

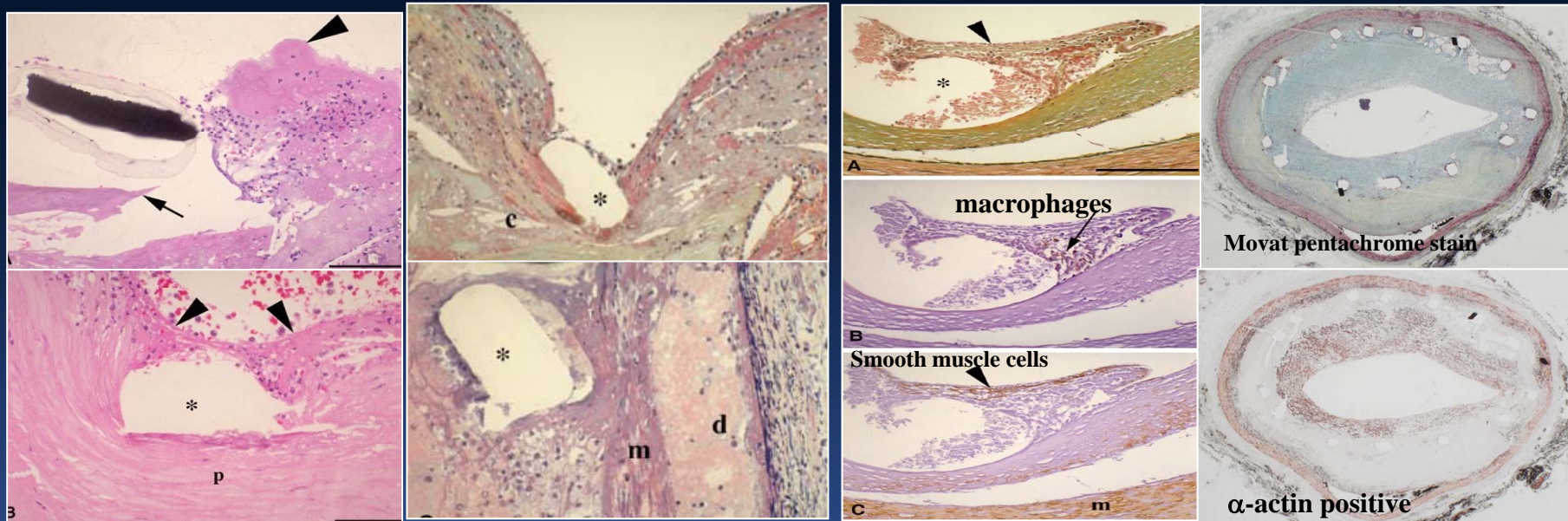
Neointimal Characteristics of In-Stent Restenosis Lesions

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Neointima of BMS

Smooth muscle cells and Matrix deposition (< 6 months)



Thrombus and Fibrin deposition

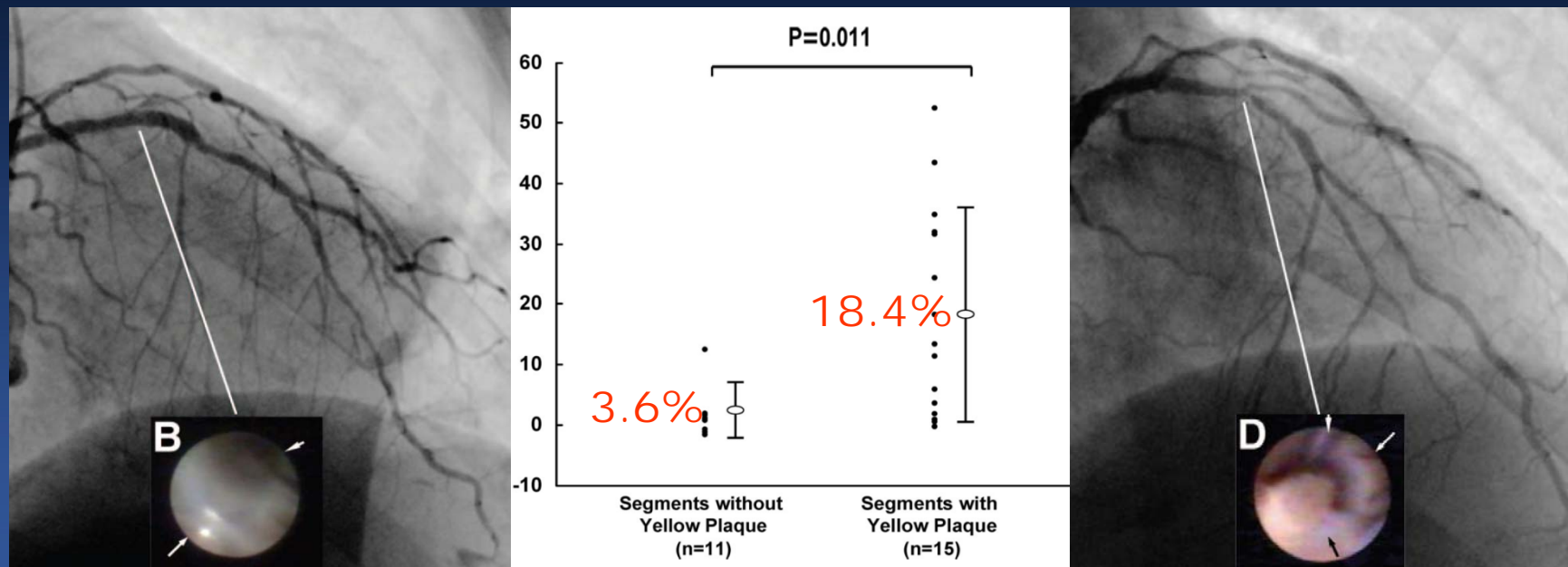
Acute Inflammation

Granulation Tissue response

Histopathologically, neointima are mainly composed of vascular smooth muscle cells proliferating over stent struts associated with vascular healing response in the early phase.

Serial Angioscopic Observation of Neointima after BMS Implantation

White neointima was changed into **Yellow plaque** over the extended period (< 4 years).

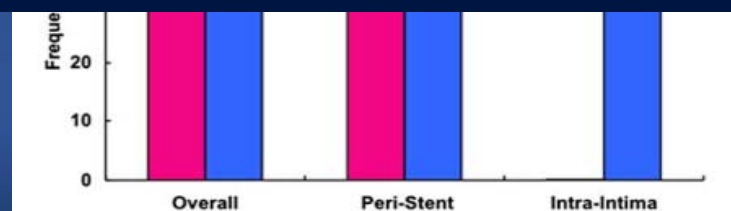
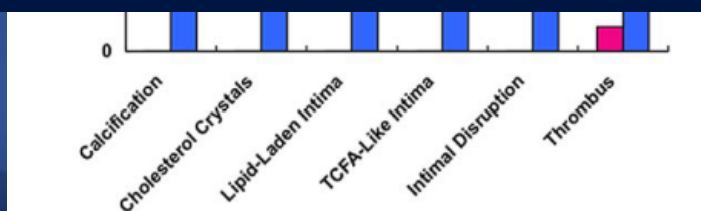


Late luminal narrowing (%) is increased in segments with yellow plaque

OCT and In-stent Neointimal Hyperplasia after BMS

	<6months	>5years
#	20	21
Lipid laden intimal	0	67%
Intimal disruption	0	38%
Thrombus	5%	52%
Intraintimal neovasacularization	0%	62%

In-stent neointimal hyperplasia may increase the vulnerability of intima and contribute the important mechanism of BMS failure



History

- 72 year-old female

- Chief complaint :

Effort chest pain (CCS class II) for 1 month

- Past Medical History:

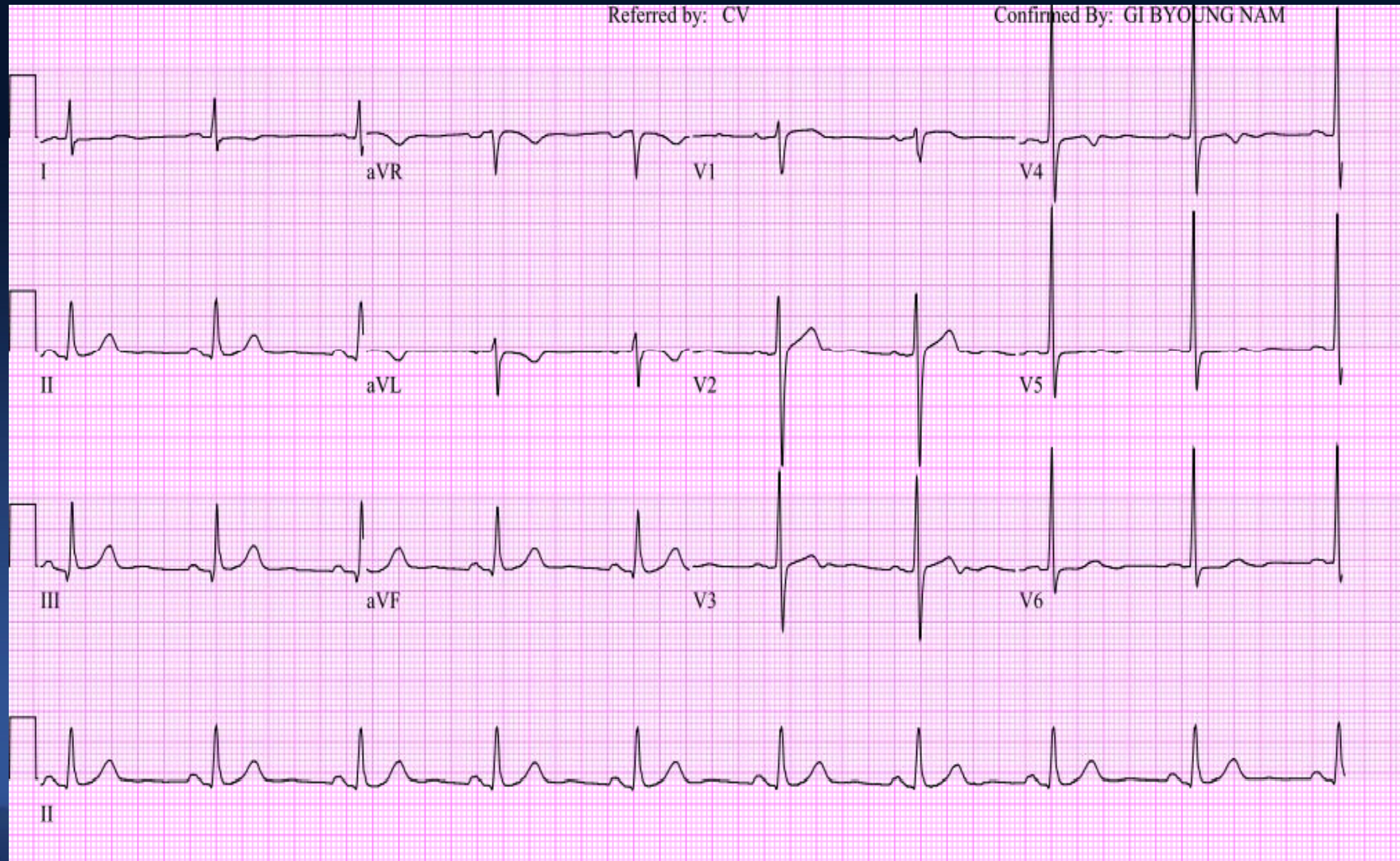
10 yrs ago, PCI (BMS) at RCA, LAD

- Risk factor : Hypertension

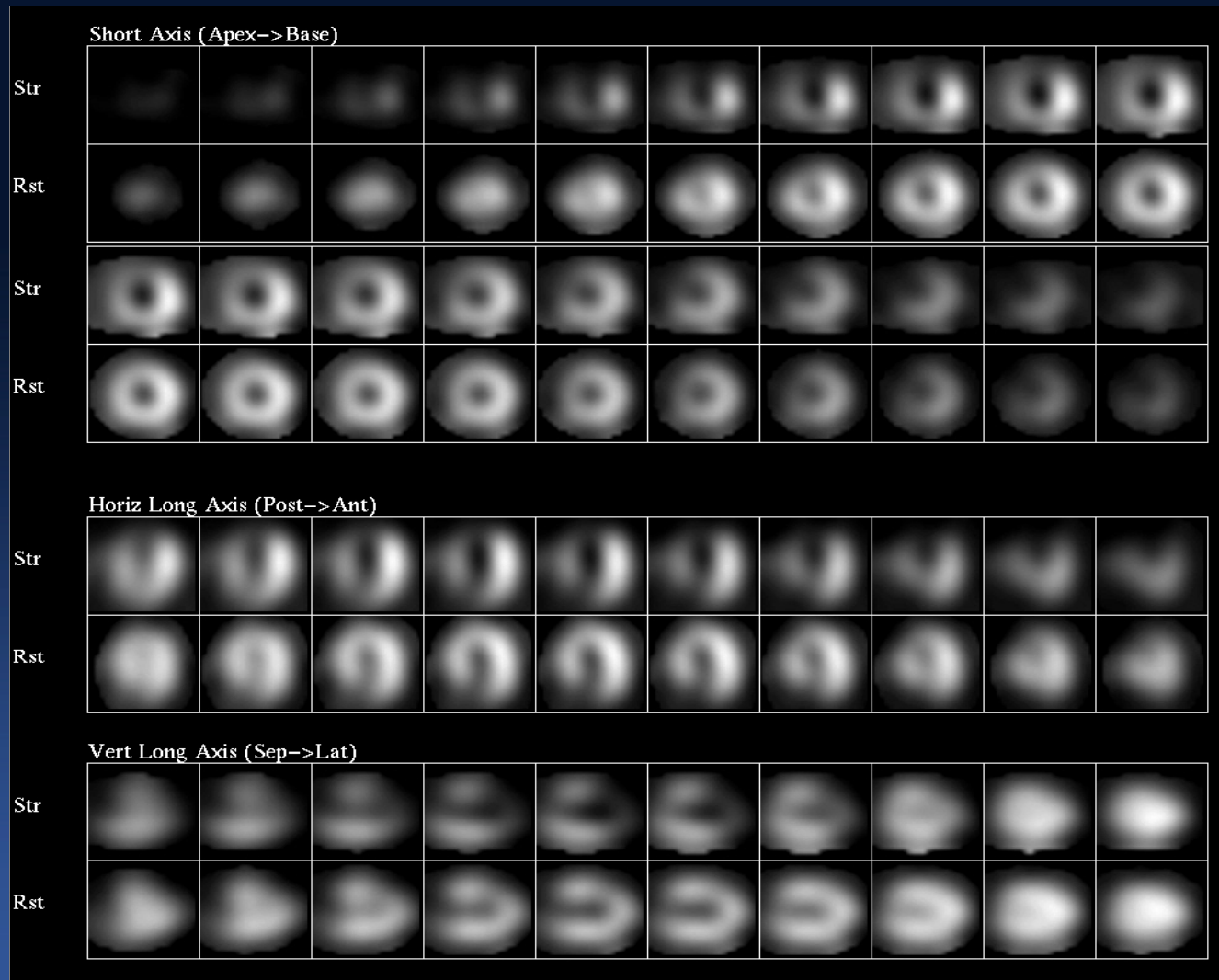
- Echocardiography : Normal LV systolic function

- Current Medication: Aspirin, Plavix, Pletaal, Crestor, Selectol

Electrocardiogram



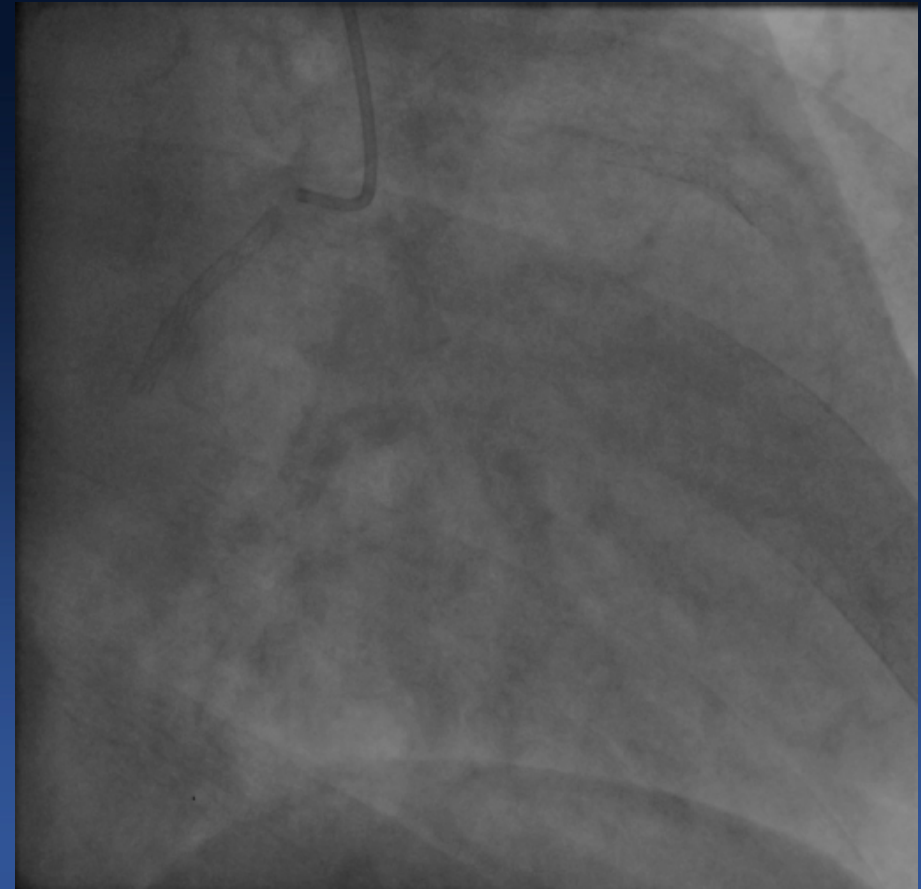
Thallium SPECT



Partially reversible large sized, severely decreased perfusion in LAD territory

72 yr-old female, Stable angina

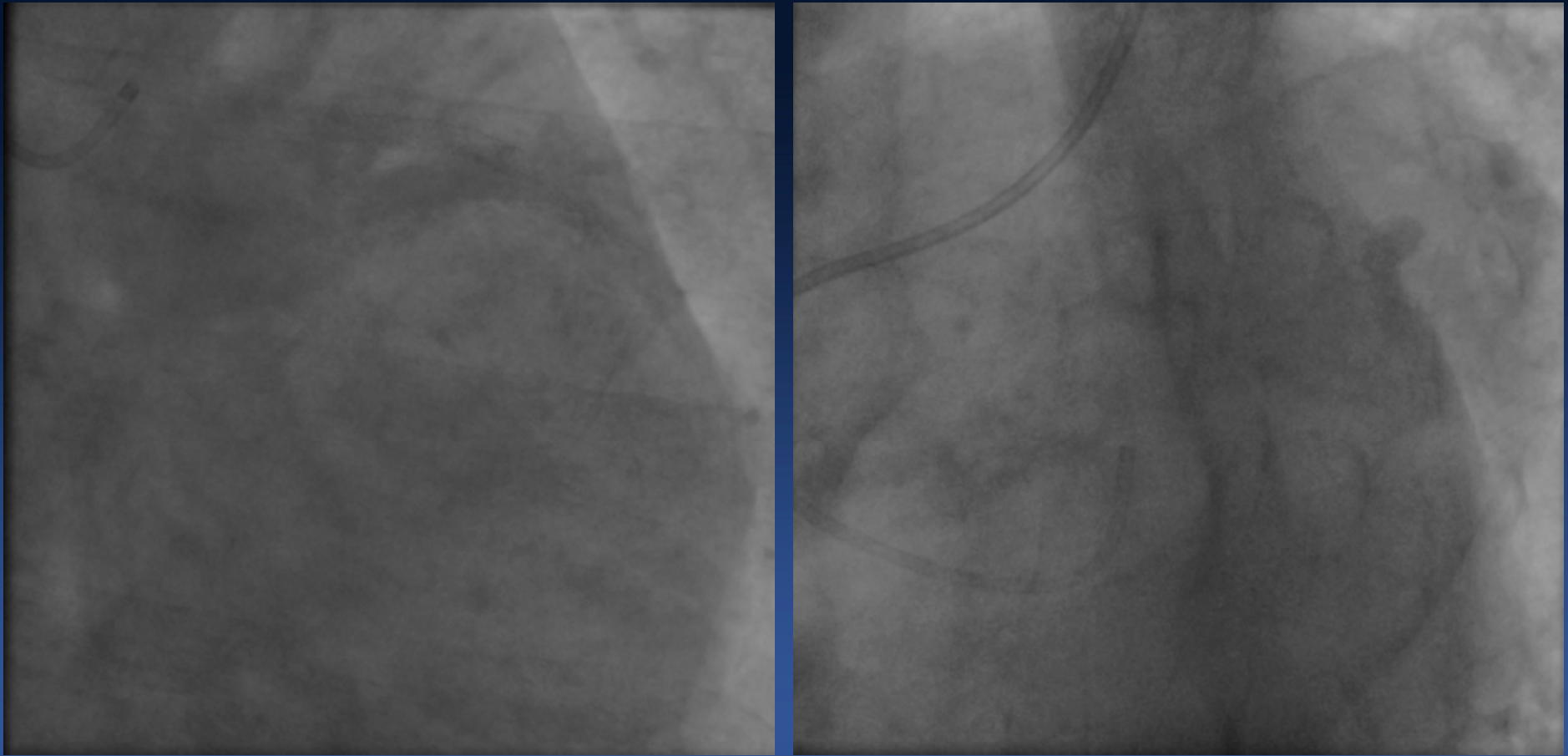
Baseline Angiography



Right Coronary Artery

72 yr-old female, Stable angina

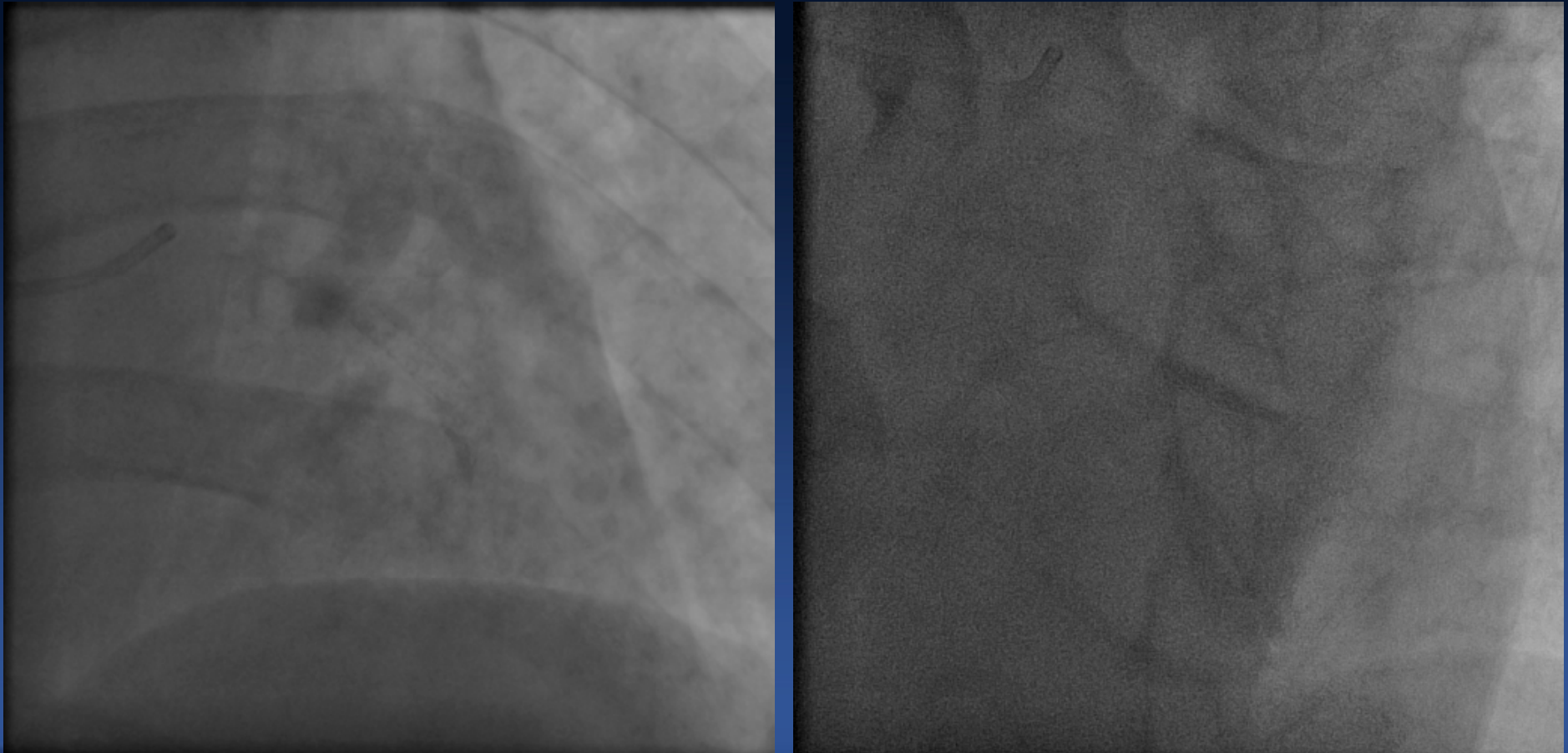
Baseline Angiography



Left Coronary Artery

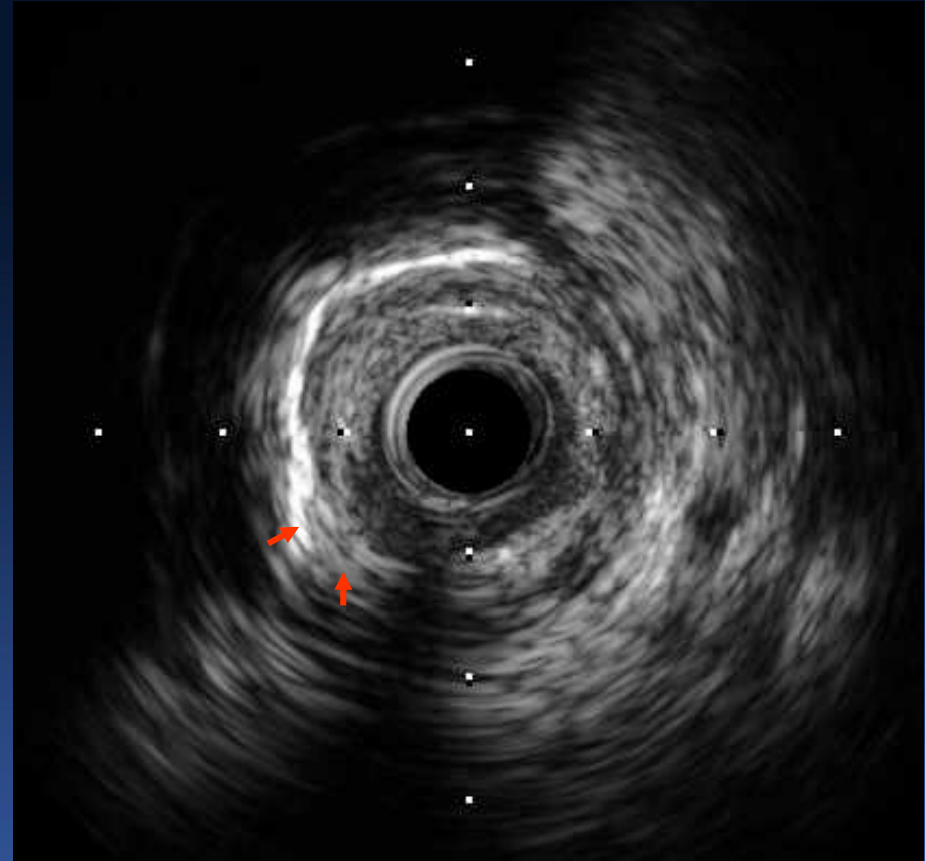
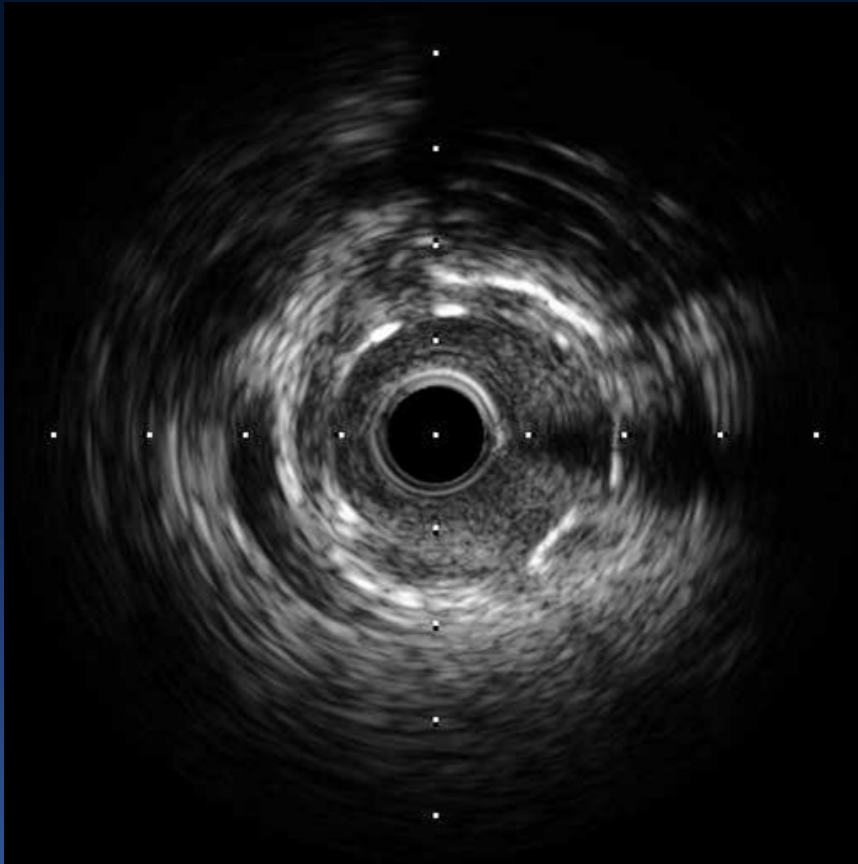
72 yr-old female, Stable angina

Baseline Angiography



Left Coronary Artery

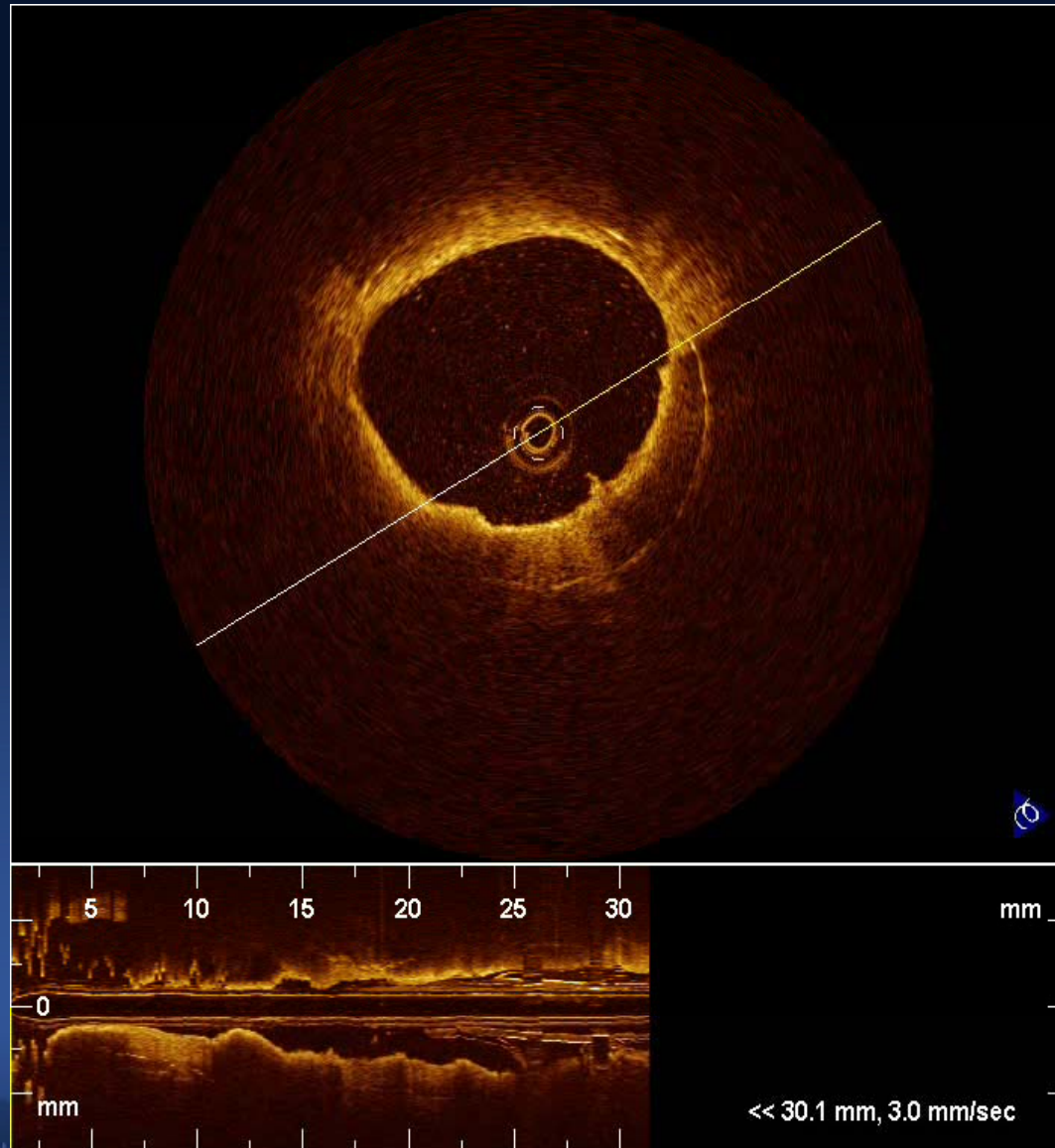
Intravascular Ultrasound

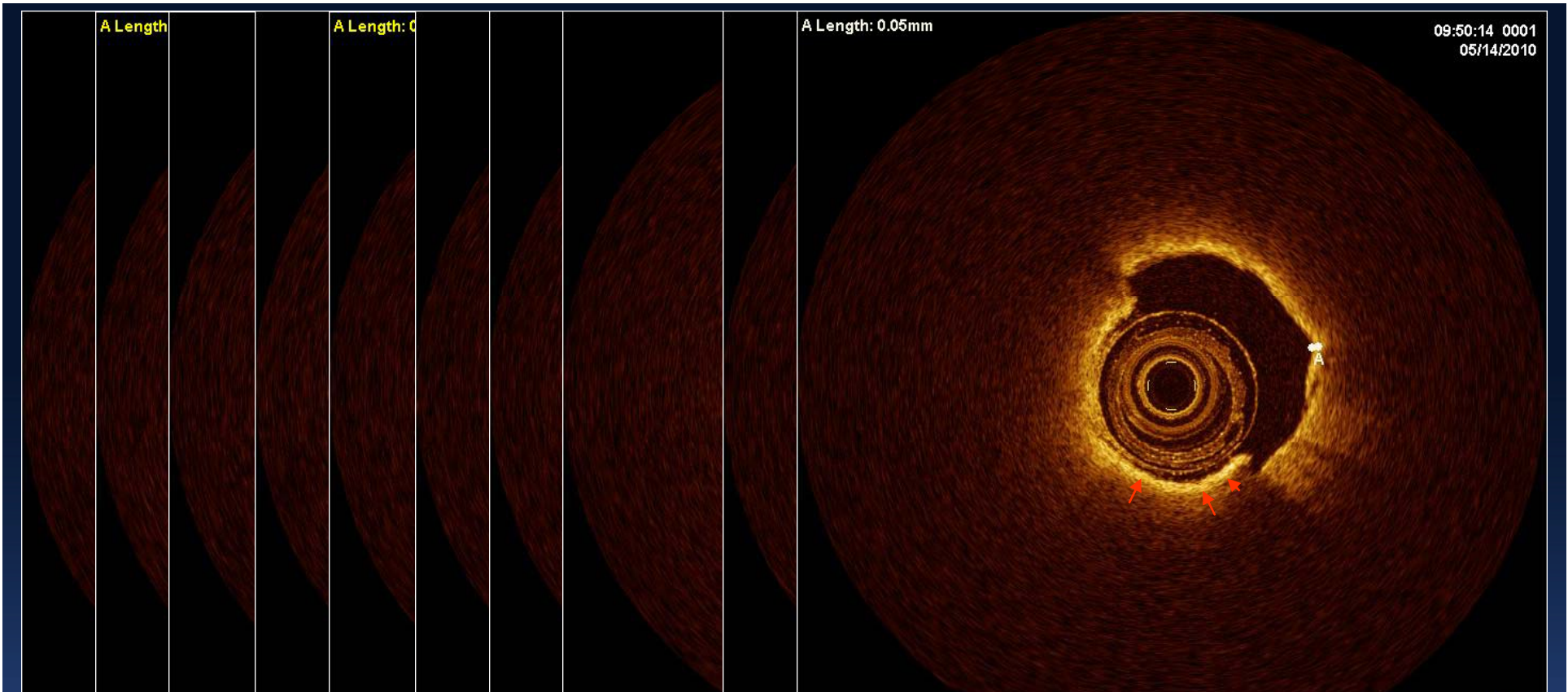


Minimal Stent Area = 6.3mm^2

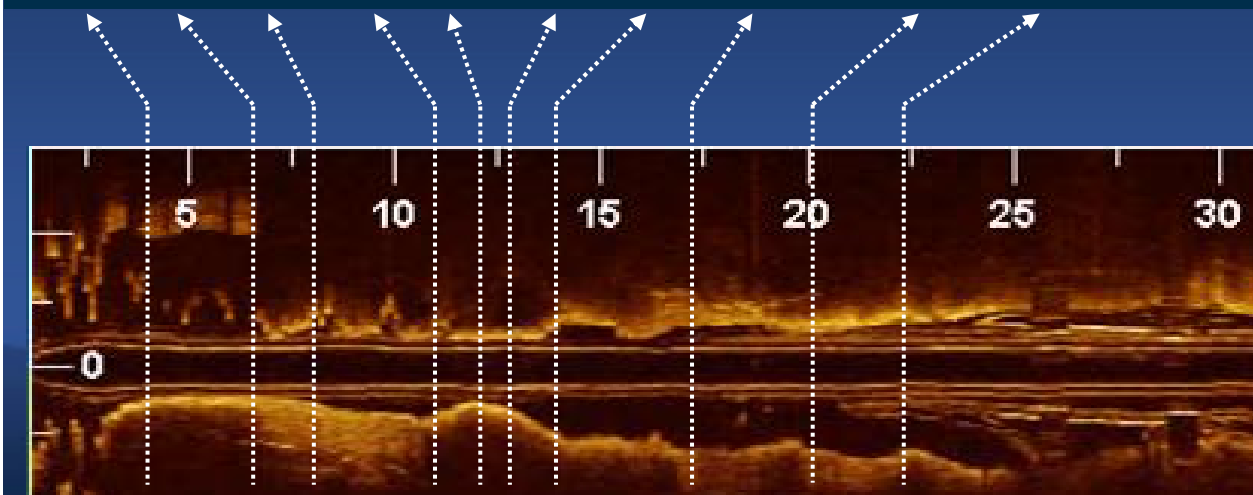
Minimal Lumen Area = 2.1mm^2

Optical Coherence Tomography

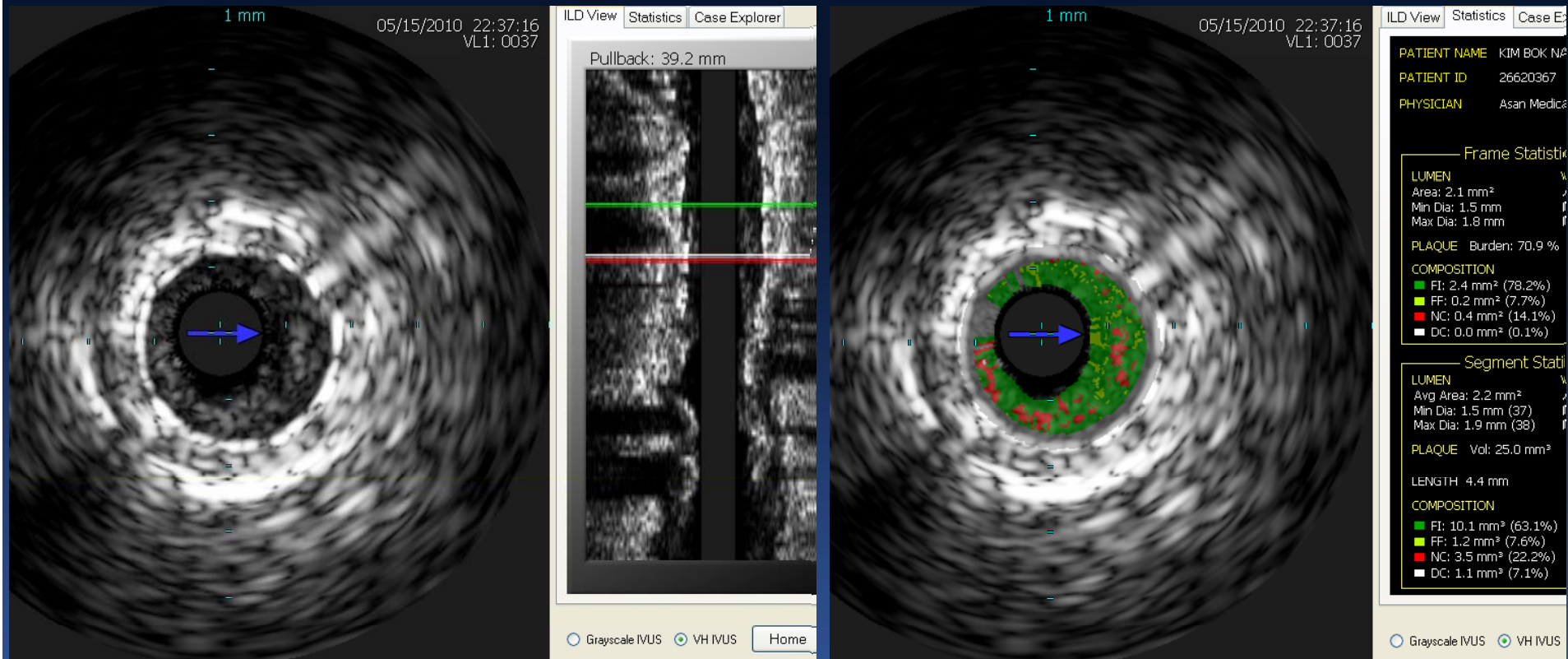




In-Stent Neo-atherosclerosis with Vulnerable Intima

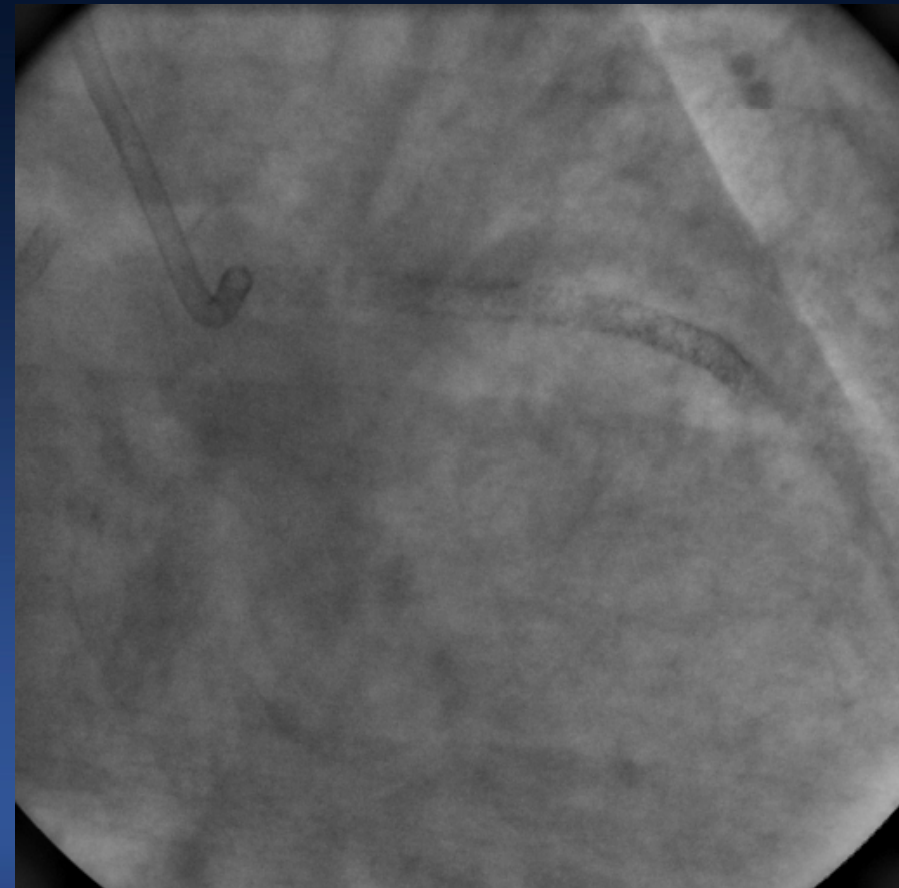
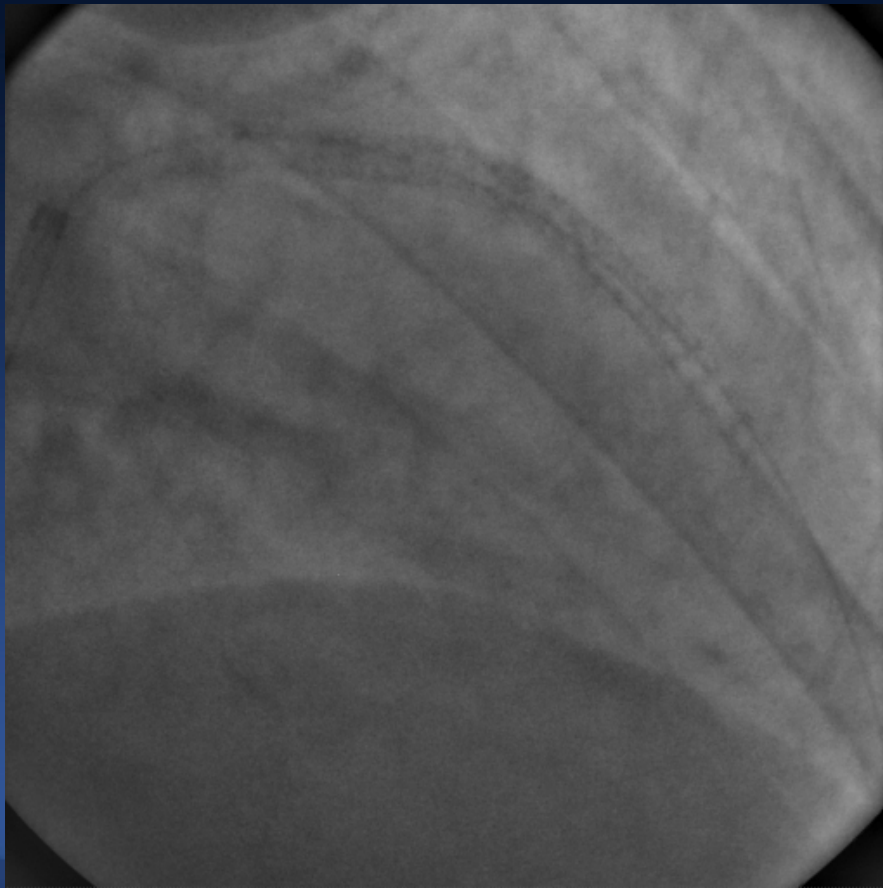


Virtual Histology



Stenting at LM-mLAD

Cutting Balloon Angioplasty and
Cypher select 3.0(23) + 3.0(33) + 3.5(18)



Summary

- **OCT demonstrated in-stent TCFA-like neointima, intimal rupture and thrombi in patient with very late stent thrombosis .**
- **The OCT findings suggest that in-stent neoatherosclerosis may increase the vulnerability of intima and contribute the important mechanism of BMS failure (very late stent thrombosis and late in-stent restenosis) over time.**