IMAGING AND PHYSIOLOGY SUMMIT 2013

Clinical Case: OCT Helping in Diagnosis and Treatment

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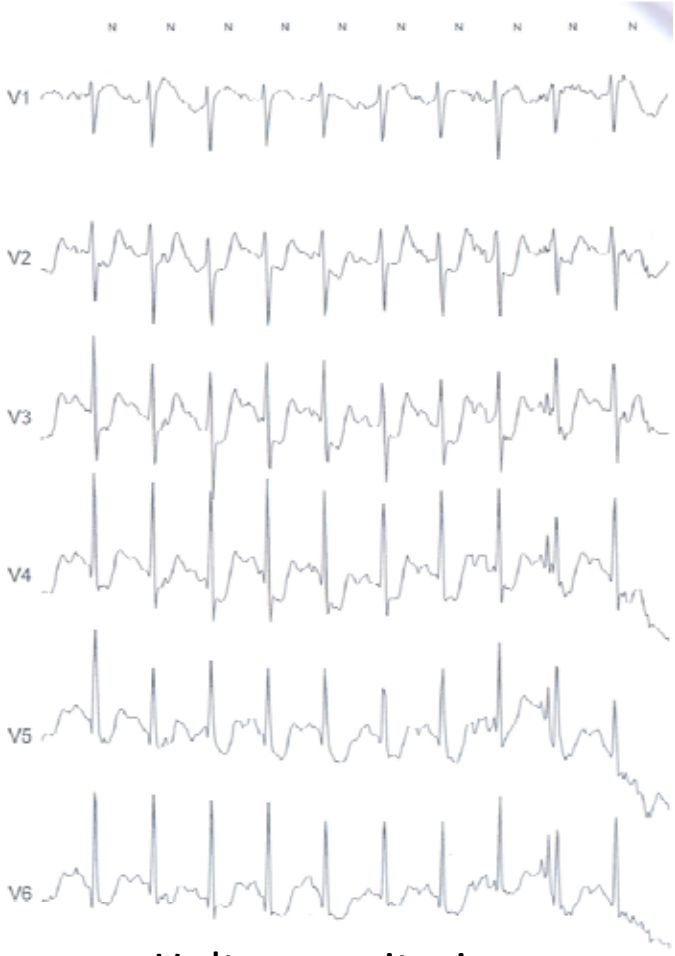
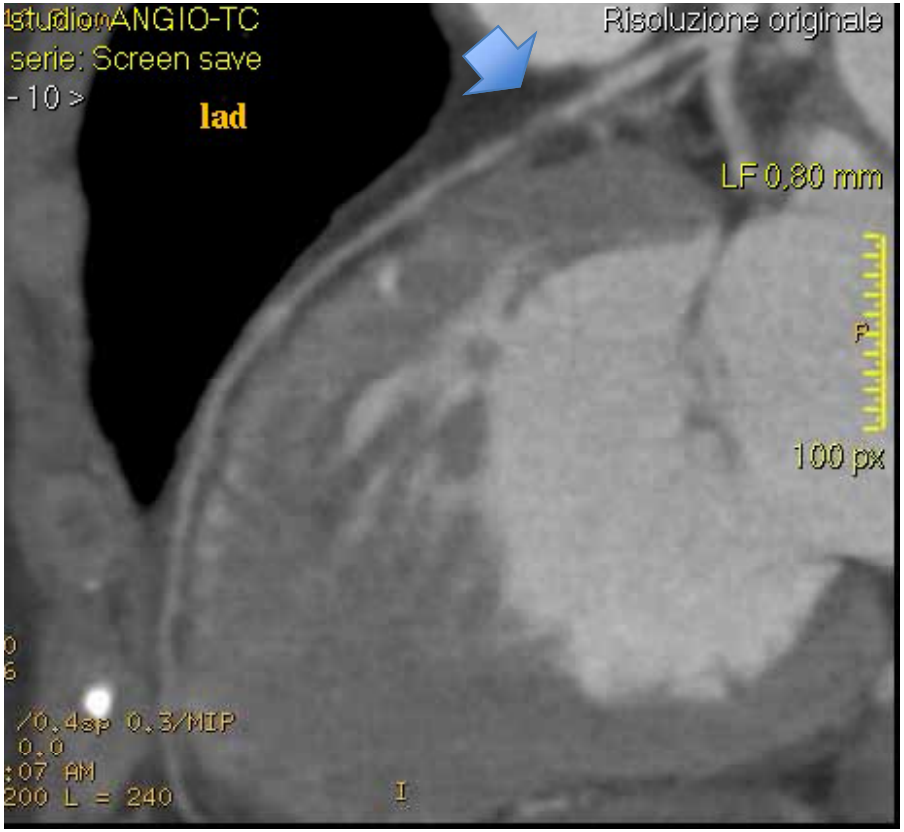
42 yrs. Intermittent Angina during exercise since 2011

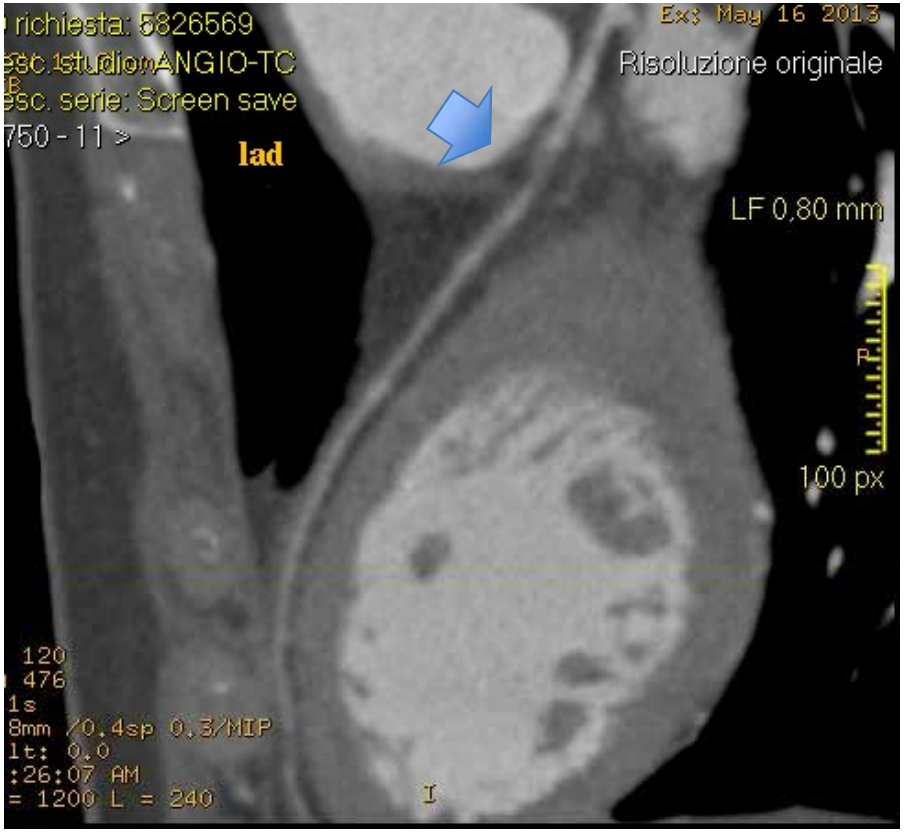
Underweight, no major risk factor for CAD
Raynaud phenomenon
Normal Echo, Negative exercise test

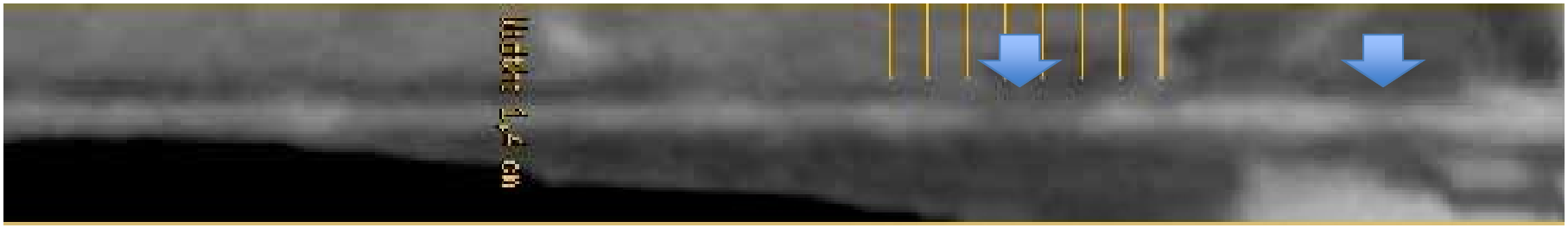


Holter monitoring:
Exercise chest pain

Angio-CT







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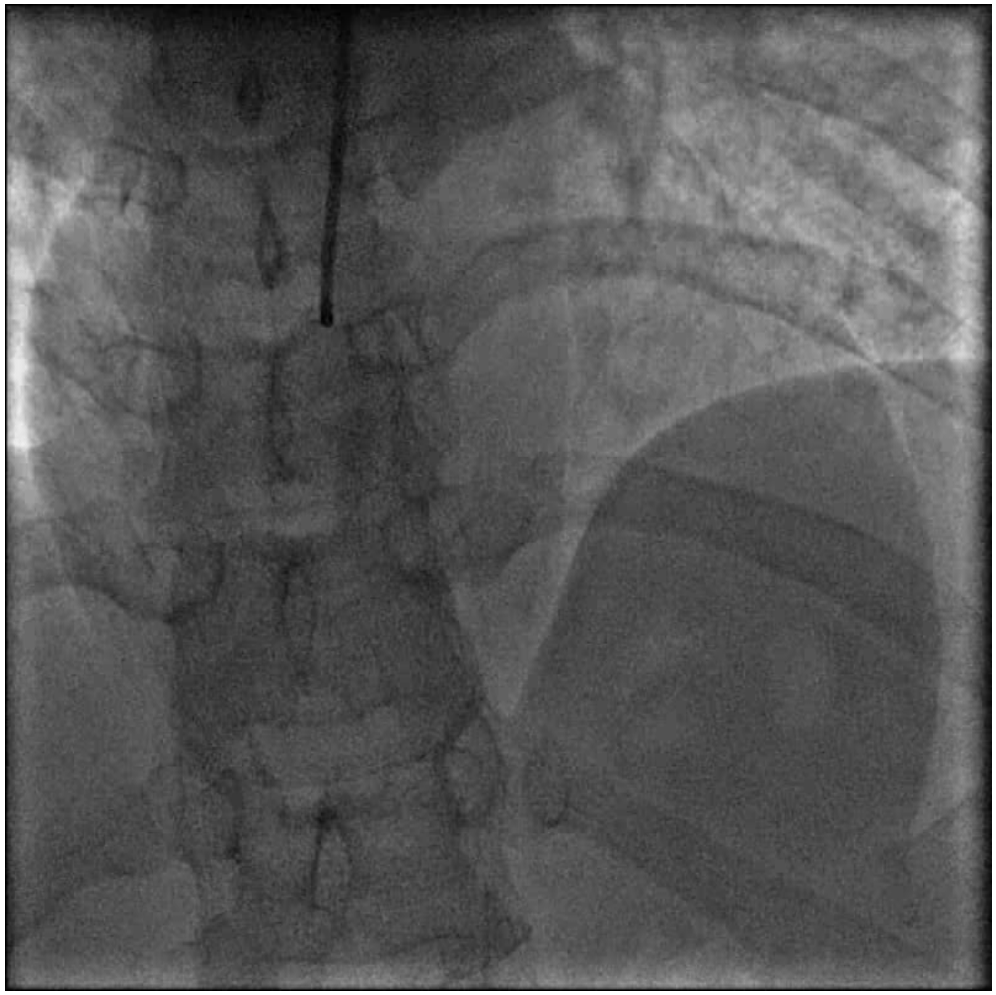
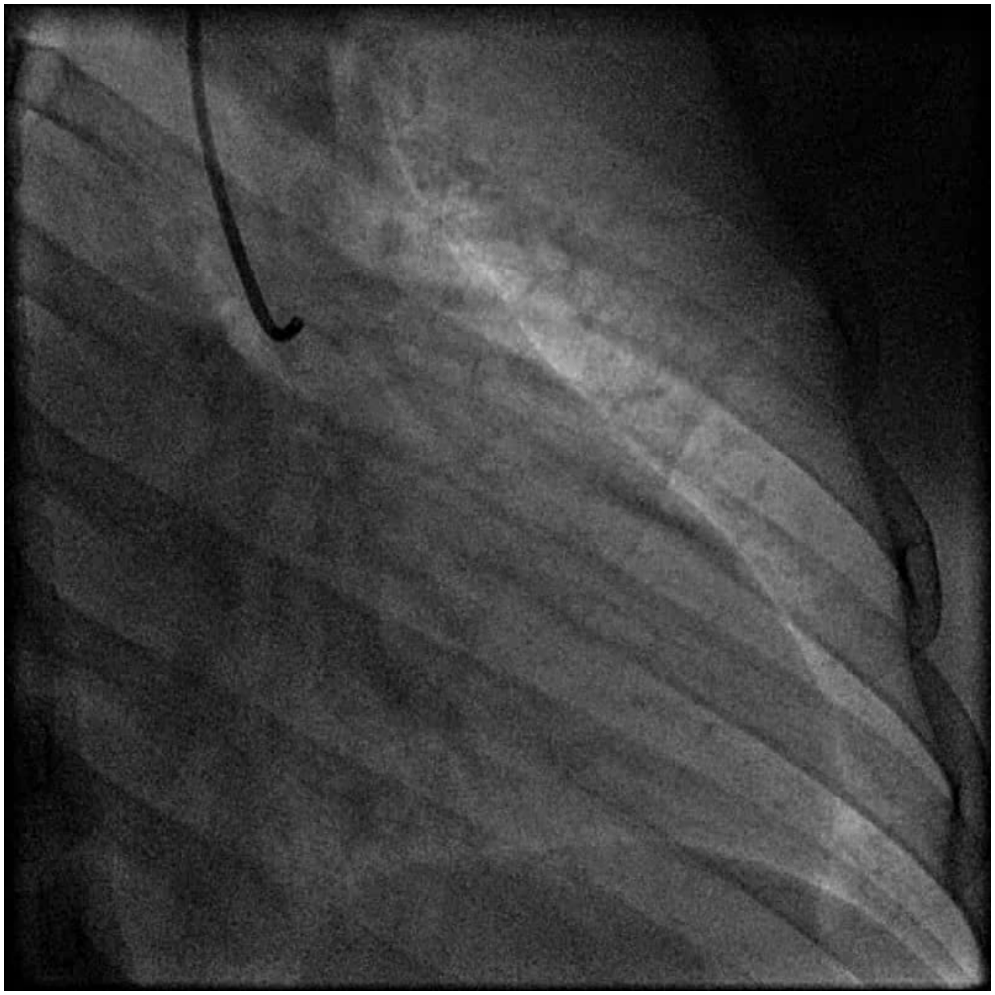
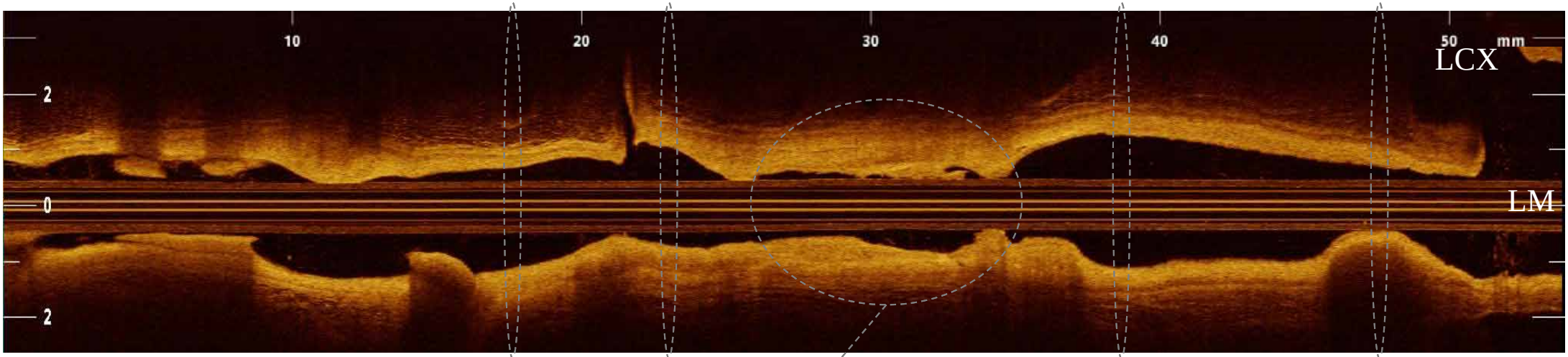




High Resolution Mode to Understand Type and Extent of Vessel Pathology

Homogeneous intimal thickening across the vessel



Lumen Area 1.61 mm² EEM 6.08 mm²	Lumen Area 2.79 mm² EEM 8.76 mm²	Lumen Area 0.90 mm² EEM 8.30 mm²	Lumen Area 5.70 mm² EEM 13.72 mm²	Lumen Area 5.70 mm² EEM 11.90 mm²

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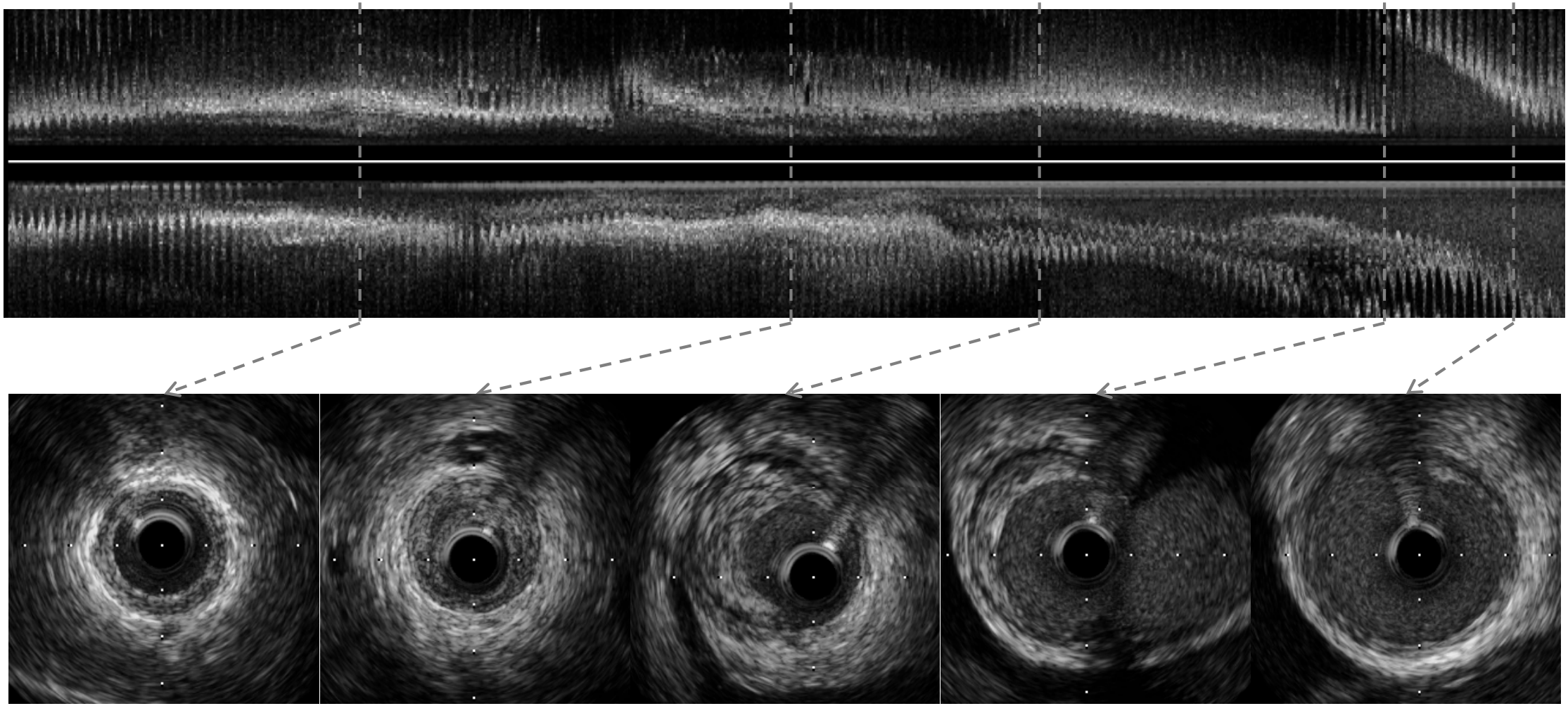
Uniform concentric intimal thickening and prevalent constrictive remodeling



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Young women, no risk factors, severe coronary artery disease Why? What to do?

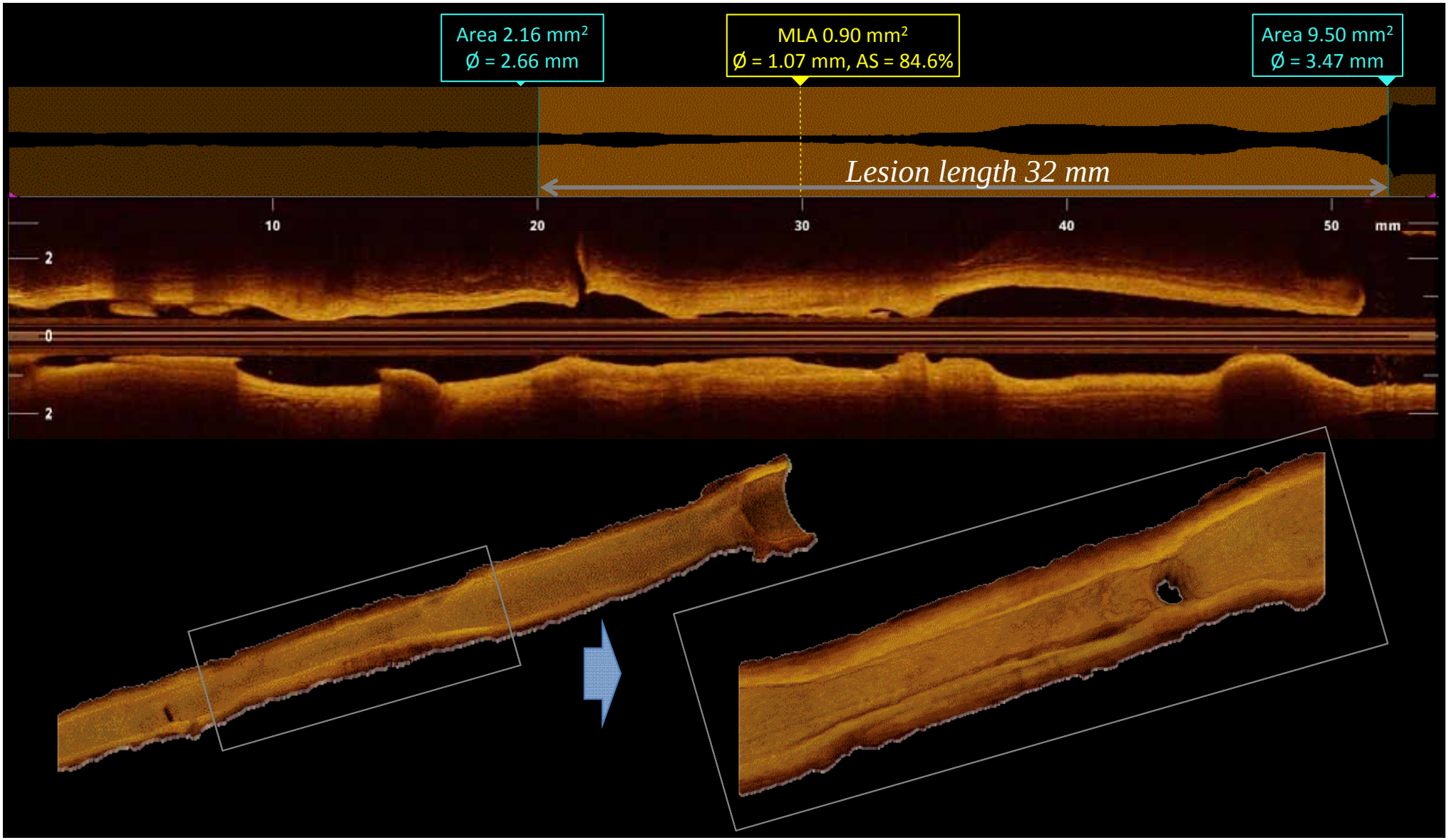
1. Diagnosis and how to make it ?

2. Treatment: long lesion on LAD from the ostium: surgery vs PCI ?

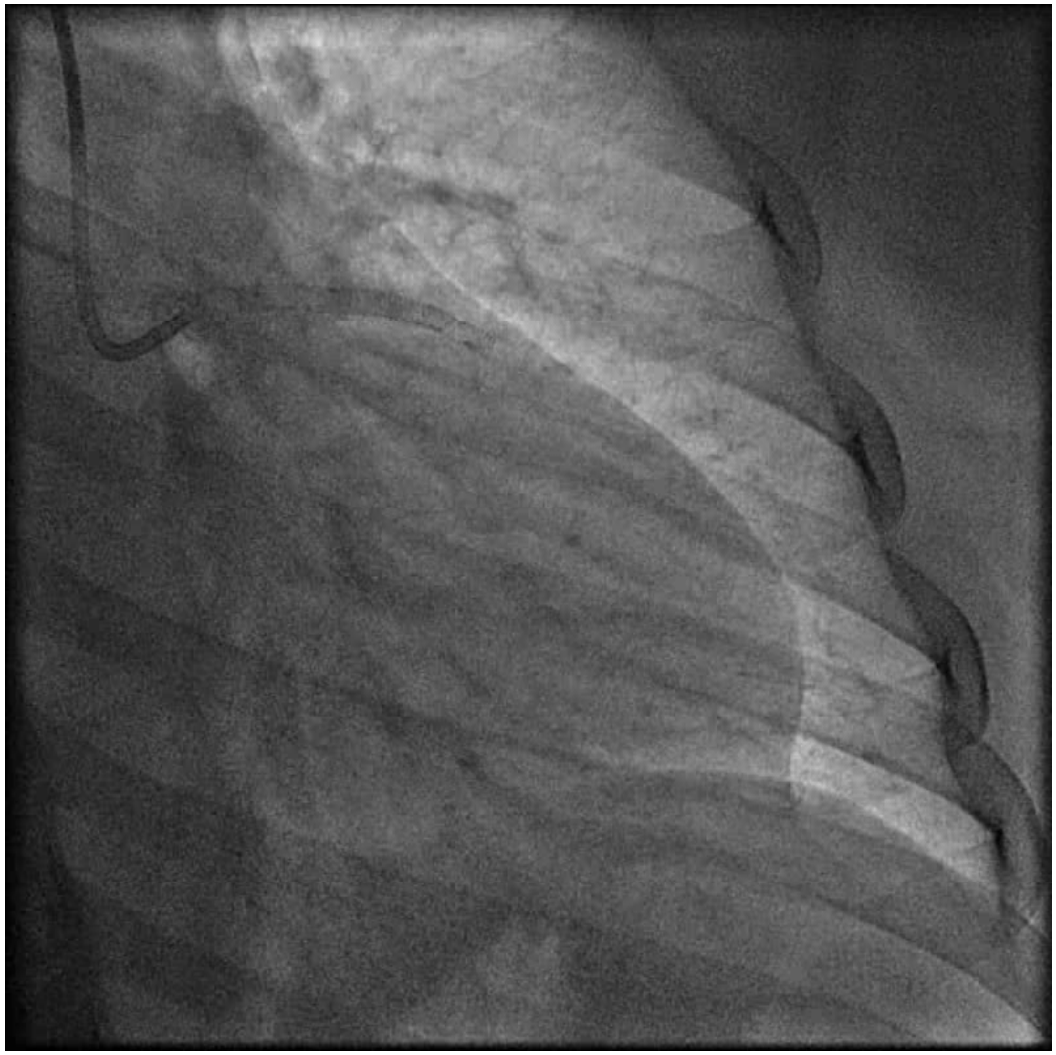
3. How to guide the procedure?

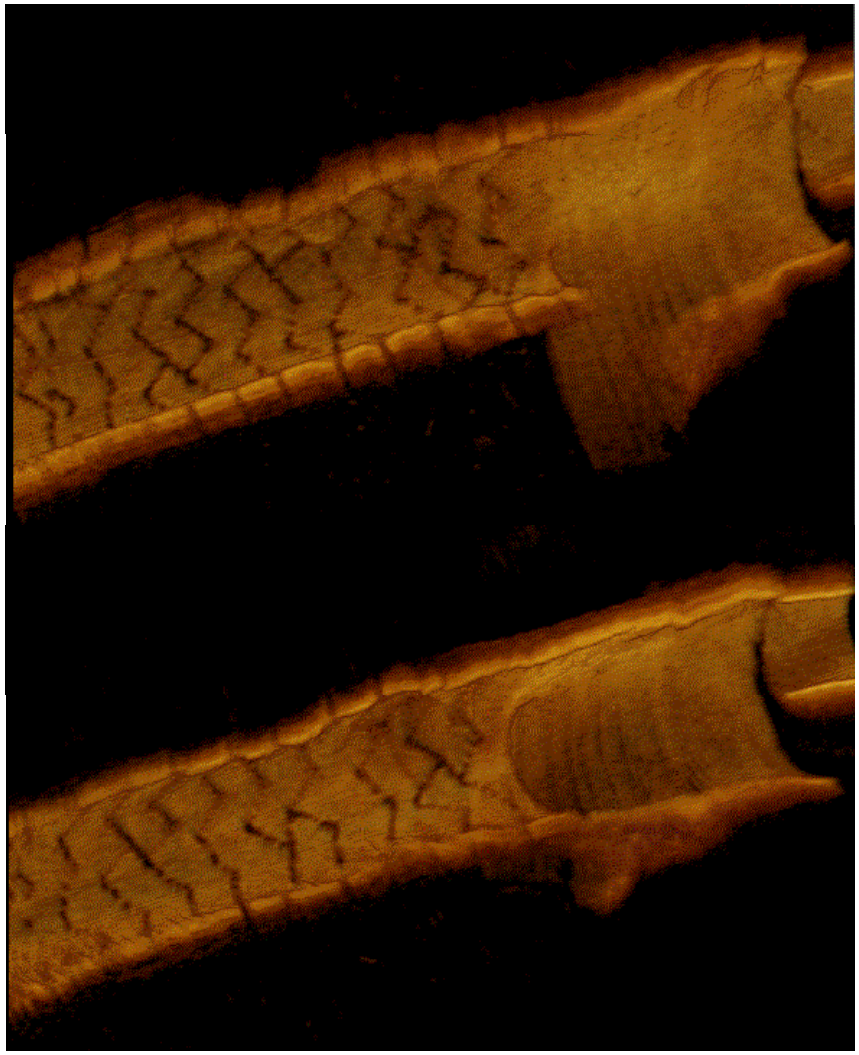
4. Future and pharmacologic treatment

Automatic measures for planning PCI (lumen profile and 3D navigation)

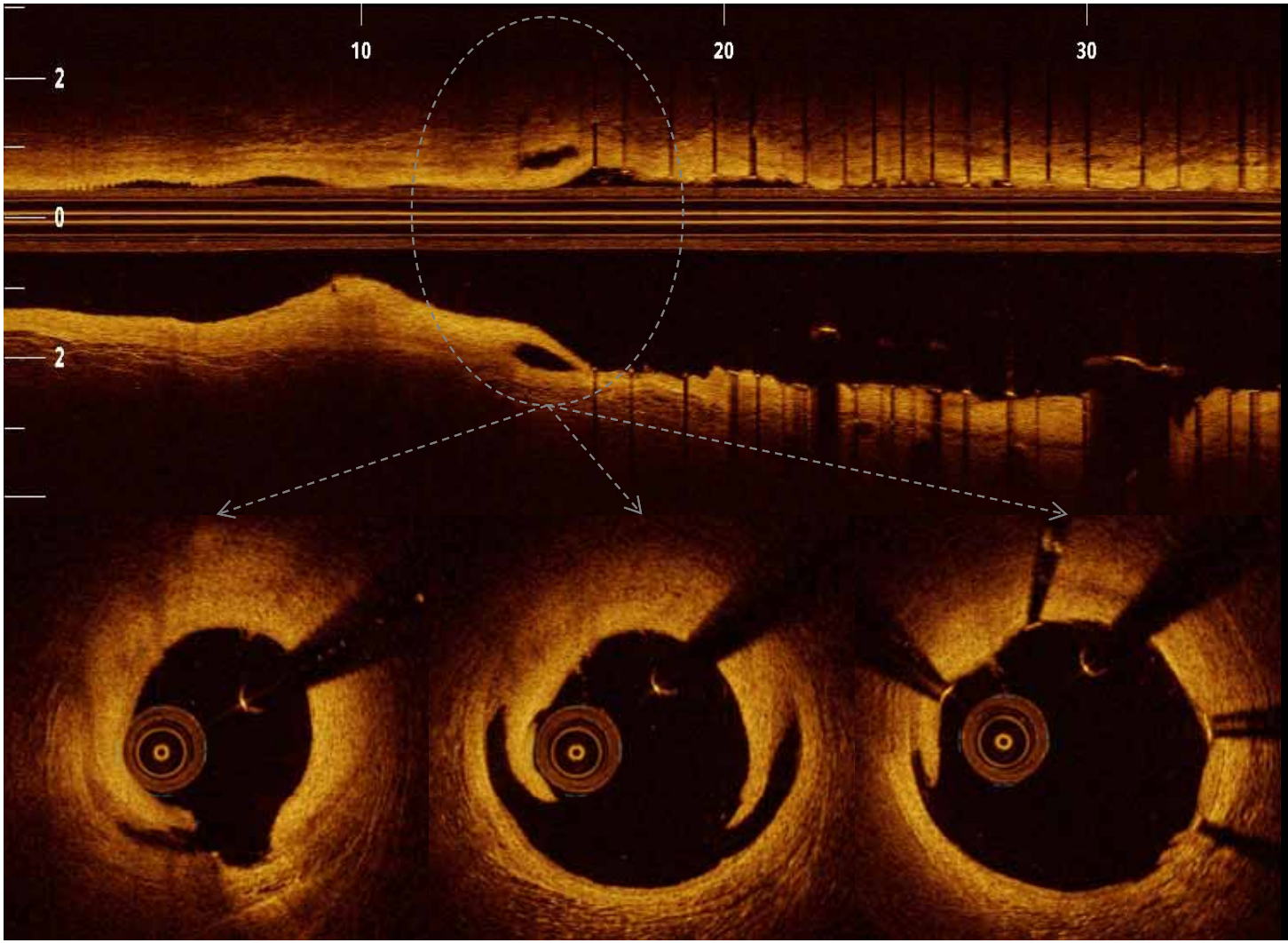


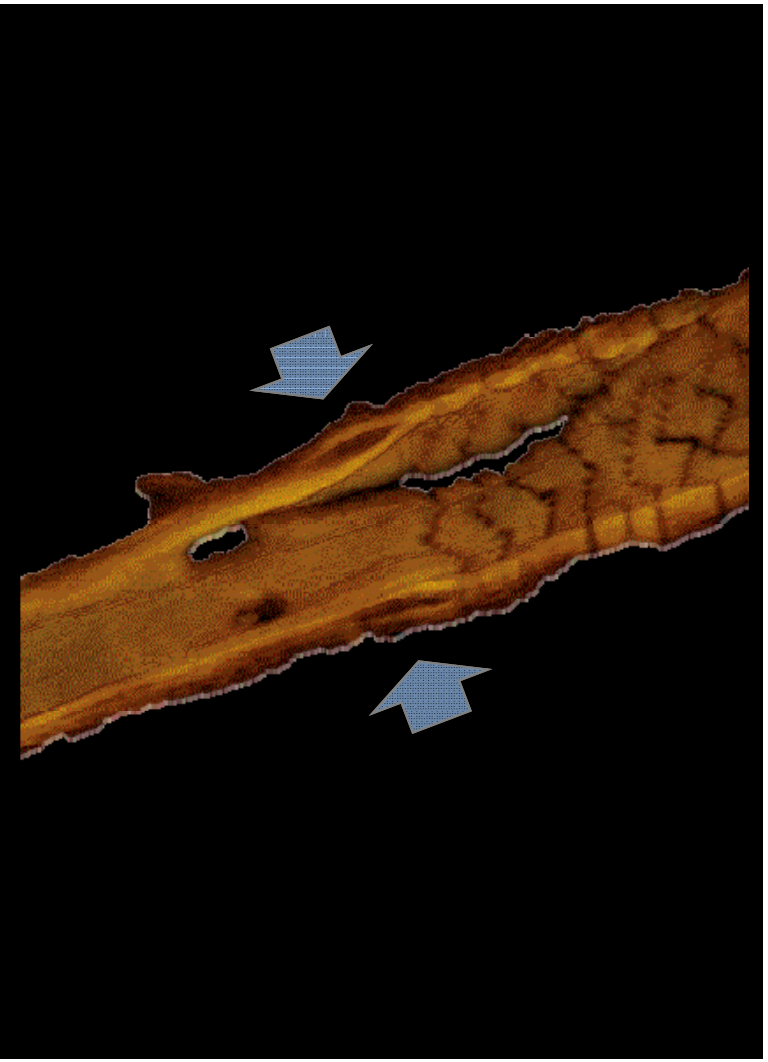
Assessing Edges: EES Position at the Ostium of LAD



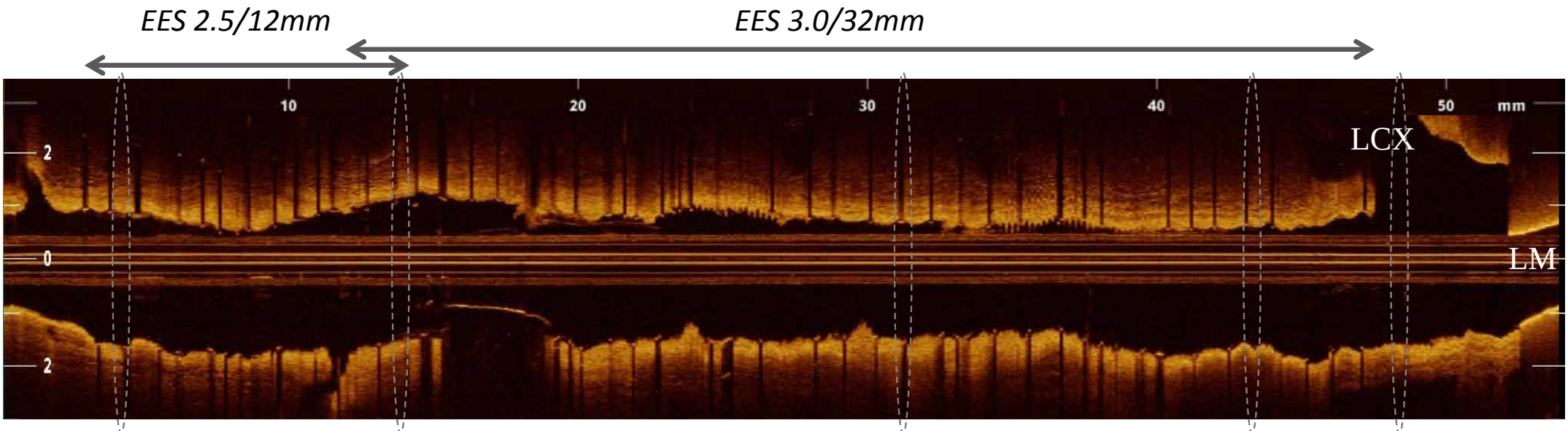


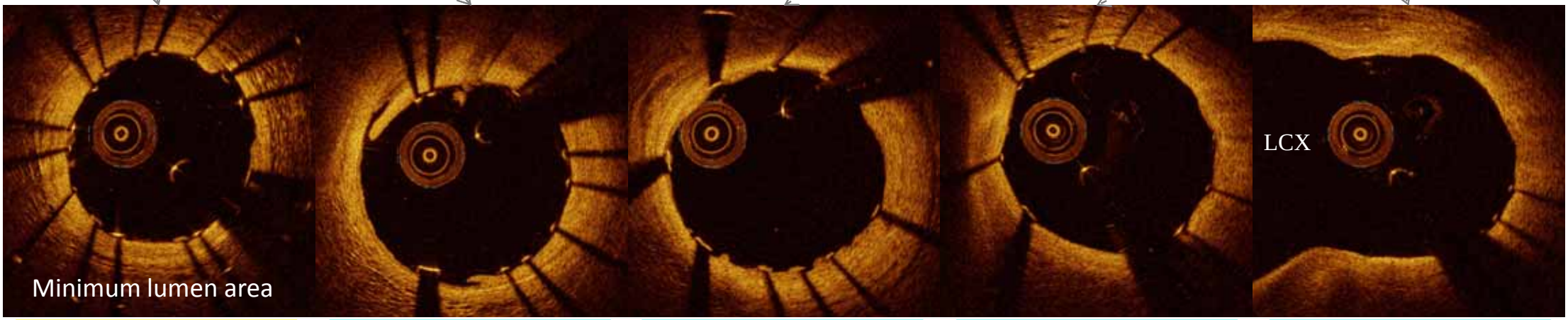
Assessing Stent Edges: Vessel Wall at the Exit Site





Post-stent assessment





Lumen Area 5.66 mm^2 | Lumen Area 6.41 mm^2 | Lumen Area 6.20 mm^2 | Lumen Area 6.25 mm^2 | Lumen Area 7.59 mm^2

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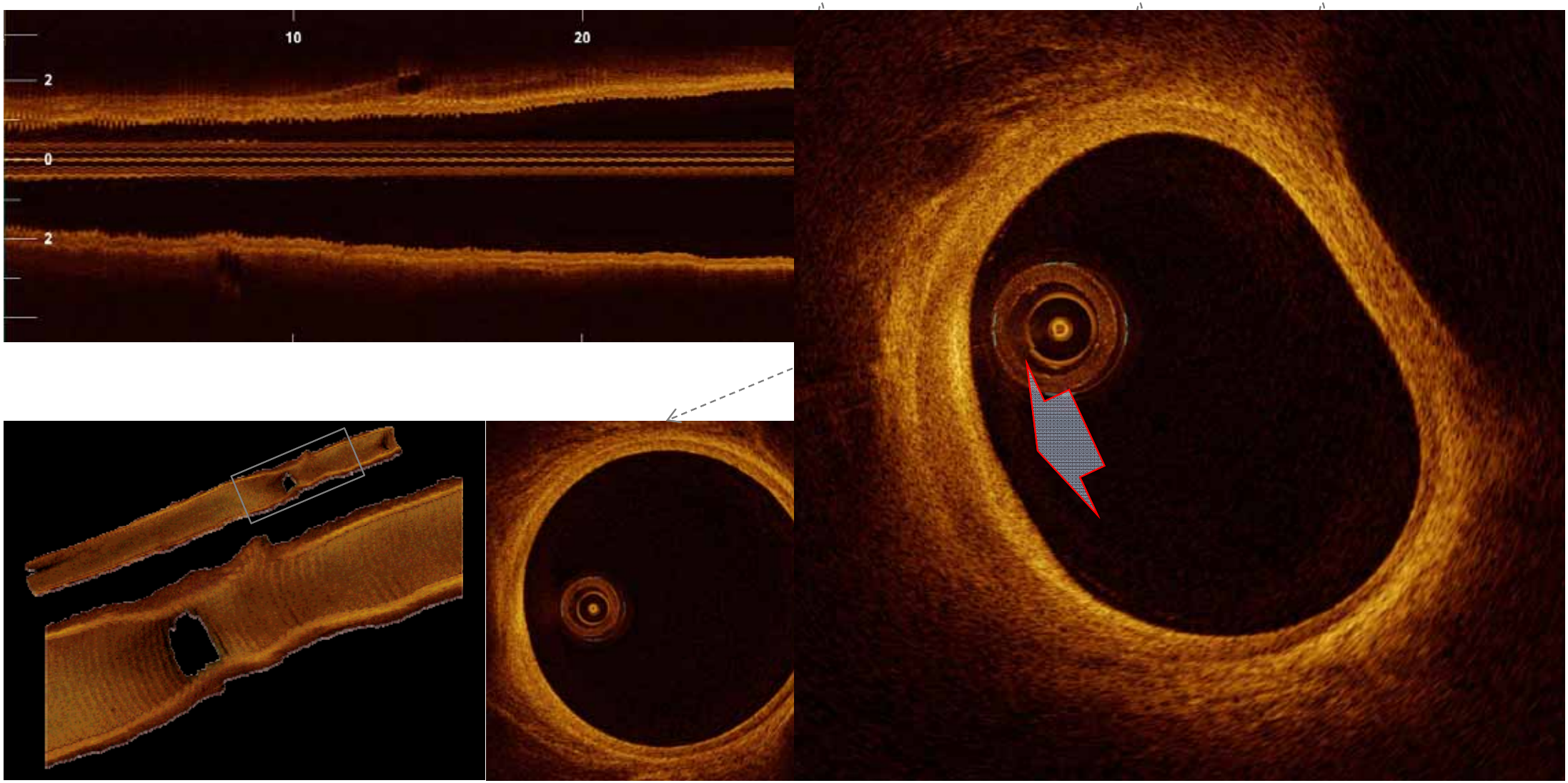
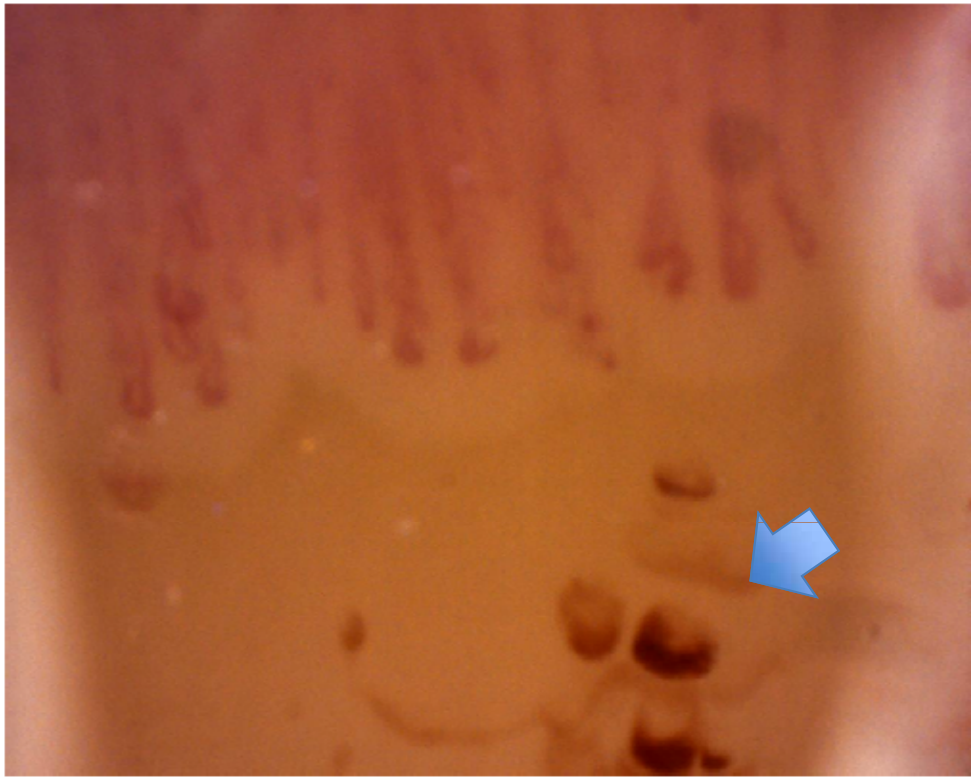
High Resolution Mode: Radial Artery

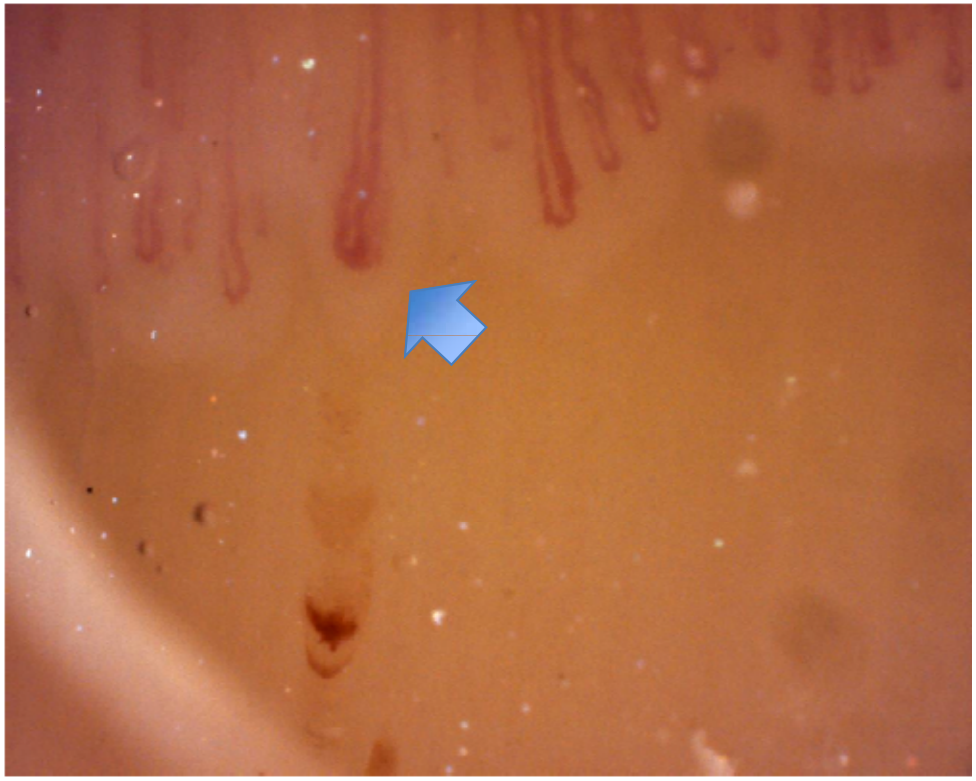


Capillaroscopy

Haemorragies



Giant Capillaries



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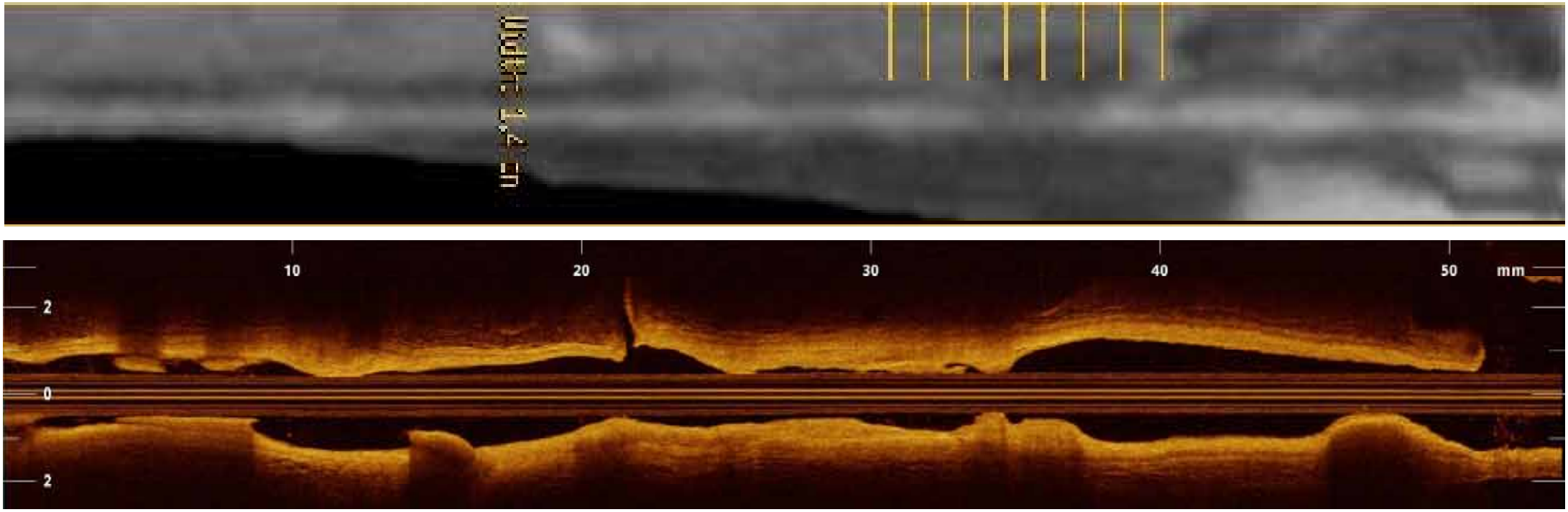
Background

- Systemic Sclerosis has a strong macrovascular component and the risk for MI is 8 times higher in the sclerosis group than sex-matched controls. SSc is characterized by vascular lesions and fibrosis of the skin and major organs including lungs, kidneys and heart.
- Among younger individuals, there is a female predominance of approximately 7:1
- Raynaud's phenomenon usually precedes skin involvement and ultimately occurs in more than 90% of patients, suggesting an initial and critical role of vascular dysfunction.
- Given the poor prognosis associated with cardiac involvement in Scleroderma, screening for subclinical cardiac disease and thorough evaluation of cardiac symptoms are essential.

CT in Scleroderma

- Independent risk factor for coronary artery calcification -11 fold increase risk
- Scleroderma disease duration was also associated with higher coronary artery calcium score and more “severe atherosclerosis”

Dr Mo Yin Mok (University of Hong Kong, China), *Arthritis & Rheumatism* May 2011



Pathogenesis of Vessel's Functional and Structural Abnormalities

Non-Vasculitic Ischemic Process

Vasospasm of the small coronary arteries would initially impair perfusion and function

Intimal proliferation leads to micro-macro vascular occlusive disease

Diffuse fibrosis

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ANTI-INFLAMMATORY MEDICATIONS

Arthritis,myositis, pericarditis

NSAIDs or corticosteroids

NOT FOR INJURY PROCESSES

IMMUNOSUPPRESSIVE THERAPY

methotrexate, cyclosporine, mofetil, cyclophosphamide

autologous bone marrow transplantation

THERAPY FOR VASCULAR DISEASE

Vasodilatators

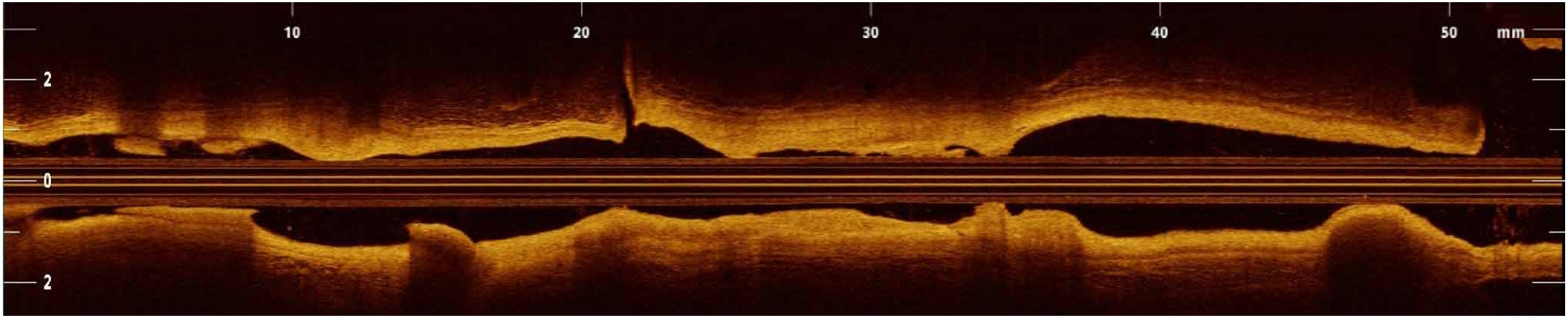
calcium channel blockers;
endothelin-1 receptor inhibitor (bosentan, effect fibrosis?),
epoprostenol (prostacyclin);
ACE inhibitors

Antifibrotic Agents ???

Suppress fibroblast
Brake-down collagen
Promoting remodelling

Antiplatelet or Anticoagulation Drugs

to avoid thrombosis or artery occlusion: low-dose aspirin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