

Breakfast Meeting – TCT Asia Pacific 2007

Vascular Functional Imaging of Coronary Artery

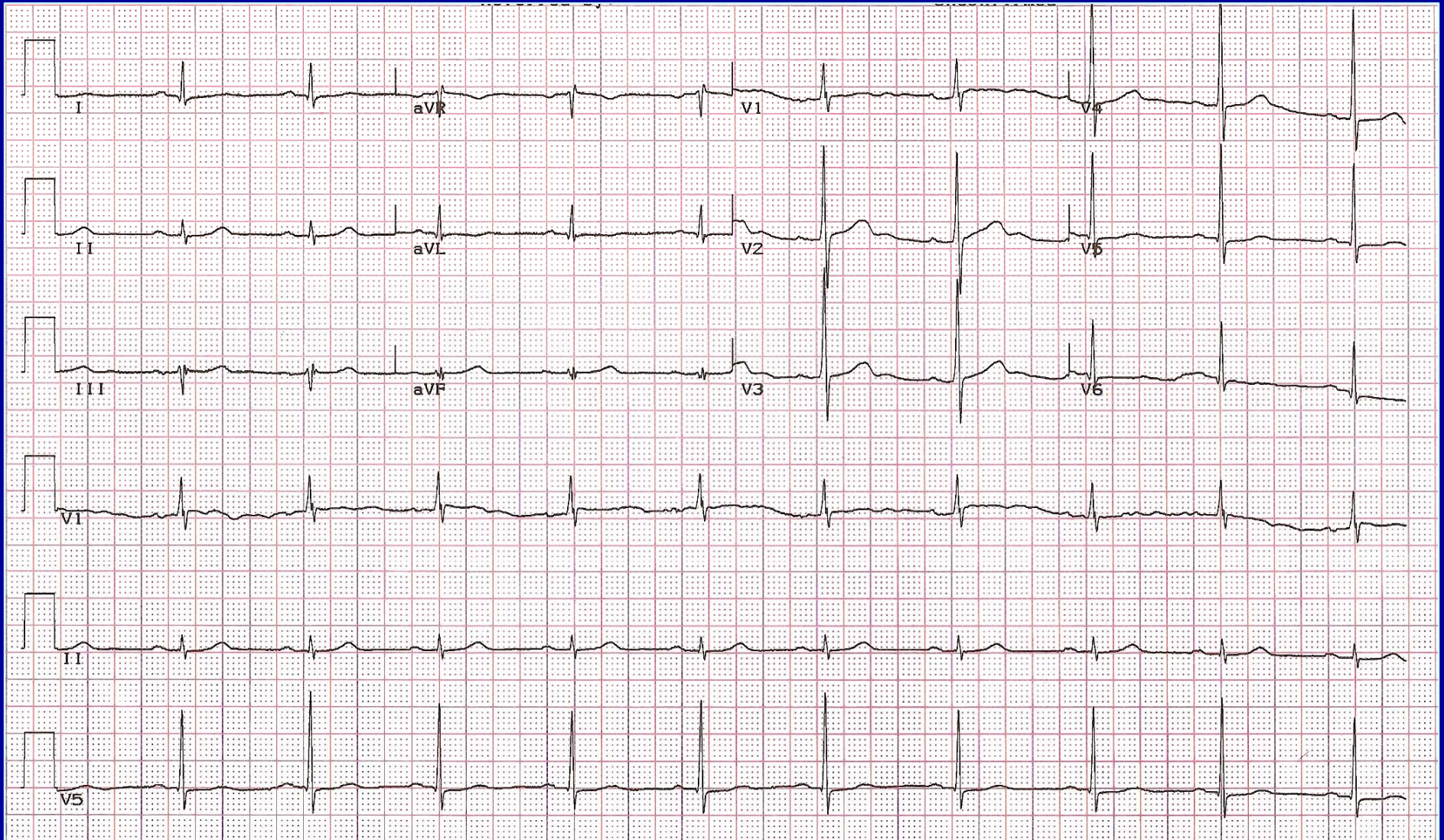
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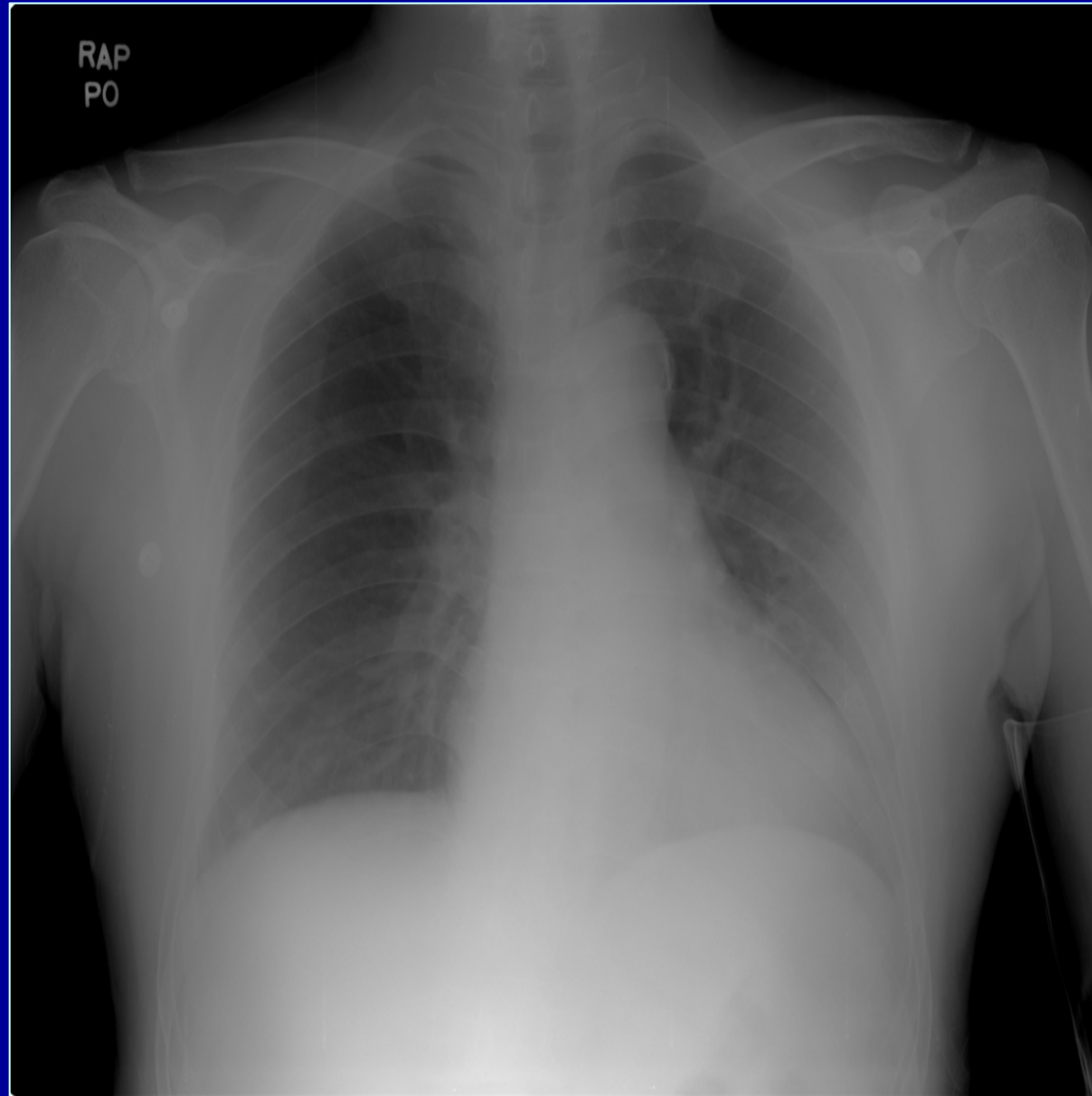
CASE I

- M/61
- C/C: Crescendo chest pain for 3 days
- Risk factor: Smoking(+): 30 pack-year
DM(-)/HTN(-)
- Lab finding
 - Lipid profile: 127/73/51/59 mg/dL
 - CK-MB: 10.57 ng/mL
 - Troponin-I: positive
- 2D-Echo: No RWMA, EF: 65%,

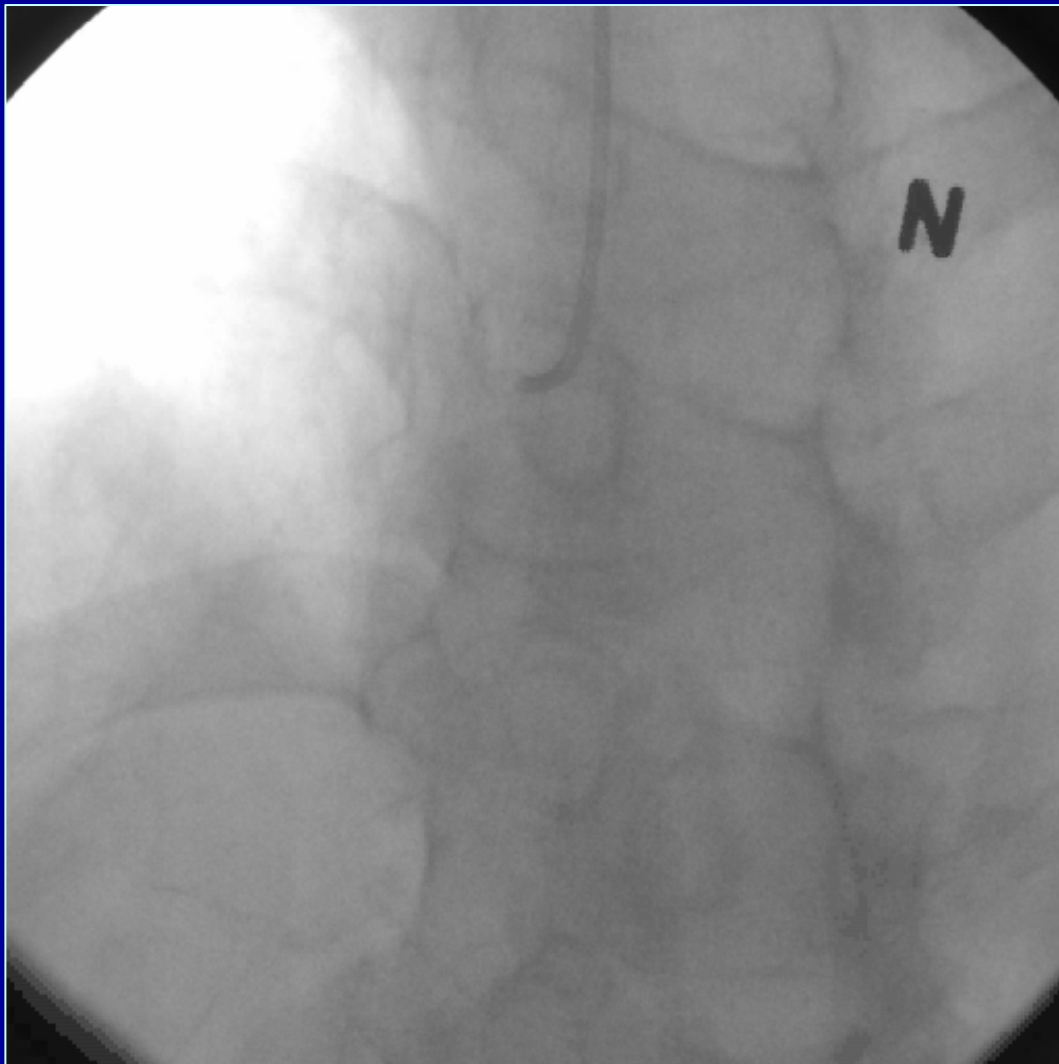
ECG



Chest PA



Right Coronary Angiography



Which is the culprit artery anatomically and functionally?

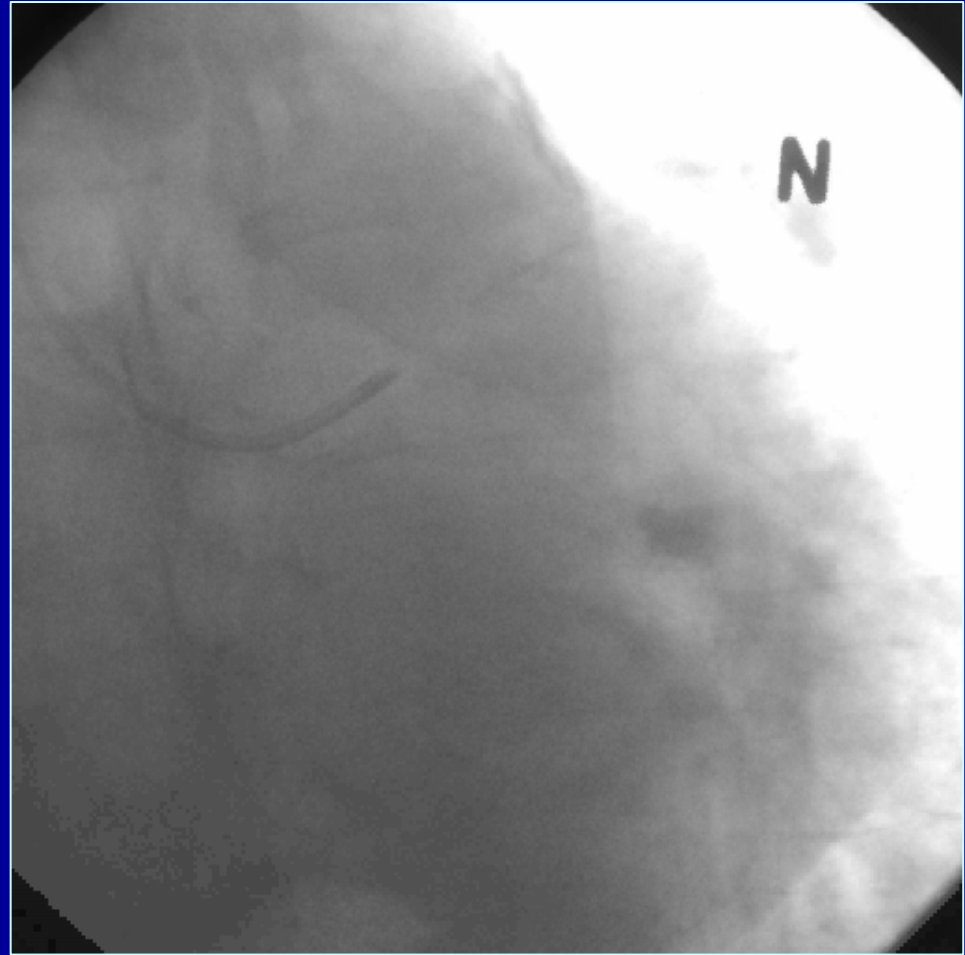
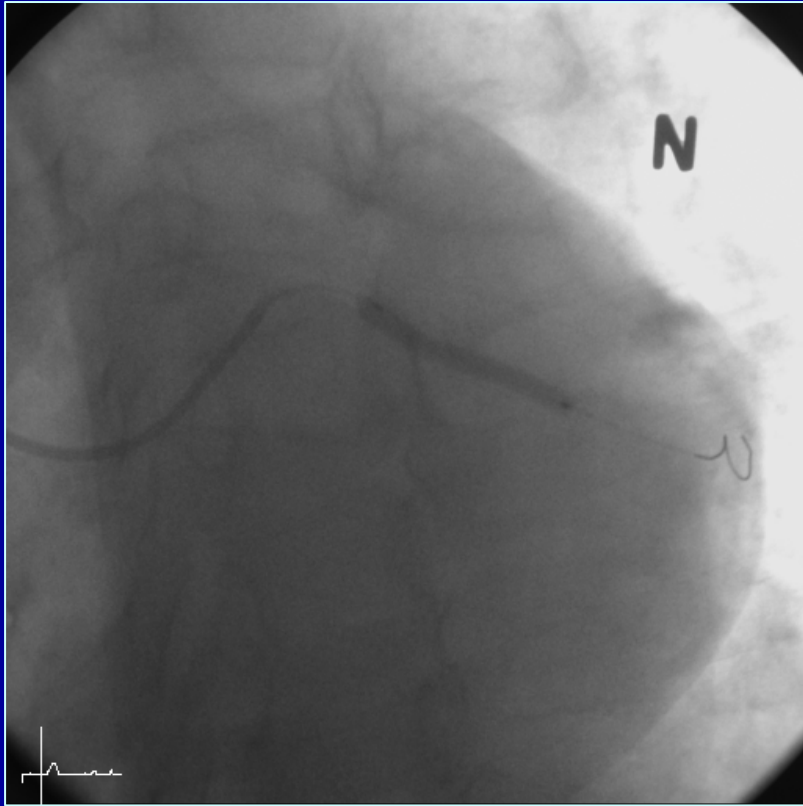
Proximal RCA-thrombus or not?

Critical stenosis (over 90%) of distal LCX

What should we do for an optimal management of CAD?

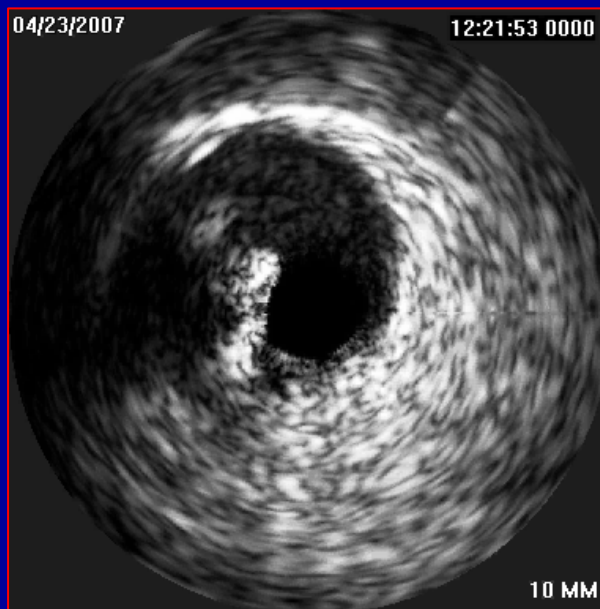
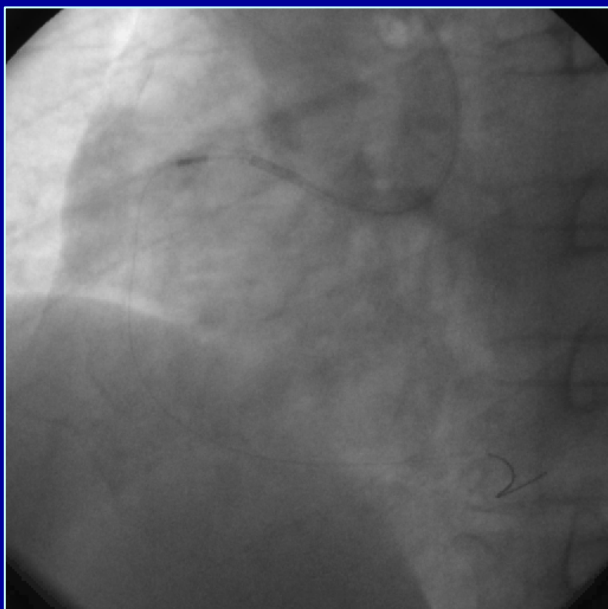
- Perform PCI or not?
- Morphological evaluation : IVUS
- Functional study: FFR or CFR

PCI for distal-LCX

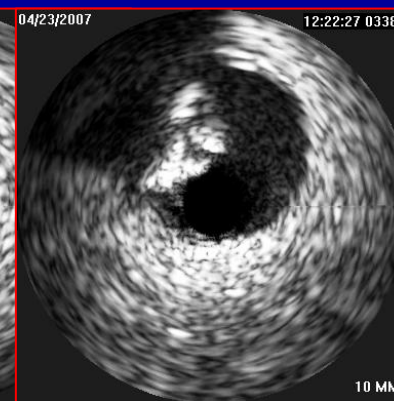
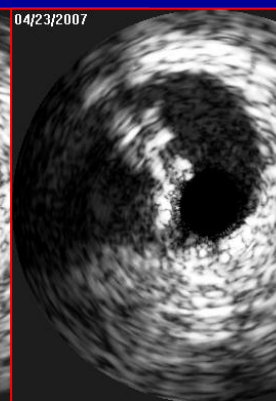
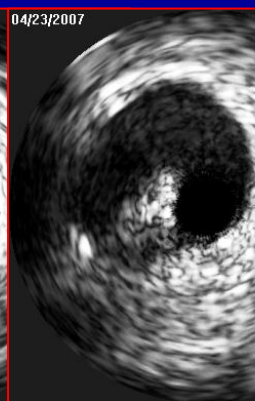
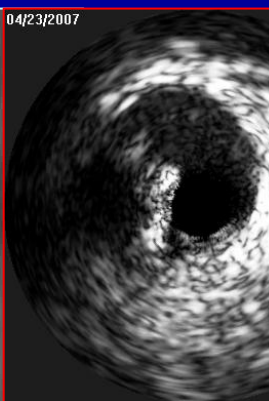


Stent (Core
2.75*23mm)

CAG- IVUS (p-RCA)

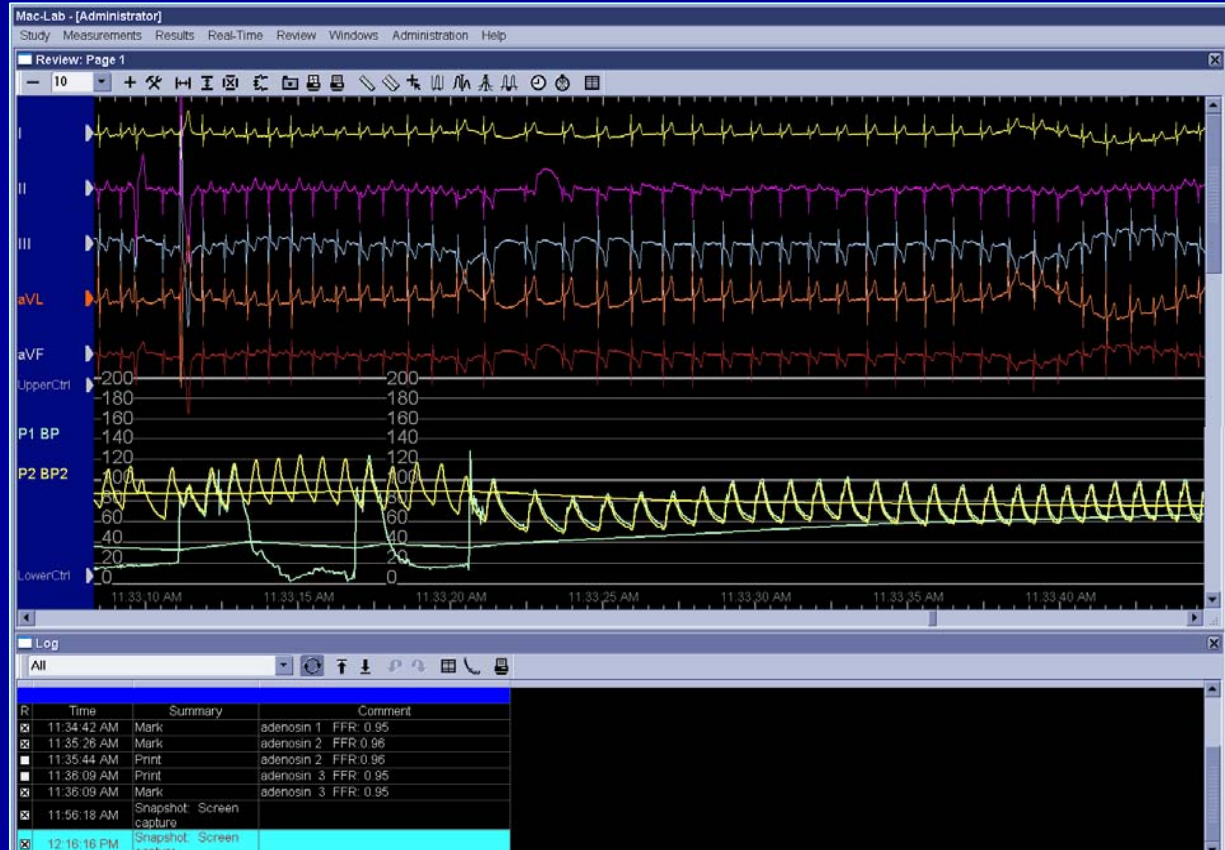
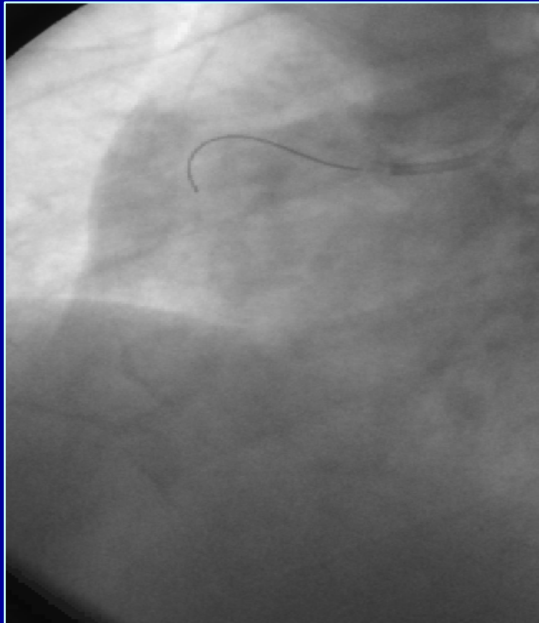


IVUS of p-RCA:
%AS: 40%



Comparison of CAG with fractional flow reserve (FFR)

RCA: To do PCI, not to do PCI ?

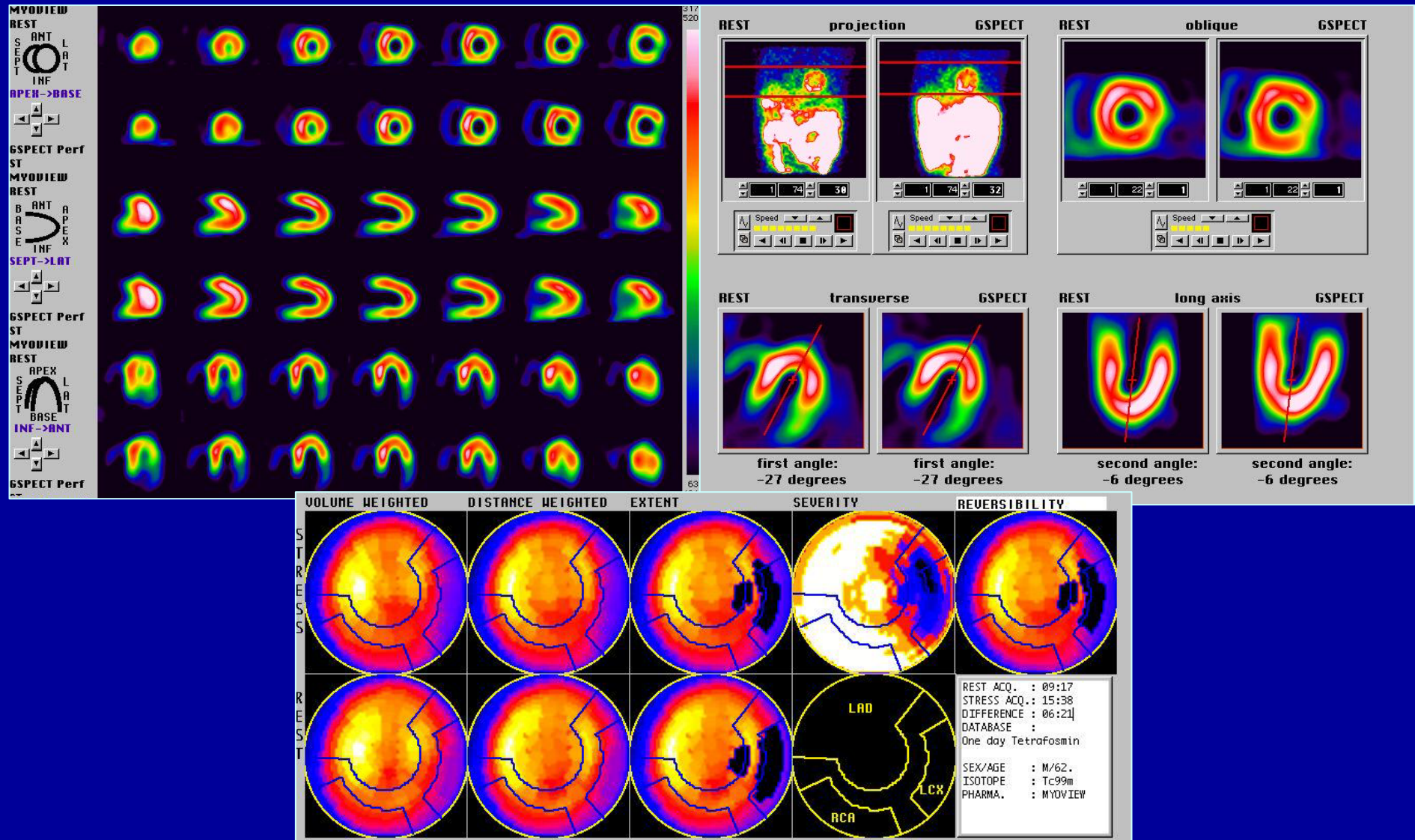


FFR of p-RCA : 0.95

Finish the procedure!

- It is not necessary for further intervention because the FFR was greater than the cutoff value of 0.75.
- It does not mean significant stenosis of coronary artery.

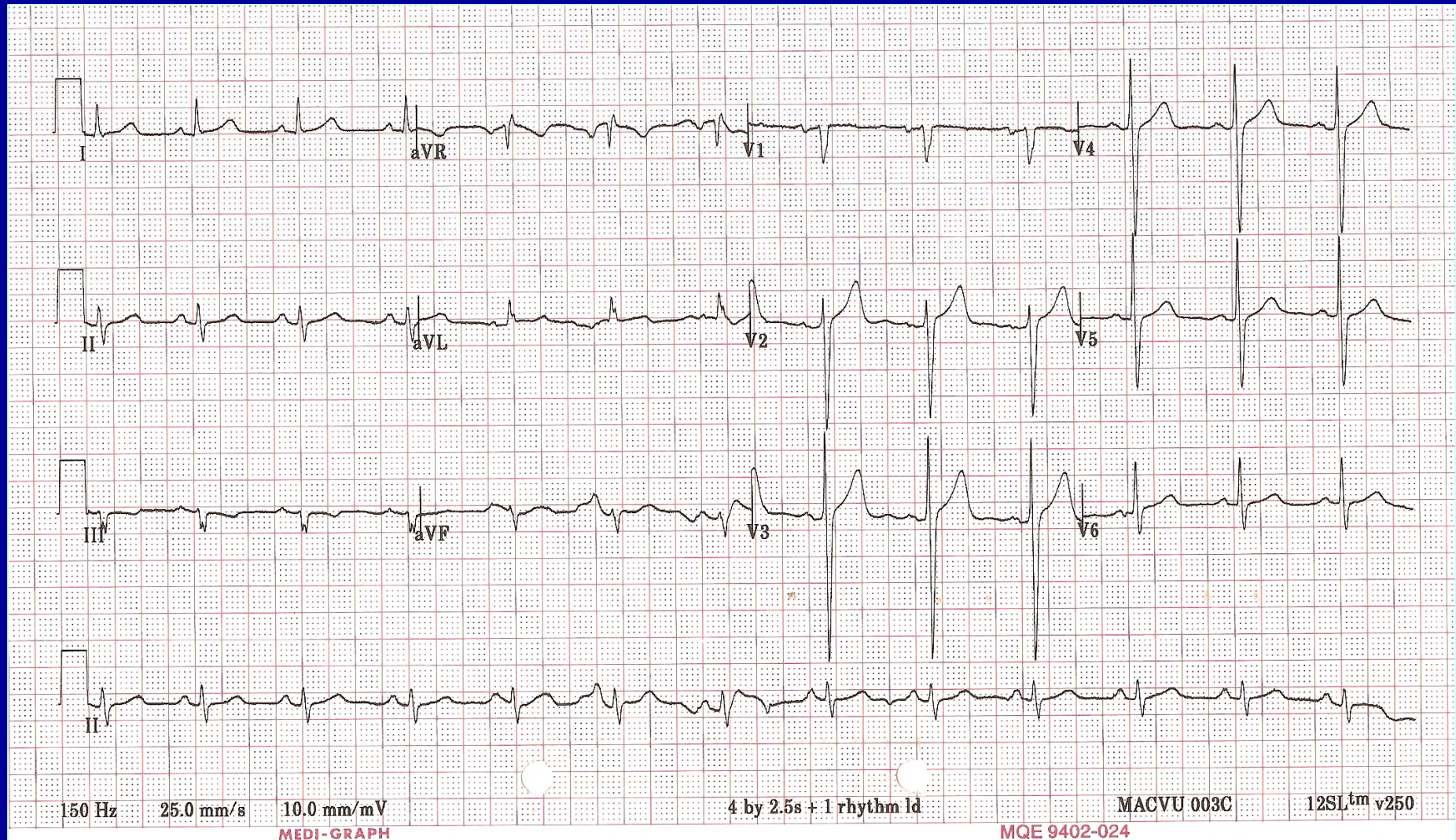
Comparison of MIBI SPECT



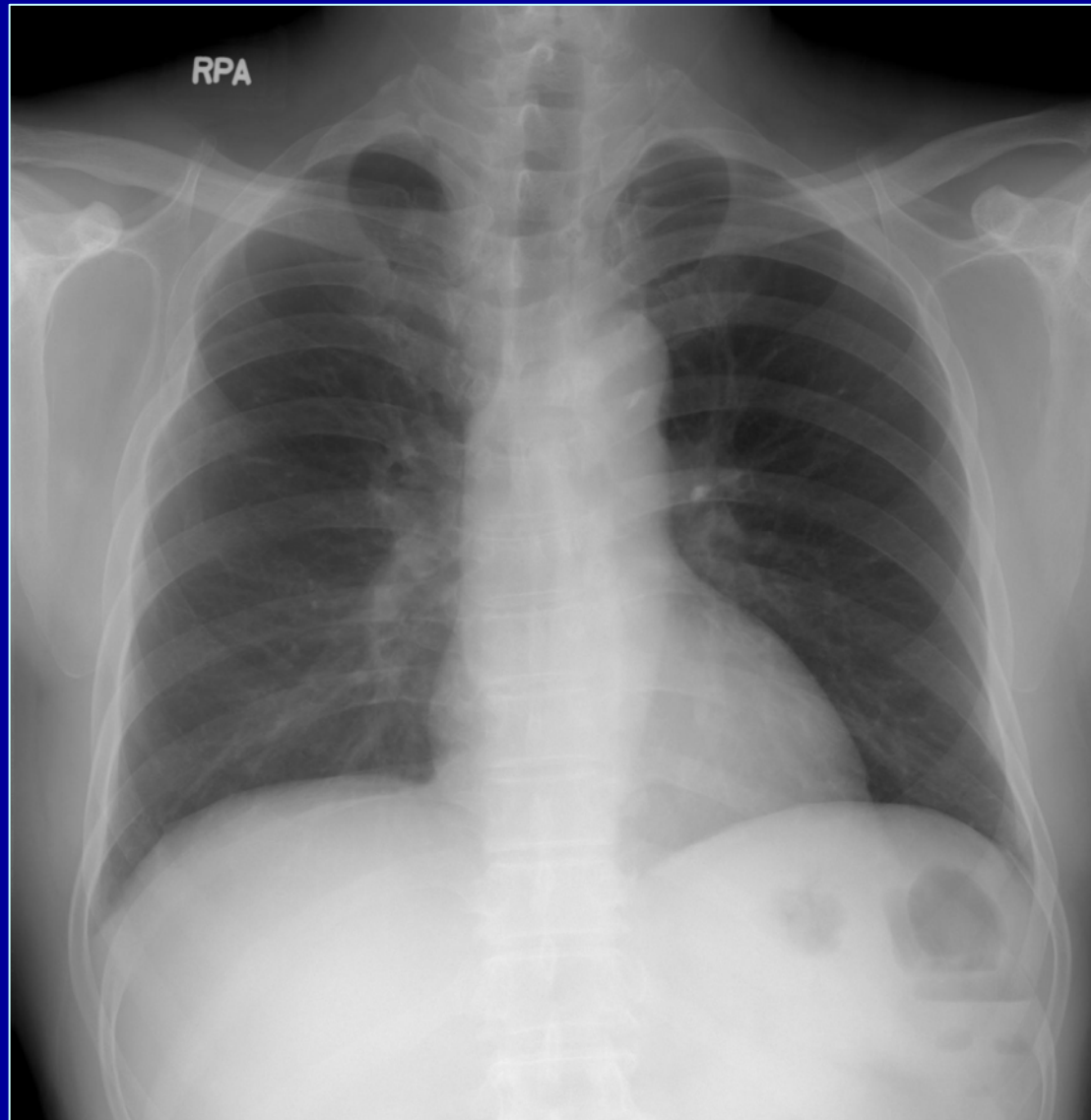
CASE II

- M/63
- C/C: Resting chest discomfort for 2 weeks
- Risk factor: Smoking : 30 pack-year,
DM/HTN (+/+)
- Lab finding
 - Lipid profile: 179/162/41/122 mg/dL
 - HbA1C: 8.1%
 - CK-MB & Troponin I: negative
 - NT-pro BNP: 44.8 (WNL)

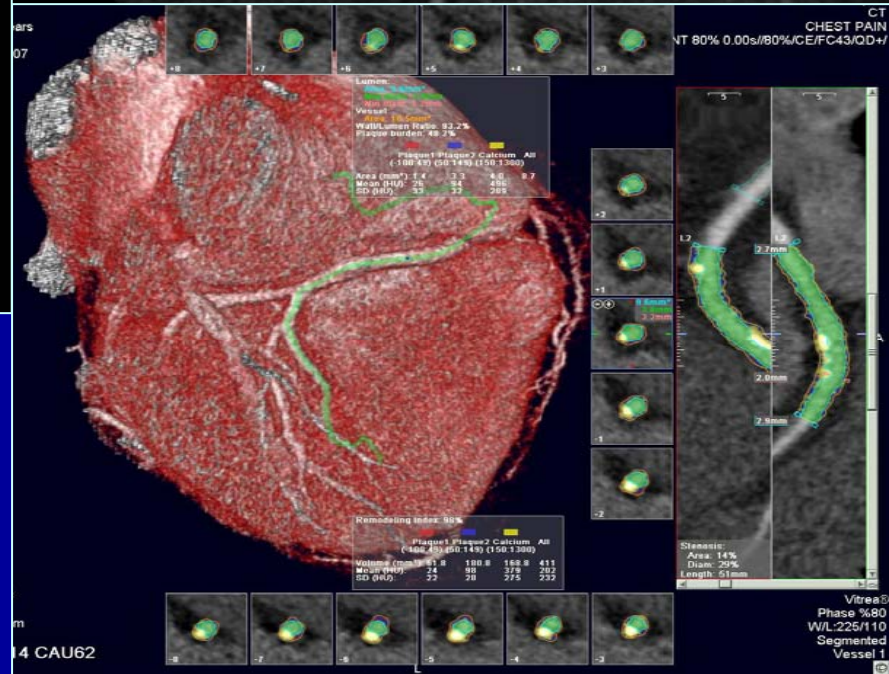
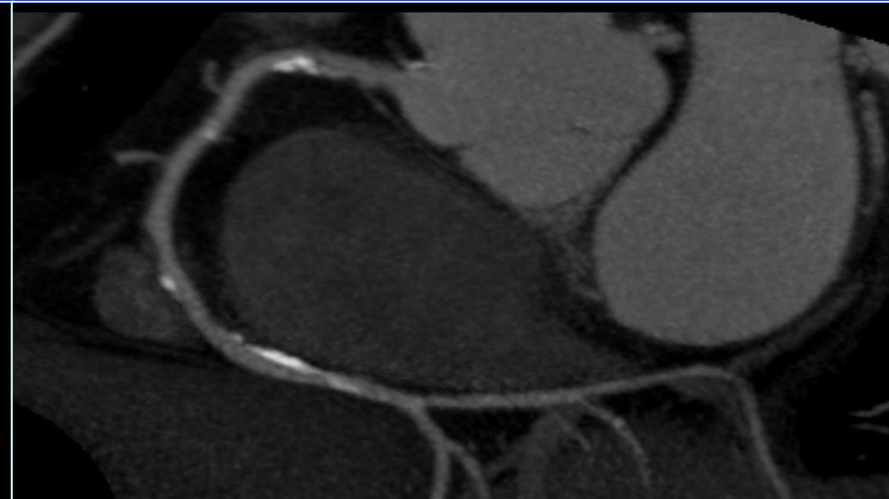
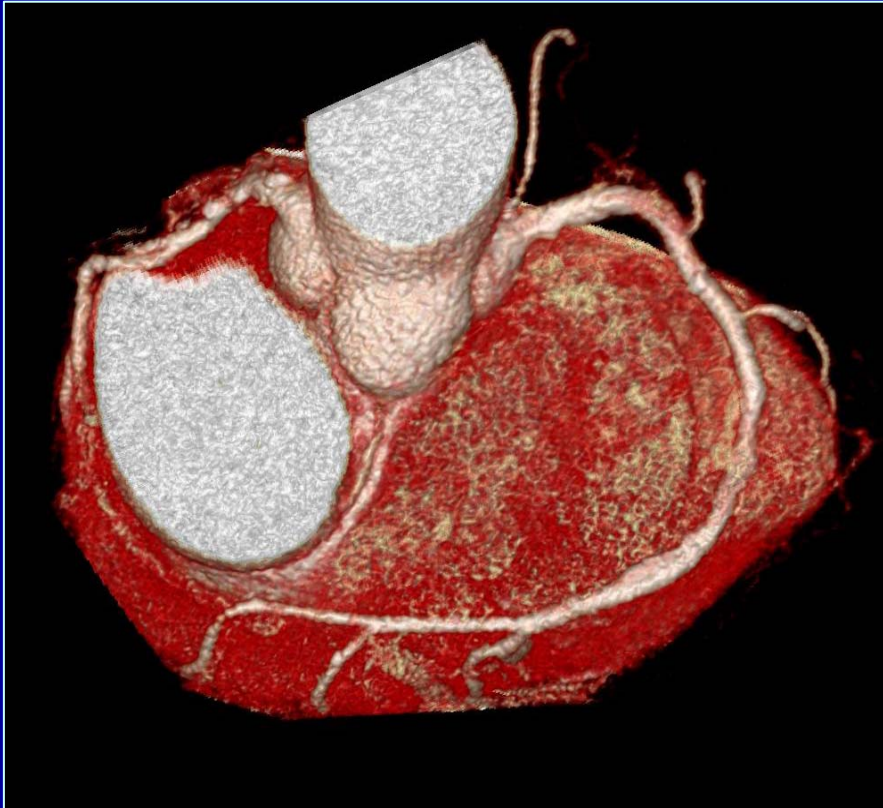
ECG



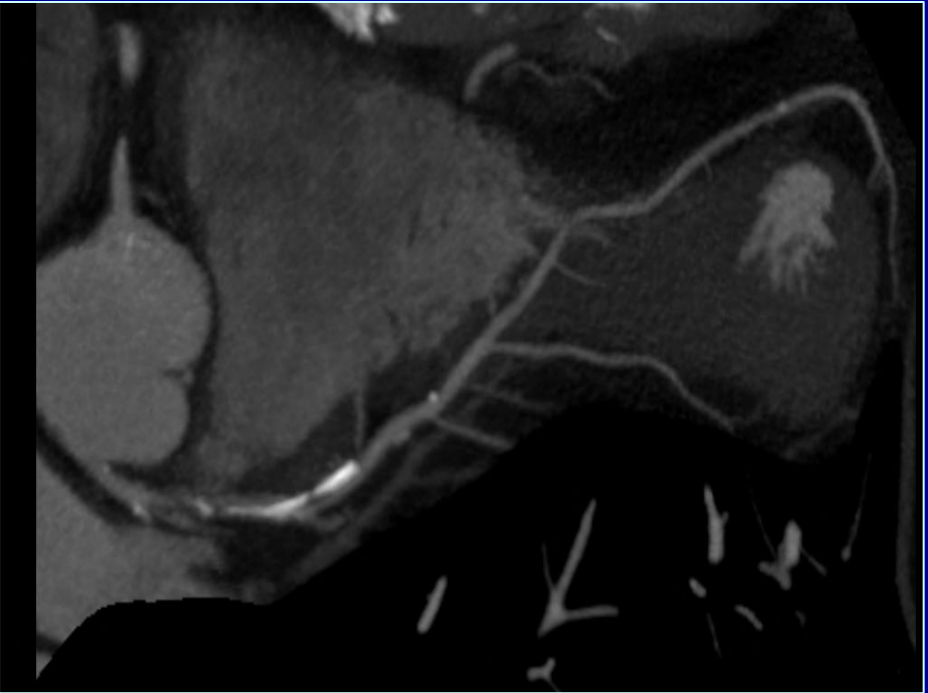
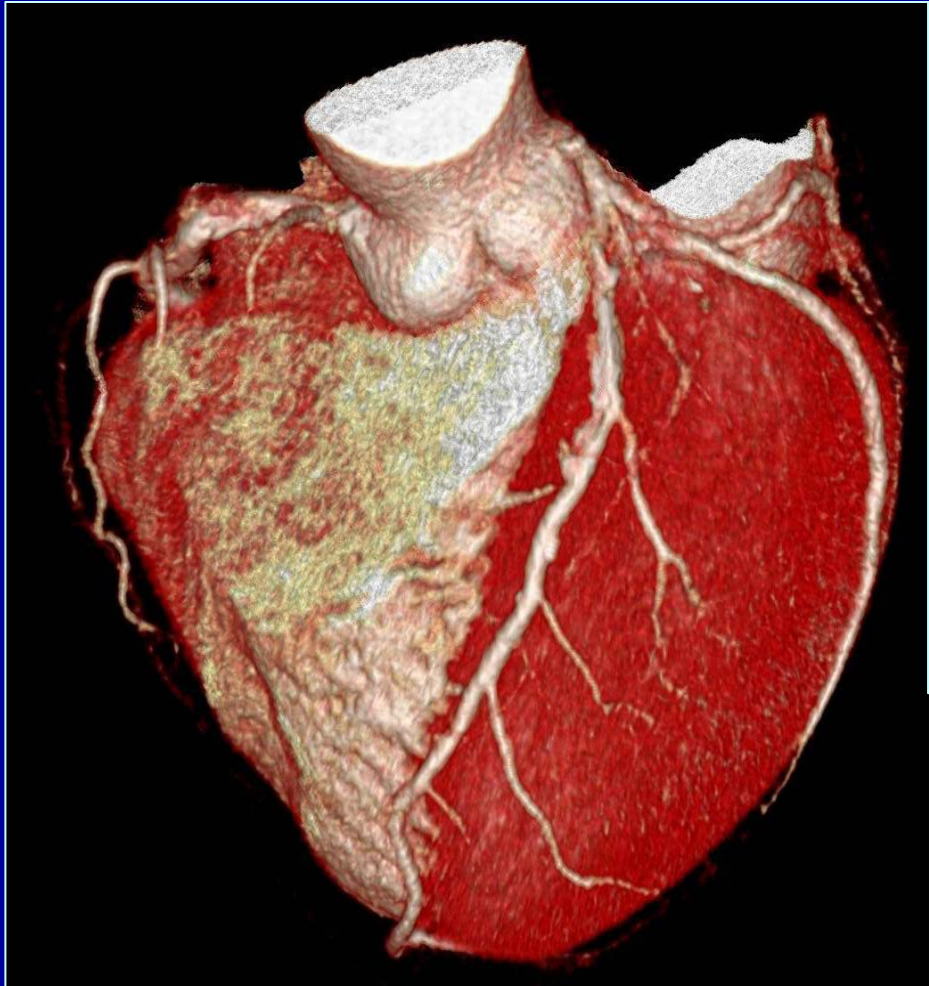
Chest PA



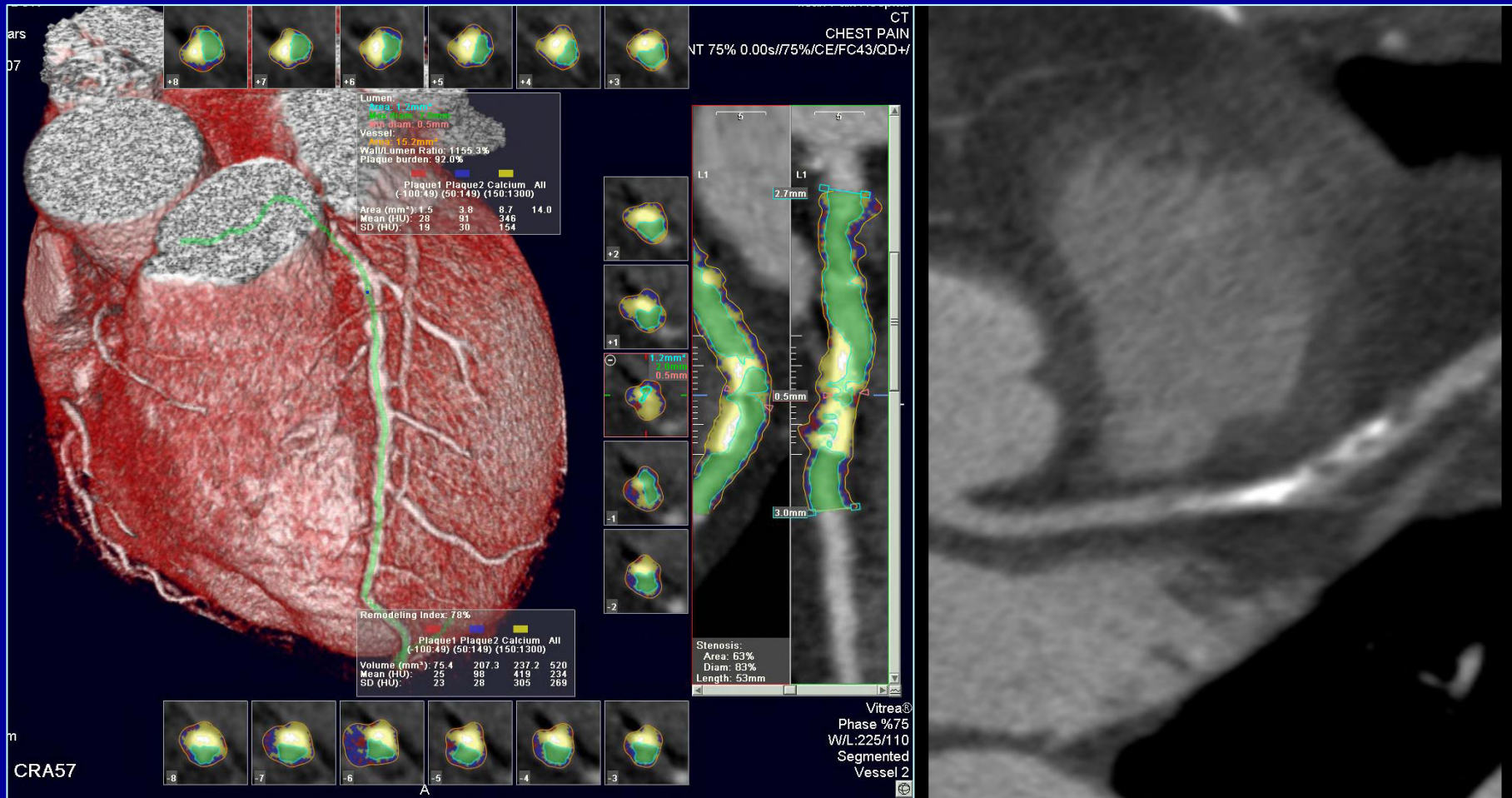
64 channel CT-CAG: RCA



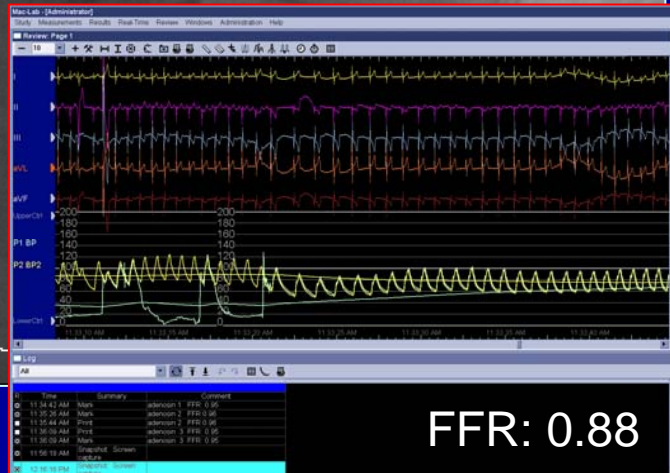
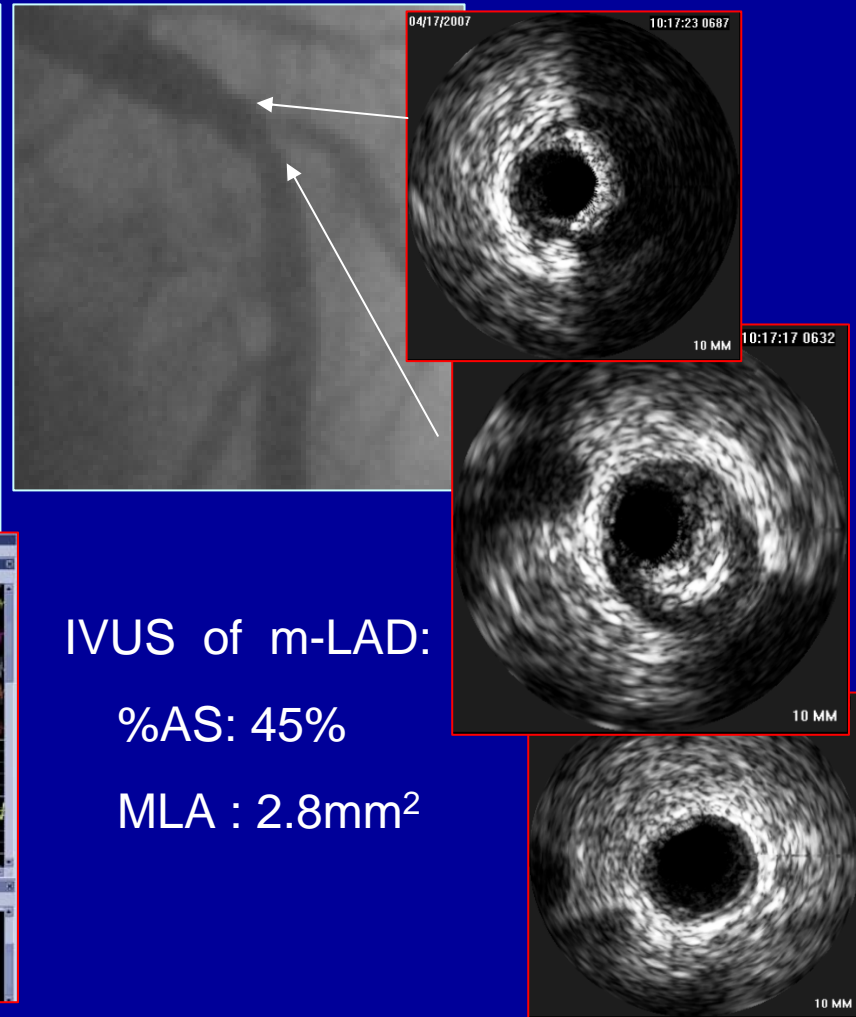
64 channel CT-CAG: LAD



64channel CT-CAG: LAD



Comparison of IVUS with fractional flow reserve (FFR)



IVUS of m-LAD:

%AS: 45%

MLA : 2.8mm²

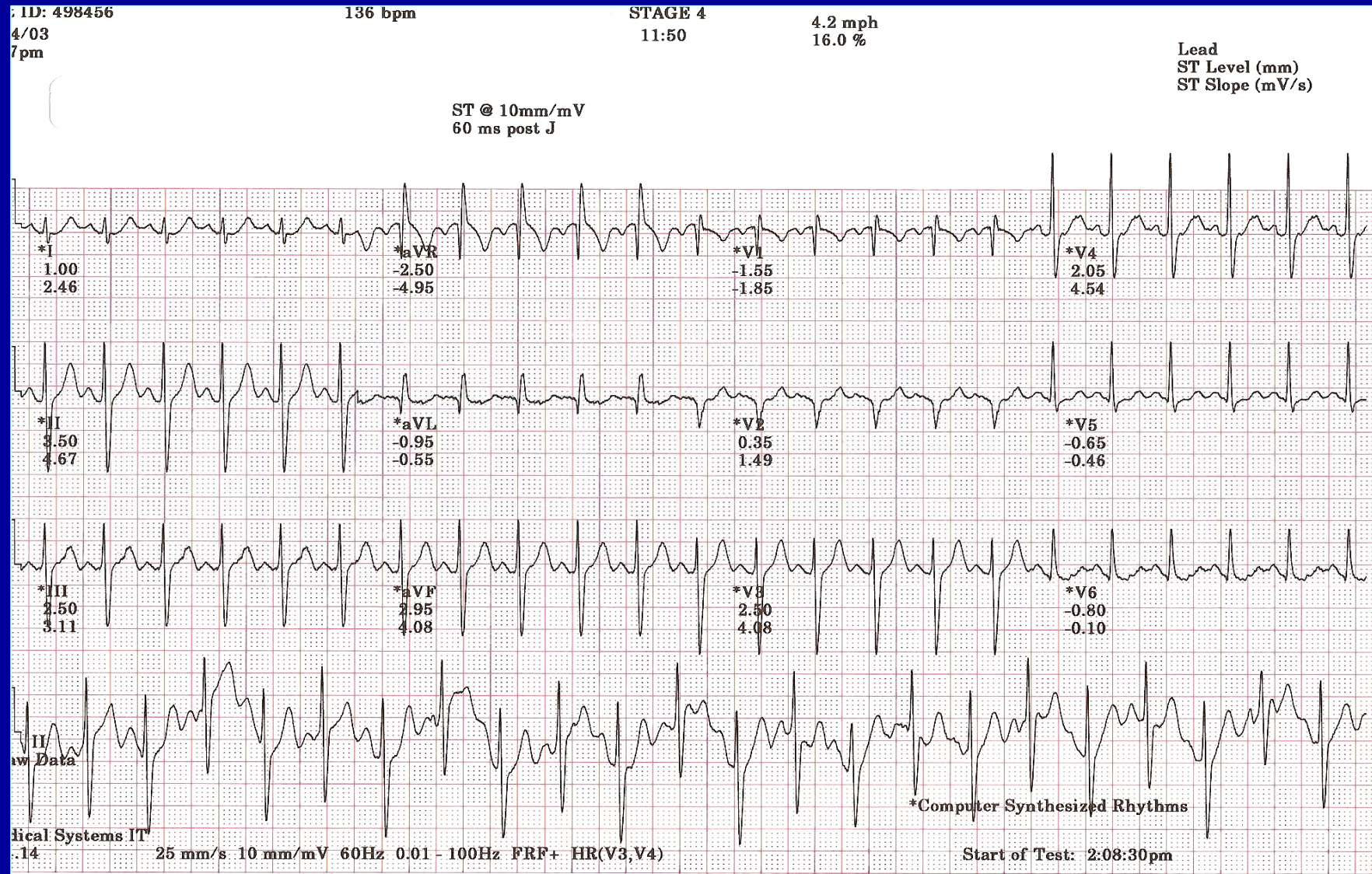
FFR: 0.88

Coronary pressure tracing showing FFR of 0.88 compatible with %AS of 45%

Finish the procedure!

- It is not necessary for further intervention because the FFR was greater than cutoff value of 0.75.
- It does not mean significant stenosis of coronary artery.

Comparison of Exercise Stress Test



Conclusions

- A clinical decision making based on appropriately combined use of morphological (IVUS, MDCT- coronary artery angiography) and functional studies (MIBI-SPECT ,FFR, CFR or Cardiac MR) seems to be necessary for optimal intervention of coronary artery disease.
- Especially to decide how to treat intermediate or questionable stenosis of coronary artery in conventional CAG or IVUS.