Who is the bad apple?

Mackay Memorial Hospital; Taiwan

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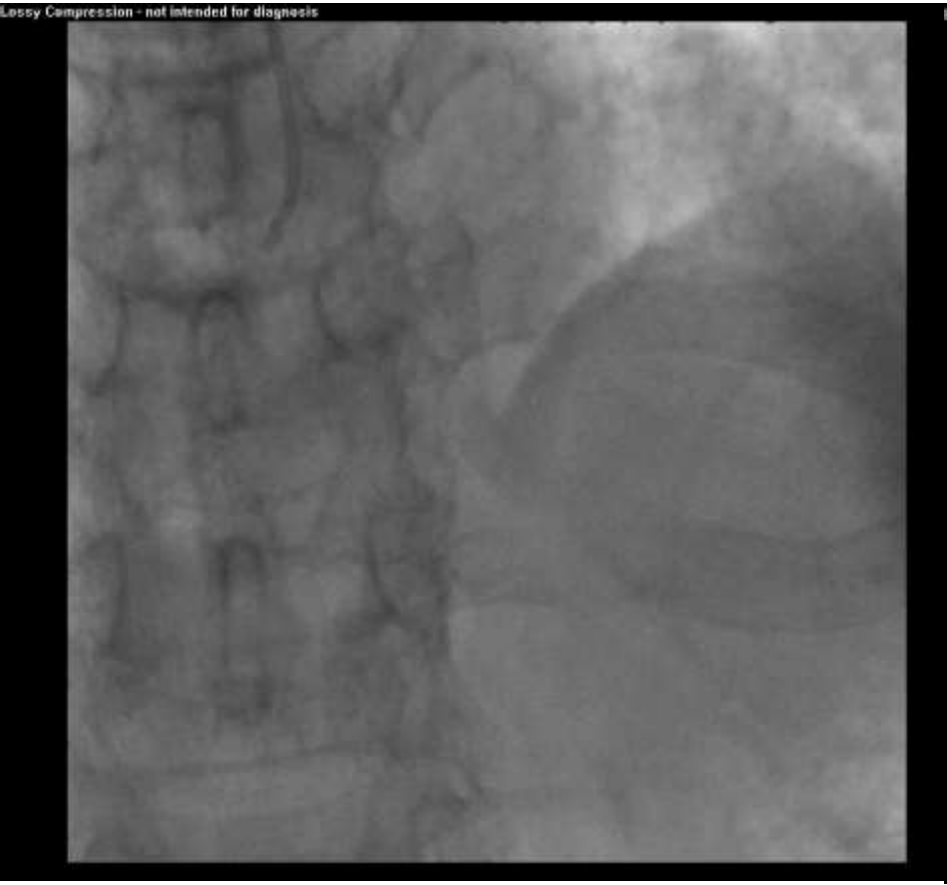
63 y/o man with progressive effort angina in the recent month

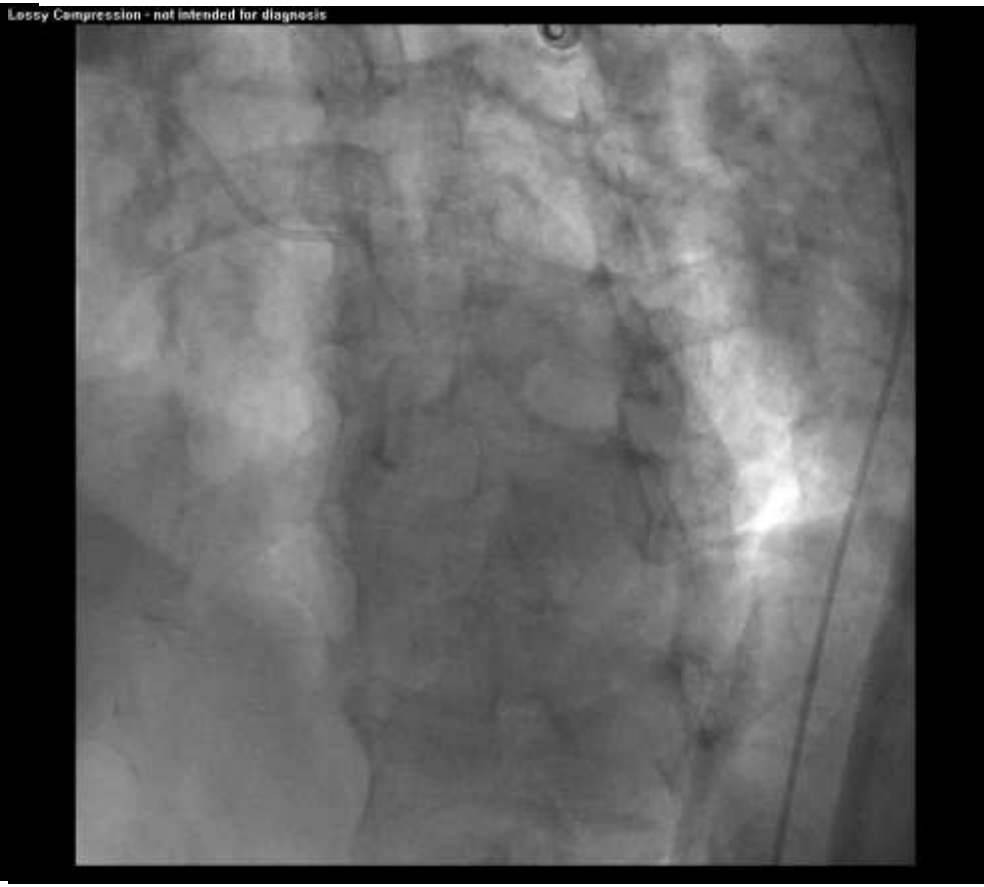
Patient Profile

- Progressive angina (CCS class III~IV) under optimal medical therapy.
- CAD risk factor: age, current smoker, Hyperlipidemia.
- Arrange stress test the next week.

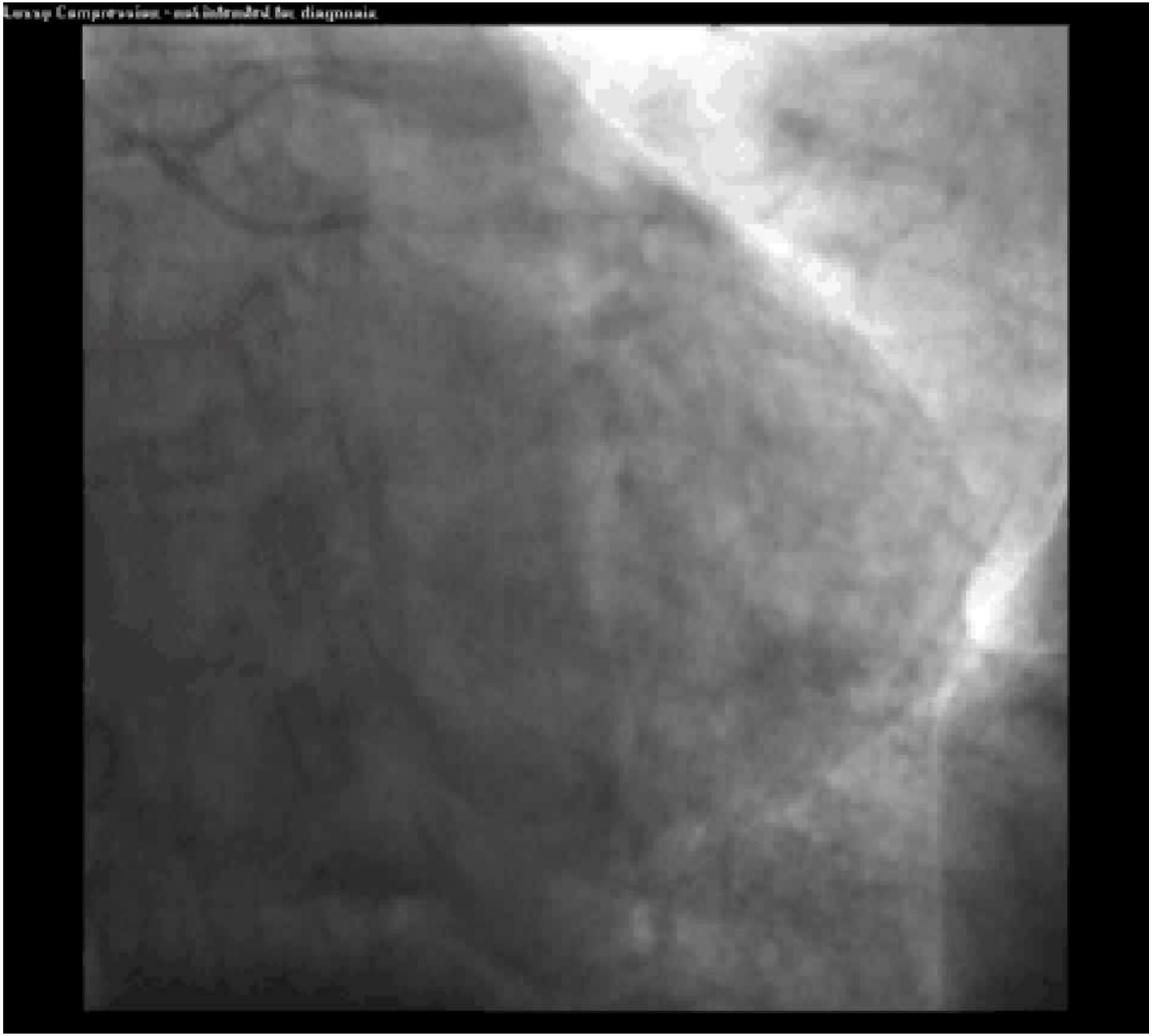
However, he cannot tolerate stress test due to severe angina !

CAG


Lossy Compression - not intended for diagnosis


Lossy Compression - not intended for diagnosis

LM bifurcation lesion ?



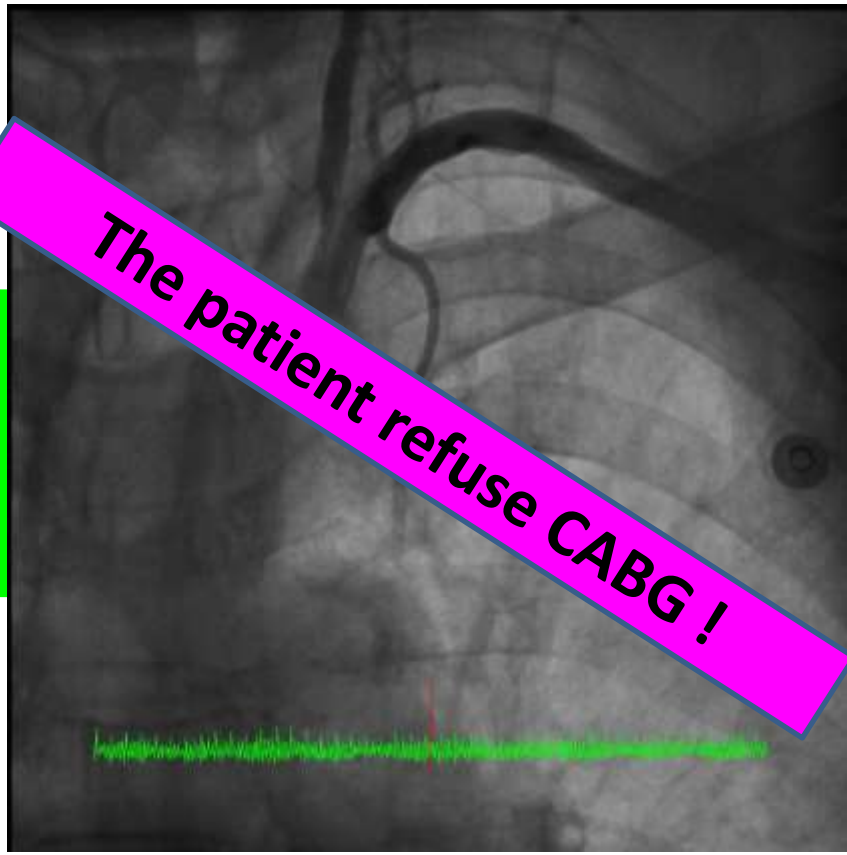
What would you do ?

Medical therapy already failed !

CABG ?

PCI? But How?

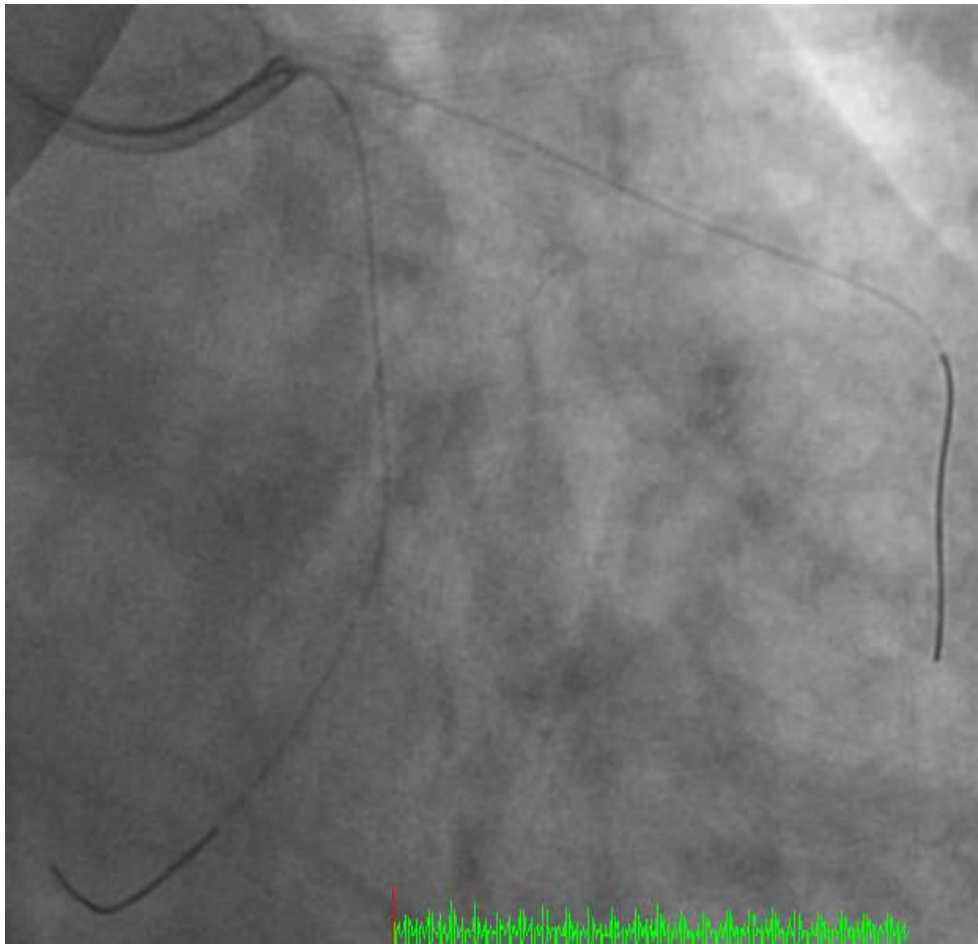
1. Only the 3 critical lesions?
2. To treat or not to treat the LM?
3. LM with or without LAD/LCX ?



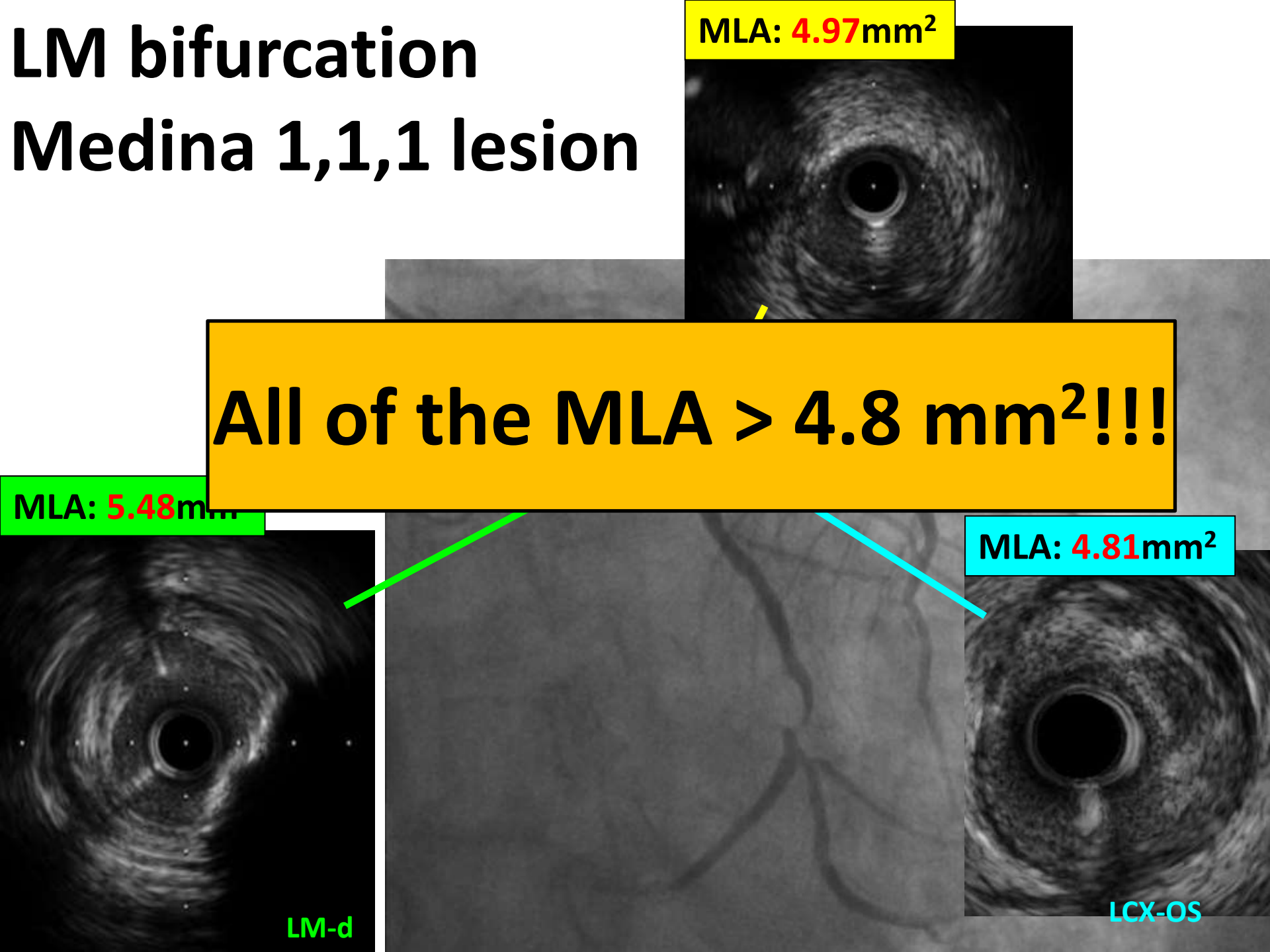
We decided to choose PCI

Check IVUS to help decision making

- 6Fr EBU 3.5
- Runthrough EF in LAD
- Sion blue in LCX



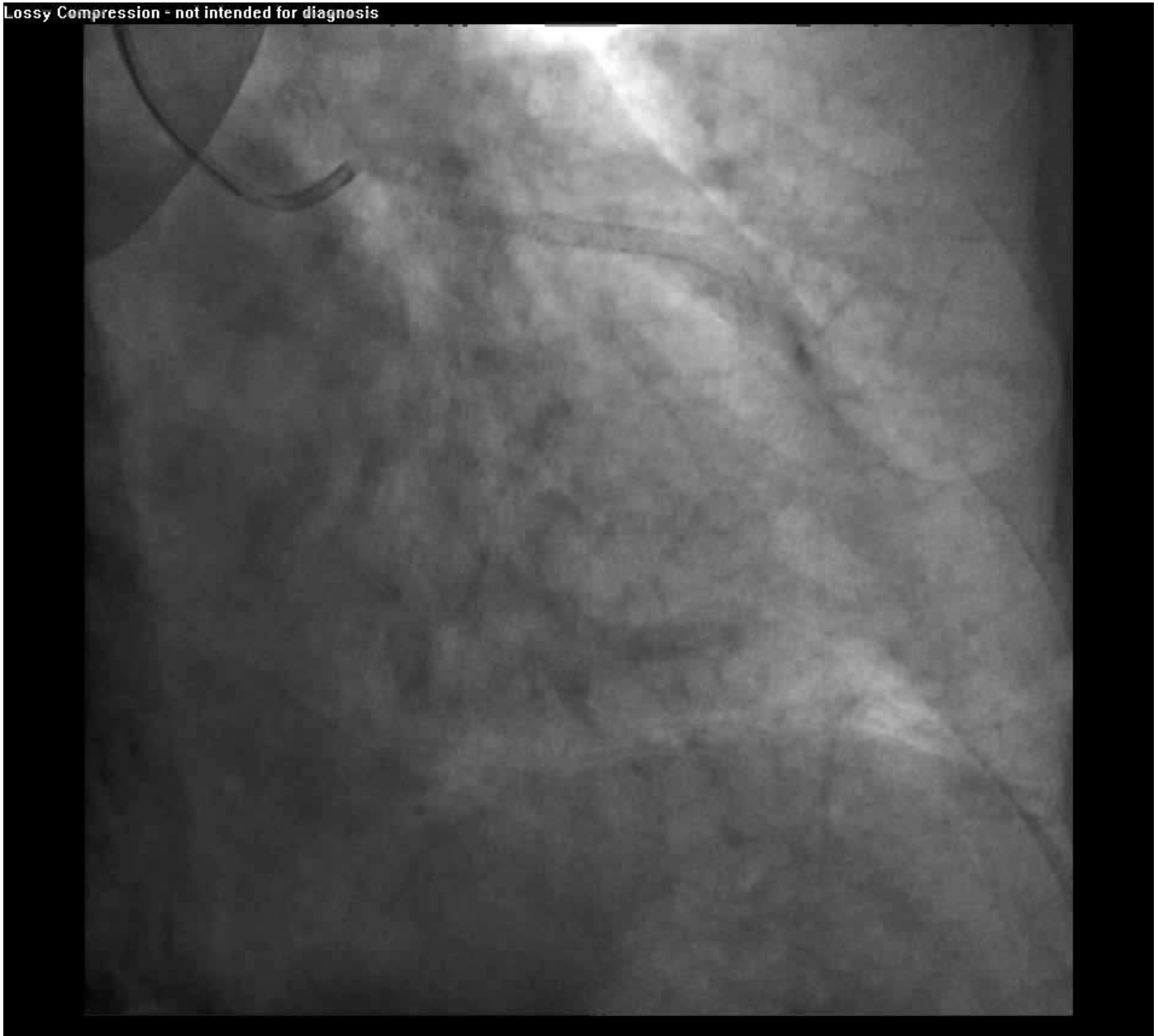
LM bifurcation
Medina 1,1,1 lesion



DES 2.75x26 mm in LCX; 2DES 3.0x38, 3.5x30 mm in LAD

CAG after IVUS recheck

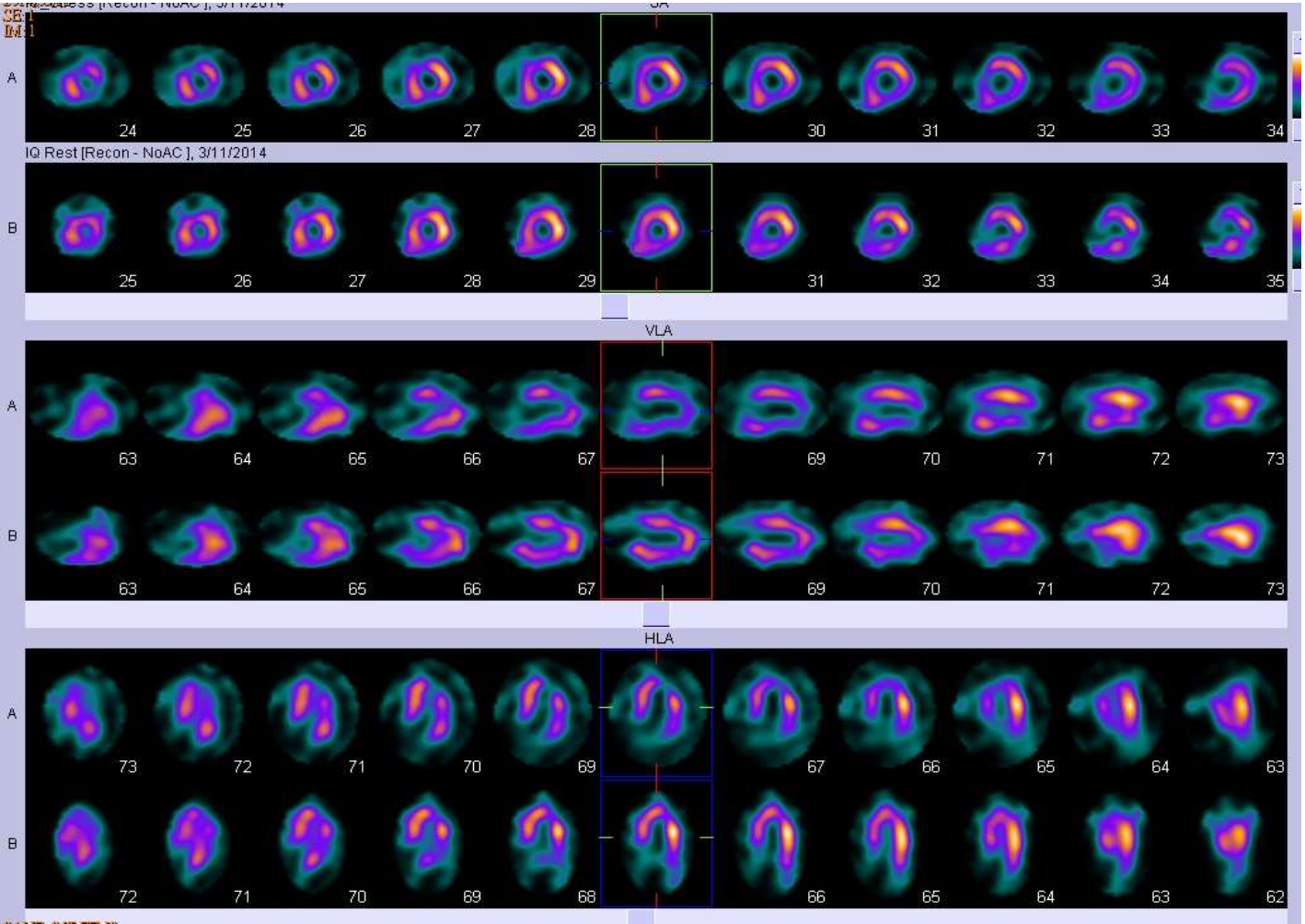
Final CAG



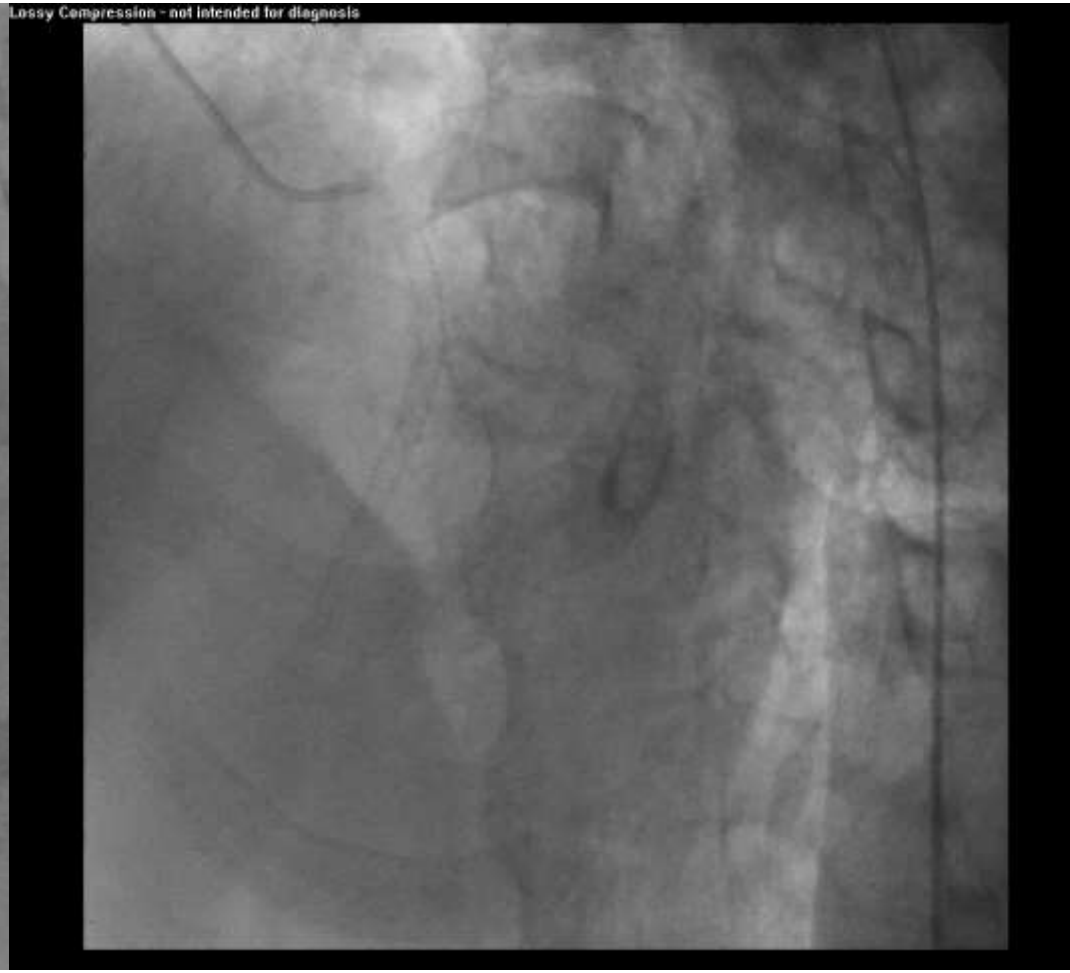
3 months later…

Partial improvement of angina (CCS class II~III) …

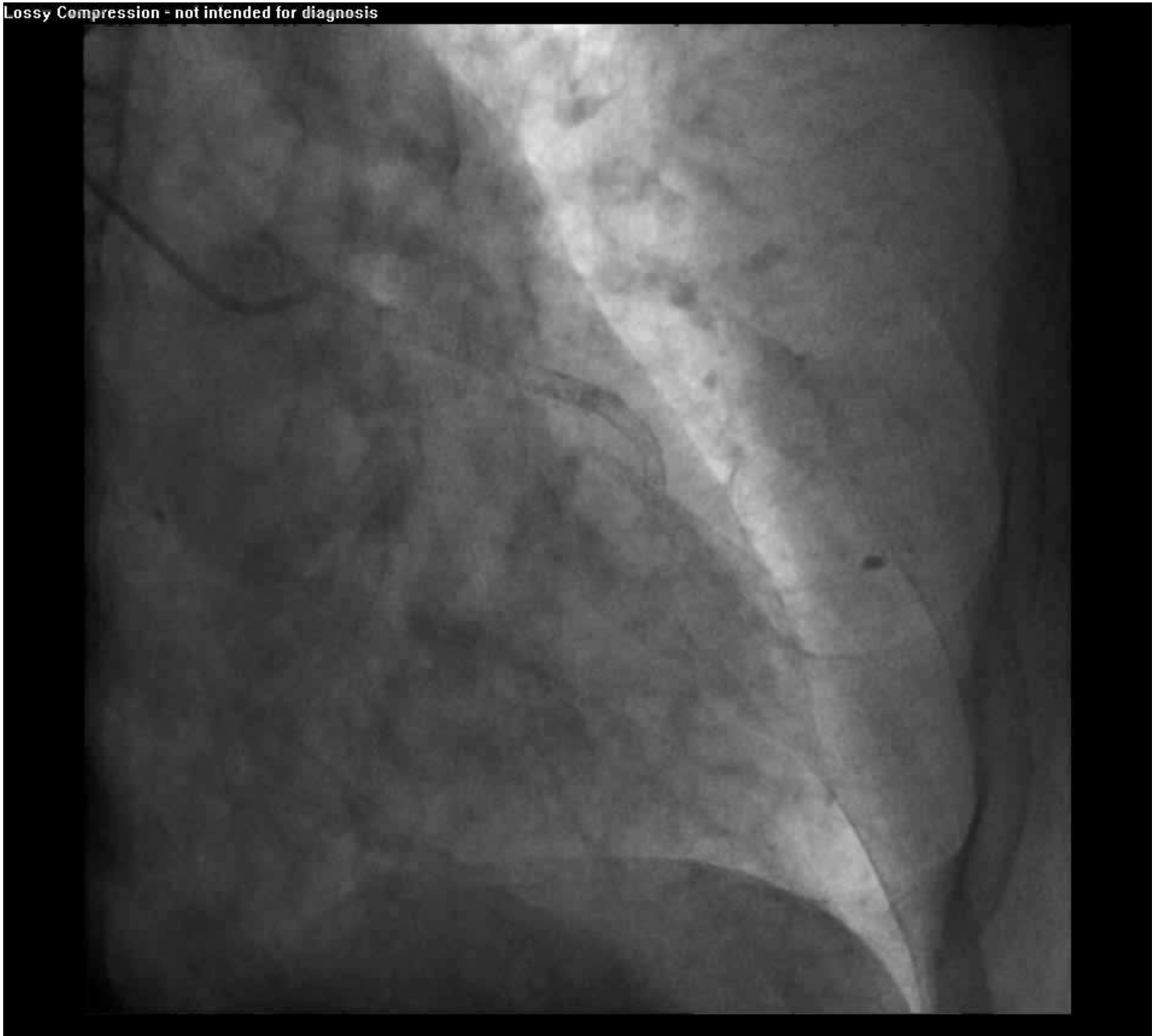
Perfusion scan (+) in apical, lateral & inferior wall



RCA & LCA were almost the same



LM Bifurcation lesion still remain



Who is the bad apple?

LM to LAD ?

OR LM t

OR B

rfusion scan?

FFR is the gold standard !
But we'll still need IVUS for PCI

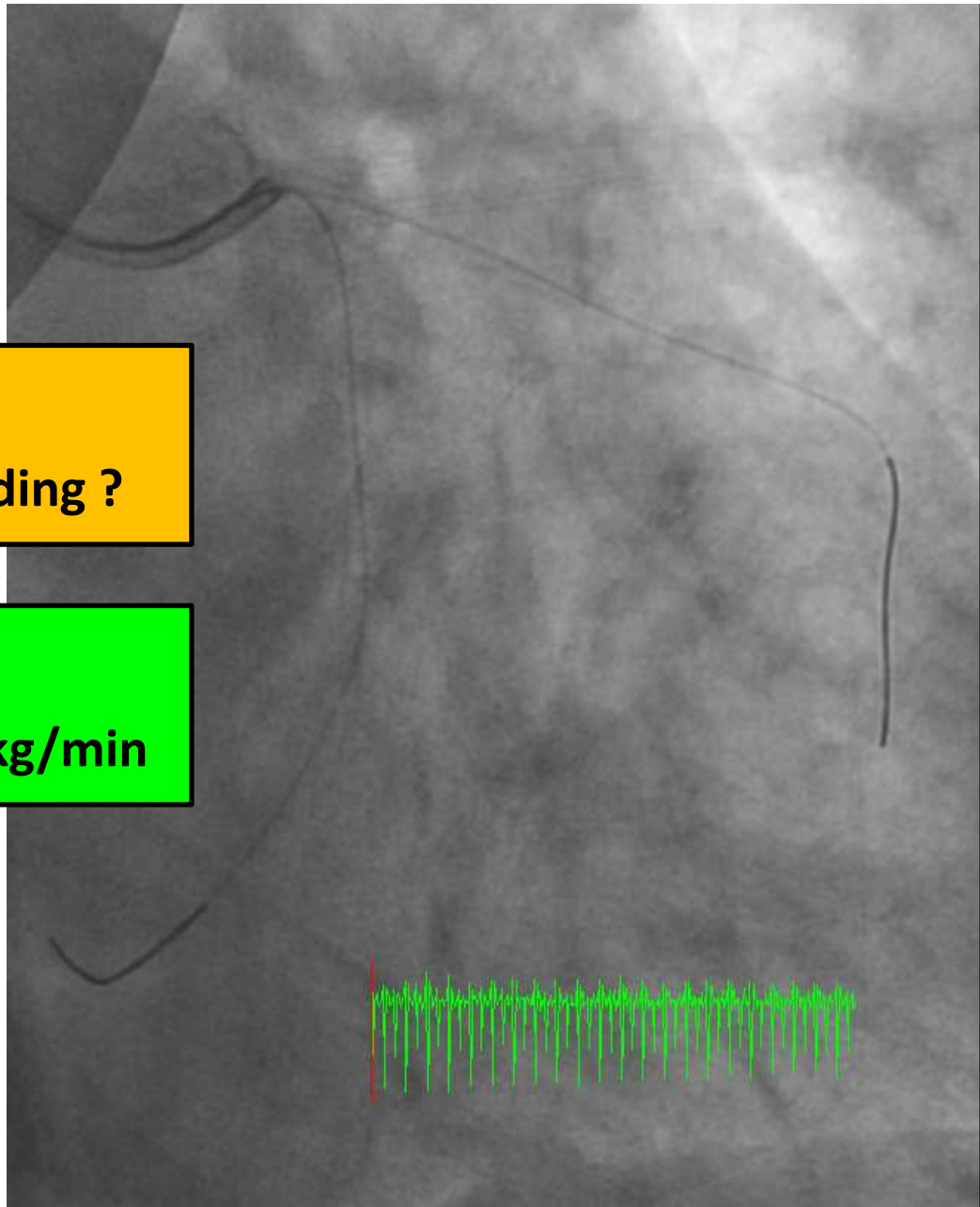
- 6Fr BL 3.5 with side hole
- Runthrough EF in LAD
- Sion blue in LCX

Check IVUS & MLA

Trauma due to previous PCI guiding ?

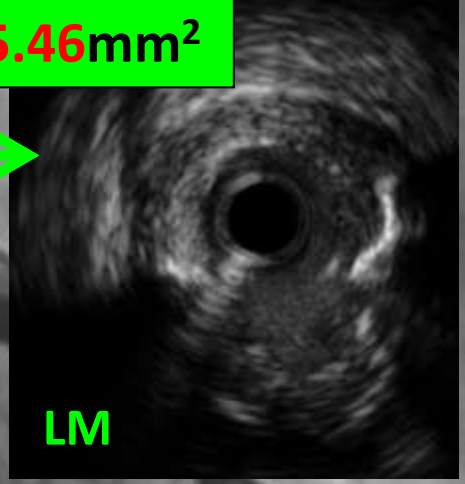
Check FFR

Continues IV adenosine 140 ug/kg/min

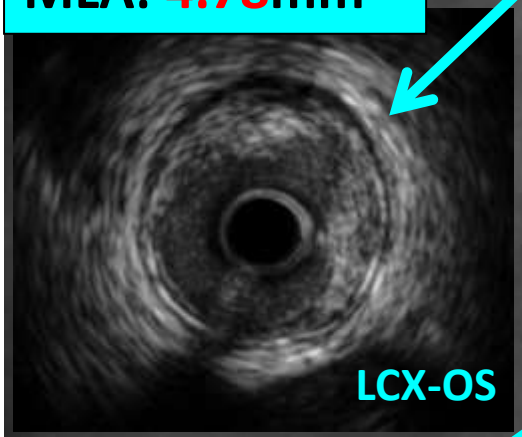


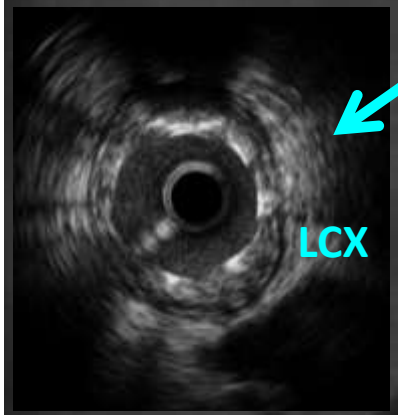
LCX

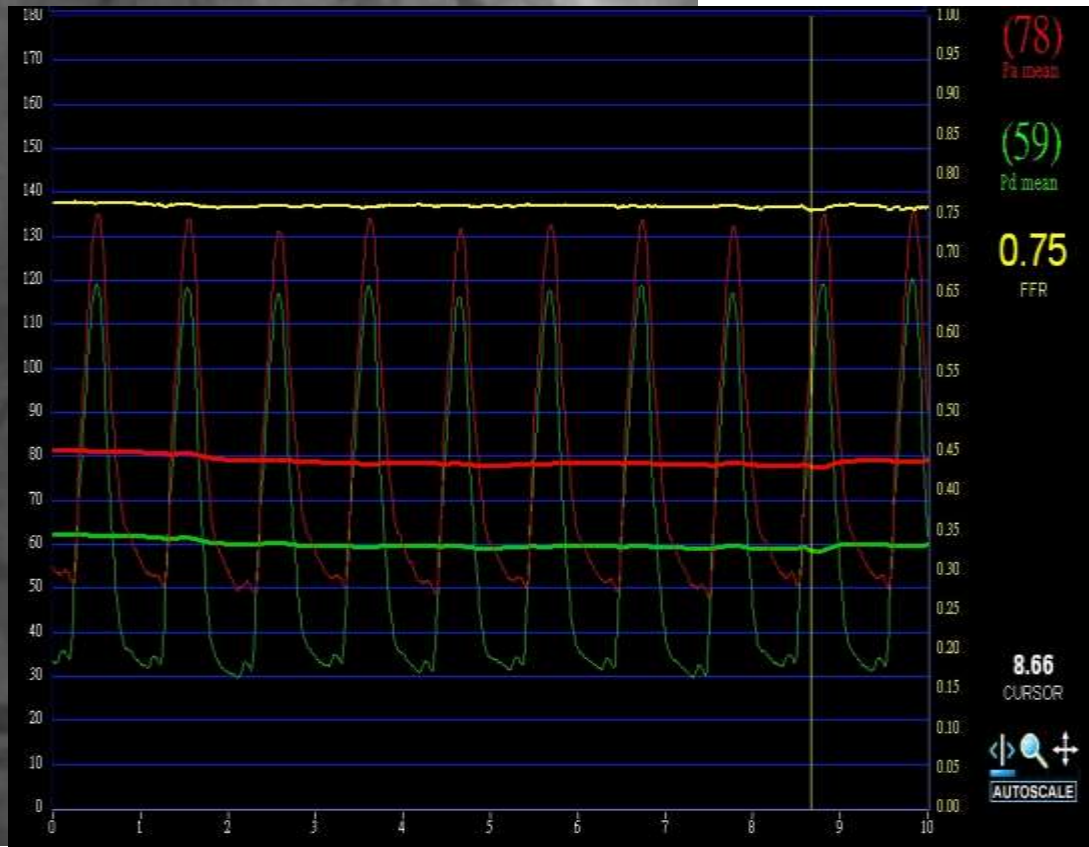
MLA: 5.46mm²



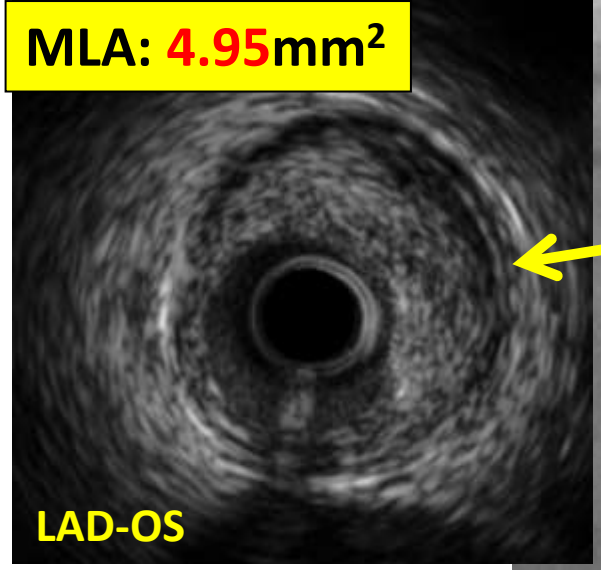
MLA: 4.78mm²

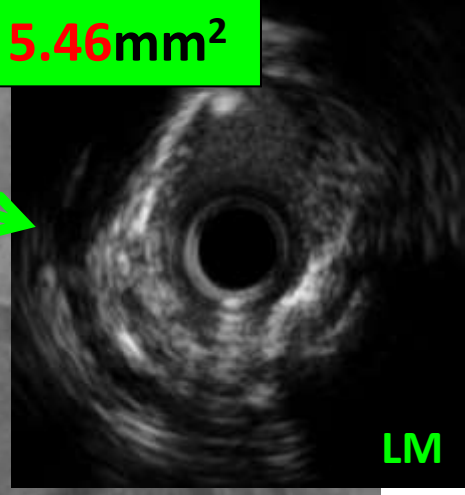


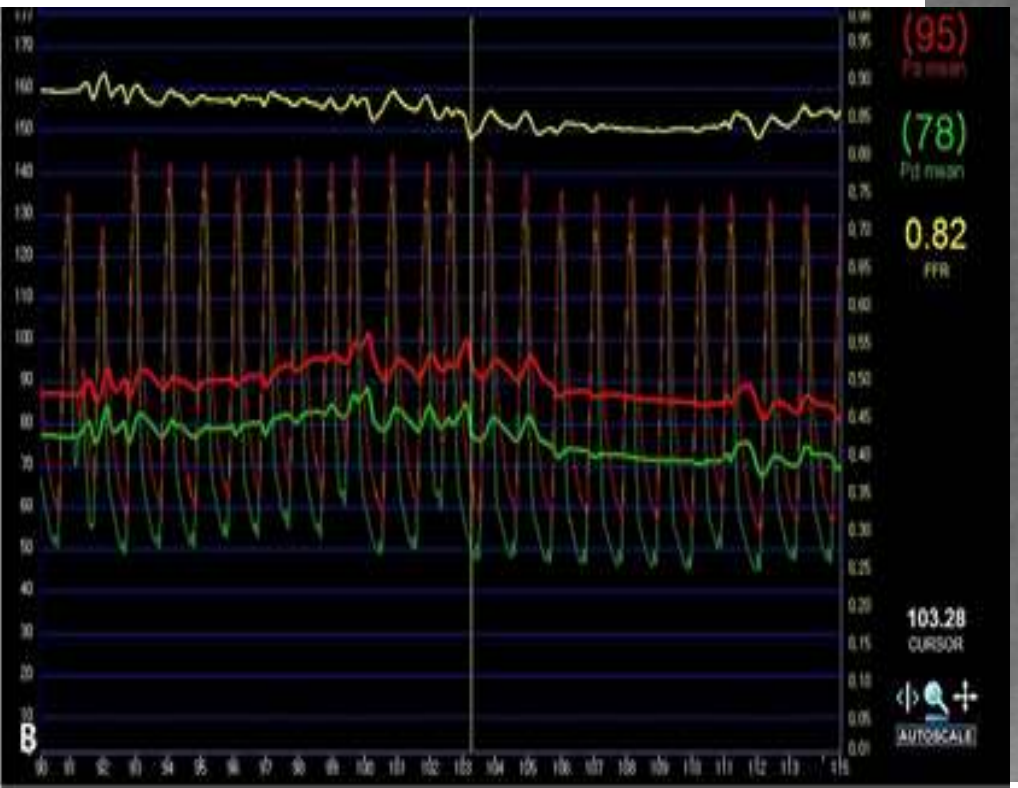


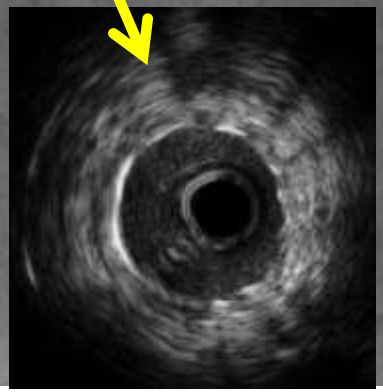


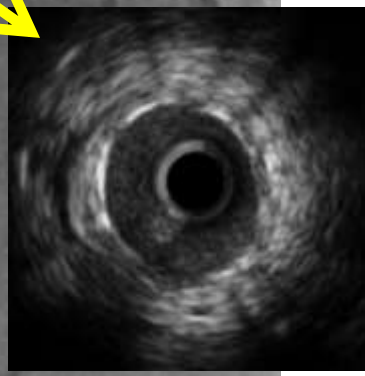
LAD


MLA: 4.95mm²
LAD-OS


MLA: 5.46mm²
LM


(95)
(78)
0.82
FFR
103.28
CURSOR
AUTOSCALE





The IVUS told us…

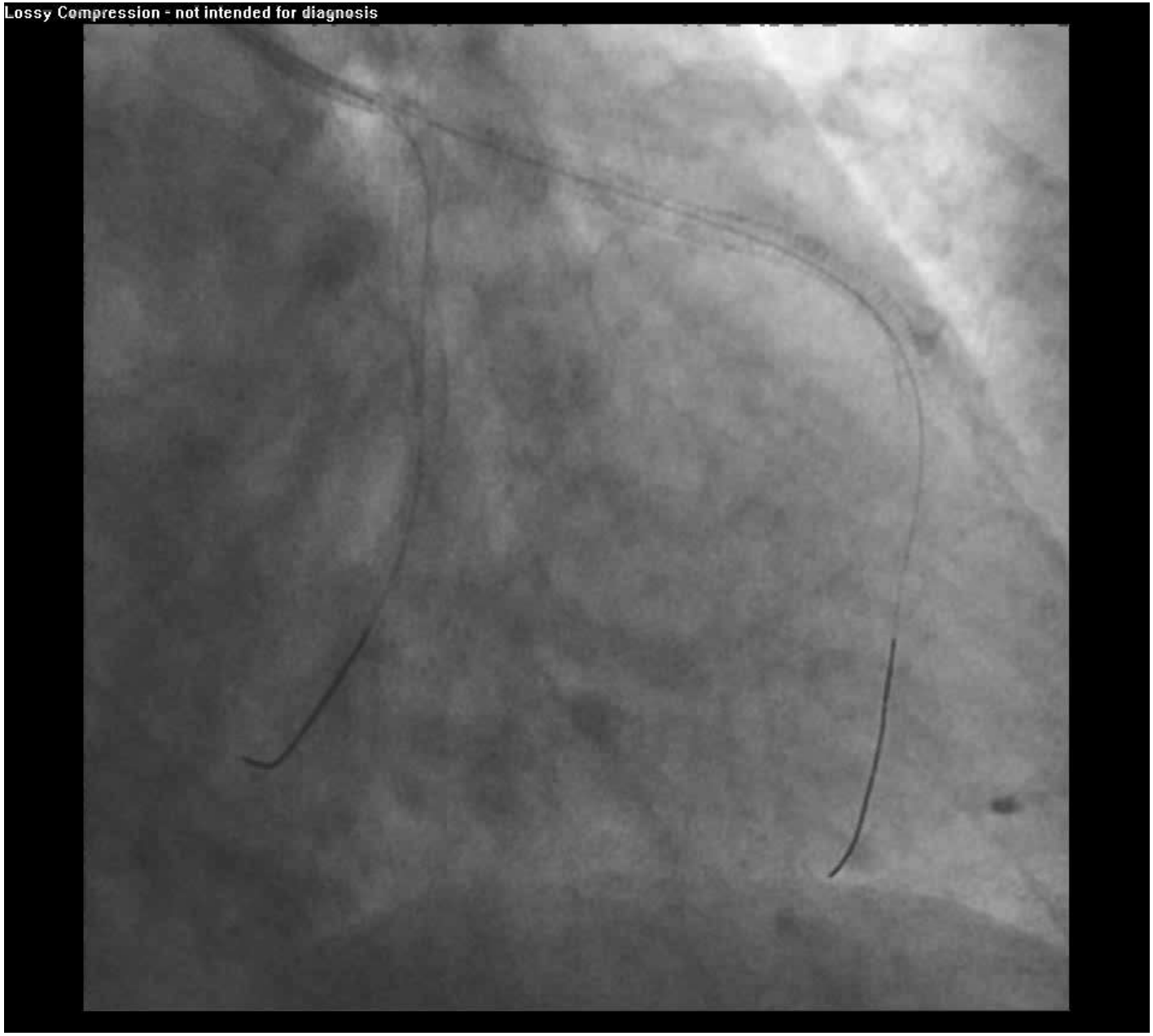
- **Good news**
  - **The LAD & LCX Stents still remains well.**
- **Bad news**
  - **Plaque extended from LM to LAD & LCX**

- **The FFR told us…**

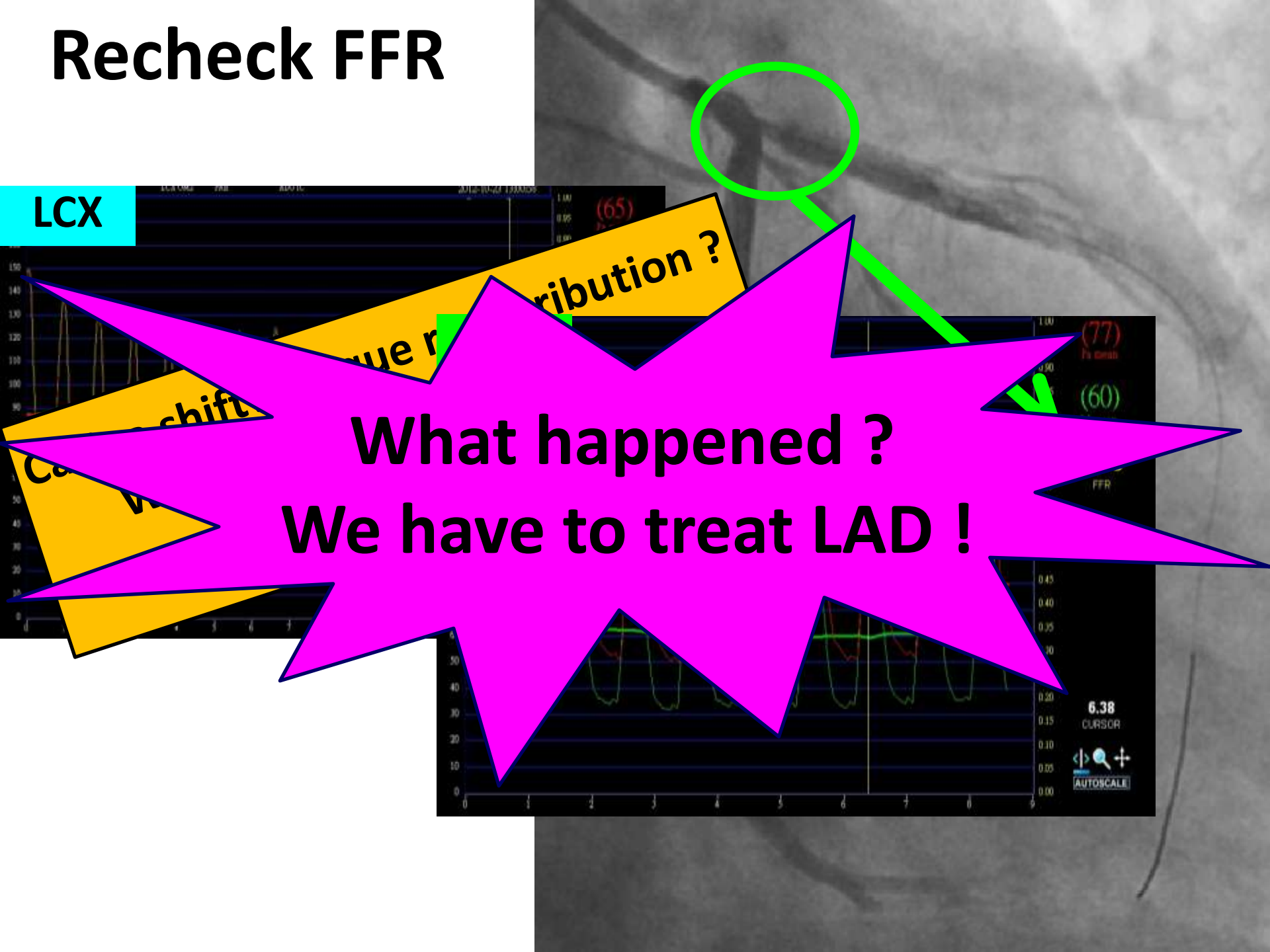
  LAD FFR > 0.8➔ Observation first

  LCX FFR < 0.8 ➔ LCX might be the Bad apple !

DES: LM - LCX 3.0*34mm

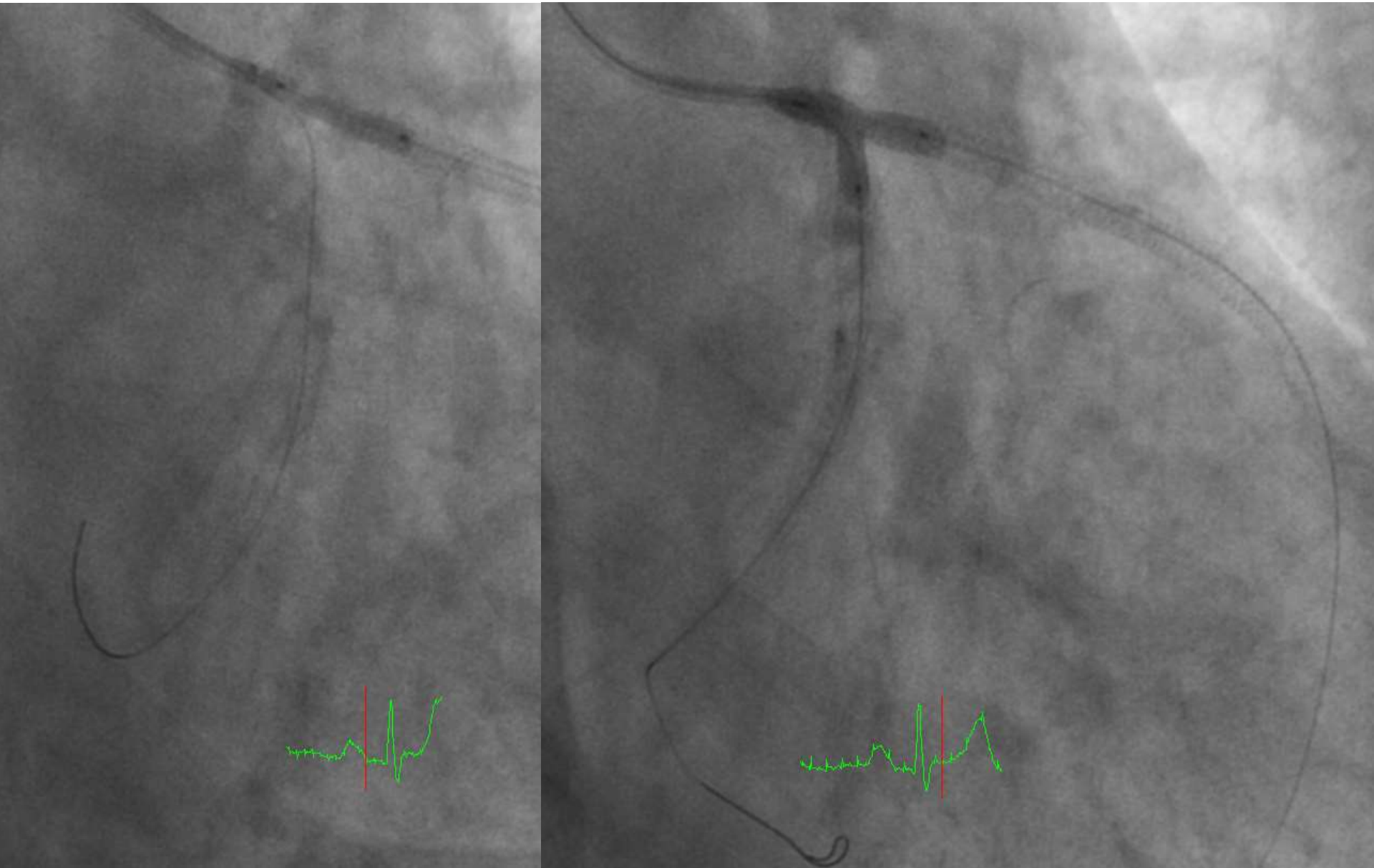


Recheck FFR

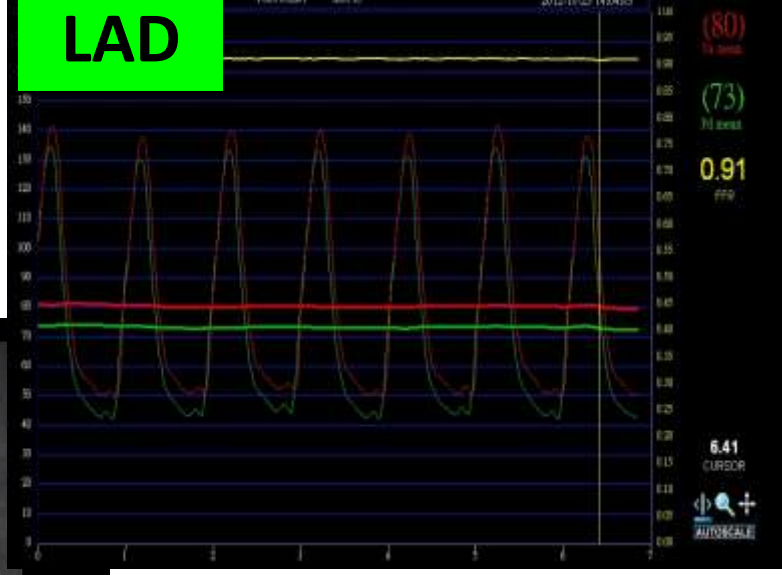

LCX
ribution ?
What happened ?
We have to treat LAD !
(65)
(77)
(60)
FFR
6.38
CURSOR
AUTOSCALE

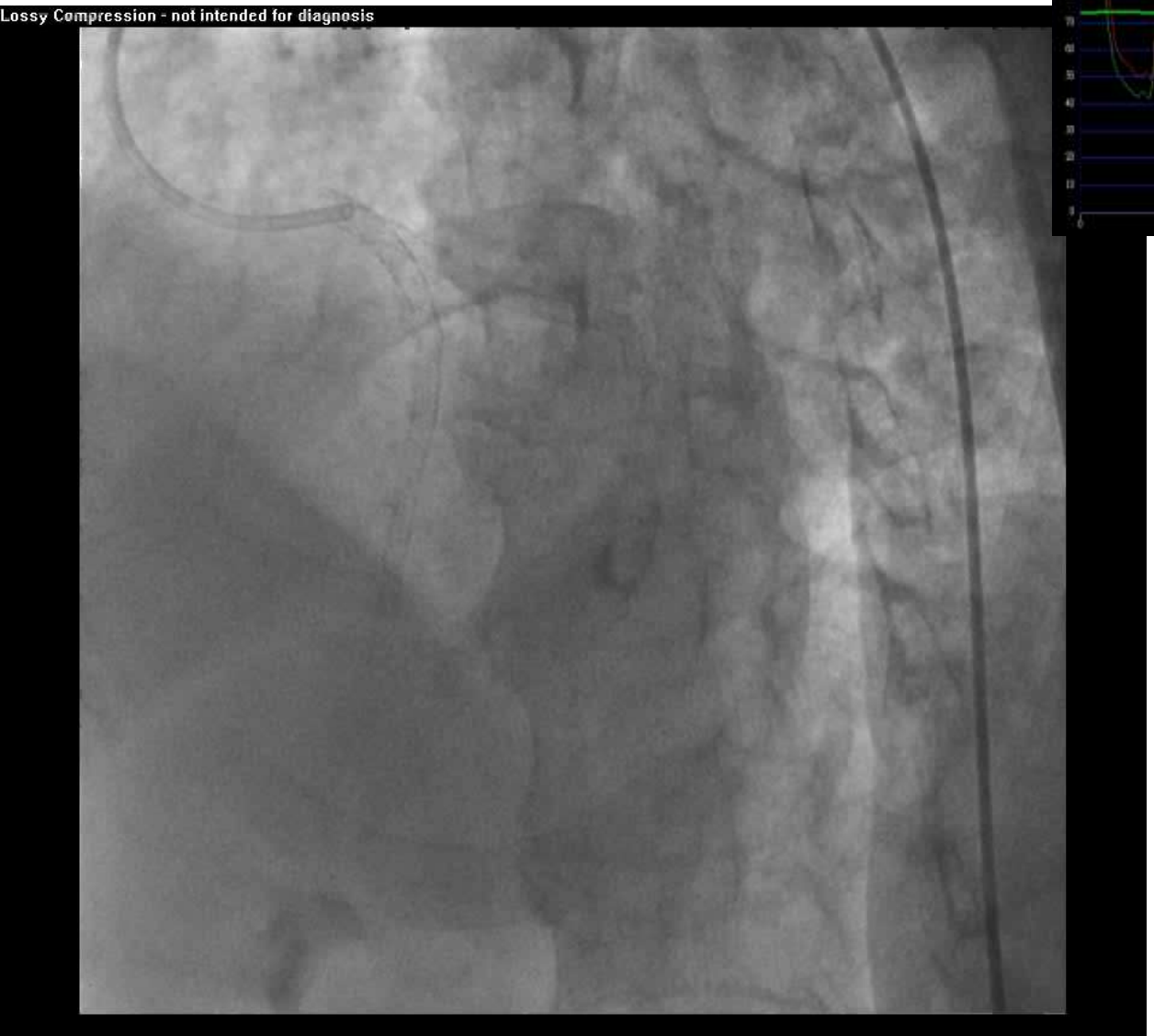
Culotte stenting + POT

LCX 3.0*34mm & LAD 3.5*18mm



Final

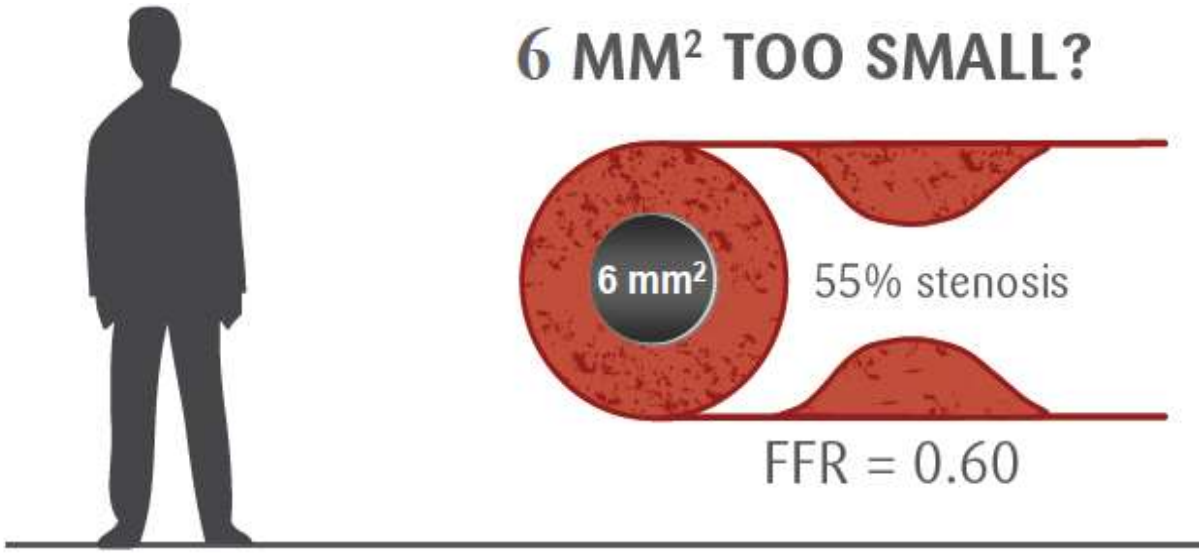

LAD
(80)
(73)
0.91
FFR
6.41
CURSOR
AUTOSCALE


Lossy Compression - not intended for diagnosis

Final

Lessons from this case

- **1. It's hard to precise evaluate physical severity just by MLA; FFR is still the GOLD STANDARD !**



- **2.** Downstream cc
  FFR measurement

- **3.** IVUS is still esse
  evaluation.

Lessons from this case

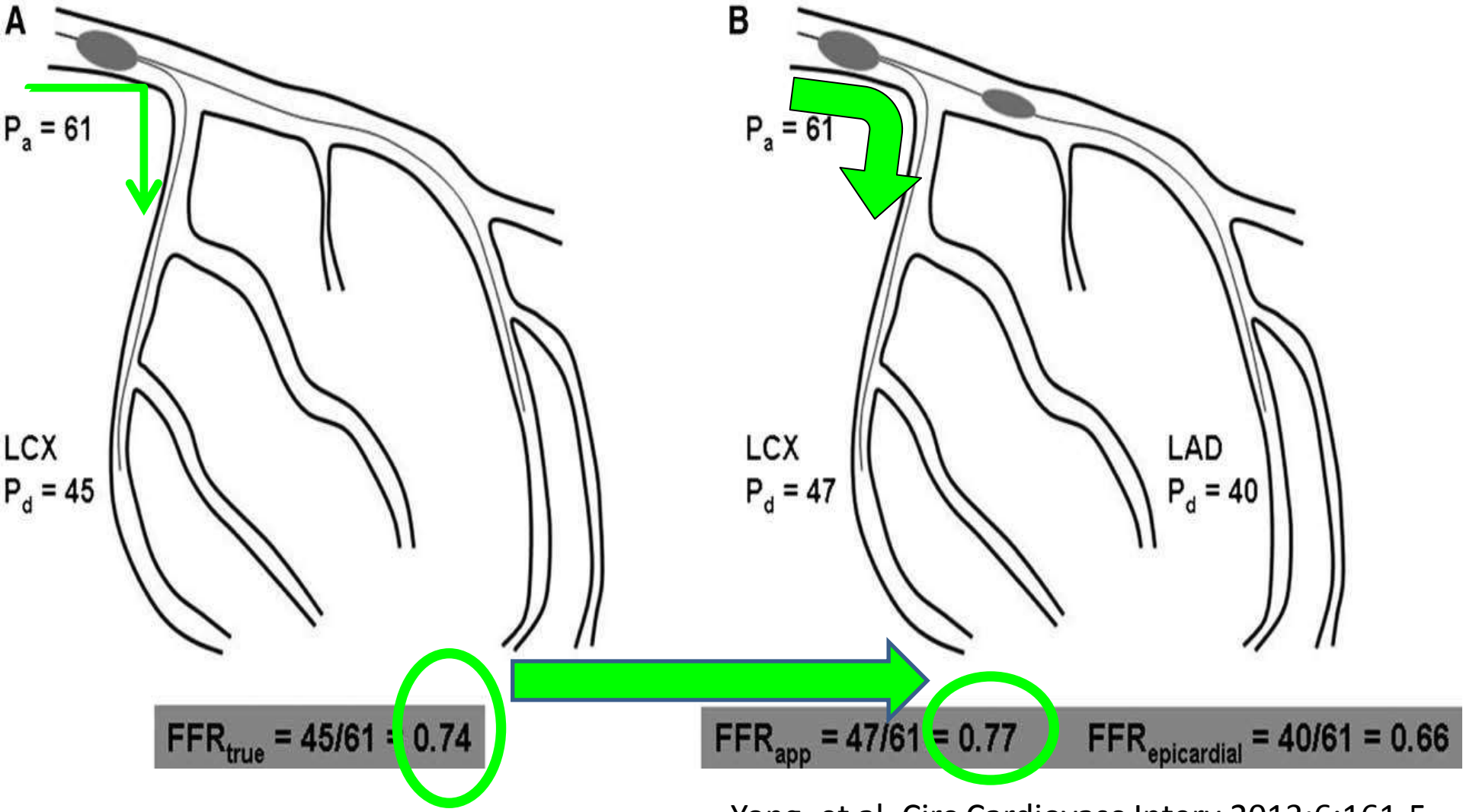
- 1. It's hard to precise evaluate physical severity just MLA; FFR is still the GOLD STANDARD !

- **2. Downstream coronary disease does affect the FFR measurement in LM lesion.**

- 3. IVUS is still essential for LM pre- & post- PCI evaluation.

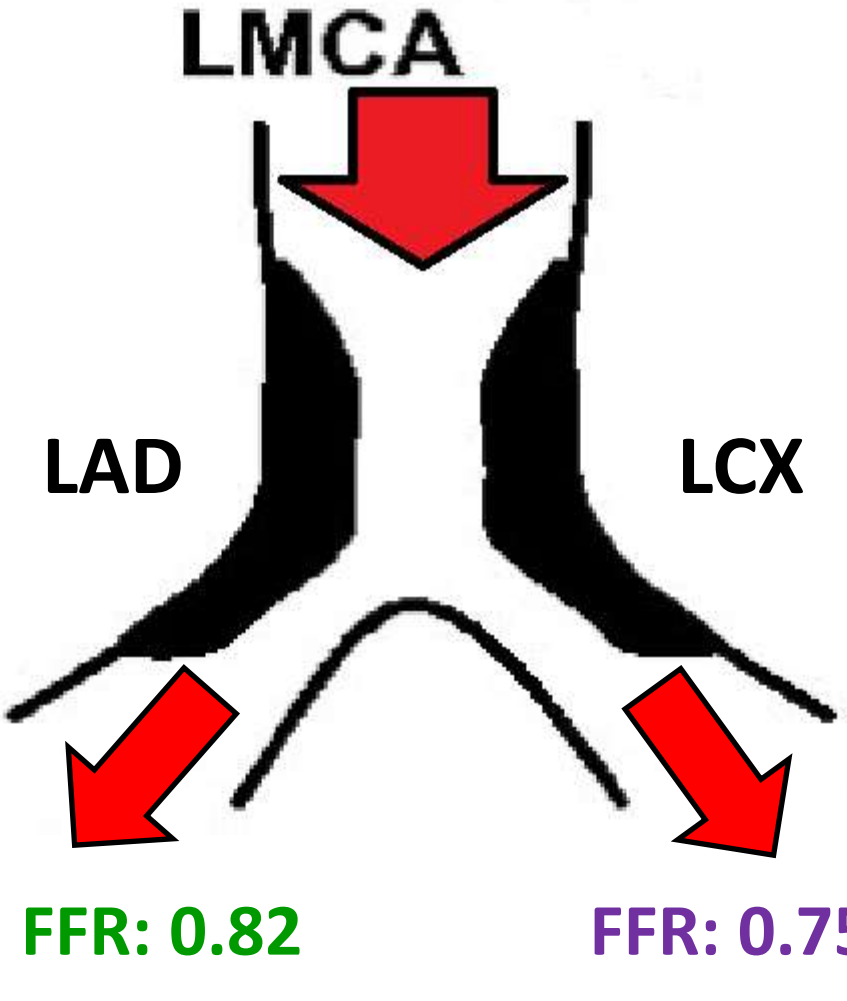
Effect of Downstream Lesions on FFR Assessment

Animal Model

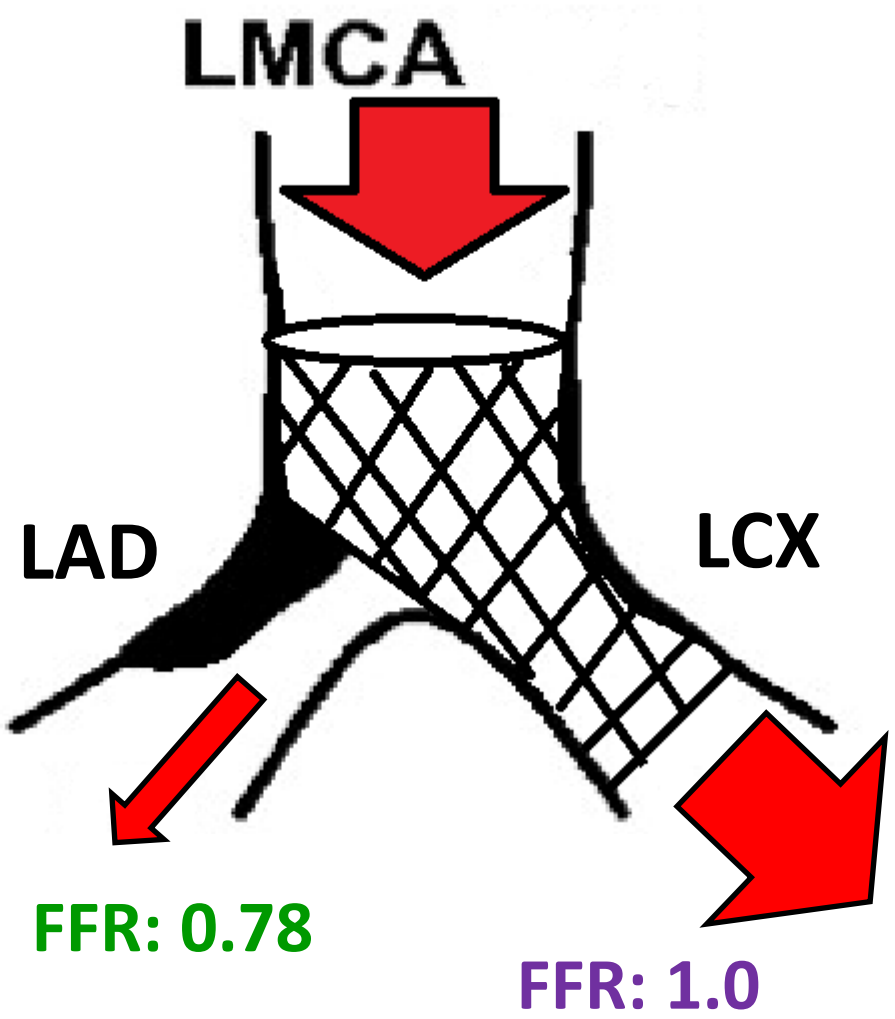


Yong, et al. Circ Cardiovasc Interv 2013;6:161-5..

Before LCX stent



After LCX stent



Lessons from this case

- 1. It's hard to precise evaluate physical severity just MLA; FFR is still the GOLD STANDARD !

- 2. Downstream coronary disease does affect the FFR measurement in LM lesion.

- **3. IVUS is still essential for LM pre- & post- PCI evaluation.**

Who is the bad apple?

That is always a big problem !