

2-Year Results of 2-Stent Technique Combining Bioresorbable Scaffolds and DES with IVUS and OCT Guidance

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Disclosure Statement of Financial Interest



Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

Affiliation/Financial Relationship

- Grant/Research Support
- Consulting Fees/Honoraria
- Major Stock Shareholder/Equity
- Royalty Income
- Ownership/Founder
- Intellectual Property Rights
- Other Financial Benefit

Company

- Abbott Vascular, Boston Scientific
- Abbot Vascular, Biosensors, Biotronik, Boston Scientific, Cordis J&J, Medtronic

Patient details

LM distal bifurcation 75% stenosis to LAD and LCX.
RCA chronic total occlusion

Female 66 y.o.

Clinical presentation:

Stable angina III.

Previous inferior QMI (2013.).

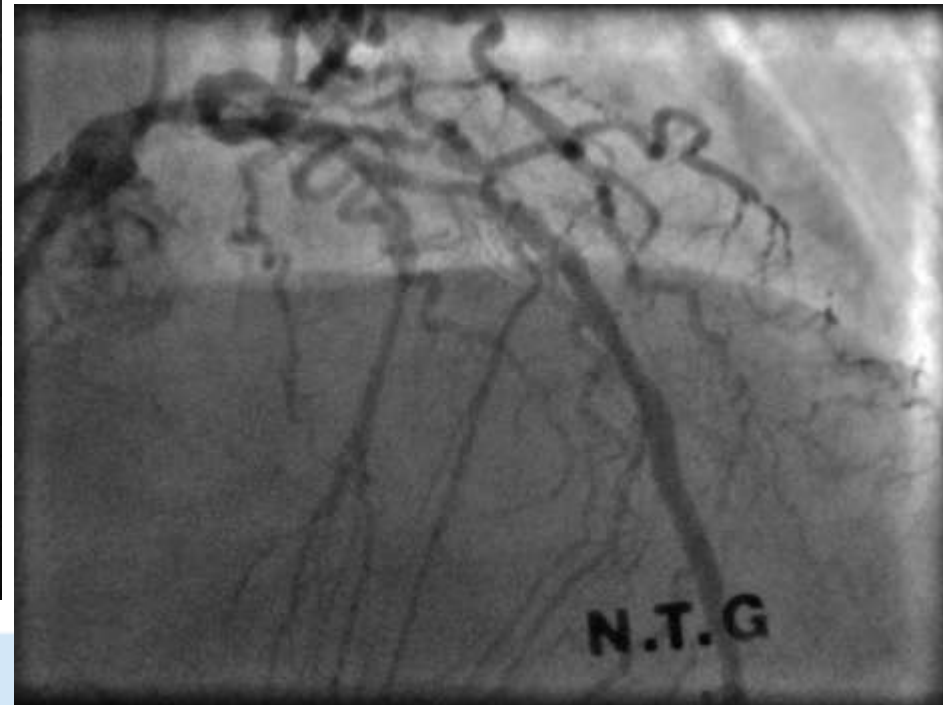
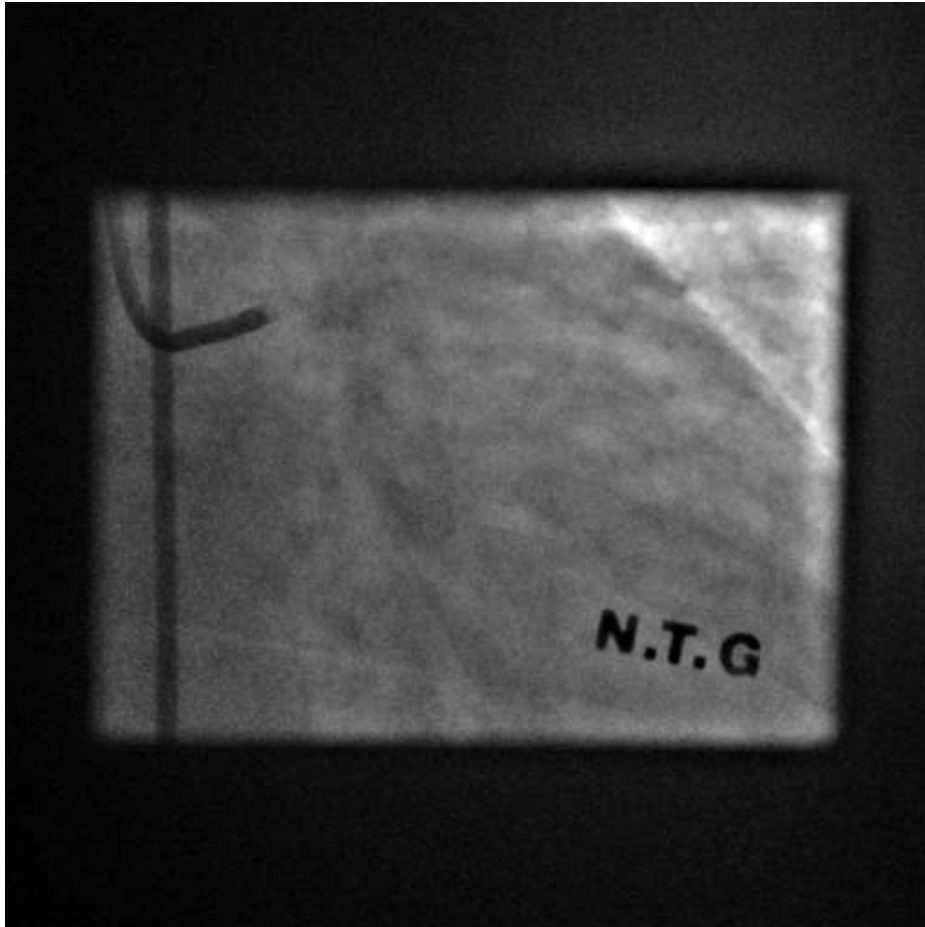
Permanent AF.

Hypertension II.

CHF II. (EF- 40%)

Dyslipidemia.

Syntax score -35

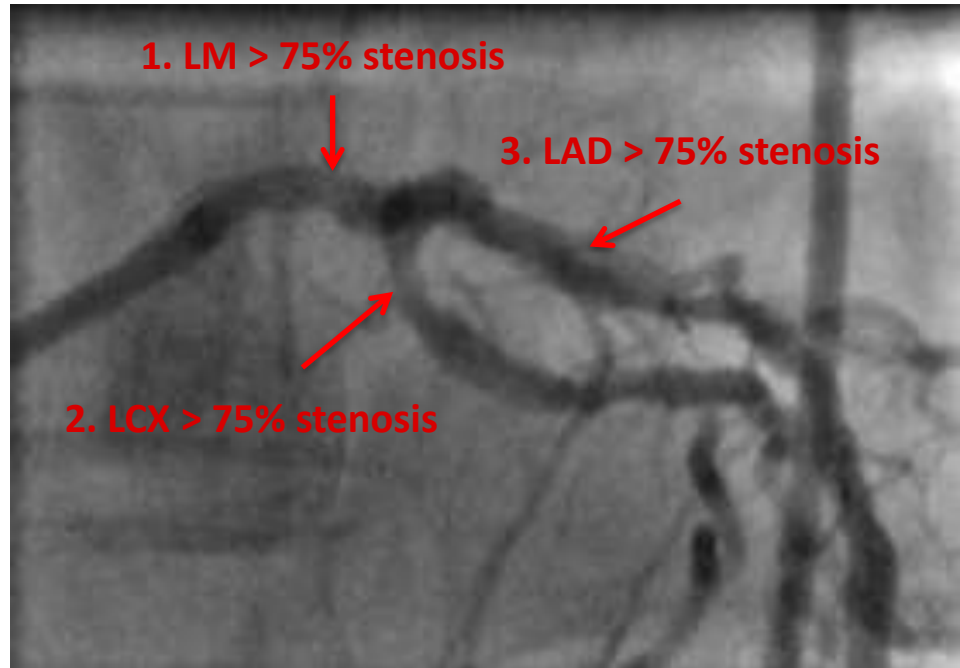
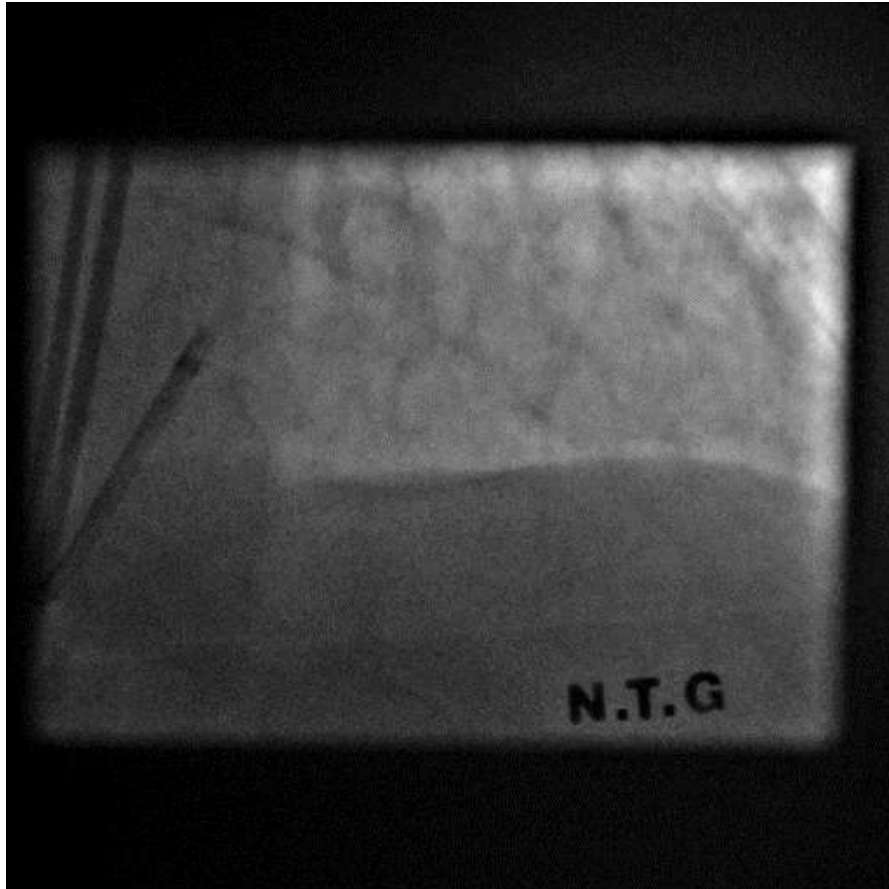


Coronary angiography



LM distal bifurcation 75% stenosis to LAD and LCX.

RCA chronic total occlusion



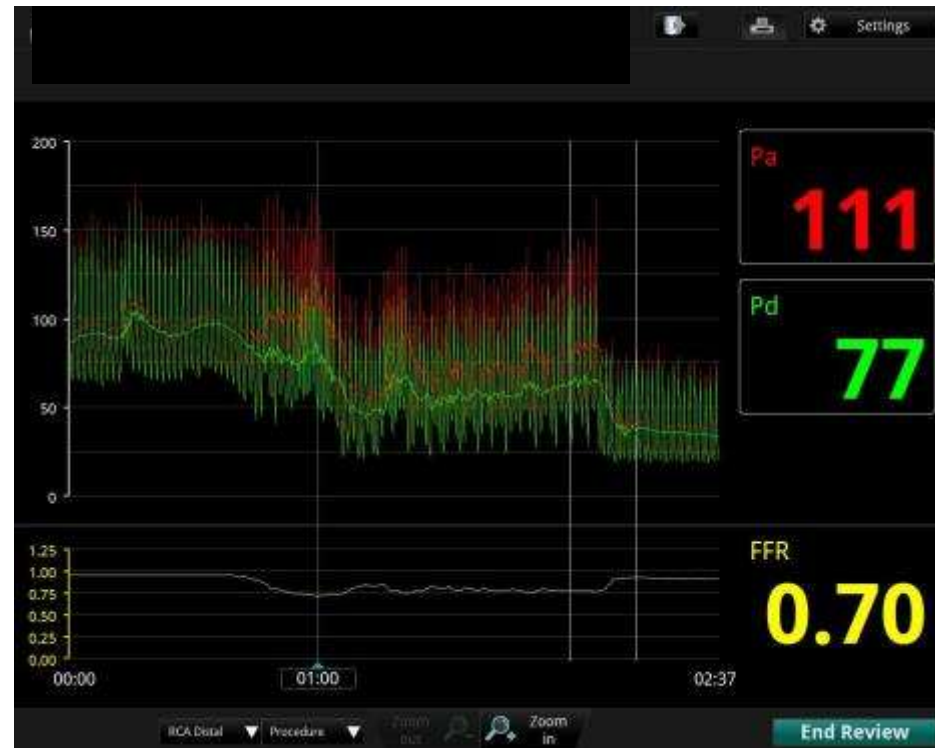
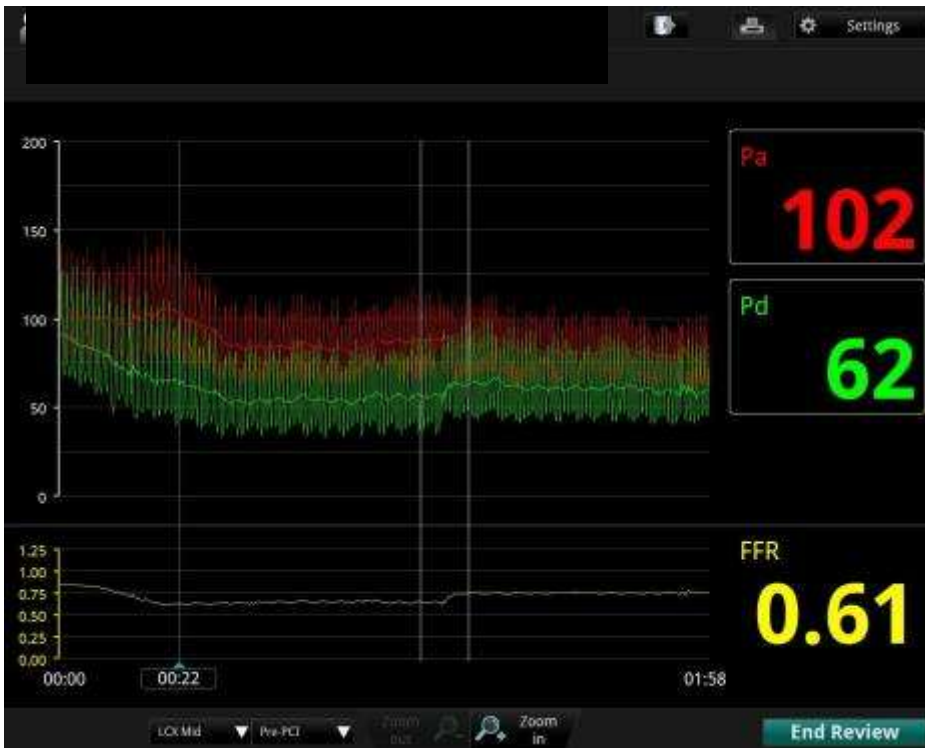
1. LM-Cutting balloon + DES
2. LCX-Cutting balloon + Bioabsorbable scaffold
3. LAD-Cutting balloon + DES

FFR Measurements at Baseline



LAD mid

LCX mid



Questions before making a decision how to treat?



- How large is the SB (diameter, vessel length, and myocardial territory supplied)
- Is the SB ostium diseased? If yes, what is the severity and length of the lesion?
- Is there severe disease in the SB beyond the ostium?
- What is the angle of the SB takeoff? Is it difficult to wire/rewire?
- What is the severity and distribution of the MV lesion?
- What will happen to the SB after MV stenting (mild or significant compromise or occlusion)?
- What are the clinical consequences of SB occlusion (depends on the territory supplied)?

1-stent or 2-stents

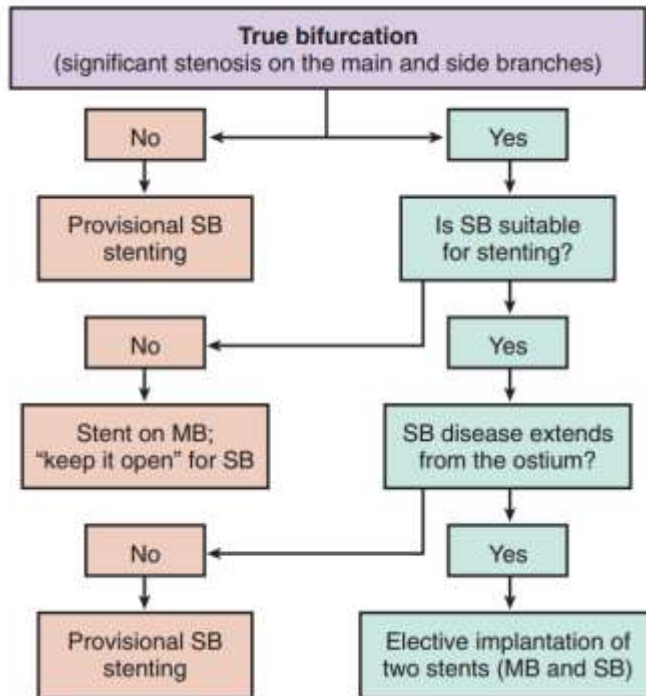


1-stent technique

- Normal or minimally diseased side branch ostium
- Small side branch with < 2.5 mm in diameter
- Ostial disease <5 mm long and pre-dilatation is satisfactory
- Normal or focal disease in distal LCX

2-stent technique

- Diseased, heavily calcified side branch ostium
- Side branch whose access is particularly challenging, severely angulated entry
- Large side branch with > 2.5 mm in diameter and large territory of distribution
- Ostial disease extending >5 mm or doesn't dilate well
- Concomitant diffuse disease in distal LCX that requires treatment



Latib A, Colombo A. JACC Intv 2008;1:218-226

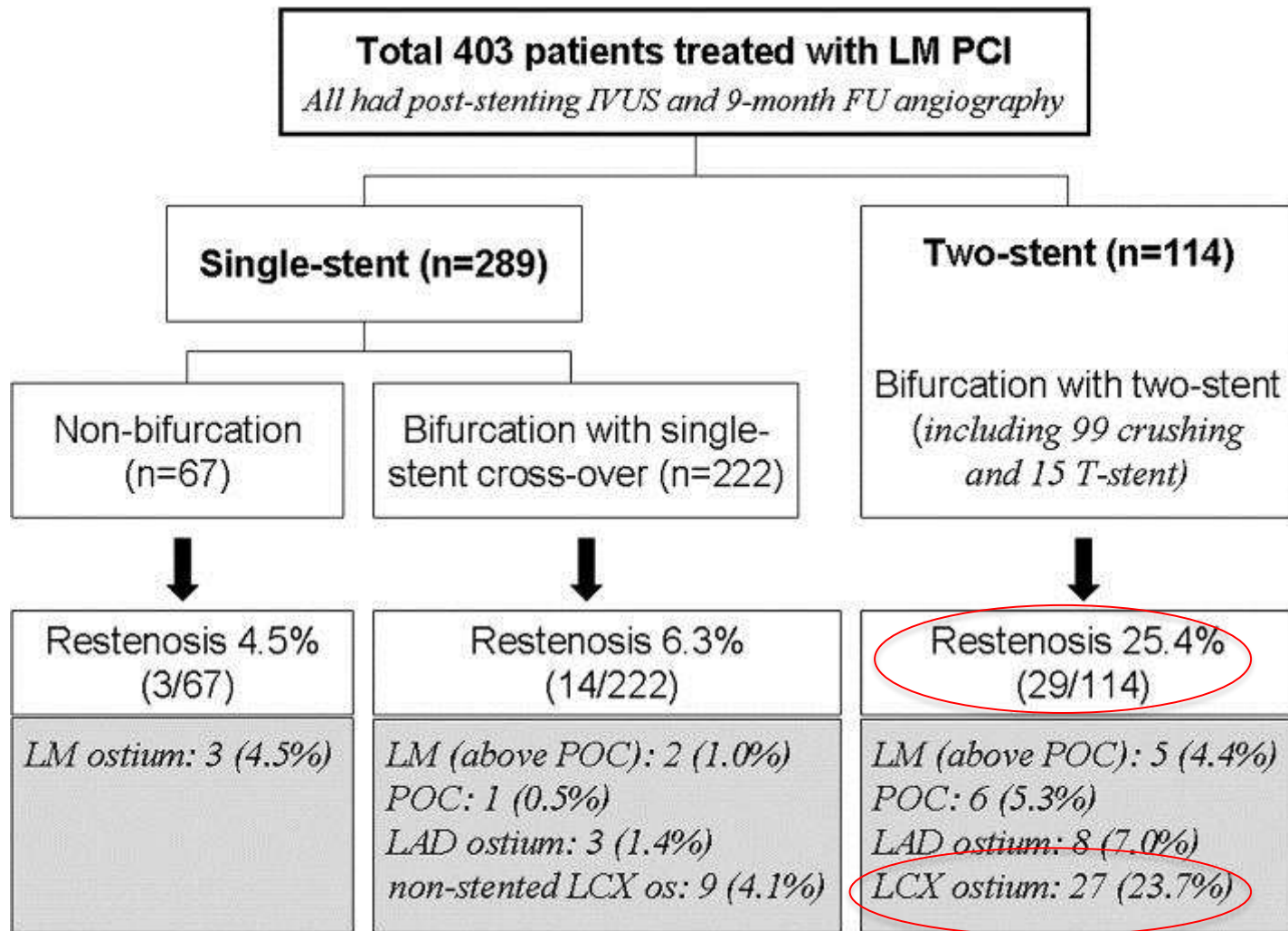
T, modified T, TAP:
angle > 60°

Culotte: angle < 60° and
LAD = LCX in diameter

Mini-crush: angle < 60°
and LAD > LCX
(LAD < LCX) in diameter

V stent/SKS:
angle < 60° and short
LM

LM Angiographic Restenosis



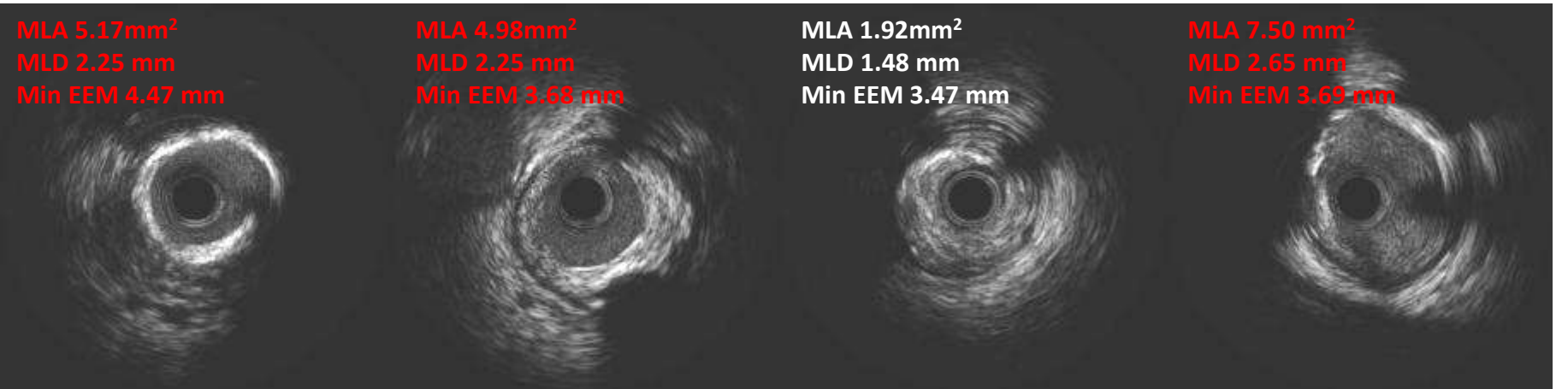
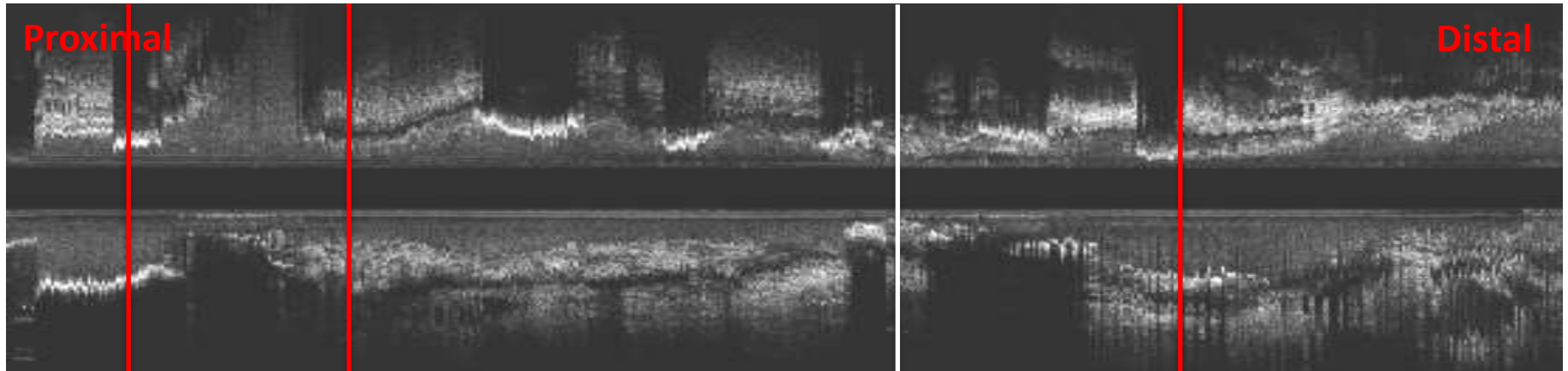
Novel technique for left main:



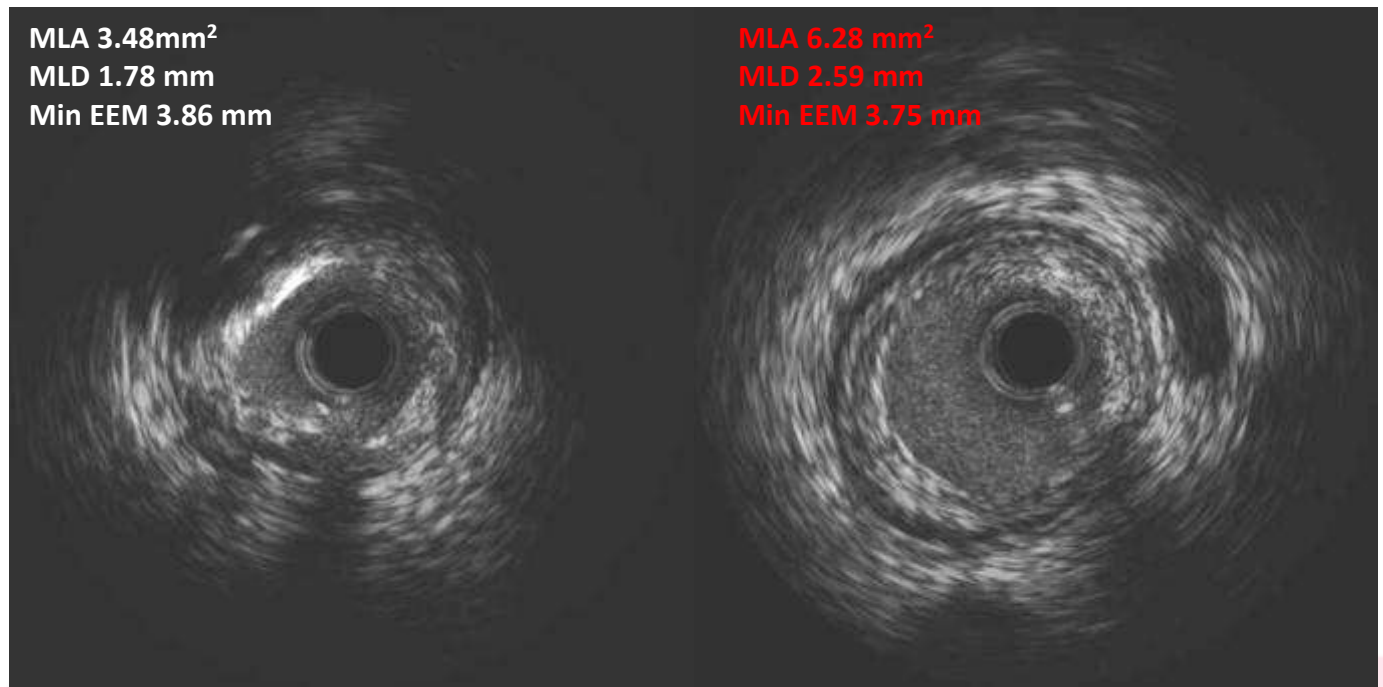
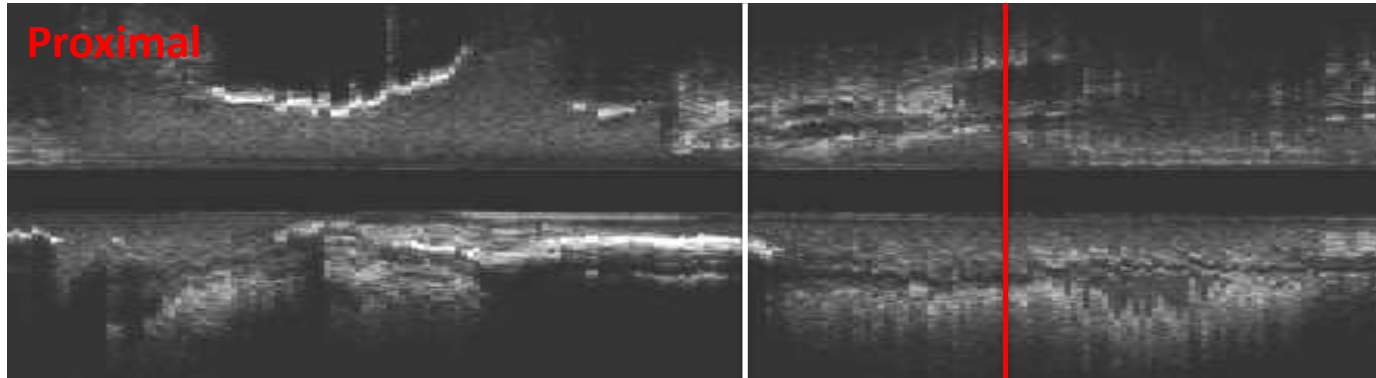
Unprotected LM Intervention by IVUS-guided and OCT-Optimized Combined BVS and DES stents Implantation Using 2- Stent Technique

- Pilot, prospective, consecutive, one center registry analyzing feasibility of IVUS-guided and OCT-optimized two stent technique (Mini-crush or T-stent strategy) using everolimus-eluting platinum chromium coronary stent with bioabsorbable polymer coating (Synergy) in LM/LAD and bioresorbable vascular scaffold (Abbsorb) in Cx for the treatment of distal ULMCA true bifurcation stenosis
- Study population: Elective patients with distal ULMCA true bifurcation stenosis
- Hypothesis:
 - Treatment of distal ULMCA true bifurcation stenosis with everolimus-eluting platinum chromium coronary stent with bioabsorbable polymer coating (Synergy) in LM/LAD and bioresorbable vascular scaffold (Abbsorb) in Cx using two stent techniques (Mini-crush or T-stent strategies) is safe and feasible with similar performance (non-inferior) to historical control with two DES.
 - Acute and long-term outcomes of ULMCA true bifurcation stenosis treatment with combined BVS and DES will be better than two DES treatment in historical control.

Preintervention IVUS LAD



Preintervention IVUS LCX



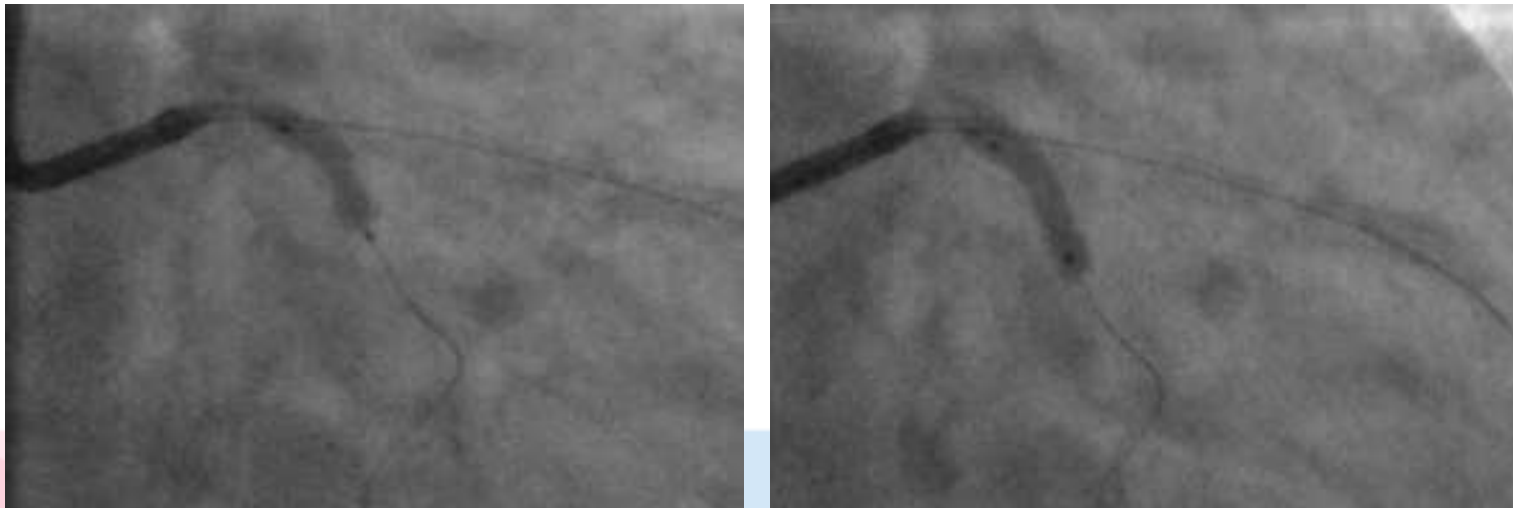


Plaque pretreatment

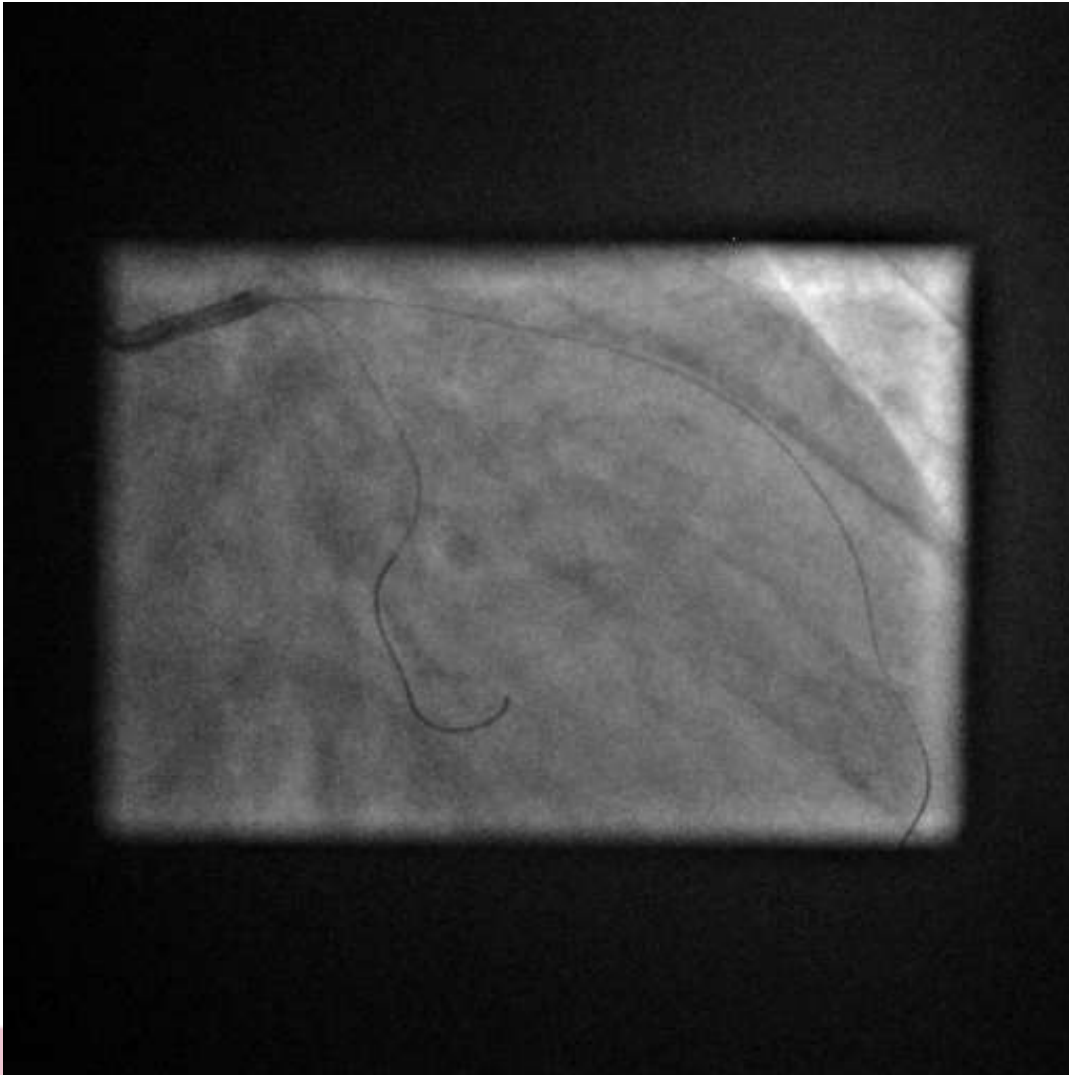
Predilatation of LM/LAD with cutting balloon 3.5 x 15 mm 5, 6, 7 bar



Predilatation of LCX with Regular balloon 3.0 x 12 mm 6, 7 bar



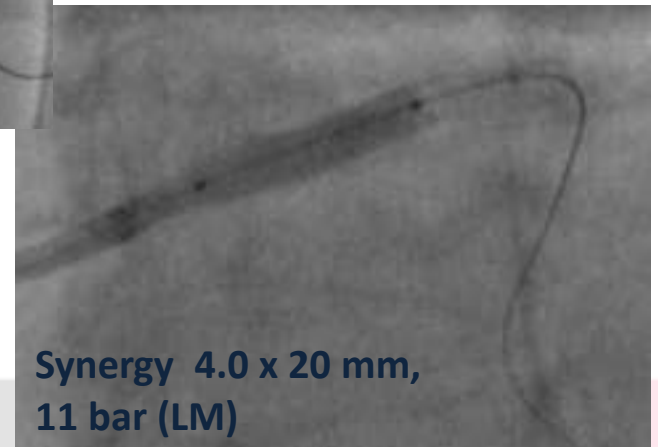
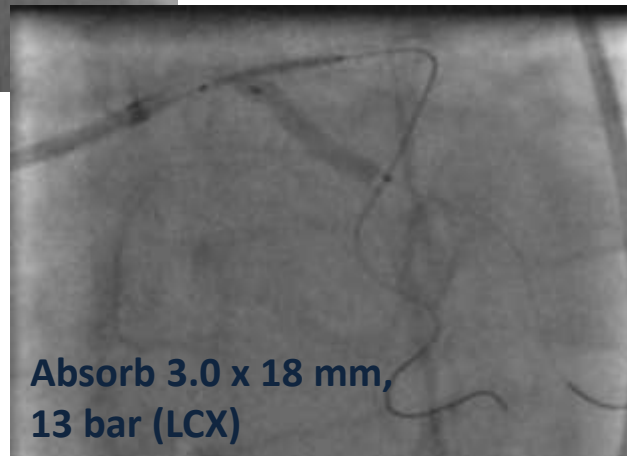
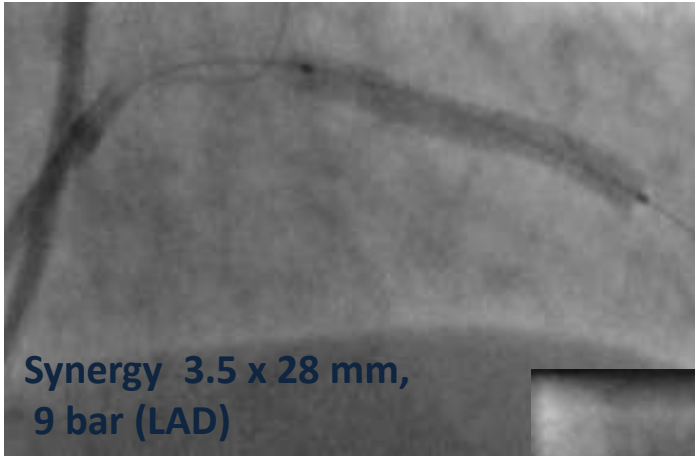
After predilatation



**Achieved good plaque modification
with cutting balloon**



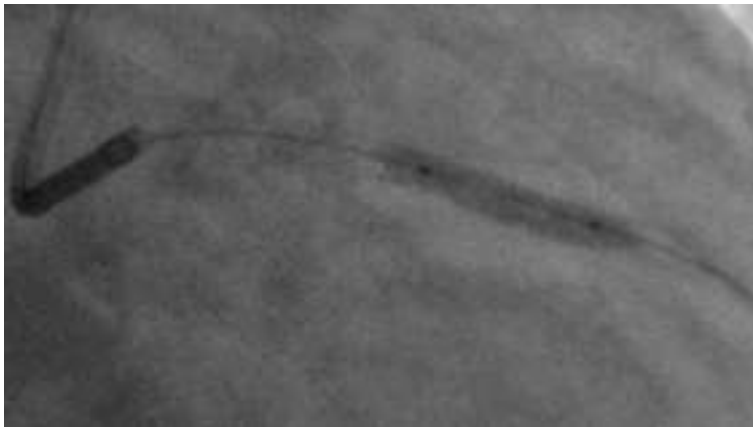
Stenting (minicrush)



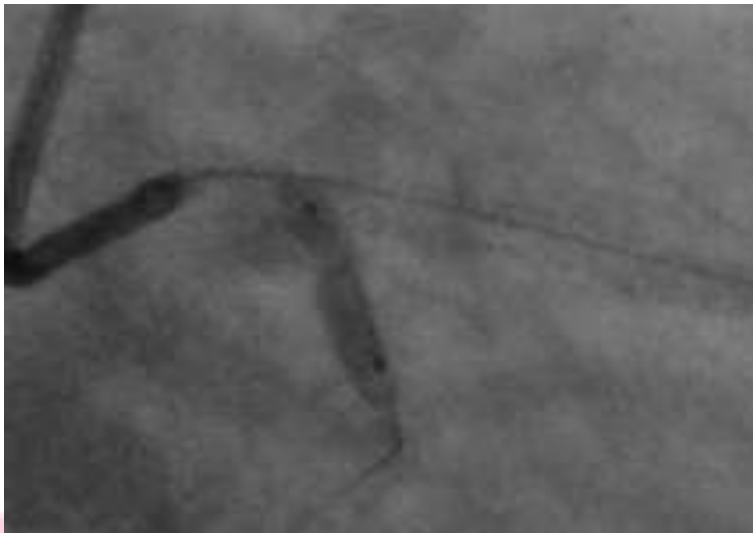


Postdilatation

1. LAD – NC Balloon 3.5 x 15 mm, 17 bar



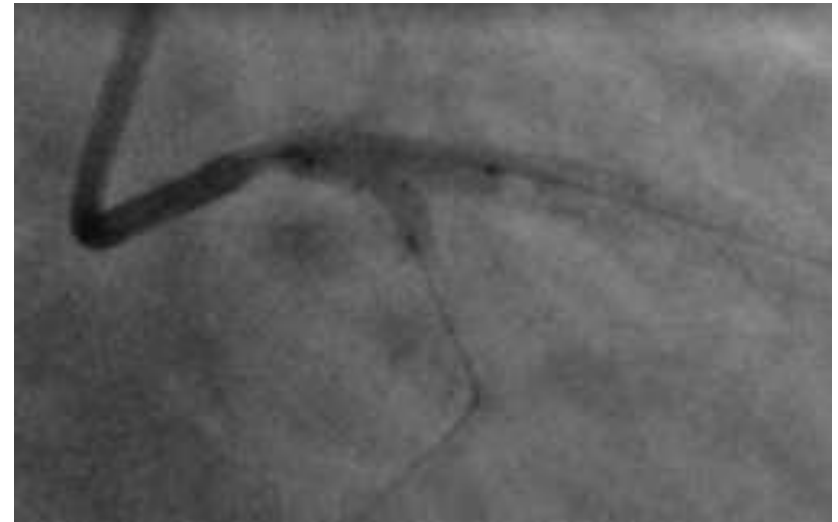
2. LCX – NC Balloon 3.5 x 15 mm, 15 bar



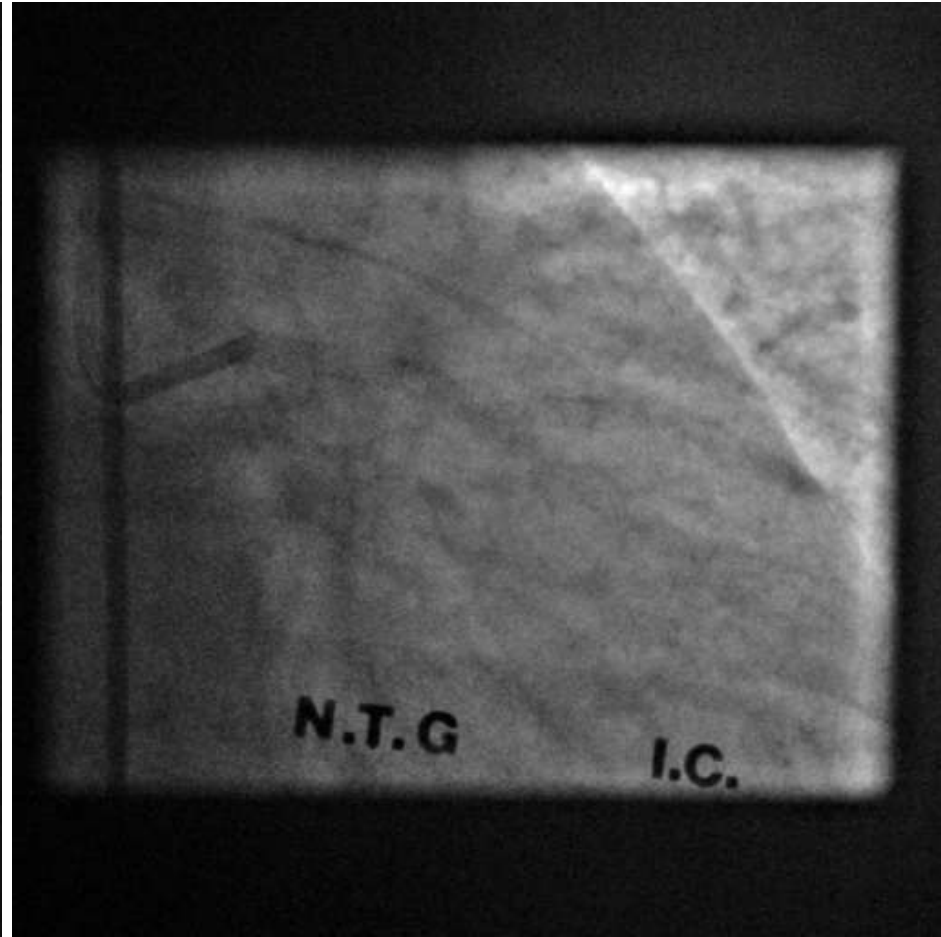
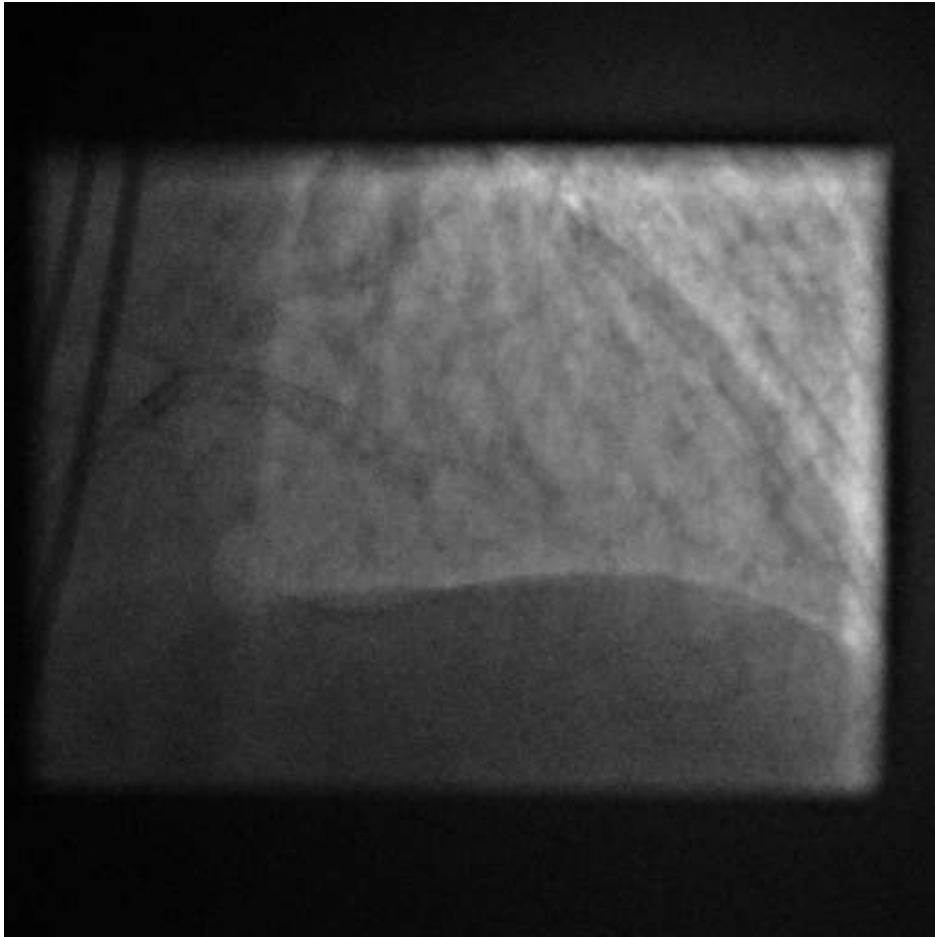
3. Kissing:

LAD 3.5 x 15 mm, 10 bar

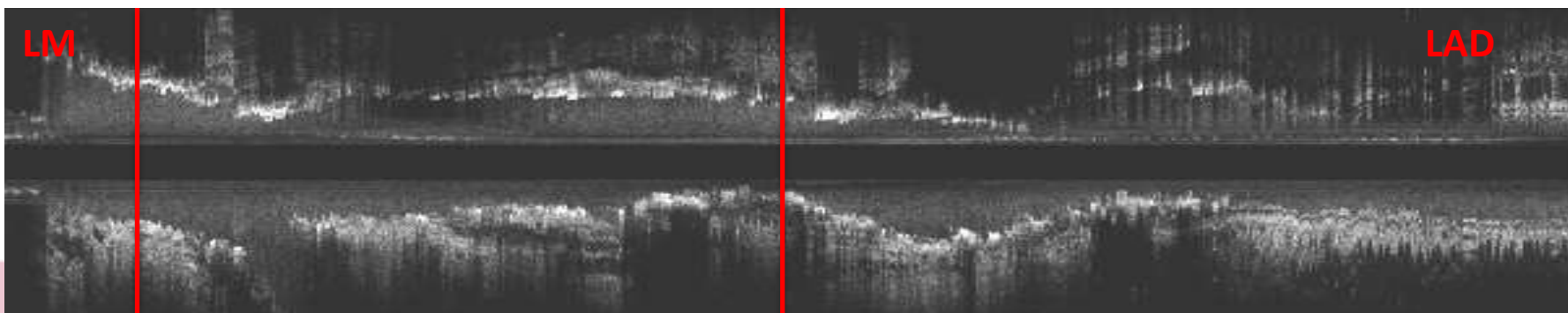
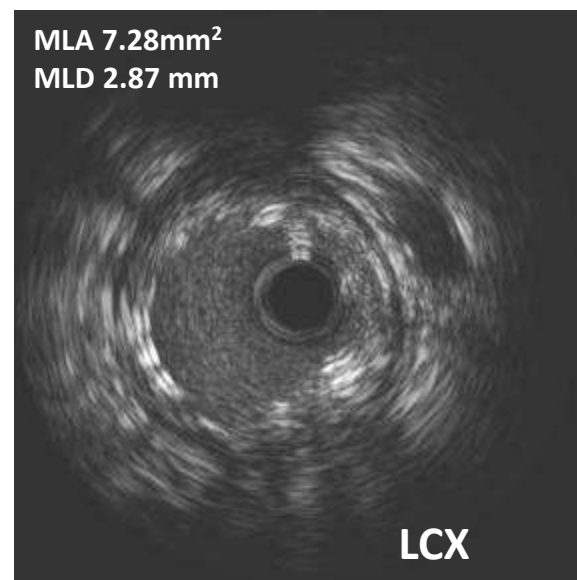
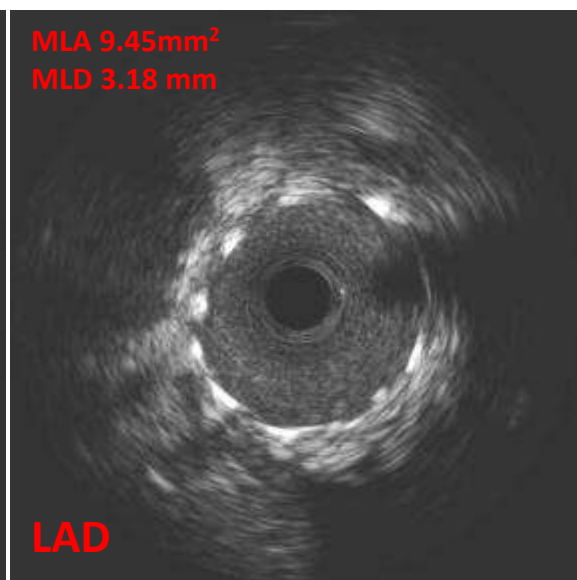
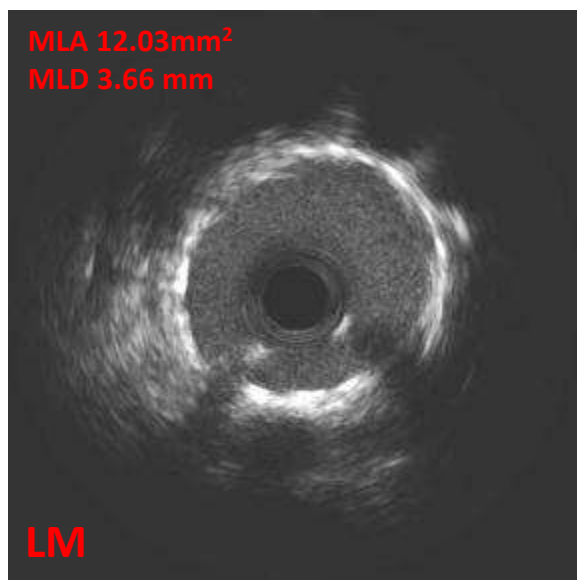
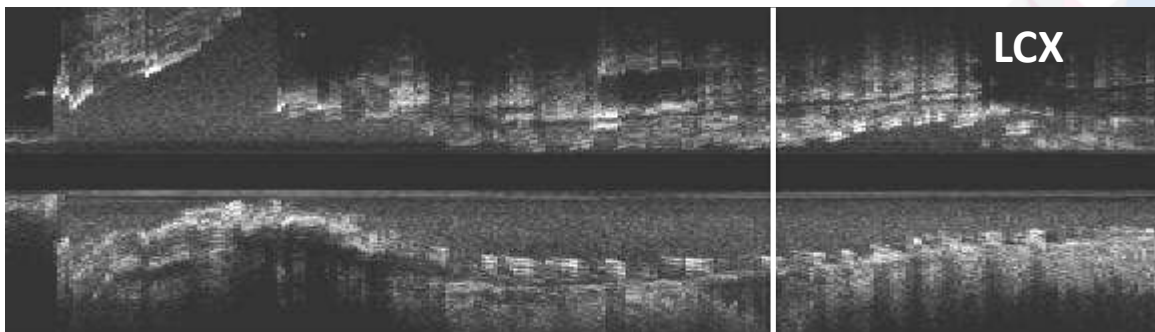
LCX 3.0 x 15 mm, 10 bar



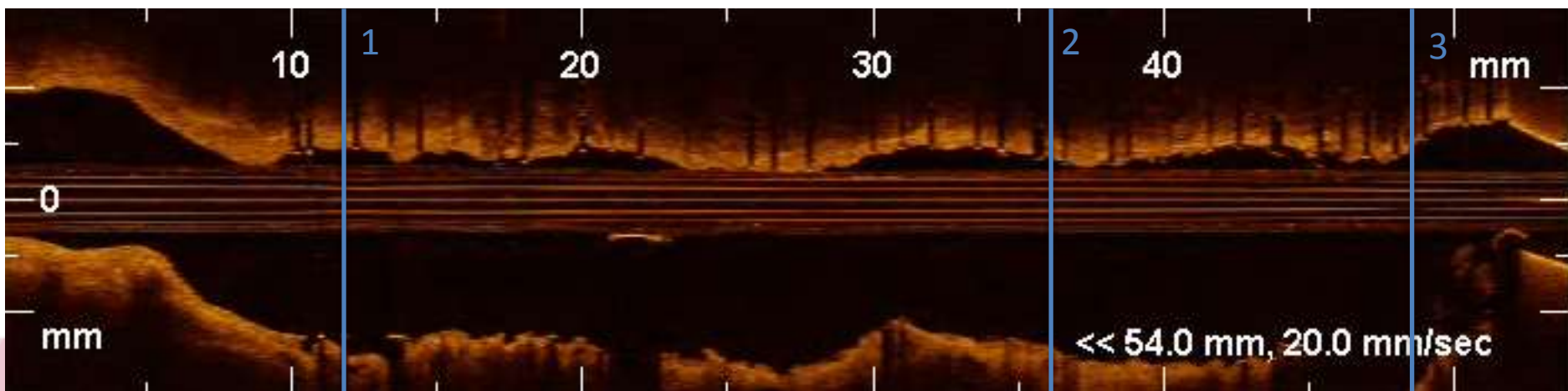
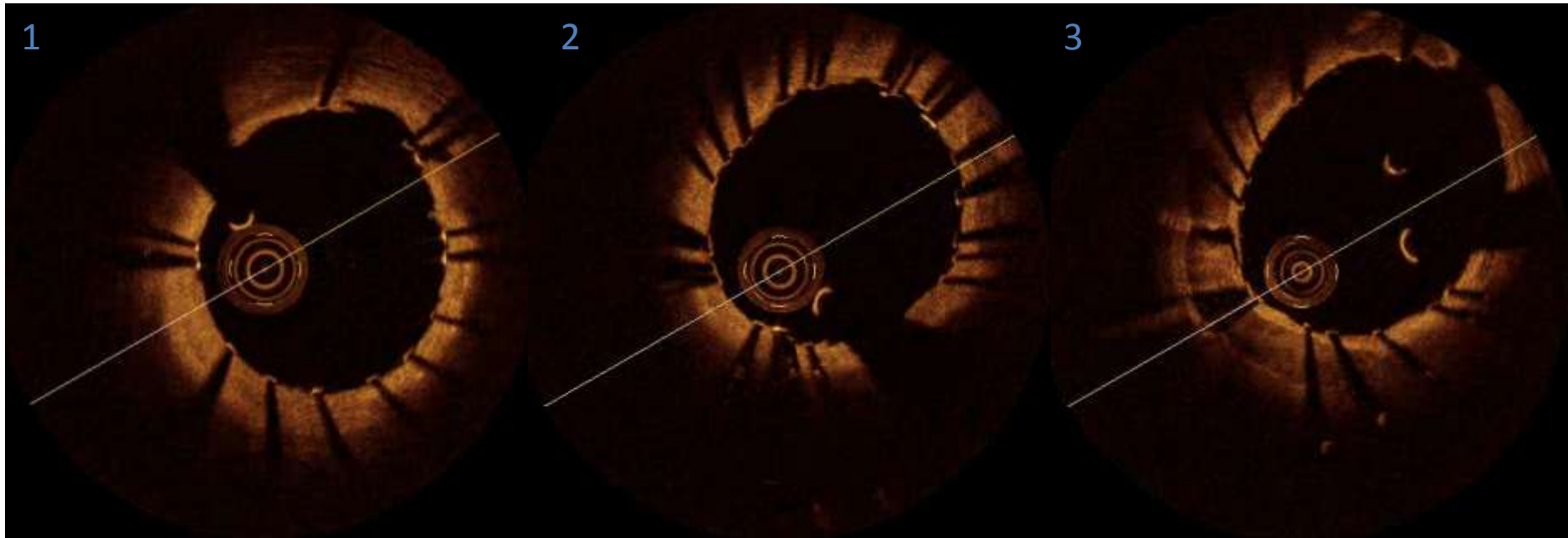
Final Result after PCI



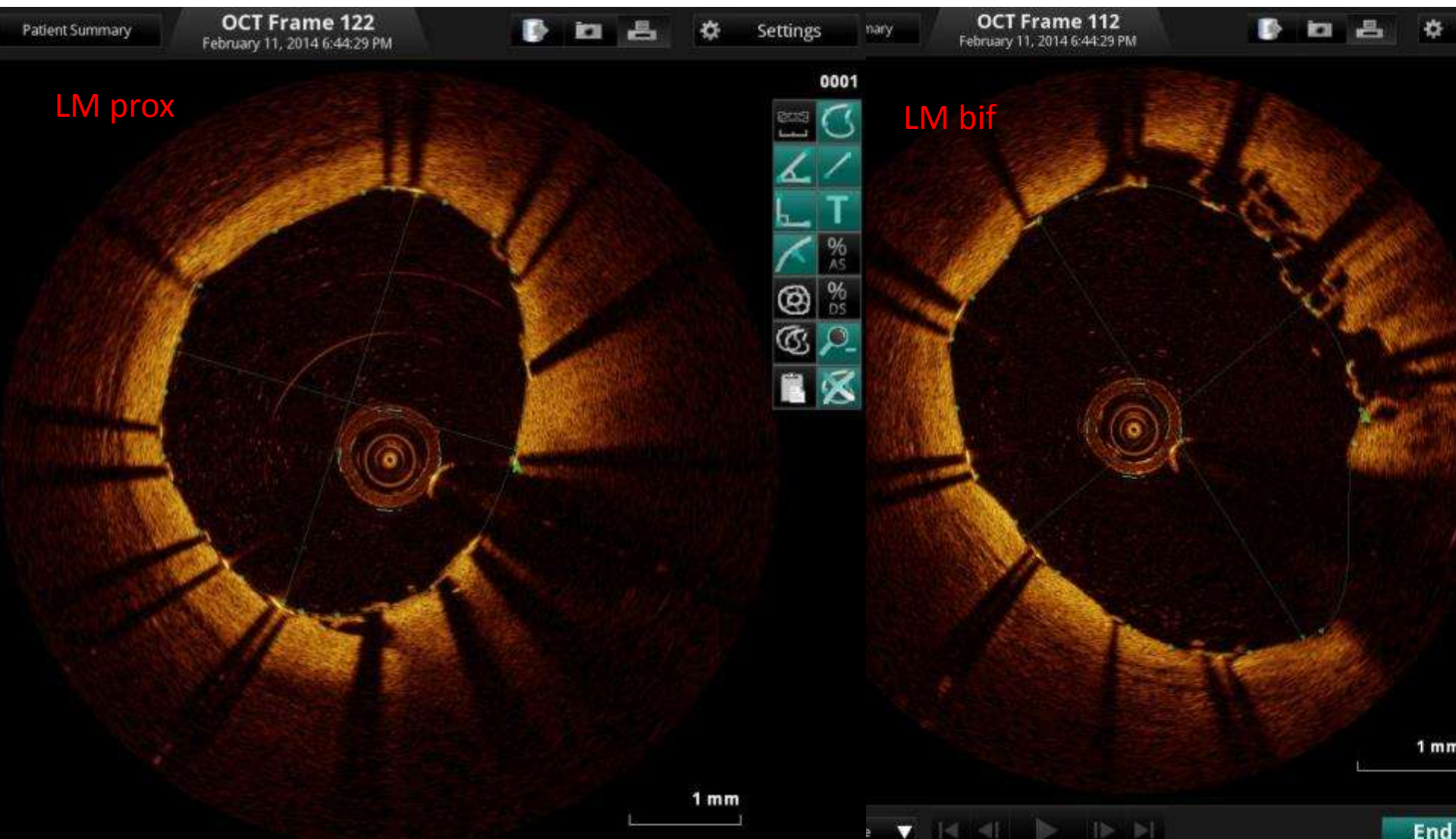
Final IVUS



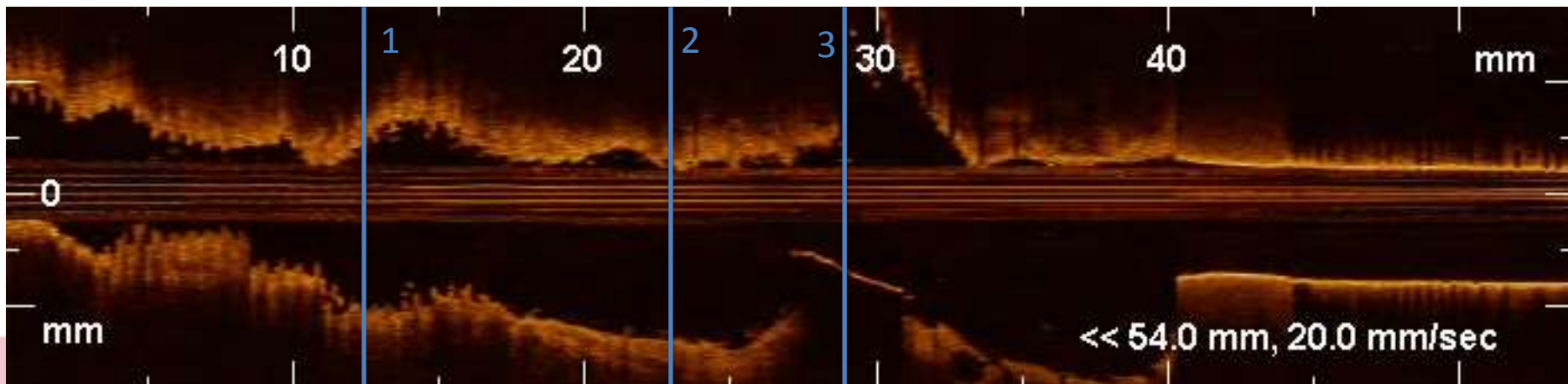
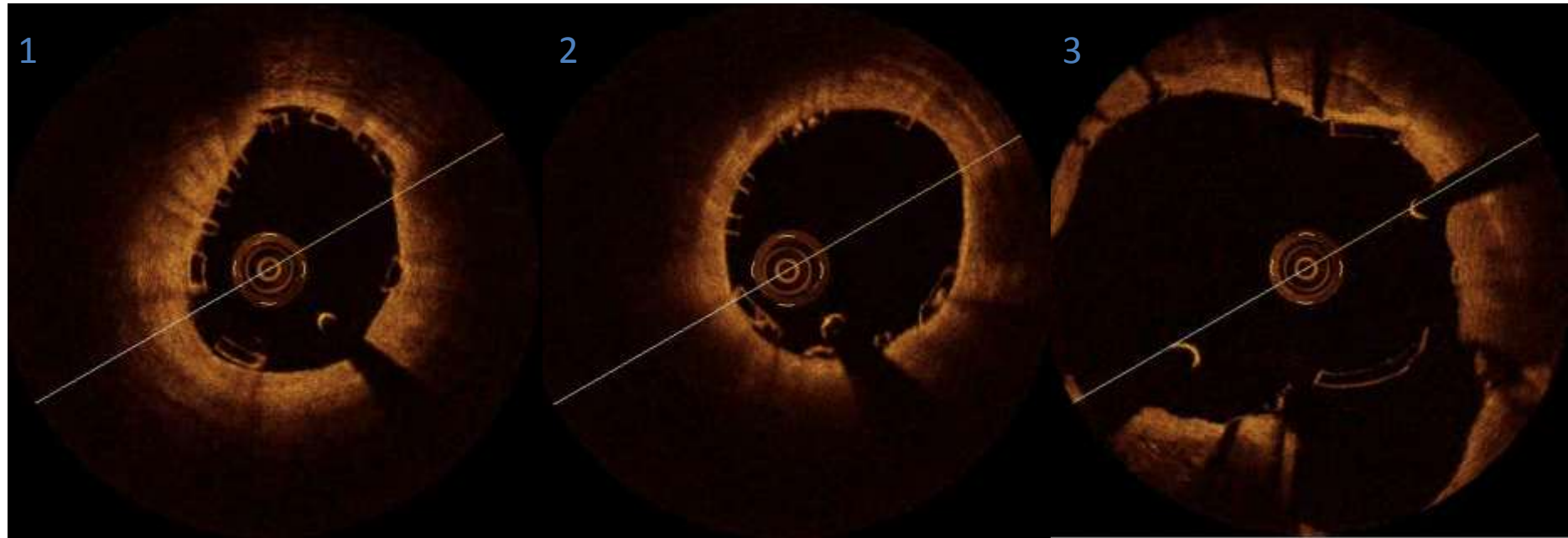
Final OCT: LAD- LM



Mini Crush OCT Data

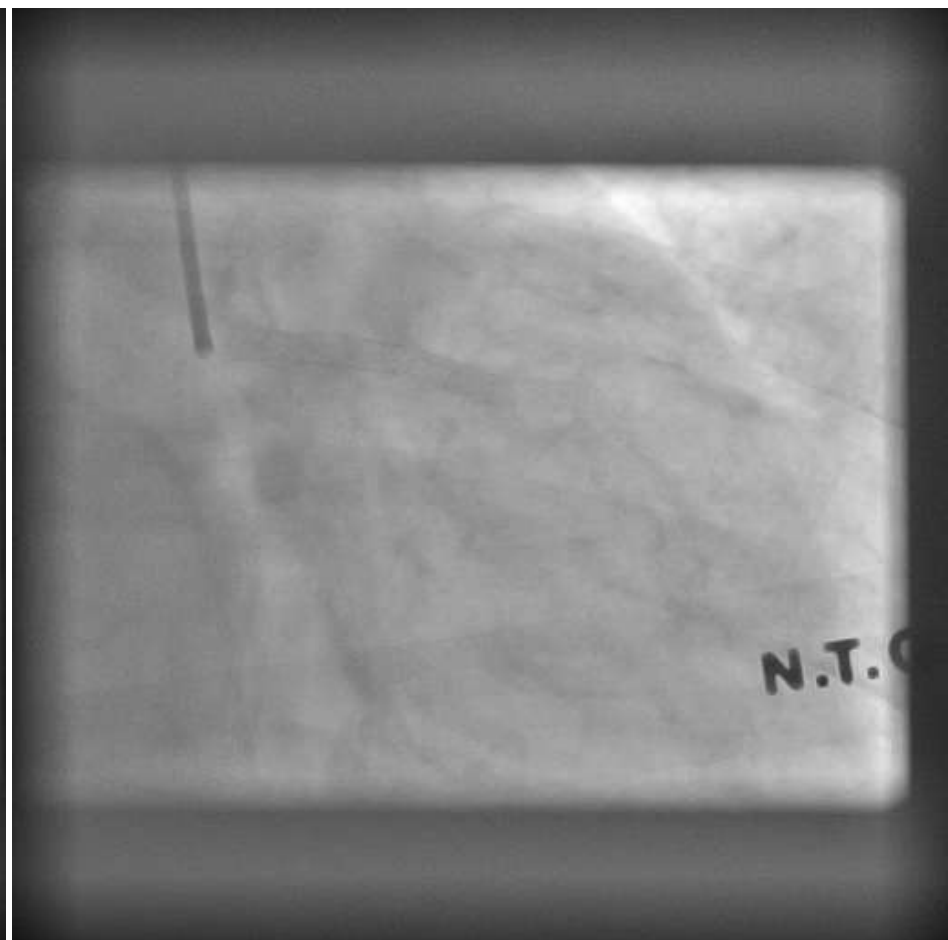
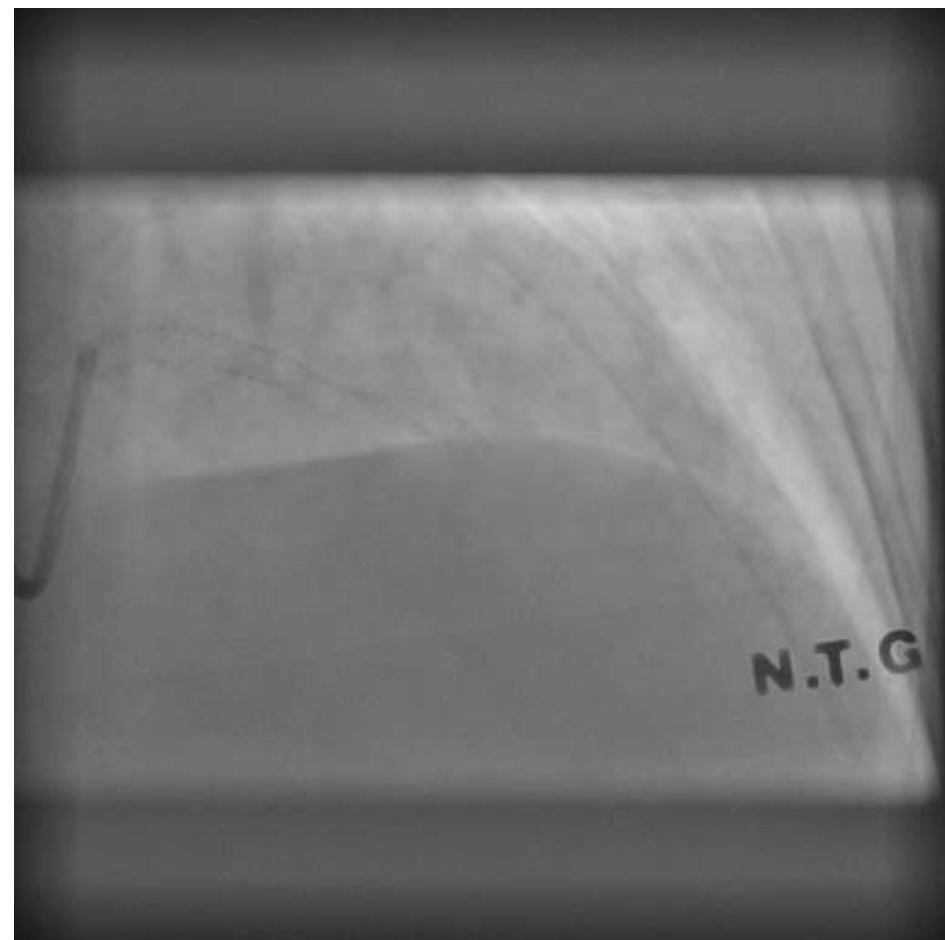


Final OCT: LCX- LM

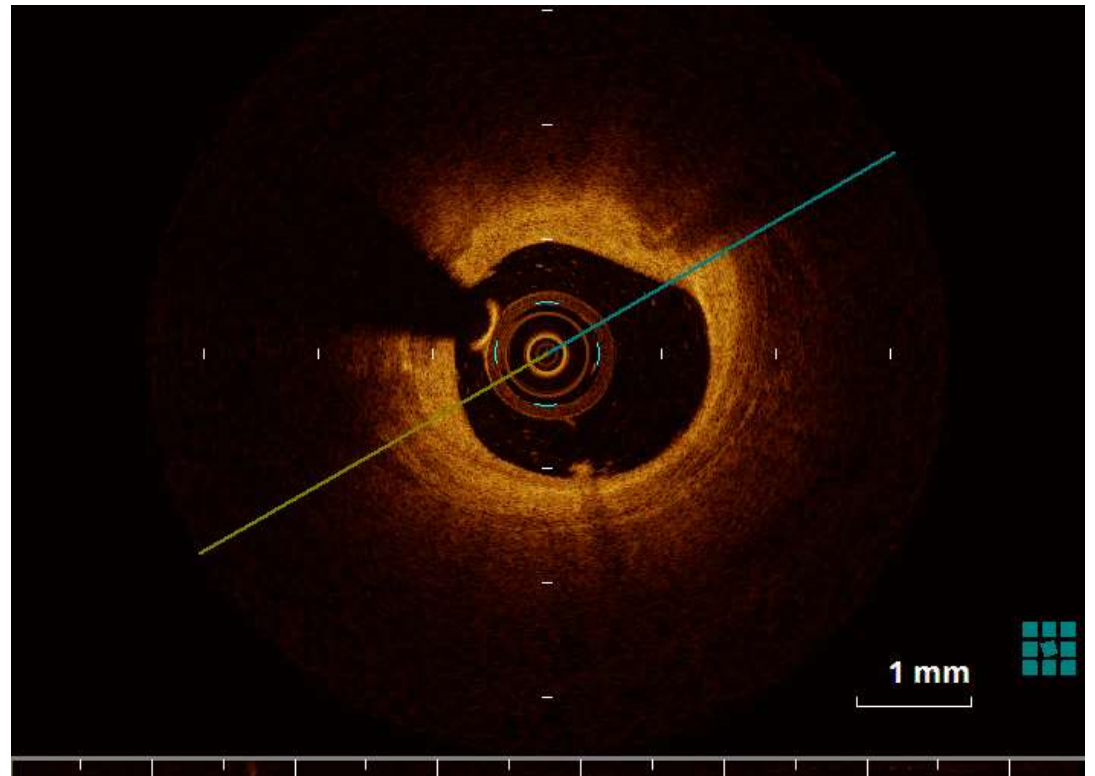


Follow-up

Patient is symptom free



Follow-up





Conclusions

- Combined BVS and DES implantation as two stents technique is a safe, feasible, effective and durable treatment option for patients with left main disease true bifurcation disease
- Patient selection for complex stenting requires accurate lesion evaluation: distribution of disease (whether the disease involves both branches), size of branch, angle of branch, severity and length of the side branch lesion, presence of concomitant distal disease in the side branch
- Double stenting is more complex, time-consuming, and labor intensive; optimal technique, including, IVUS/OCT guidance, plaque pre-treatment, new-generation DES (and BVS) usage, post-stenting optimisation is strongly recommended to avoid complications and ensure favorable long-term result