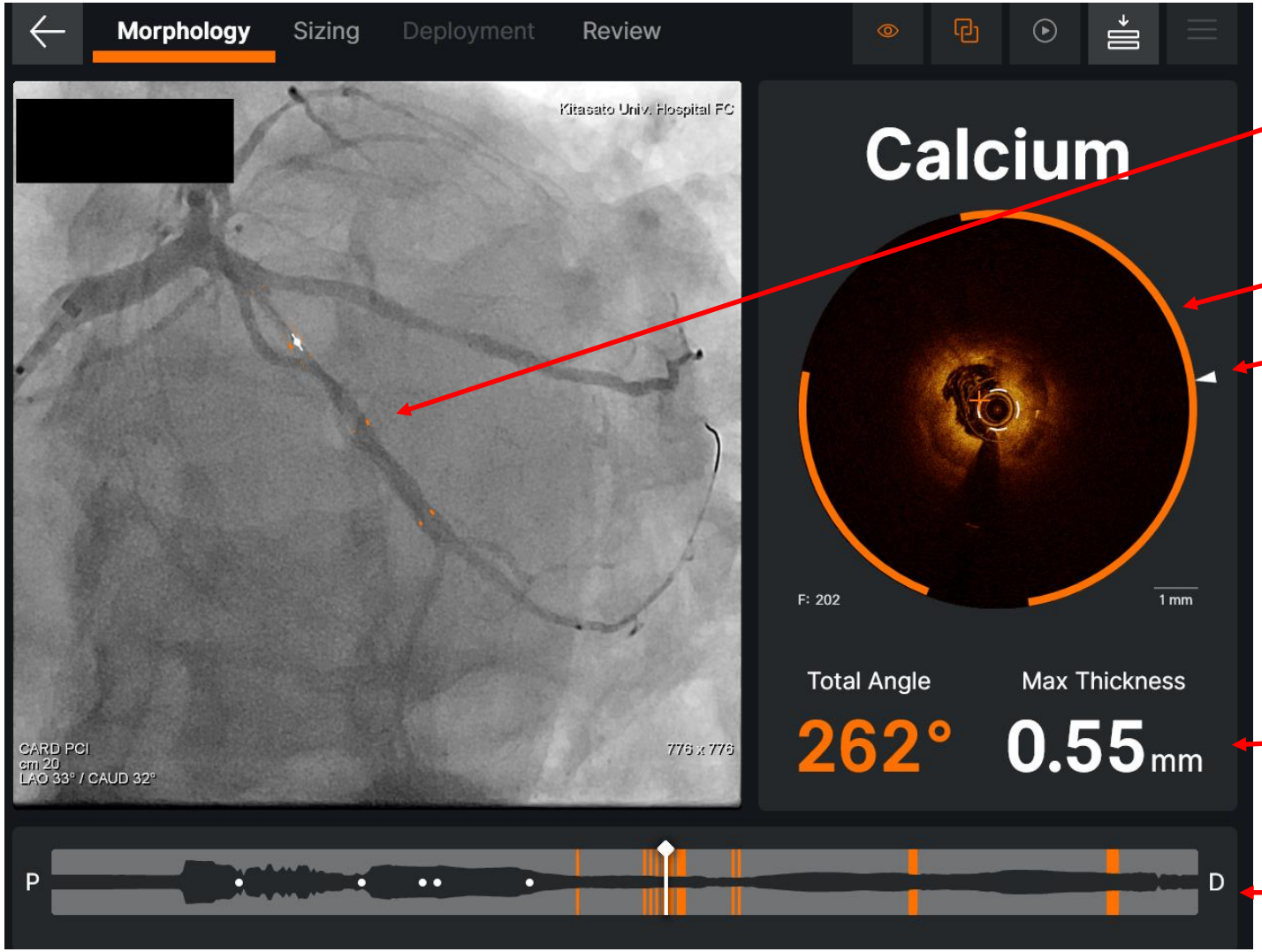
★OCT-based calcium scoring is developed and introduced
★Useful to identify lesions with high risk for stent under expansion



OCT-based Calcium Score	
1. Maximum Calcium Angle (°)	≤ 180 ° ➡ 0 point > 180 ° ➡ 2 points
2. Maximum Calcium Thickness (mm)	≤ 0.5 mm ➡ 0 point > 0.5 mm ➡ 1 point
3. Calcium Length (mm)	≤ 5.0 mm ➡ 0 point > 5.0 mm ➡ 1 point
Total score	**0 to 4 points**

Fujino A et al. Eurointerv 2018

★Updated OCT system with AI automatically identify coronary calcium
★Metrics & distribution of calcium are provided during PCI



Distribution on angiogram

Circumferential distribution

Location of thickest point

Angle & thickness

Longitudinal distribution

★OCT-guided PCI is not suitable for ostial lesions

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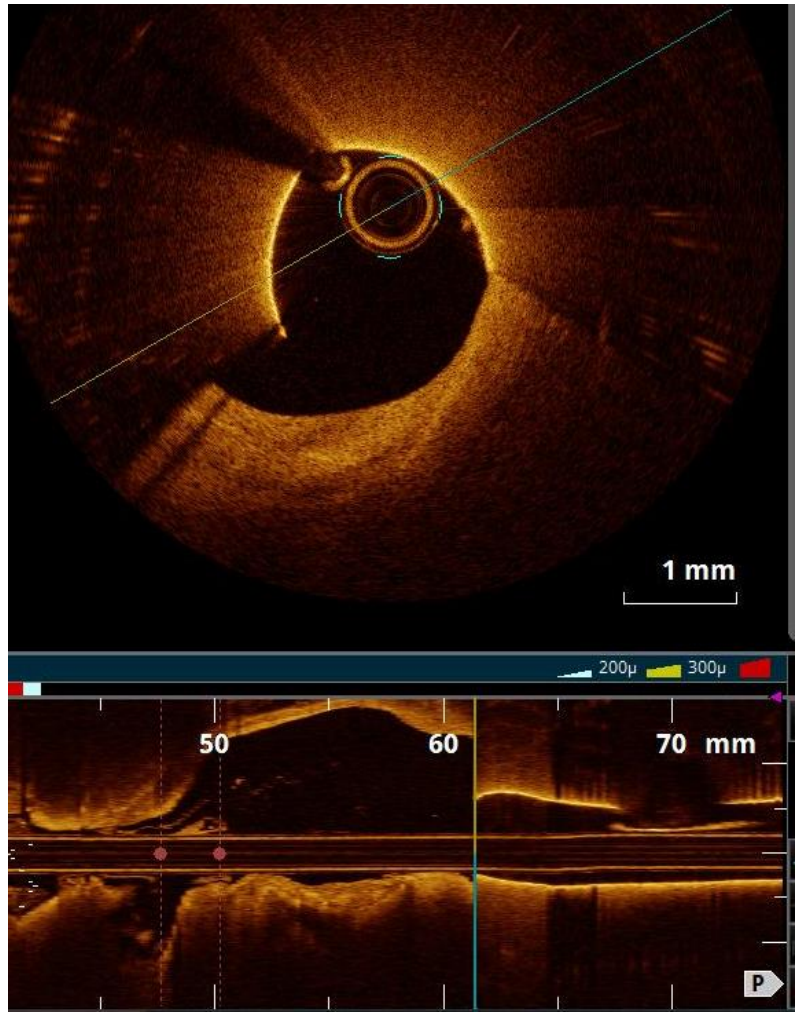
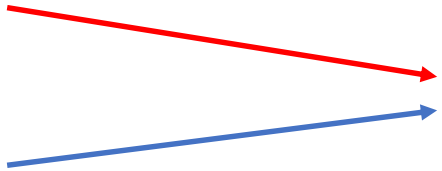


Shlofmitz E, et al. Circ cardiovasc Interv. 2020

OCT usage

◎ Calcified lesion

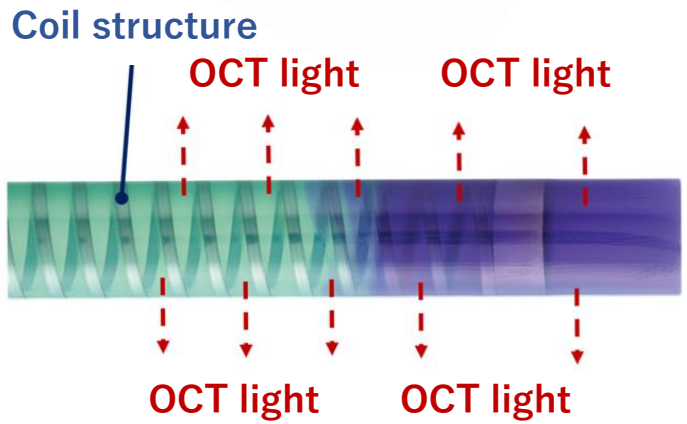
× Ostial lesion

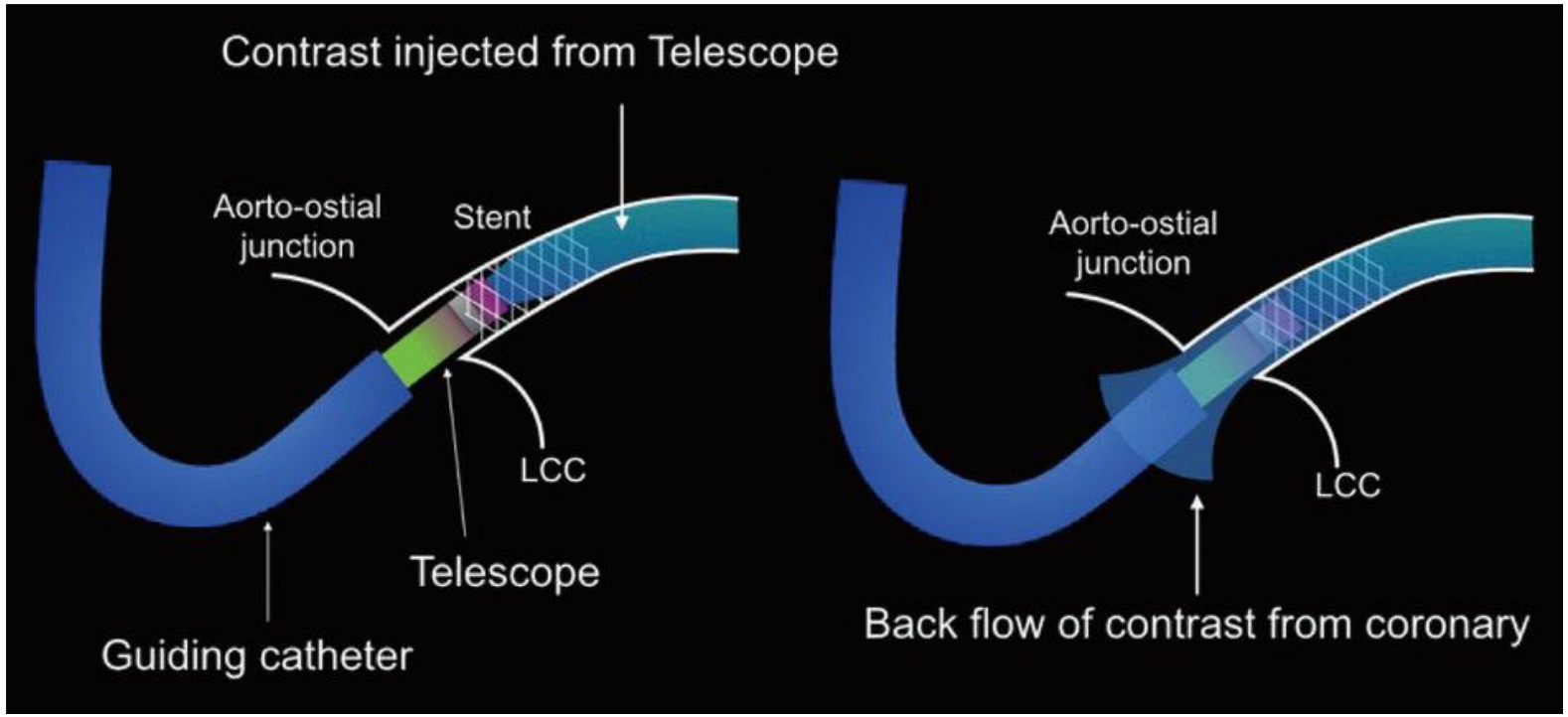


？ Ostial calcified lesion

★Telescope is a promising option for OCT-guided of ostial calcified lesions

‘See through technique’ for Aorta-ostial observation using Telescope

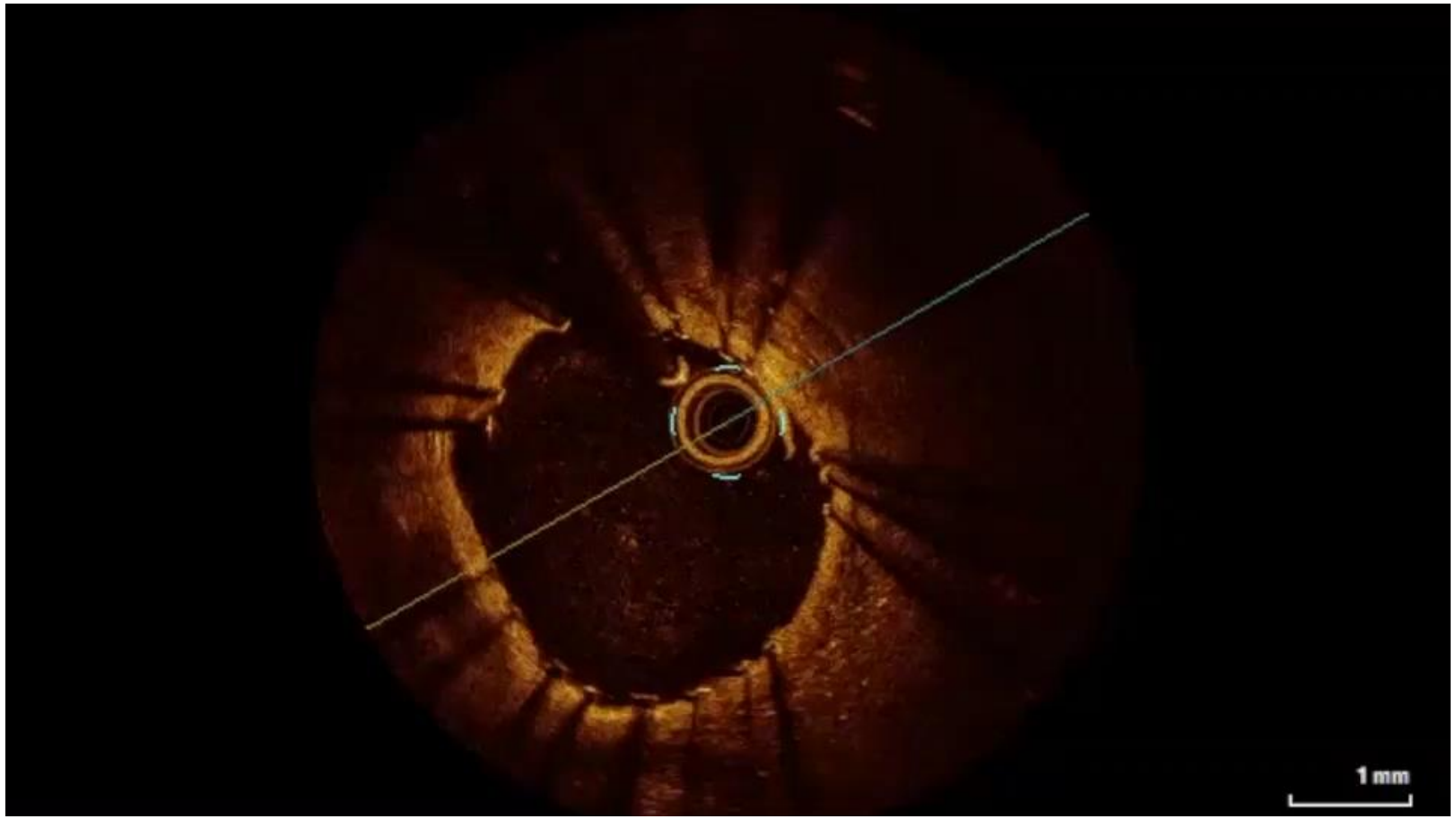




Kurogi K, Ishii M, Sakamoto K, Tsujita K, Observing an aorto-ostial lesion using TELESCOPE® in optical coherence tomography-guided percutaneous coronary intervention: https://www.pcronline.com/Cases-resources-images/Images-interventional-cardiology/EuroIntervention-images/Aorto-ostial-lesionobservation- by-OCT

OCT-guided PCI for ostial lesion using Telescope

‘See through technique’ for Aorta-ostial observation using Telescope



Survey mode (75mm)

Frame interval 200μm

High-res mode (54mm)

Frame interval 100μm

Kurogi K, Ishii M, Sakamoto K, Tsujita K, Observing an aorto-ostial lesion using TELESCOPE® in optical coherence tomography-guided percutaneous coronary intervention: https://www.pcronline.com/Cases-resources-images/Images-interventional-cardiology/EuroIntervention-images/Aorto-ostial-lesionobservation- by-OCT

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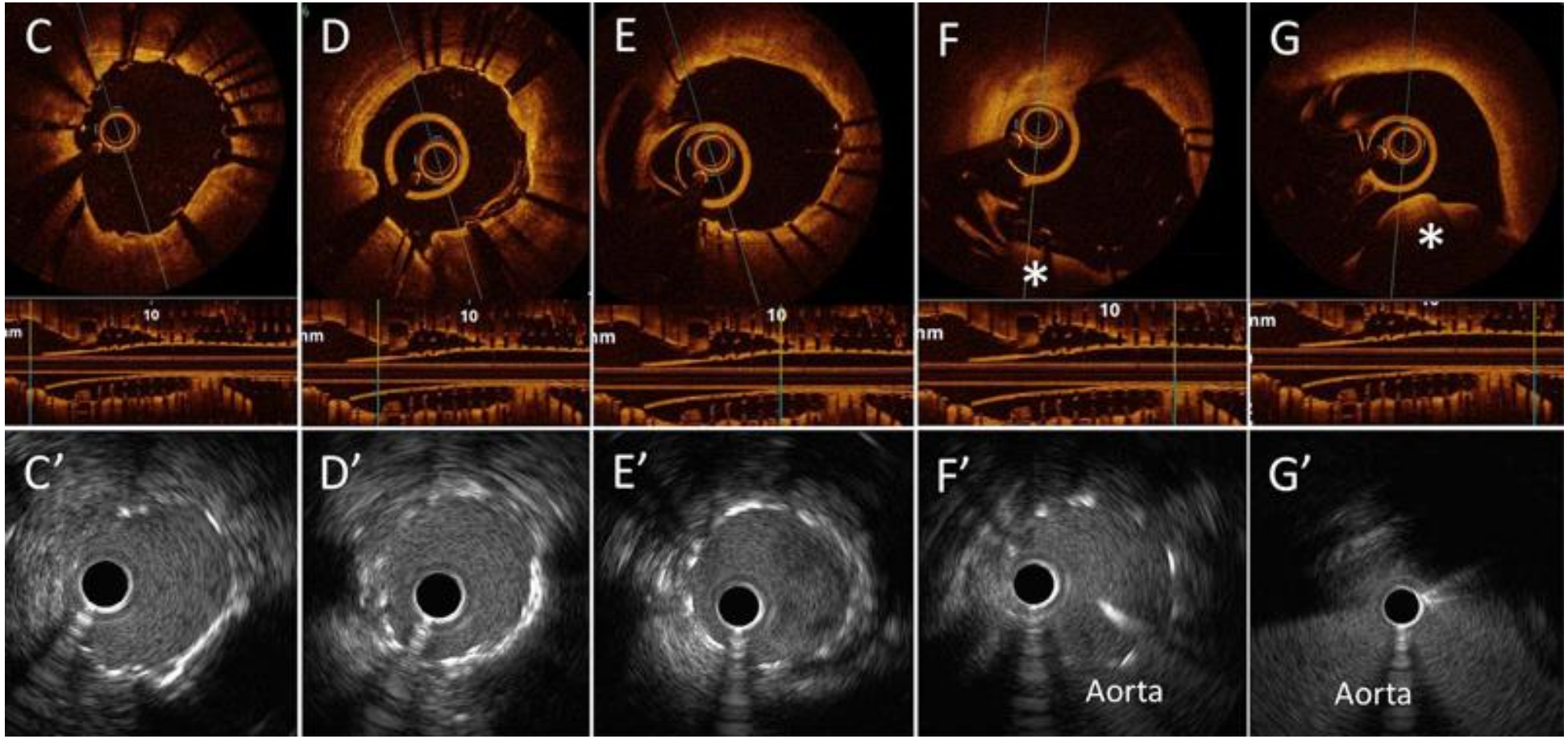

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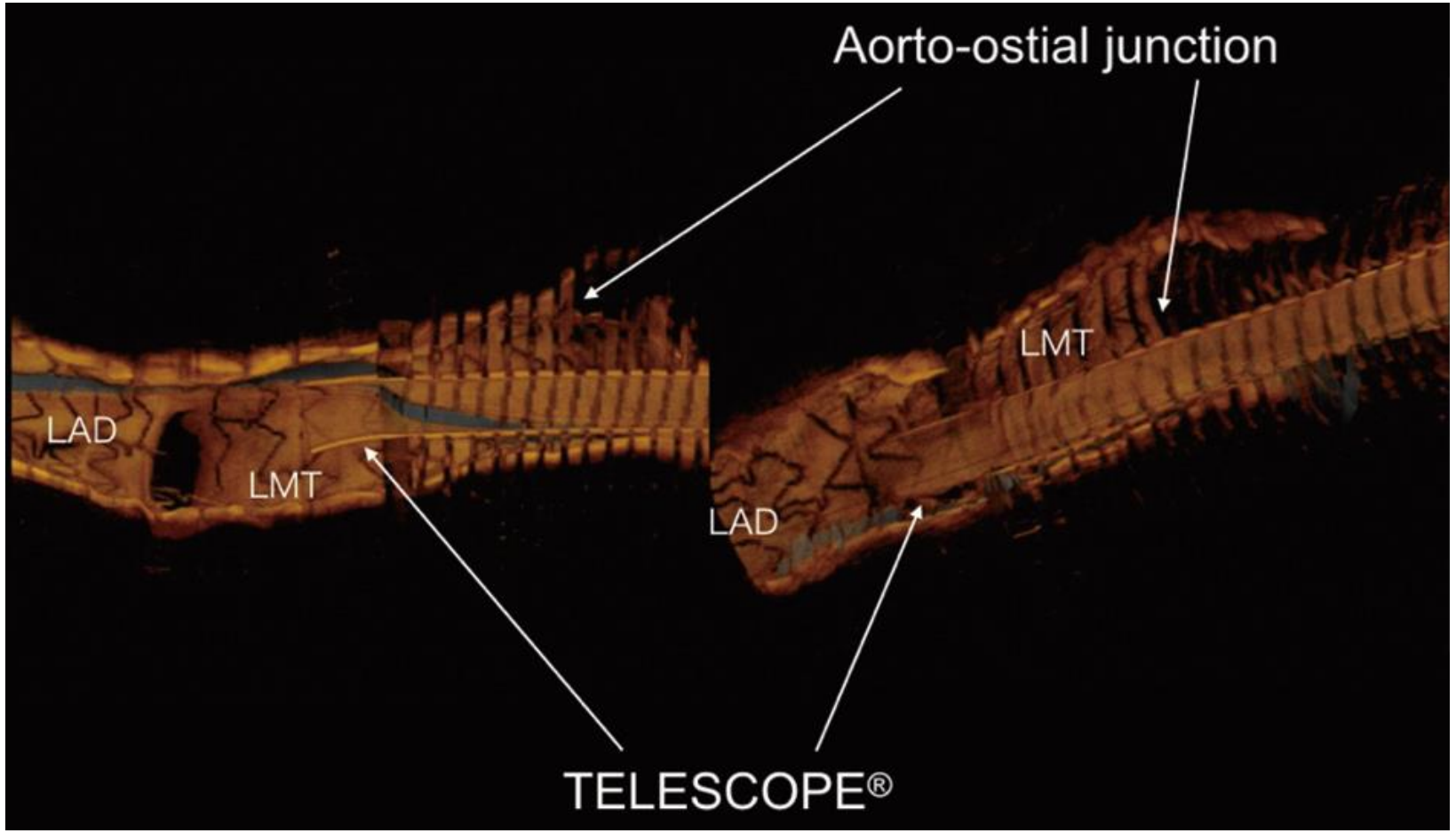

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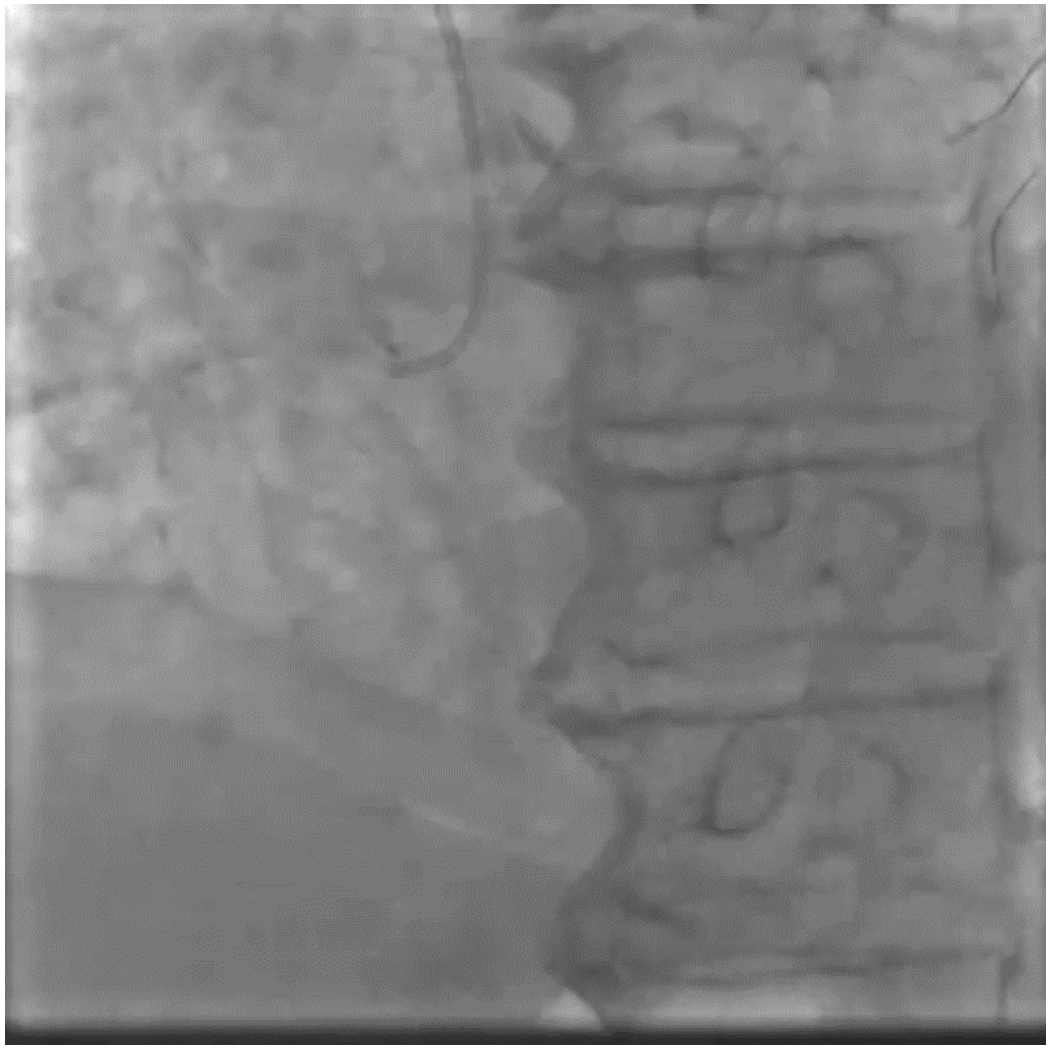
Case: 88-year-old, male



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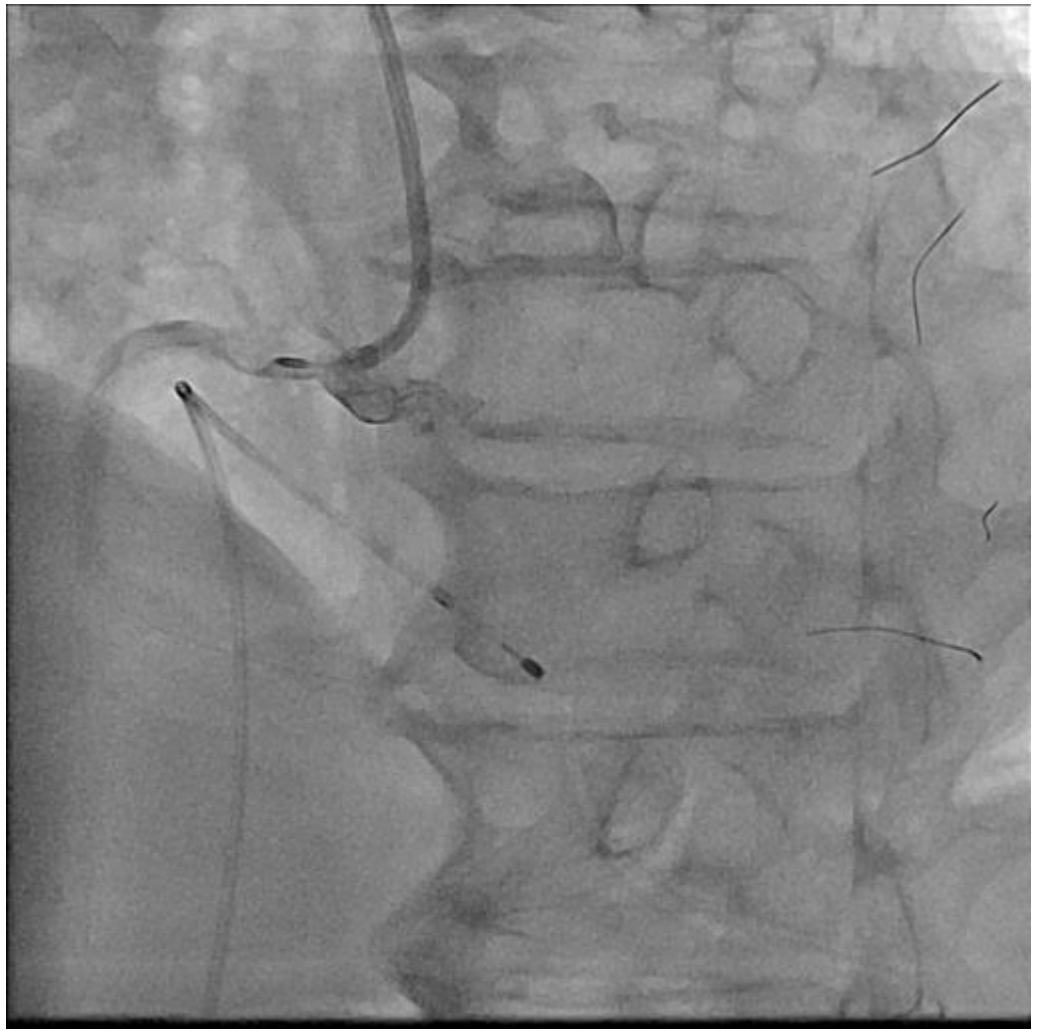

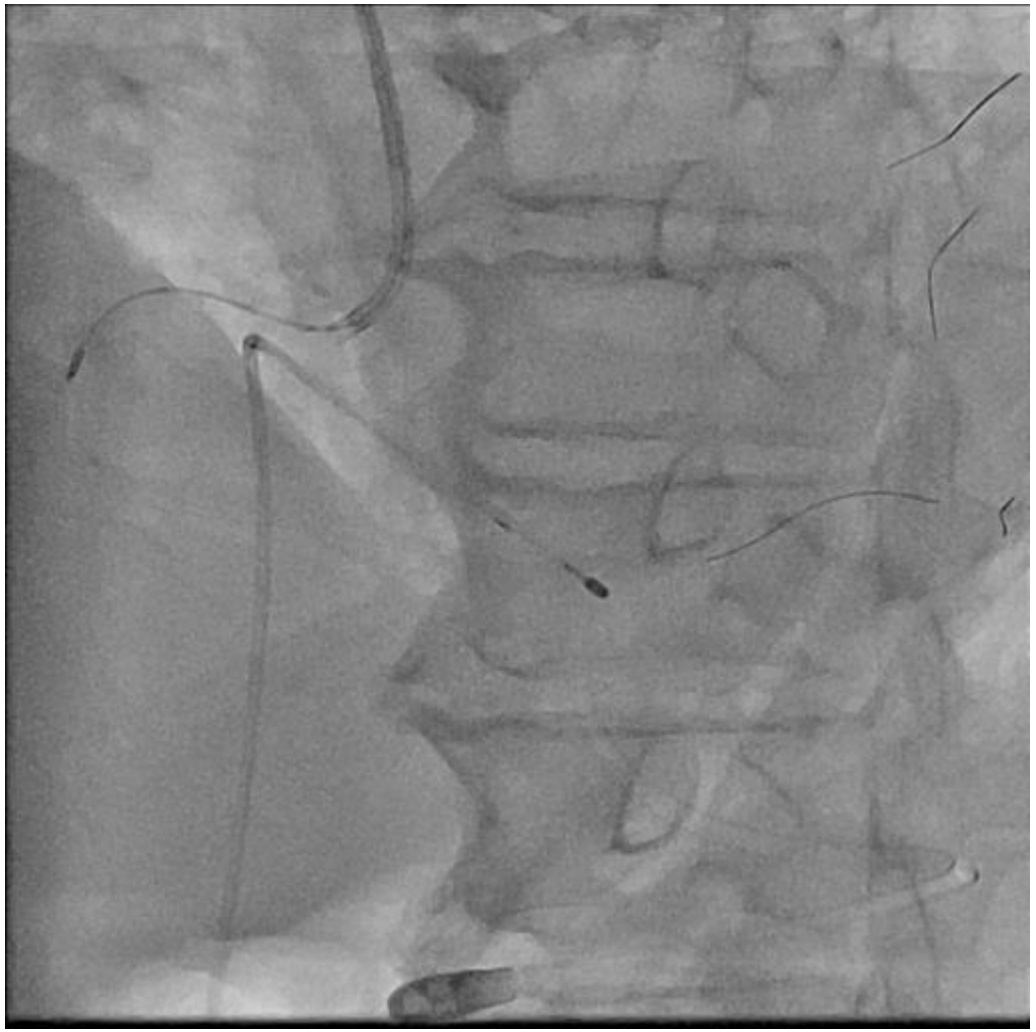

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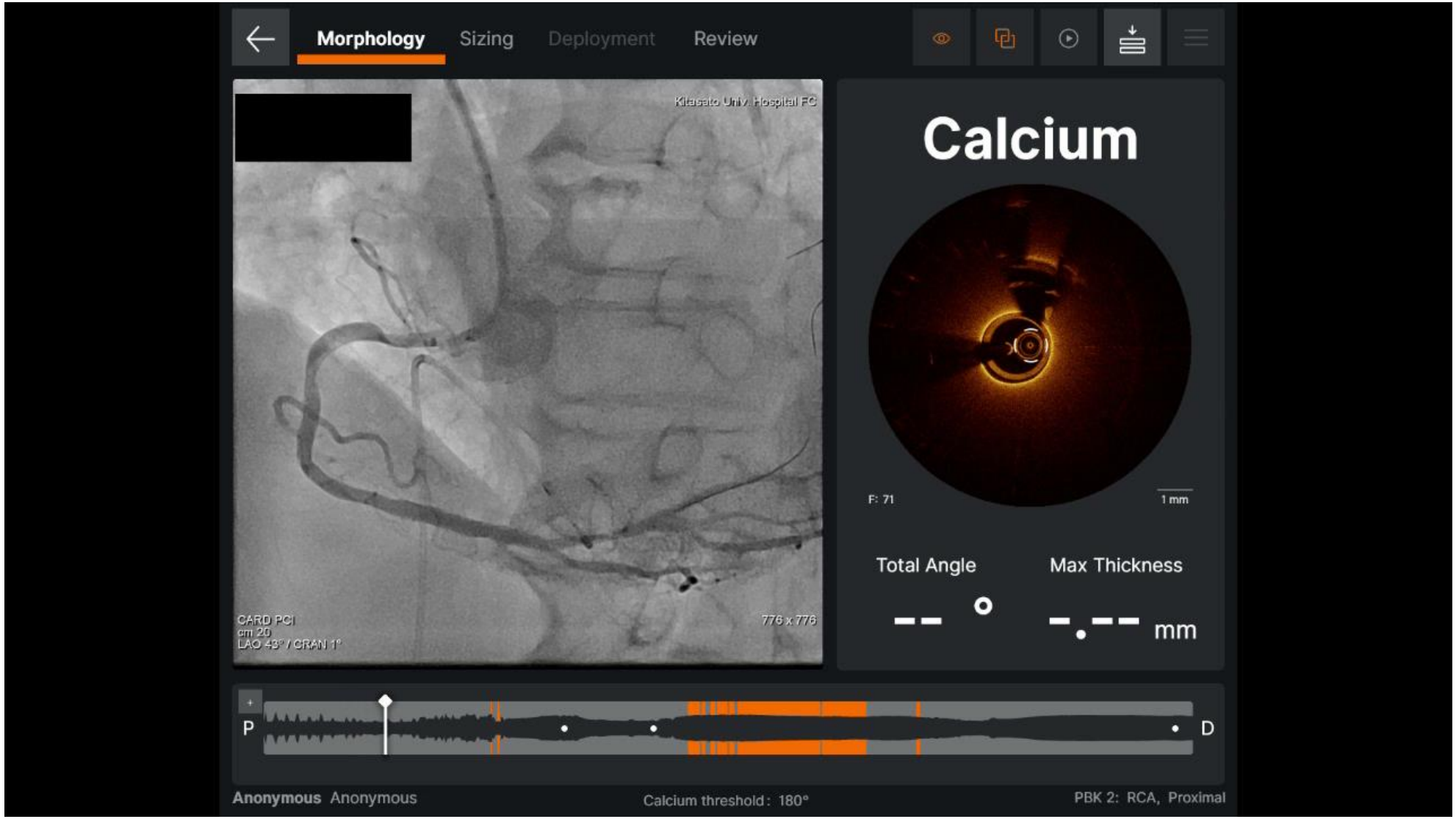
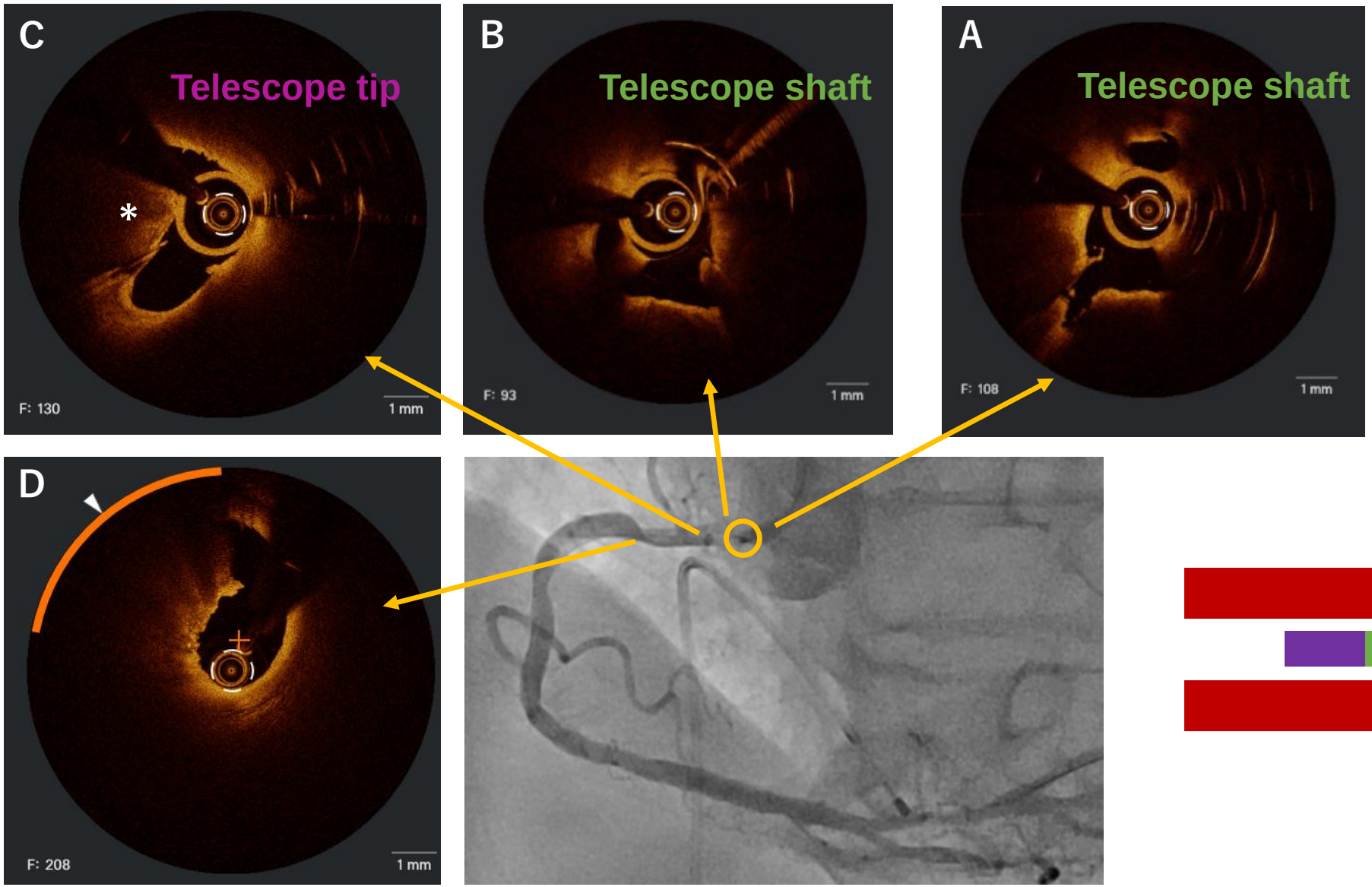


★Exact location of aorta-ostial junction was identified (panel B)



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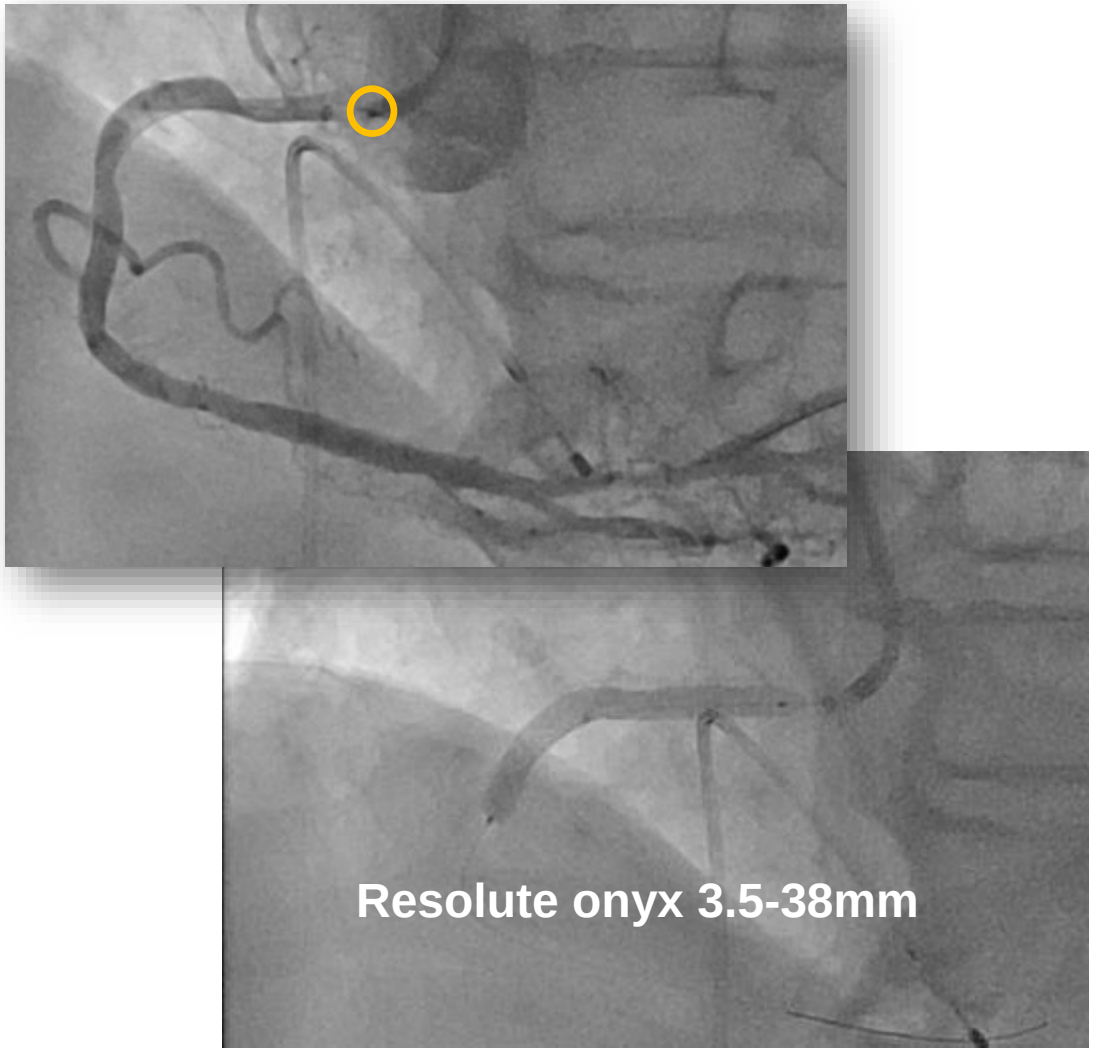

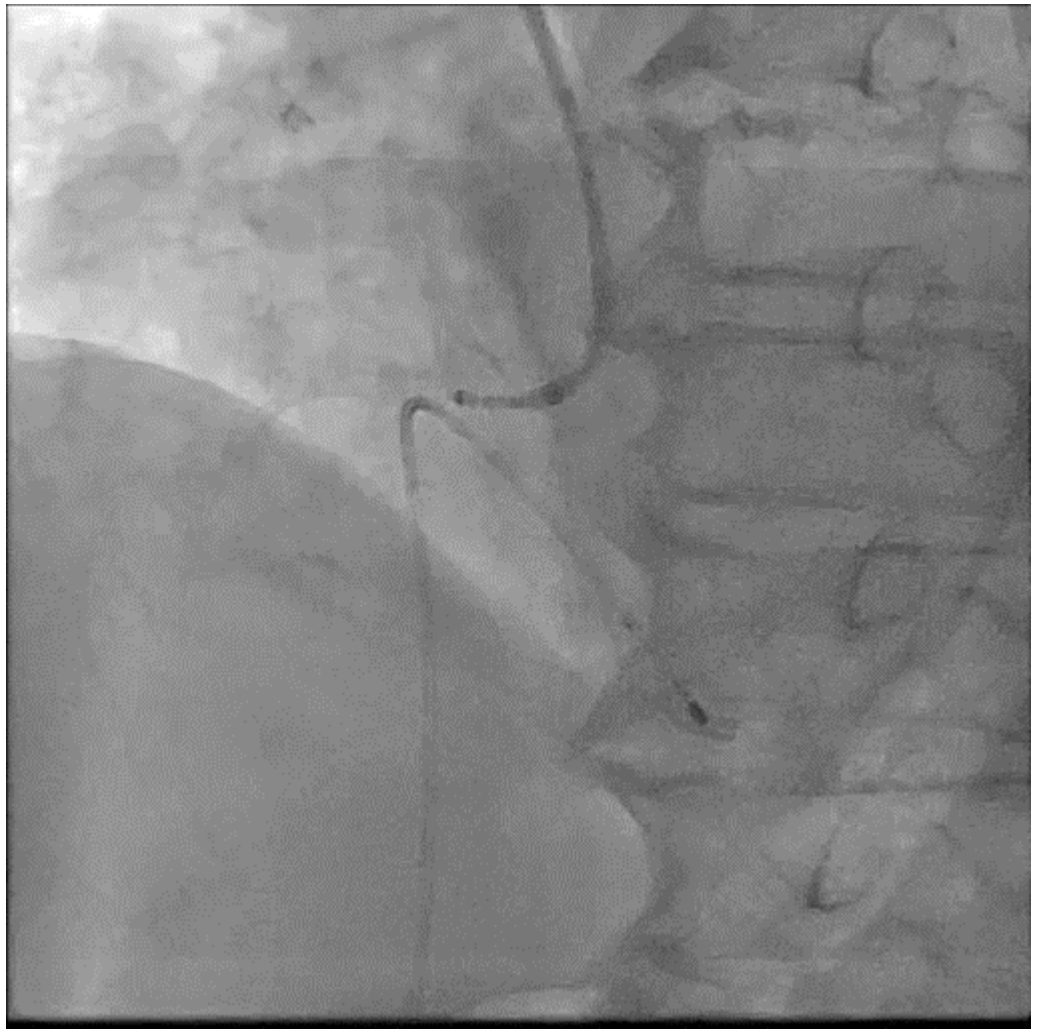

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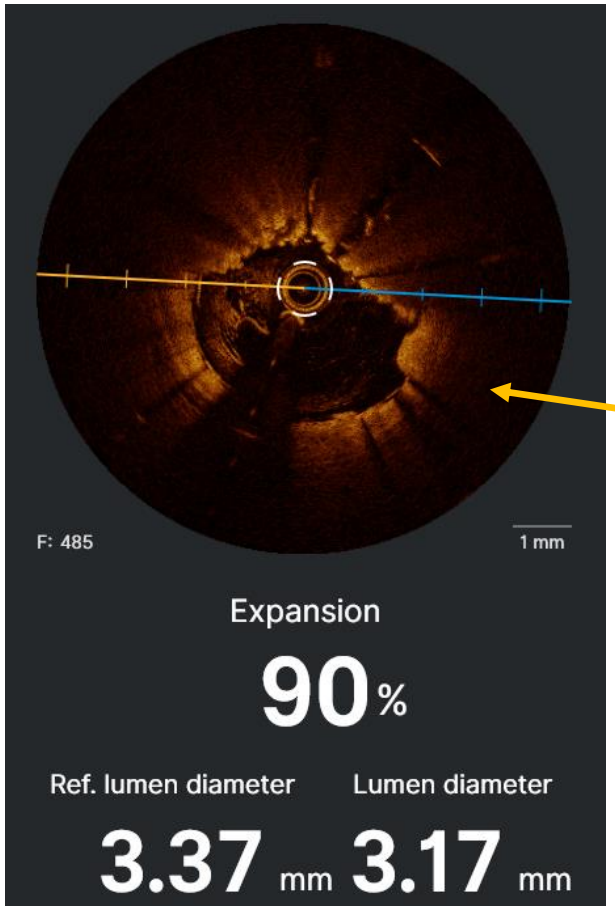

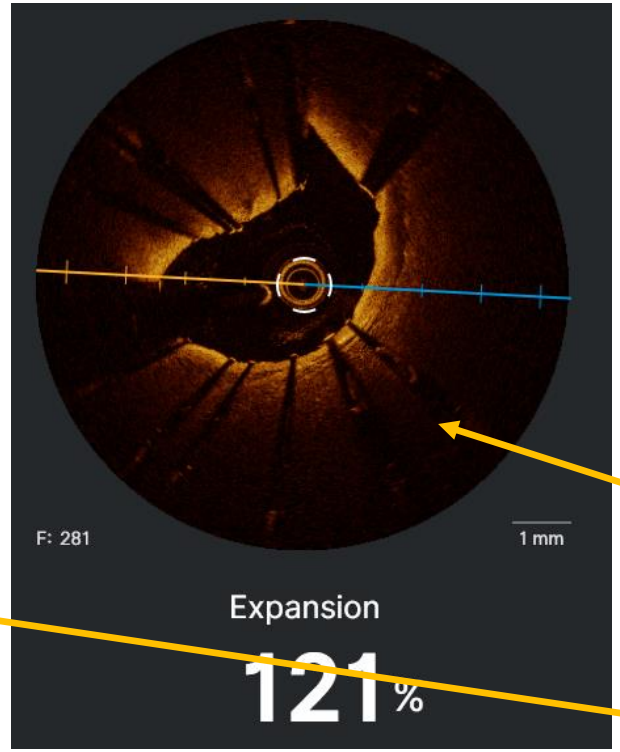

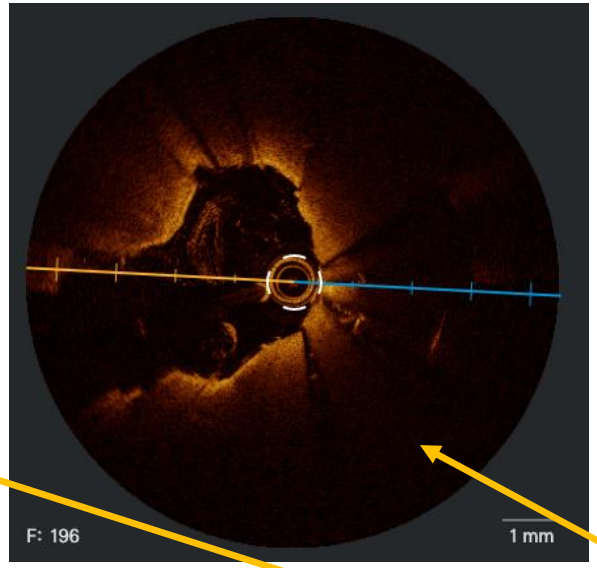

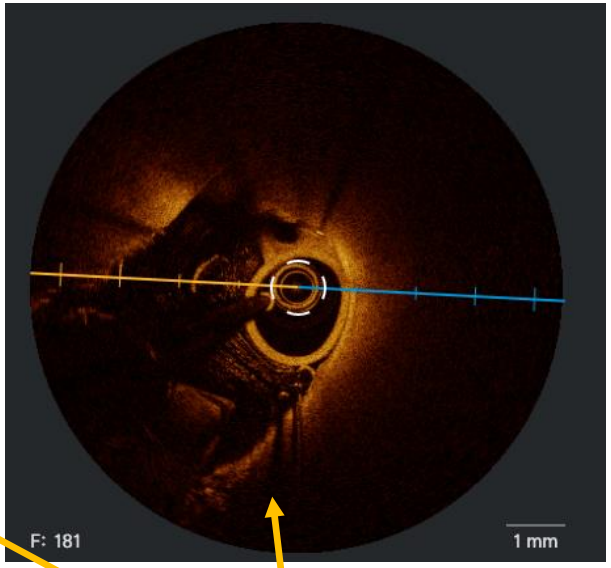

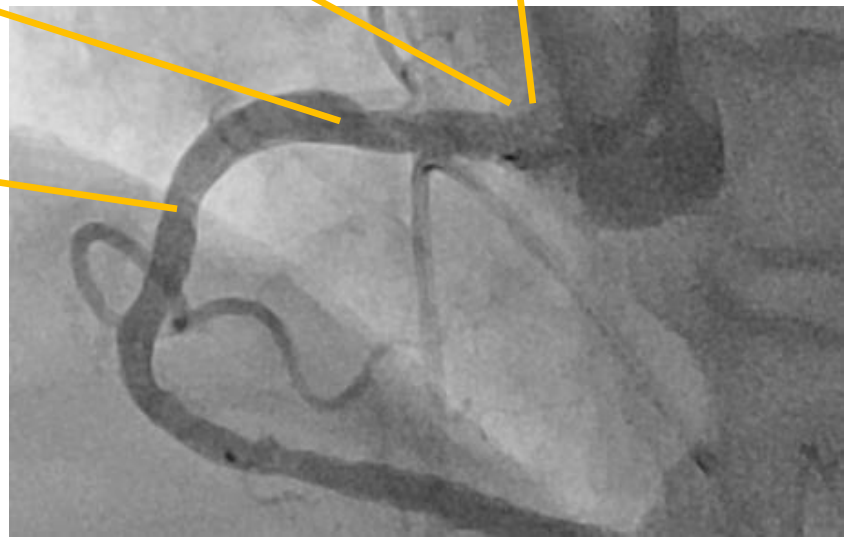

Take home messages

- ✓**Visibility of ostial lesion by OCT is limited caused by the disability of light penetration through guiding catheter and the impossibility of complete blood removal**

- ✓**Telescope™ is a promising option to visualize ostial lesion due to the qualified tip and shaft which allow OCT light penetration**