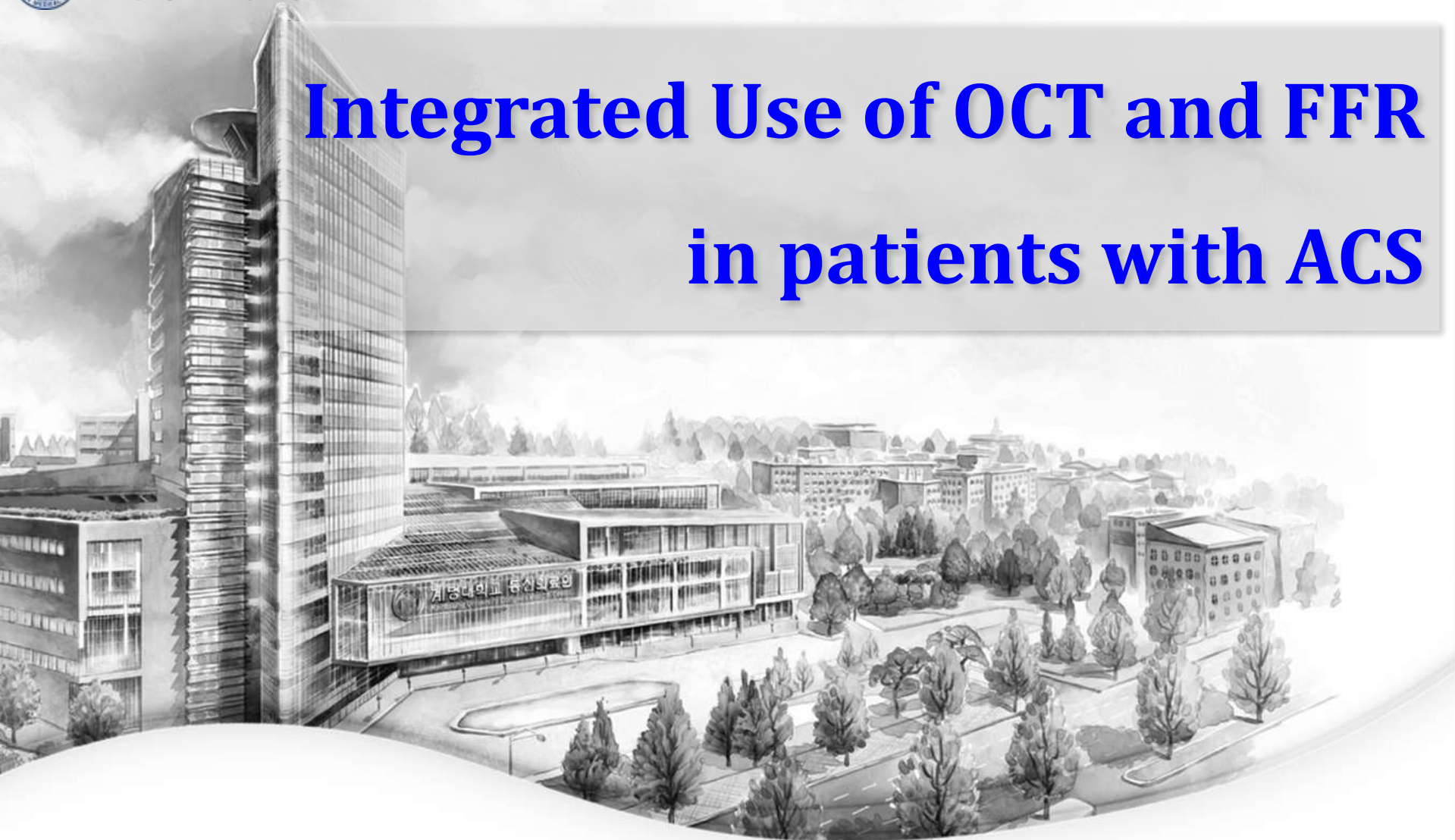




Integrated Use of OCT and FFR in patients with ACS



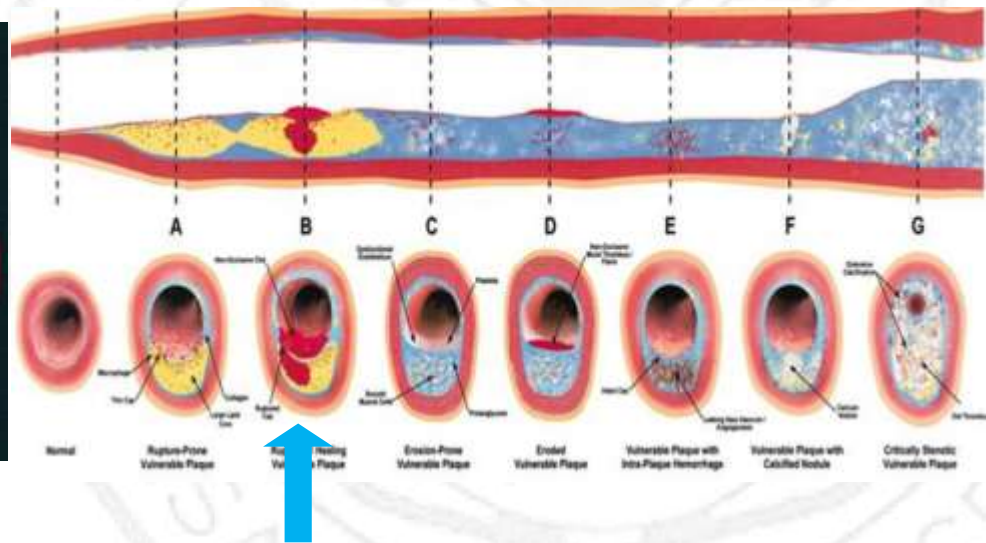
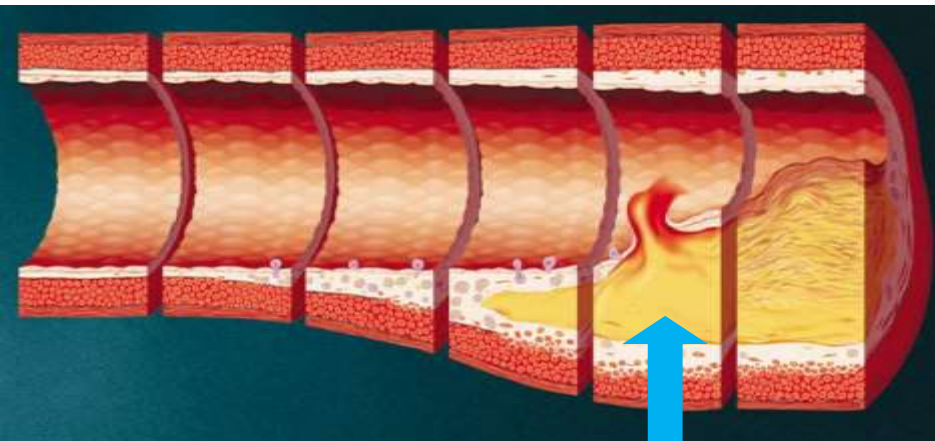
Keimyung University Dongsan Medical Center
NAM, Chang-Wook MD, PhD

When to use FFR

FFR can bring all together: integration of physiology with anatomy during cardiac catheterization

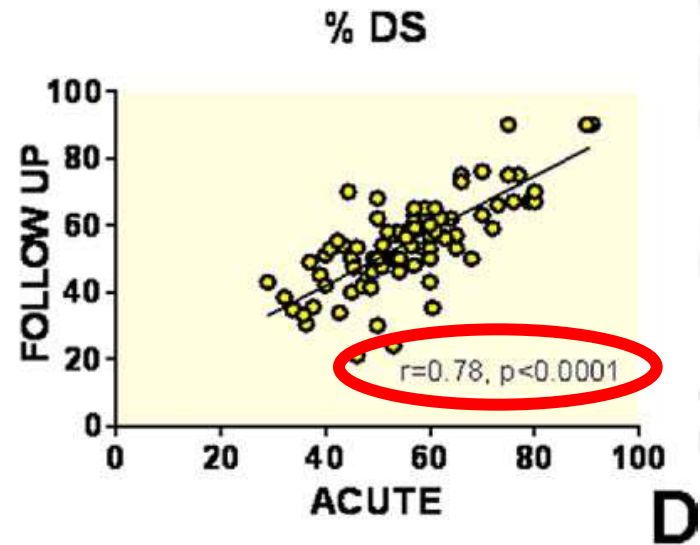
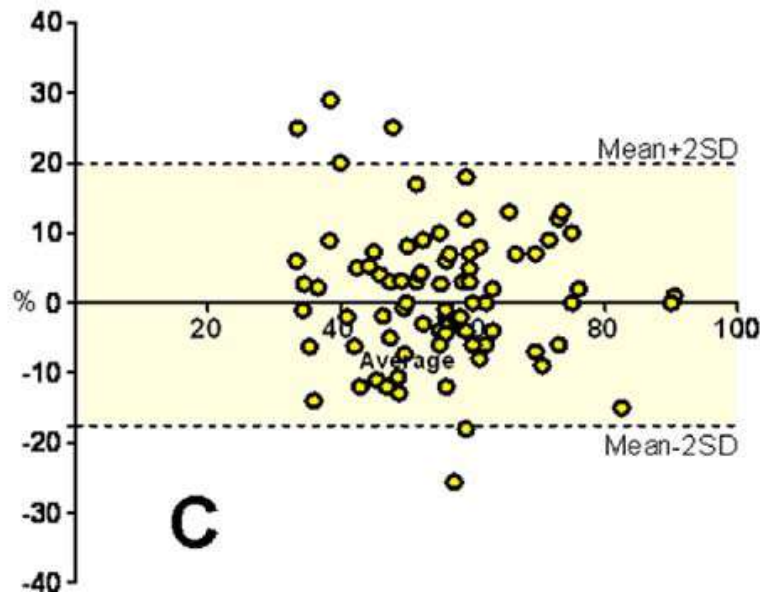
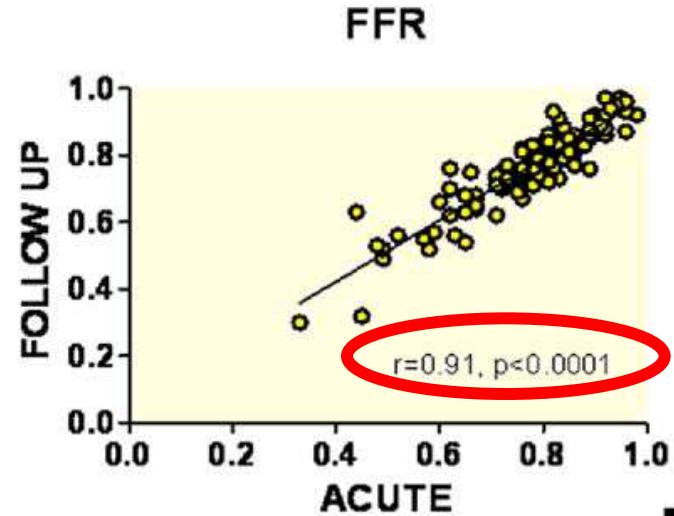
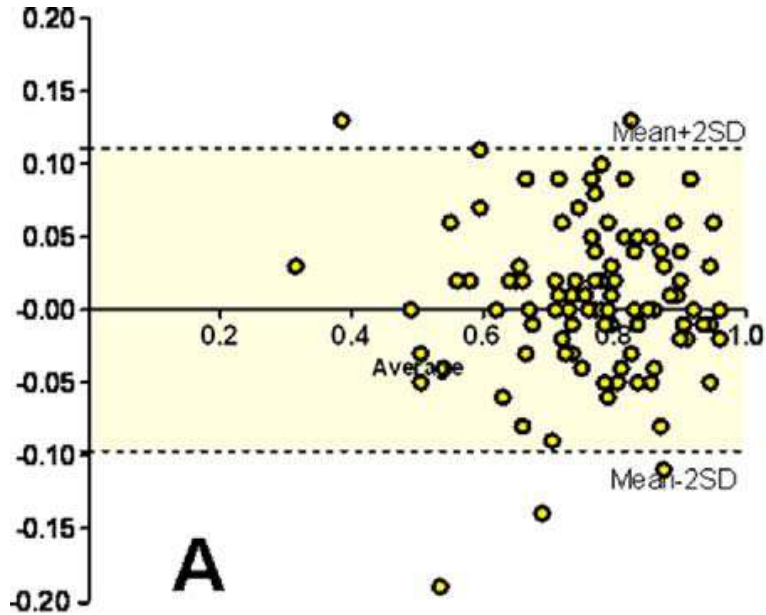
Kleiman NS. JACC 2011;58:1219

But...



Usually not indicated

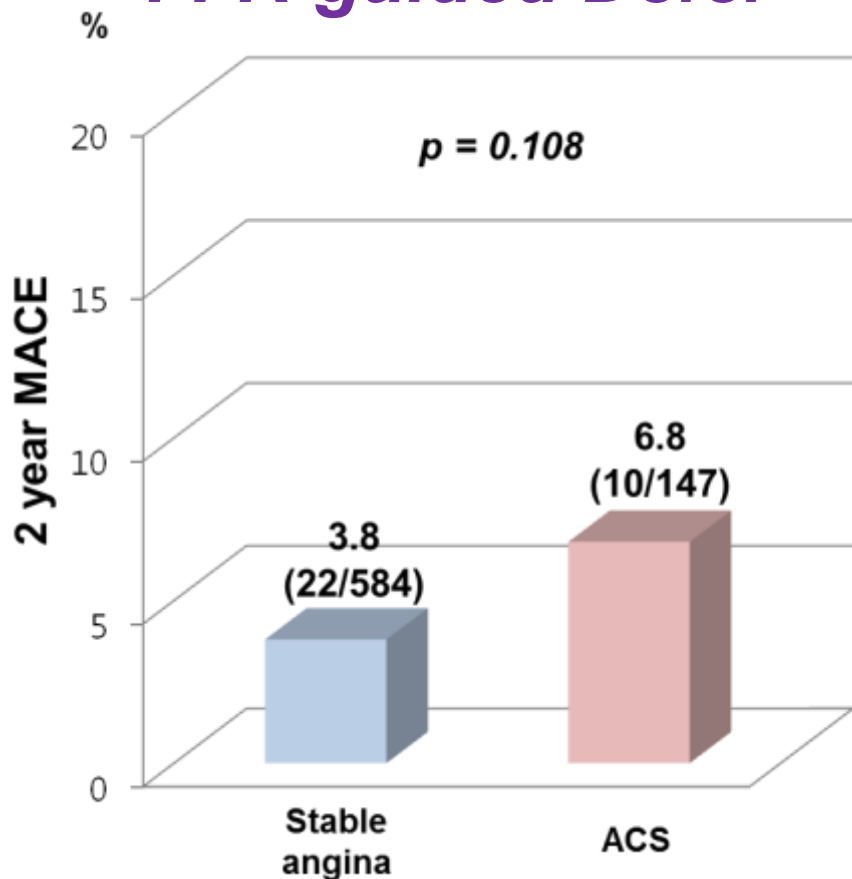
FFR in nonculprit lesion in ACS



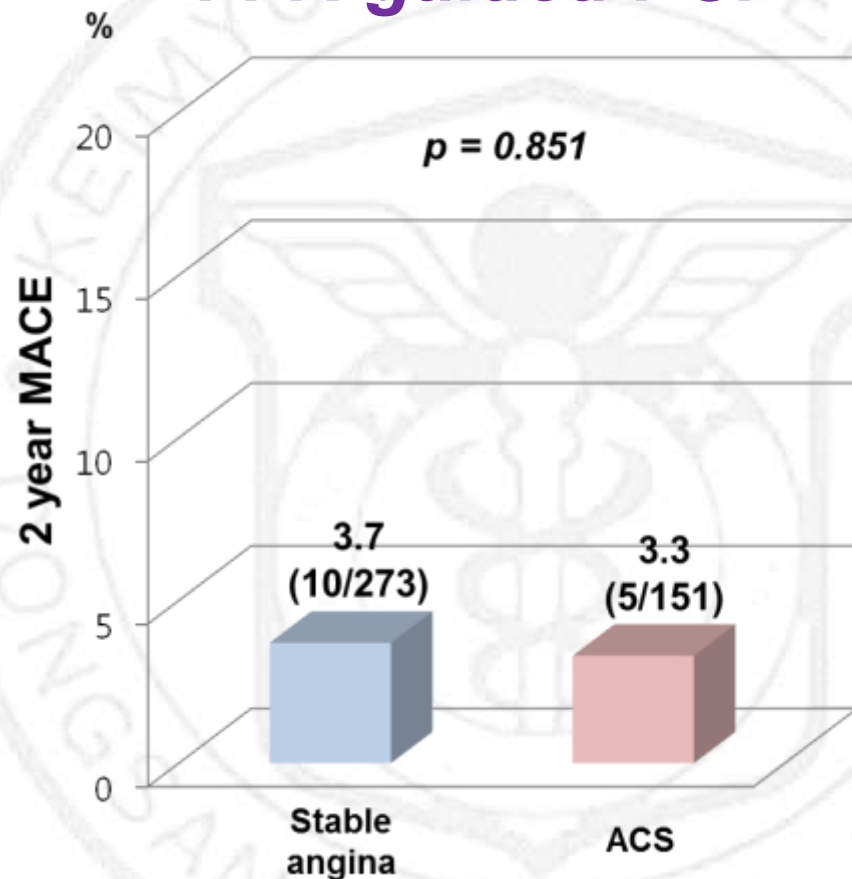
Korean FFR registry

Only FFR-guided decision made 1155 patients

FFR-guided Defer



FFR-guided PCI



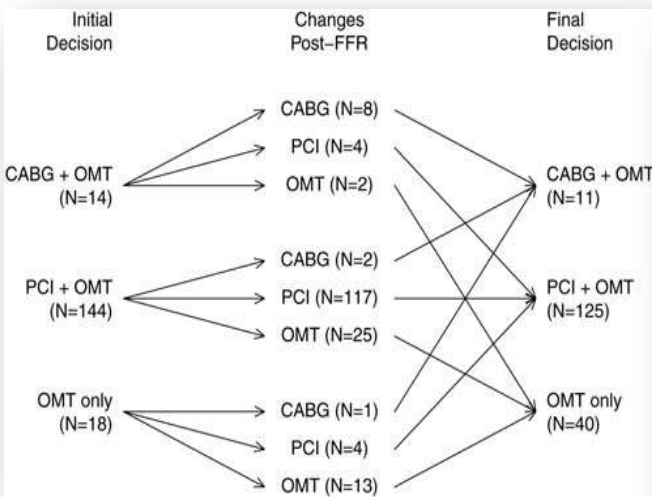
FFR in UA or NSTEMI: FAME

| | UA or NSTEMI | | | SA | | |
|---|--------------------------|------------------|---------|--------------------------|------------------|---------|
| | Angiography (n = 178) | FFR (n = 150) | p Value | Angiography (n = 318) | FFR (n = 359) | p Value |
| No. of indicated lesions/patient | 2.6 ± 0.8 | 2.7 ± 1.0 | 0.61 | 2.8 ± 0.9 | 2.8 ± 1.0 | 0.54 |
| Procedural success rate | 97 | 98.4 | 0.32 | 96.4 | 97.6 | 0.23 |
| Drug-eluting stents used/patient | 2.9 ± 1.1 | 1.9 ± 1.5 | <0.01* | 2.8 ± 1.2 | 2.0 ± 1.4 | <0.01* |
| Procedure time, min† | 71 ± 48 | 69 ± 35 | 0.72 | 69 ± 41 | 71 ± 46 | 0.54 |
| Contrast agent used, ml | 308 ± 134 | 269 ± 139 | 0.01* | 299 ± 124 | 273 ± 130 | 0.08 |
| GP IIb/IIIa inhibitor | 31 (17) | 24 (16) | 0.77 | 45 (15) | 40 (11) | 0.24 |
| Hospital stay at baseline admission, days | 4.6 ± 4.2 | 4.5 ± 4.7 | 0.76 | 3.2 ± 2.9 | 3.0 ± 2.5 | 0.42 |

In patients with ACS assigned to FFR-guidance group, lesser stent and contrast was used than in those assigned to angiography guidance

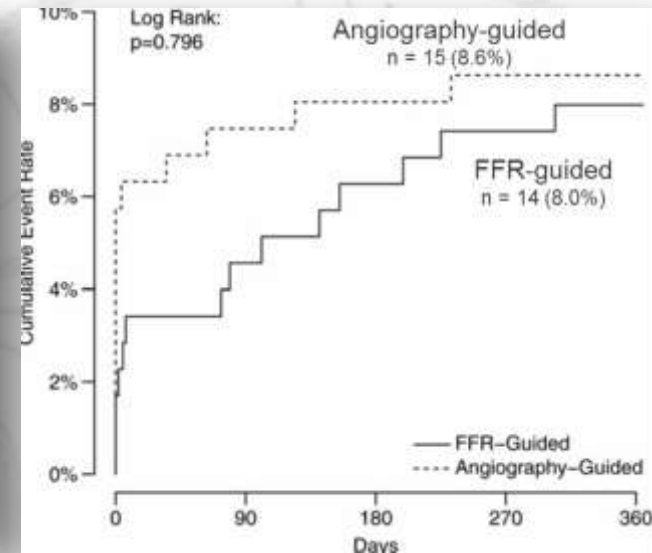
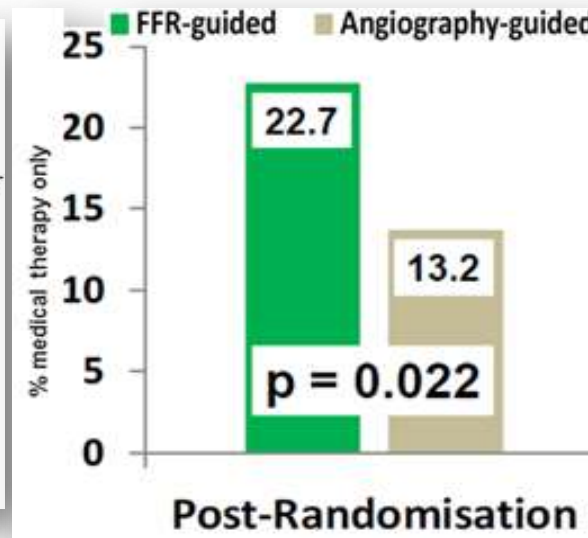
FAMOUS NSTEMI

Treatment strategy



Defer to Medical Therapy

12 months outcome



FFR changed the treatment strategy in 21.6% of patients compared to angiography alone.

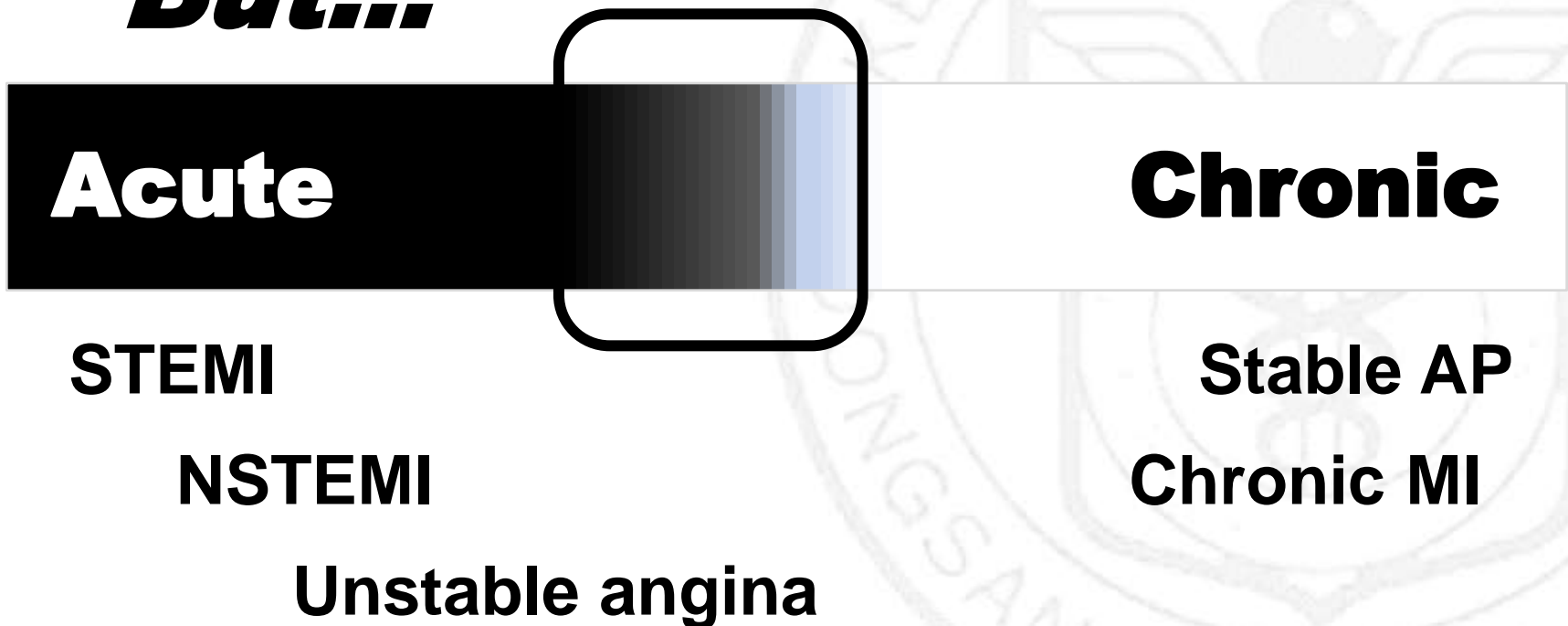
FFR-guided group resulted in 9.5% absolute reduction in revascularization compared to angiography alone

When to use FFR

Use FFR in the stabilized lesions

Not indicated acute infarct related lesions

But...



OCT Role in PCI



Pre -
Procedure

- Device selection
- Decision of optimal strategy
- Evaluation of plaque composition

During -
Procedure

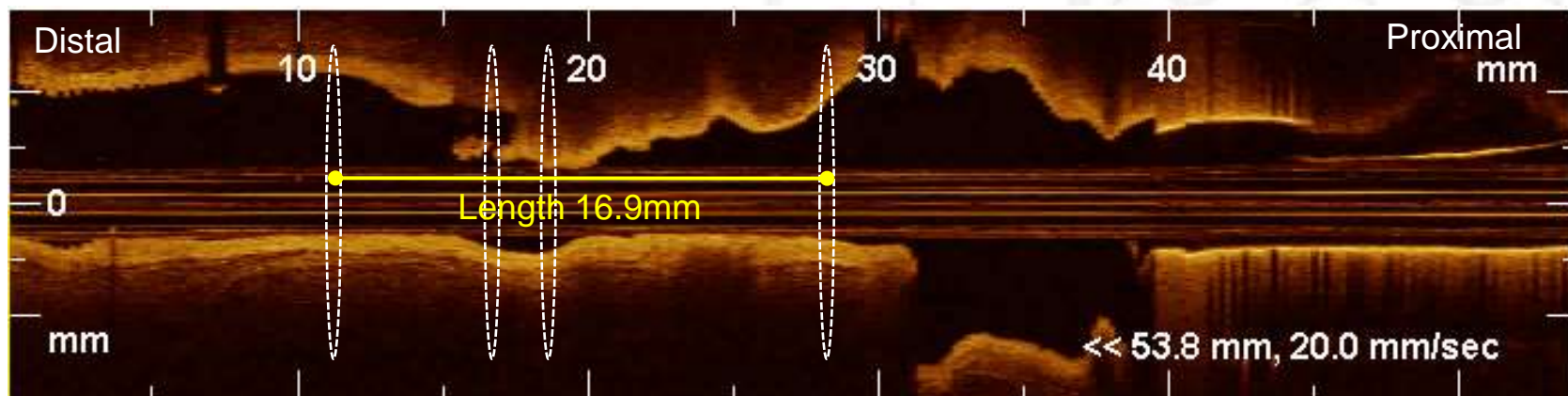
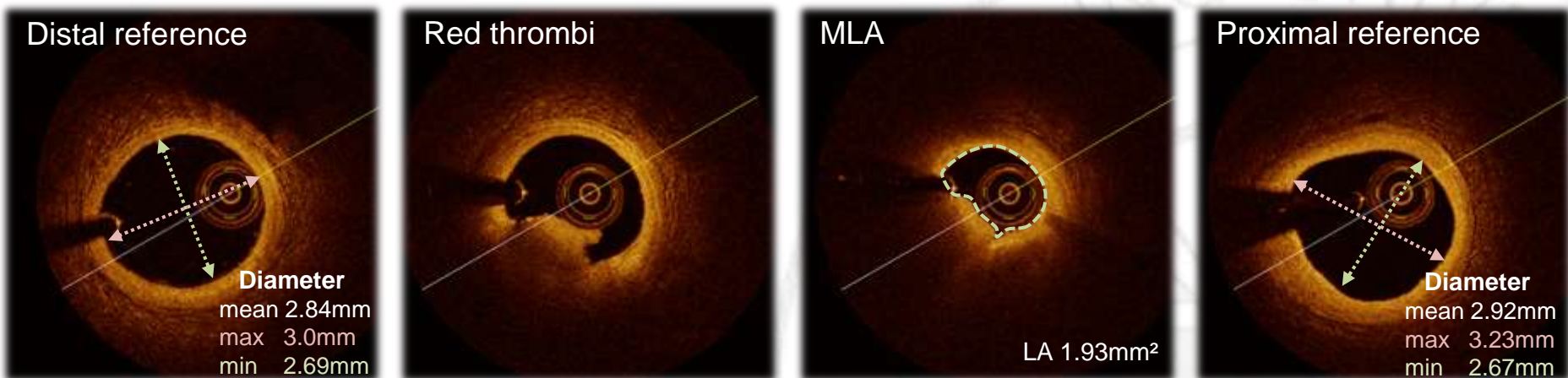
- Determination of stent size
- Determination of landing zone
- Role of landmark

Post -
Procedure

- Stent optimization
- Detection of ISA
- Detection of edge injury

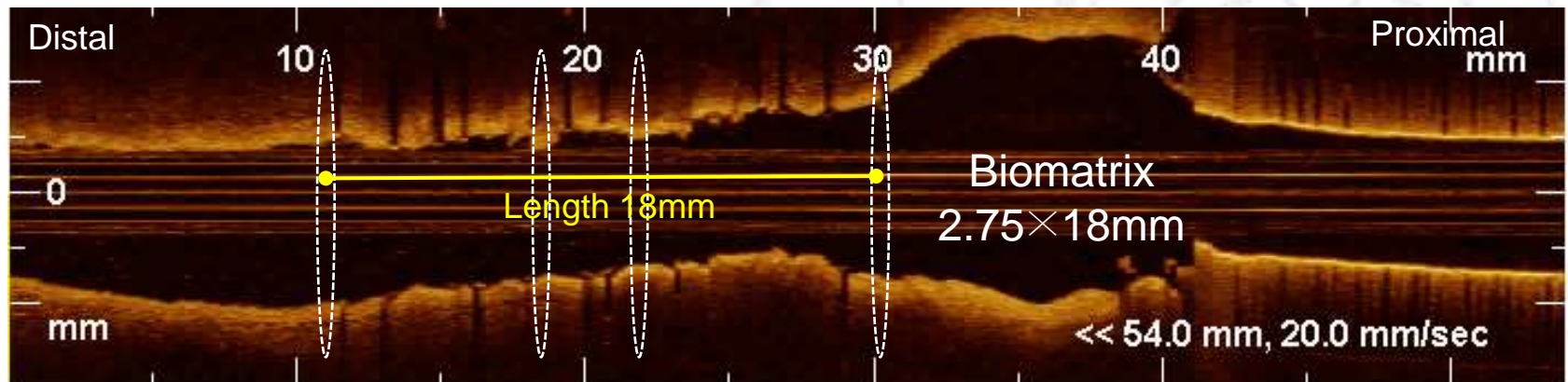
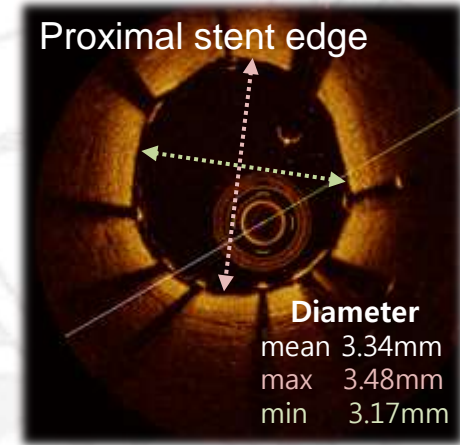
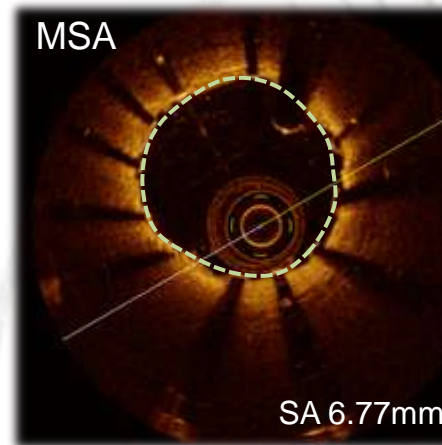
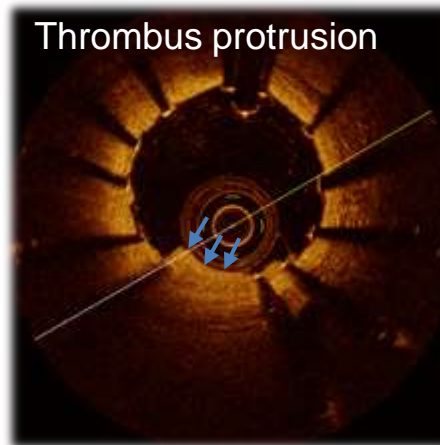
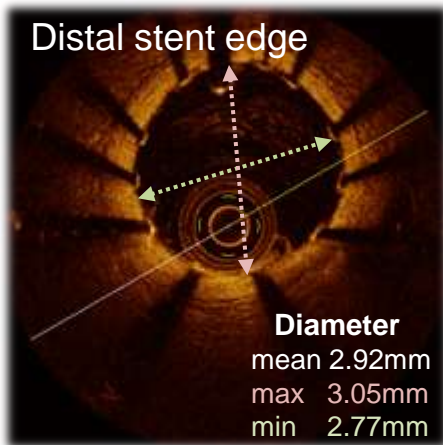
Pre-PCI Quantitative Measurement

63YO/M, NSTEMI



Post-PCI Quantitative Measurement

63YO/M, NSTEMI



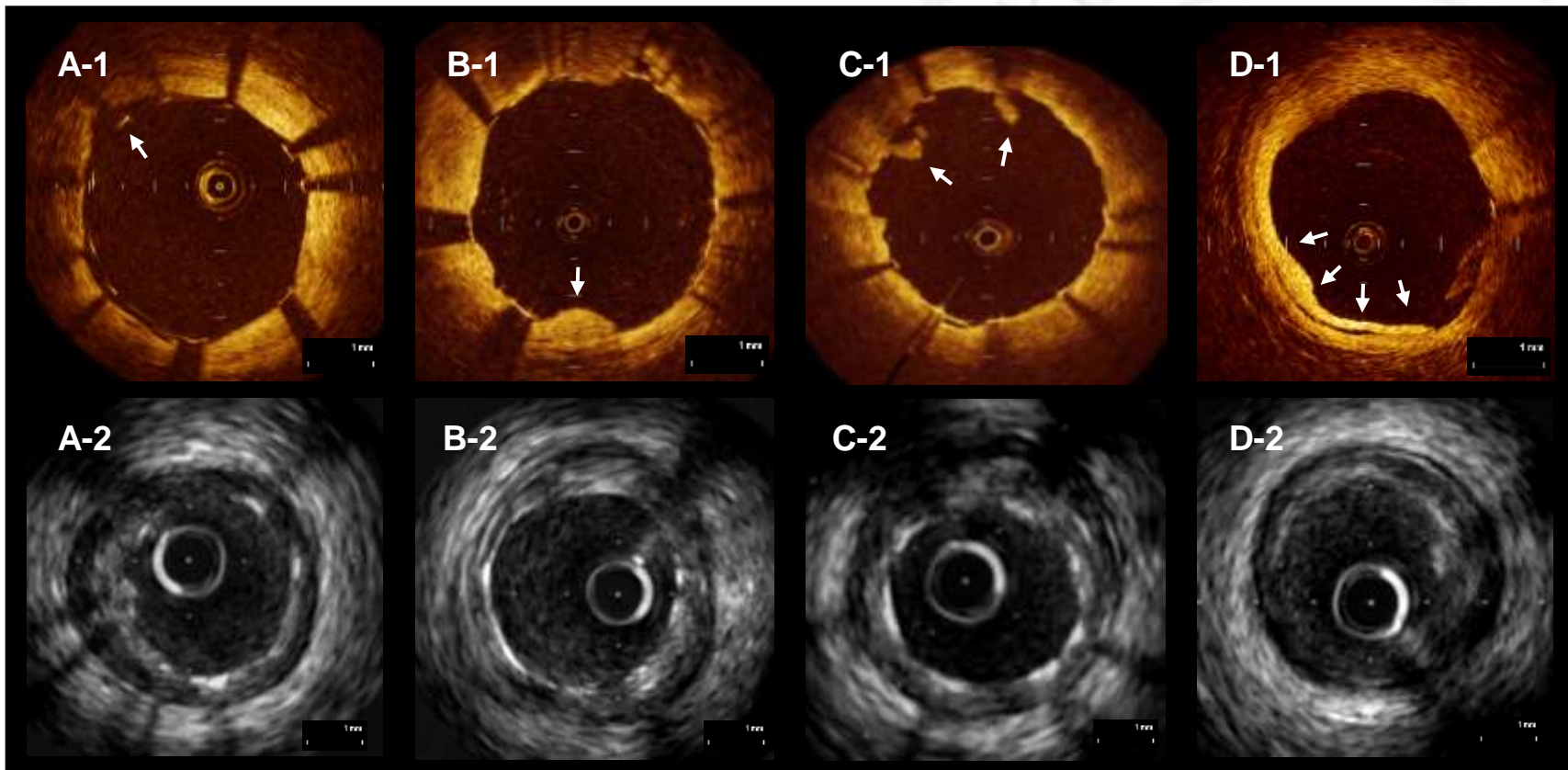
OCT and IVUS Images of Stented Lesions

Incomplete
Stent Apposition

Tissue
Prolapse

Thrombi

Dissection



How to integrate OCT & FFR

01

FFR-guided decision making for whether treat or not, and where to treat

02

OCT-guided decision making for how to treat



Target lesion selection, Device selection, Stent selection, Procedure selection, etc

03

OCT (and FFR)-guided post procedural evaluation

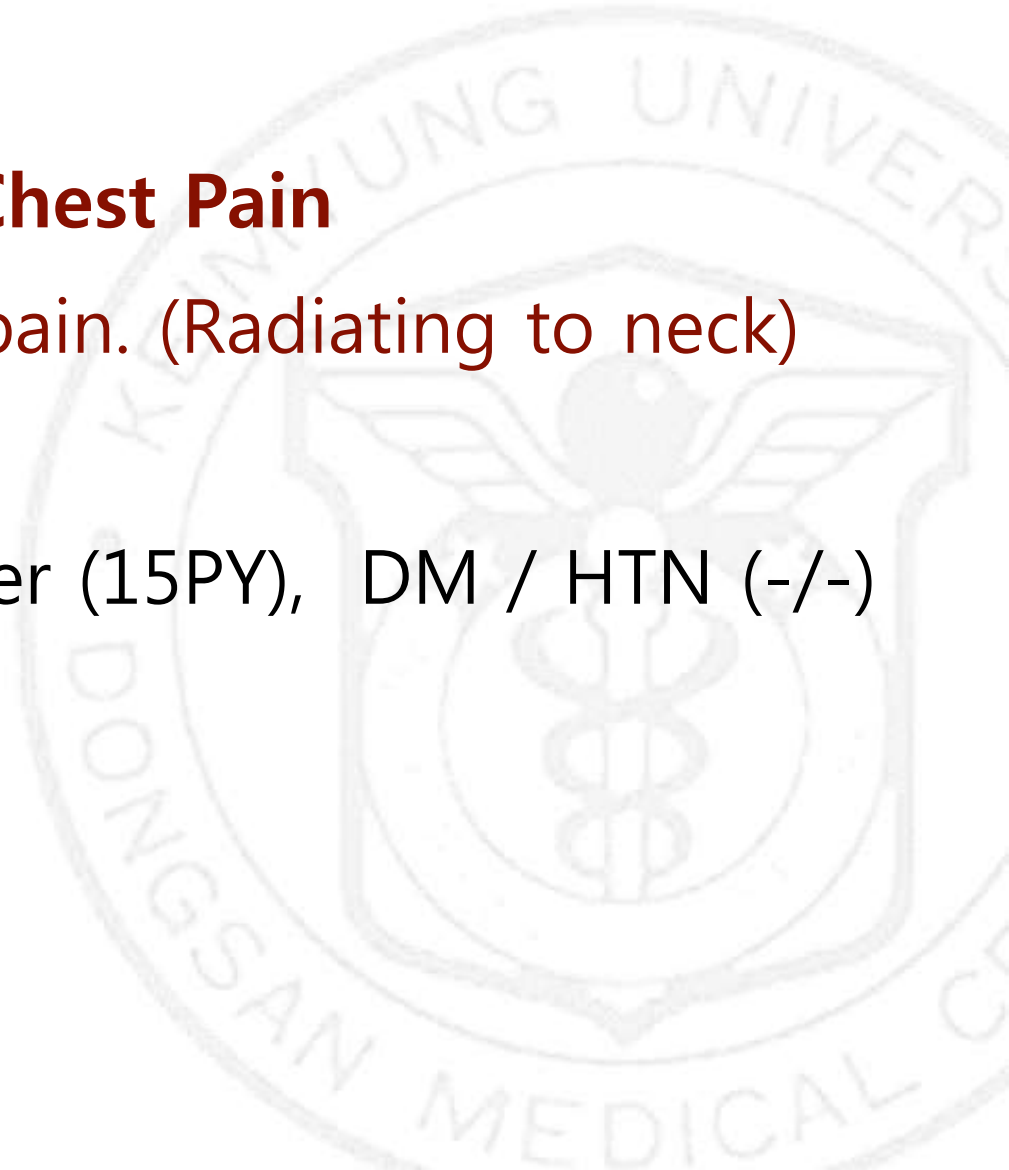


Result assessment, Additional procedure decision, Prognosis expectation, etc

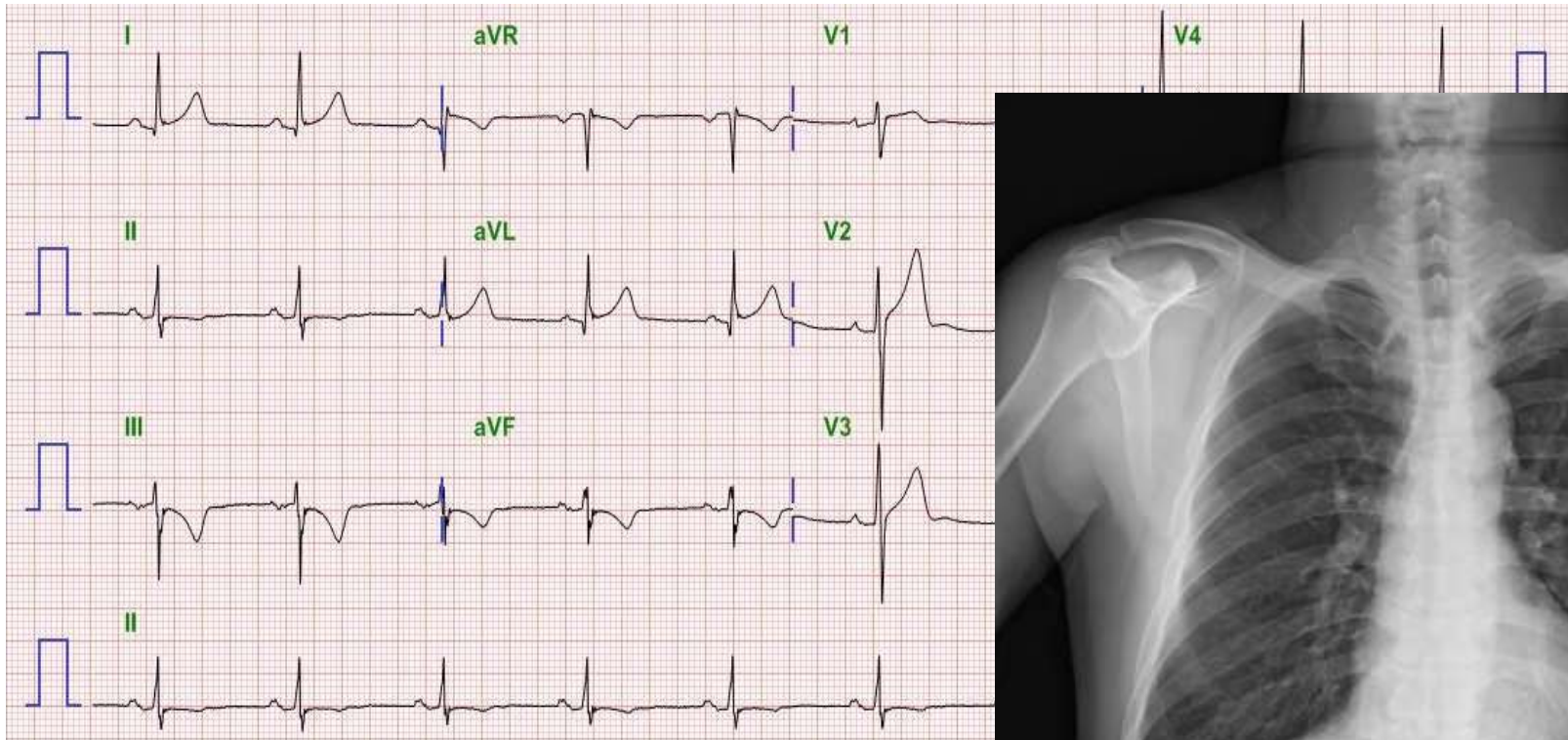
Case summary

48 YO / Male

- C/C **Effort induced Chest Pain**
- Effort Induced Chest pain. (Radiating to neck)
for 5months
- Risk Factor - Ex-Smoker (15PY), DM / HTN (-/-)



Baseline studies



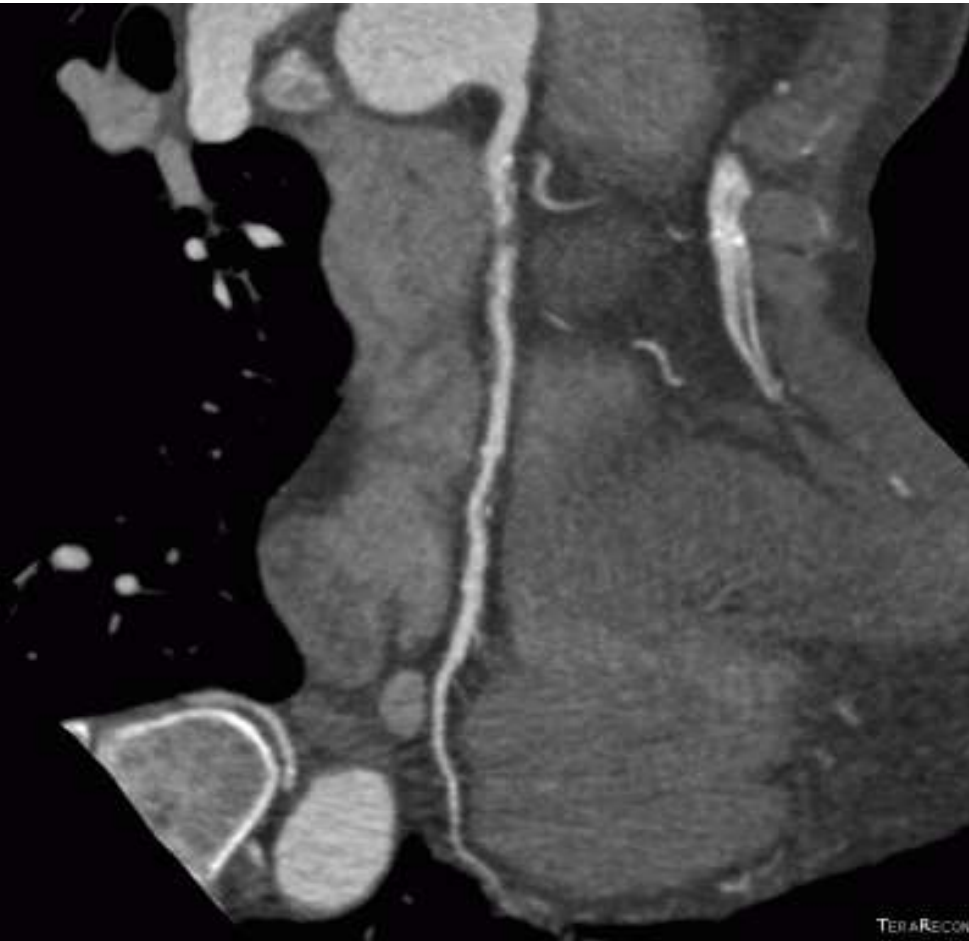
TTE

Normal LV systolic function

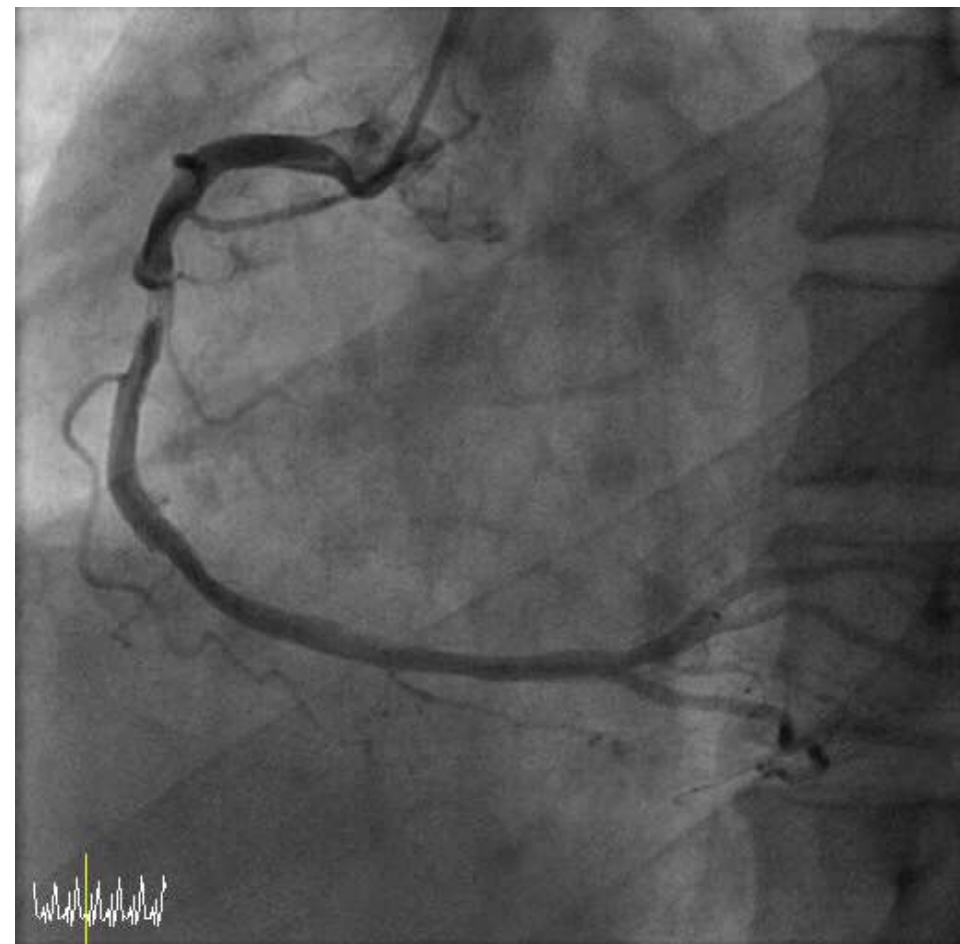
Diastolic dysfunction (GII)

EF 64%

Coronary CT



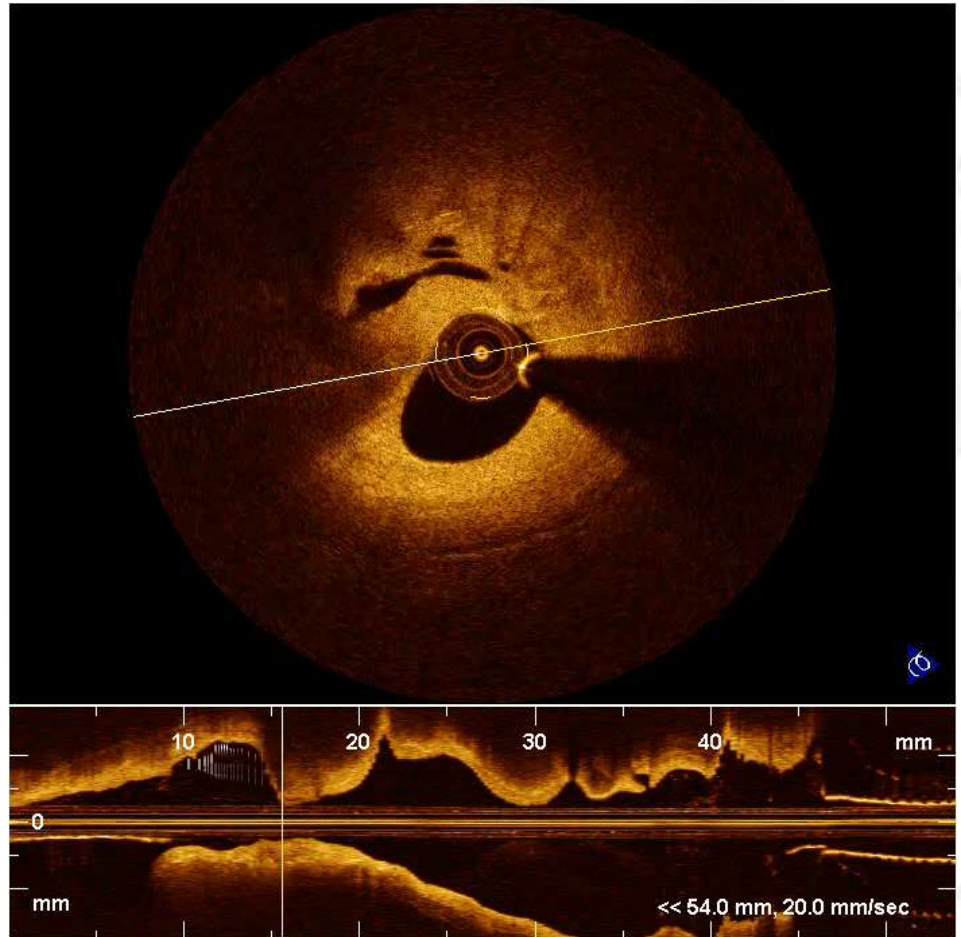
CAG



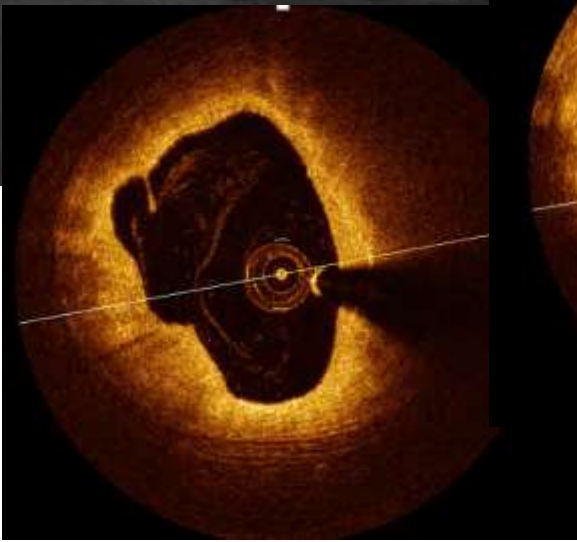
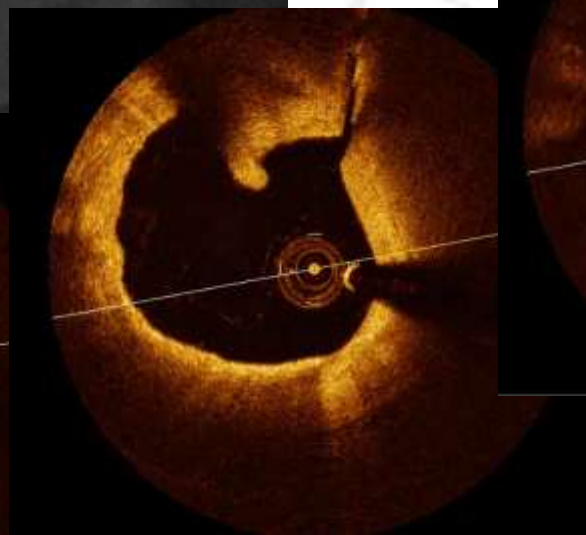
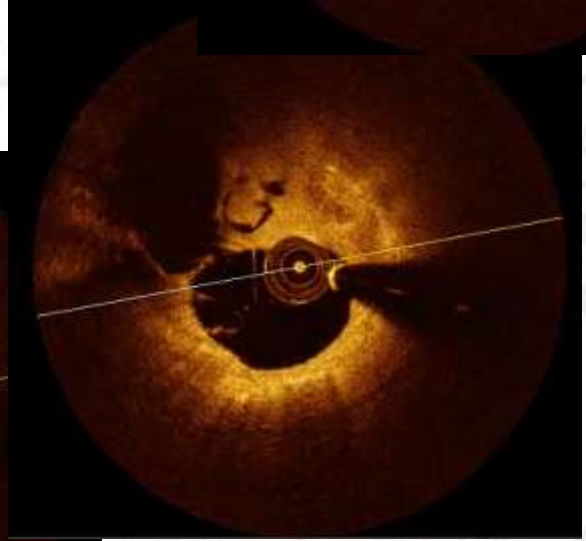
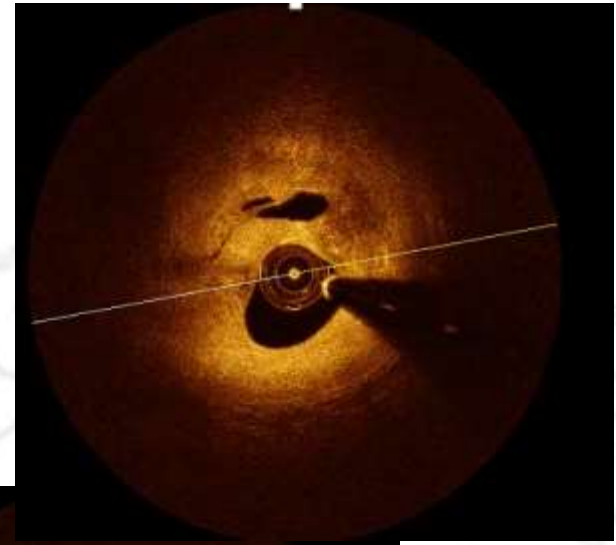
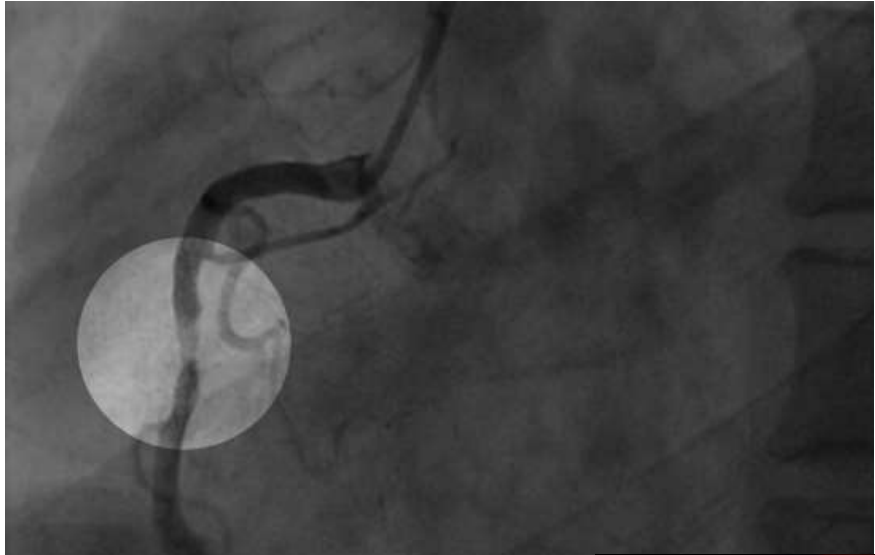
Trans-Radial, 6fr



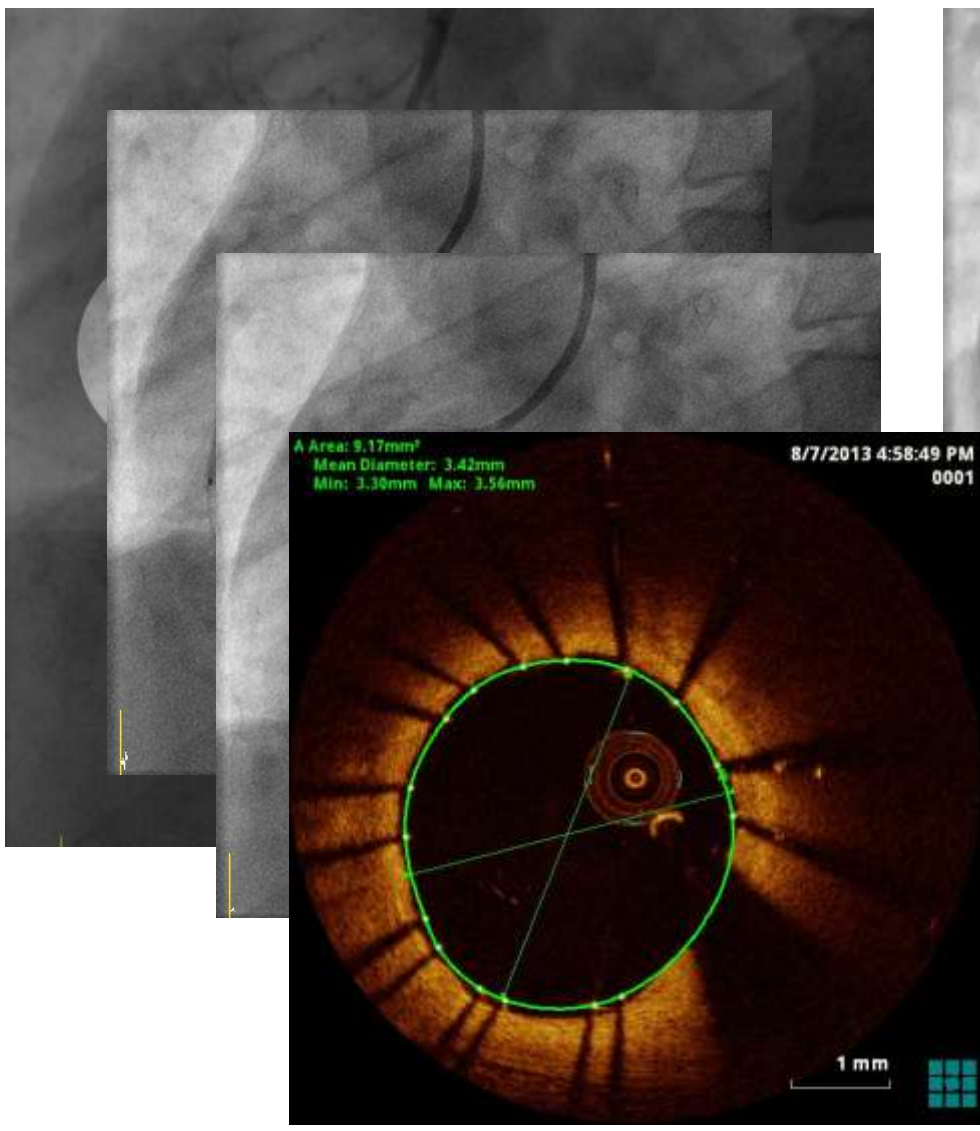
OCT



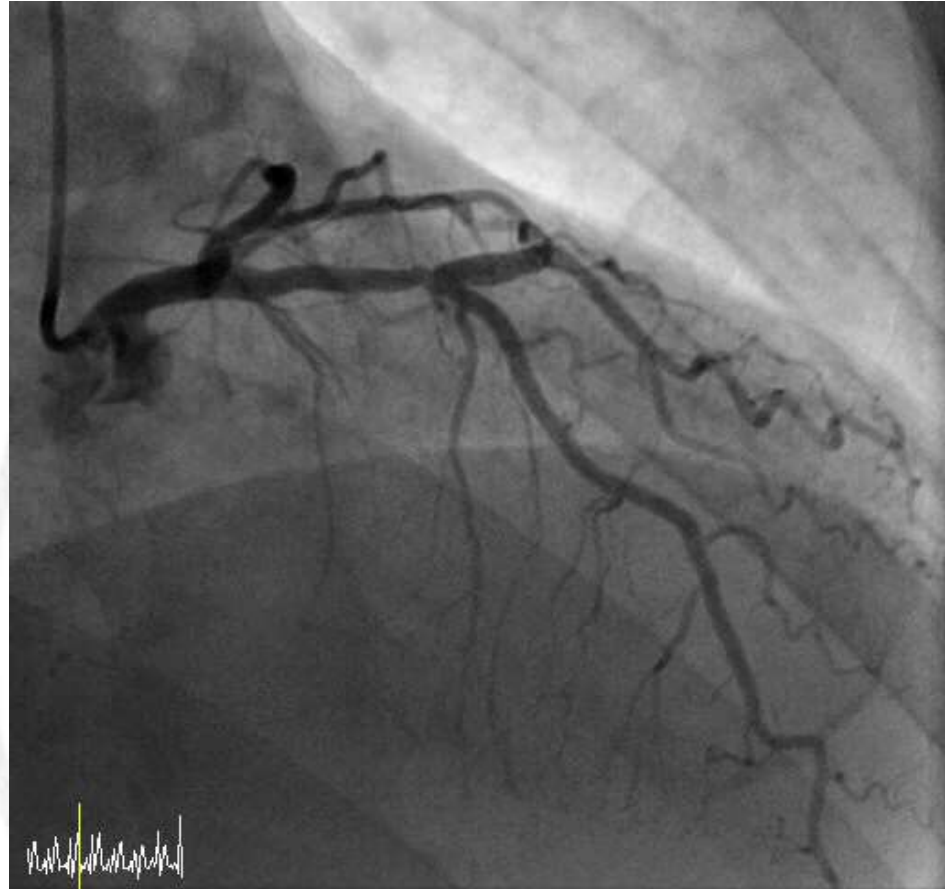
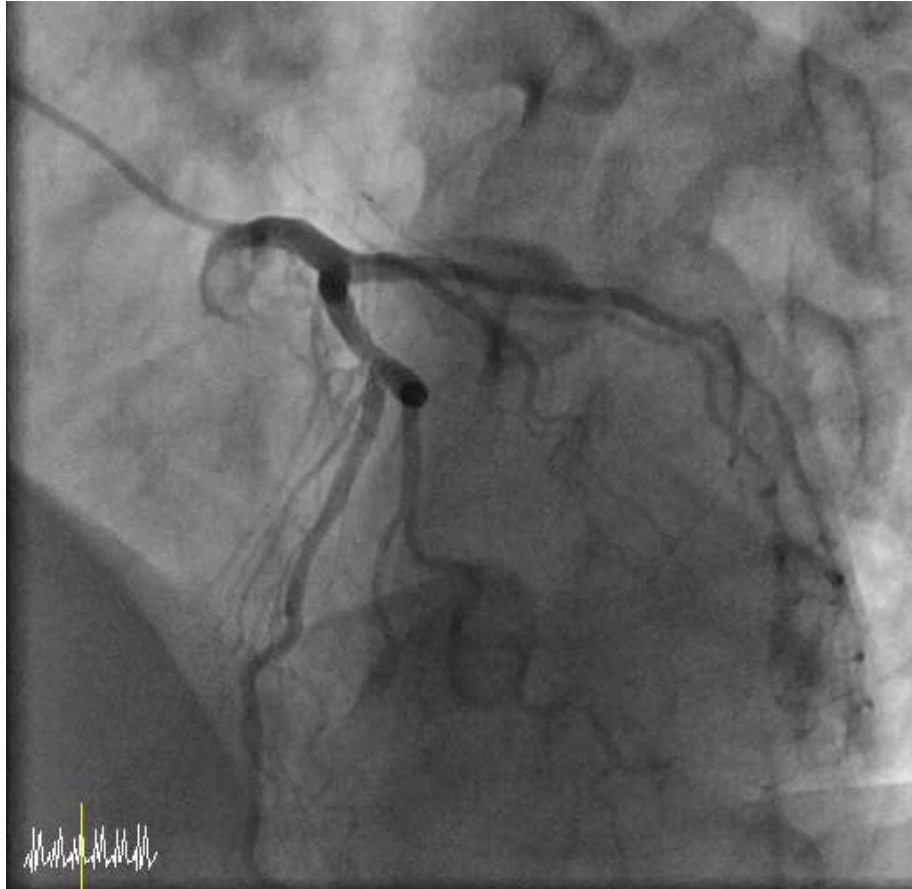
OCT



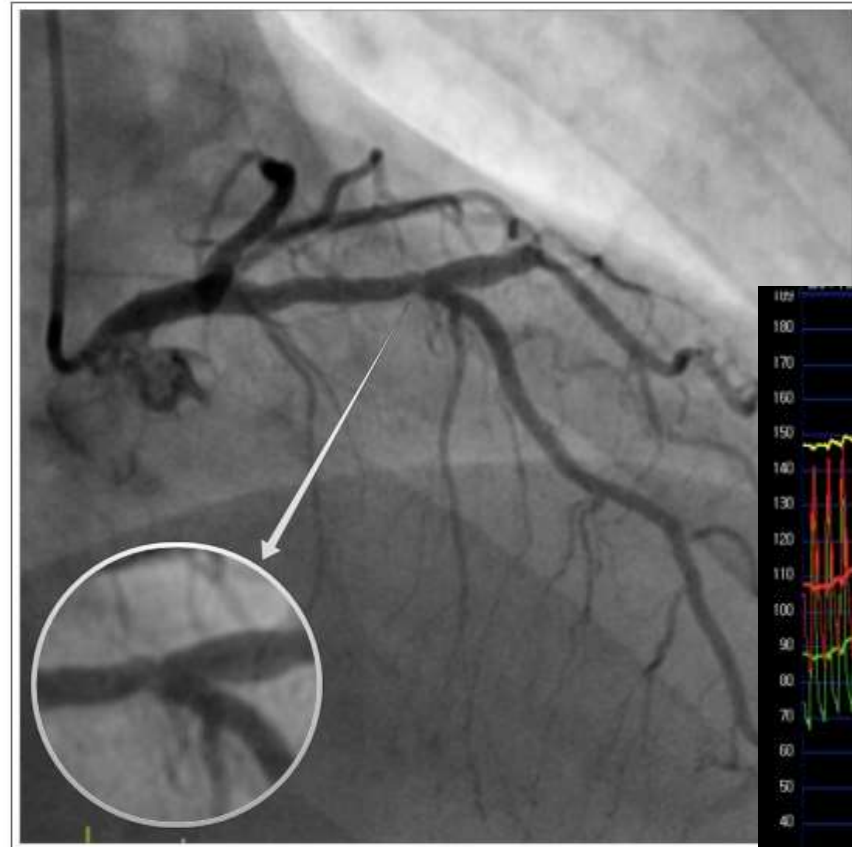
PCI for RCA



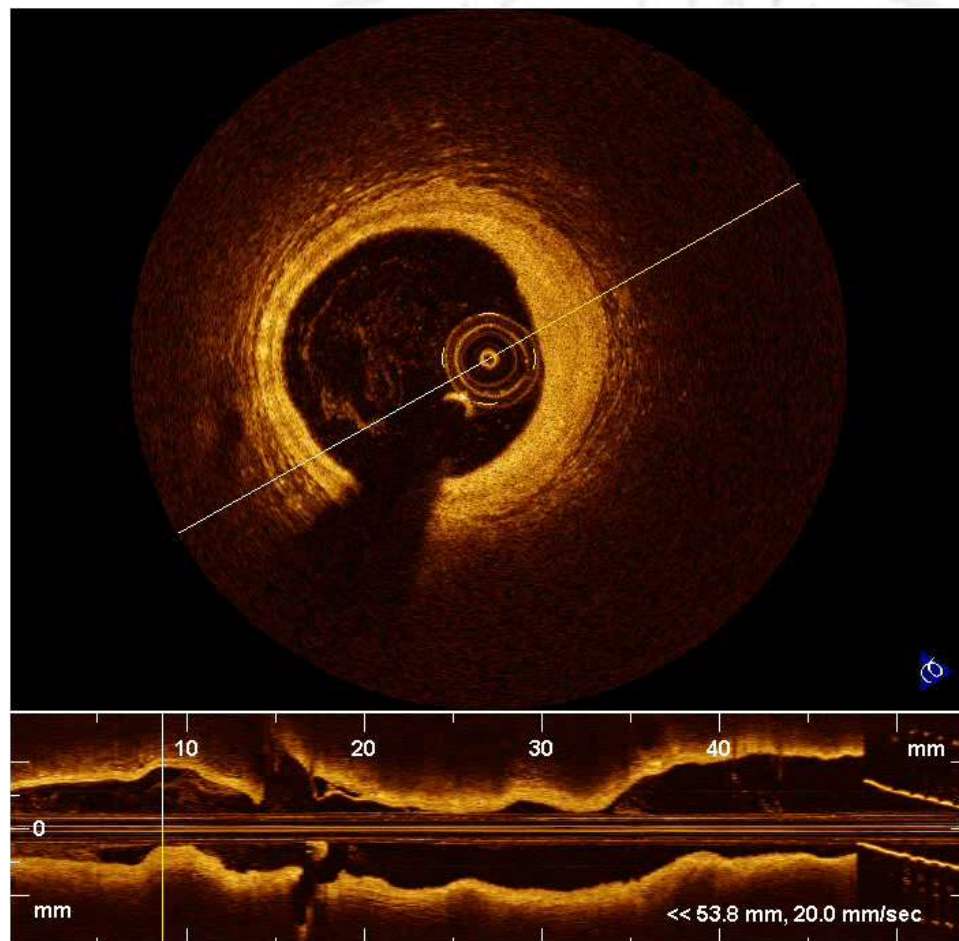
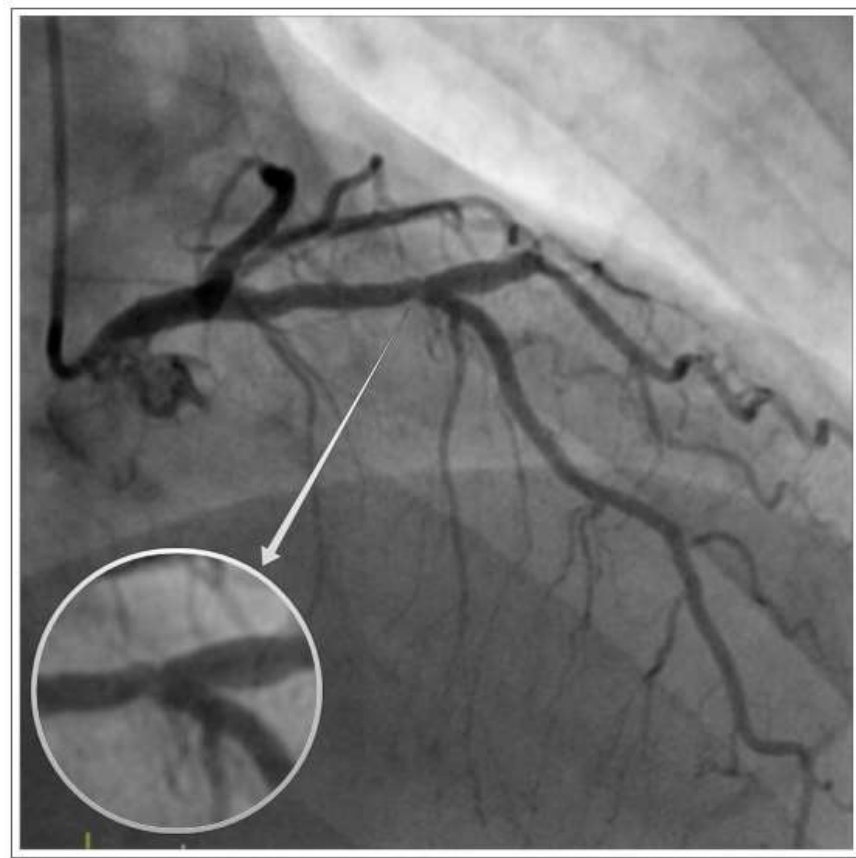
CAG



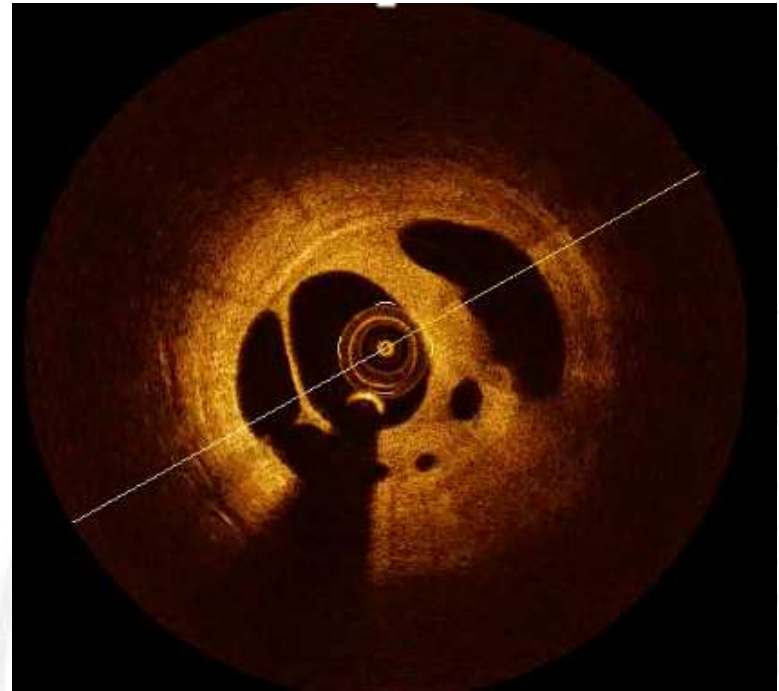
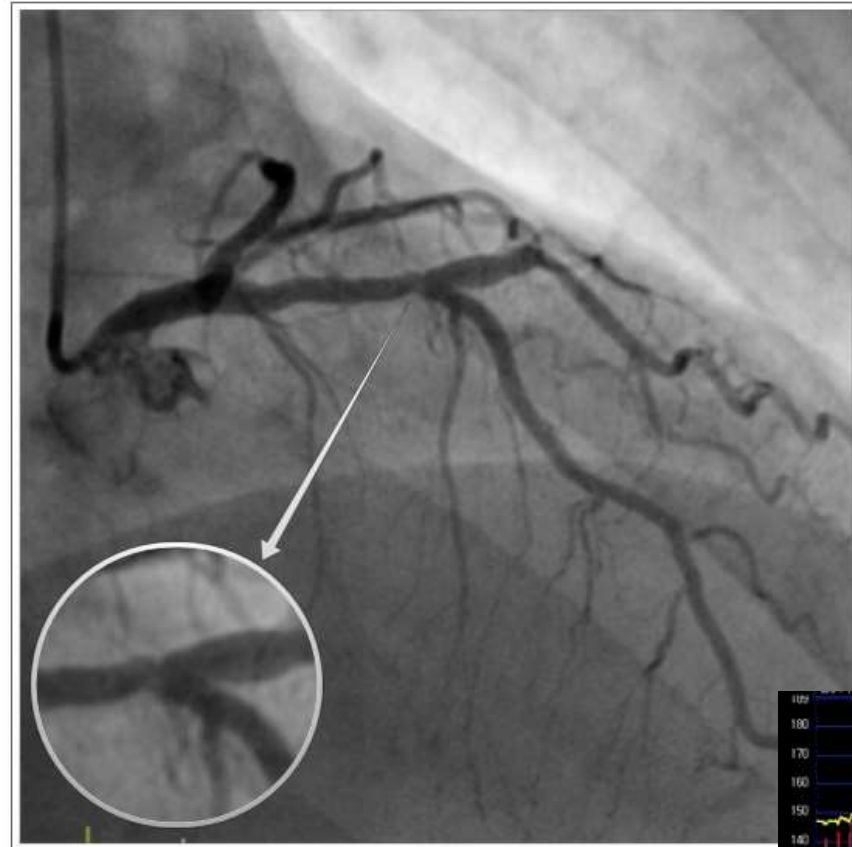
FFR



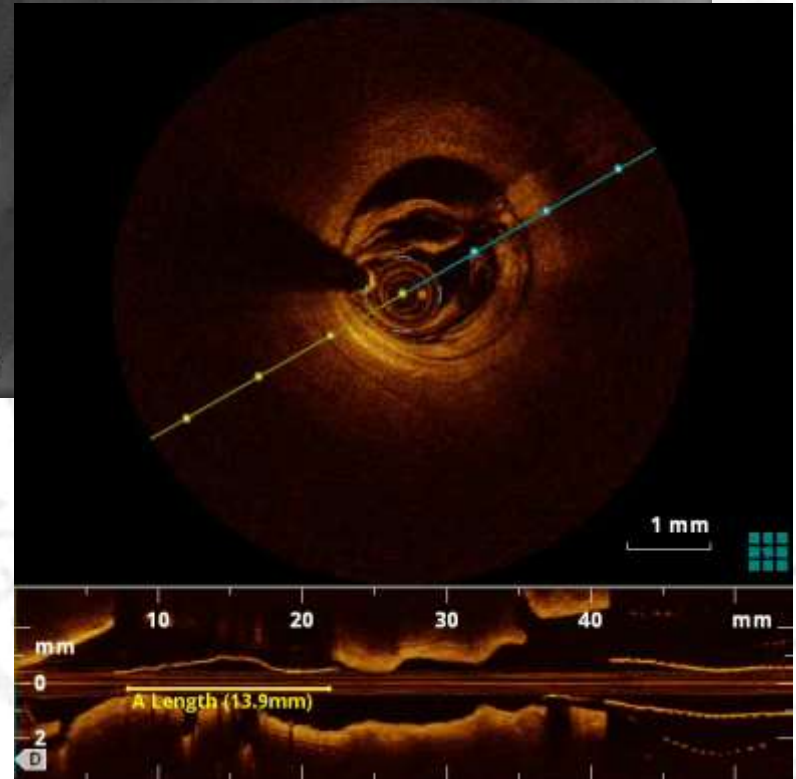
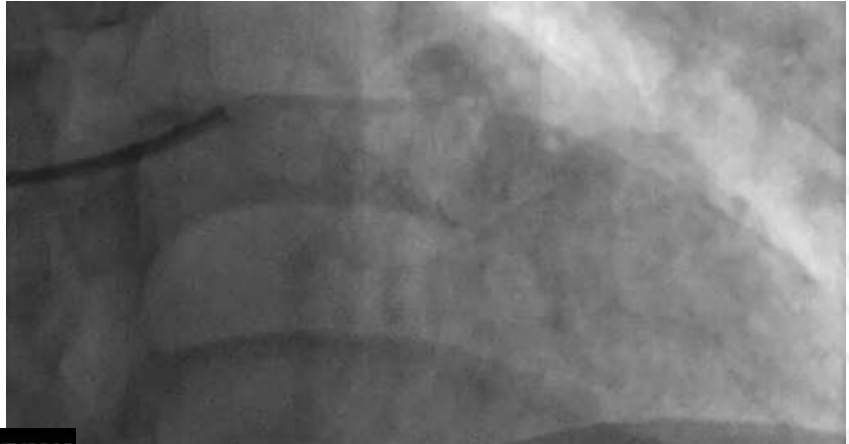
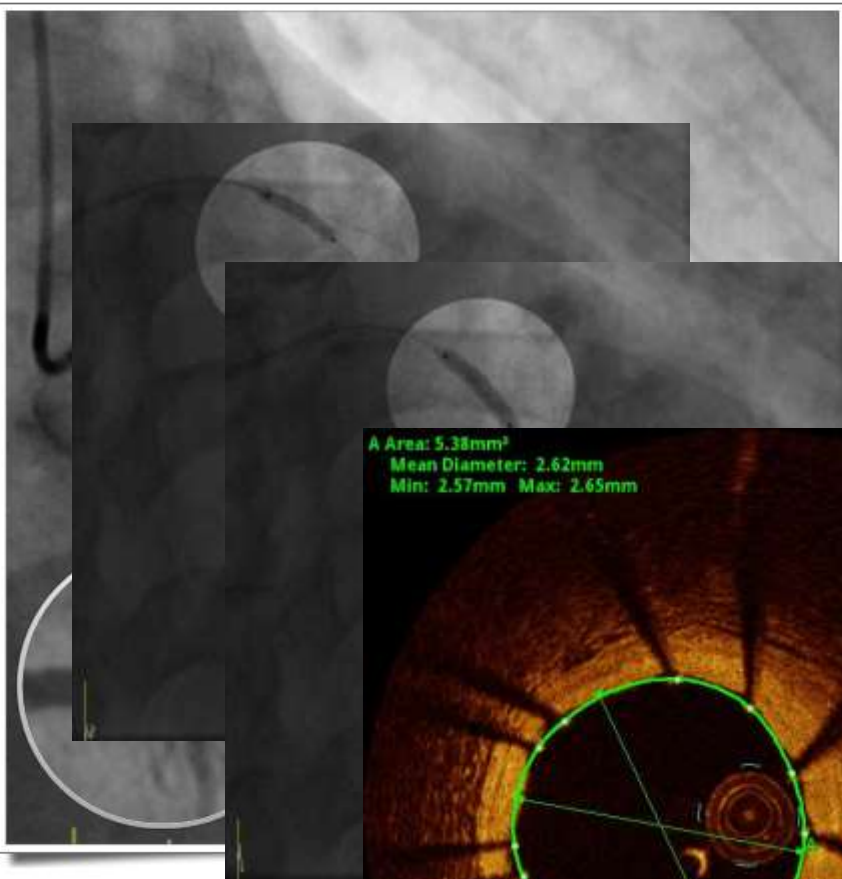
OCT



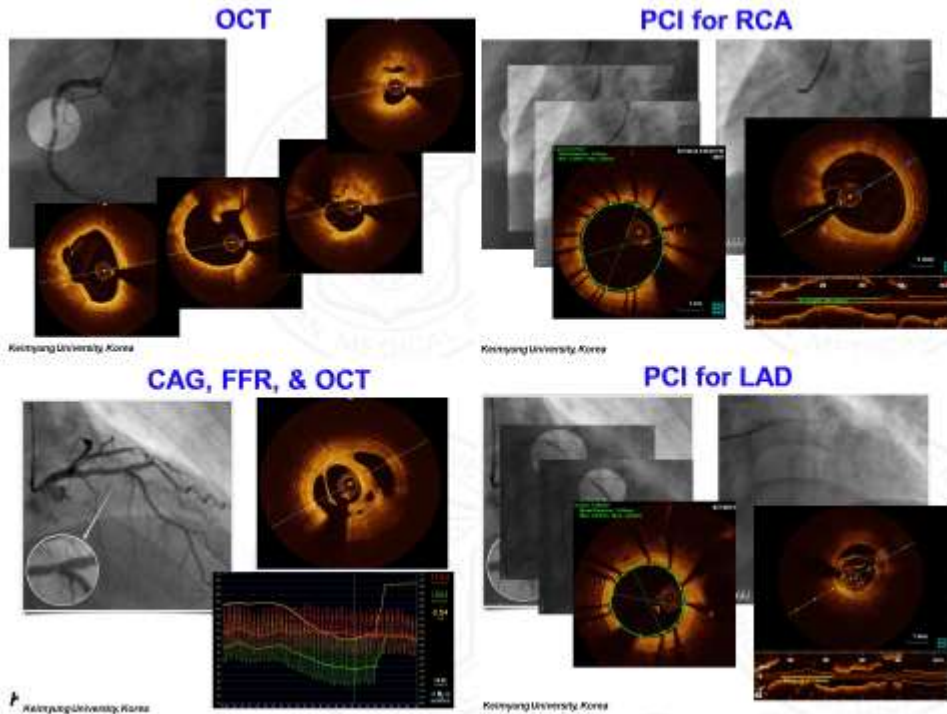
CAG, FFR, & OCT



PCI for LAD



Take Home Message



Integration of FFR & OCT-guided decision making can help to find the best option before, during, and after PCI.