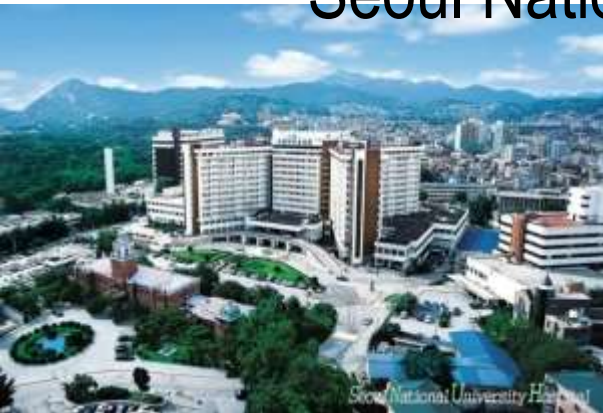


Make it Simple: Practice with Invasive Physiology in Complex PCI

Bon-Kwon Koo, MD, PhD

Seoul National University Hospital, Seoul, Korea



“Physiology” in “Complex PCI”?

Physiology itself is complex. Therefore, any physiology-guided PCI is “Complex PCI”.

Invasive physiologic study is only for intermediate or simple lesion. There is no role of physiology for complex PCI.

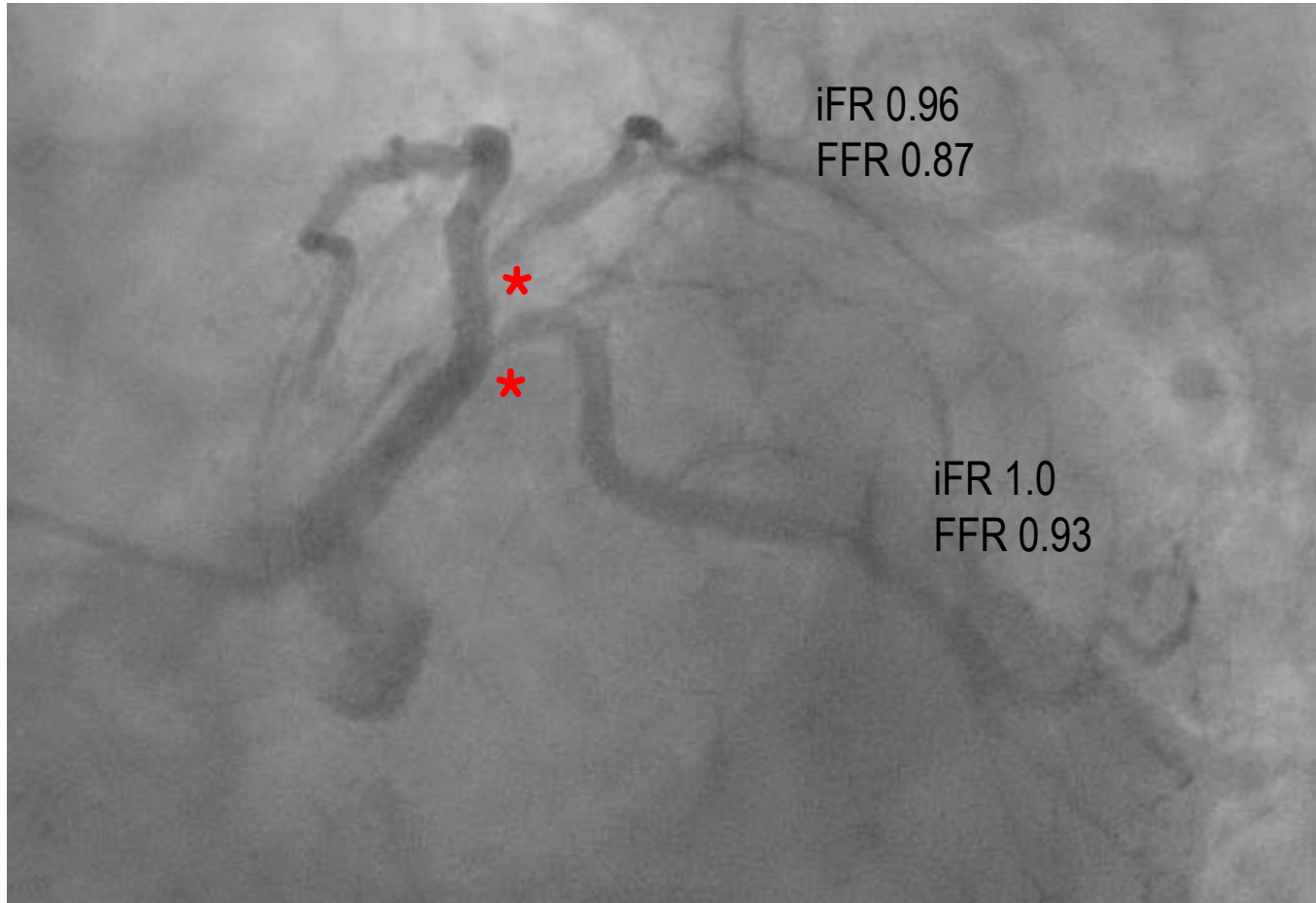


Physiology-guided complex lesion PCI

- Left main/Bifurcation lesions
- Multi-lesion/Diffuse lesion
- Acute coronary syndrome
- Post stent / Post-coronary bypass surgery
- Congenital anomaly

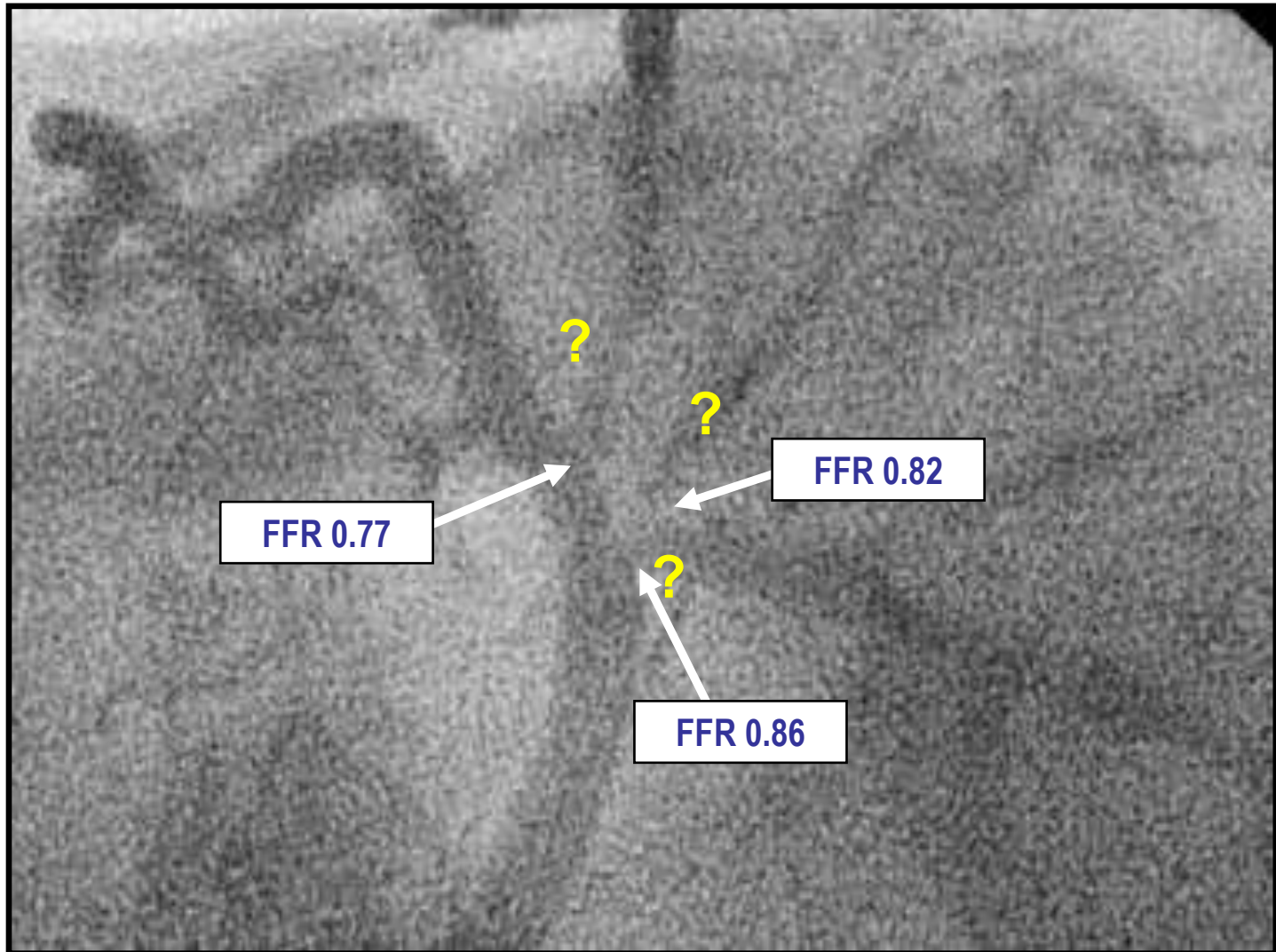
Are you ready for “Complex PCI”?

14-year old jailed LCX & diagonal branch



Left main to LAD Cypher 14 years ago

Which lesion needs additional PCI?



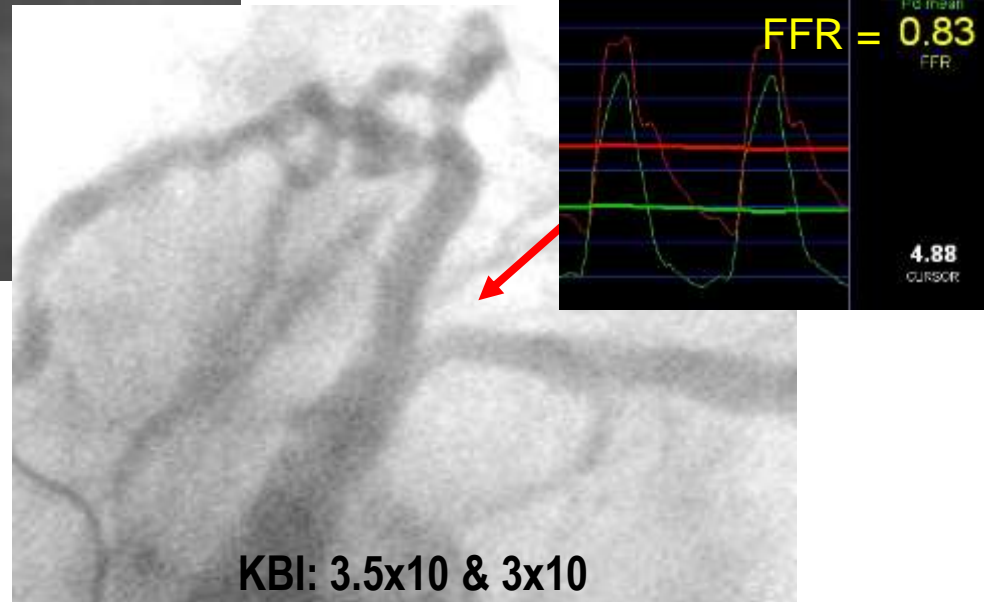
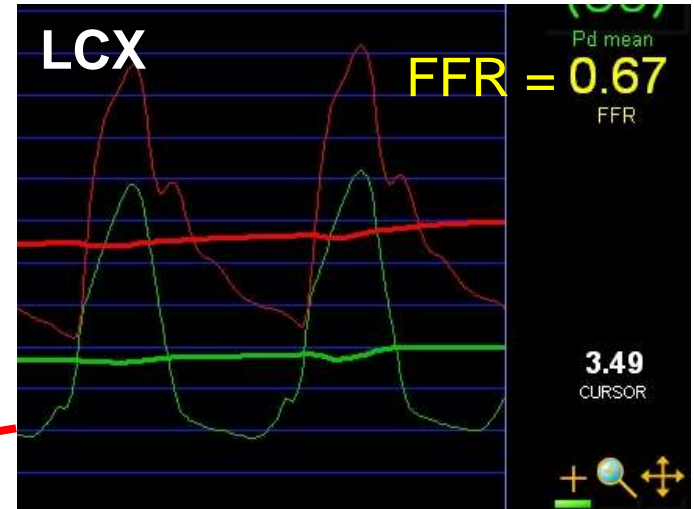
M/65 Stable angina



M/65 Stable angina

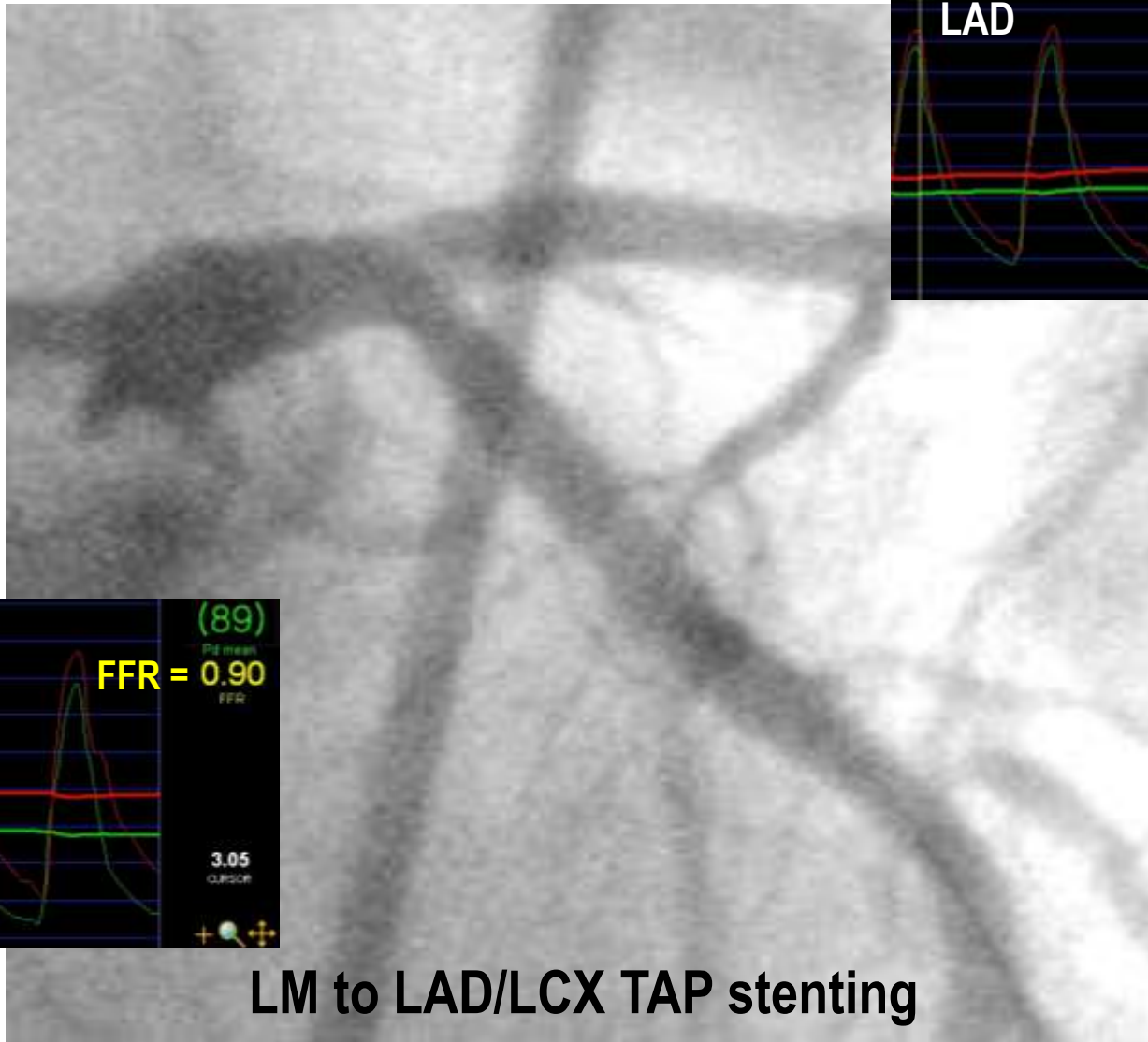


FFR-guided provisional strategy



LM to LAD stenting

FFR-guided provisional strategy



LM to LAD/LCX TAP stenting

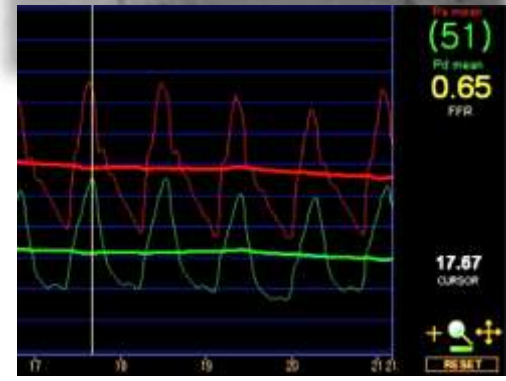
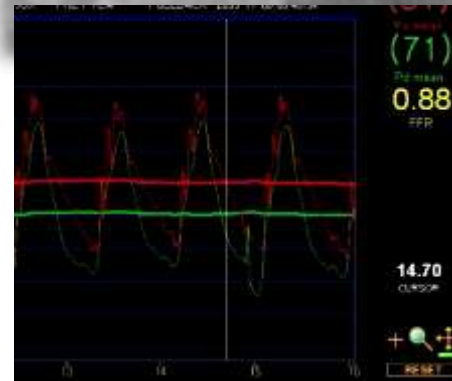
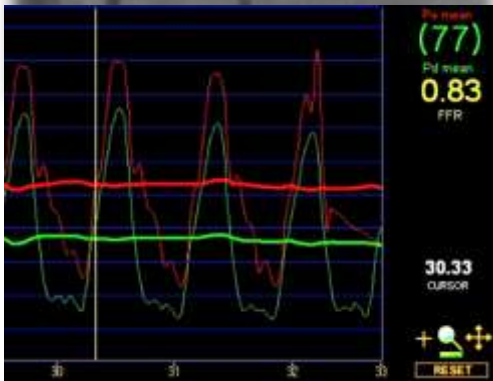
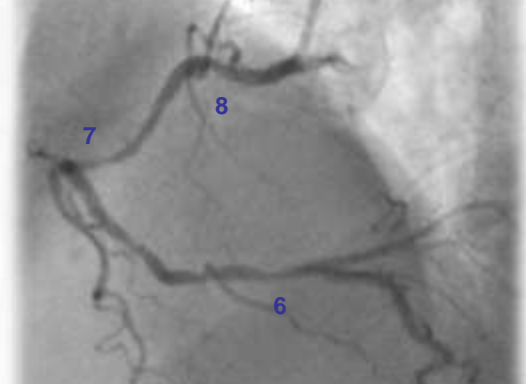
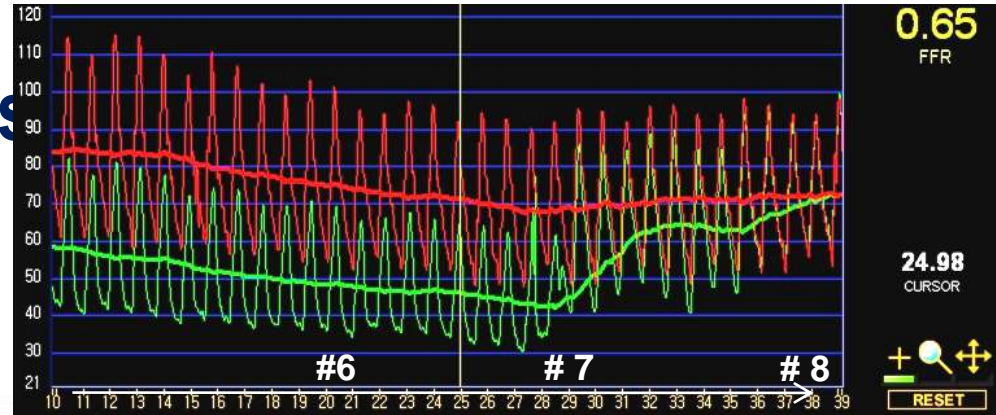
Physiology-guided complex lesion PCI

- Left main/Bifurcation lesions
- Multi-lesion/Diffuse lesion
- Acute coronary syndrome
- Post stent / Post-coronary bypass surgery
- Congenital anomaly

Patient with multi-ves

F/52

Stable angina

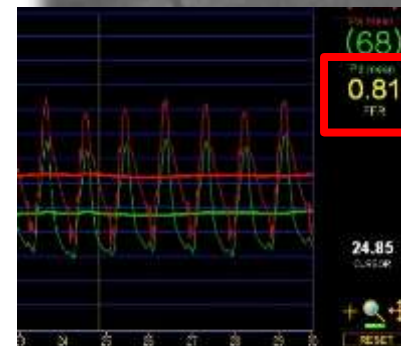
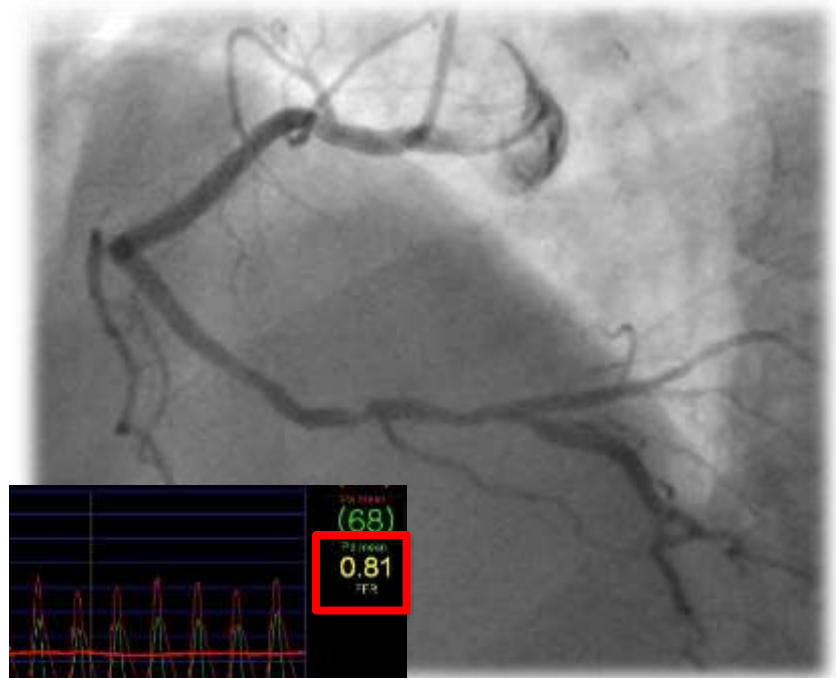
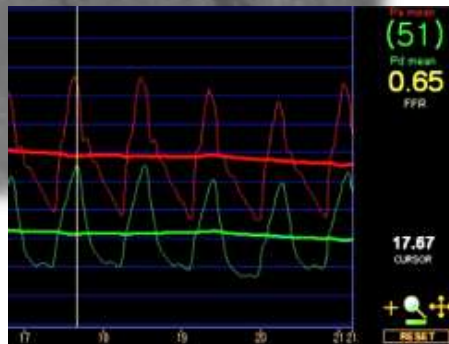
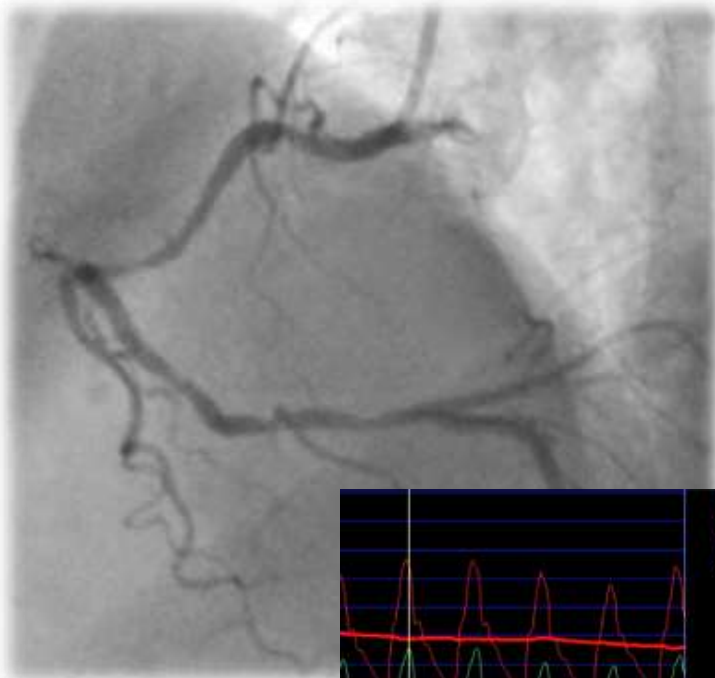


Distal left main disease + 3VD, 8 lesions

Patient with multi-vessel, multi-lesion disease???

F/52 Stable angina,

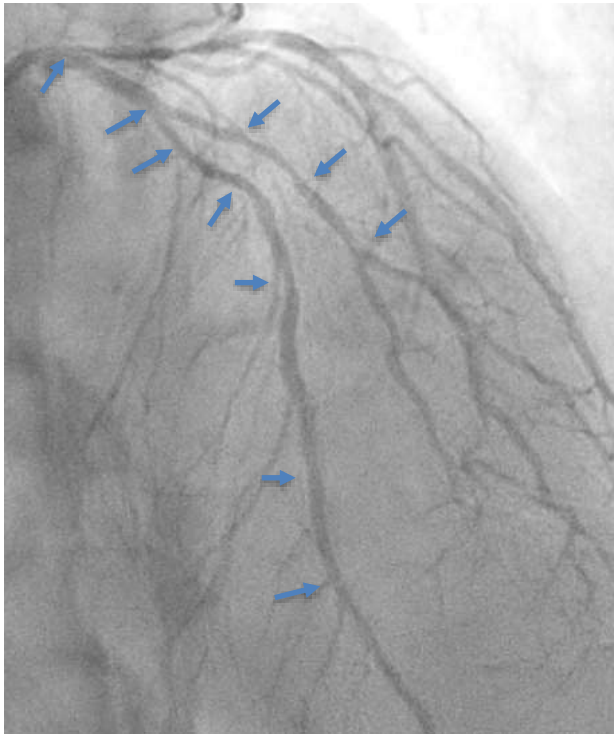
3VD, 8 lesions by coronary angiography → 1VD, treated with 1 DES by FFR-guidance



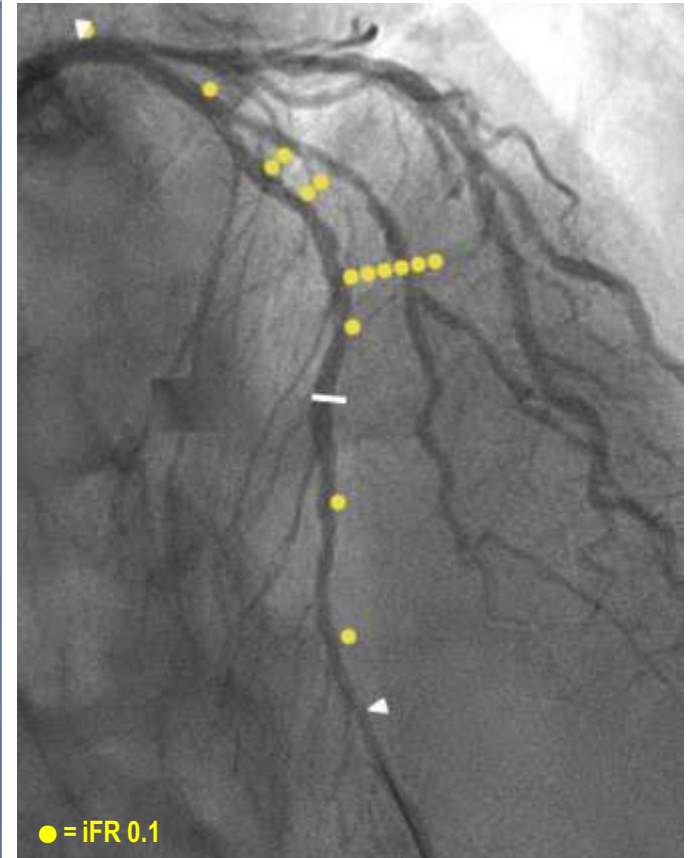
Full metal jacket? 2 stenting?

iFR pullback

Co-registration with angiogram

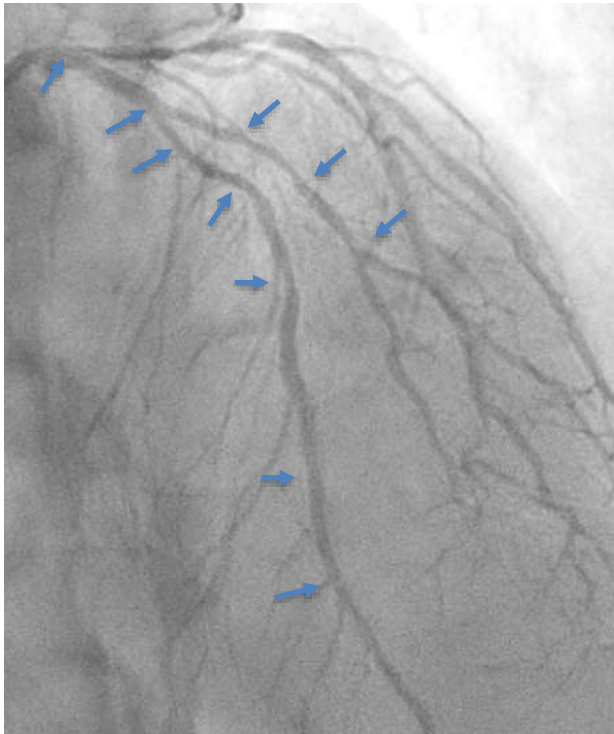


iFR Distal: 0.87

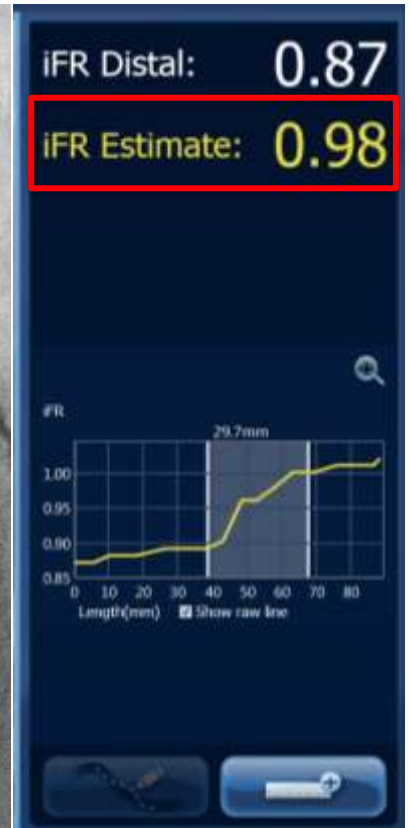
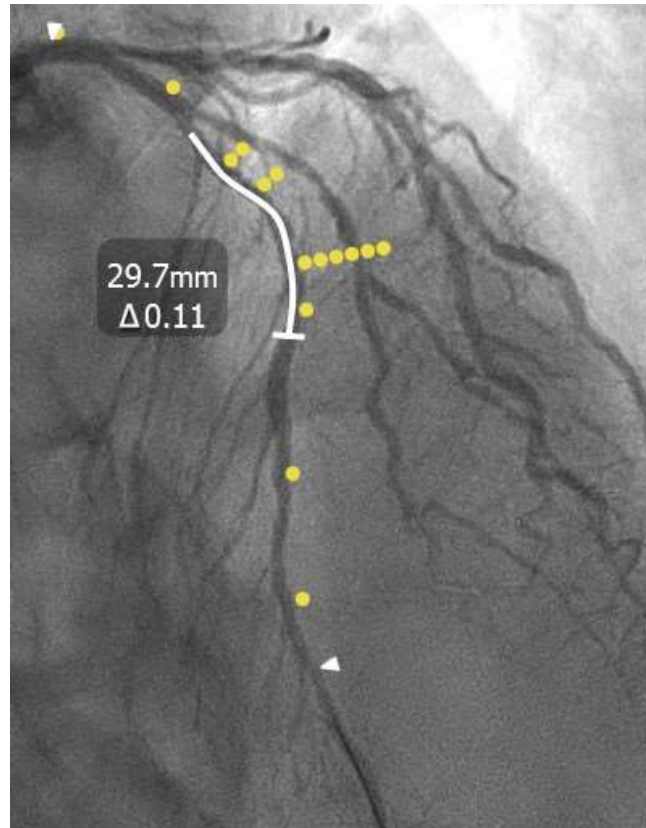


Full metal jacket? 2 stenting?

Single stent will be enough!

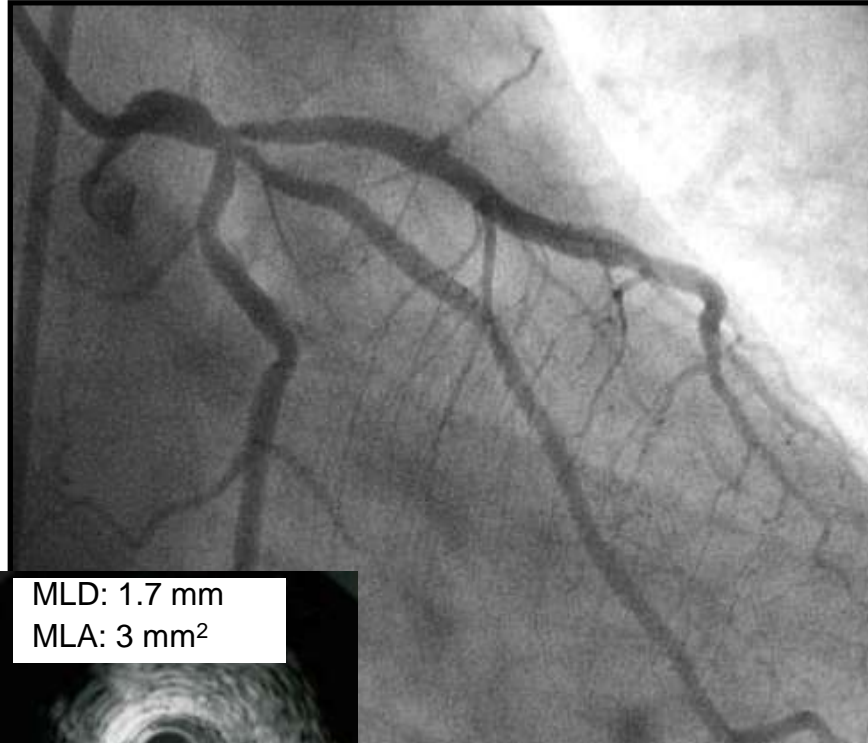


iFR Distal: **0.87**

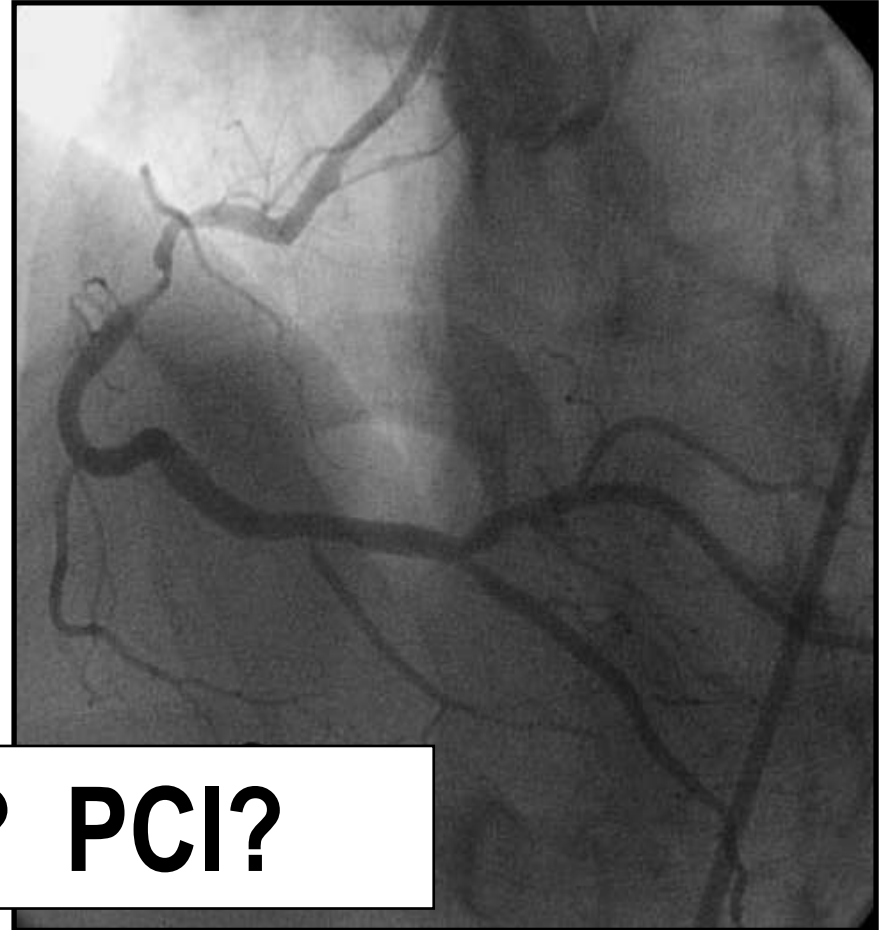


M/63 Unstable angina

Referred from other hospital after CAG for urgent CABG



MLD: 1.7 mm
MLA: 3 mm²

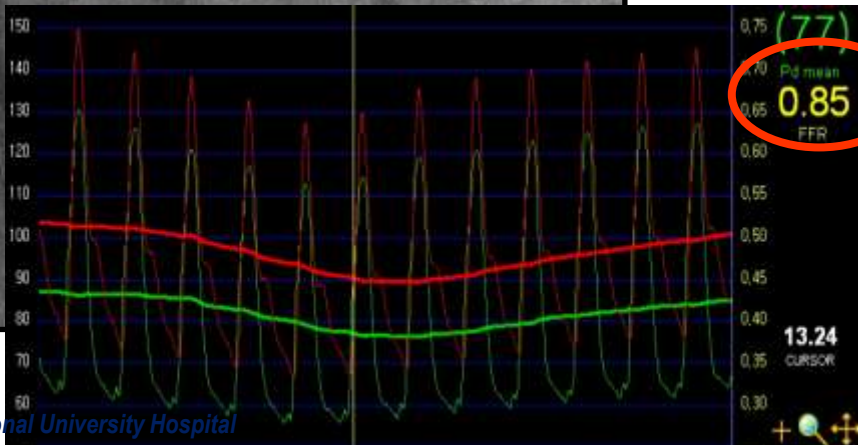
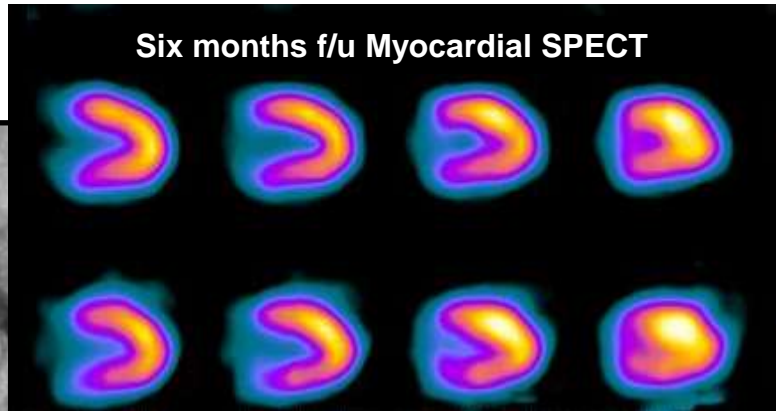


CABG? PCI?

M/63 Unstable angina

Referred from other hospital after CAG for urgent CABG

Six months f/u Myocardial SPECT

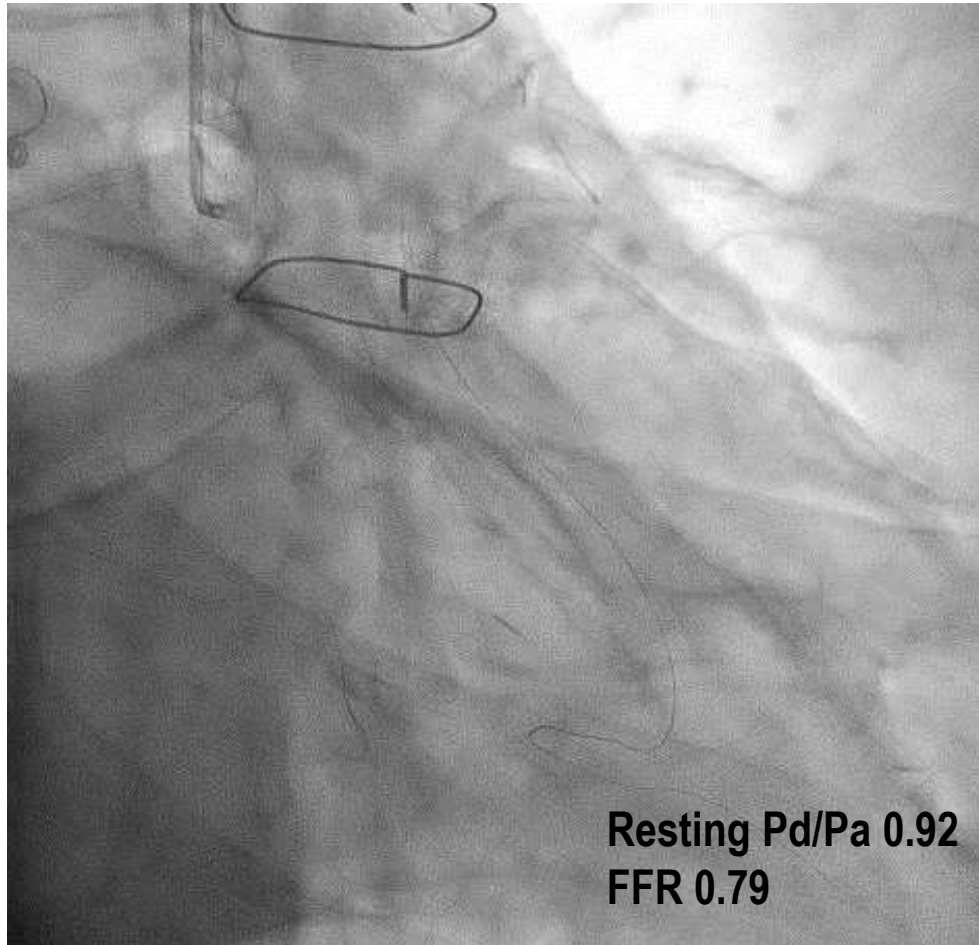


Physiology-guided complex lesion PCI

- Left main/Bifurcation lesions
- Multi-lesion/Diffuse lesion
- Acute coronary syndrome
- Post stent / Post-coronary bypass surgery
- Congenital anomaly

M/84

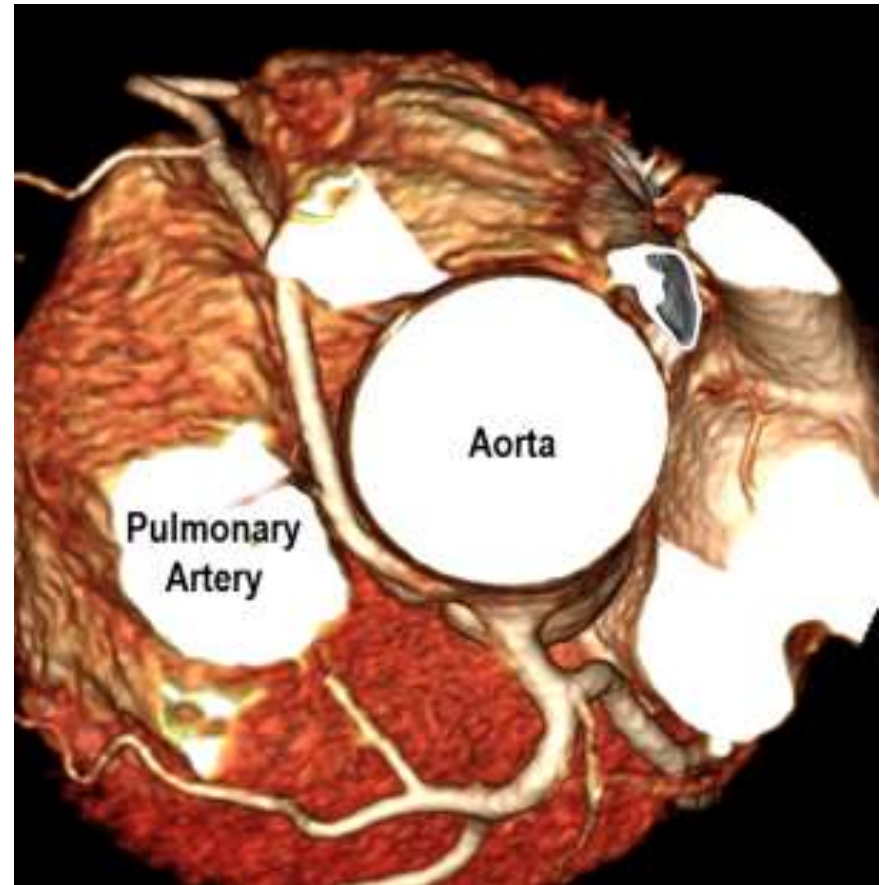
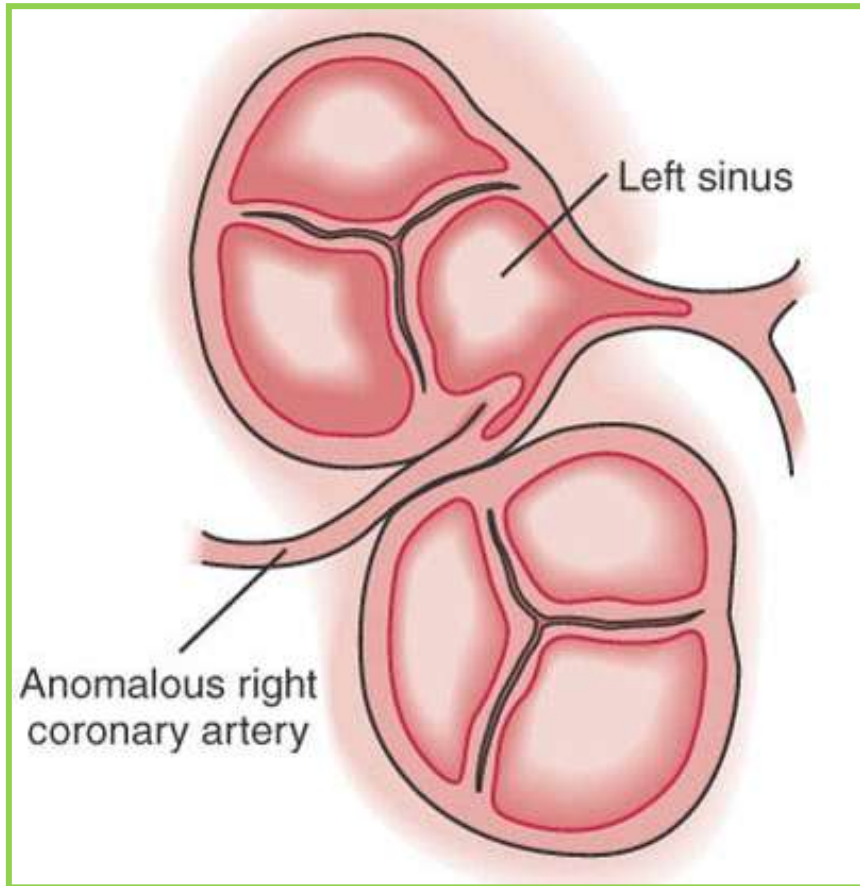
- s/p CABG 22 years ago (LIMA to LAD, SVG to RCA, SVG to OM)
- SVG to RCA – total occlusion, patent SVG to OM



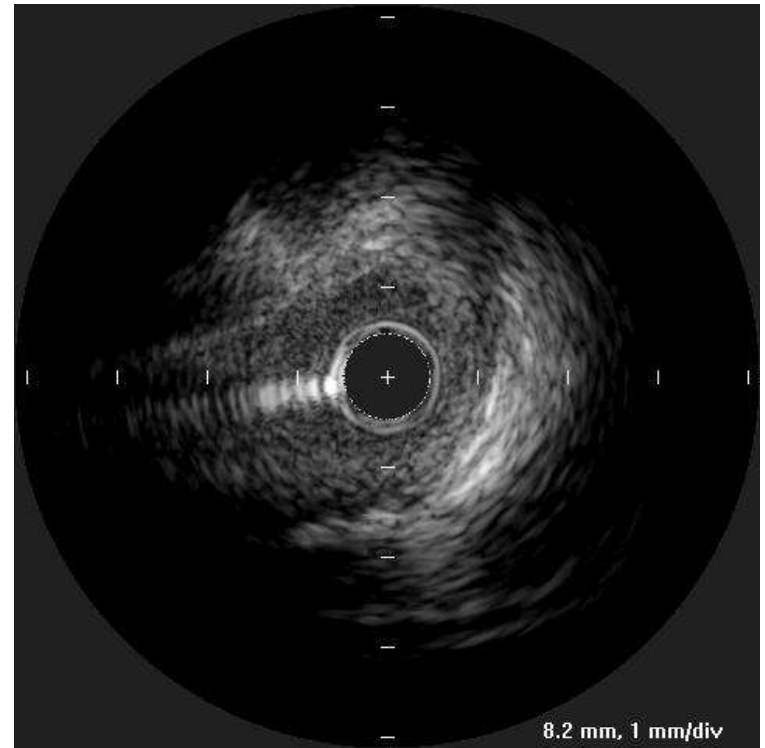
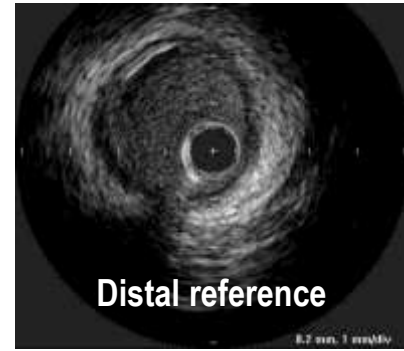
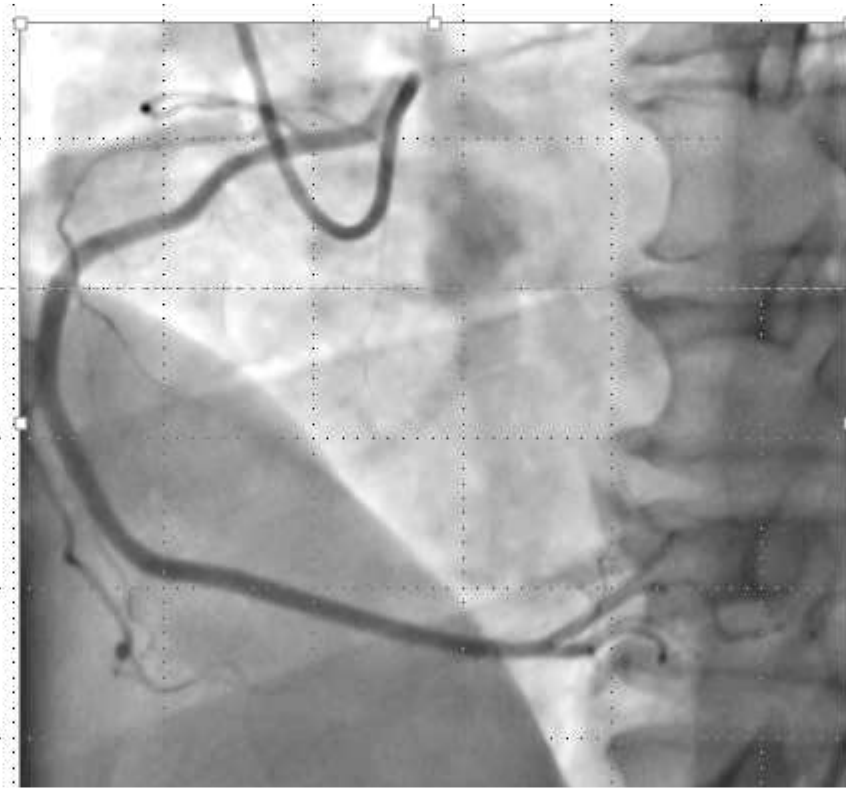
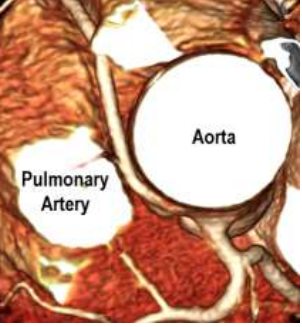
- Regression of LIMA to LAD
- Flow competition between LIMA and native antegrade flow
- Is LIMA still working?
- Is LM to LAD PCI needed?

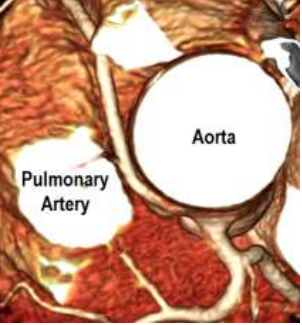
Challenging disease subset: How to assess?

Anomalous RCA from left sinus of Valsalva

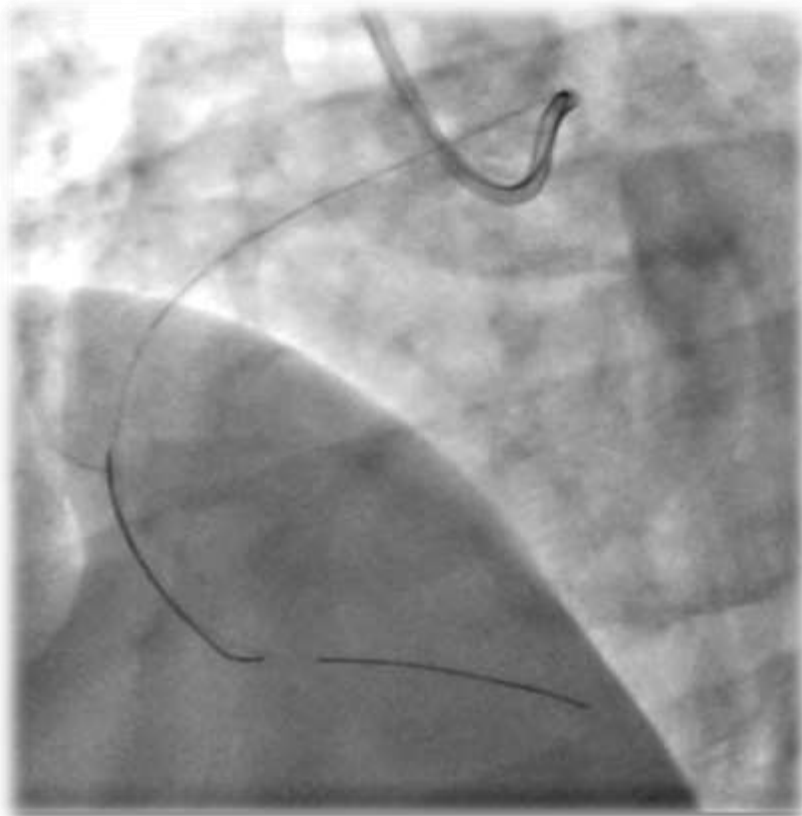


PCI? Surgery?

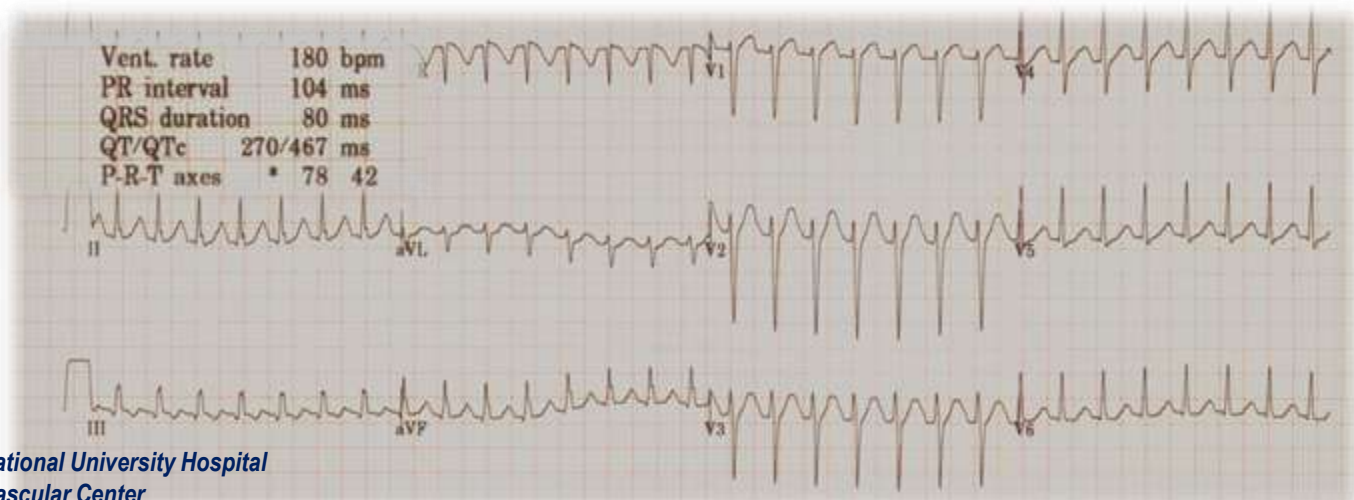
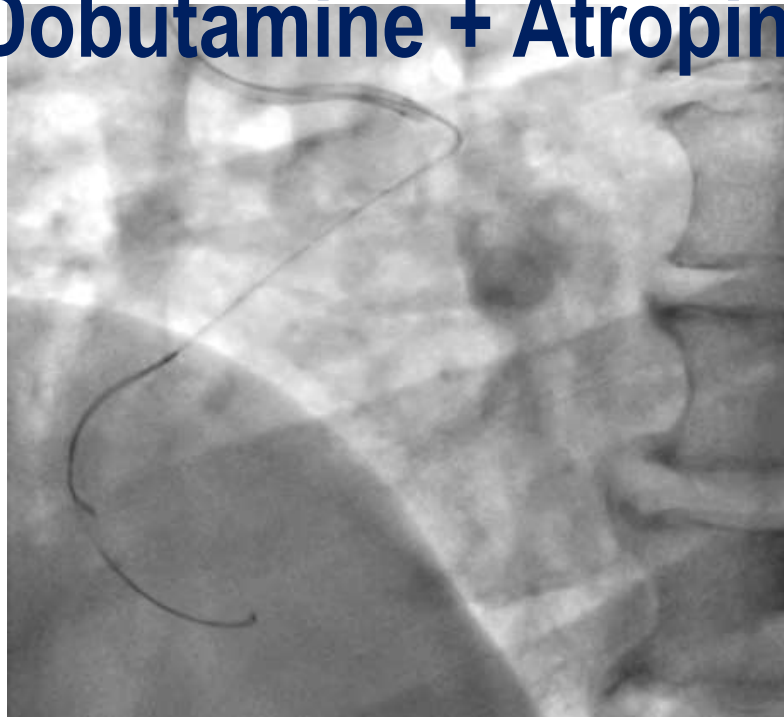
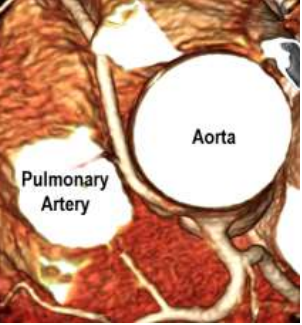


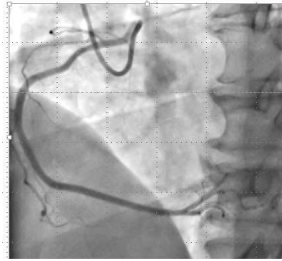
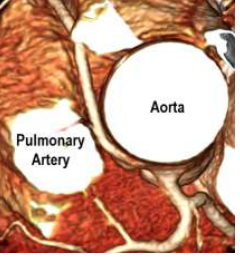


Fractional flow reserve

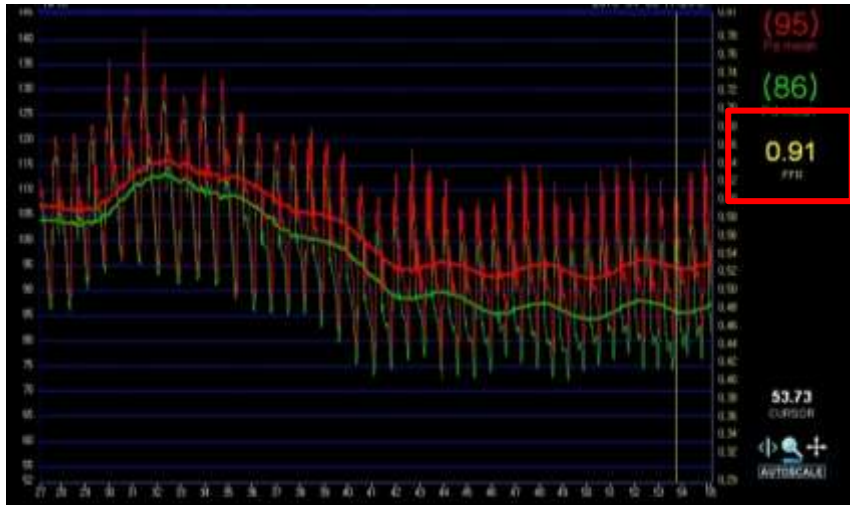


Induce dynamic compression with Dobutamine + Atropine

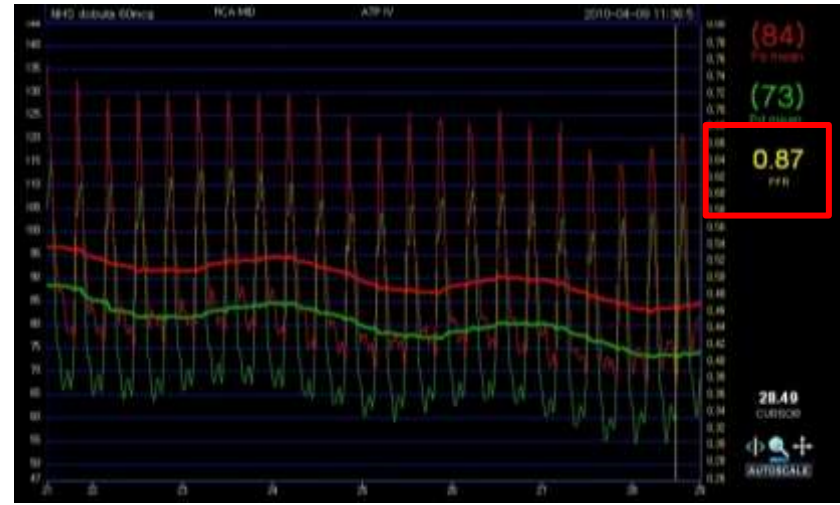




FFR with/without Stress



Resting

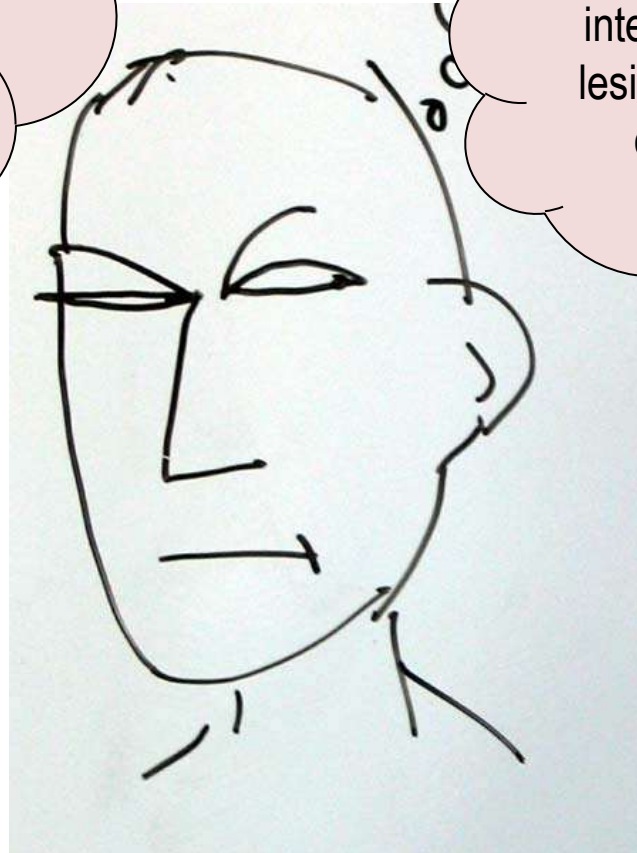


Dobutamine + Atropine

“Physiology” in “Complex PCI”?

Physiology itself is complex. Therefore, any physiology-guided PCI is “Complex PCI”.

Invasive physiologic study is only for intermediate or simple lesion. There is no role of physiology for complex PCI.



Make it Simple: Physiology-guided complex PCI

- Coronary physiology is complex, but is an essential element for understanding patient's disease status and clinical decision making.
- FFR/NHPR and its extended concept can help operators select the appropriate treatment strategy for complex lesions and make the complex PCI simple.