

Are BVS ready for LM stenosis?

Corrado Tamburino, MD, PhD

***Ferrarotto Hospital, University of Catania,
Catania, Italy***



Potential conflicts of interest

Speaker's name: Corrado Tamburino

✓ I have the following potential conflicts of interest to report:

Research contracts

Consulting Medtronic, Abbott v, Edwards, Boston Sc.

Employment in industry

Stockholder of a healthcare company

Owner of a healthcare company

Other(s)

I do not have any potential conflict of interest



Resorption-related mechanisms of potential additional benefits of ABSORB compared to metallic DES in the LM

- Reduced risk of very late polymer/metal reactions
- Resolution of positive remodeling and stent malapposition
- Resolution of late strut fractures
- Restoration of normal vessel curvature
- Superior compatibility with noninvasive diagnostic imaging



Potential Concerns of BRS use in LM

- Thick struts (~150 μ m) might lead to (transient) flow disruption with potential increased risk of stent thrombosis.
- Expansion limits may impair adequate expansion and apposition.
- Limited size availability restricts the use of BVS in LM.
- Slow inflation required often not well tolerated
- Challenging bifurcation recrossing
- Insufficient radial strength in ostial disease
- Optimal lesion preparation with extensive balloon dilatation required
- Risk of strut fracture of a BRS implanted across major side branches.
- Challenging ostial positioning with no radiopaque scaffolds.



Lesion Characteristics

Lesion Location

LMCA	17/1,427 (1%)
LAD	668/1,426 (47%)
LCX	353/1,426 (25%)
RCA	359/1,425 (25%)

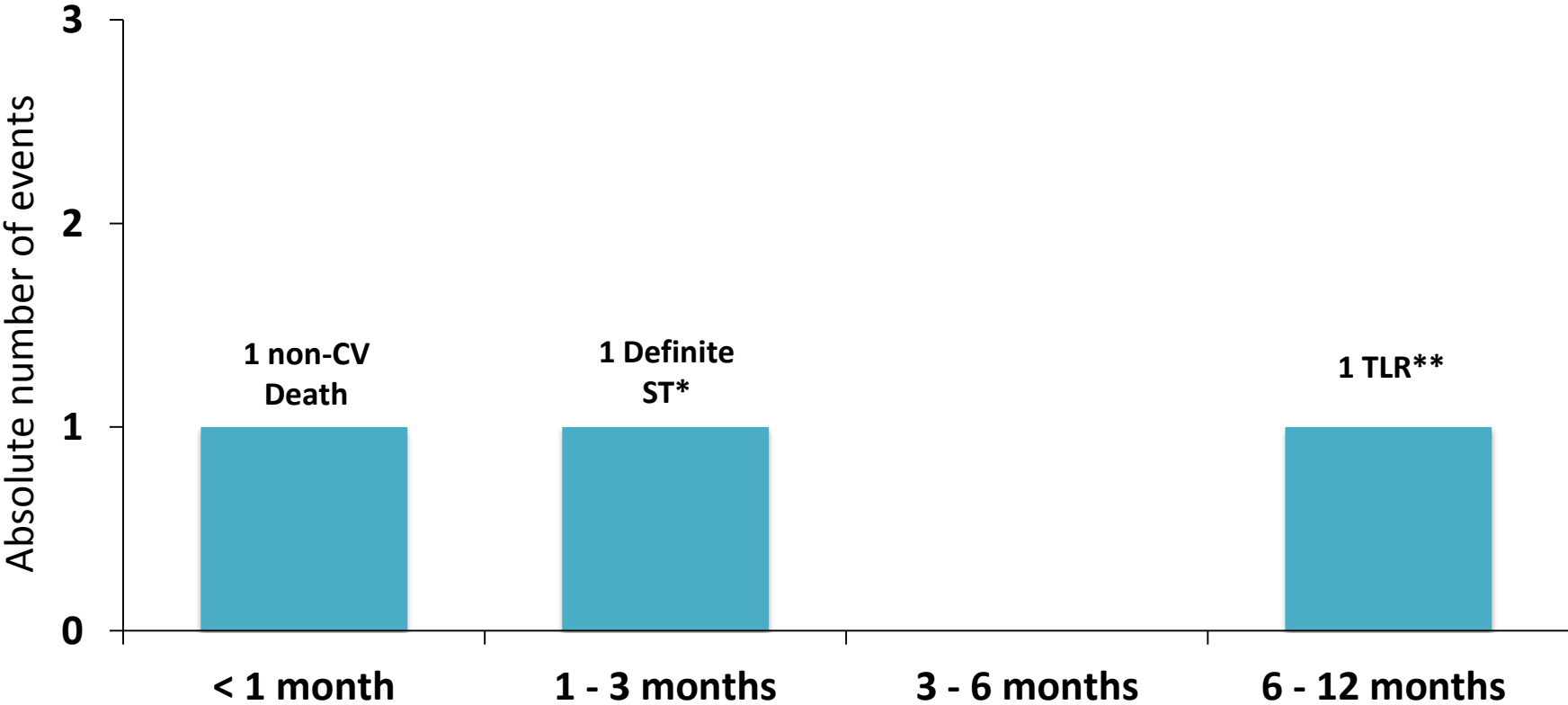
Angiographic/procedural (LMCA)

Prox. RVD* (mm±SD)	3.4±0.5	Post-dilatation	100%
OCT/IVUS	9/14 (64.3%)	Bifurcation	82.4%
Predilatation	88.2%	2-stent technique	35.7%

*Reference Vessel Diameter

LM Adverse events

1-year FU in 16 patients



* OCT not performed
**Provisional stenting, LCX restenosis

GHOST - Ferrarotto

11 patients treated with BVS in LM up to December 2014

- **6-months FU in 10 patients**
- **1-year FU in 8 patients**

Follow-up: Median (Interquartile range): 378 (261-464)

Mean \pm SD: 375 \pm 177



GHOST - Ferrarotto

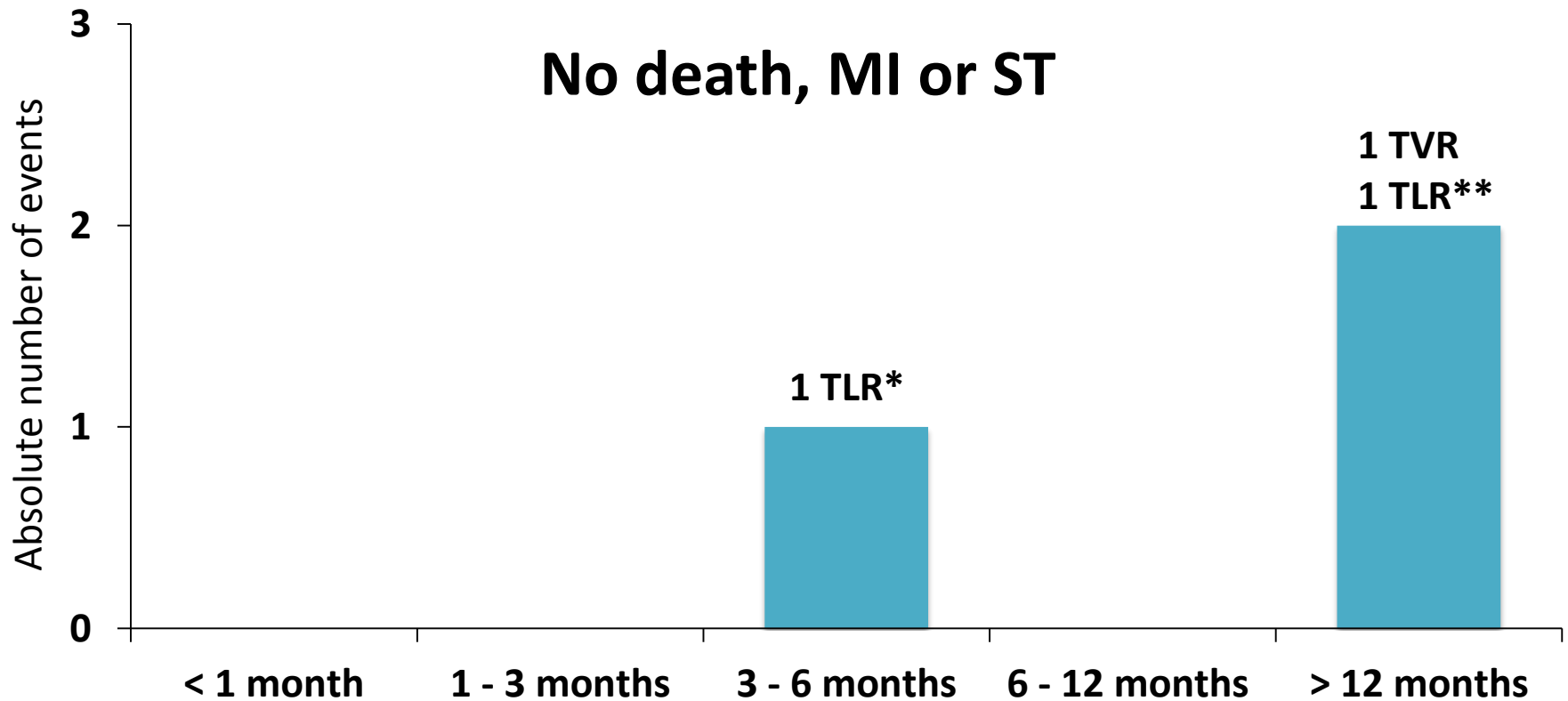
Lesions and procedural characteristics of LM subgroup

Variable	Lesions (N = 11)
Reference vessel diameter (mm)	3.44 ± 0.23
Bifurcation	7 (66.6%)
Provisional stenting	6 (85.7%)
2-stent technique (mini-crush)	1 (14.3%)
Predilatation	10 (90.9%)
Post-dilatation	11 (100%)
Optical coherence tomography use	6 (54.5%)
Intravascular ultrasound use	0



GHOST - Ferrarotto

Outcomes in LM subgroups



All presented with stable angina or silent ischemia.

*LM Bifurcation, restenosis on LCx ostium; **No bifurcation lesion, in-scaffold focal restenosis at LM body.

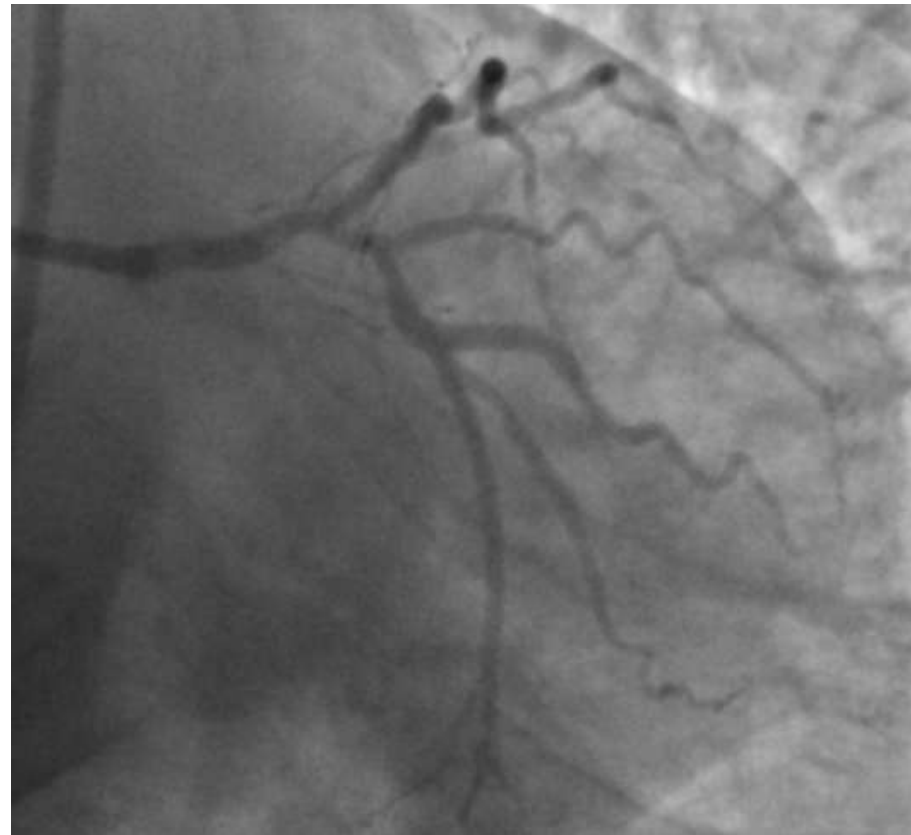


Clinical Case – Left Main

R.G. male, 56 yrs old
family history of CAD, hypertension, Prior PCI

Clinical Case – Left Main

R.G. male, 56 yrs old
family history of CAD, hypertension, prior MI treated with DES on LAD



Clinical Case – Left Main

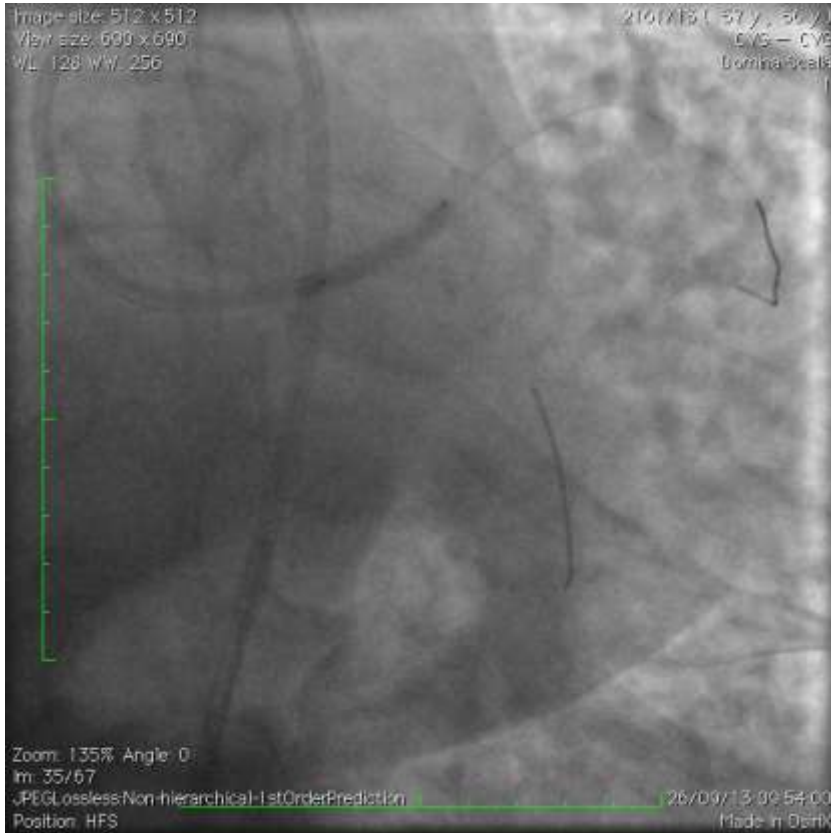


Predilatation LCX
SC 3.5/20 mm @ 12 atm

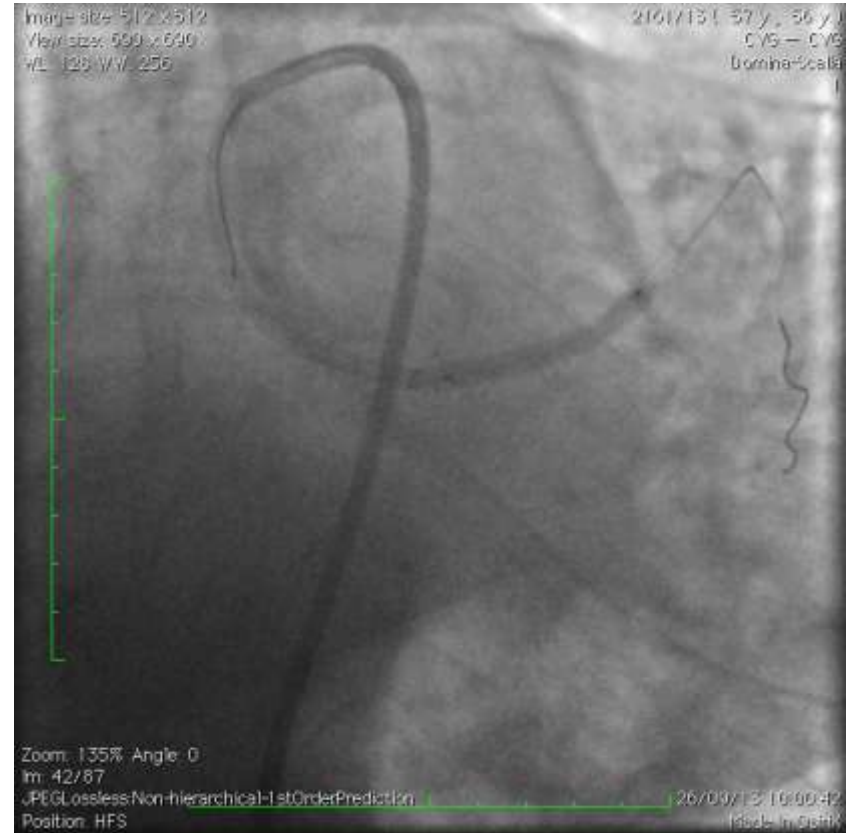


BVS LCX
3.5/18 mm @ 20 atm

Clinical Case – Left Main



Predilatation LM-LAD
3.5/20 mm @ 12 atm



BVS LM-LAD
3.5/28 @ 22 atm

Clinical Case – Left Main

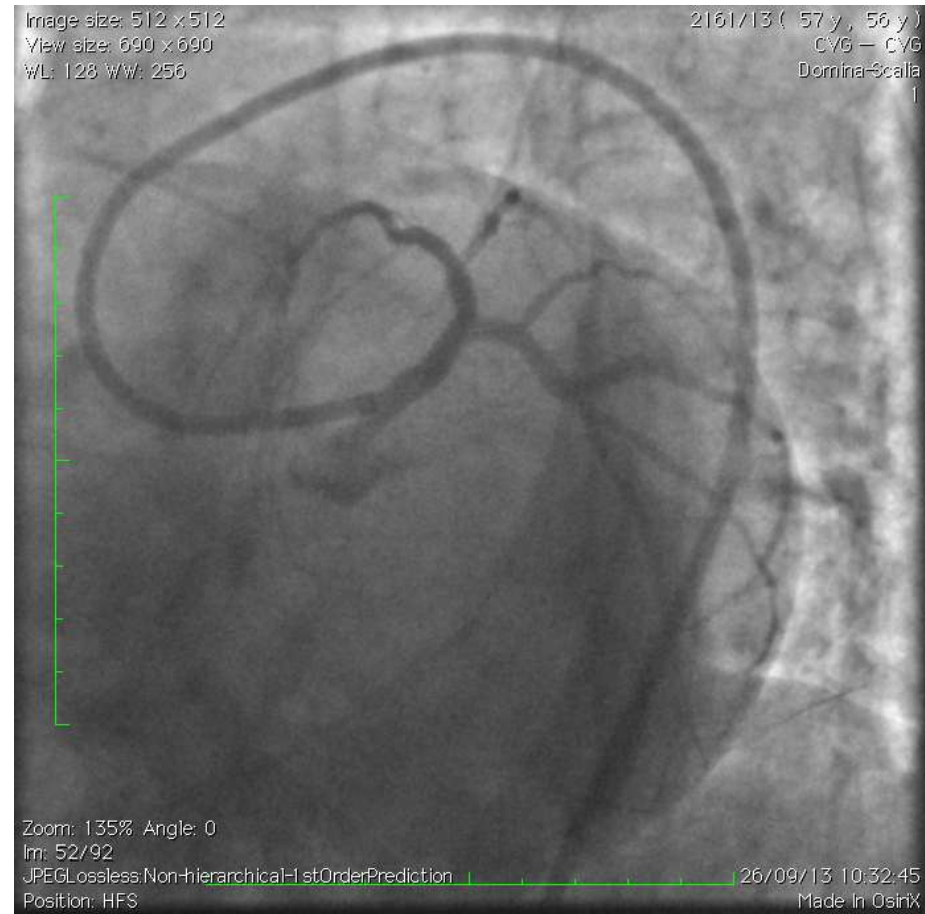
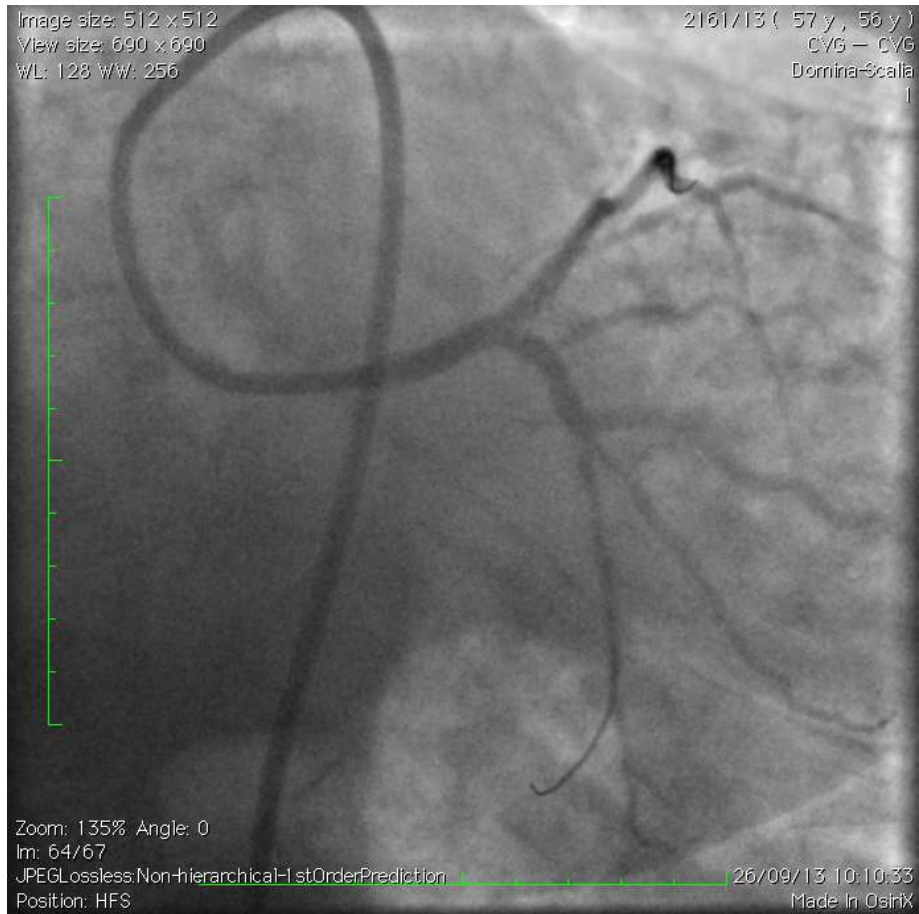


Strut opening LM-LCx
2.0/20 + 2.5/20 @ 10 atm



KBT NC
3.0/21 and 3.5/21 @ 10 atm

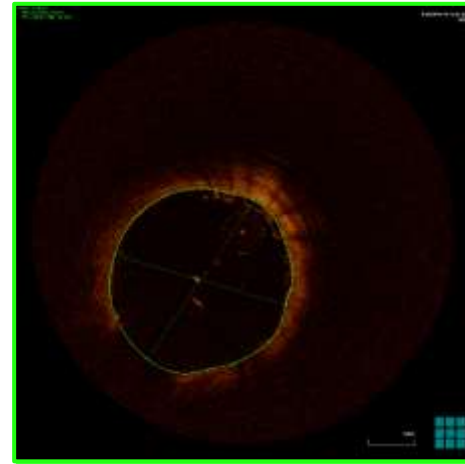
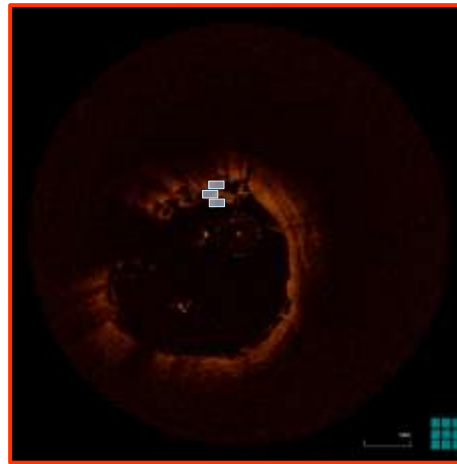
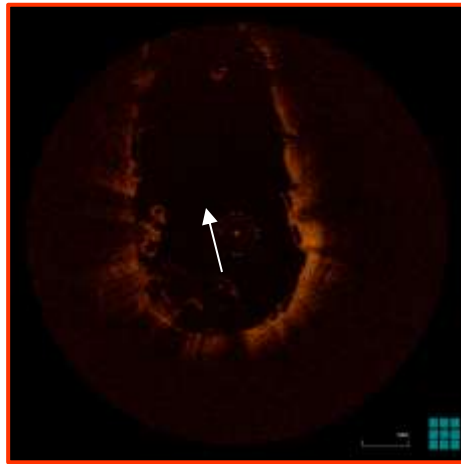
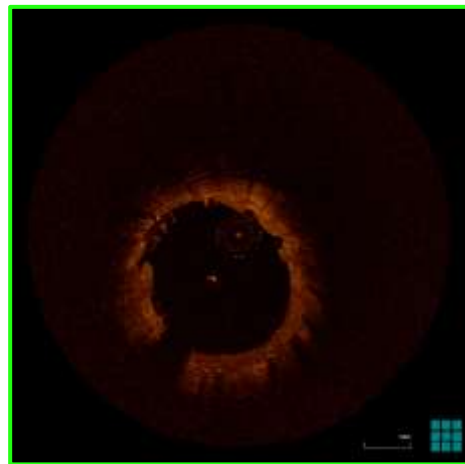
Clinical Case – Left Main



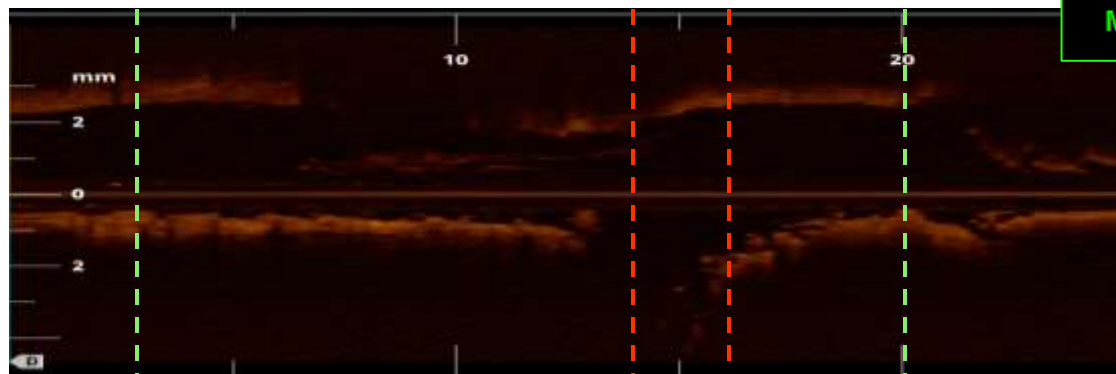
Final Angio
Minicrush + FK with 3.5 and 3.0 NC Balloon @ 10 Atm

Clinical Case – Left Main

OCT pull-back LAD-LM



A Area: 12.90mm²
Mean Diameter: 4.05mm
Min: 3.92mm Max: 4.21mm



Clinical Case – Left Main

BVS implantation in a highly calcified distal Left Main-Ostial LAD

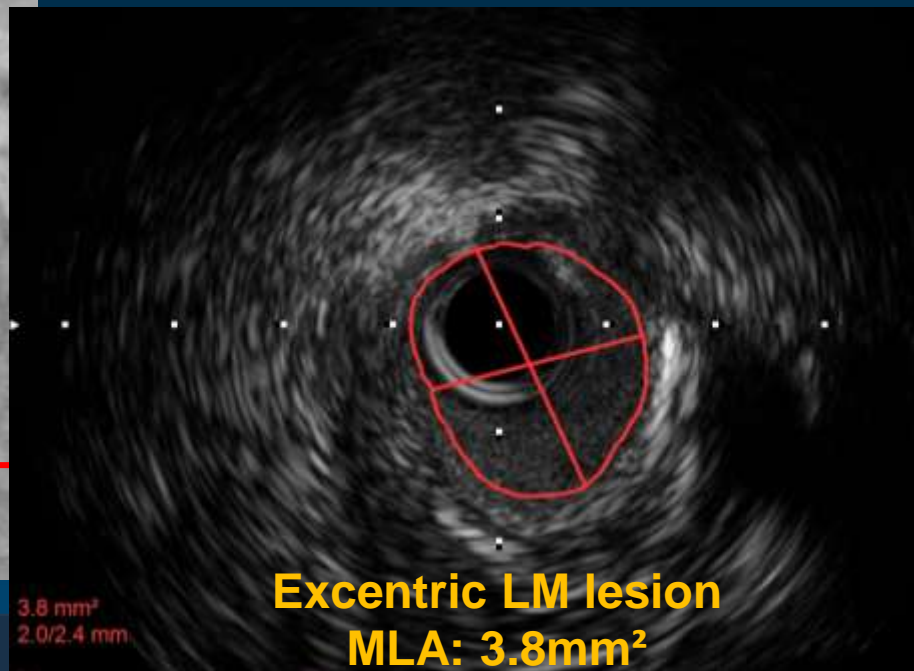
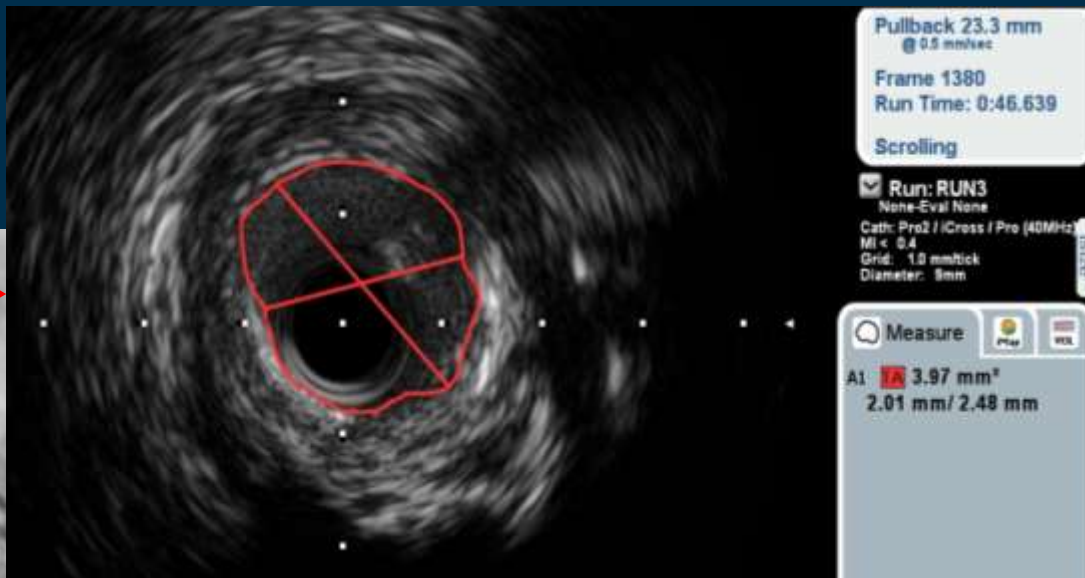
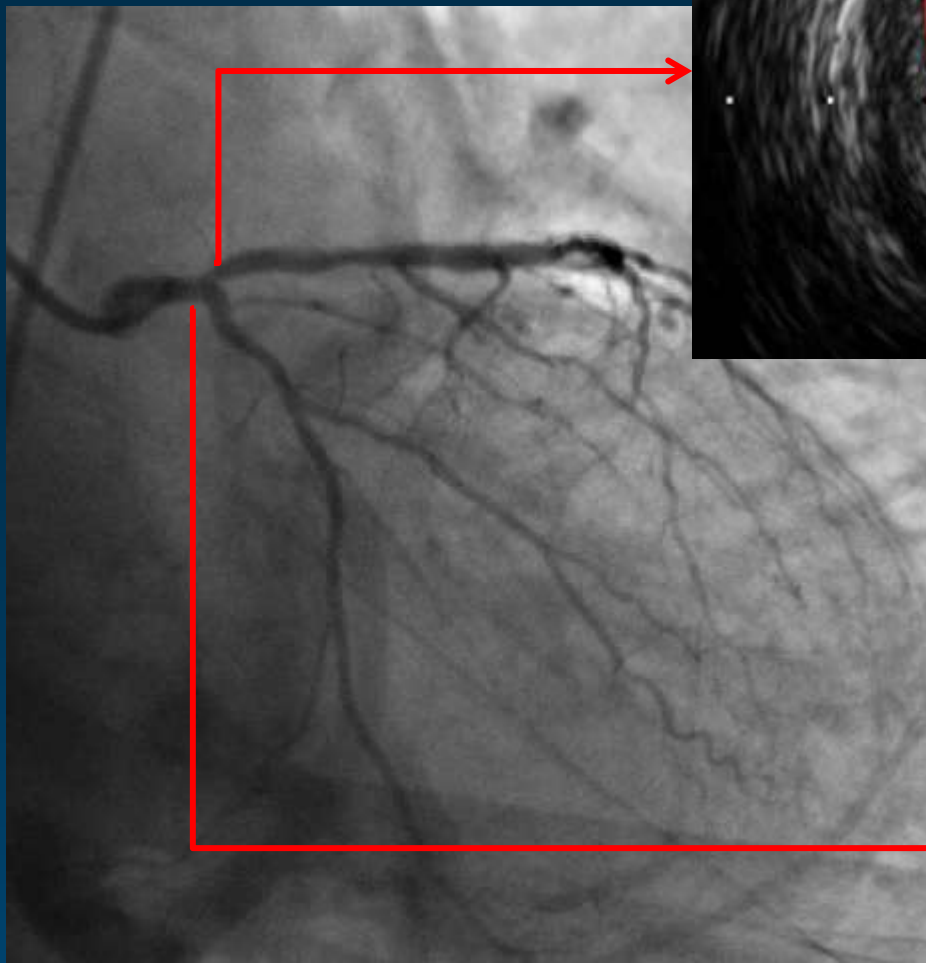
♂ 73 y, UA

Hypertension, Non ID Diabetes ,Dyslipidemia

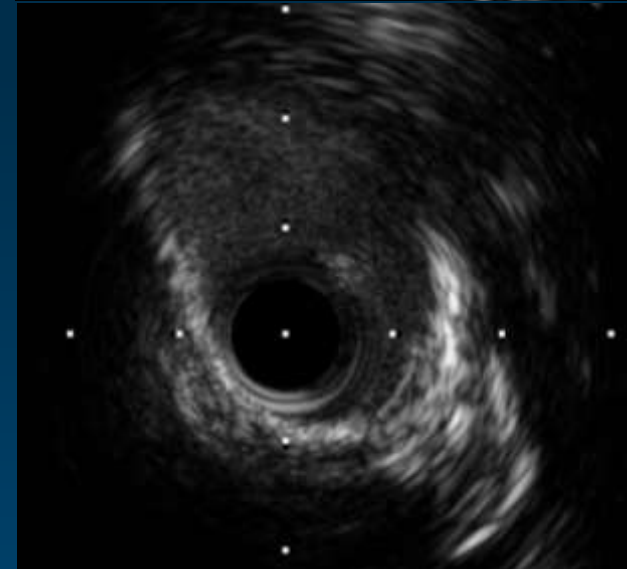
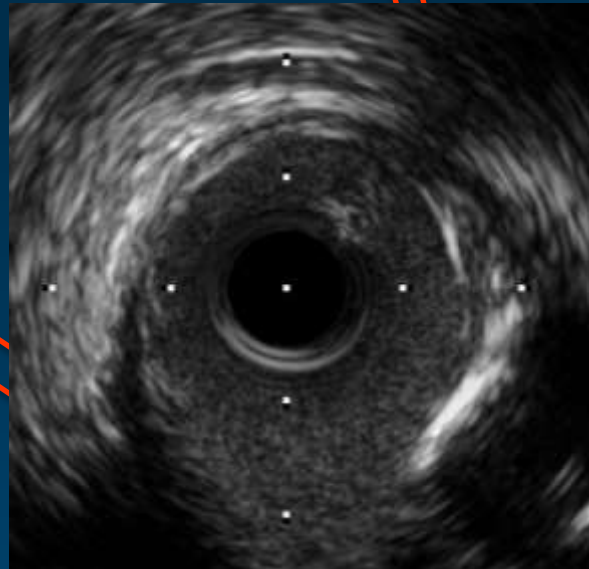
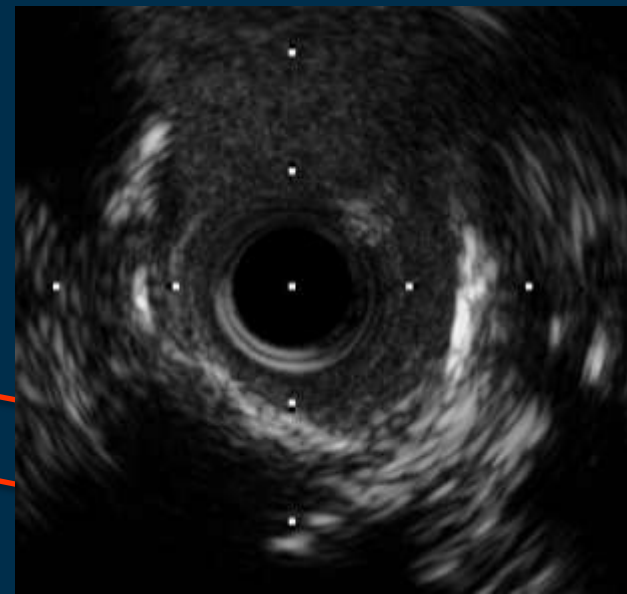
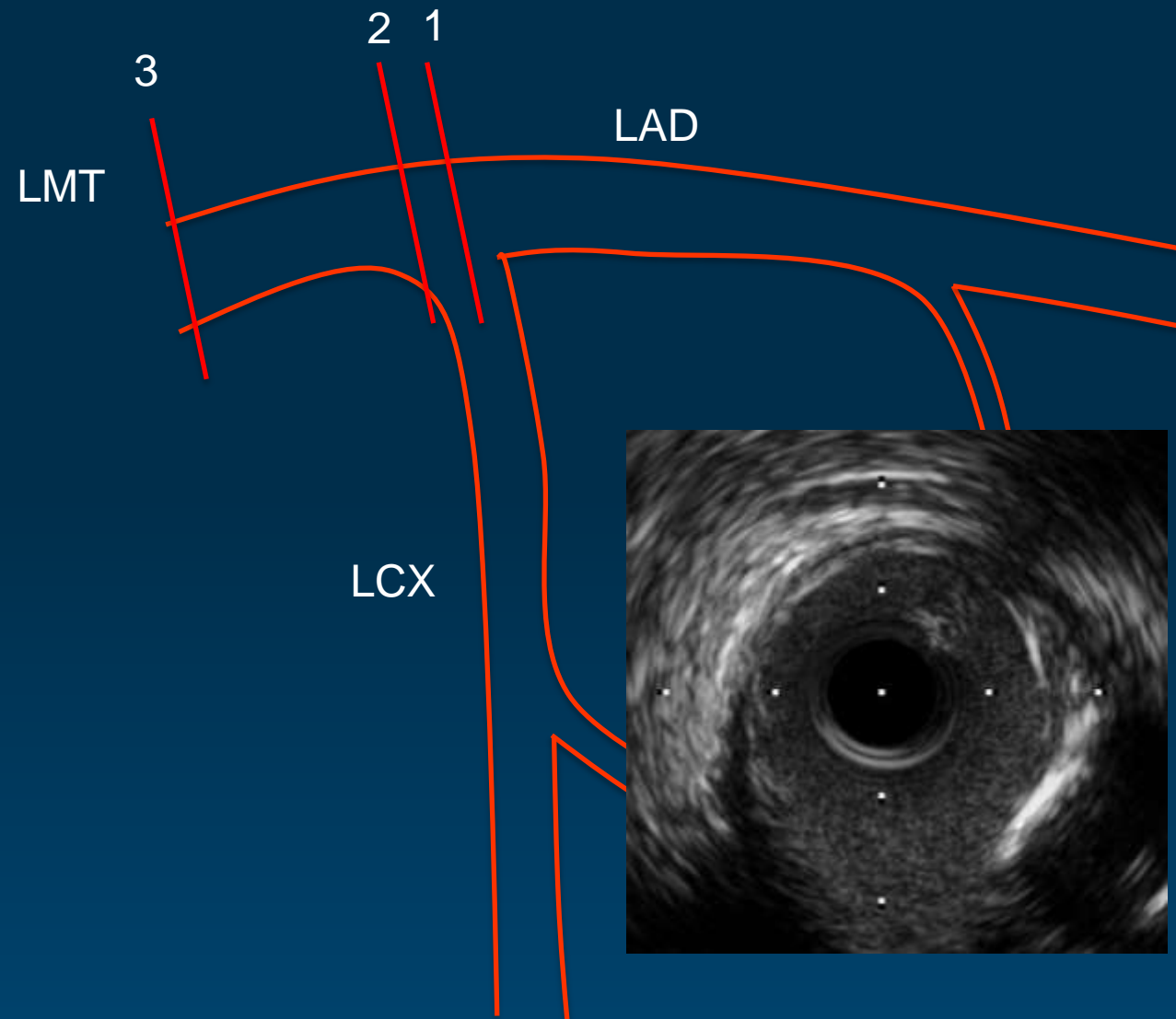
Prior PCI in 2003 on LAD with 2 DES and RCA-PL
with 1 DES



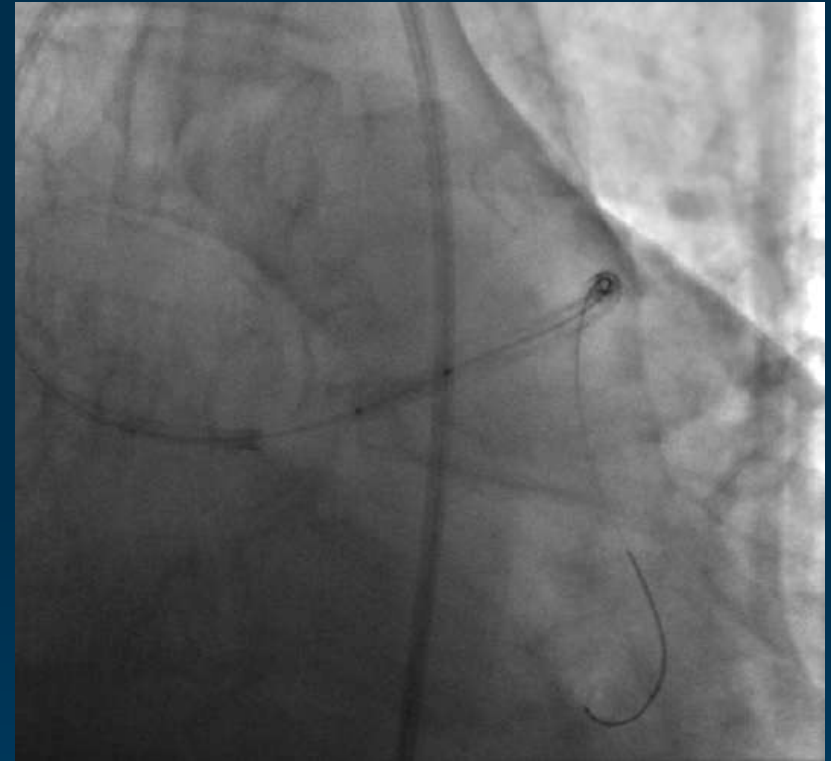
Angio-IVUS pullback



IVUS pullback

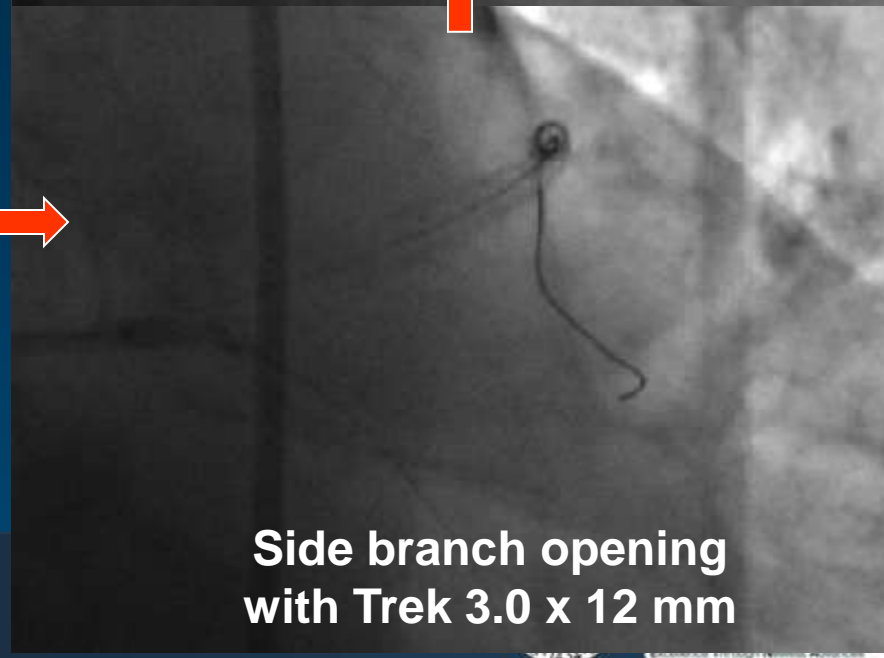
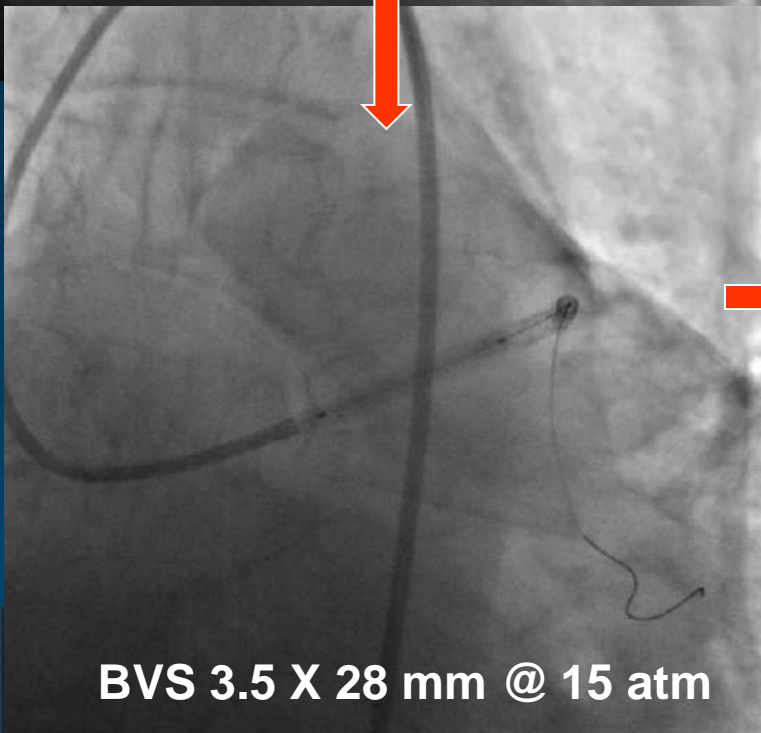
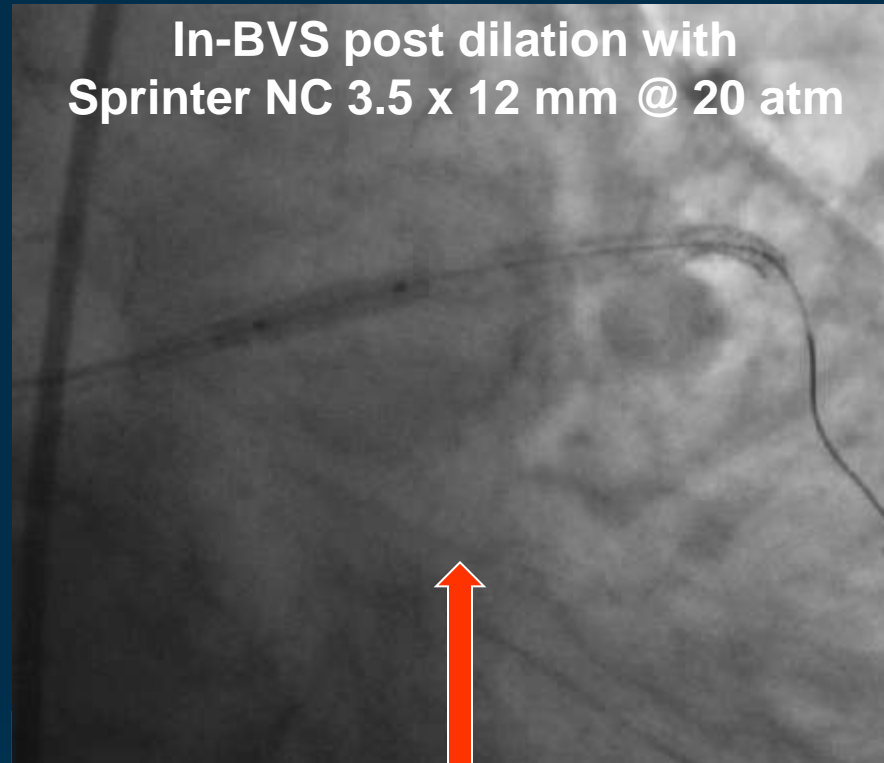
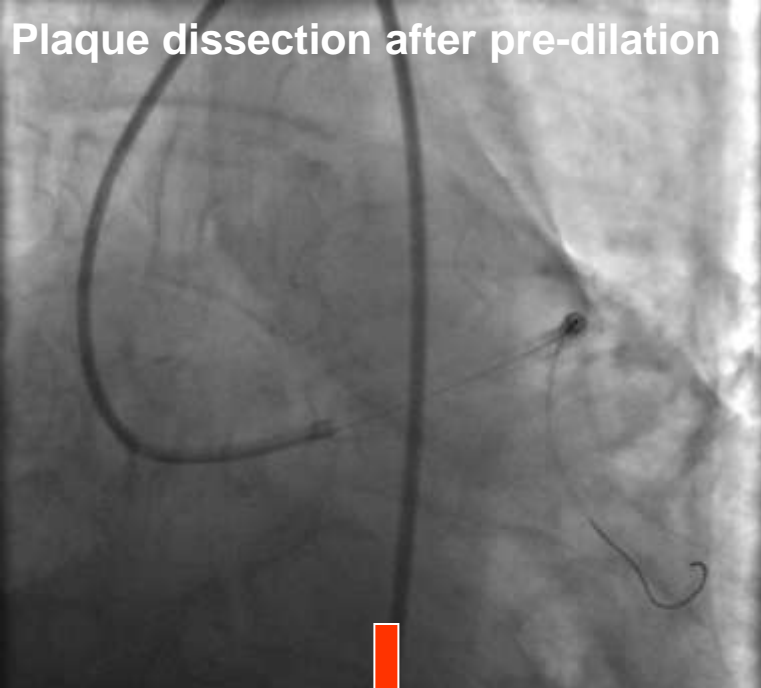


Calcified plaque preparation



Angiosculpt 3.0 x 10mm



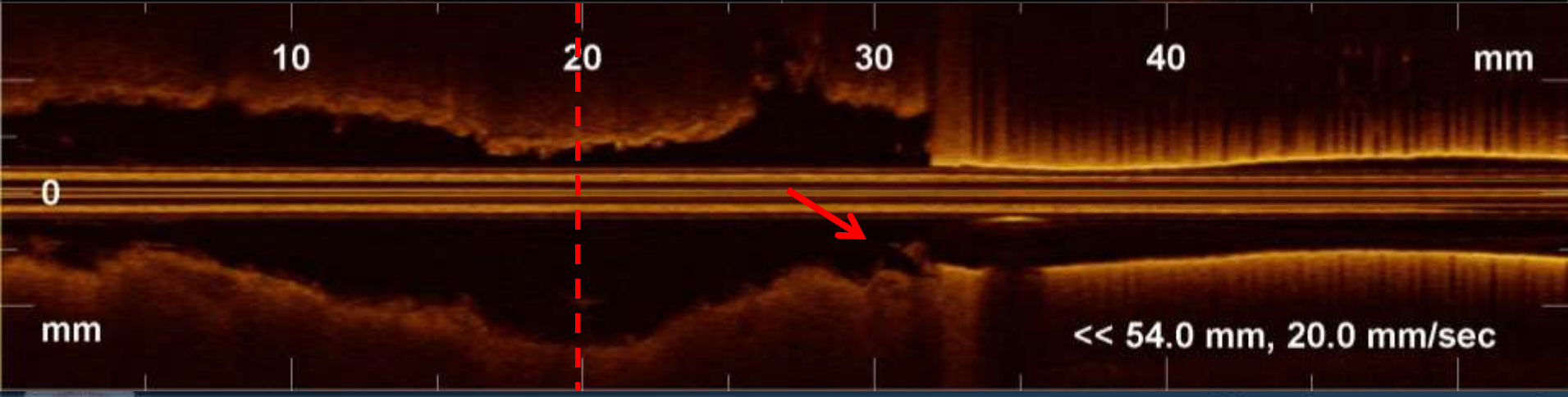
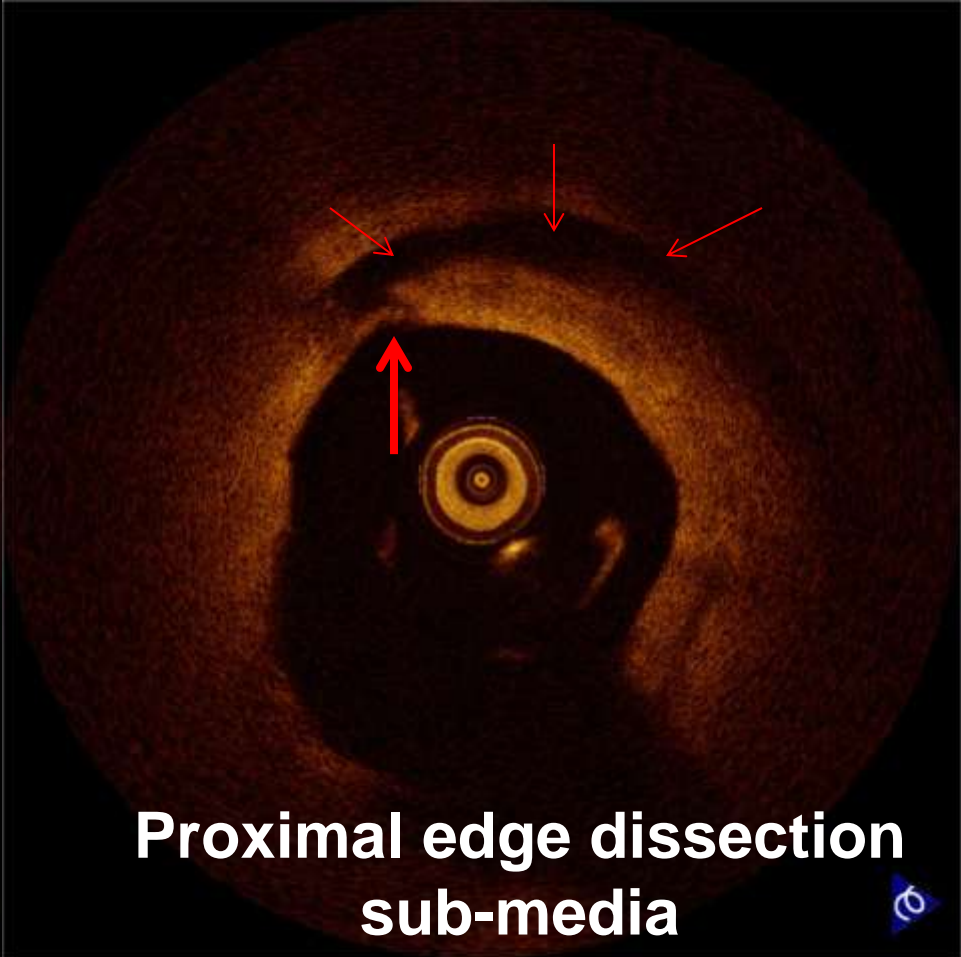
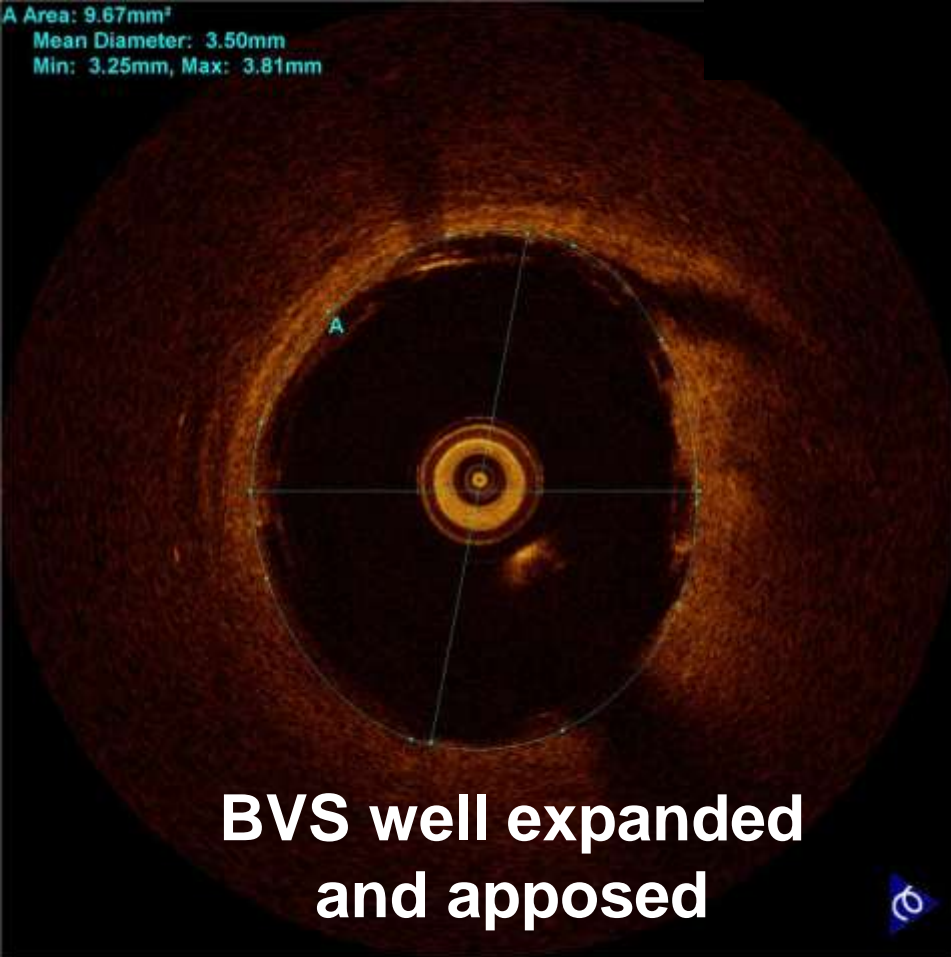




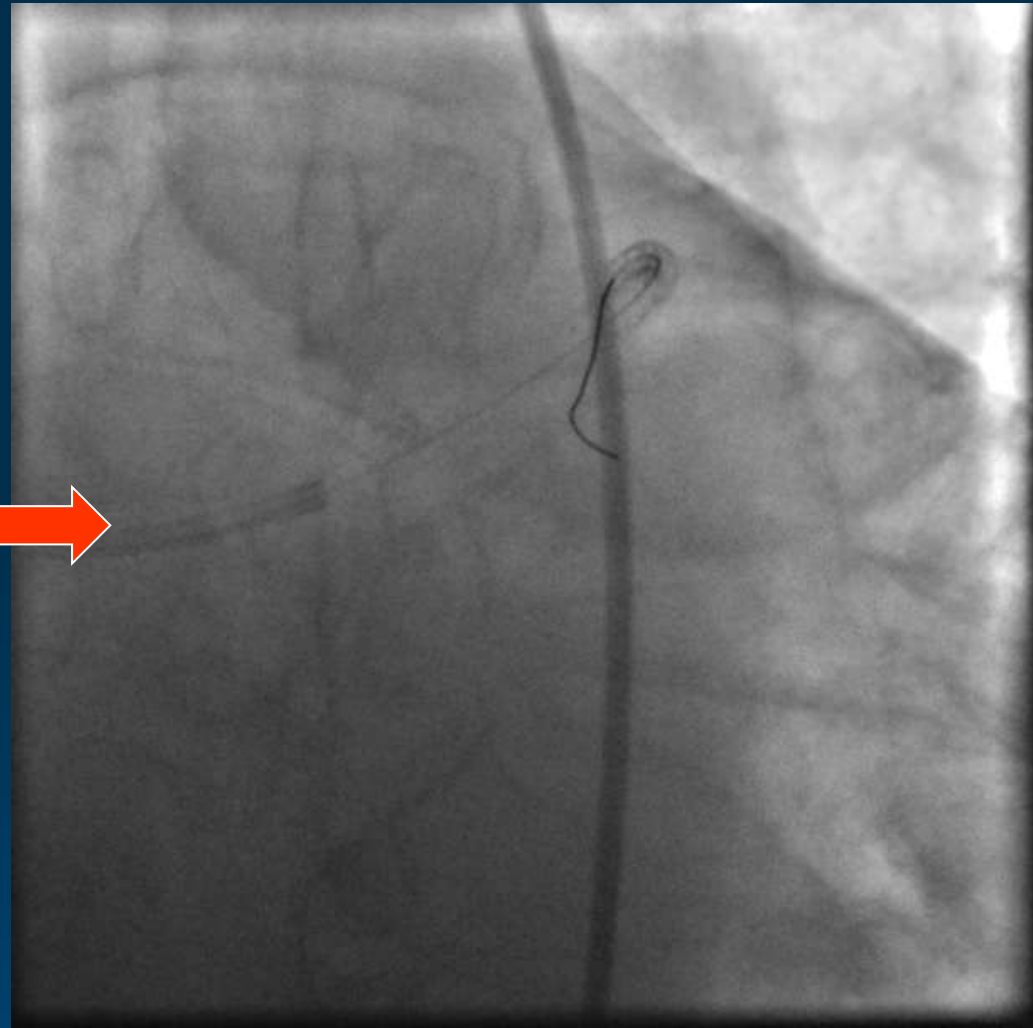
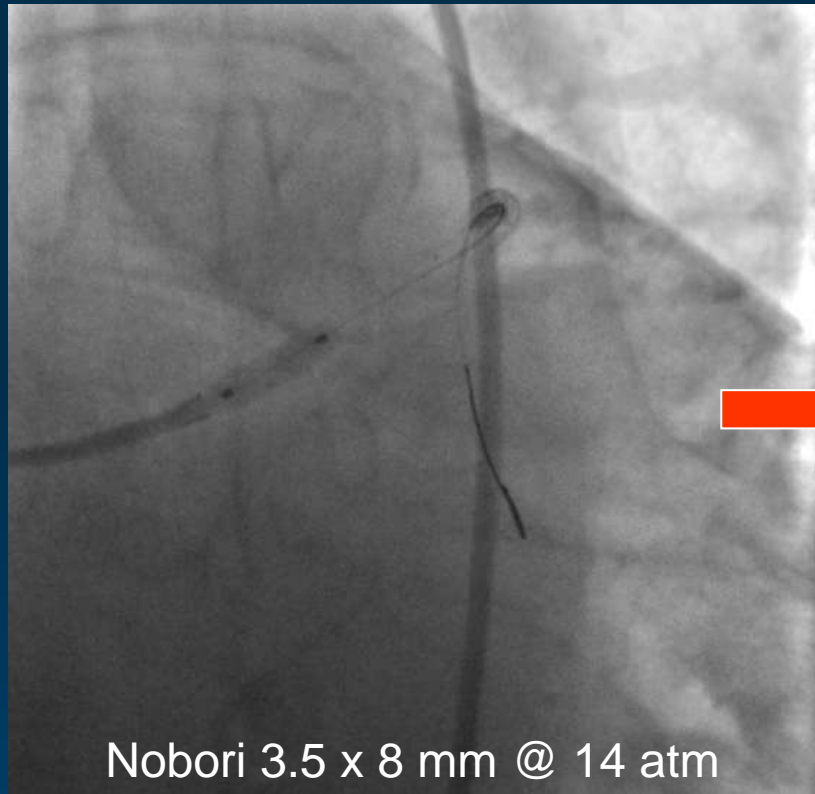
Fer
Un



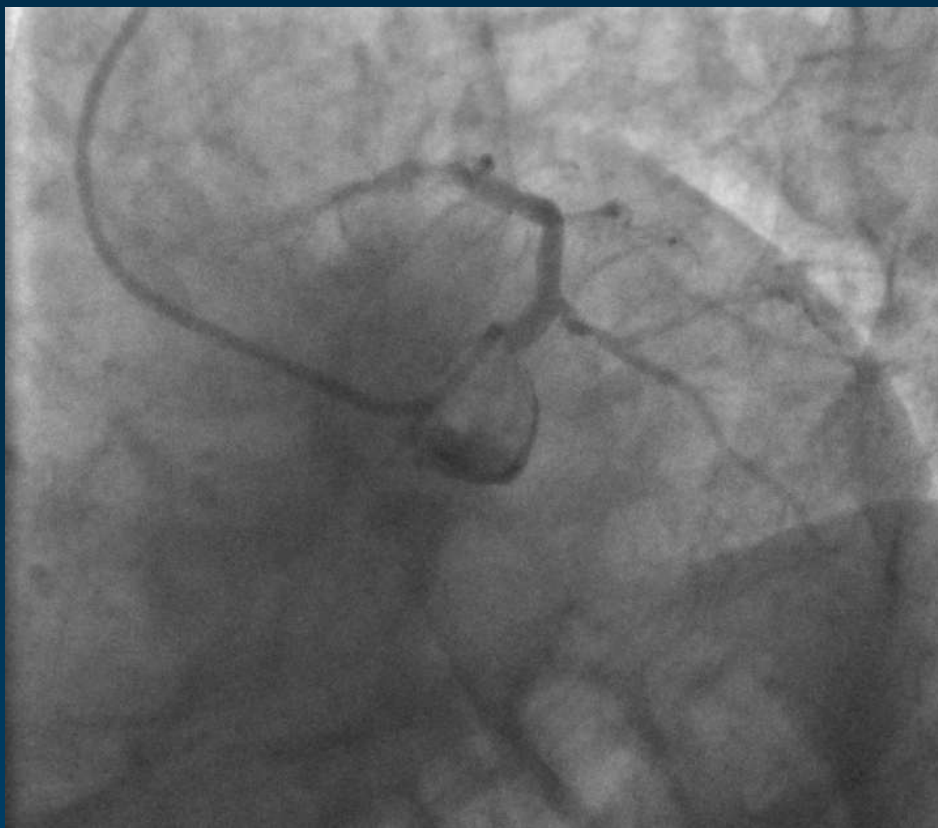
Area: 9.67mm²
Mean Diameter: 3.50mm
Min: 3.25mm, Max: 3.81mm



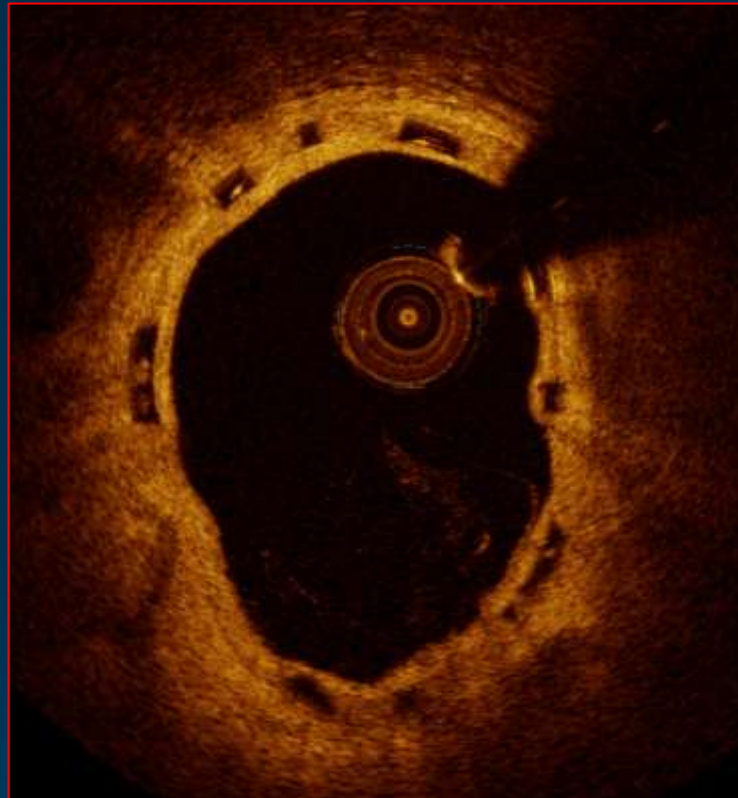
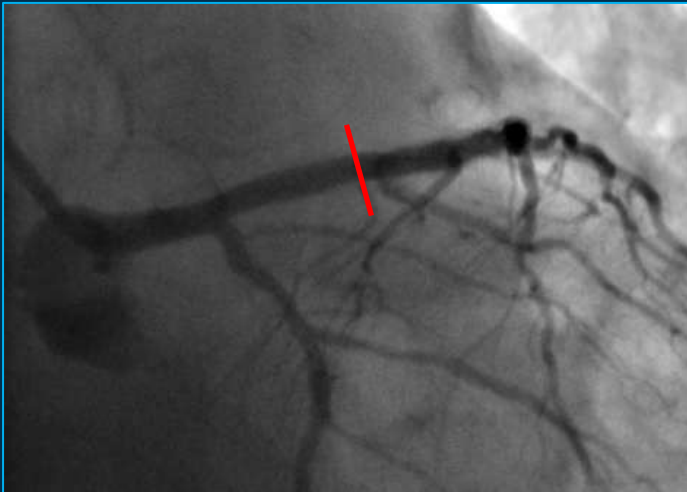
DES implantation in ostio-proximal left main to treat dissection



March 2015 – 2 years FU



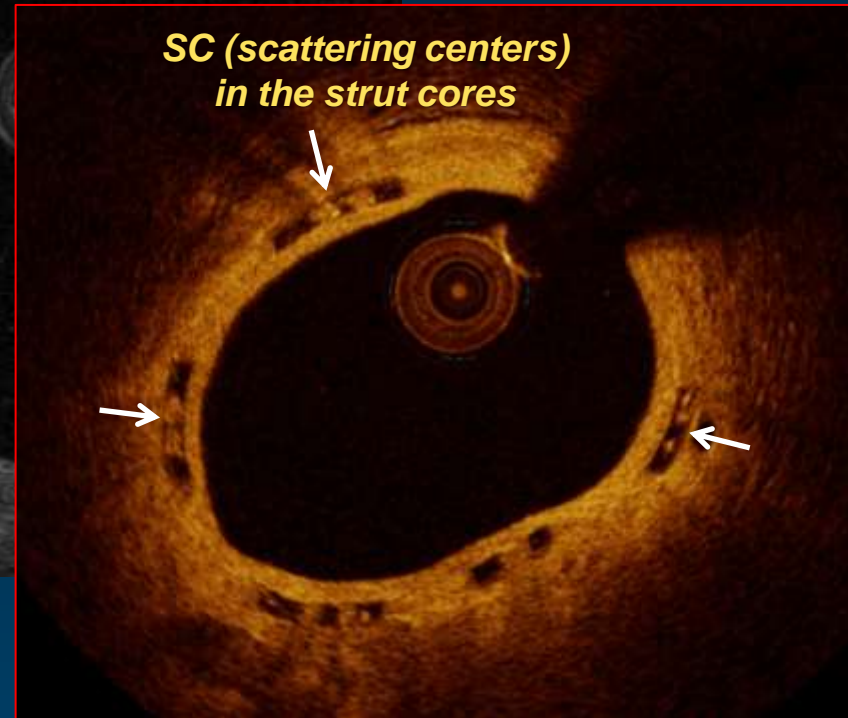
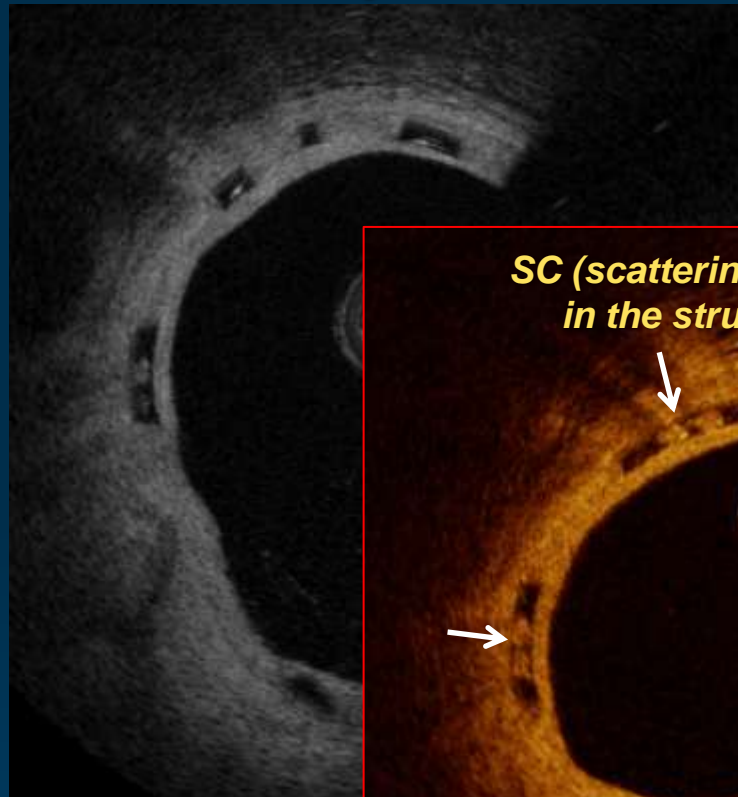
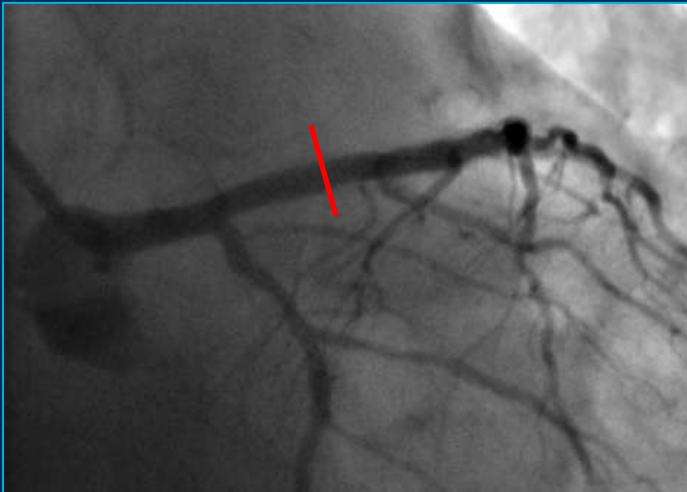
March 2015 – 2 years FU



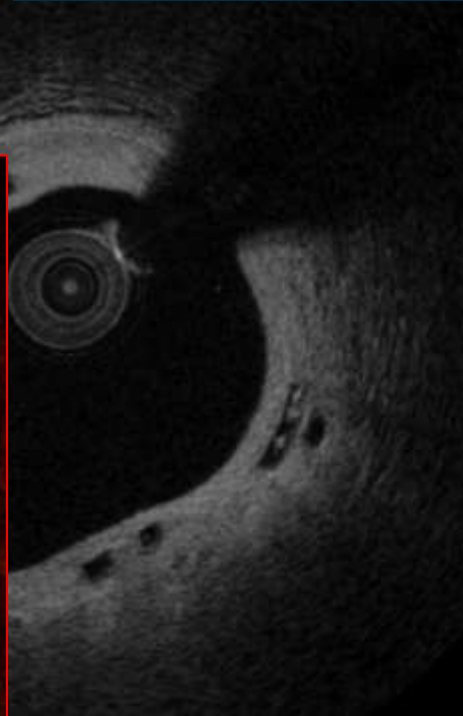
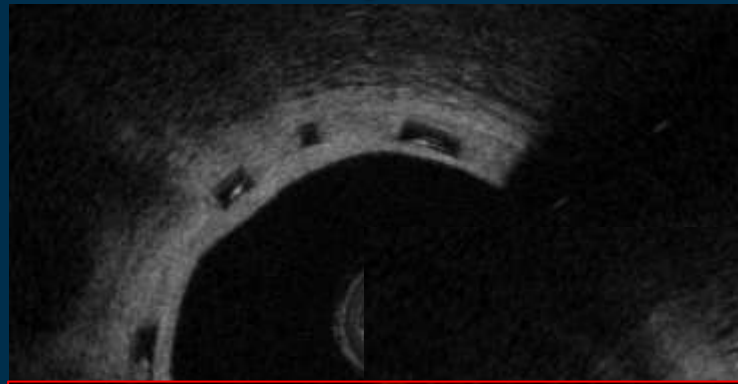
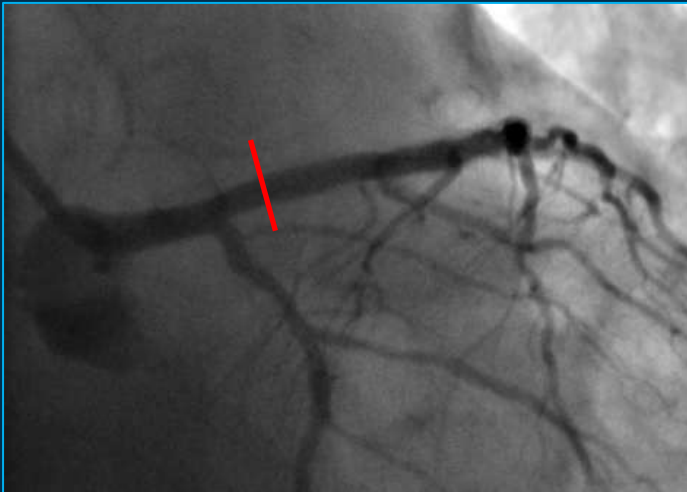
Ferrarotto Hospital
University of Catania



March 2015 – 2 years FU



March 2015 – 2 years FU



*SC (scattering centers)
in the strut cores*



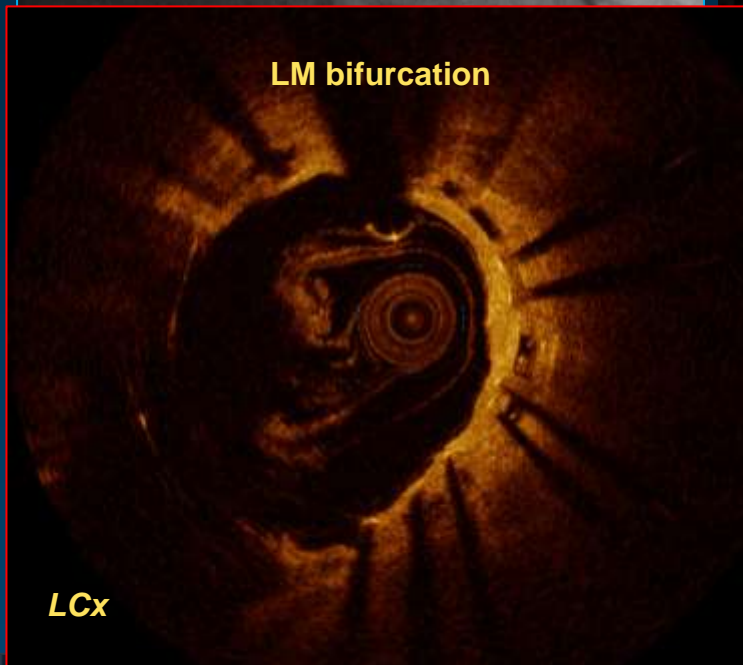
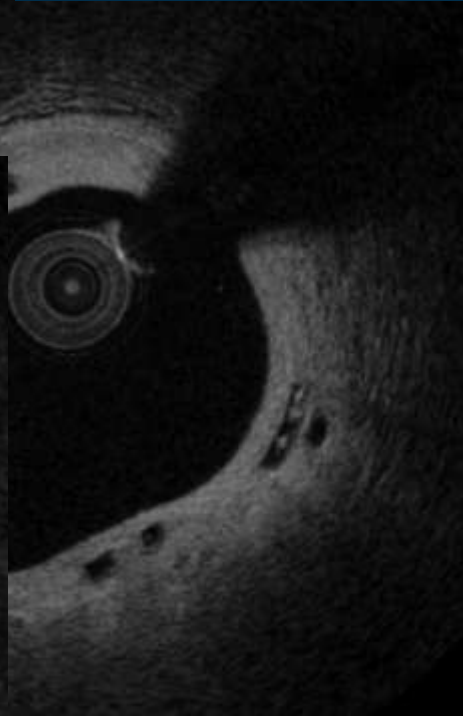
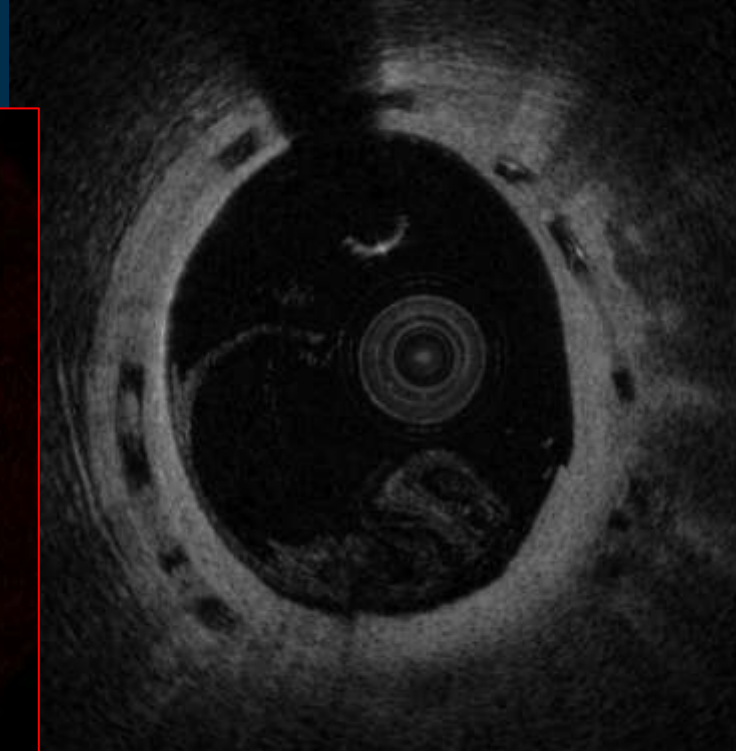
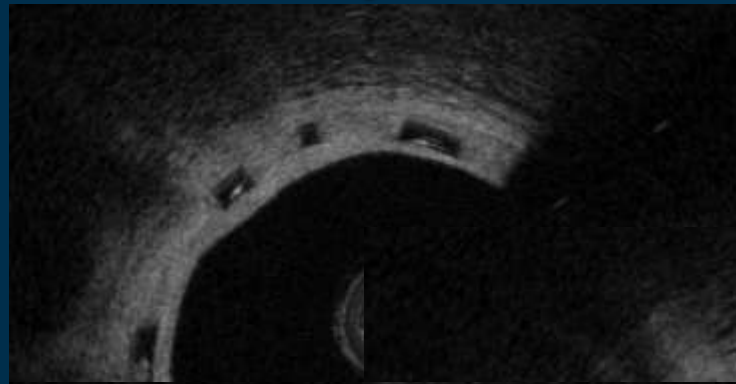
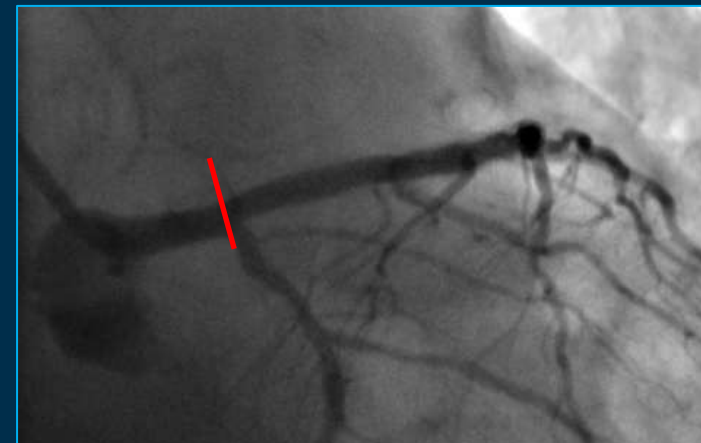
Dissolved "bright" boxes



Dissolved "black" boxes



March 2015 – 2 years FU



Ferrarotto Hospital
University of Catania



Practical consideration for BVS implantation in LM

- Perform accurate sizing
- Absorb BVS should not be used than 4.0 mm (quantitatively measured by IVUS or OCT, and 3.8 mm for QCA)
- Intracoronary imaging is recommended
- Careful scoring device use
- Optimal periprocedural anticoagulation and platelet inhibition is needed.

