

FFR-guided PCI for tandem lesion
becomes more effective procedure by
using imaging devices.

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Introduction of the case

【Patient】 A 60 year-old man

【Present illness】

In March 2012, he complained of chest pain on exertion. Sublingual nitrate was effective for the chest pain. In October, he was referred to our hospital on suspicion of effort angina.

【Coronary risk factors】 HT, DL, prior smoking

【Medication】 aspirin, clopidogrel, PPI, ARB, thiazide, statin

Physical findings

BH 165.4cm BW 58.4kg BMI 21.4kg/m²

BT 36.5 (97.7)

BP 121/69mmHg, PR 65/min

Conj: not anemic, not icteric

HS: S1,S2 normal, no extra sound, no murmur

RS: clear, no rale

Abd: soft and flat, normal bowel sound

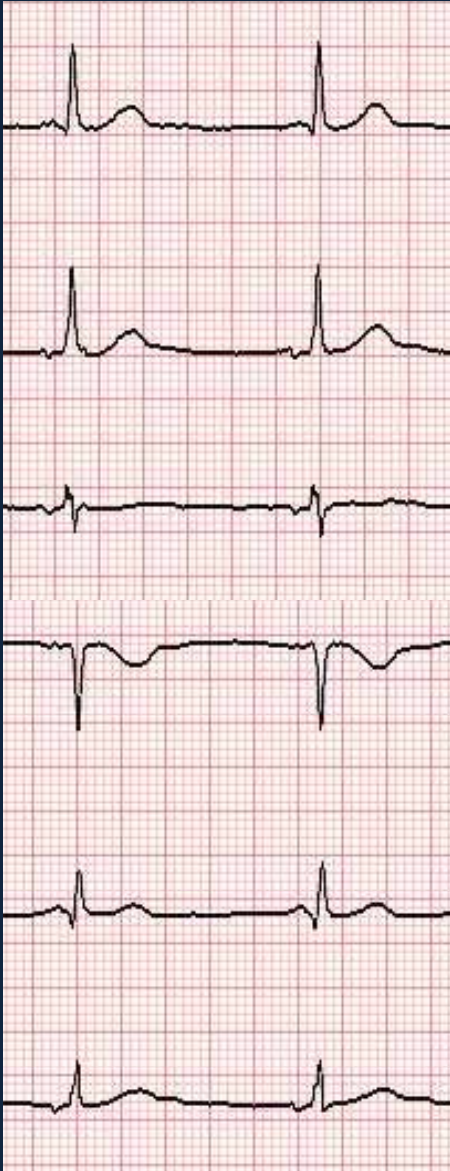
Ext: edema(-/-), dor A(+/+)

ECG

aVR

aVL

aVF



V1

V2

V3

V4

V5

V6



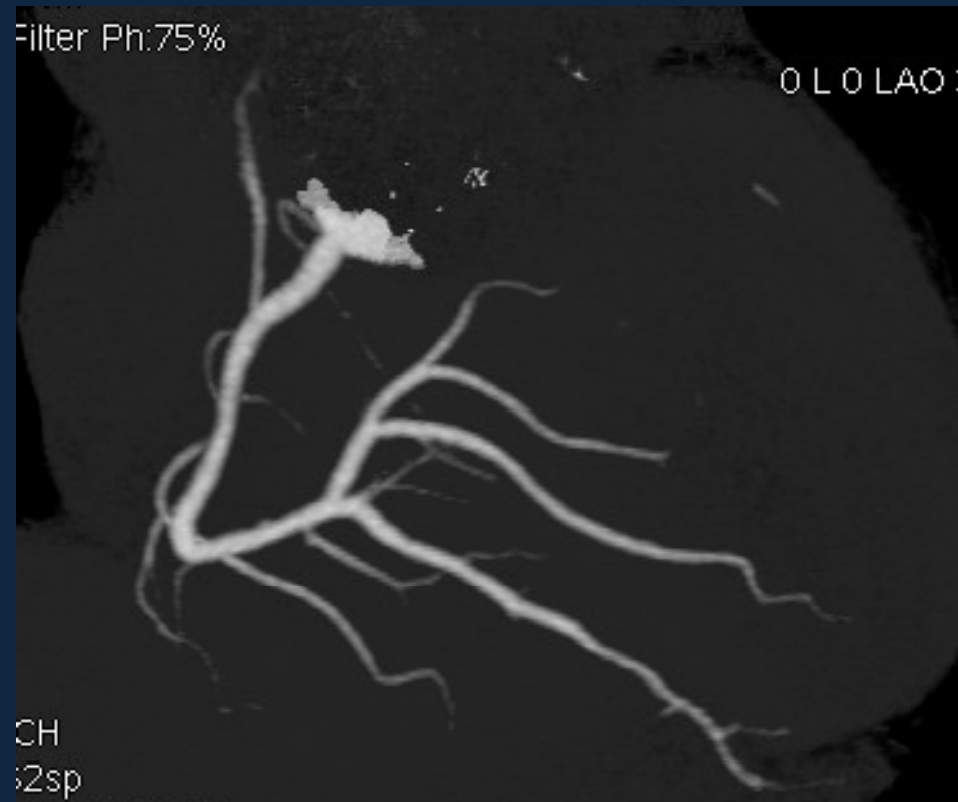
Chest X-ray



Labo data

WBC	5300 / μ L	Na	143 mEq/L
RBC	418×10^4 / μ L	K	3.4 mEq/L
Hb	13.2 g/dL	Cl	104 mEq/L
Hct	38.7 %	BUN	13 mg/dL
Plt	25.6×10^4 / μ L	Cr	0.79 mg/dL
		eGFR	77.5 mL/min/1.73m ²
AST	20 U/L		
ALT	15 U/L	UA	4.3 mg/dL
ALP	257 U/L	T.chol	161 mg/dL (4.2mmol/L)
γ -GTP	31 U/L	TG	89 mg/dL(1.0mmol/L)
LDH	173 U/L	HDL-C	78 mg/dL(2.0mmol/L)
TP	7.7 g/dL	LDL-C	65 mg/dL(1.7mmol/L)
Alb	4.6 g/dL	Glu	95 mg/dL(5.3mmol/L)
T.bil	0.5 mg/dL	HbA1c	5.5 %
CPK	90 U/L		
CRP	0.16 mg/dL		

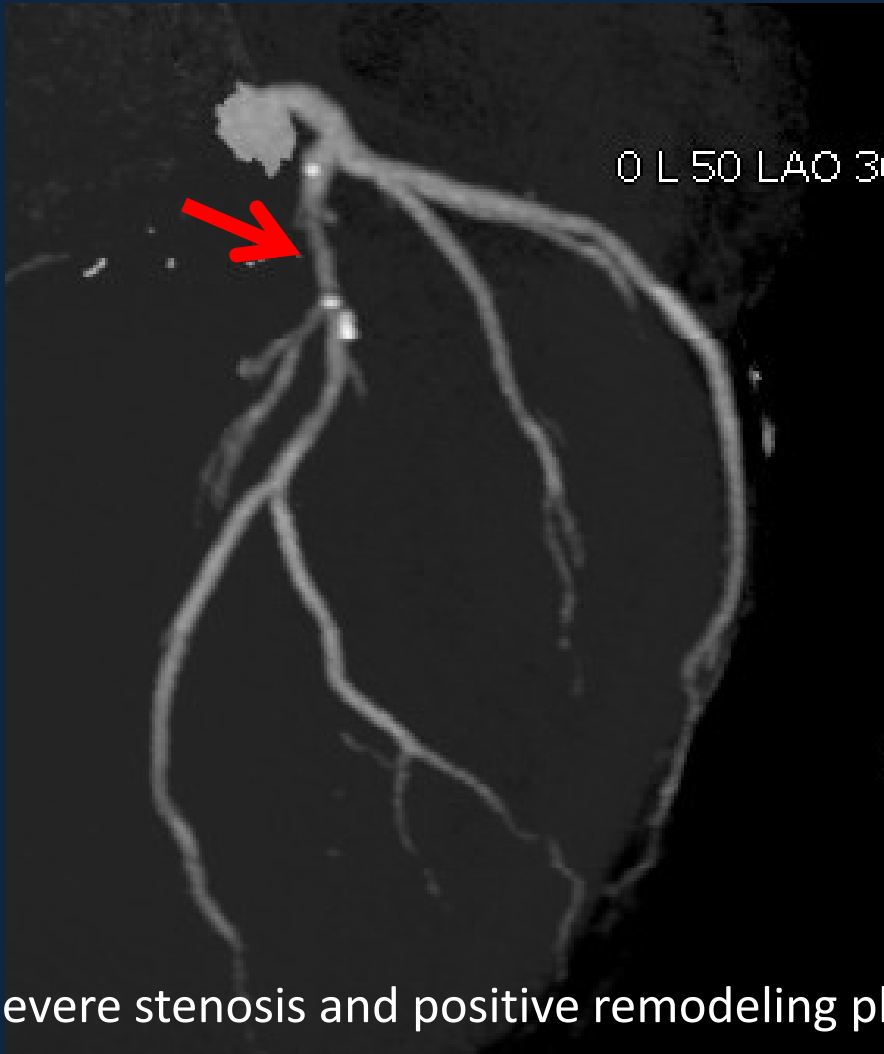
MDCT



Right coronary artery

Maximum intensity Projection

MDCT



Severe stenosis and positive remodeling plaque.

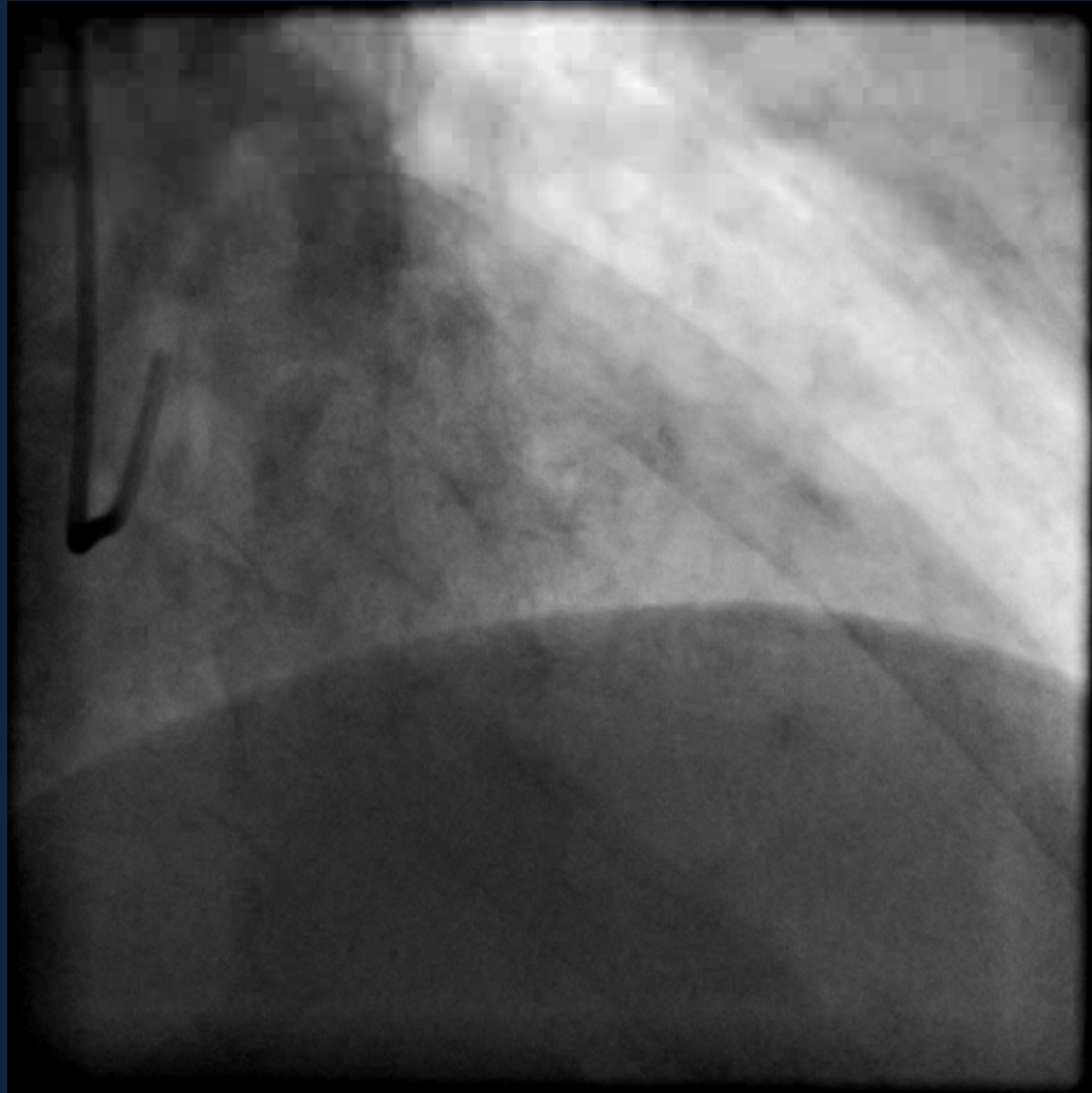
MIP



Curved MIP

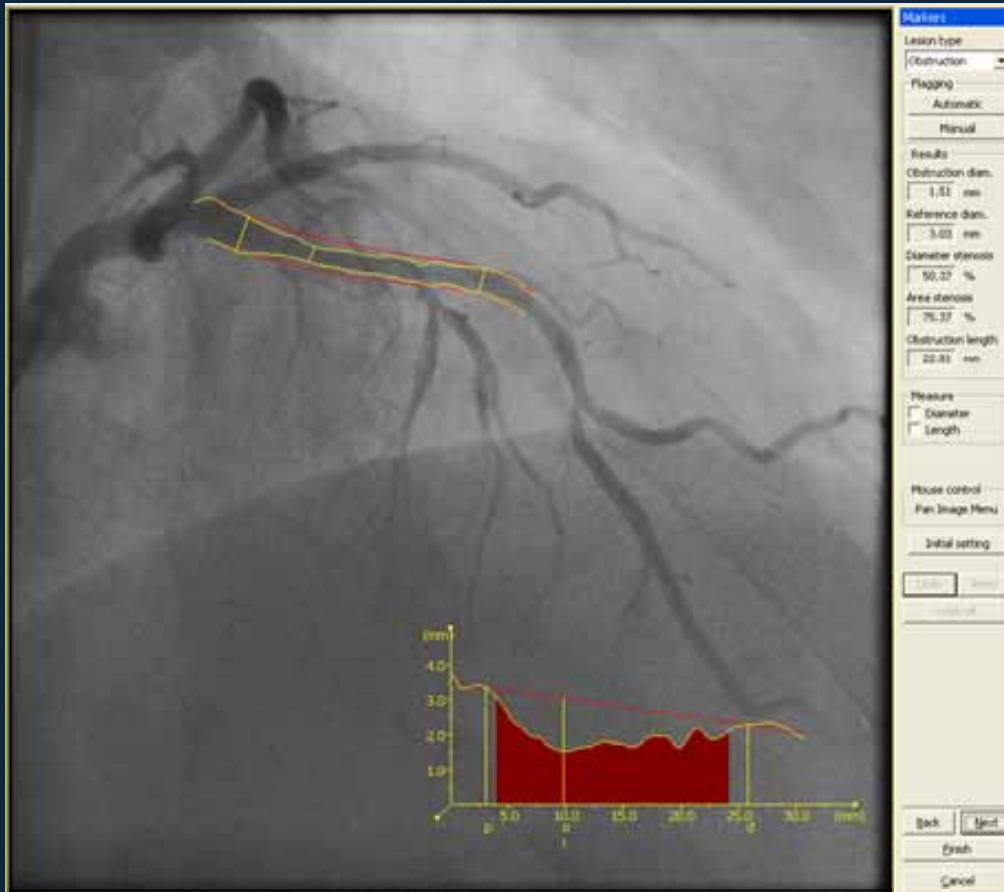
Left anterior descending coronary artery

CAG



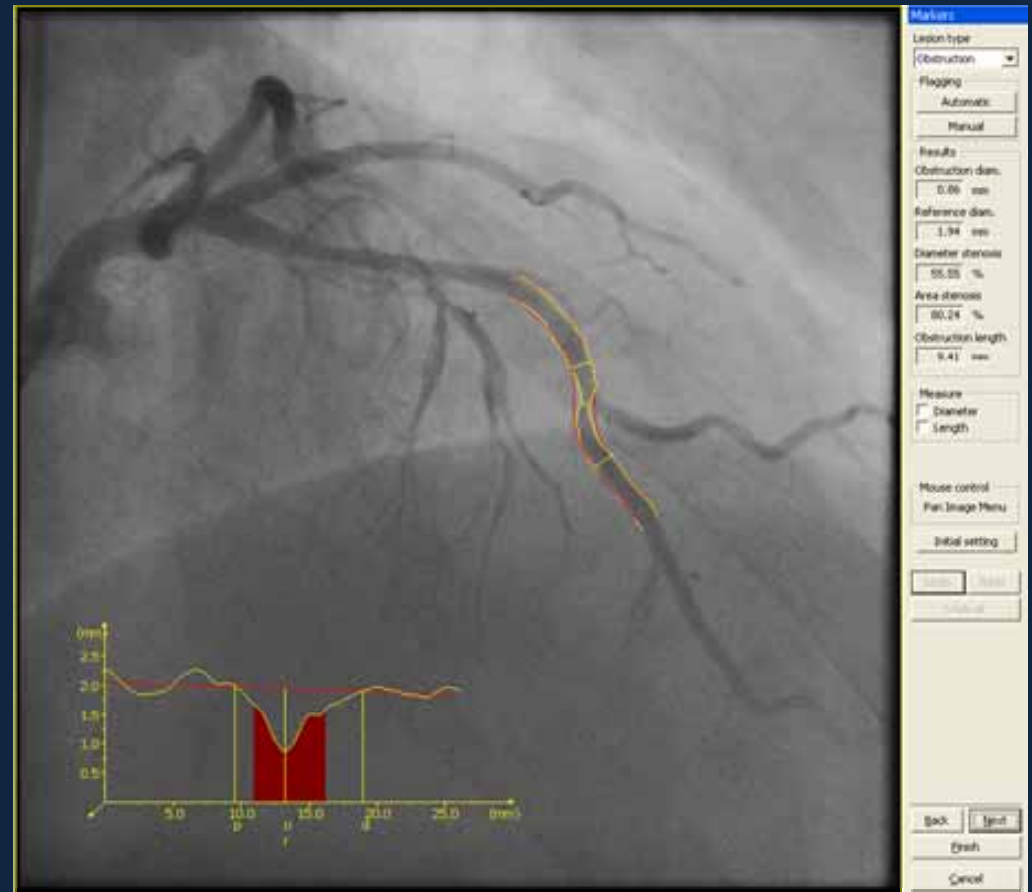
Significant stenosis in proximal and mid portion of LAD.

QCA



%DS 51%

Diffuse and moderate stenosis

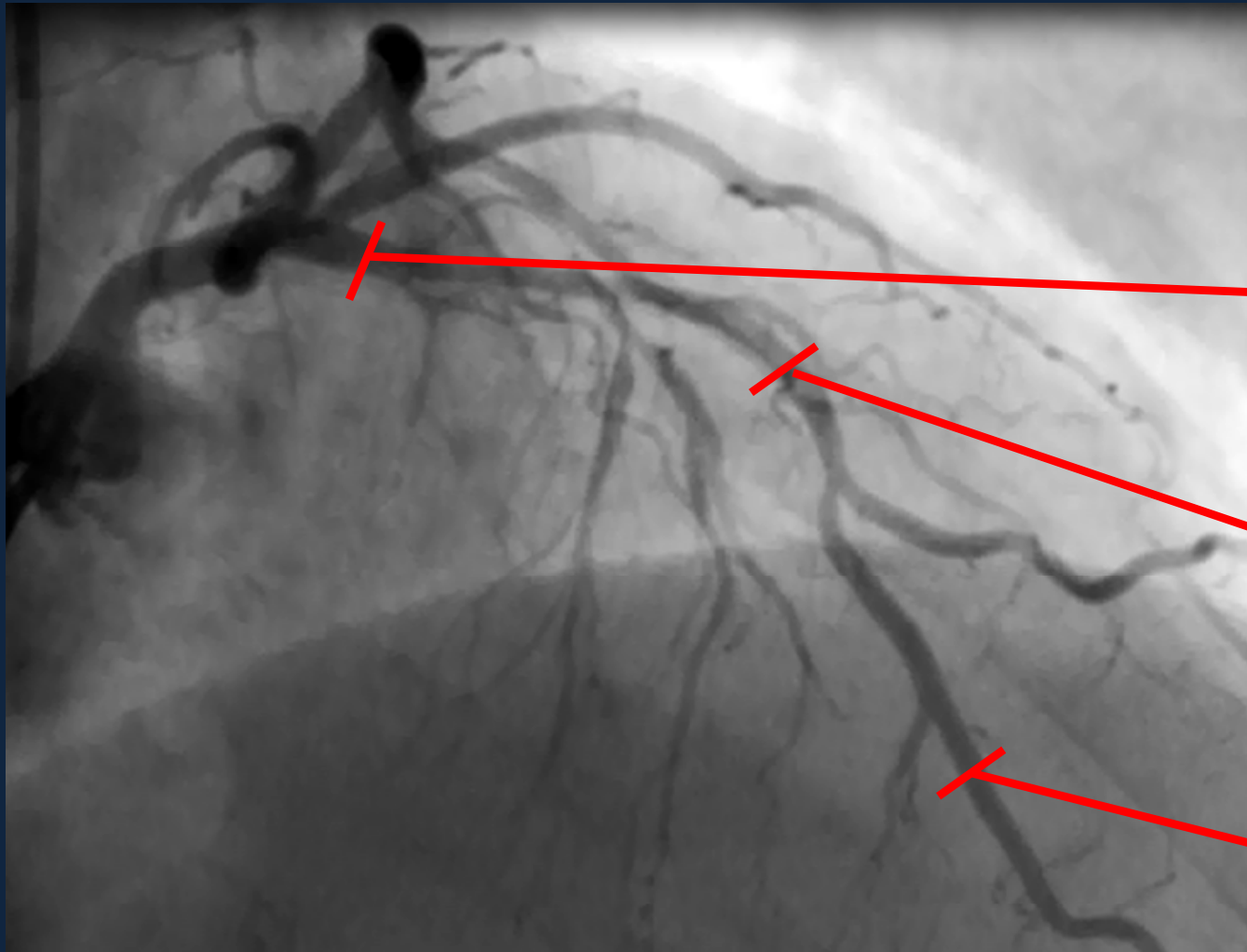


%DS 56%

Focal lesion

FFR

ATP150 μ g/kg/min was administered.



FFR1.0

↑ +0.17

FFR0.83

↑ +0.13

FFR0.70

Which lesion should be treated?

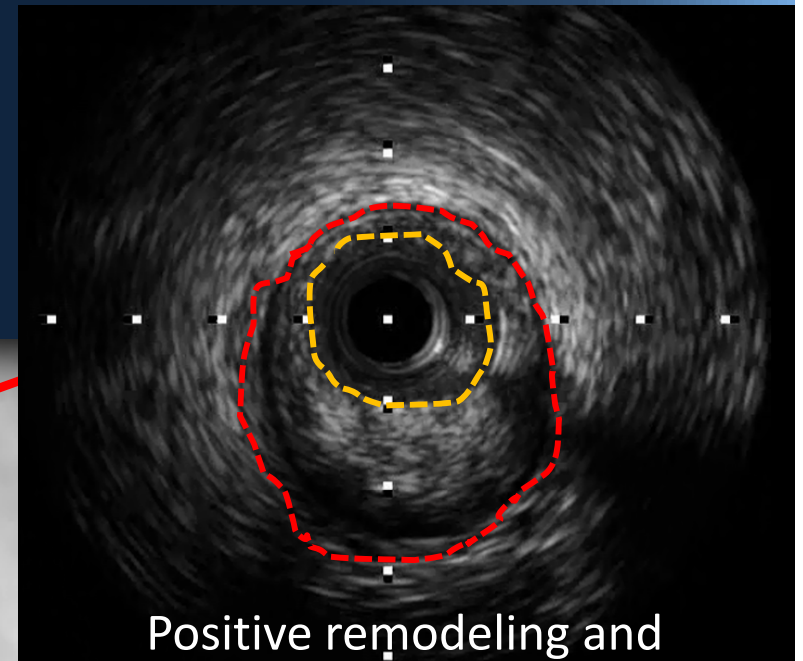
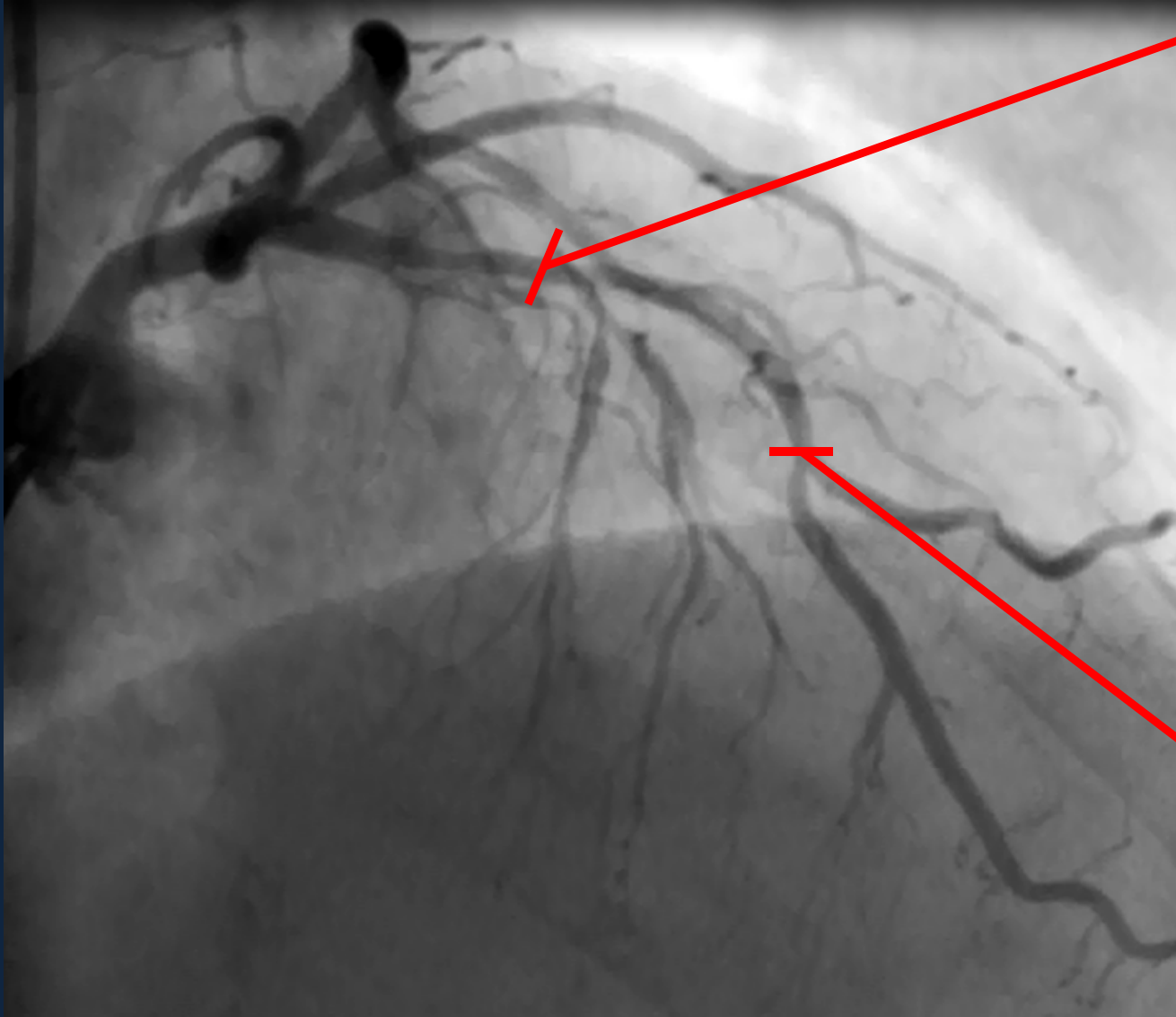
IVUS

2012/10/18
14:21

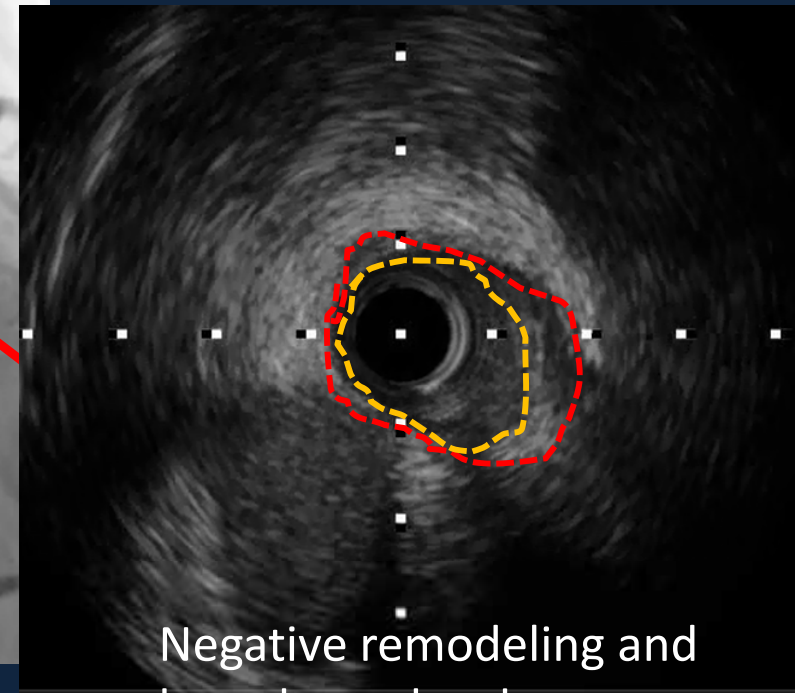
Lossy Image
Not for diagnostic purposes



IVUS

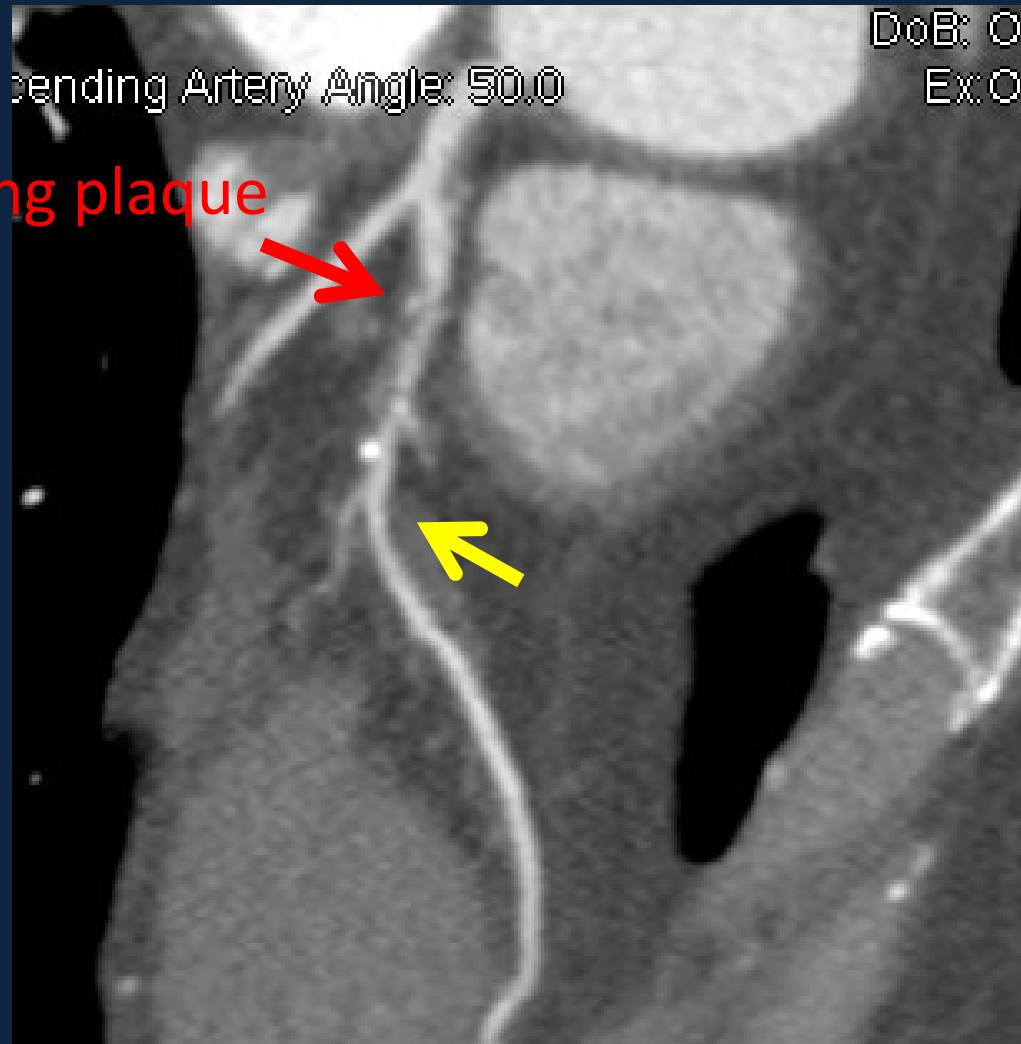


Positive remodeling and rich plaque burden



Negative remodeling and less plaque burden

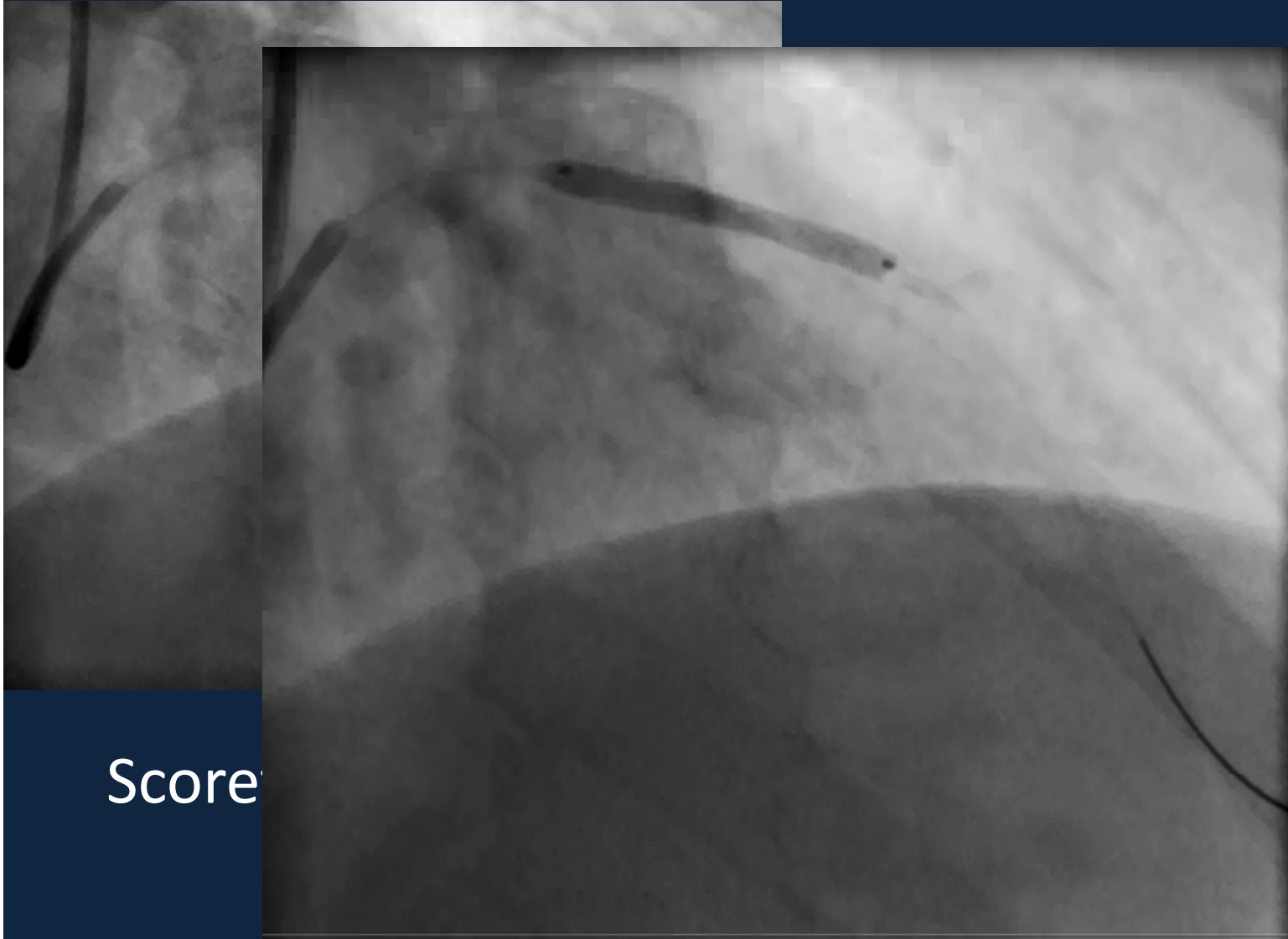
MDCT



Curved MPR

Left anterior descending coronary artery

PCI



Rt radial approach: 6Fr
GC: Runway 6Fr JL3.5
GW: Pressure wire

Score

Biolimus eluting stent 3.0x24mm

Post PCI



FFR post stenting was 0.86.

Discussion

- When several stenoses are present within one coronary artery, FFR for each individual stenosis is confounded.

Pijls et al. Circulation 2000;102:2371–7.

- FFR-guided revascularization strategy which the stenosis caused the largest pressure step up in FFR was stented first was safe and effective.

Kim et al. JACC CARDIOVASC INTERV 2012; vol 5, NO.10, 1013-8.

- By using imaging devices, we were able to make the more reliable PCI strategy including lesion characteristic evaluation.

Take home message

FFR-guided PCI for tandem lesion becomes more effective procedure by using imaging devices.