

OCT FINDINGS IN THE PATIENT WITH STEMI

Hanyang University Guri Hospital

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Male /83

Chest pain

6hrs ago

Continuous

Dizziness

Shortness of breath

Vital sign

150/90mmHg
86/min

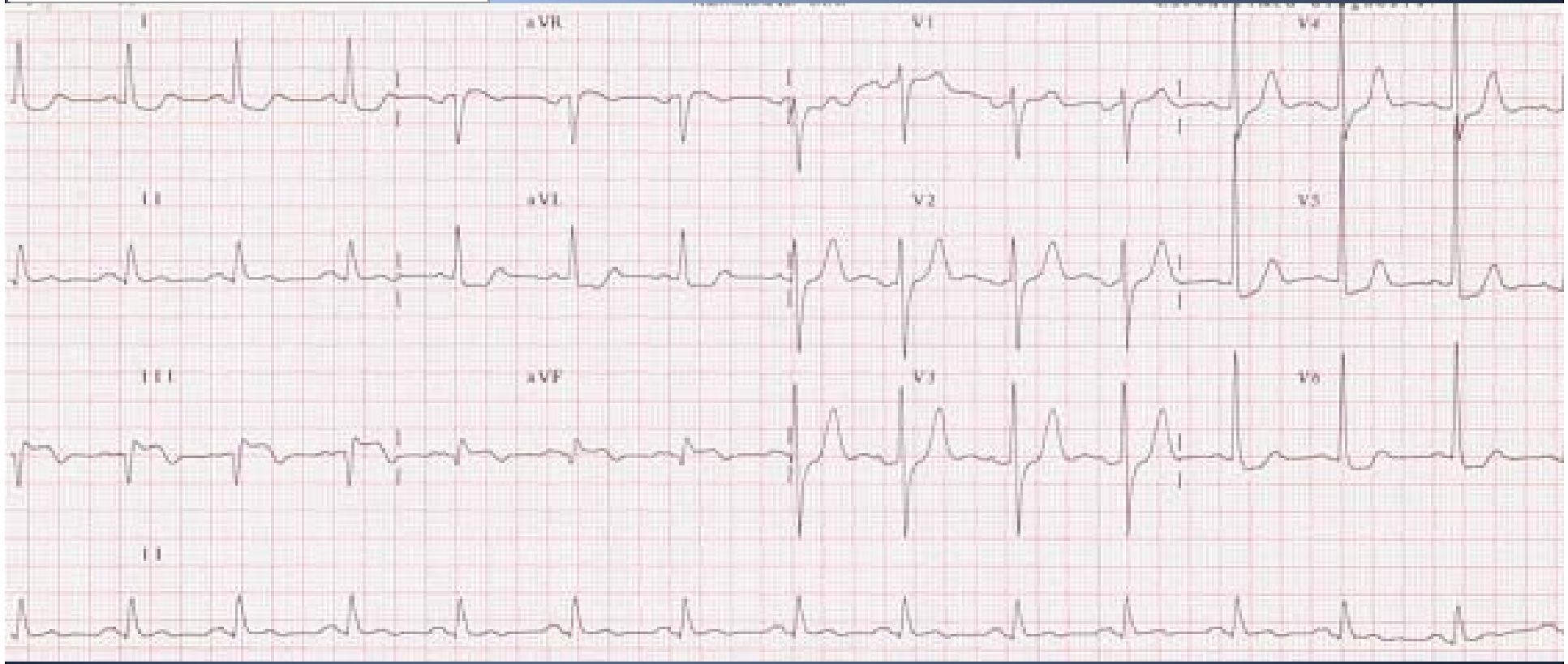
CAD risk factors

Hypertension
Ex-smoker
Old age



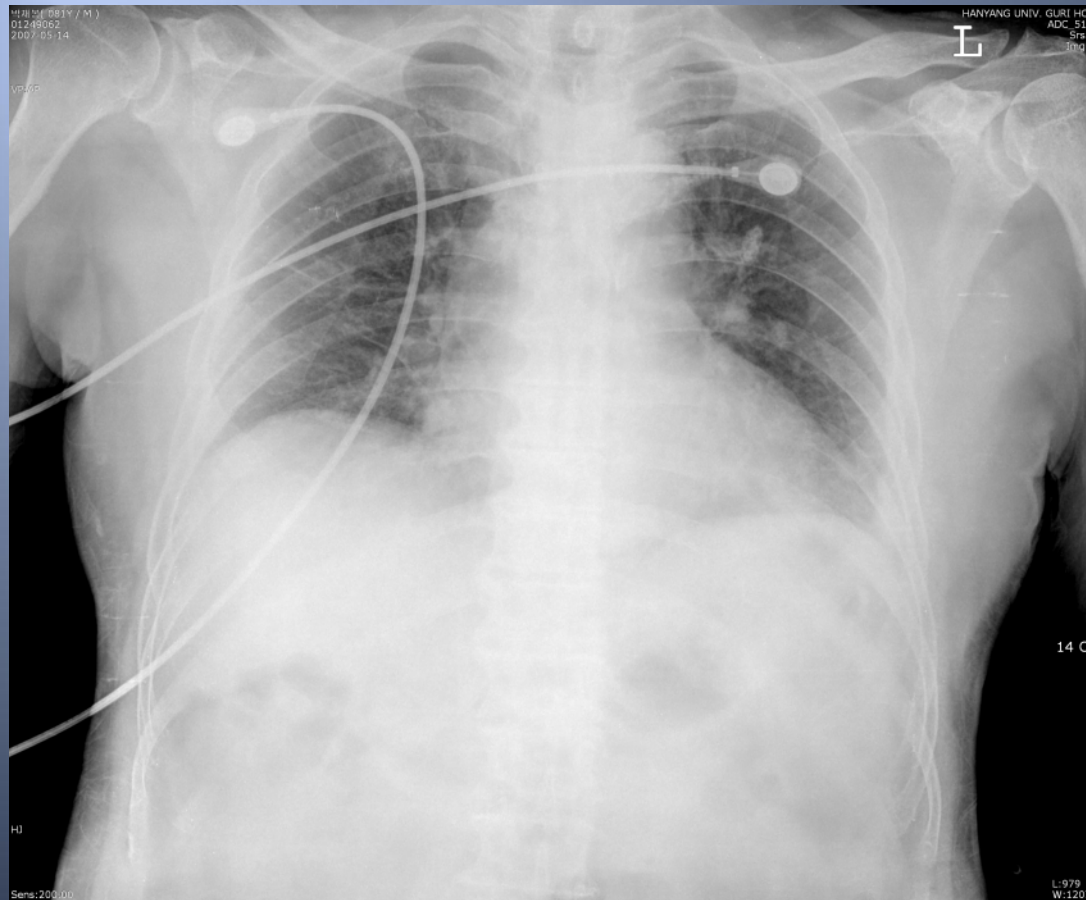
ECG

ST segment elevation with
pathologic Q waves in lead
III, aVF



Chest X-ray

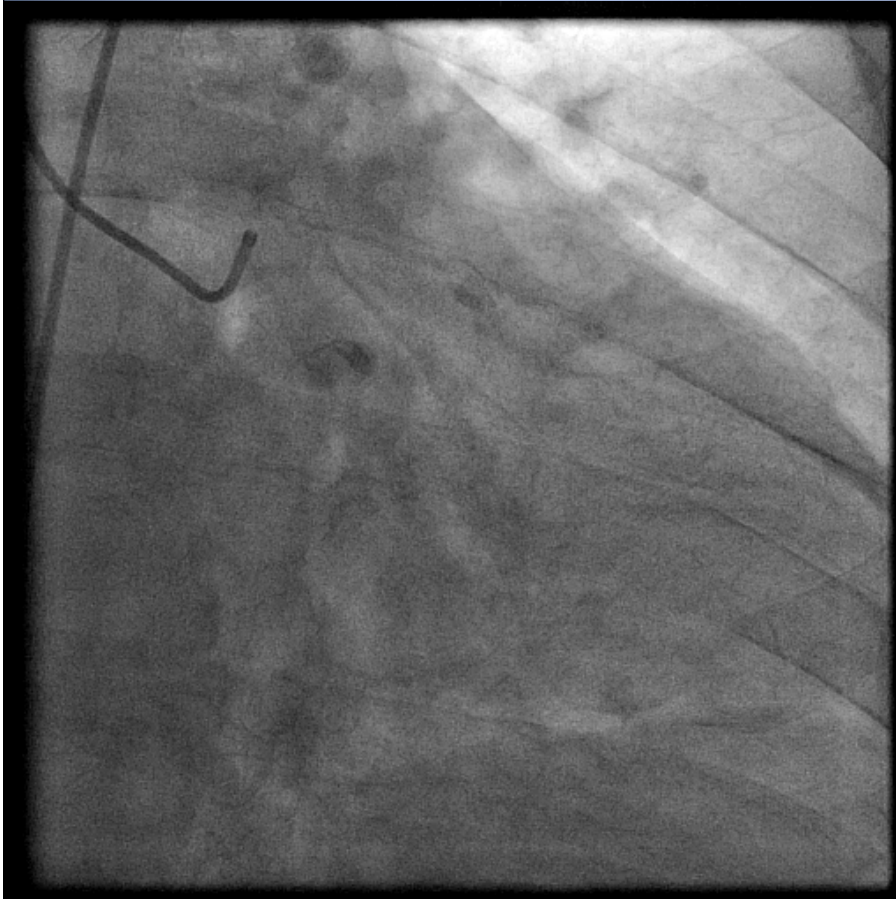
Mild cardiomegaly
No pulmonary edema



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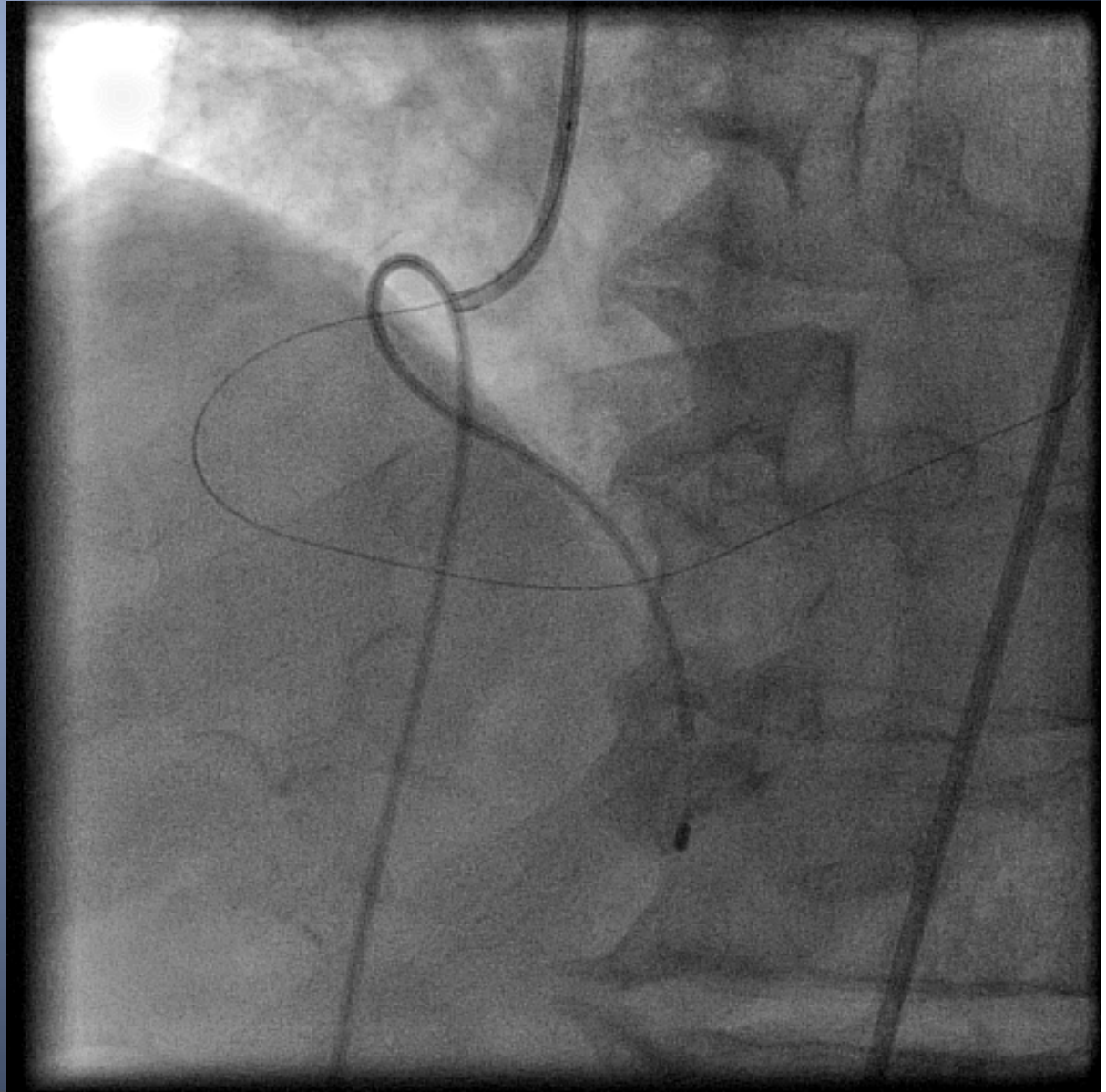
Coronary angiography

mLAD (80%)
Grade 1 collaterals
dRCA(100%) TIMI 0



Primary PCI

Predilatation
(2.0x20mm, Lacrosse)
6 atm



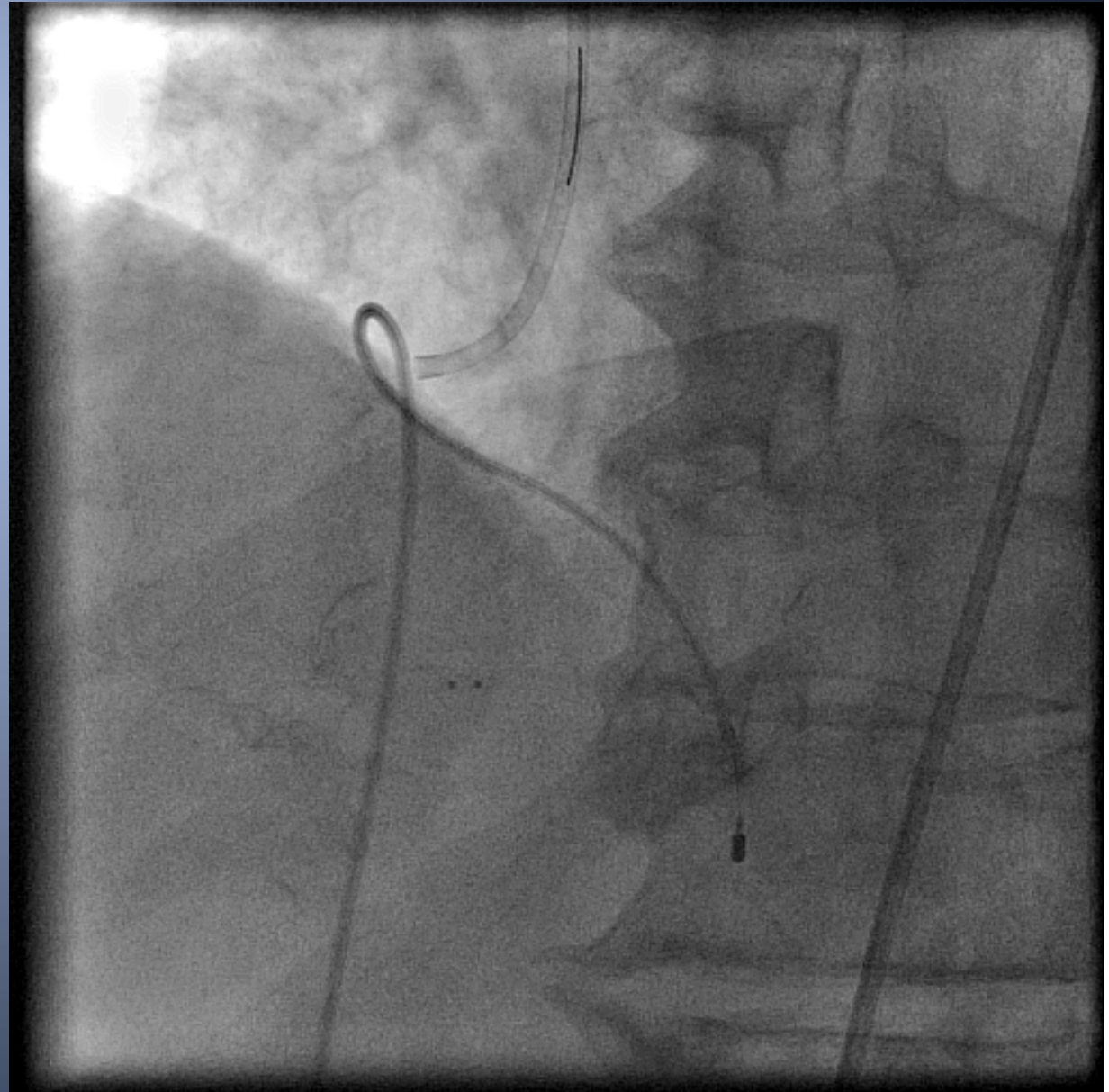
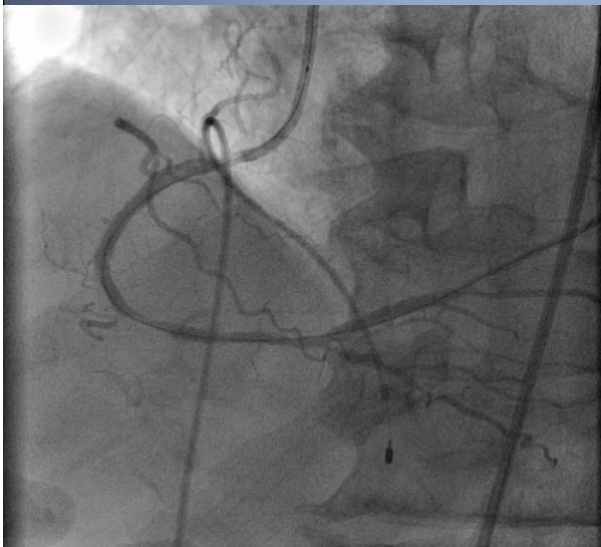
OCT

Occlusion balloon catheter
(Helios™ Goodman)

Removal of GW

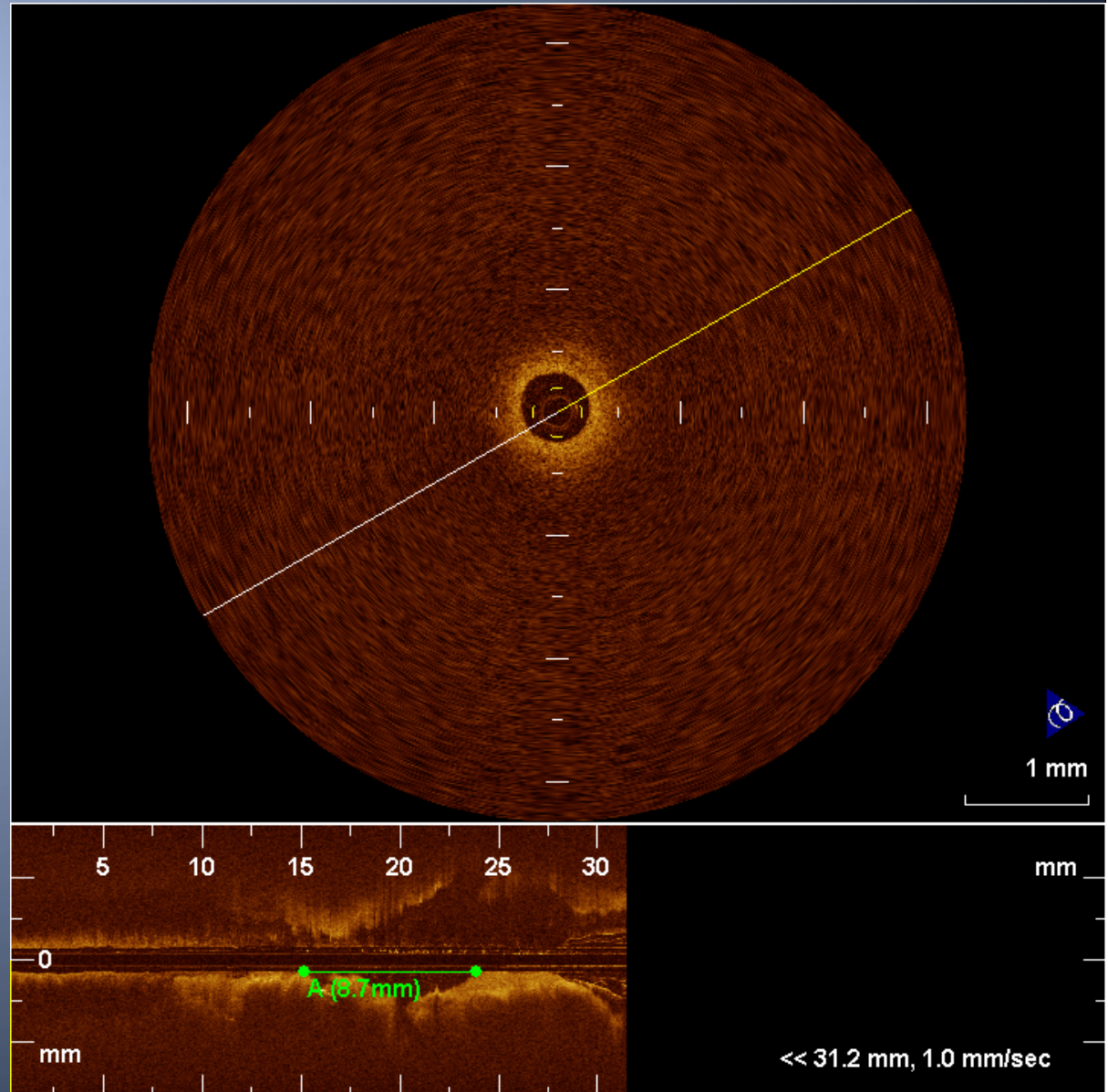
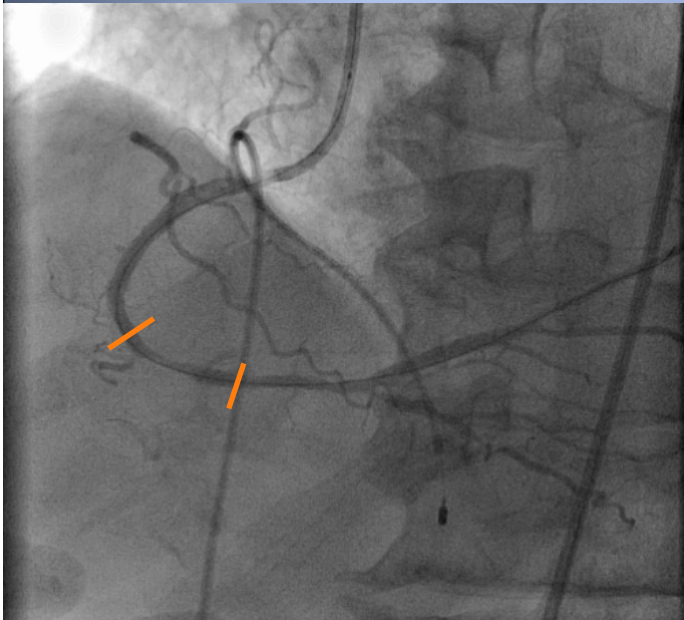
OCT image wire
(Image-wire™, LightLab)

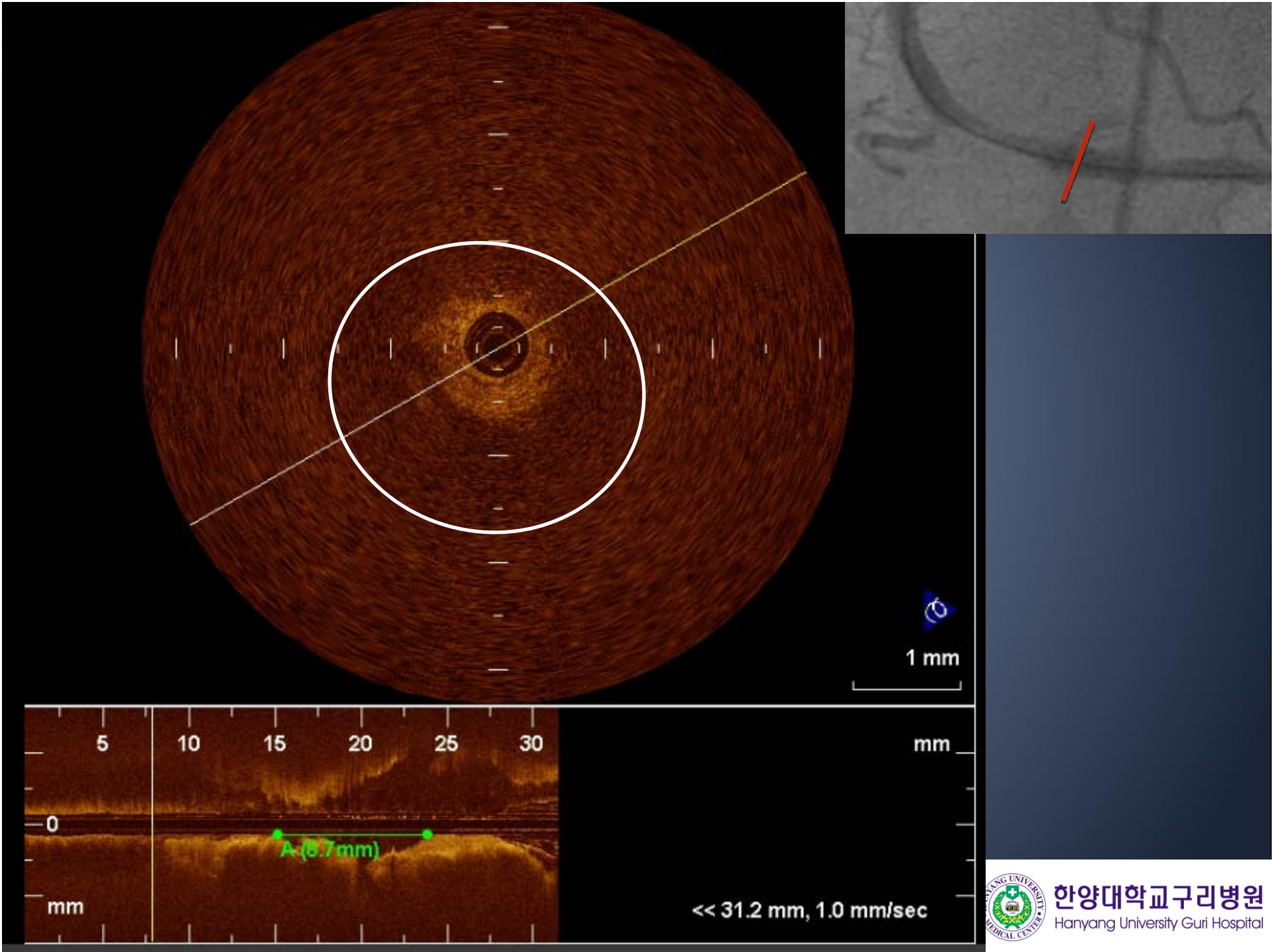
0.4cc/sec

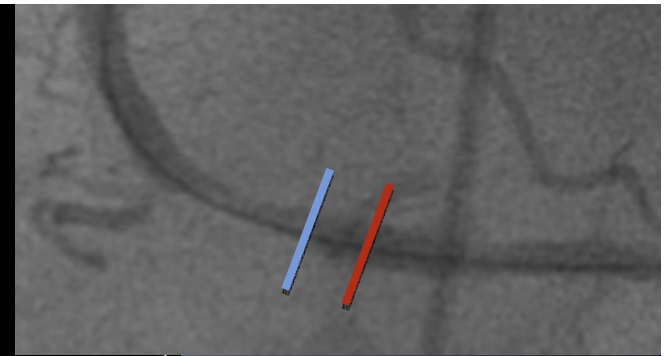
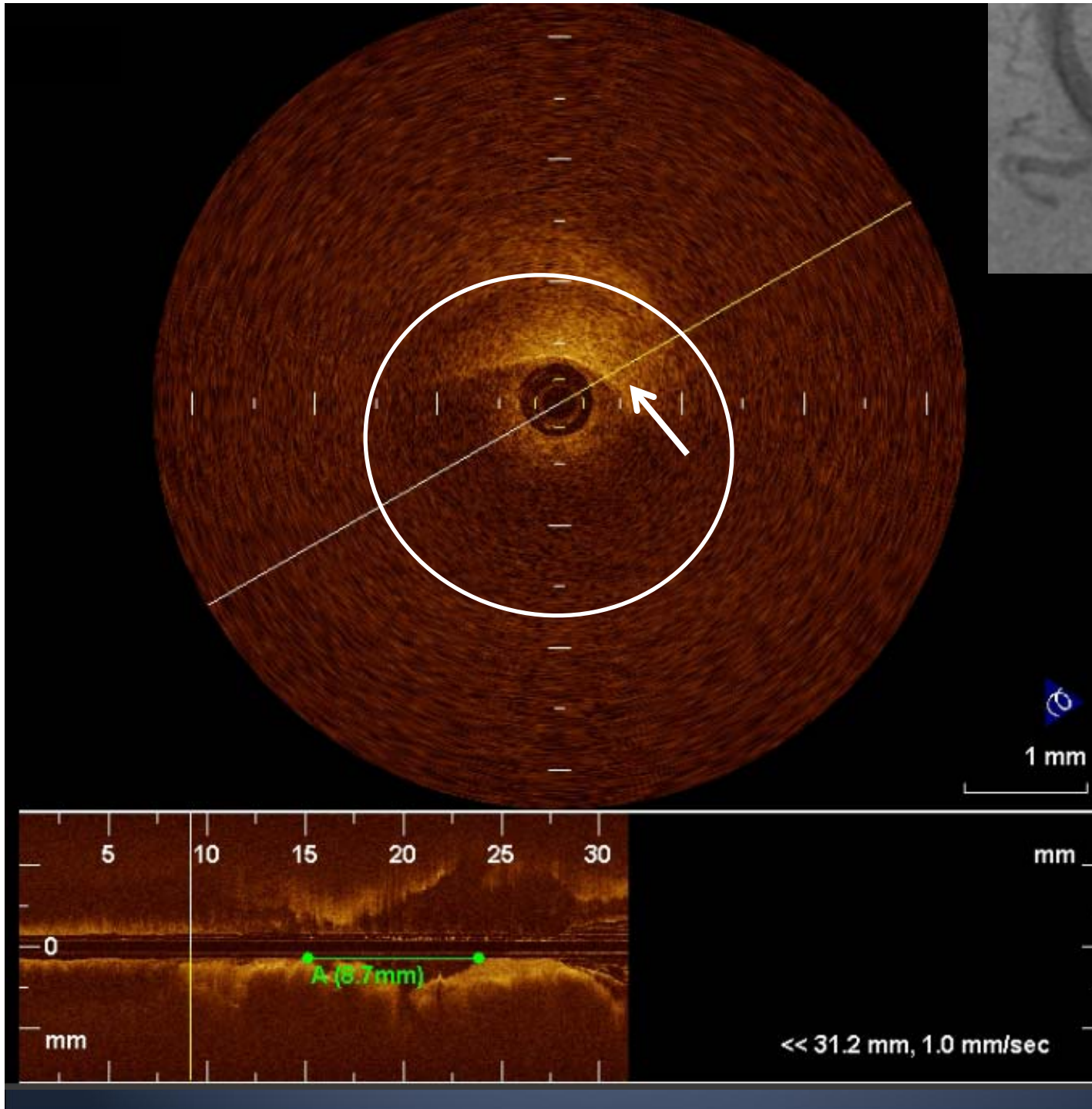


OCT

Intimal tear
Soft plaque rupture
Thrombus

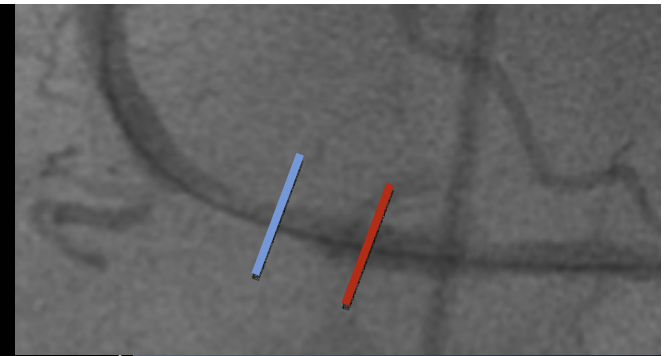
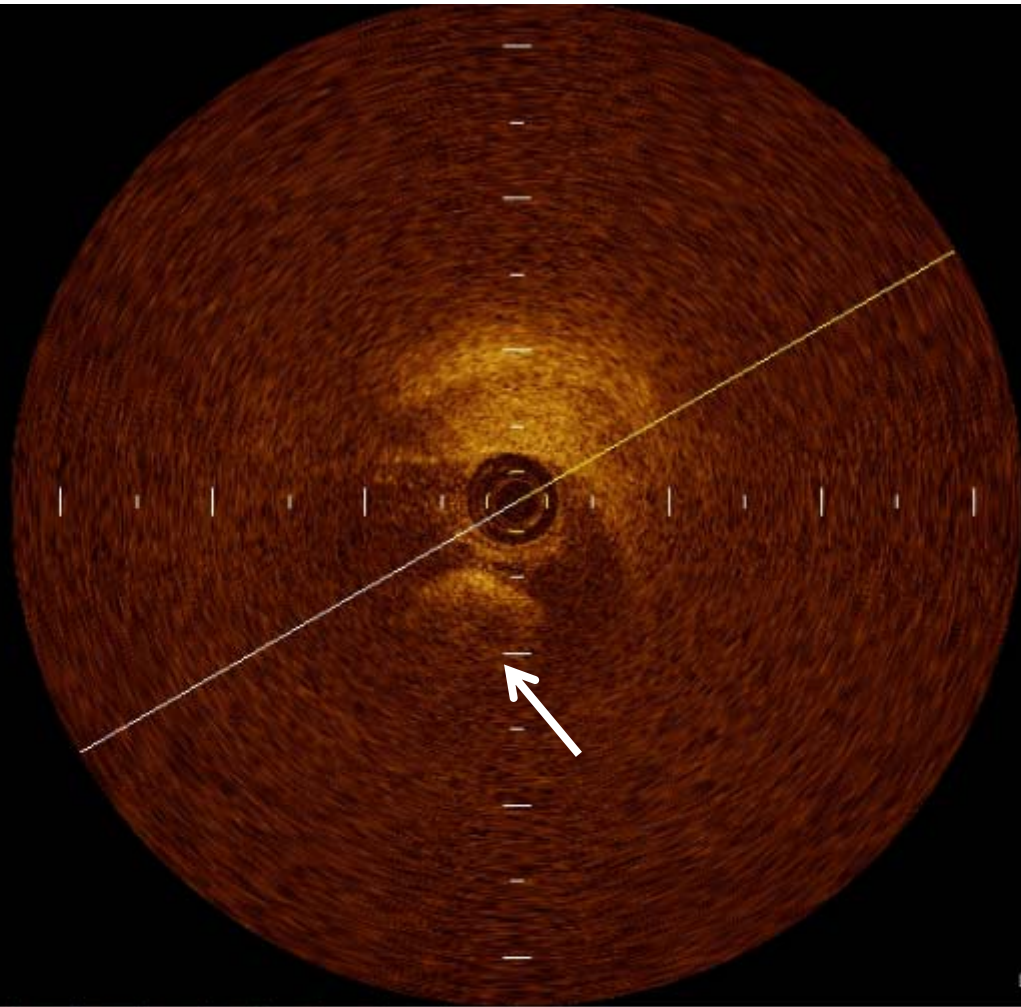




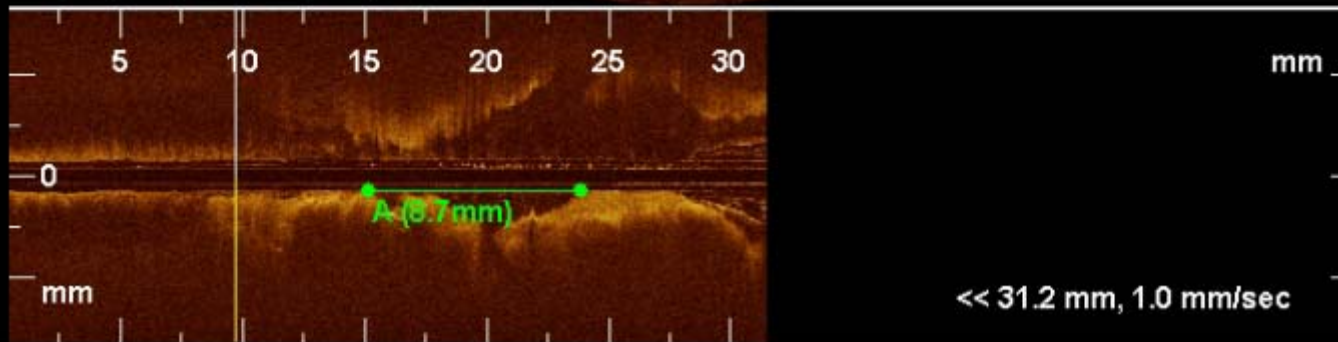


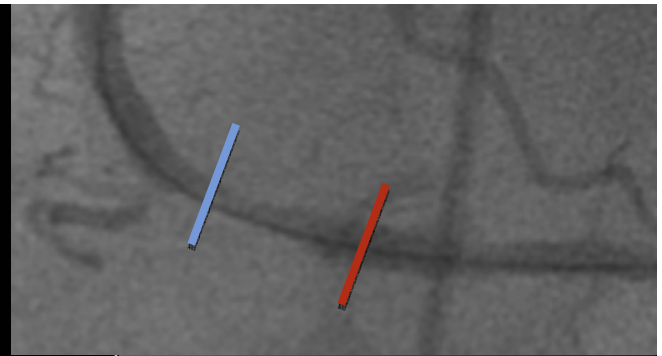
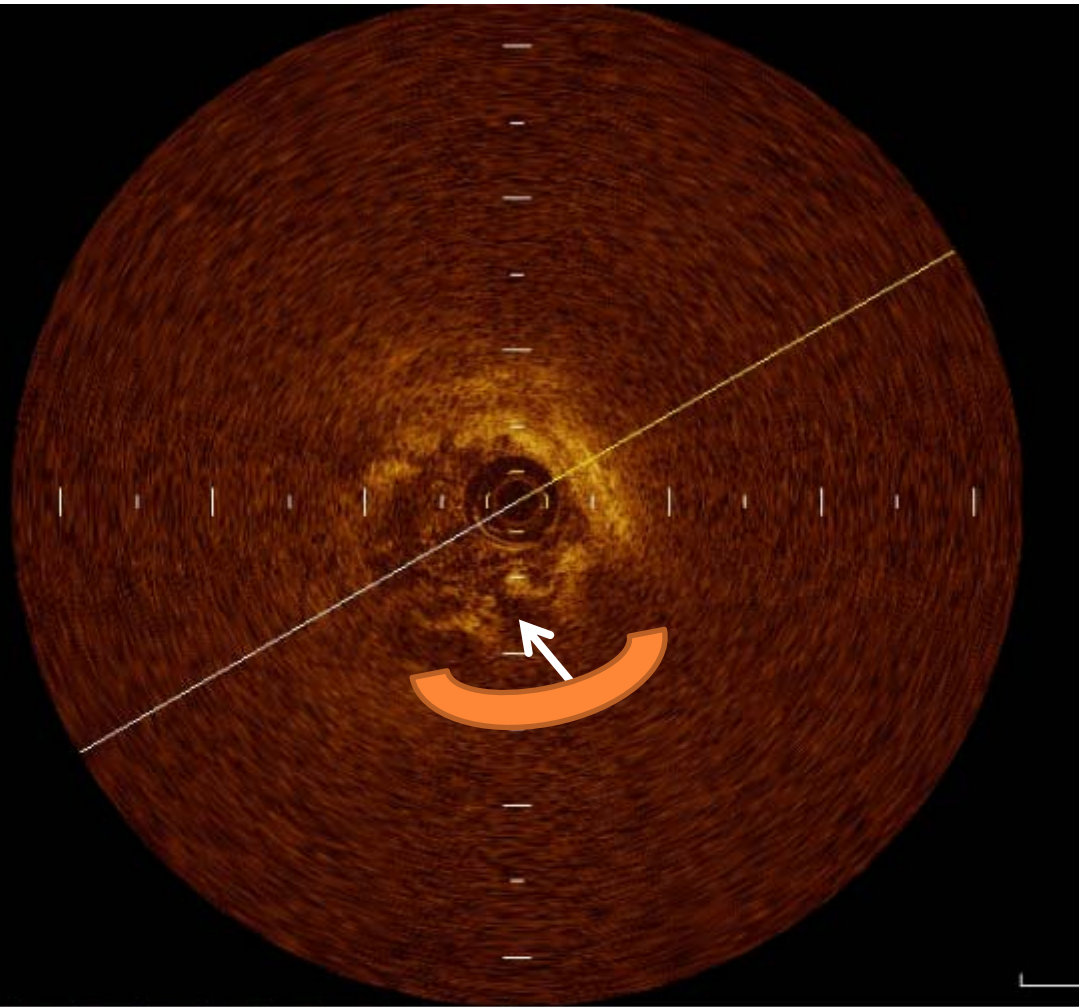
←
Fibrous plaque





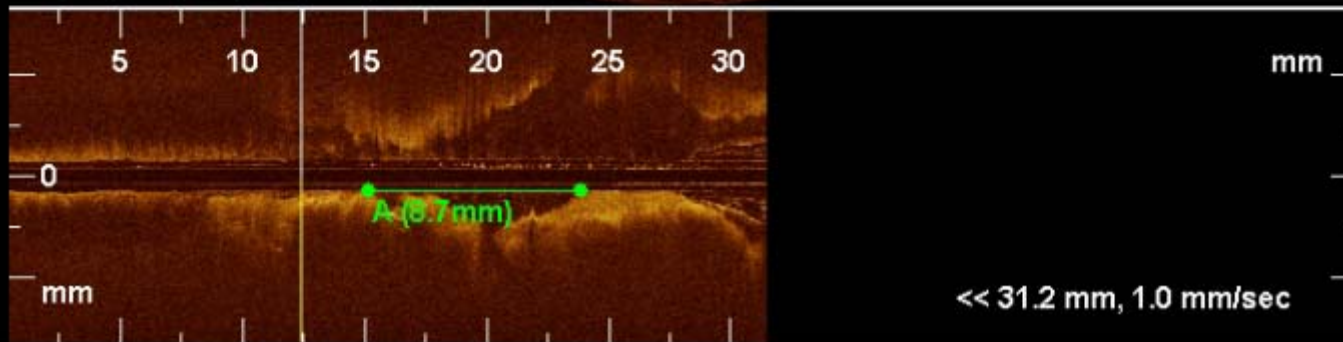
←
Thrombus
esp. red

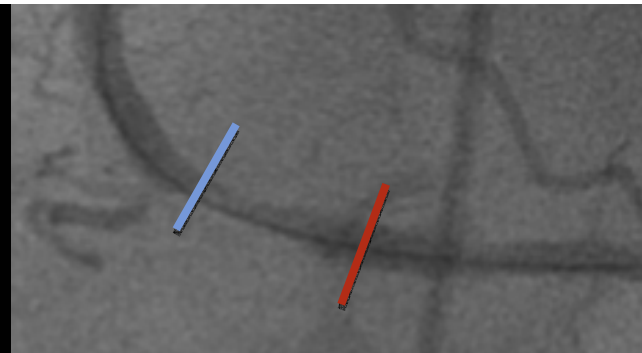
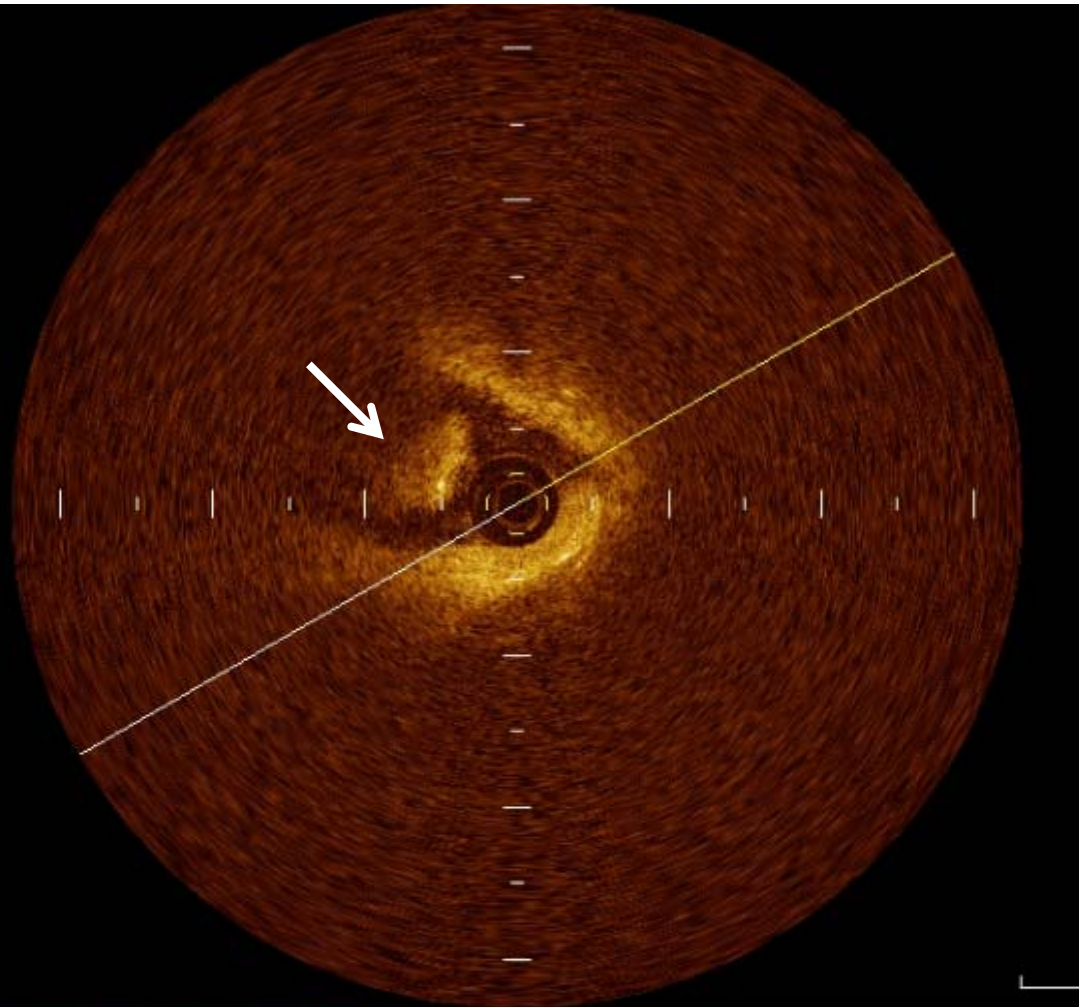




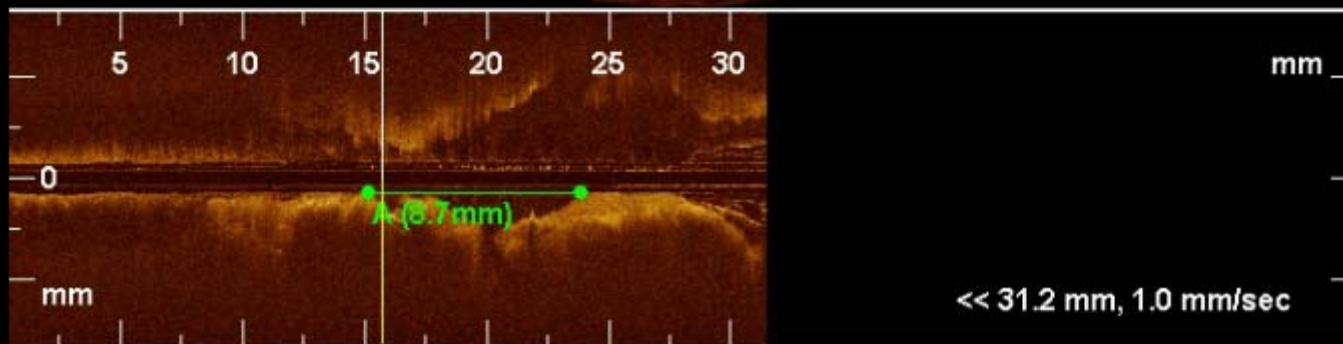
←
Intimal tear

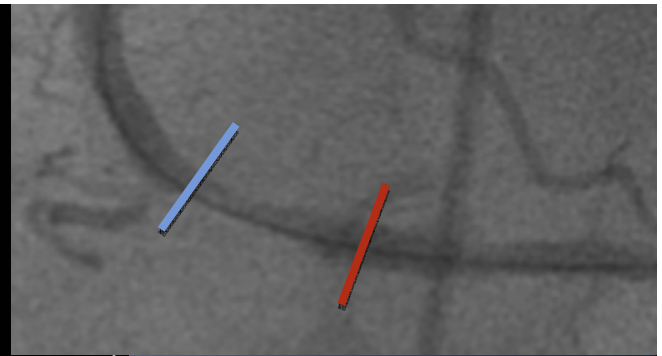
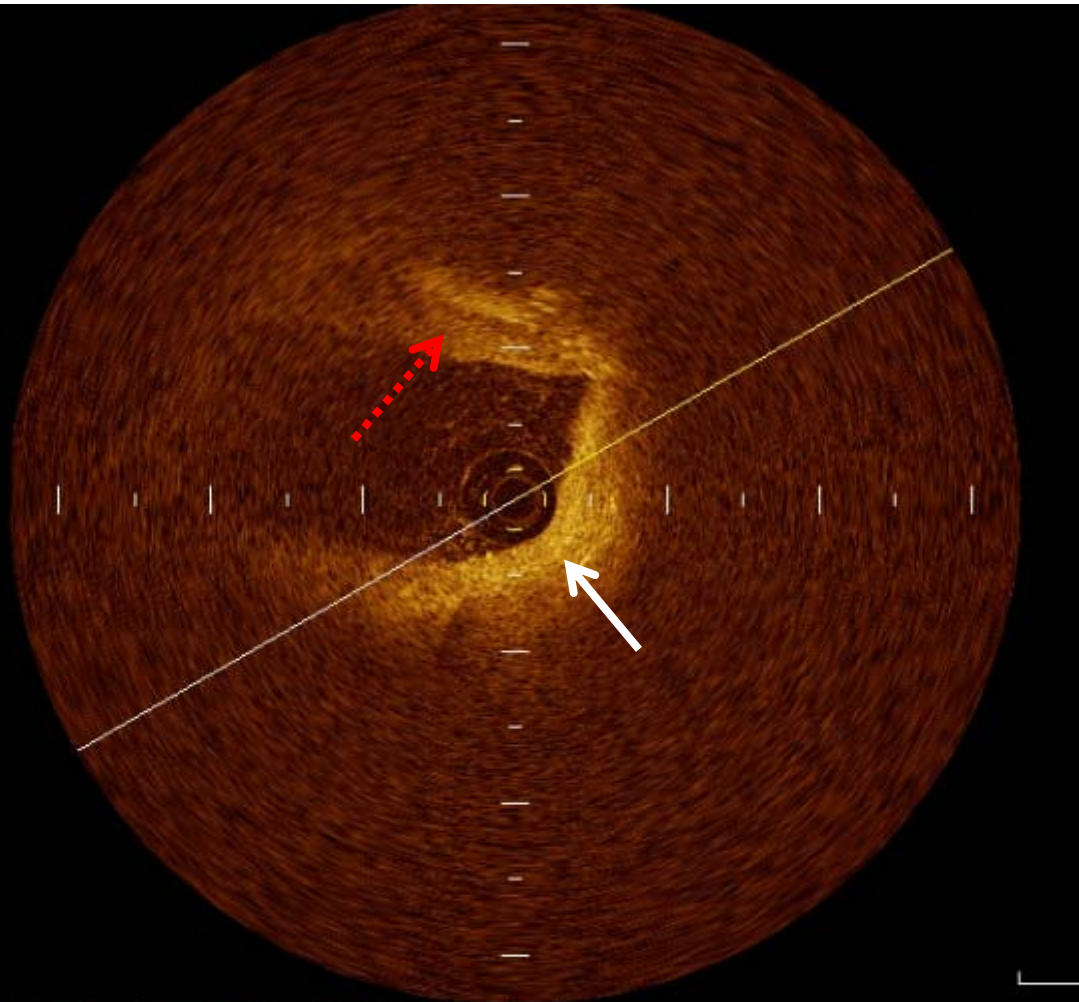
Soft plaque





←
Thrombus
esp. white

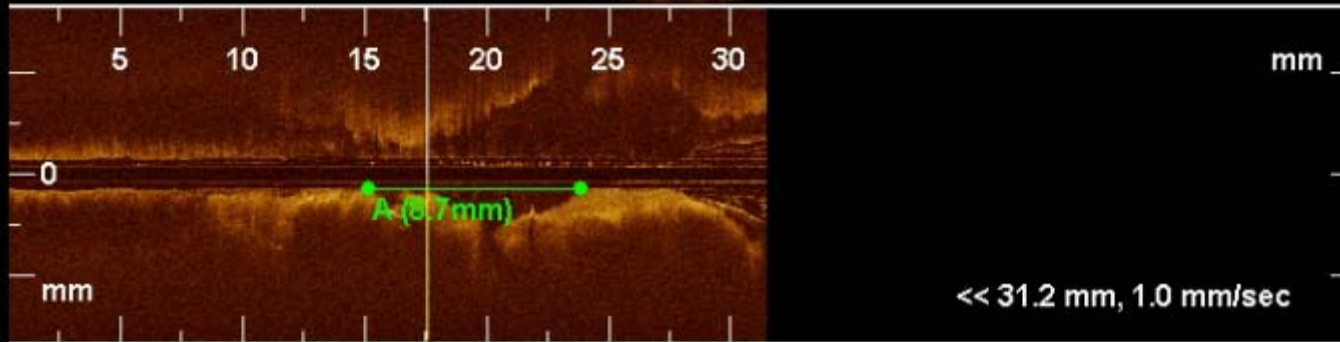


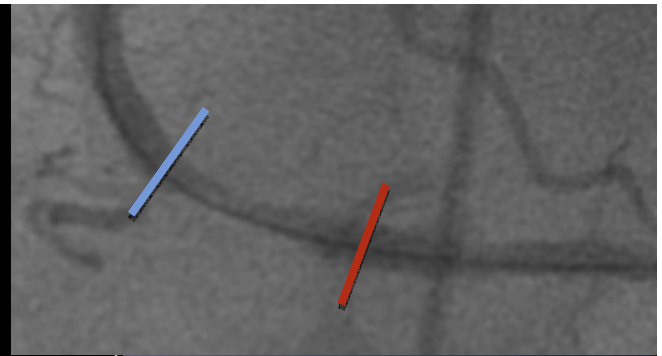
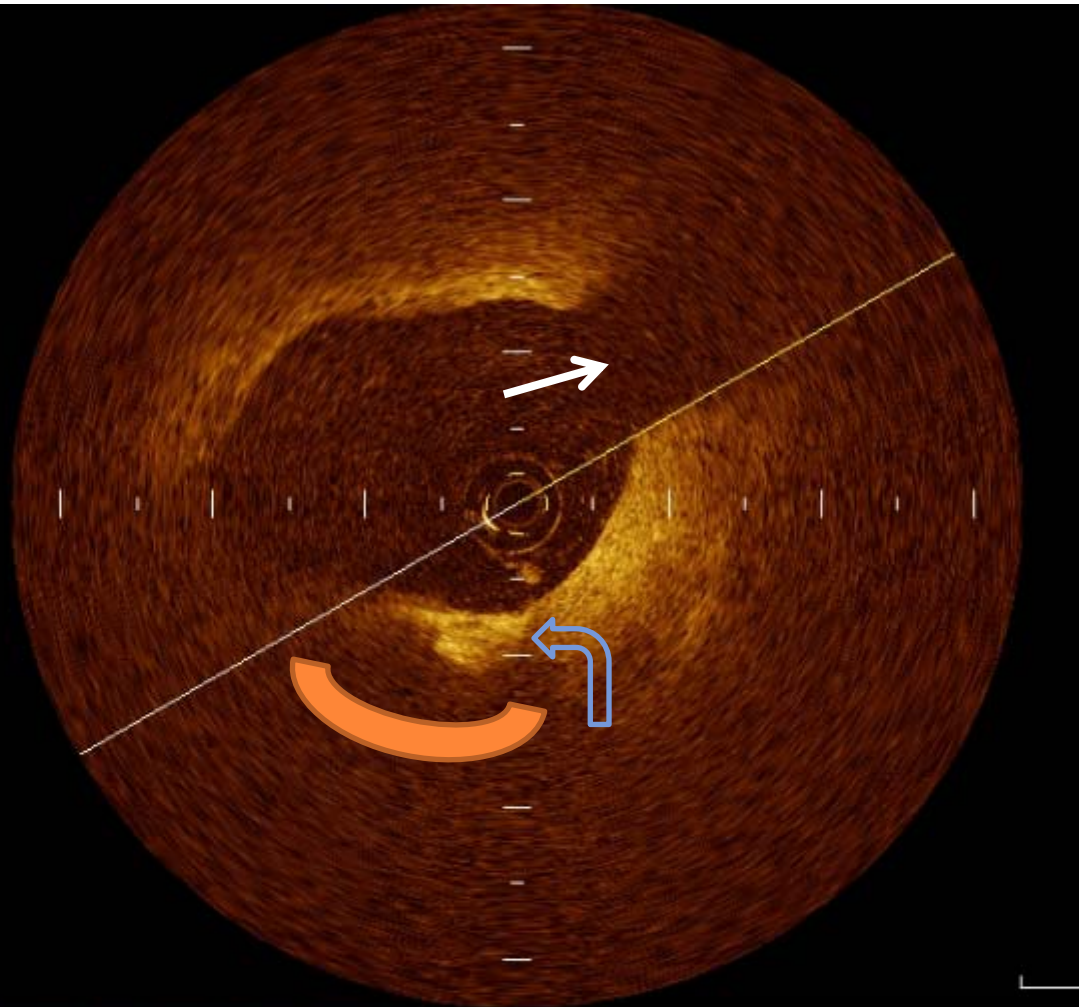


Intimal hyperplasia

Fibrous plaque

1 mm

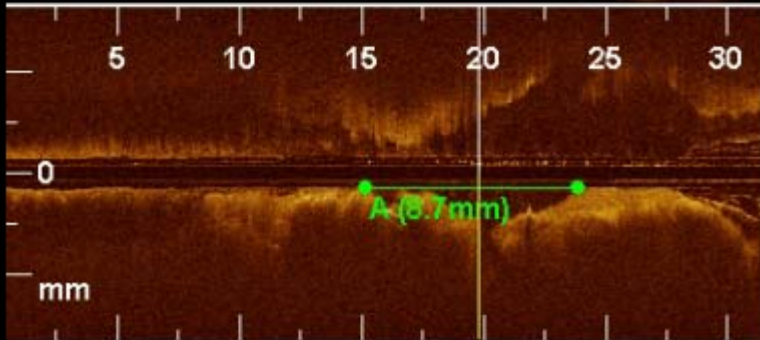




Acute marginal branch

Soft plaque

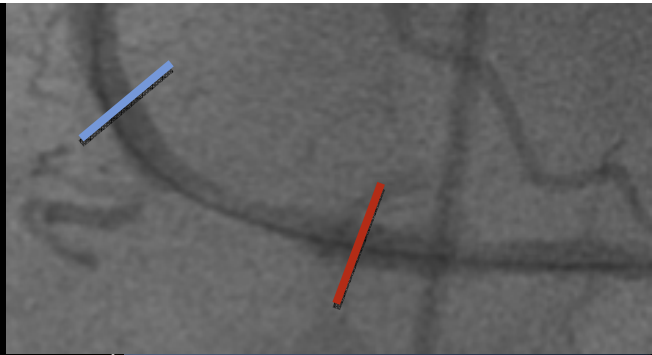
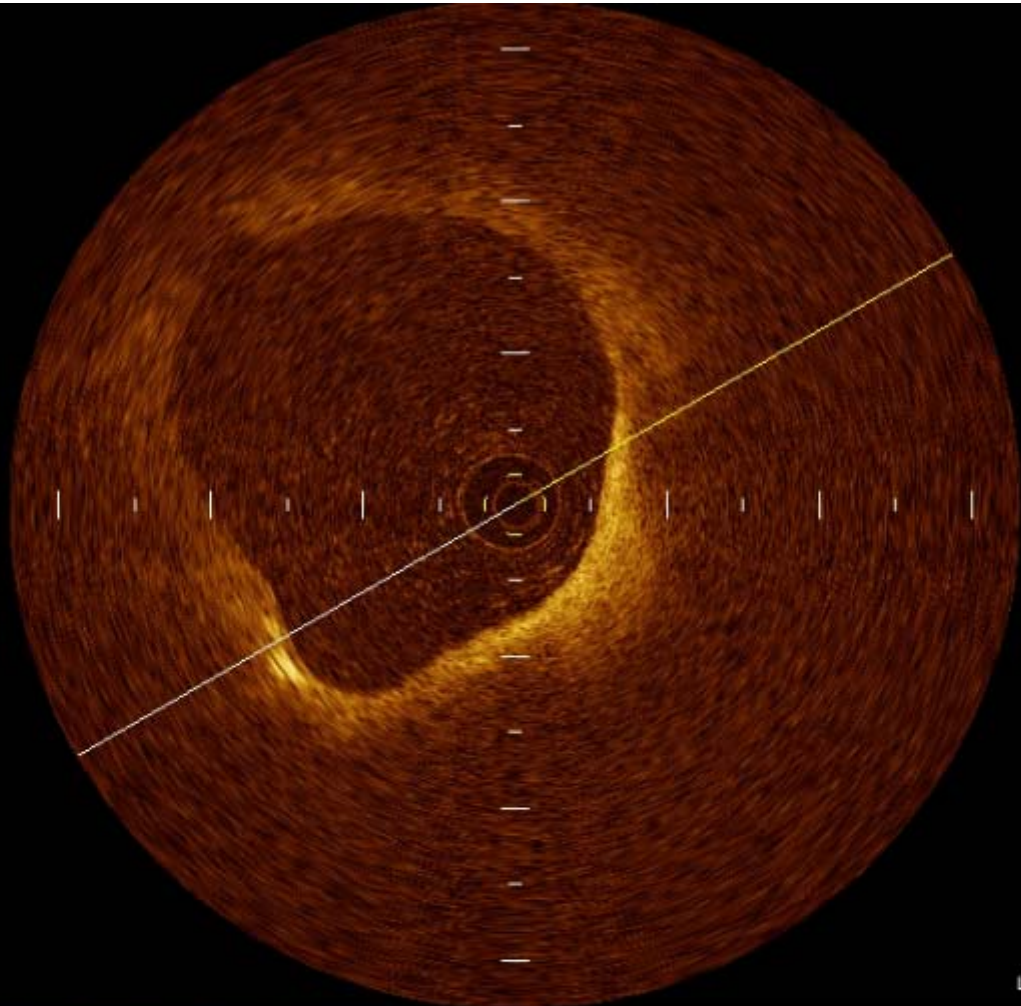
Calcification



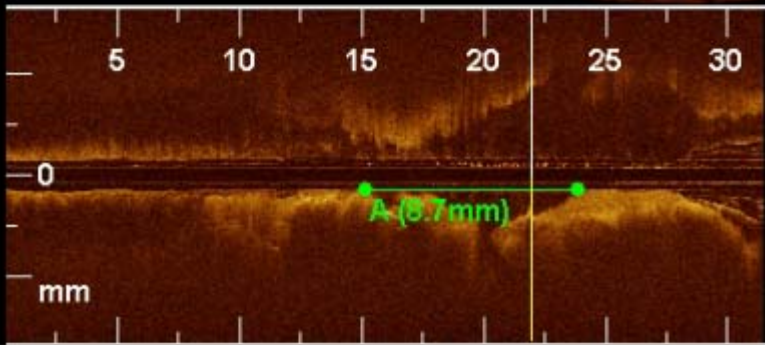
<< 31.2 mm, 1.0 mm/sec



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1 mm



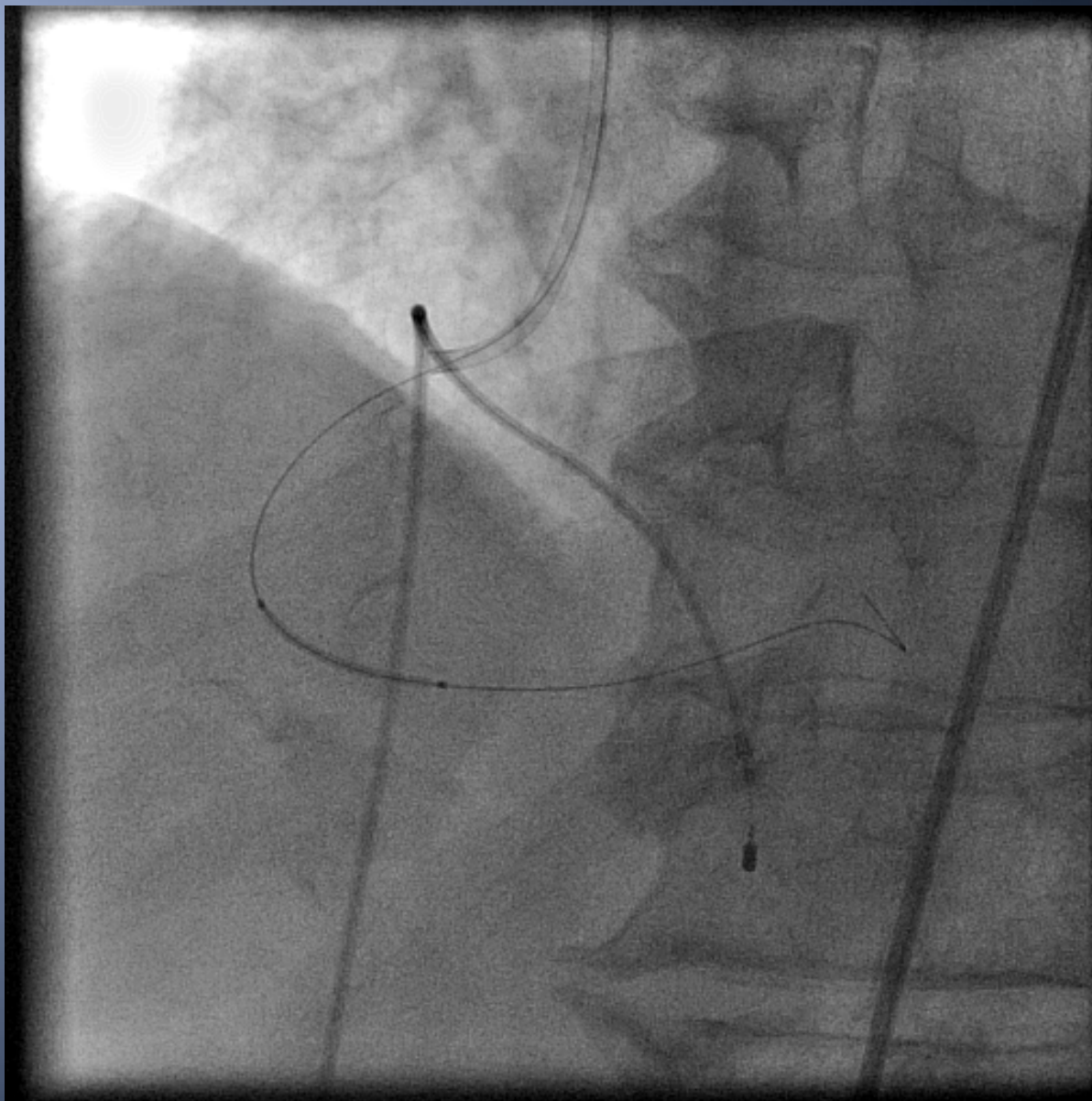
<< 31.2 mm, 1.0 mm/sec



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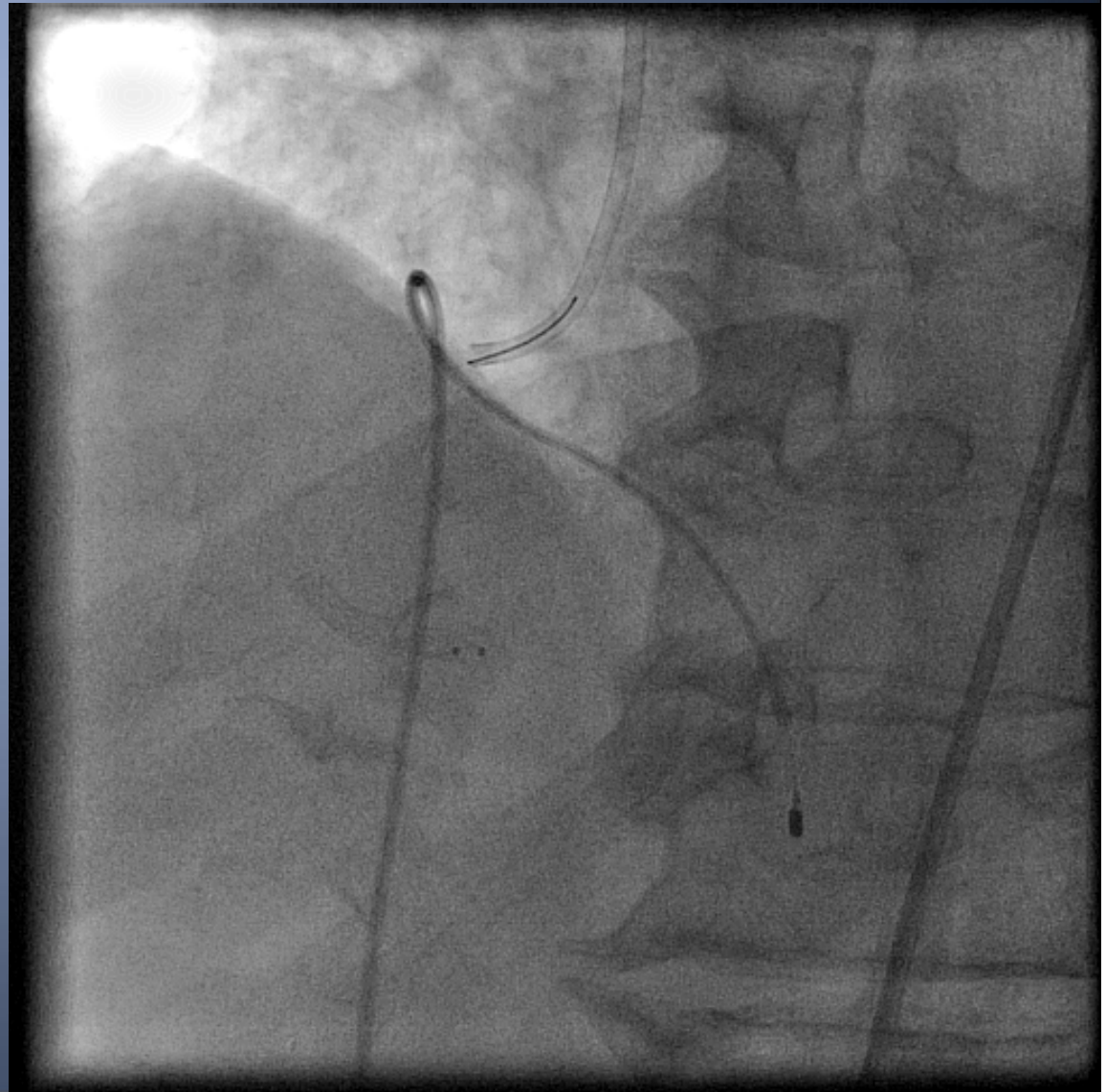
Stent Implantation

Endeavor RX, 3.0x24mm
14atm



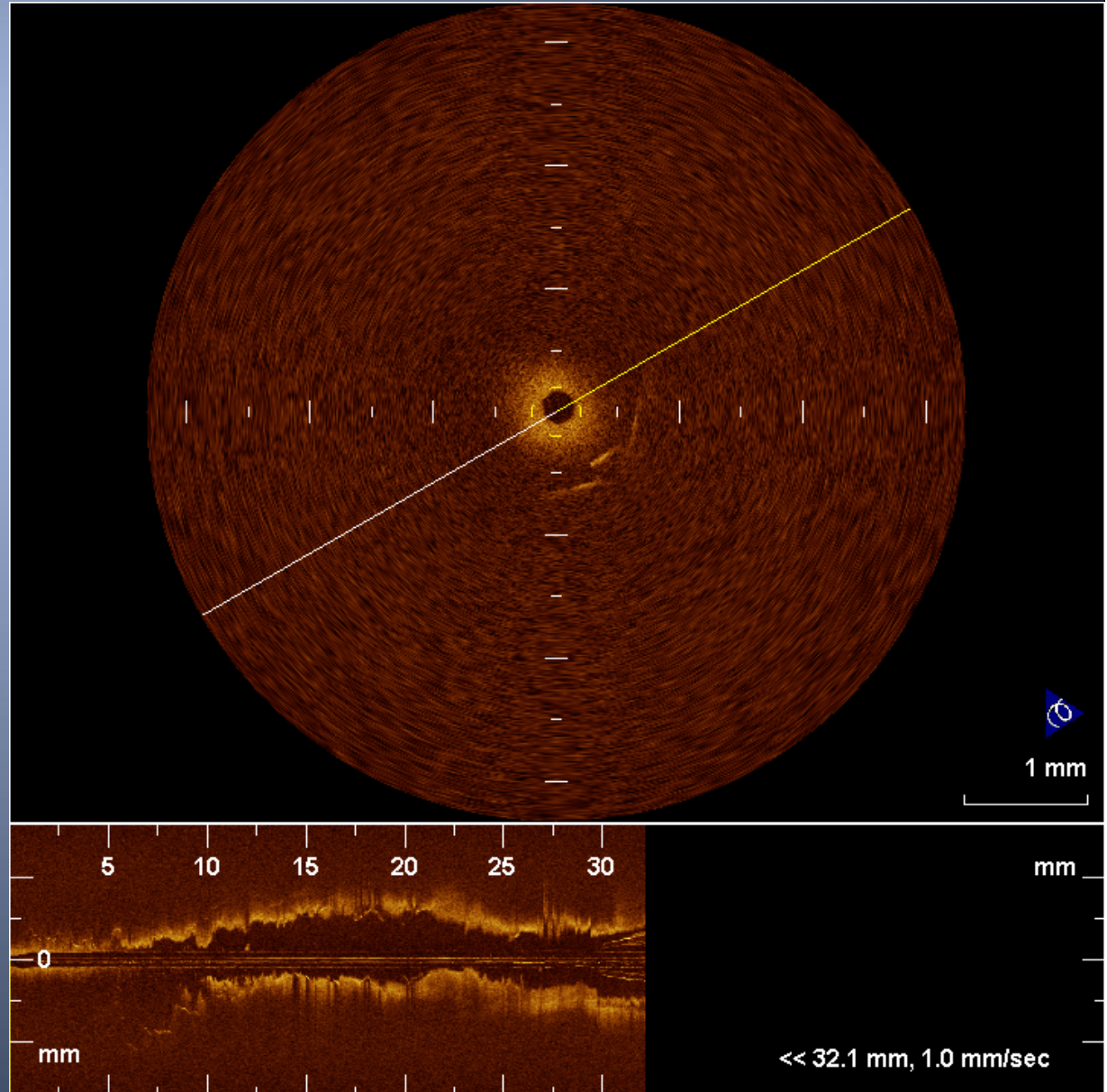
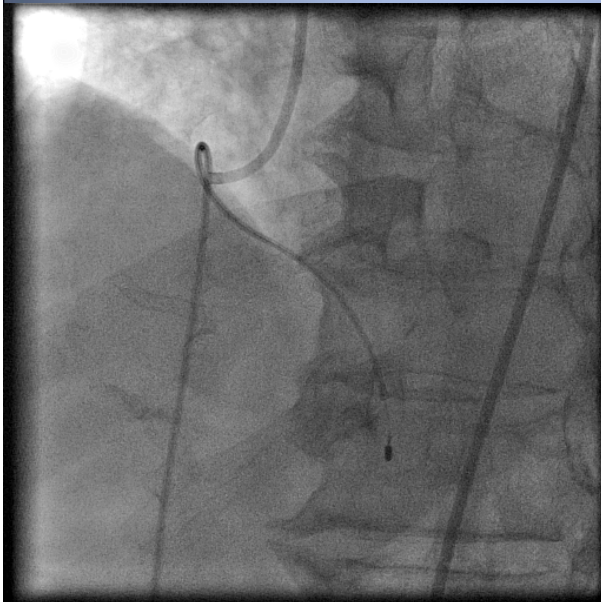
OCT

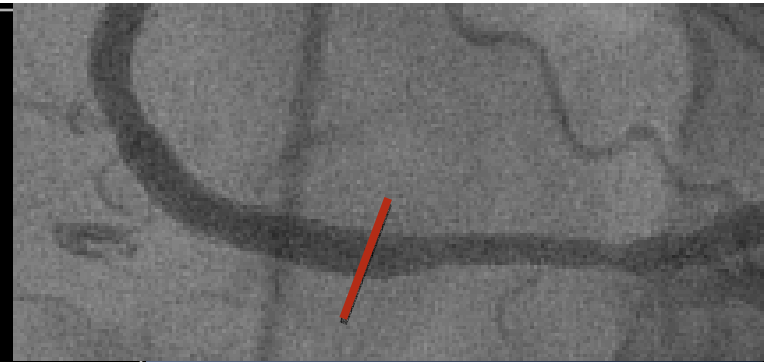
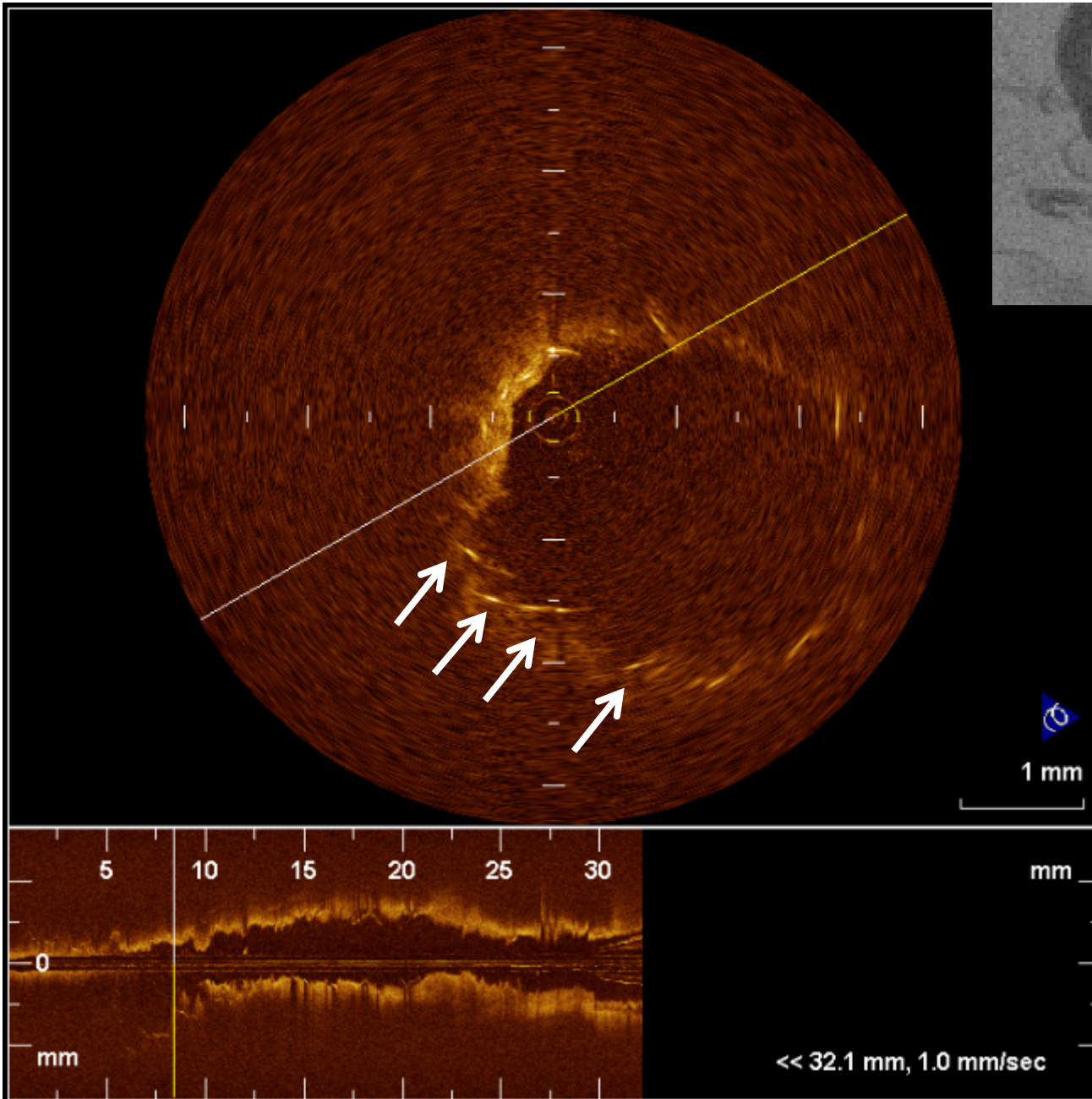
Occlusion catheter
Removal of GW
Insertion of OCT wire



OCT

Intimal prolapse
Thrombus fragments
directly attached to struts
Complete stent apposition

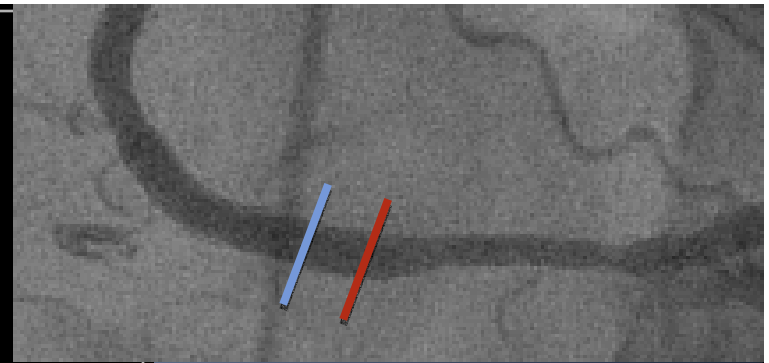
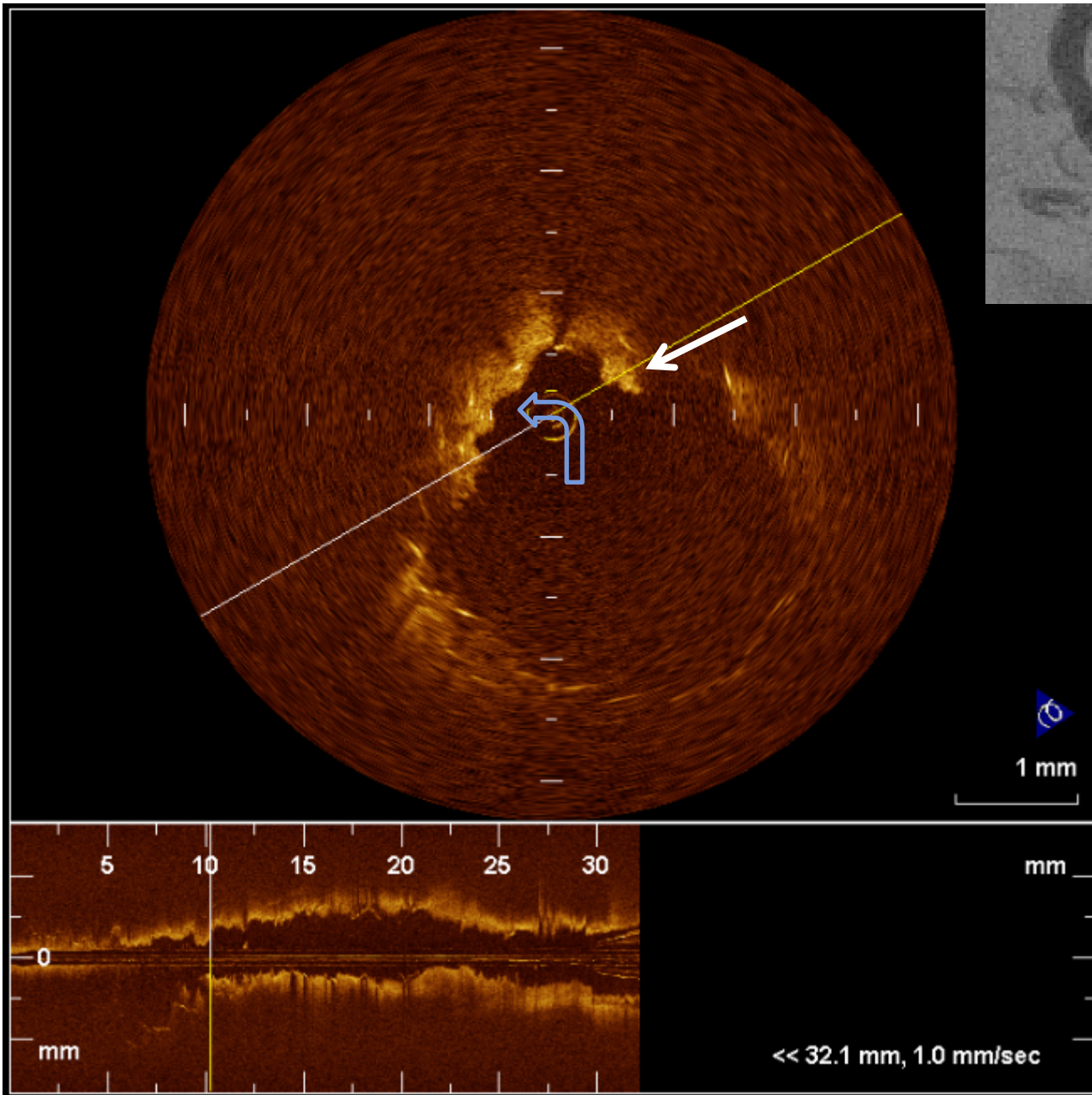





↑
Strut of stent



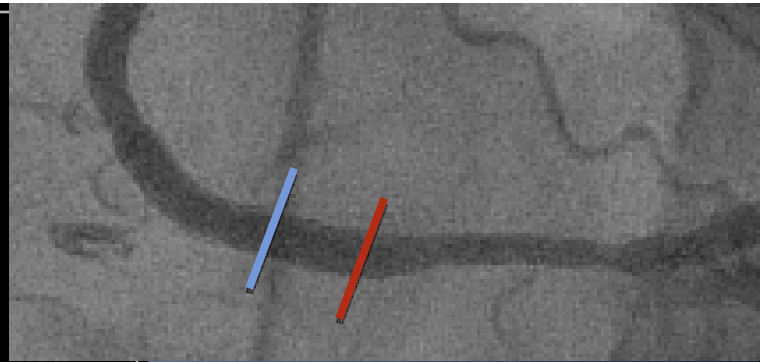
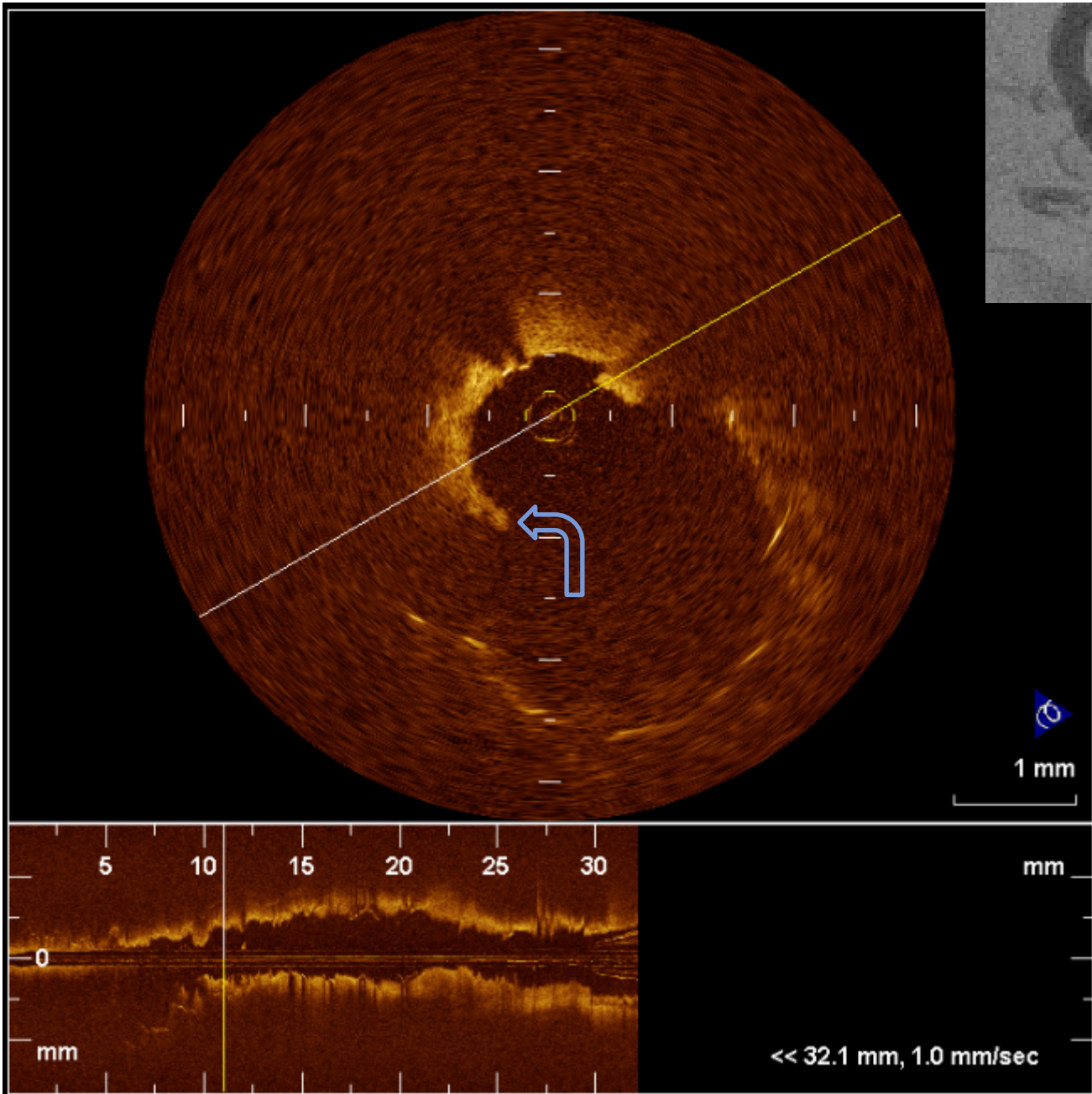
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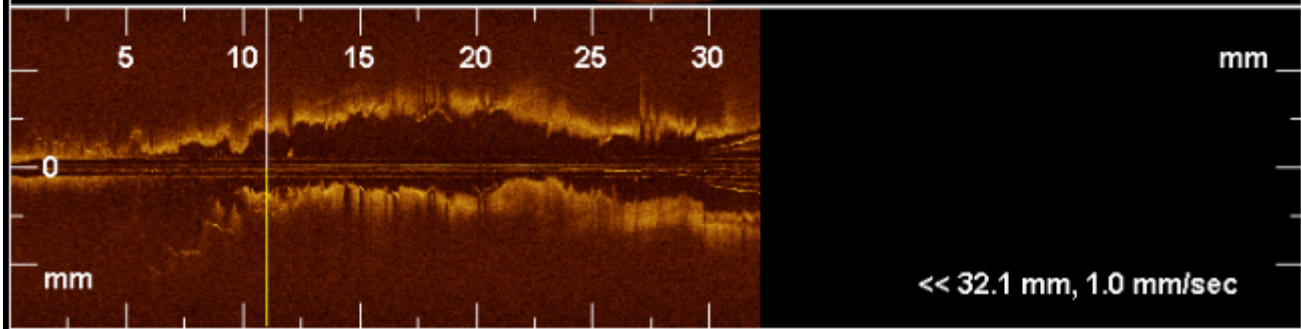

 Thrombus


 Intimal prolapse

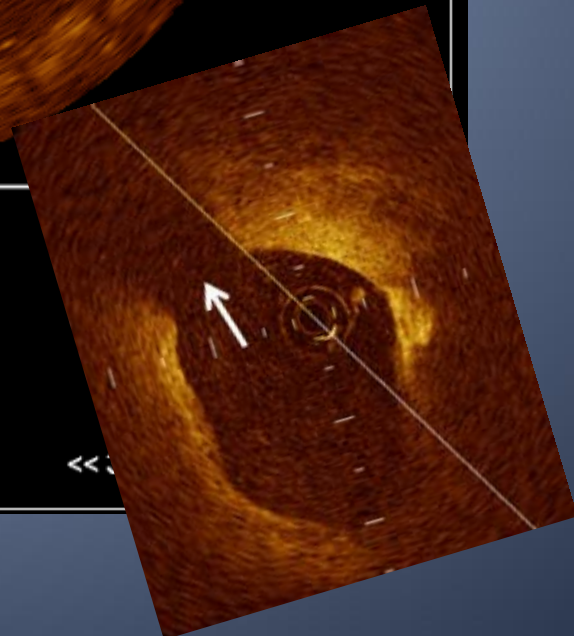
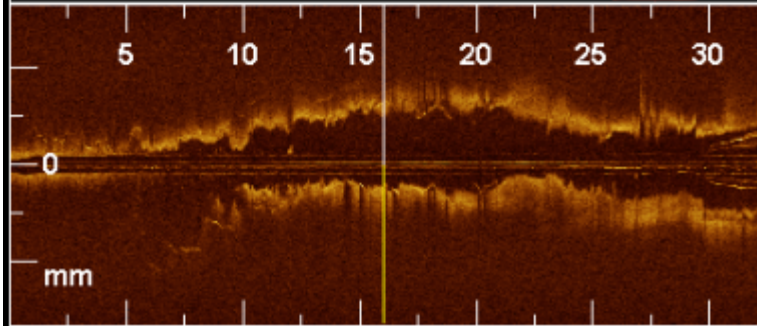
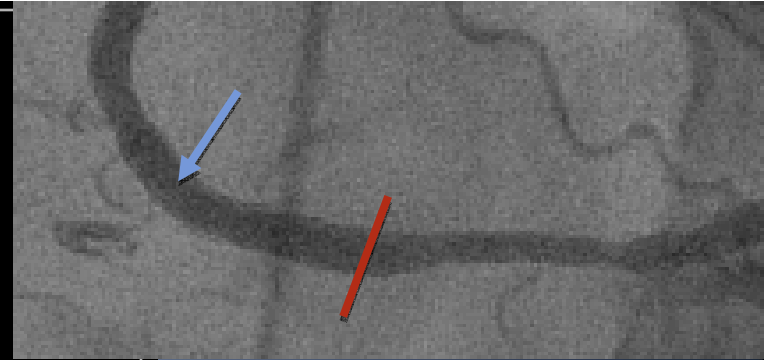
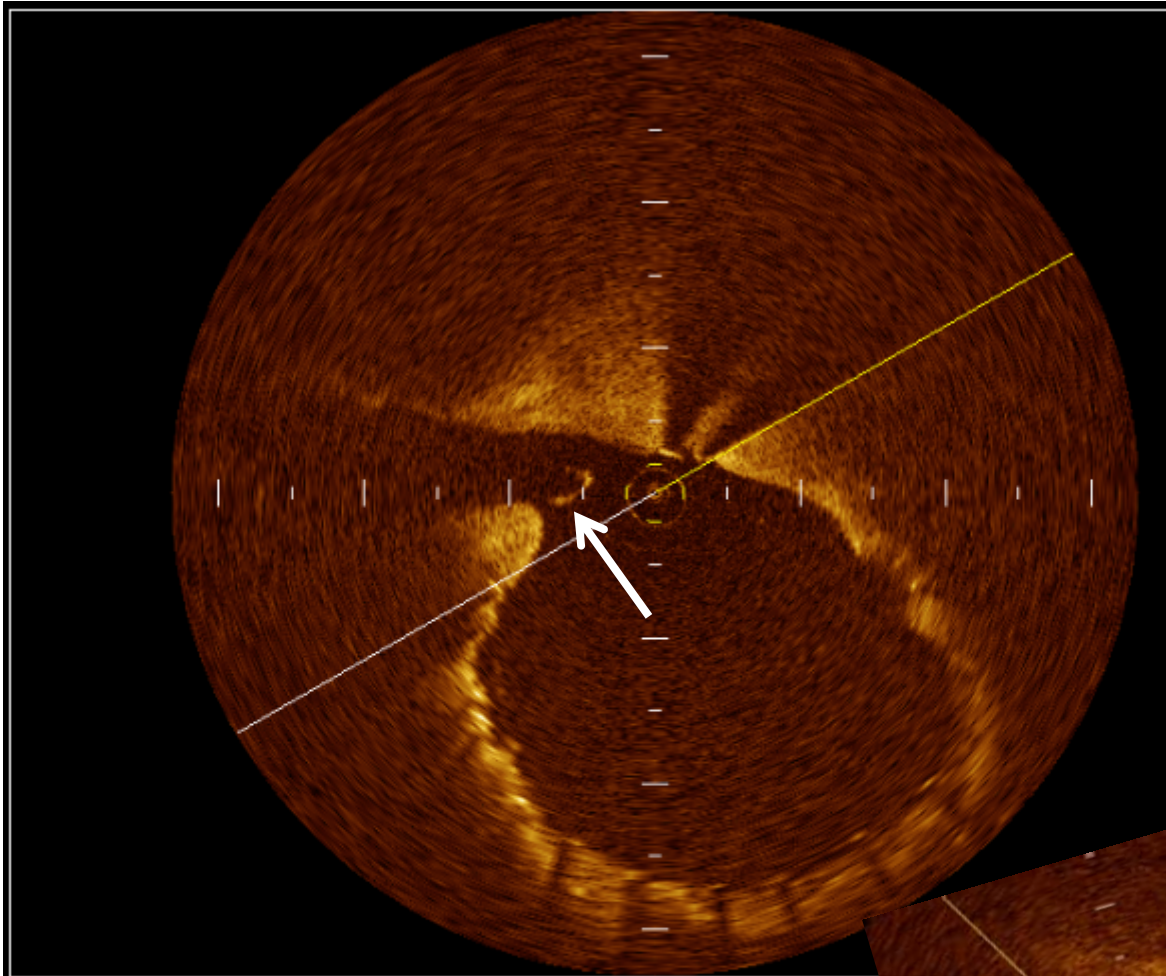




Intimal prolapse



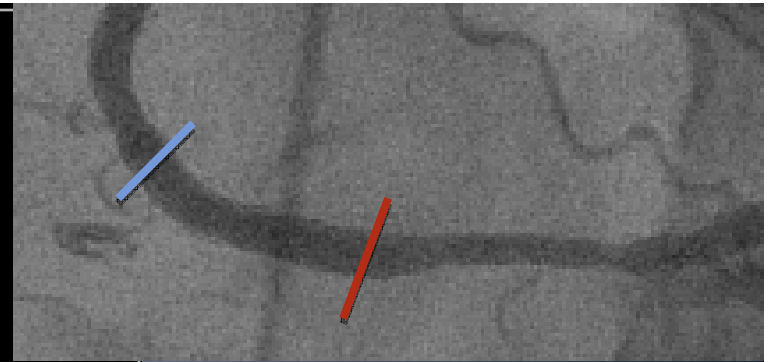
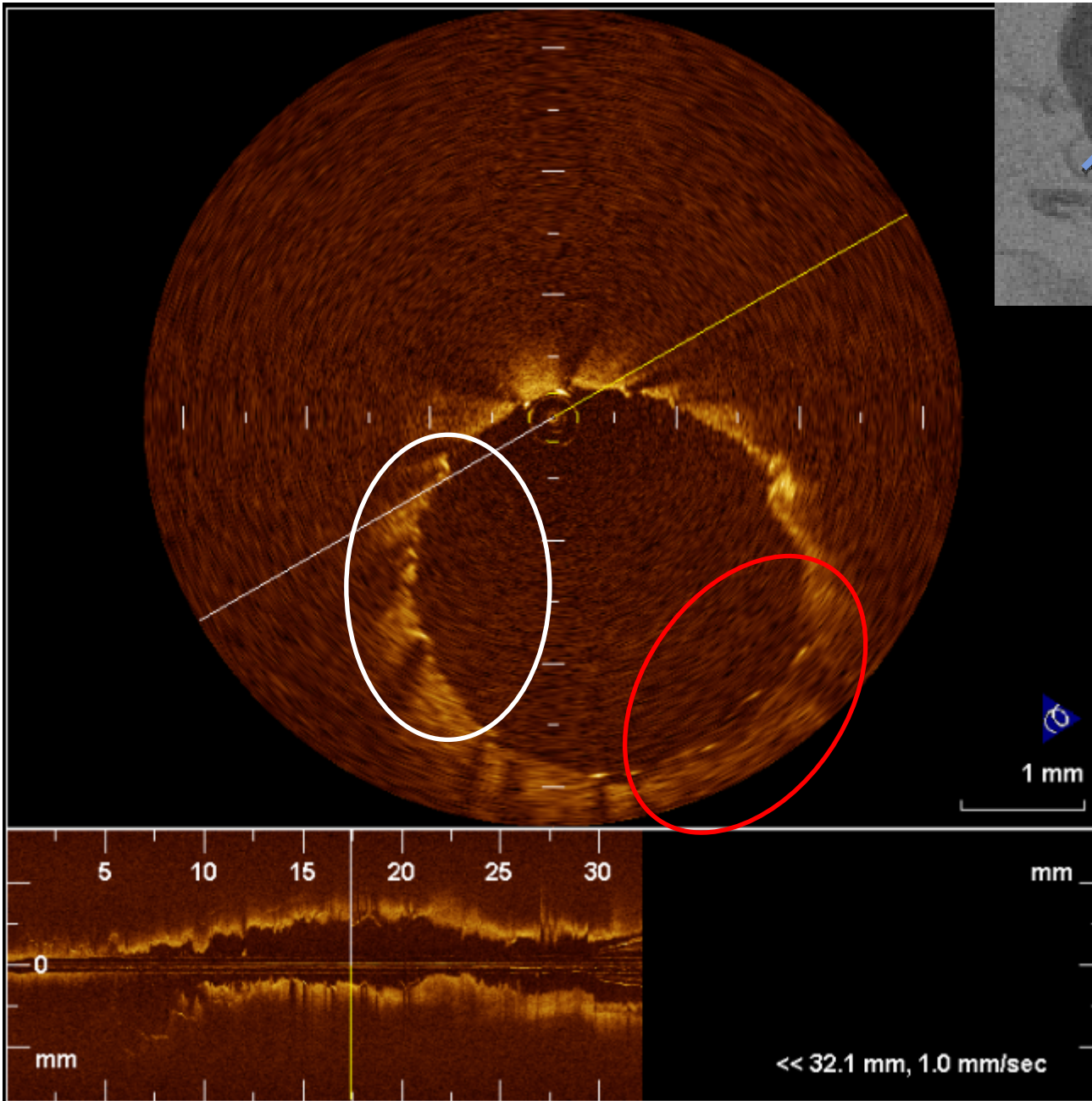
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←
Strut of stent
over the AM
branch

Ostium of AM
branch was
narrowed





Strut apposition



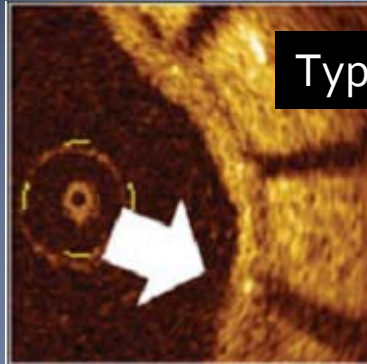
Type IIIa



Type IIIb

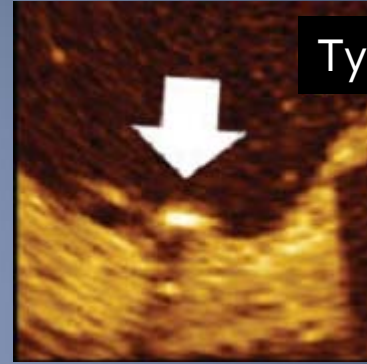


Classification of strut apposition by OCT



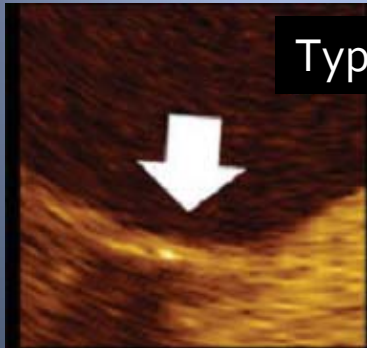
Type I

totally embedded strut



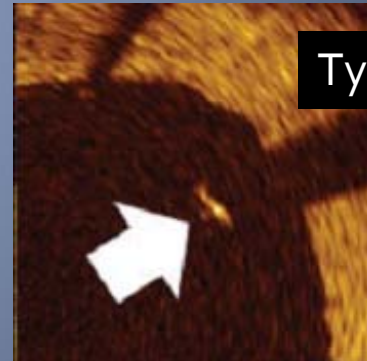
Type IIIb

Partially embedded with extension of strut into lumen



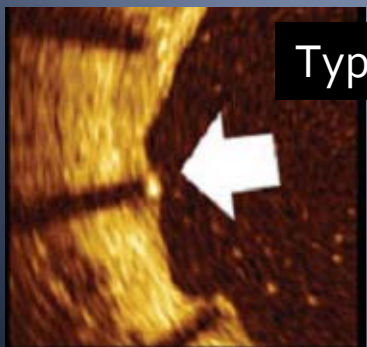
Type II

Embedded subintimally without disruption of lumen contour



Type IV

complete strut malapposition

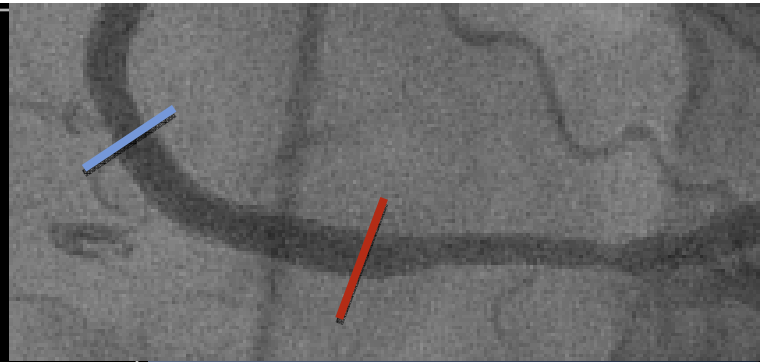
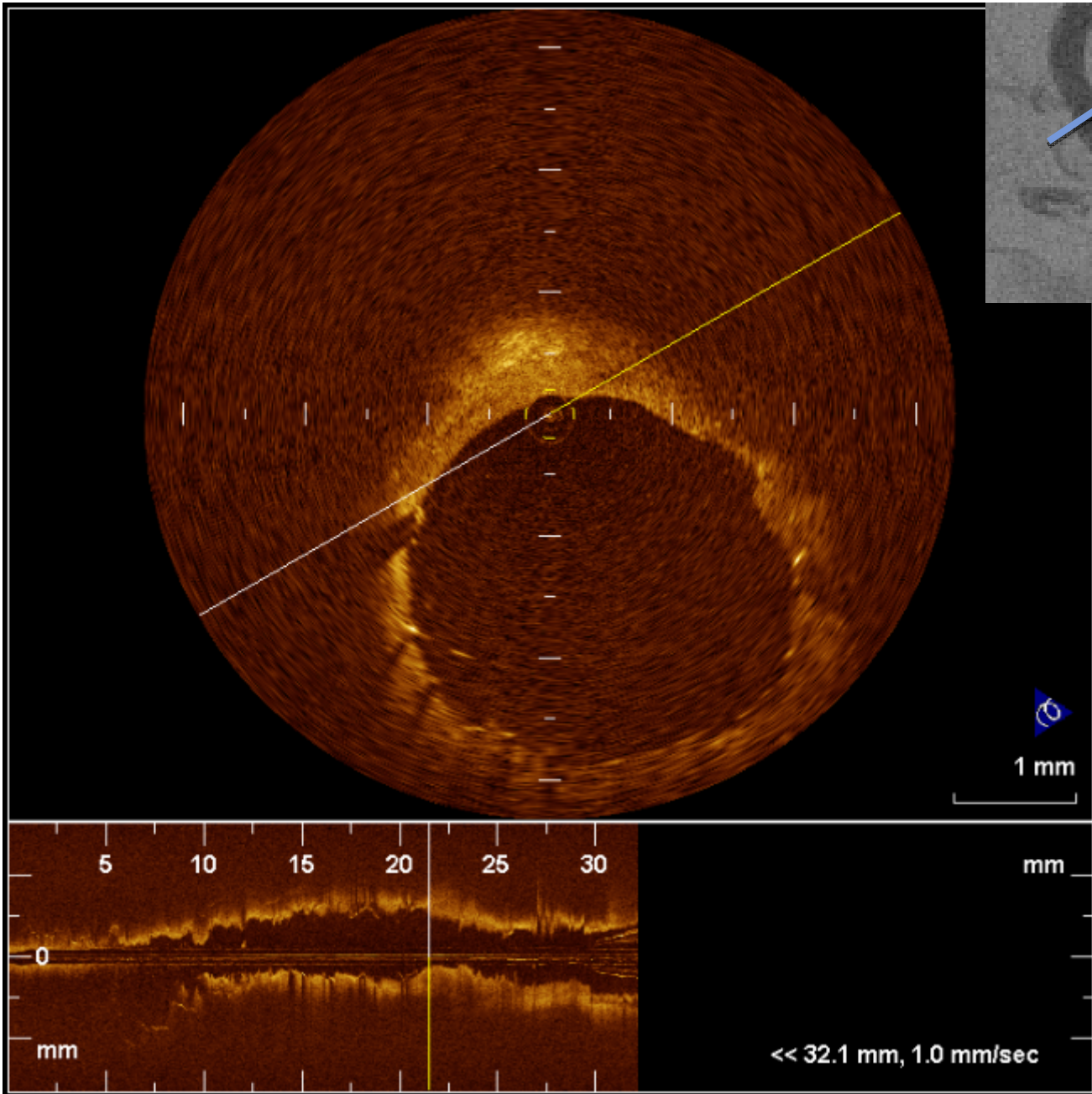


Type IIIa

completely embedded with disruption of lumen contour

Giulio Guagliumi et al. Catheterization and Cardiovascular Interventions 72:237-247 (2008)





Proximal
border of
stent



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OCT findings in STEMI



Conclusion

OCT can be the powerful tool to evaluate the pathophysiology of STEMI



Thank you for your attention !



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