Experiences of 2nd Gen OCT in Assessment of Complex Coronary Lesions: Can It Give Us Additive Useful Information?

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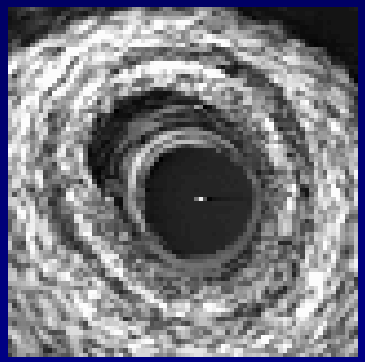
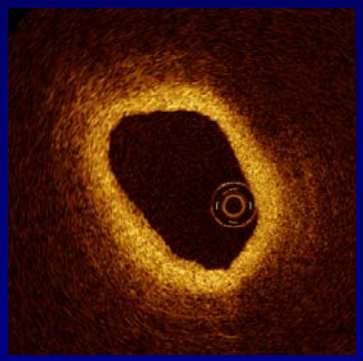
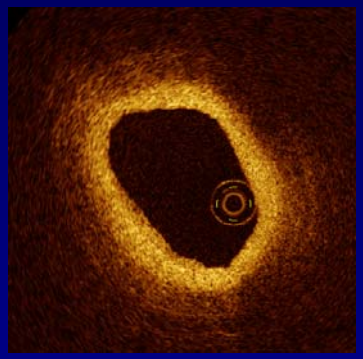
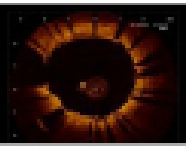
IVUS and OCT specifications

		IVUS	OCT	2nd OCT
				
Resolution	*(axial)*	100 - 150 µm	10 - 15 µm	12 - 15 µm
	(lateral)	150 - 300 µm	25 - 40 µm	20 - 40 µm
Frame rate		30 frames/s	8 frames/s 20 frames/s (1/2 lateral resolution)	100 frames/s
Max. scan diameter		4 – 8 mm	1.0 – 2.5 mm	1.0 – 2.5 mm

2nd Generation OCT

Fourier Domain OCT
(OFDI/Frequency/Spectral Domain/Swept Source)



	C7 XR
Wavelength	1.3 μm
Resolution	12 - 15 μm (axial) 20 – 40 μm (lateral)
Frame rate	100 frames/s
Pullback rate	20 mm/s
Max. scan diameter	9.7 mm
# A-lines/frame	504 /frame
Tissue penetration	1.0- 2.5 mm

C7 Dragonfly™ Imaging Catheter

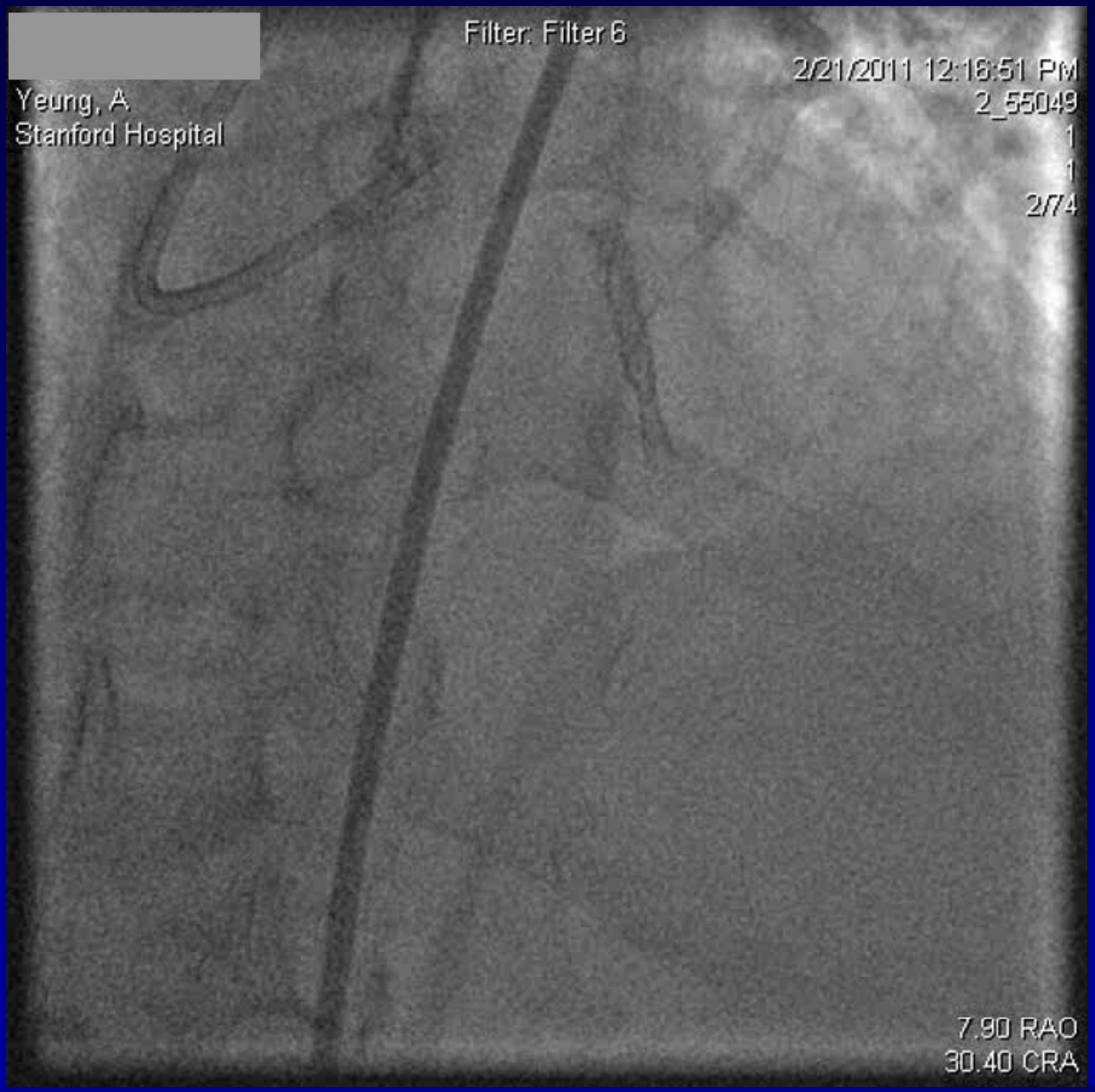
Short monorail tip
Size: 2.7 Fr
6F Guiding compatible
0.0014" Guide wire

St. Jude Medical
(Lightlab Imaging Inc)

FDA approved in May 2010

Case

- 77 year old man with DM, CRI, HTN, S/P multiple PCI, now with recent chest pain and ischemia on stress echo.
- ’95 BMS to LAD
- ’99 Brachytherapy of LAD stent
- ’03 Distal edge restenosis, some problem dilating. Cypher 2.5 x 13 placed. Post dilate with 2.75, 3.0 NC. Mild 30% residual.
- ’05 ISR. Balloon and cutting balloon, rotablator 1.5mm and 1.75mm. 2.5 x 24 TAXUS. 3.0 NC.
- ’11 Symptoms and +stress test. Unable to dilate the LAD, IVUS cannot cross. New lesion in circumflex and distal LAD.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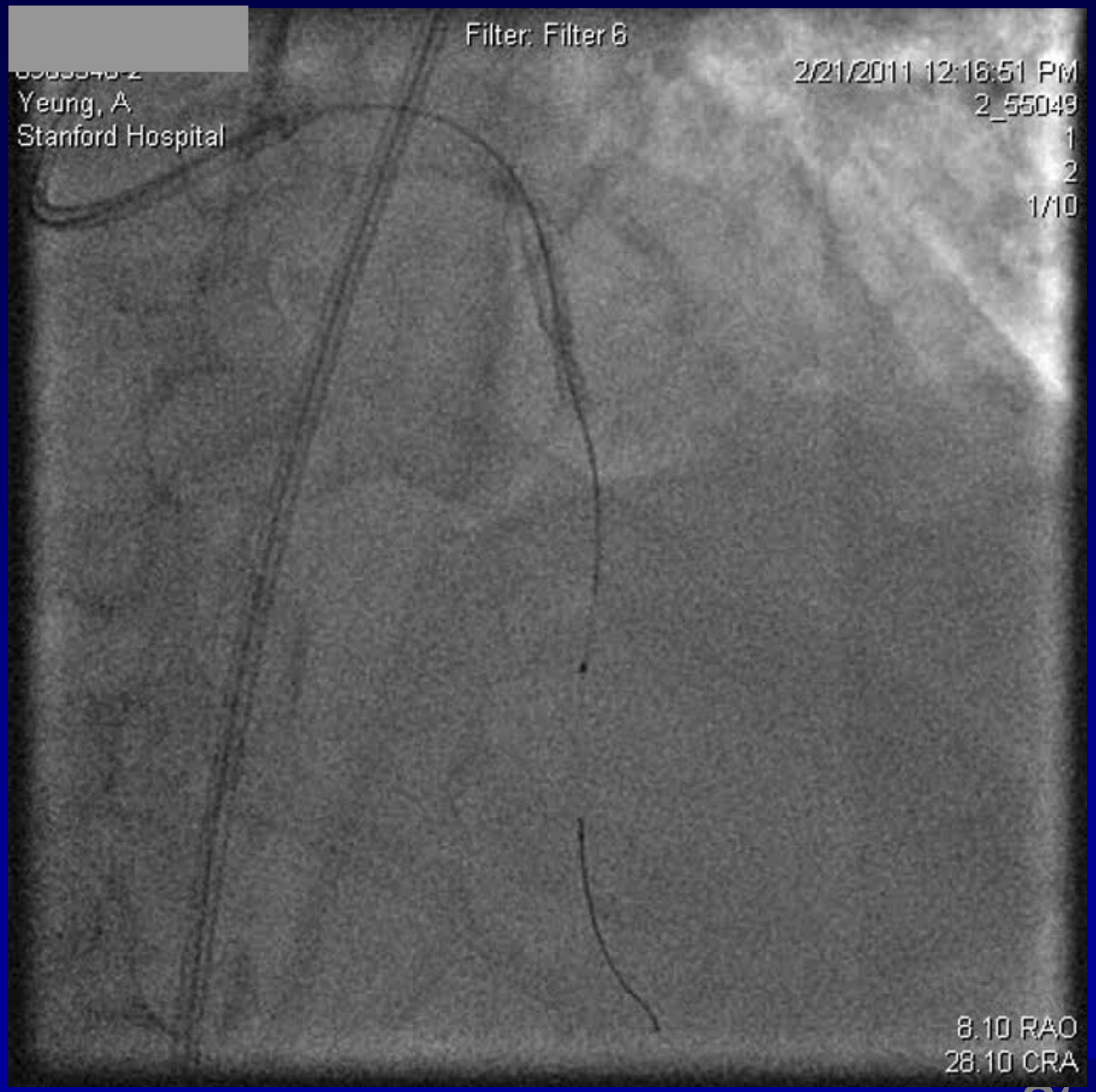
Yeung, A
Stanford Hospital
7.90 RAO
30.40 CRA

Stanford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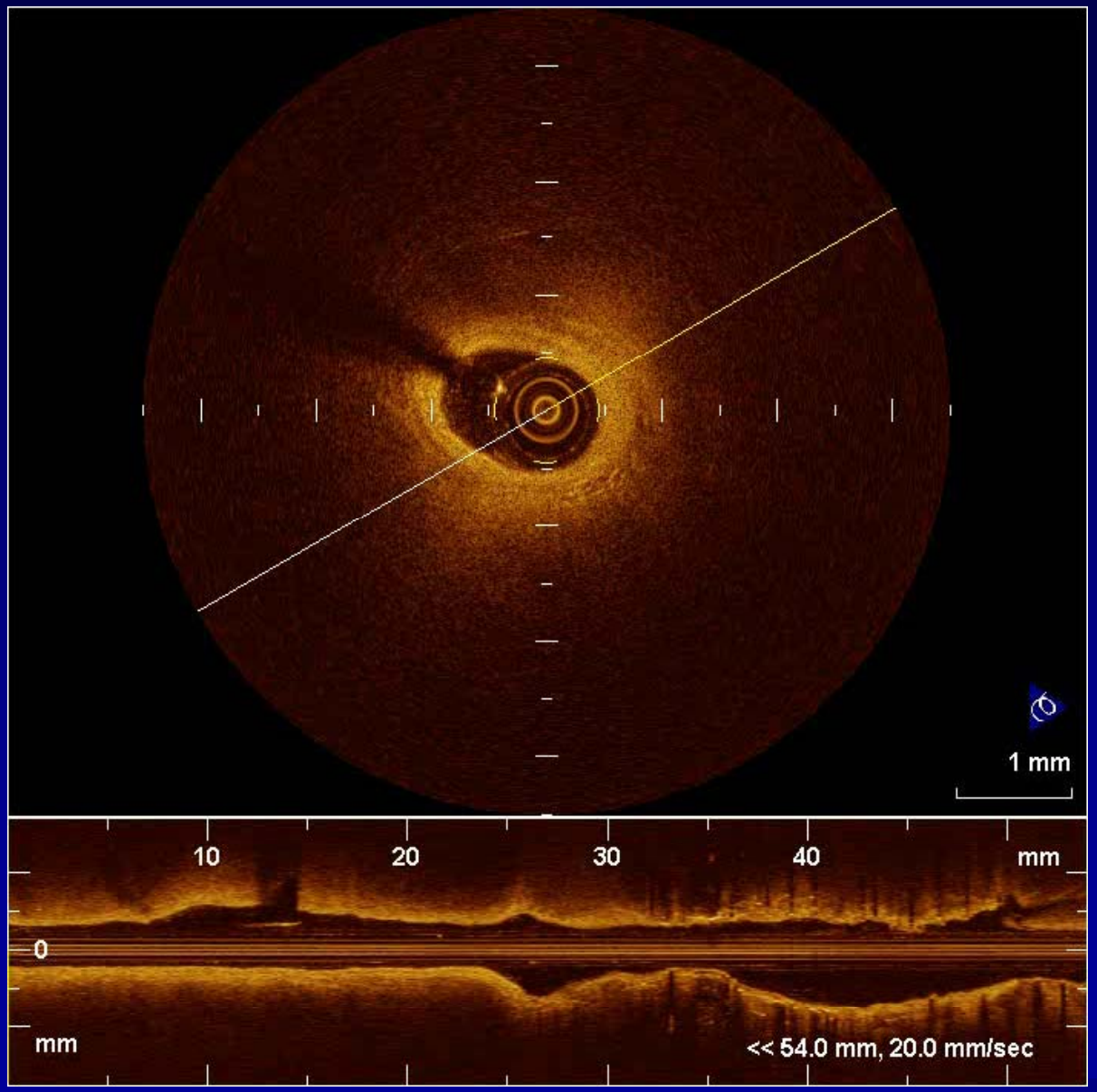
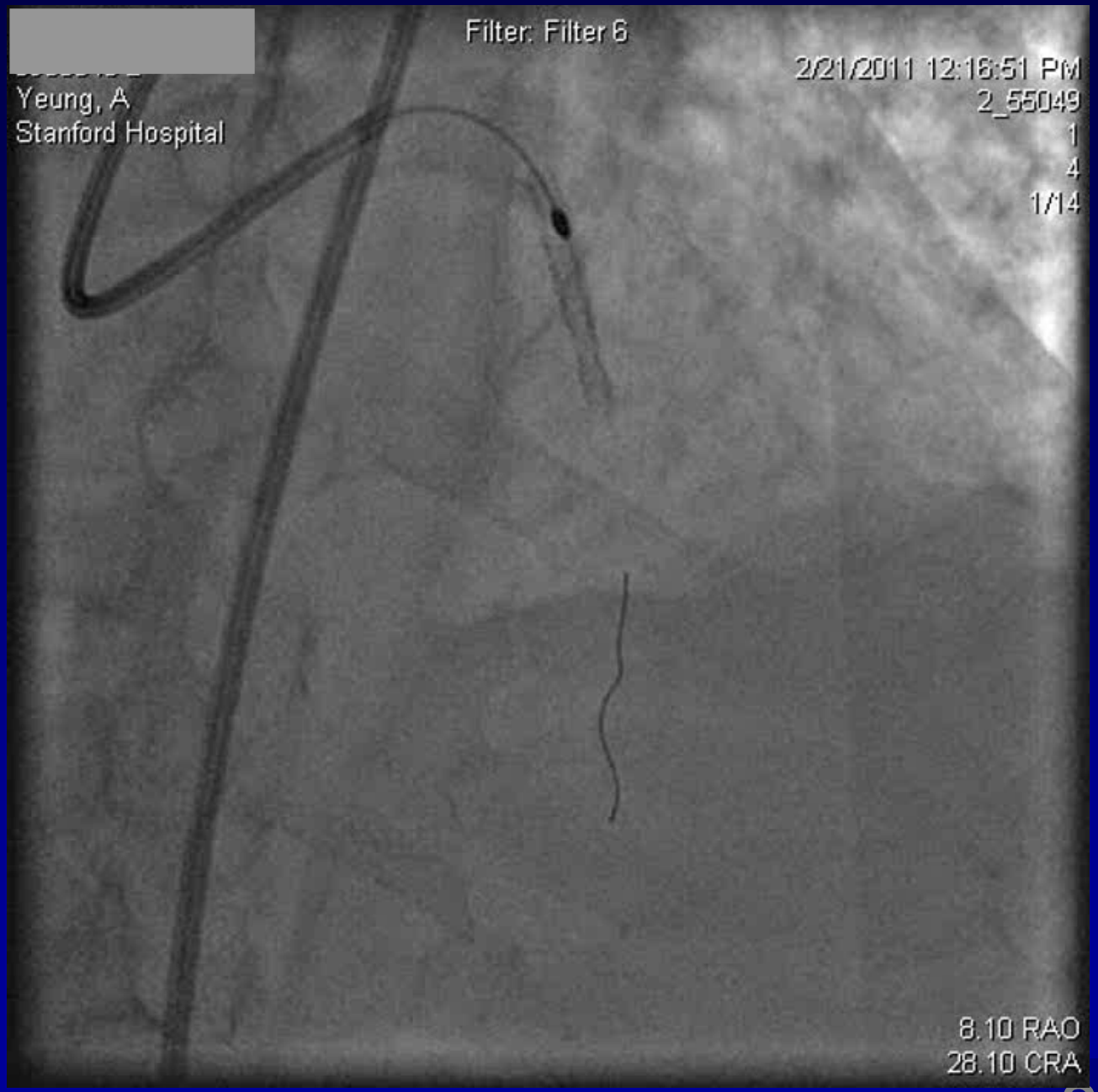
Stanford Hospital
8.10 RAO
28.10 CRA

Stanford

OCT



Stanford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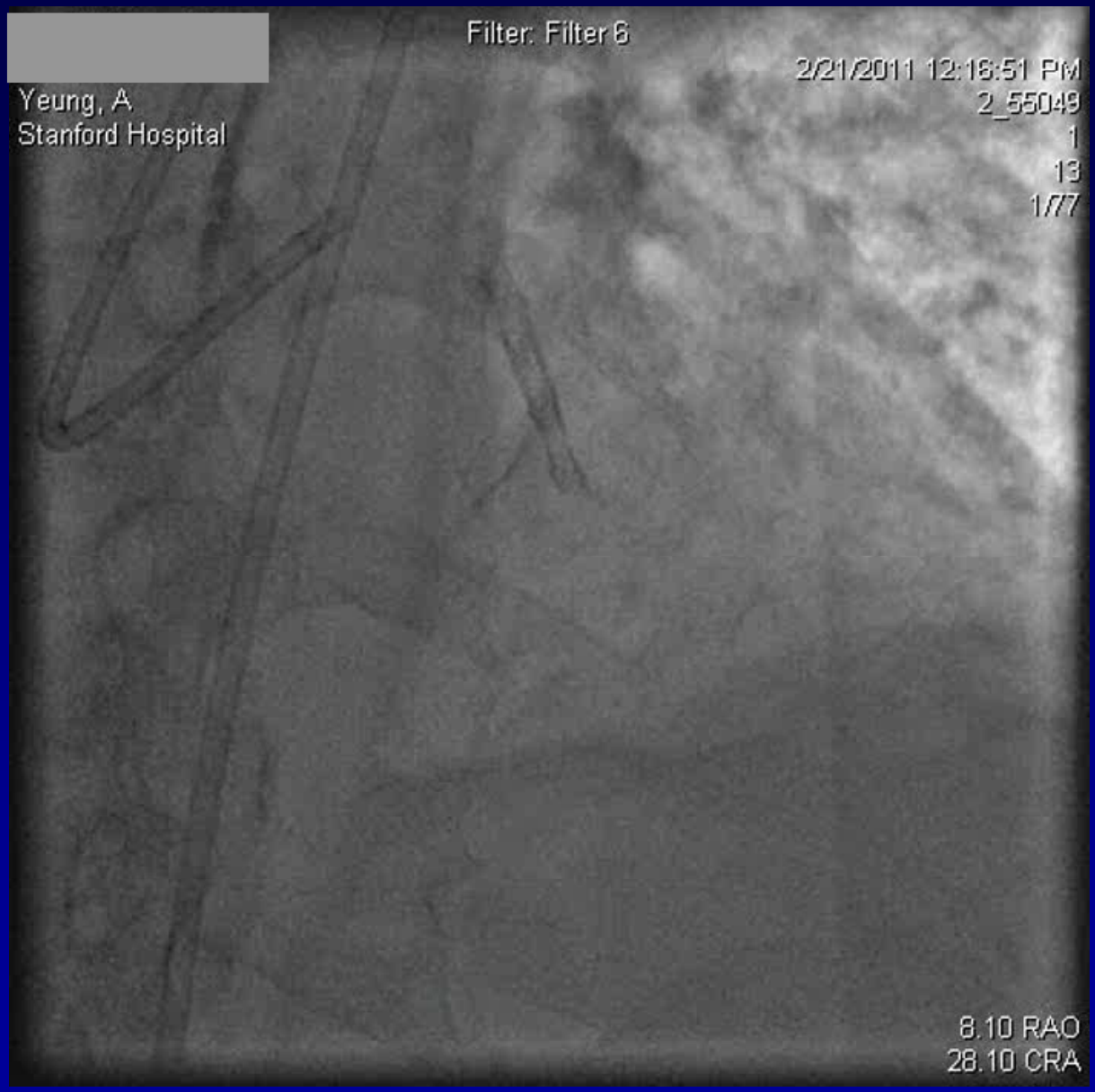
Stanford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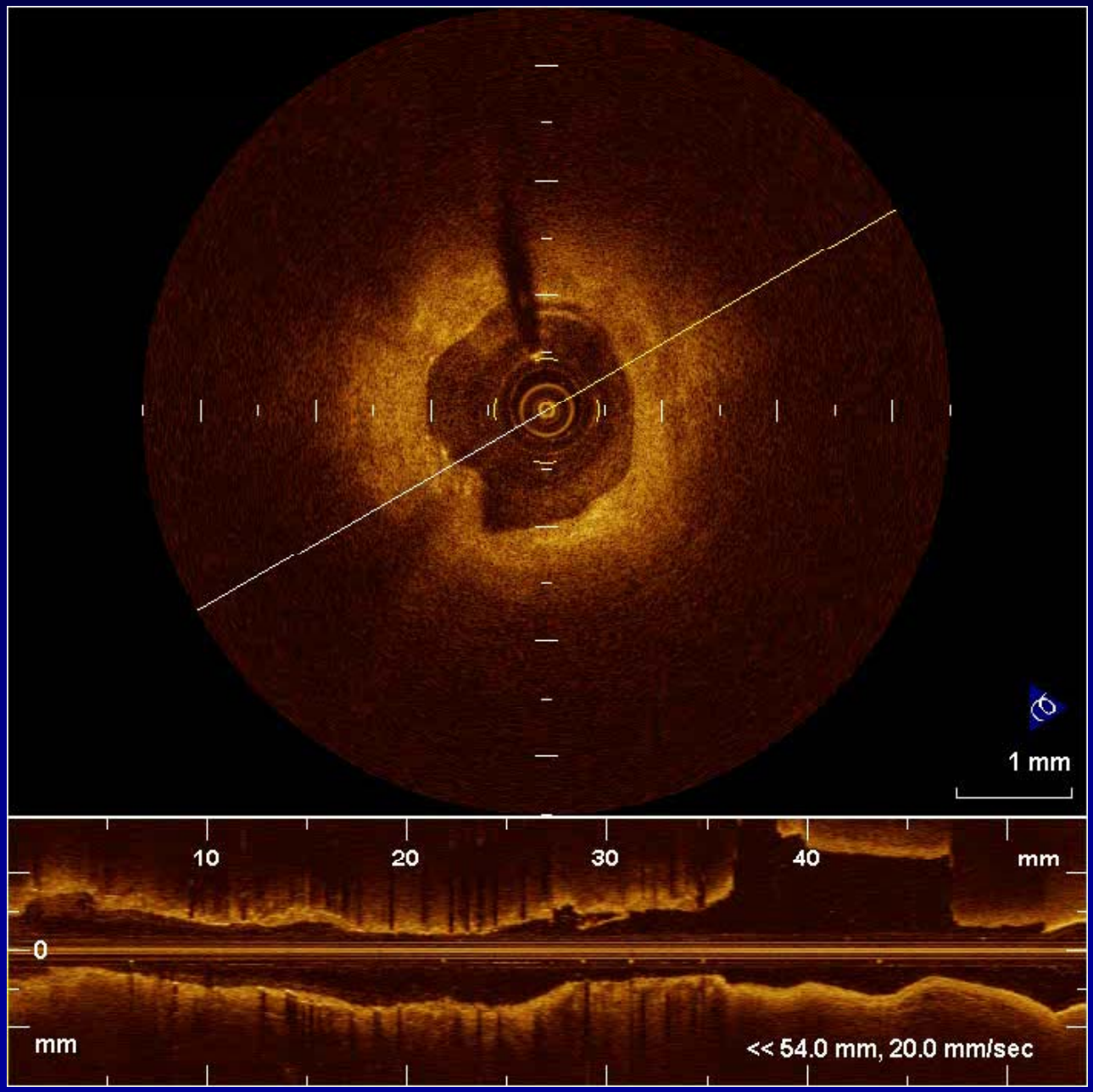

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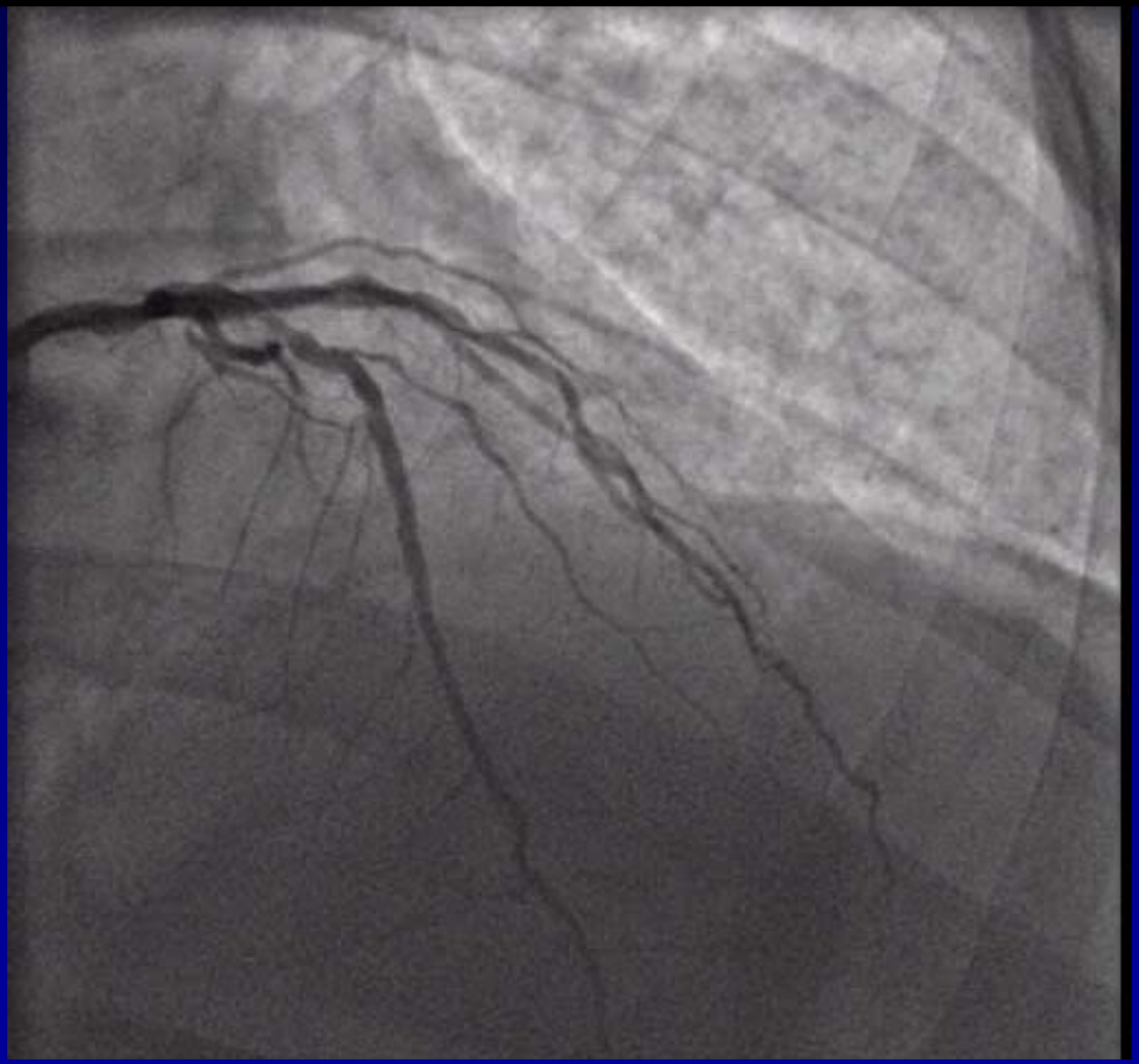
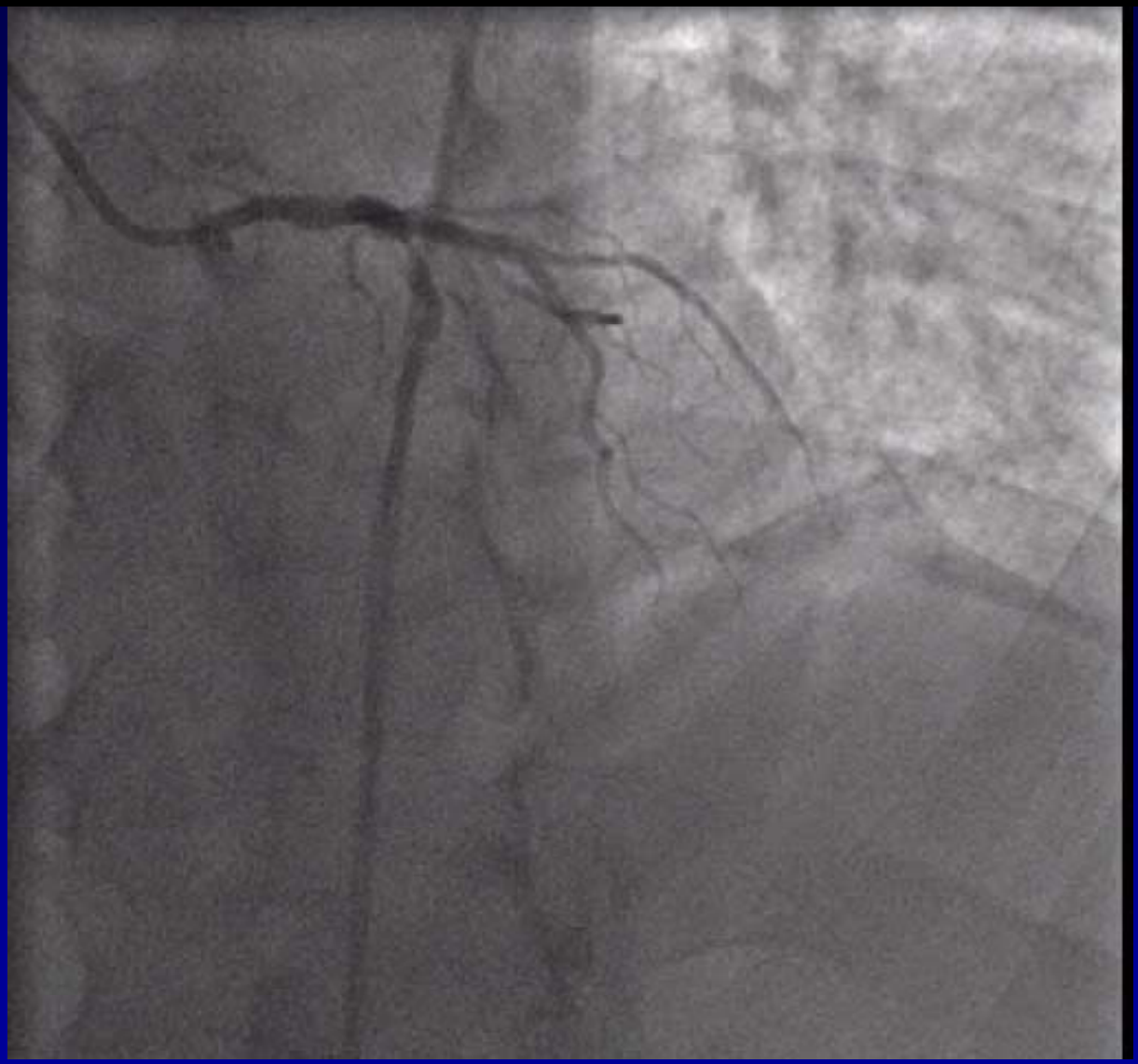
Case

- 64 year old man with HTN, HL and DM.
- He developed chest pain and was admitted to the hospital.
- Coronary angiogram showed a bifurcation lesion in the LAD and Diagonal branch.
- Approach: Provisional Stenting

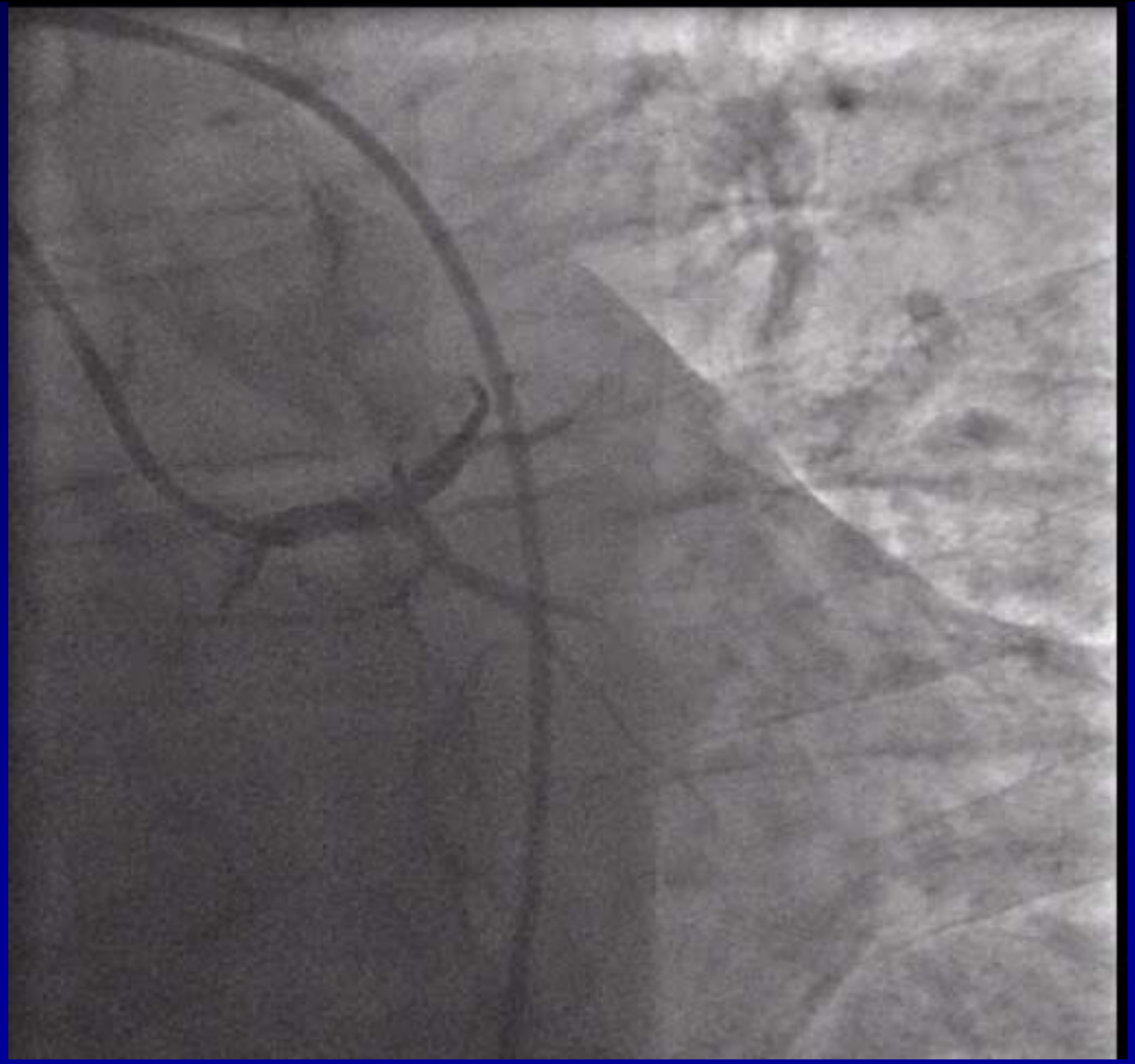
Pre LAD Cranial



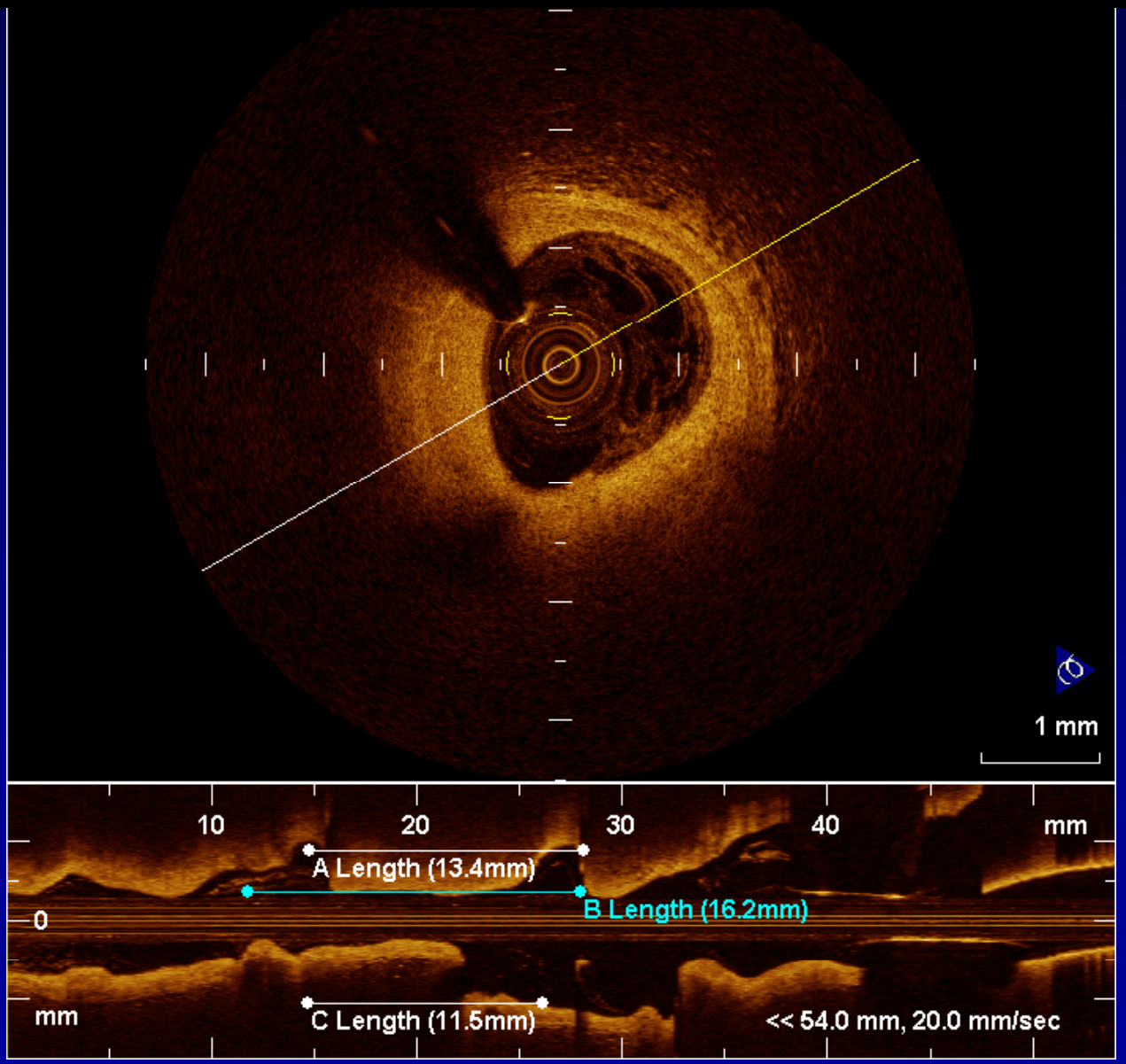
Pre AP Cranial



Pre LAD Caudal



Pre Stent



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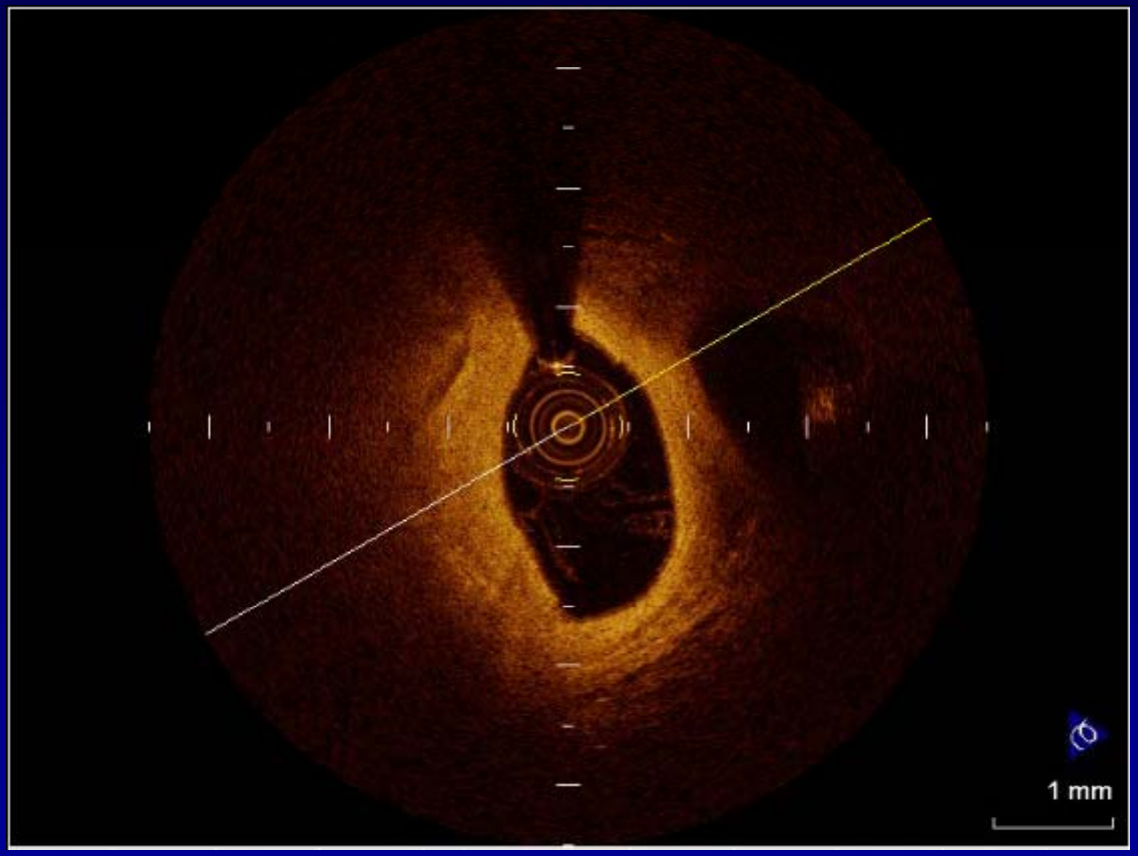

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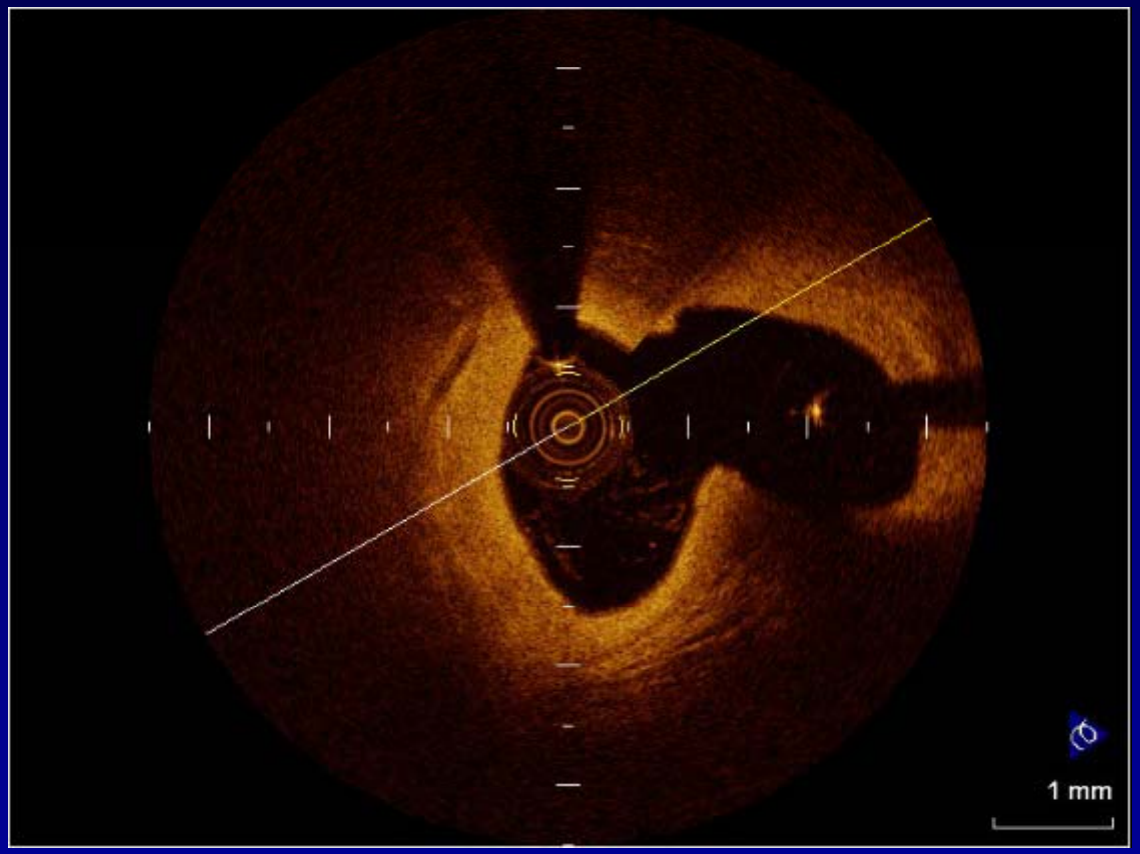

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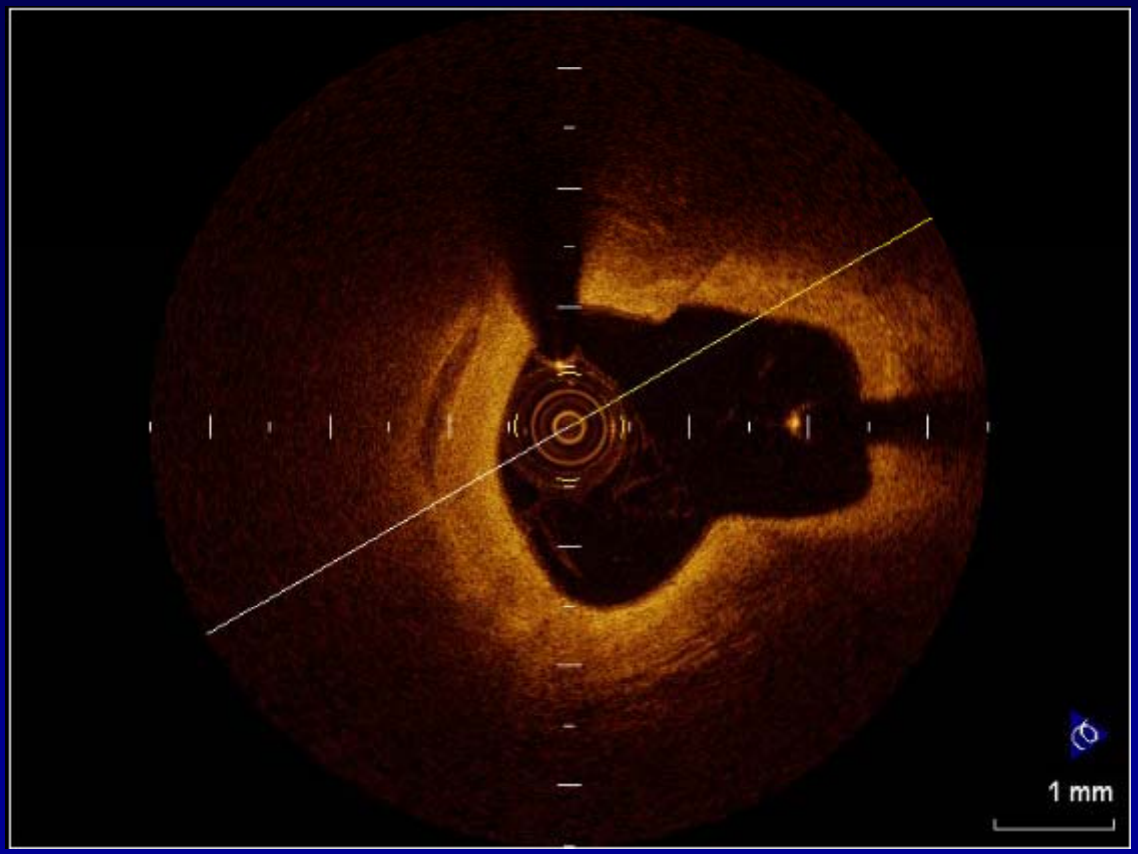
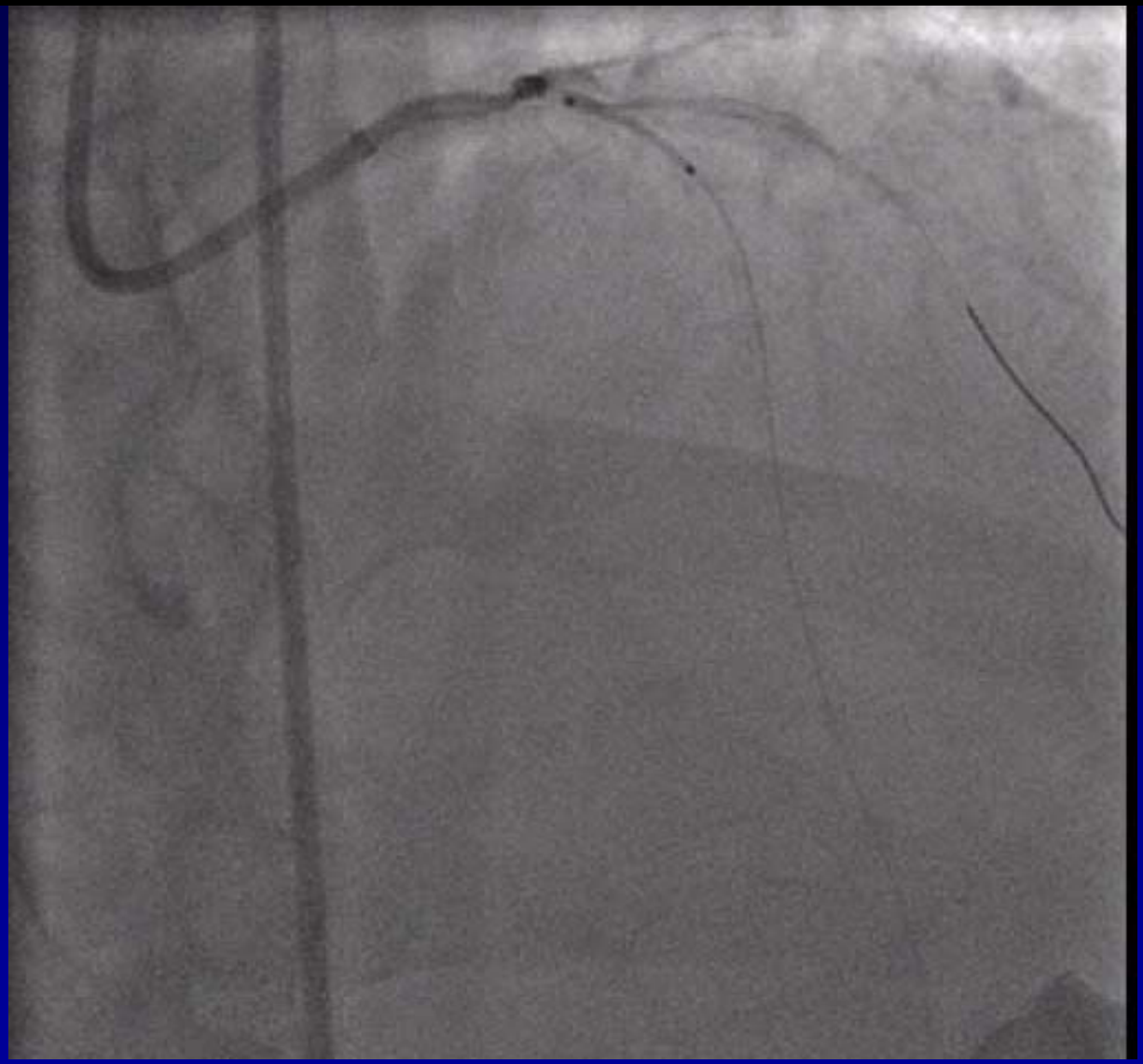
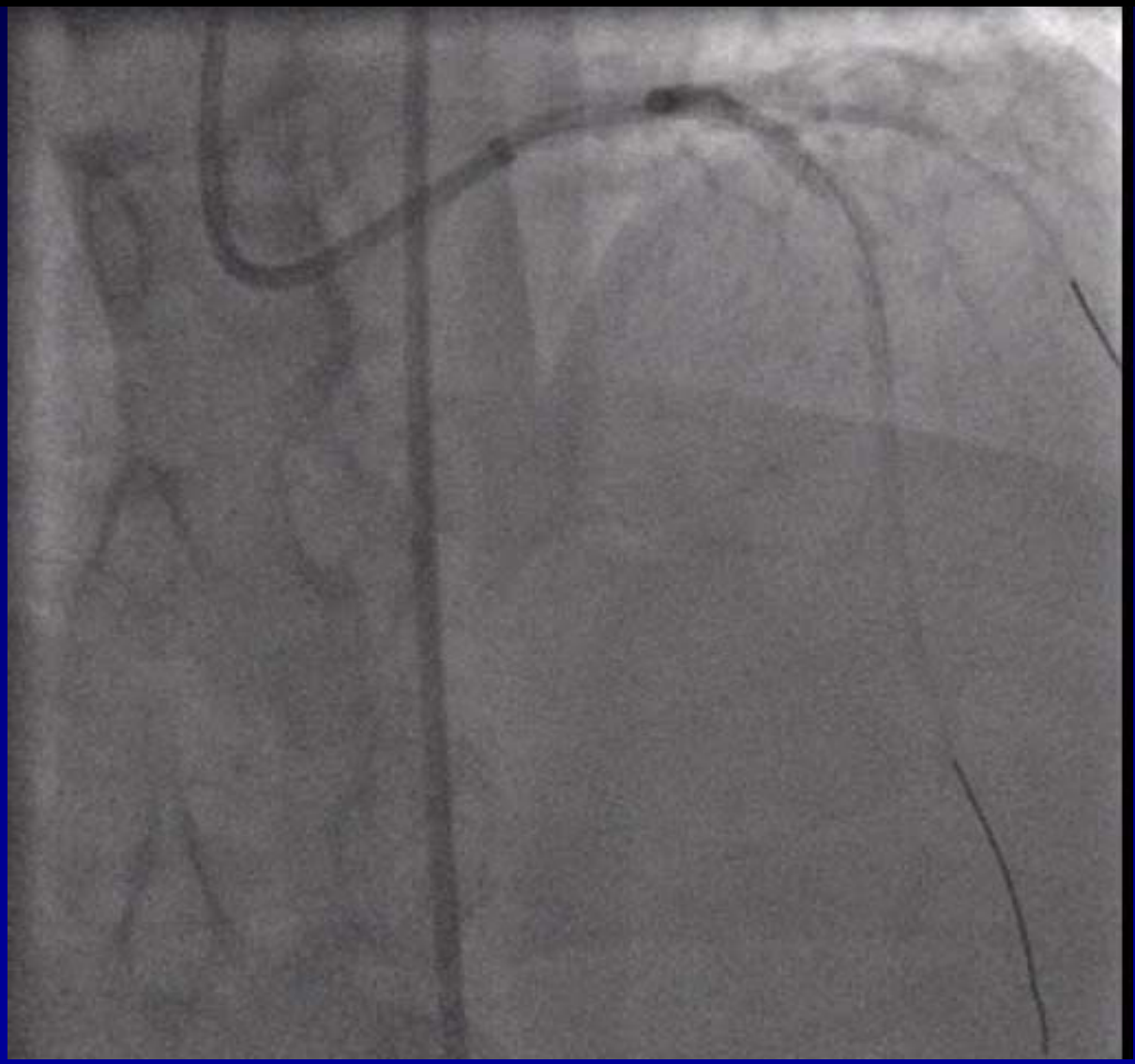

1 mm

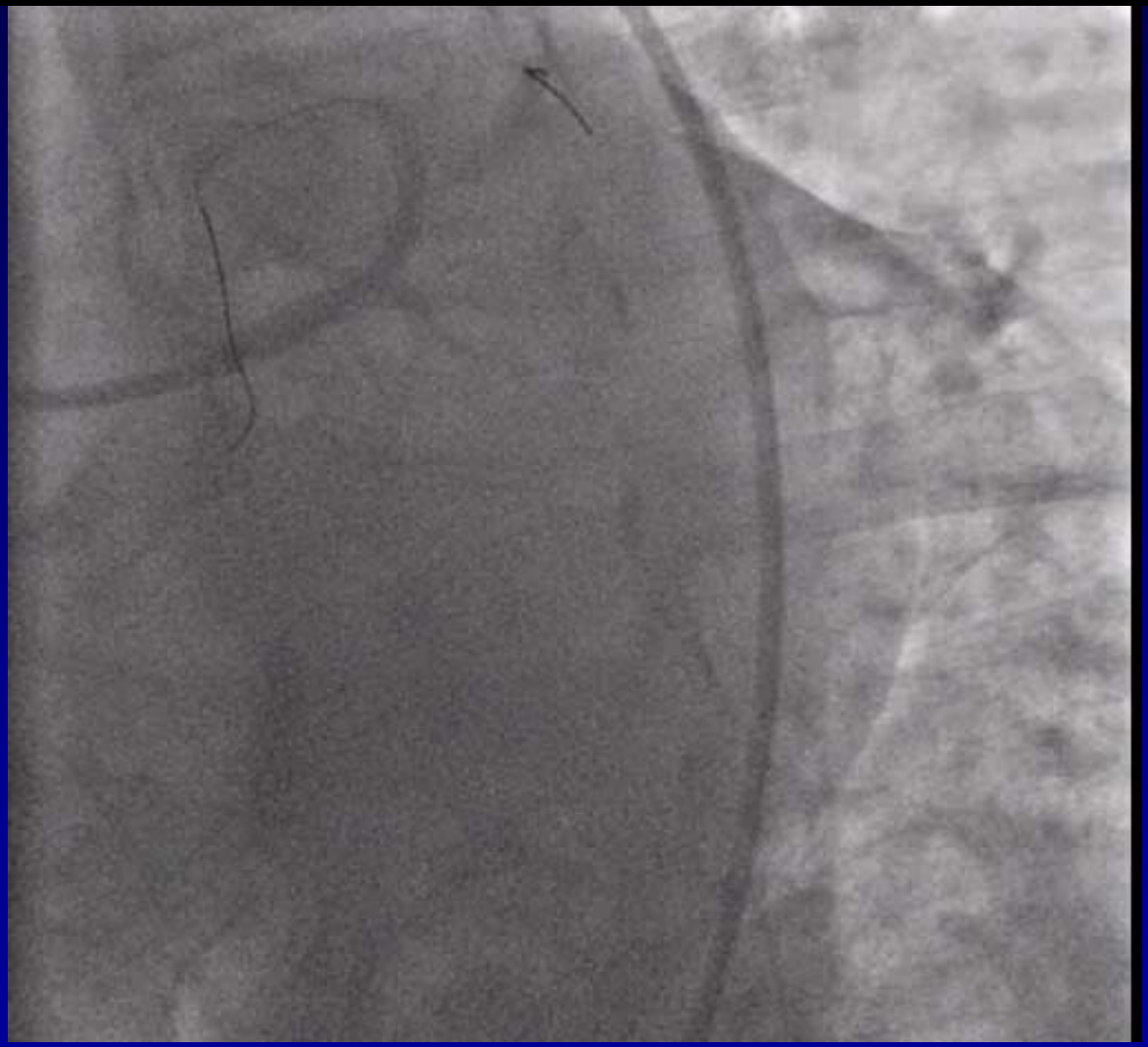
Stent Position



Post Stent Cranial

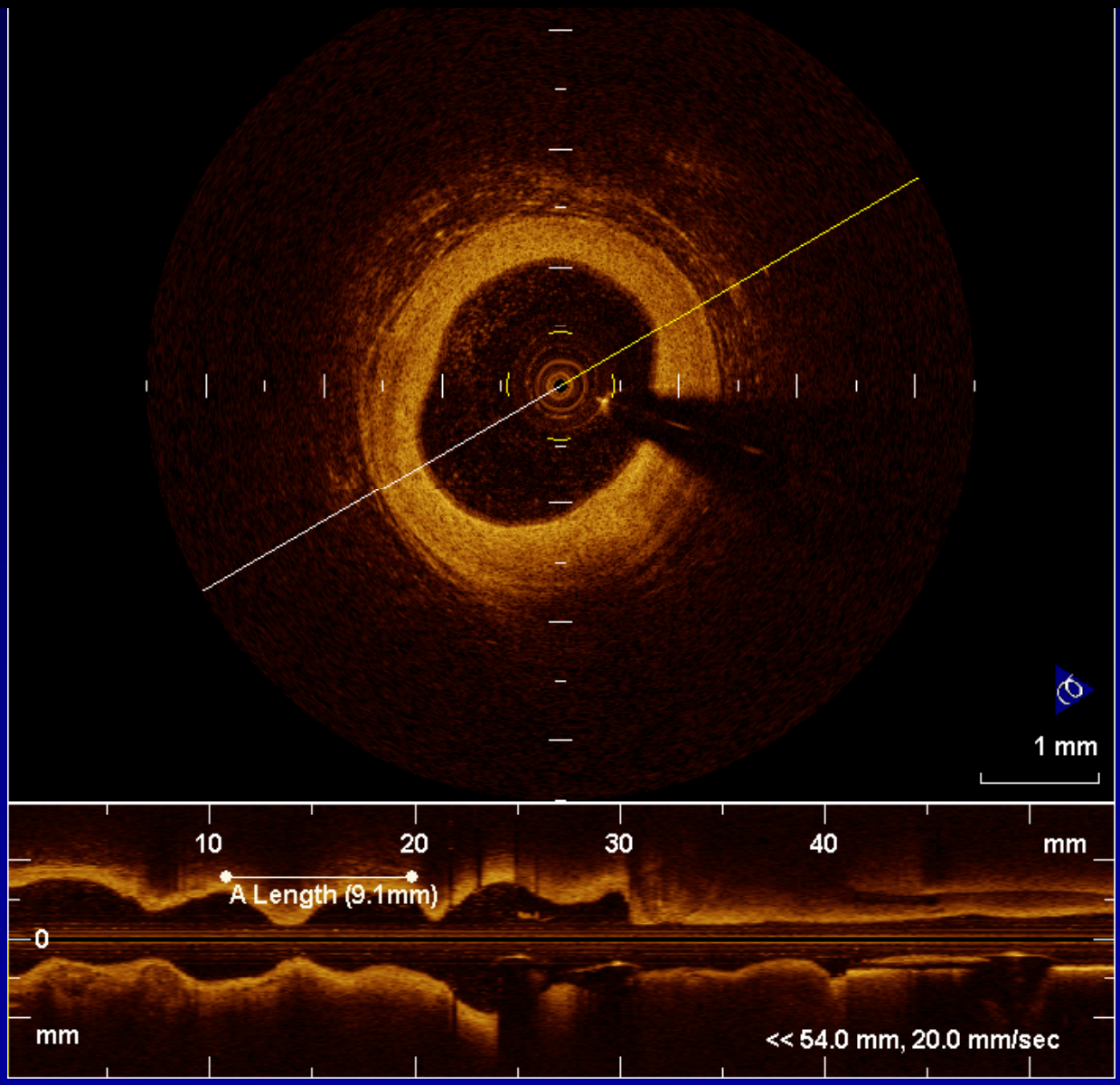


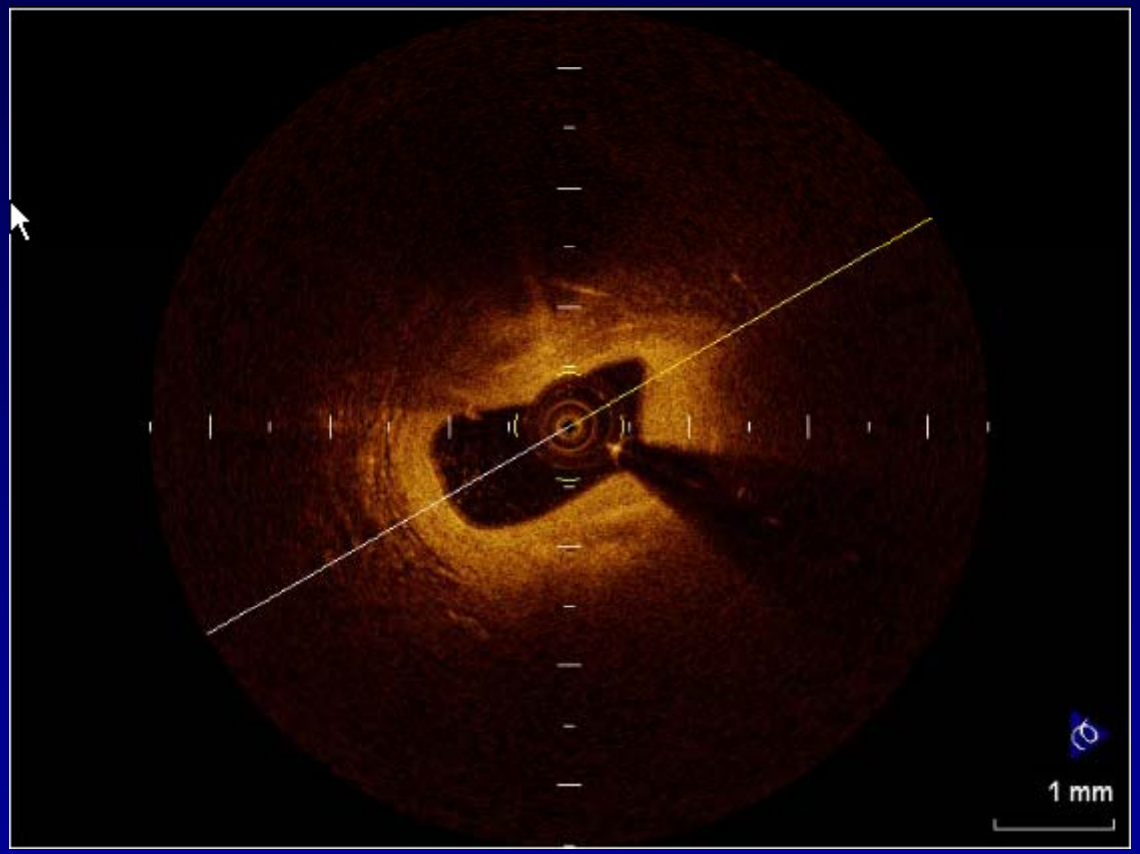
Post Stent Cranial



OCT in Diagonal

Post Stent LAD to Diagonal

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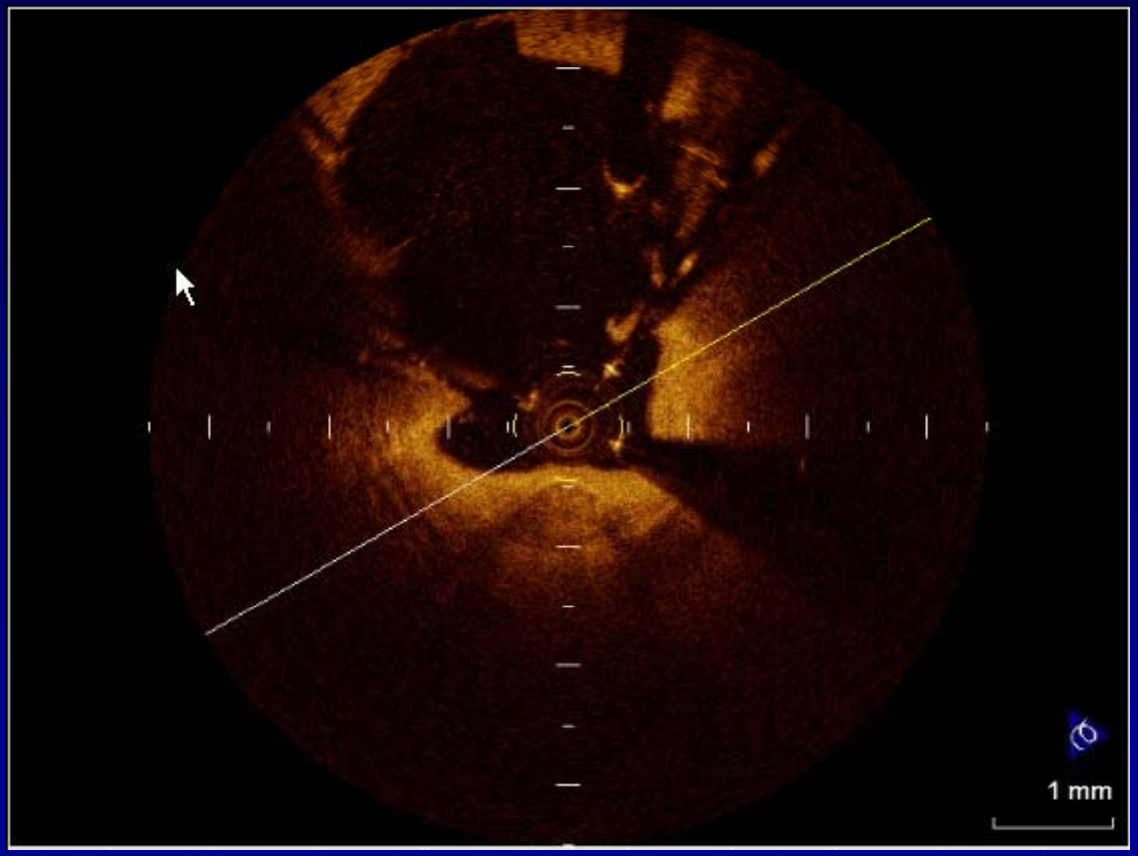
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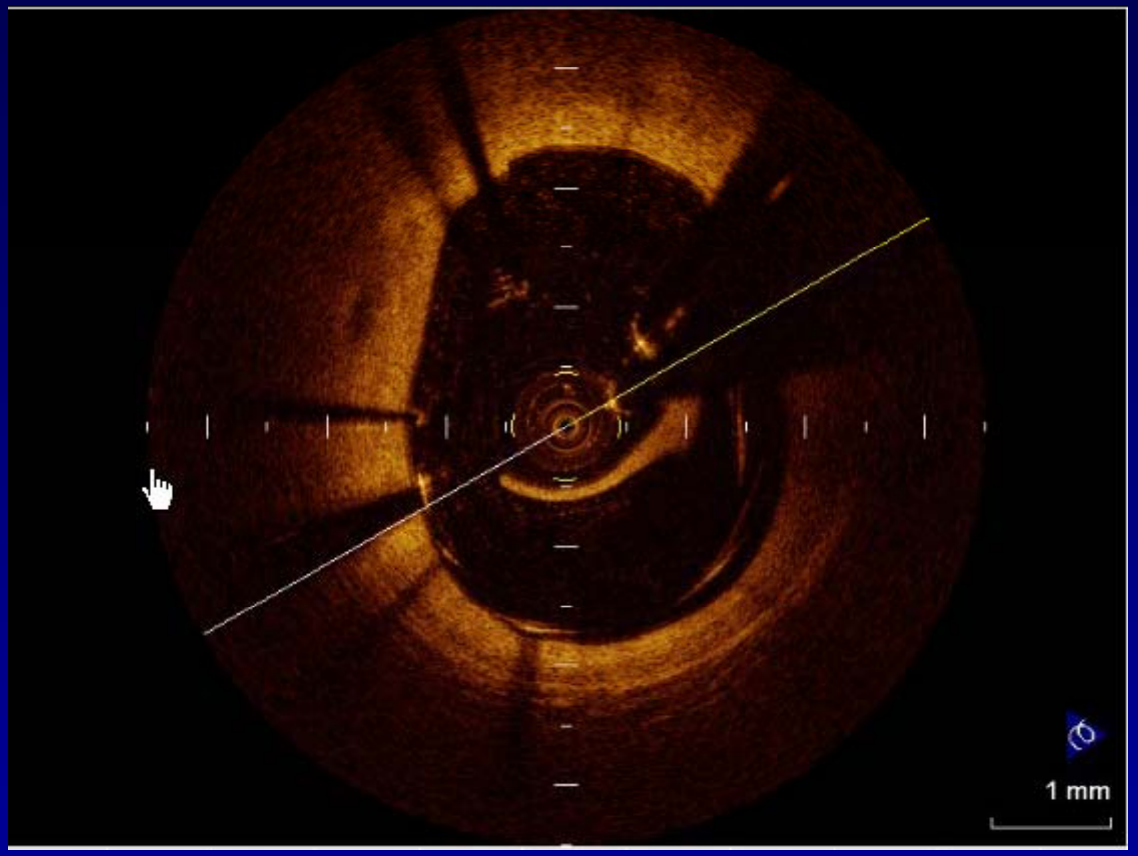
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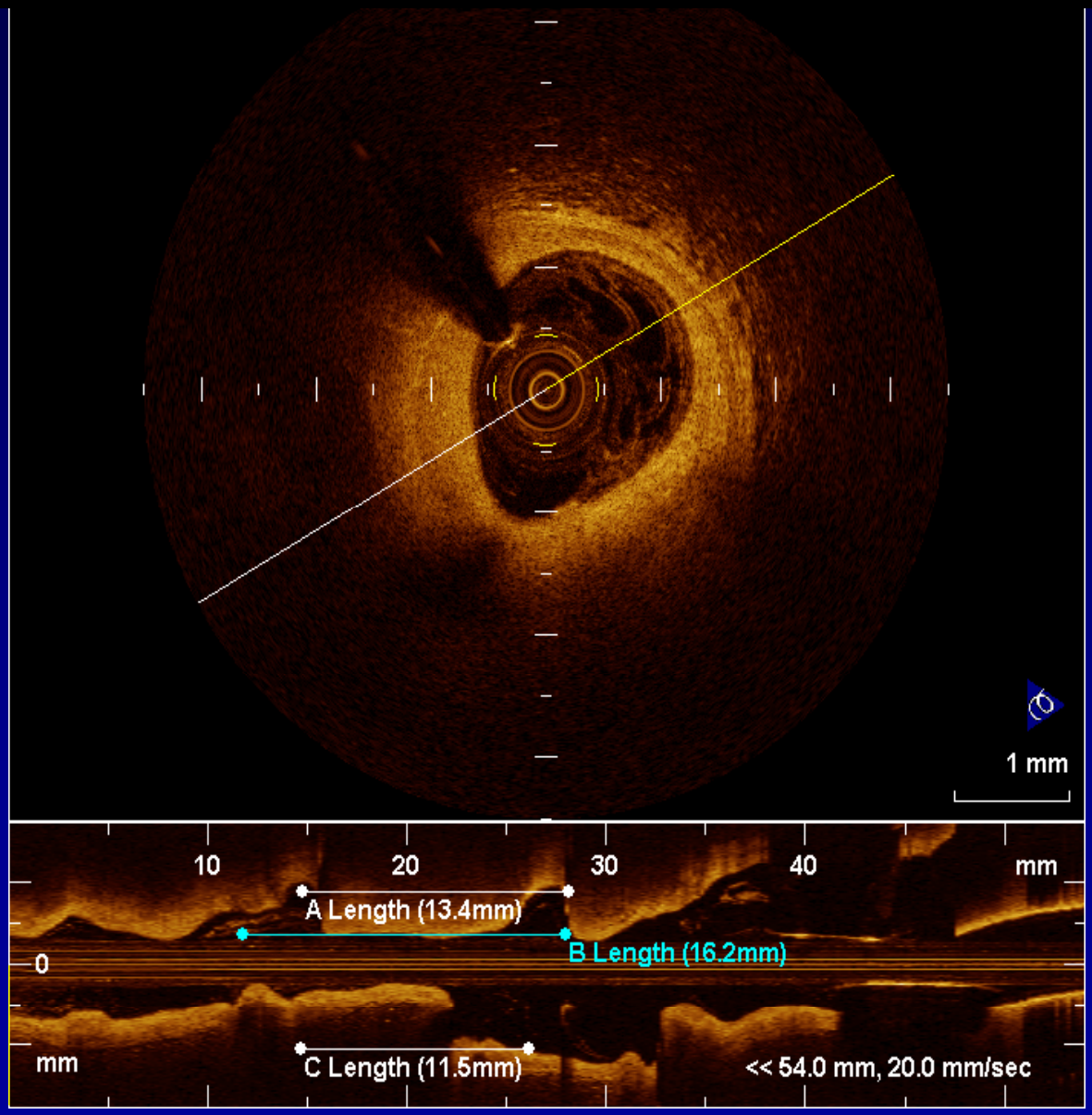
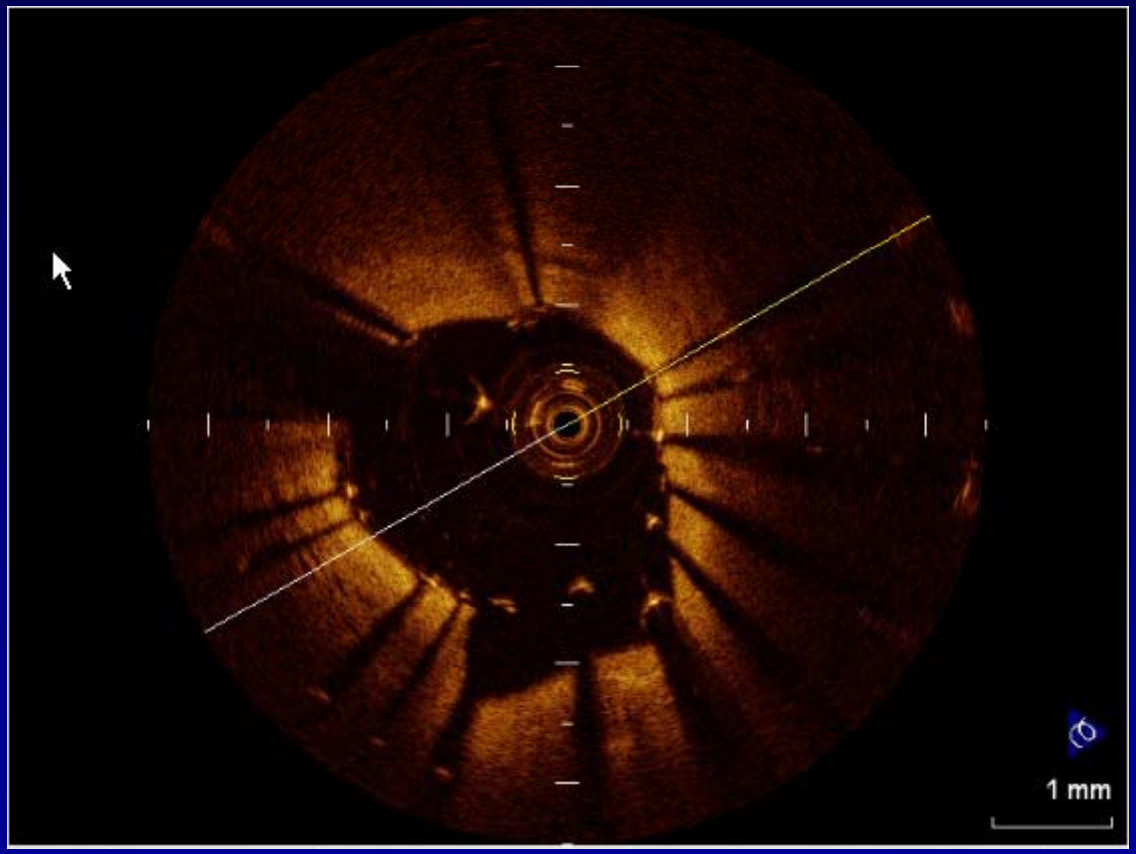
OCT in LAD

Post Stent LAD





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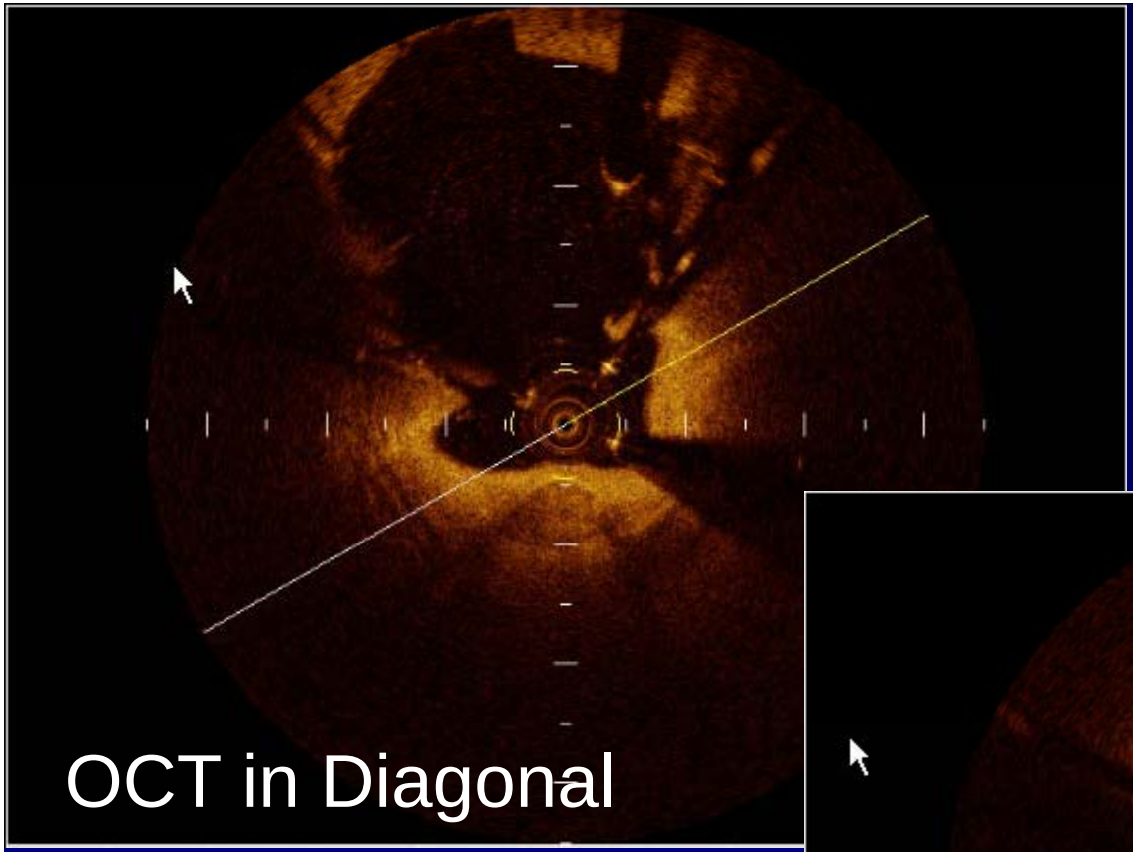
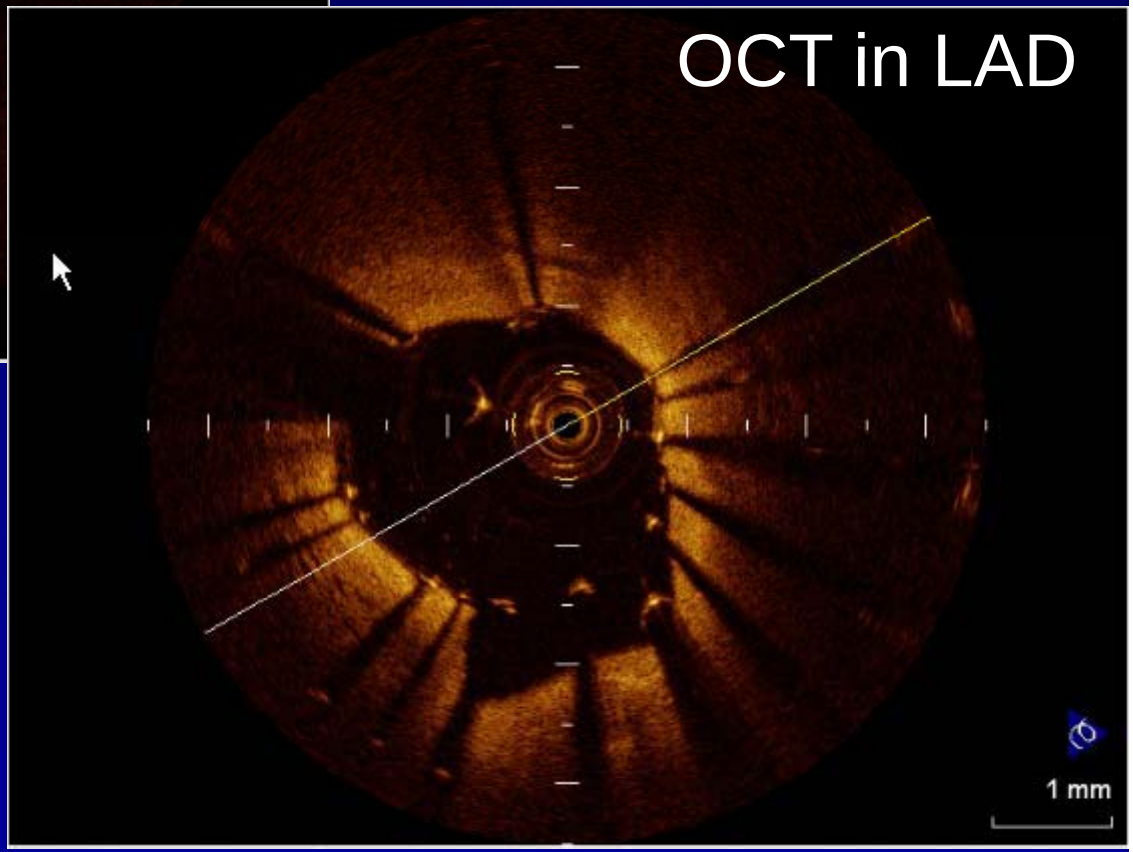


OCT in Diagonal



OCT in LAD

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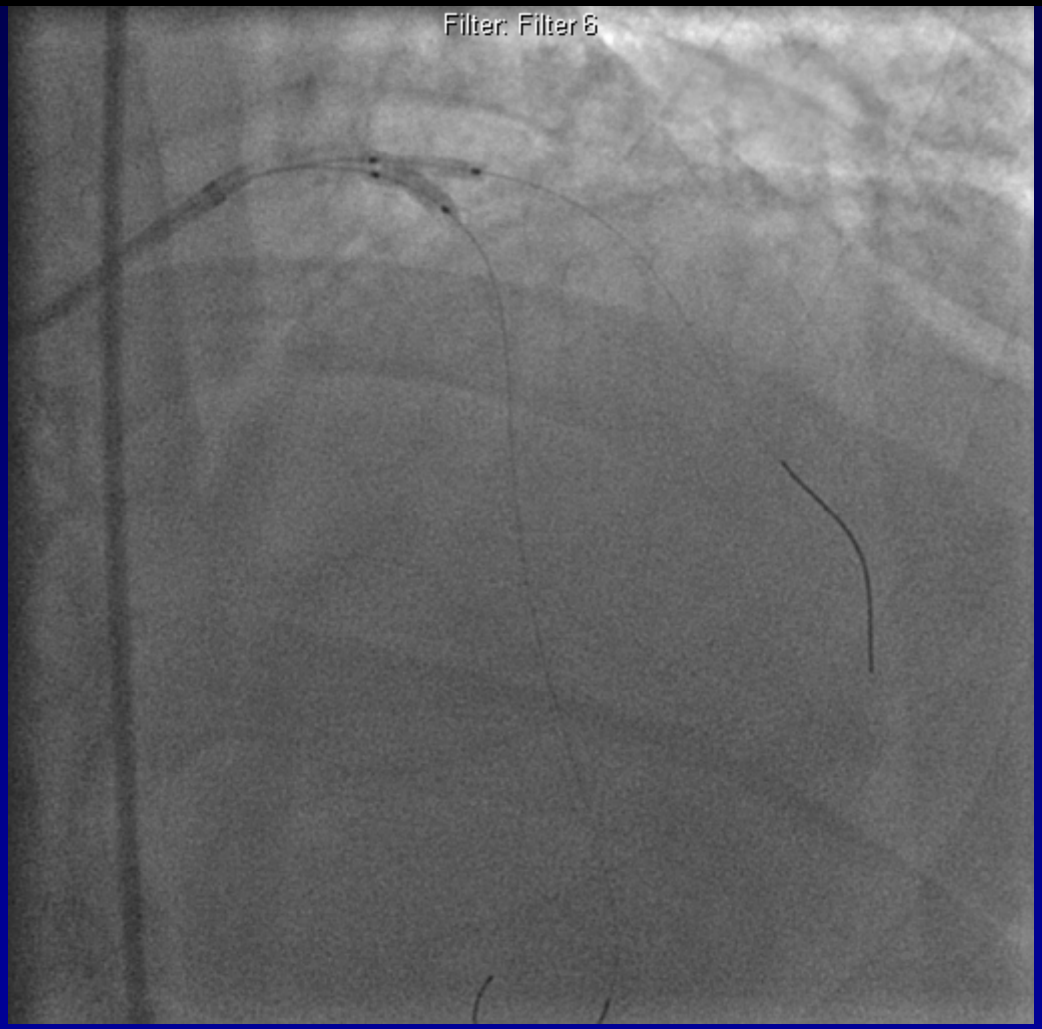
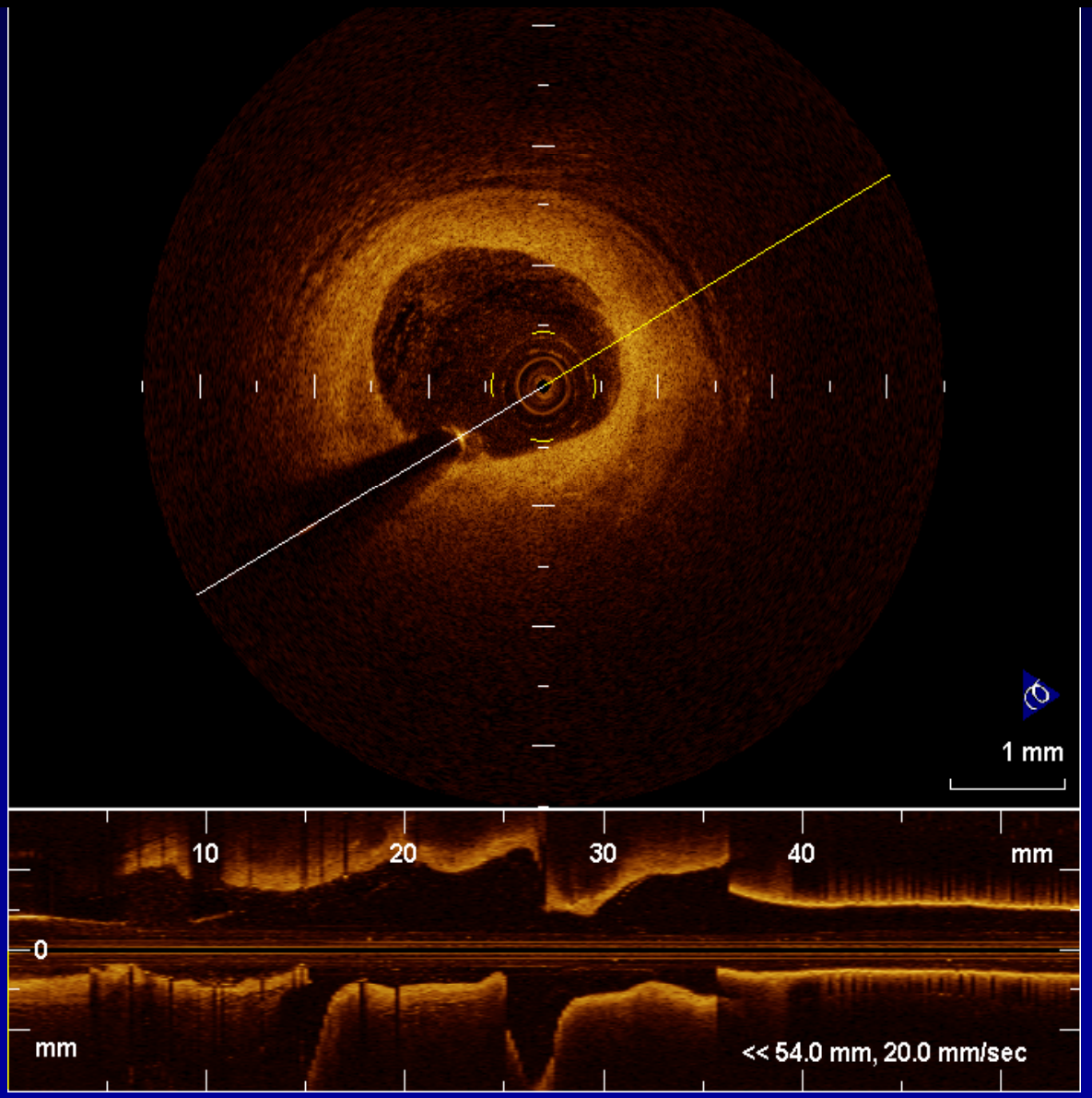
Kissing Balloons



Post Kissing Balloon



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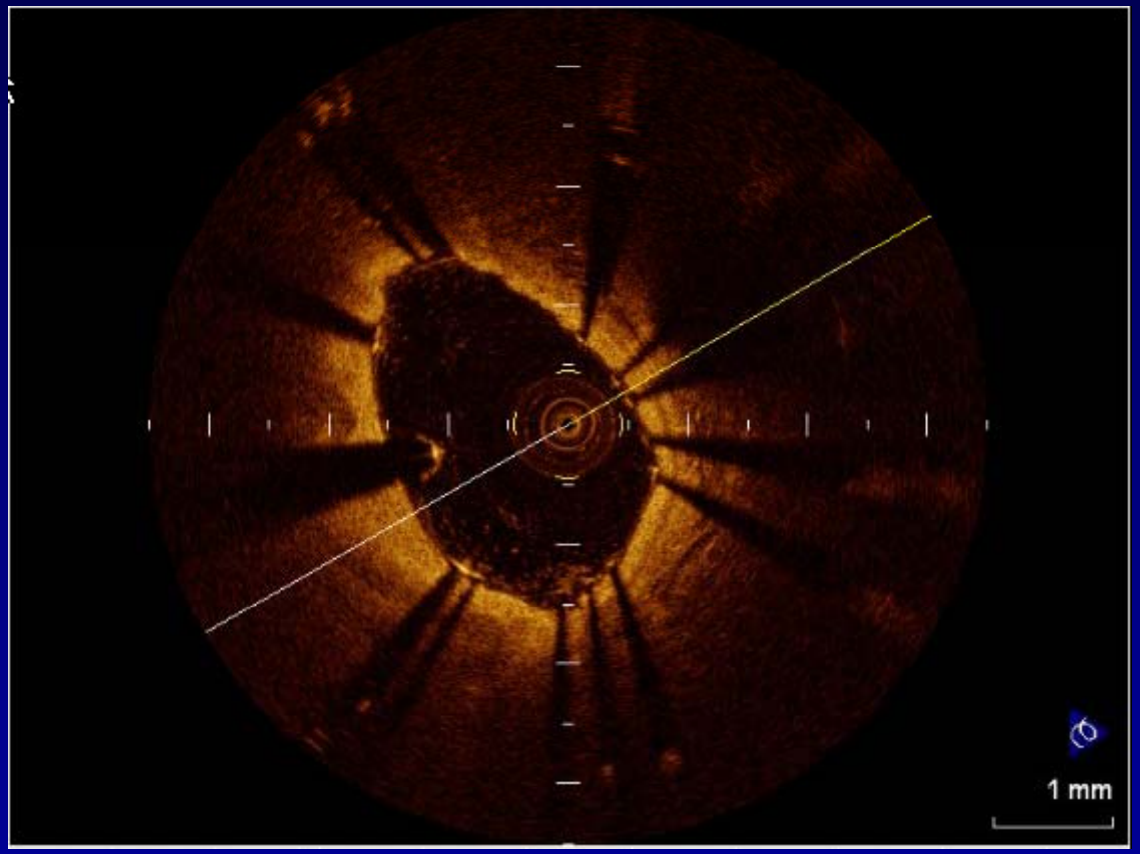
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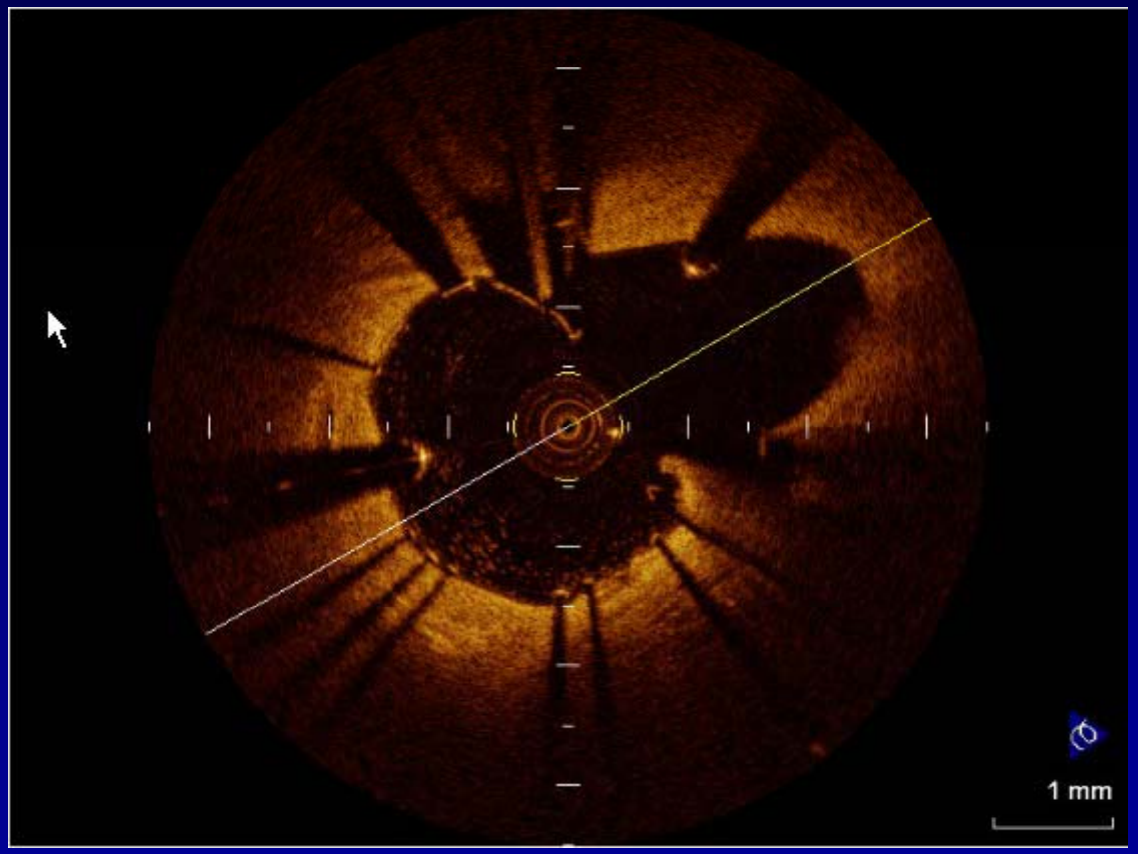

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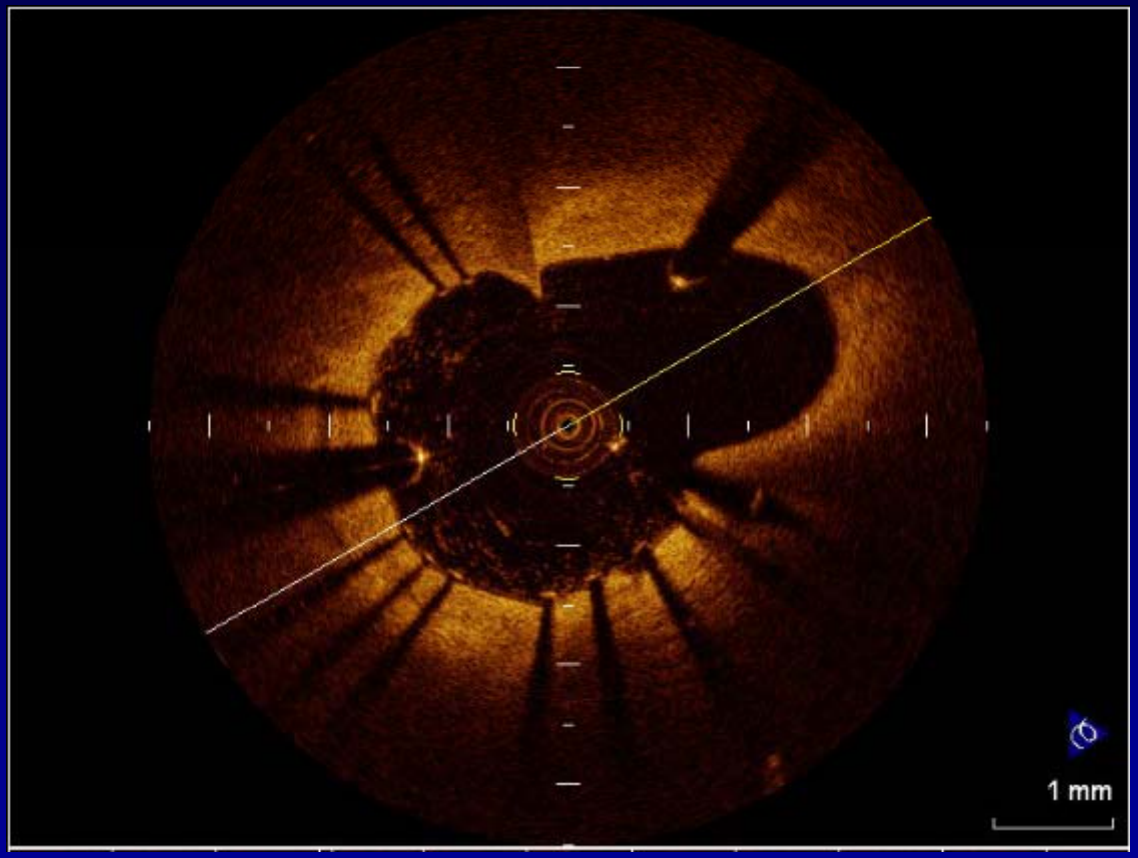
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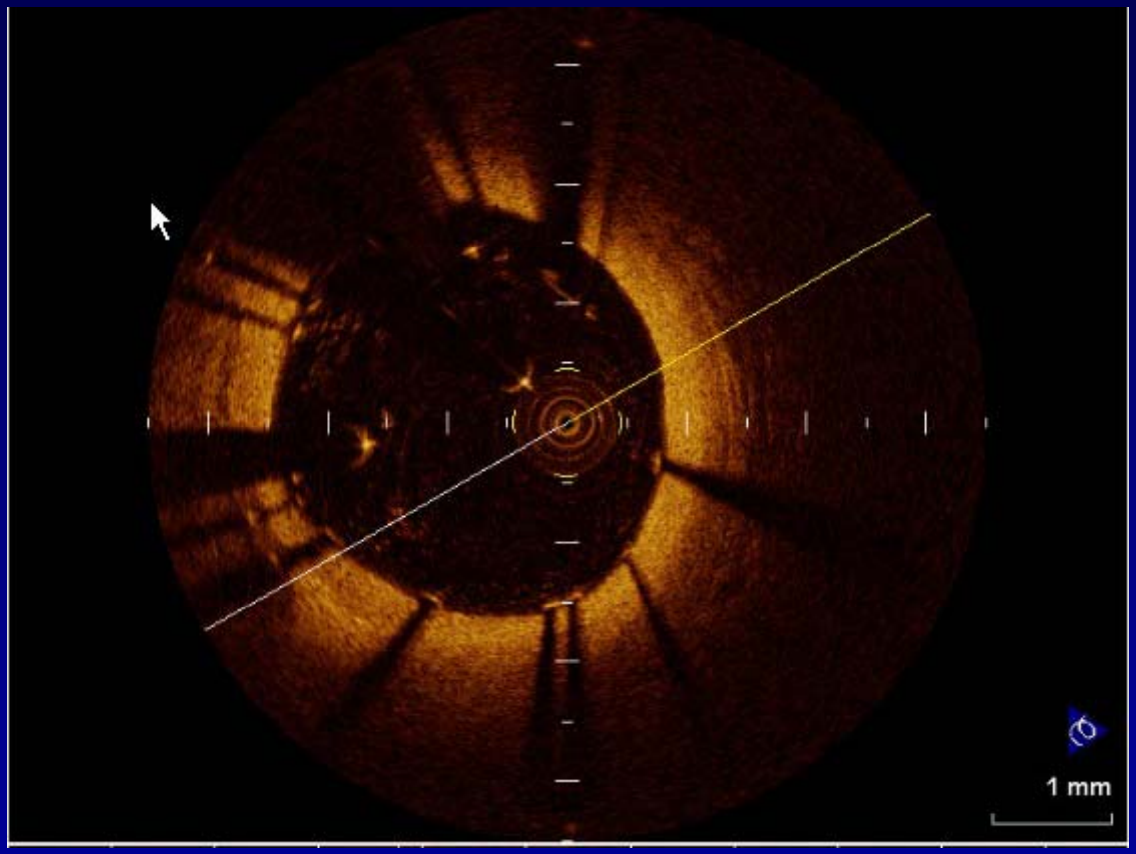
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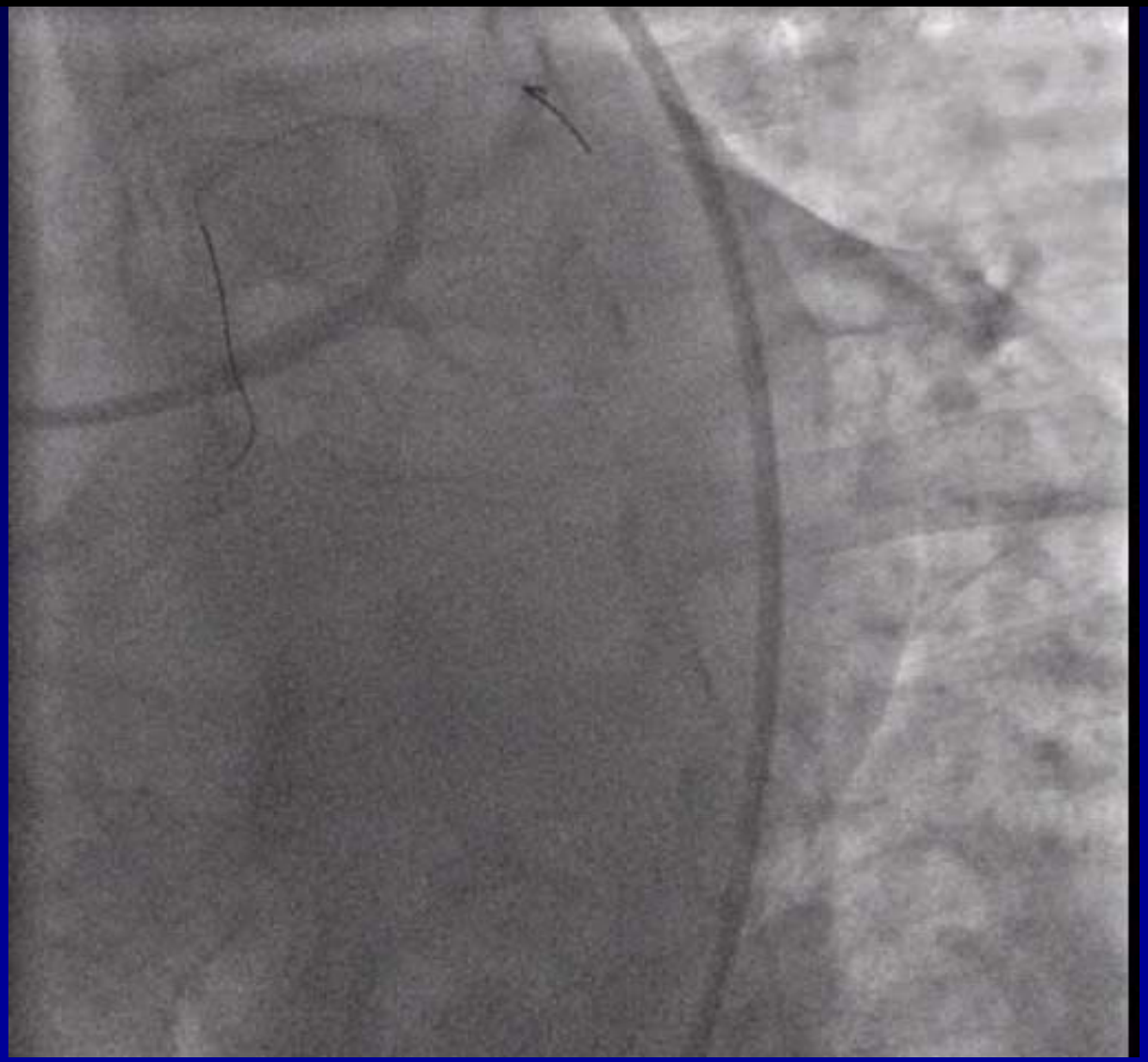
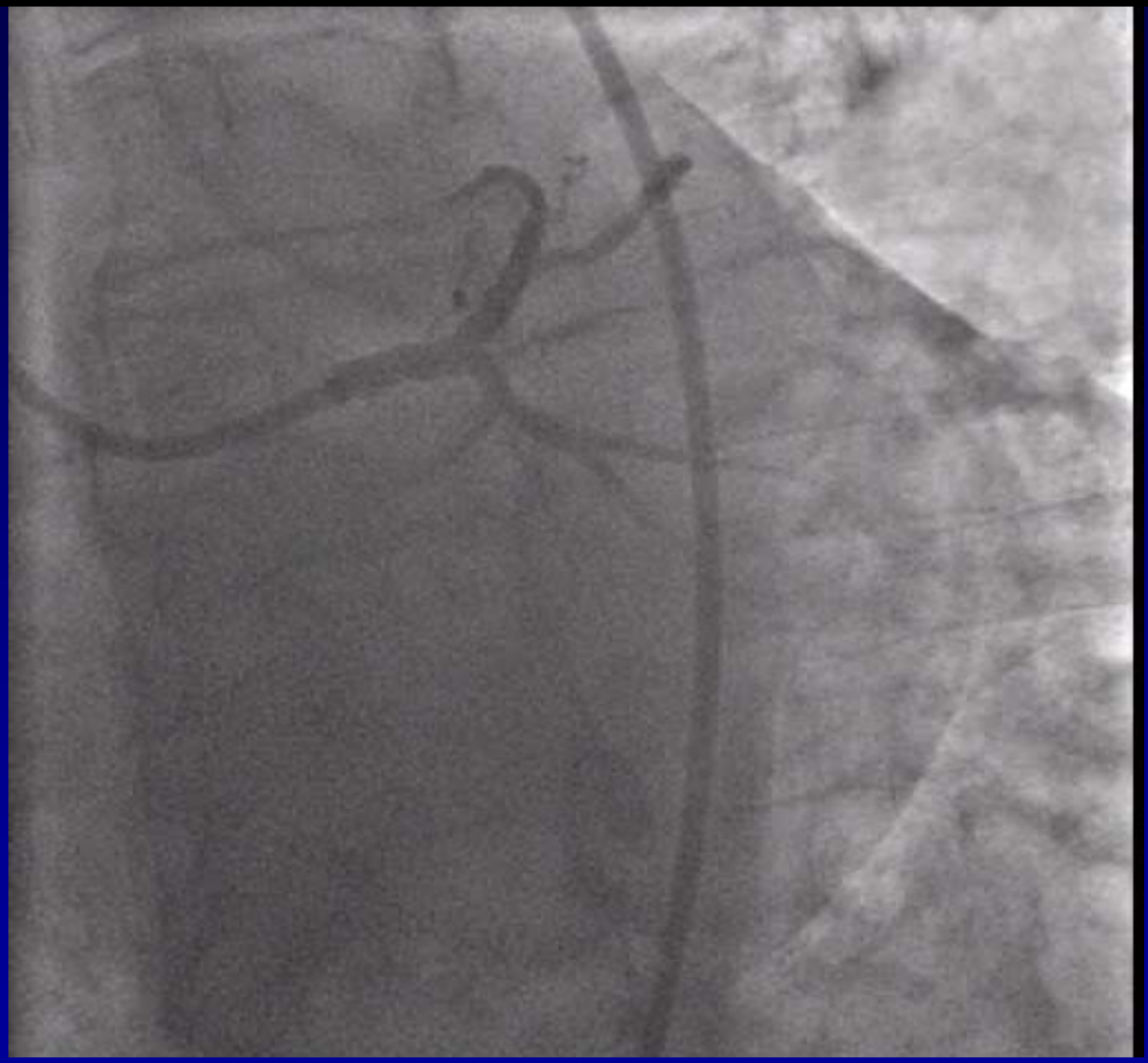
Final Cranial



Final Caudal



Learning Points

- Pre-stenting side branch imaging (OCT or IVUS) may help predict whether side branch compromise post stent will occur.
- Whether main vessel side OCT view of branch ostium is adequate is unknown.
- OCT catheter goes into side strut EASILY, can verify position of new side branch guidewire and clarify severity of ostial stenosis of side-branch