

iFR and FFR

Discrepant case. Why?

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case1 : iFR and FFR Why discrepant?

73 y.o female

PHx : none

PI : Chest discomfort during walking CCS class2

Problem list

#1. HT #2. Ascending Aortic replacement due to TAA.

#3. CAA aneurysm #4. VA aneurysm #5. CKD. #6.

effort angina

MDCTCA findings

#1. intermediate focal stenosis in proximal RCA

#2. intermediate stenosis in mid LAD

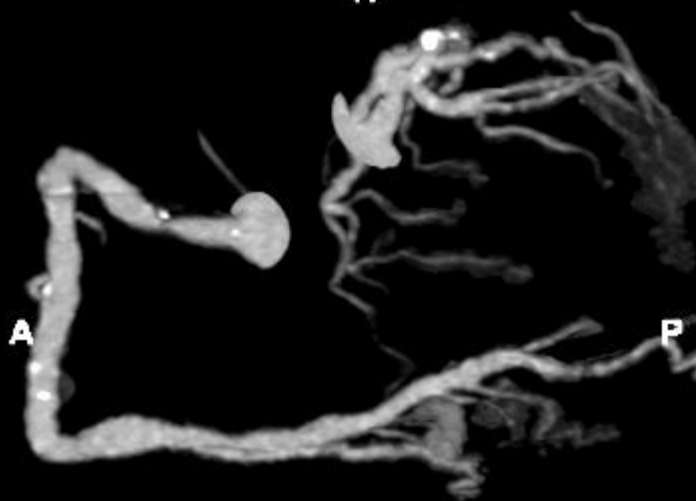
Cr : 1.4mg/dl eGFR : 36 ml/min/1.43m²



H



P



A

P

A: L

F

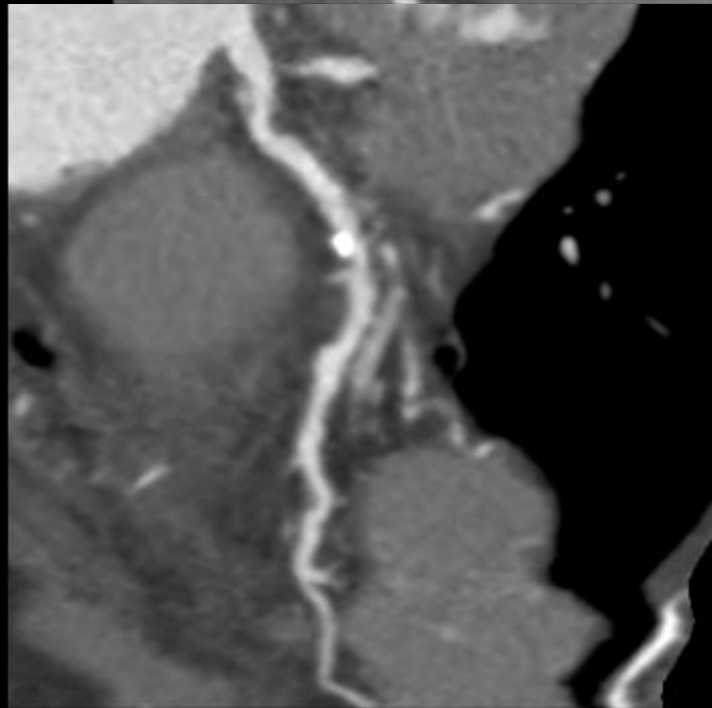
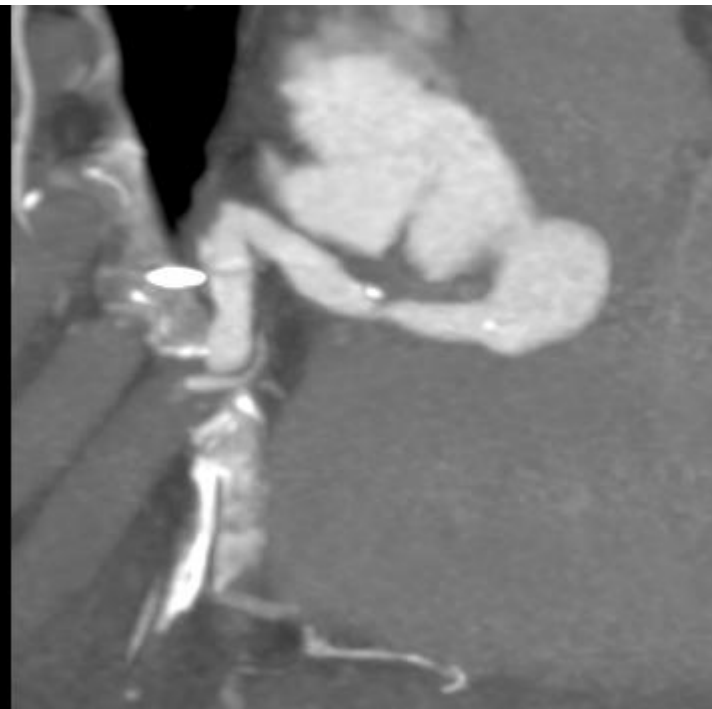
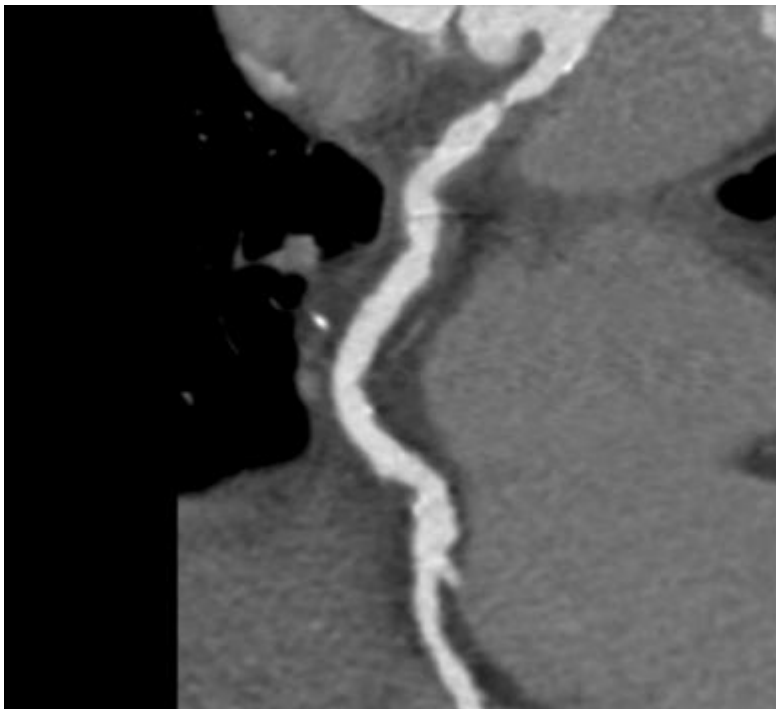


R

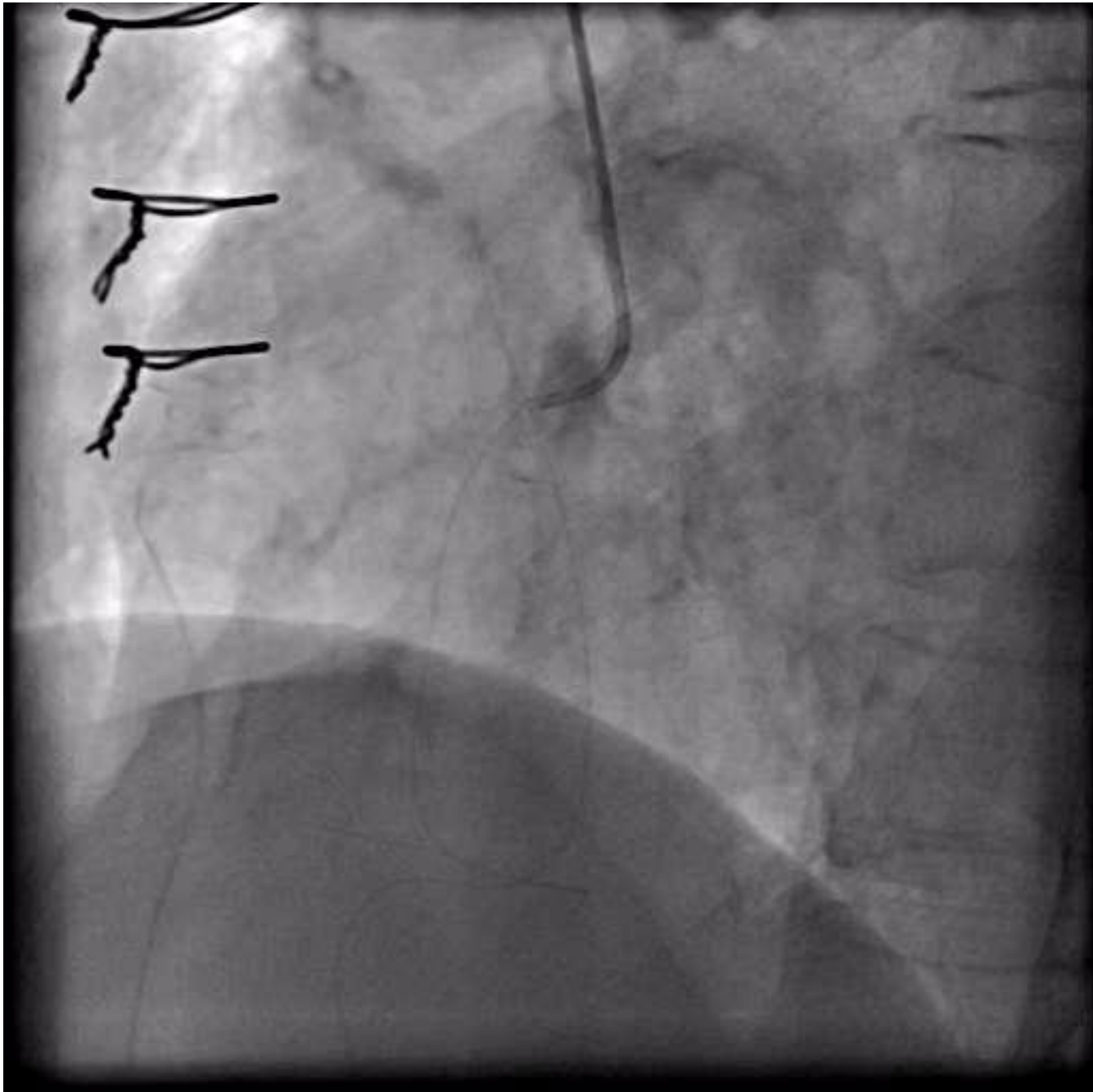
L

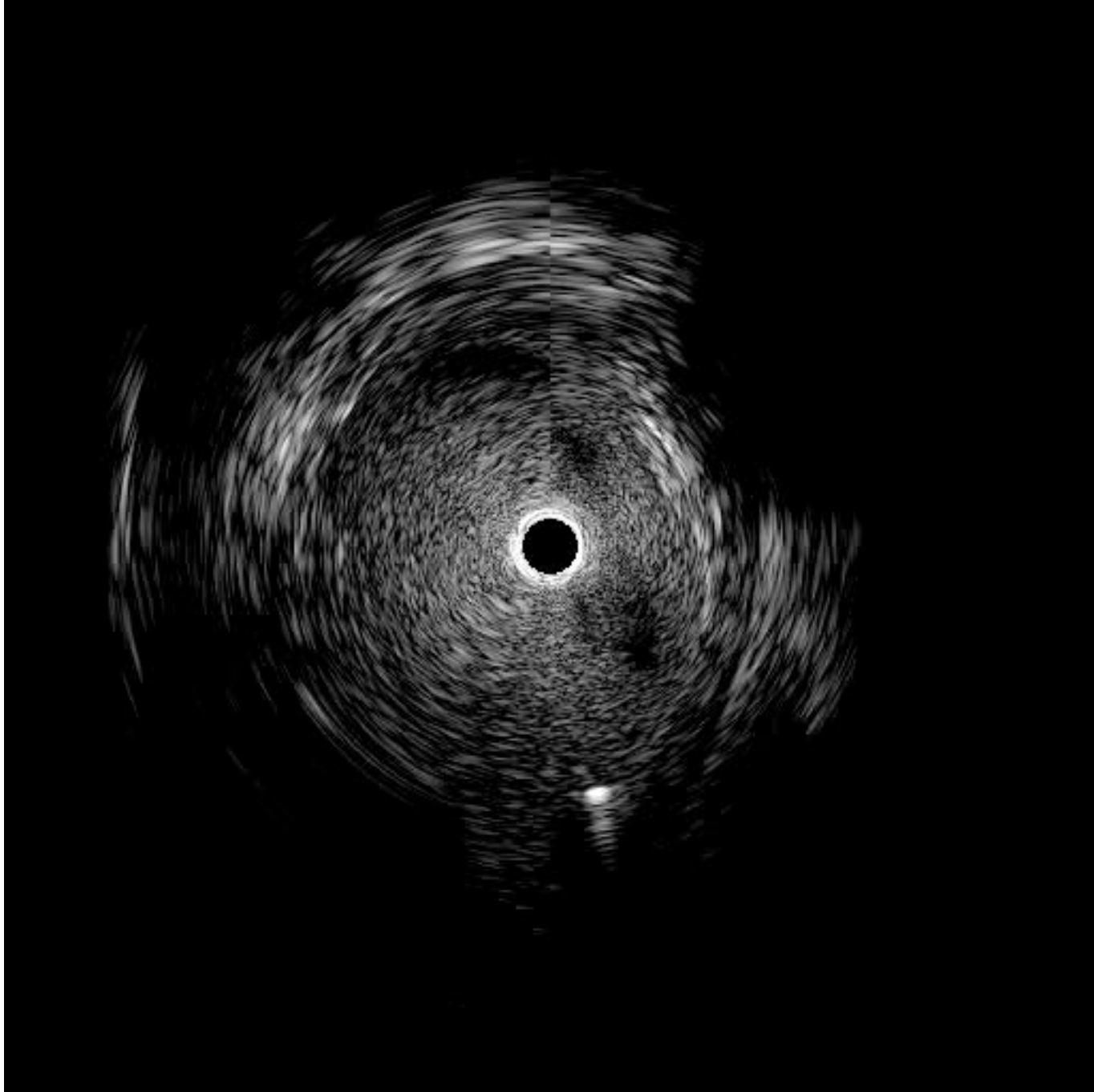
H
A

A



case1 : iFR and FFR Why discrepant?

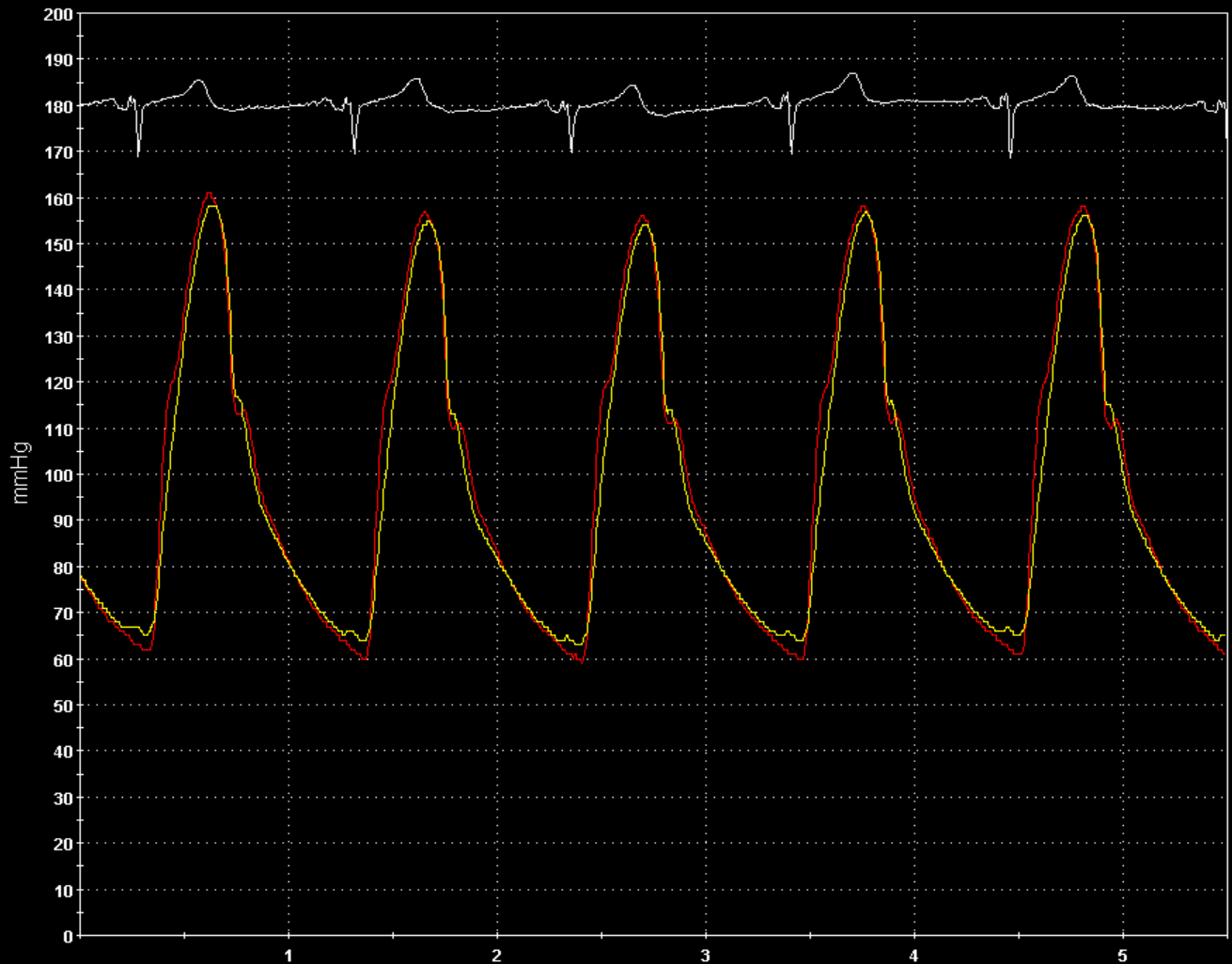




0:06

iFR™
1.00

List of Runs	iFR	FFR
11:13:44 AM	1.00	
RCA Distal		
11:14:09 AM		0.78
11:18:41 AM		0.75
11:19:55 AM		0.75
11:40:53 AM	0.99	
11:41:43 AM		0.93
11:45:04 AM		0.93



Live

Options

Save Frame

Select Mode

Settings

Patient

FFR

iFR™

0:25

FFR 0.75

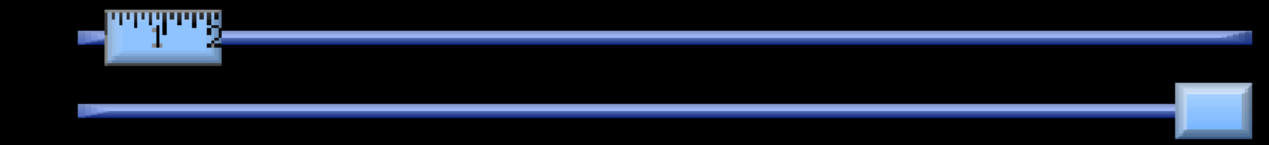
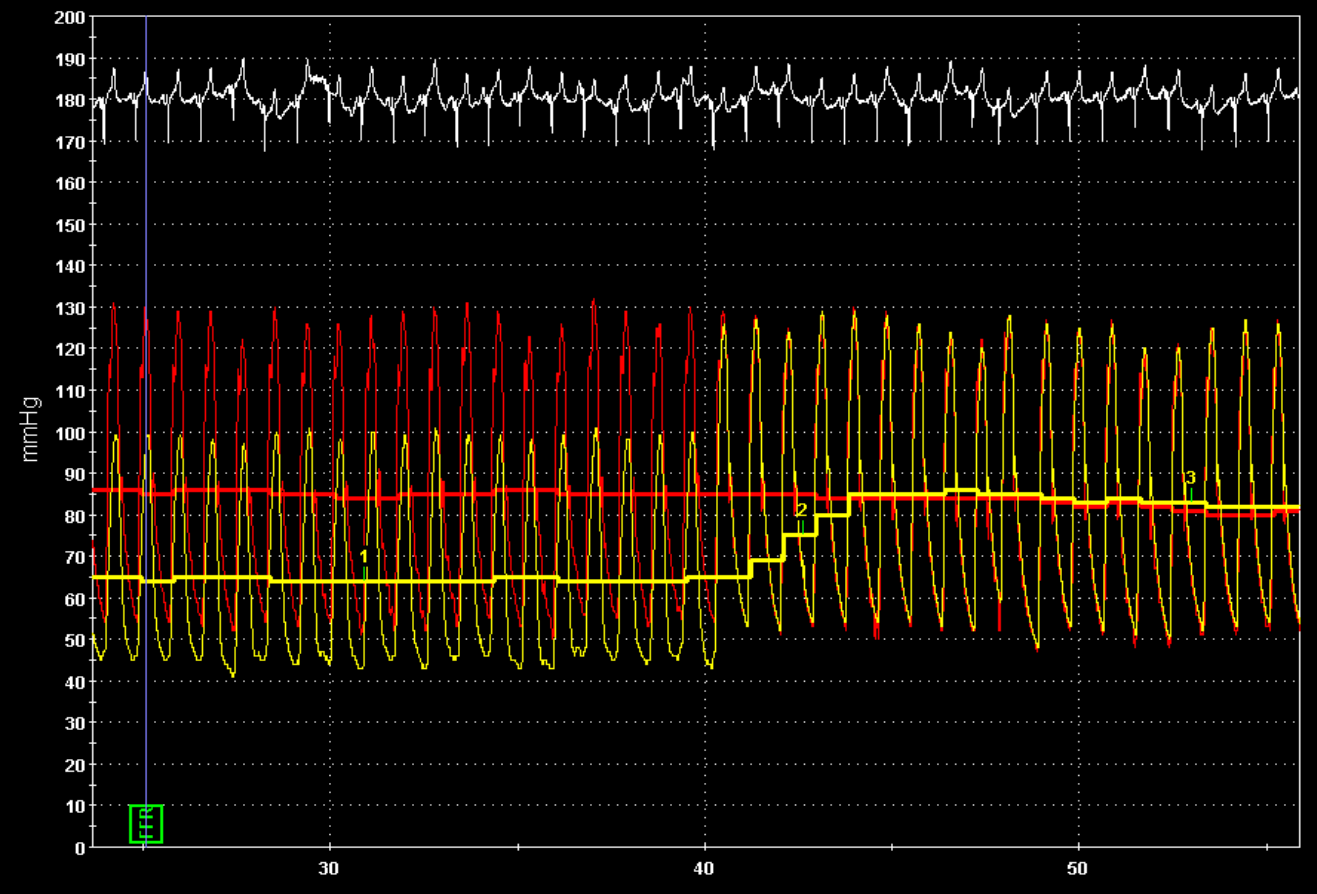
Pd/Pa 0.75

Pa:iPa 85:128

Pd:iPd 64:97

HR 70

List of Runs	iFR	FFR
11:13:44 AM	1.00	
RCA Distal		
11:14:09 AM	0.78	
RCA Distal		
11:18:41 AM	0.75	
RCA Distal		
11:19:55 AM	0.75	
RCA Distal		
11:40:53 AM	0.99	
Post RCA Distal		
11:41:43 AM	0.93	
Post RCA Distal		
11:45:04 AM	0.93	
Post RCA Distal		



Options

Save Frame

Select Mode

Settings

Patient

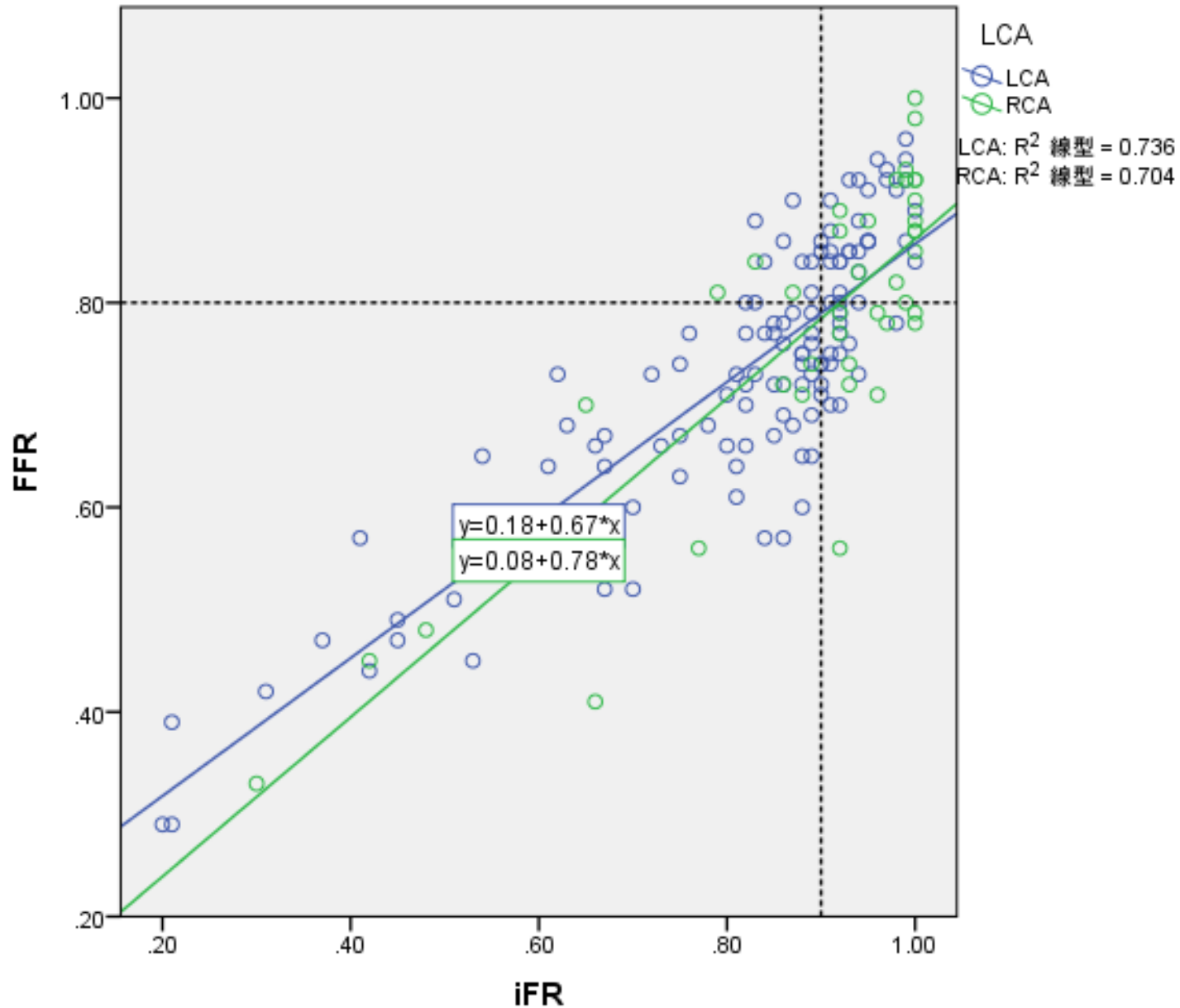
FFR

iFR™

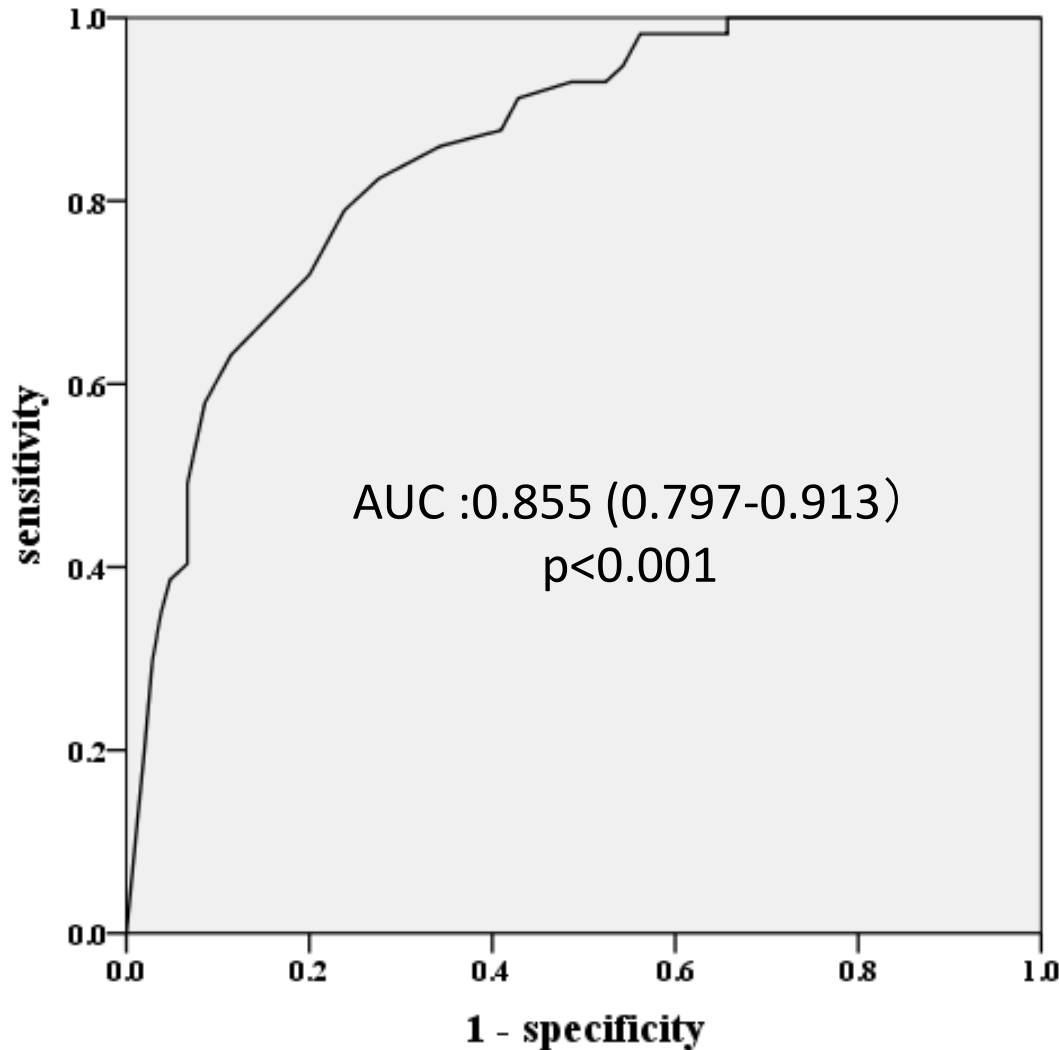
Lesion Characteristics

Lesion base analysis	n=162
measured vessel	RCA 40 LCA 122
MI related	12
Lesions with stable pt	100
Lesions with unstable pt	62
FFR _{myo}	0.74 ± 0.14
FFR ≤ 0.80	105 (64.8%)
iFR	0.83 ± 0.17
MLD	1.23 ± 0.41
Ref VD	2.89 ± 0.67
LL	25.9 ± 17.4
%DS	57.1 ± 10.2

Correlation of *iFR* with *FFR*



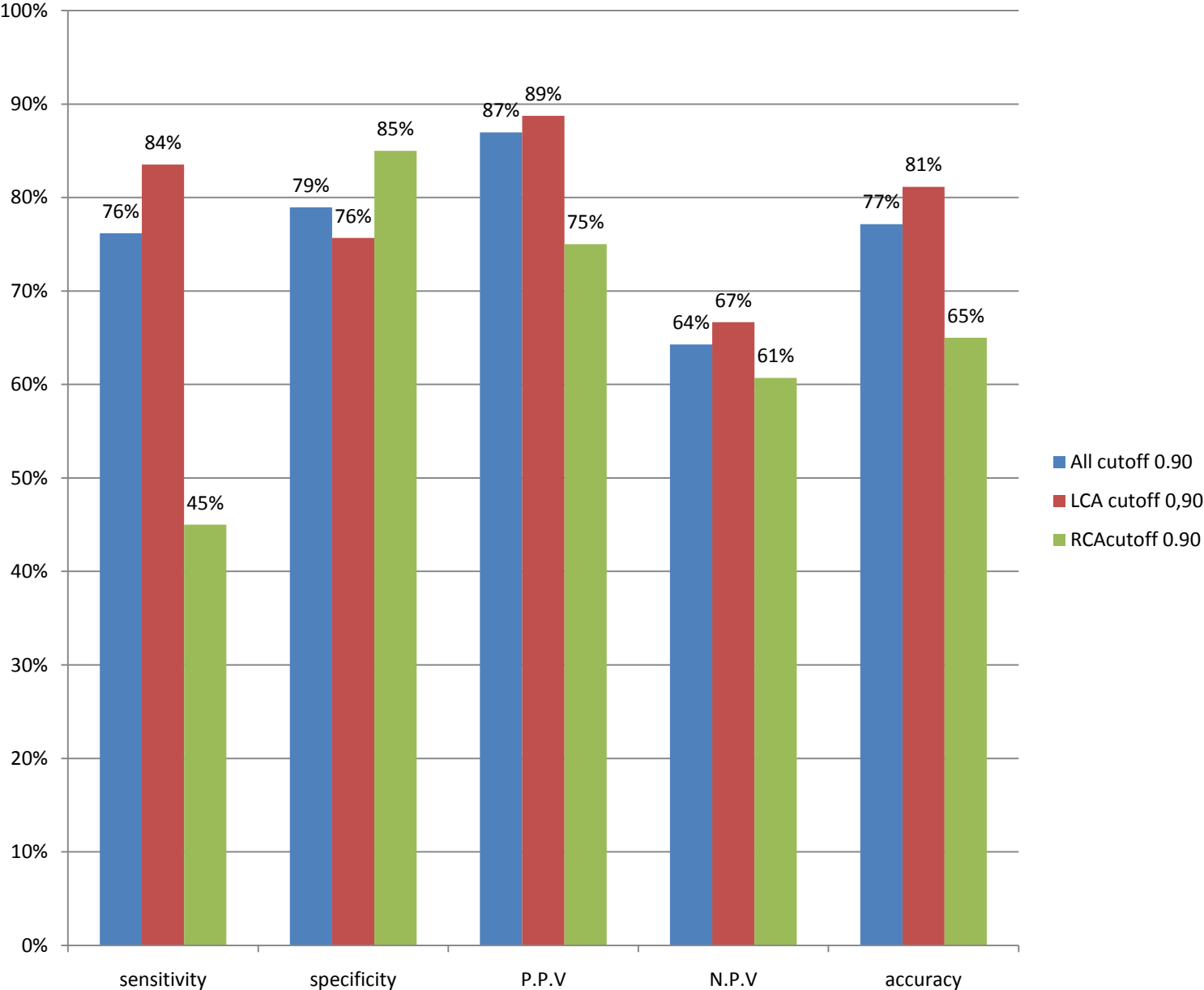
Diagnostic characteristics of iFR



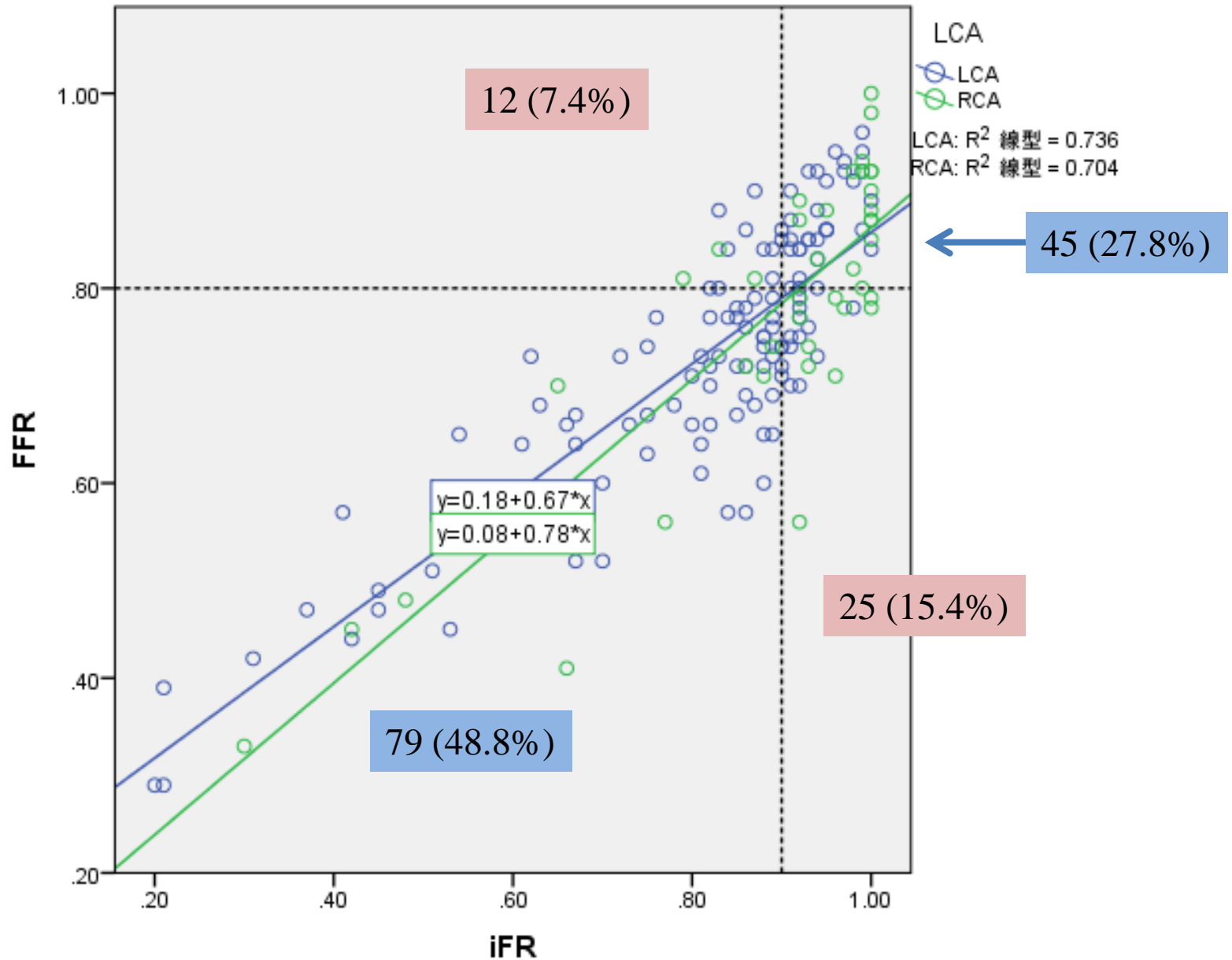
**All lesions
N=162**

iFR Best cutoff : 0.90
Sensitivity : 76.2%
Specificity : 78.9%
P.P.V : 87.0%
N.P.V : 64.0%
Accuracy: 77.2%

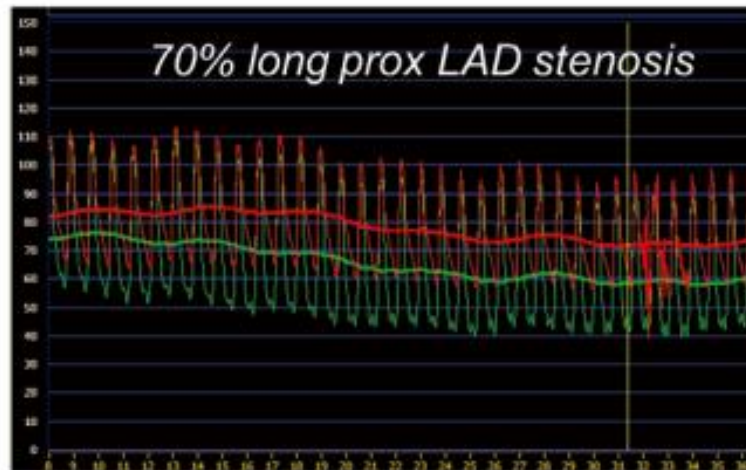
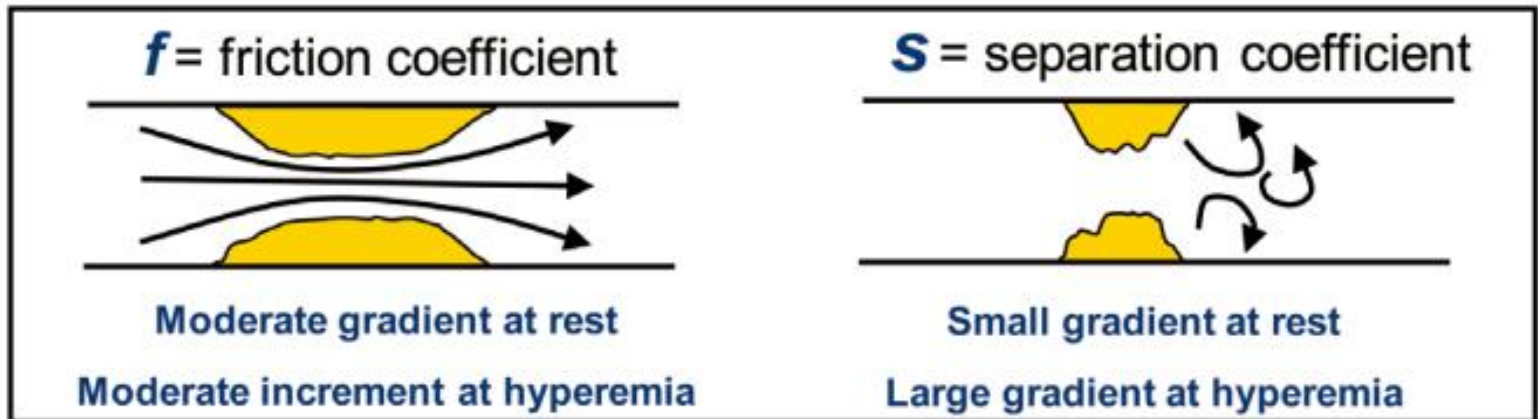
Diagnostic accuracy of iFR cutoff 0.90 for detecting ischemia causing stenosis ($FFR \leq 0.80$)



Correlation of *i*FR with FFR



$$\Delta P = f.Q + s.Q^2$$

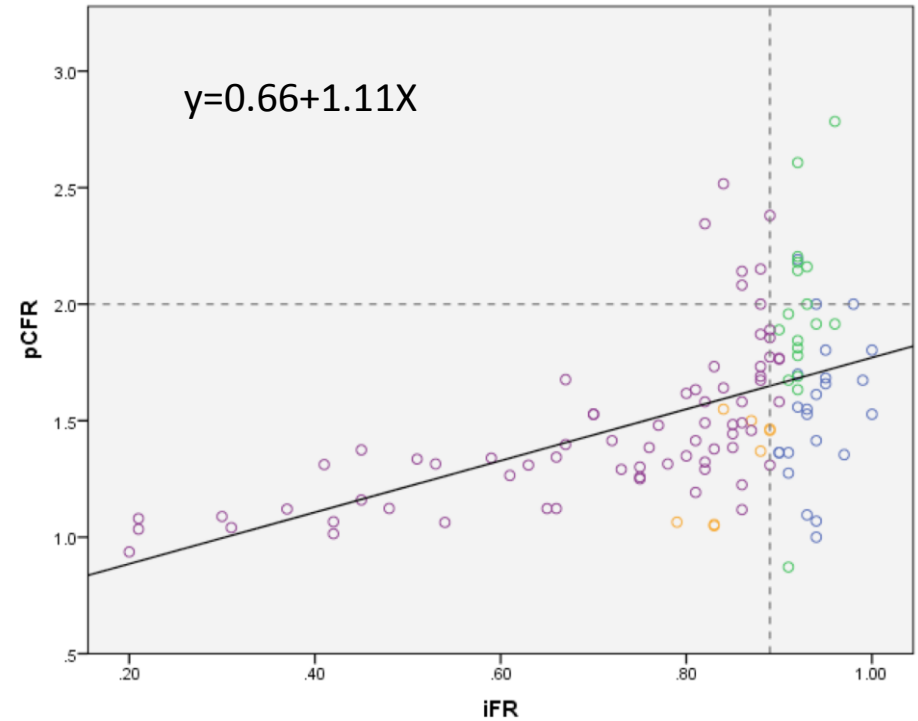
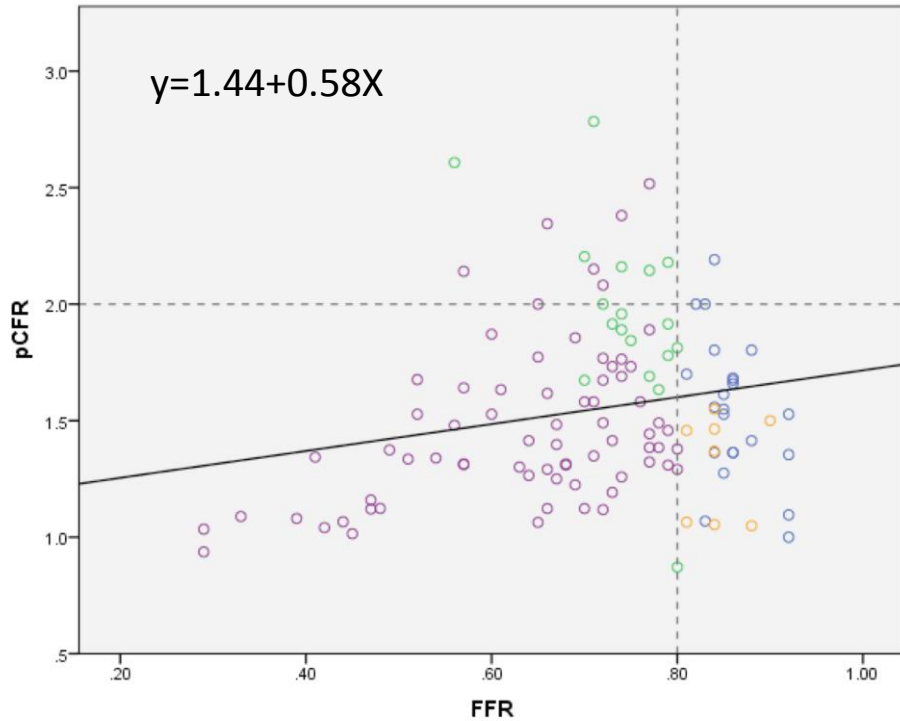


iFR = 0.89 FFR = 0.85



iFR = 0.94 FFR = 0.57

Pressure derived CFR = $\sqrt{\text{meanPG at rest}} / \sqrt{\text{meanPG at rest}}$



$r=0.211$ (95%CI: 0.012-0.143), $p=0.02$

$r=0.532$ (95%CI: 0.181-0.329), $p<0.001$

Case summary

- 73 year old female patient whose iFR was completely normal but FFR was below ischemic threshold.
- This type of discrepancy may cause some misclassification of ischemic stenosis between iFR and FFR.
- Patients with this misclassification (ischemia positive by FFR, no ischemia by iFR) showed high pressure derived CFR than the category with ischemia causing stenosis by both FFR and iFR.