

# FFR in Bifurcations

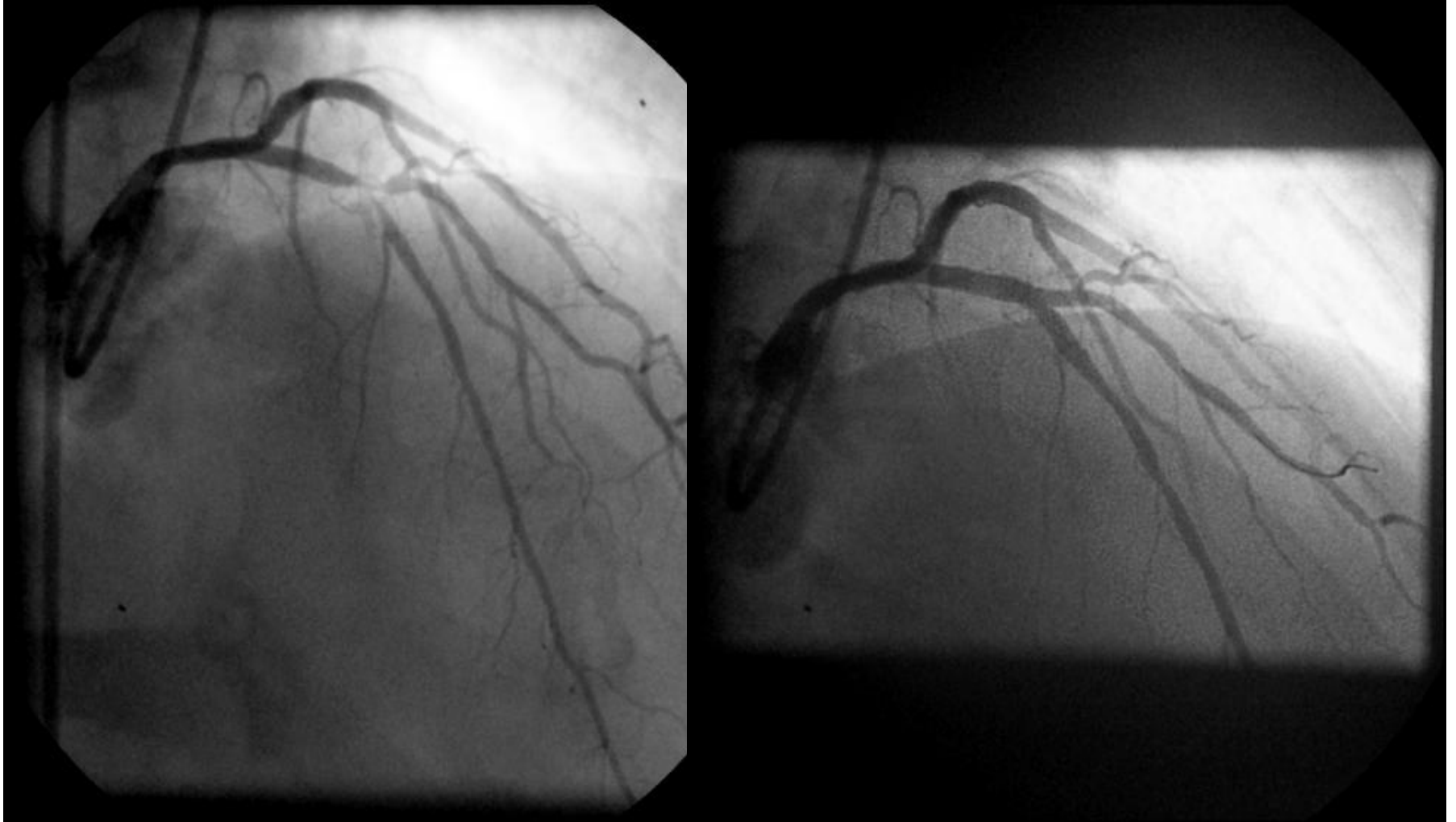


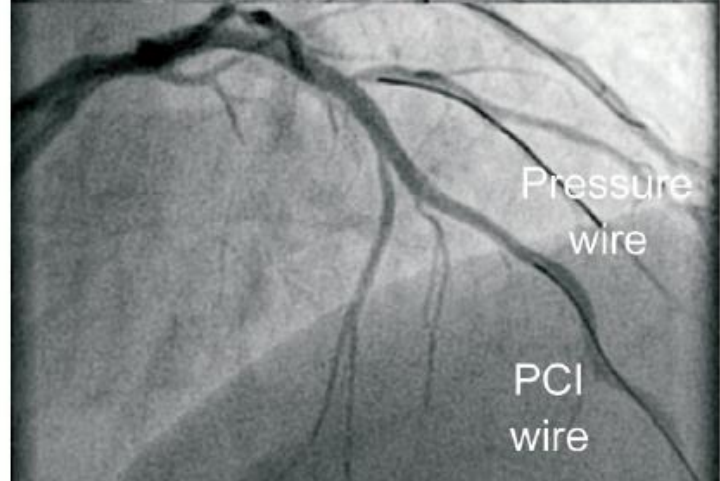
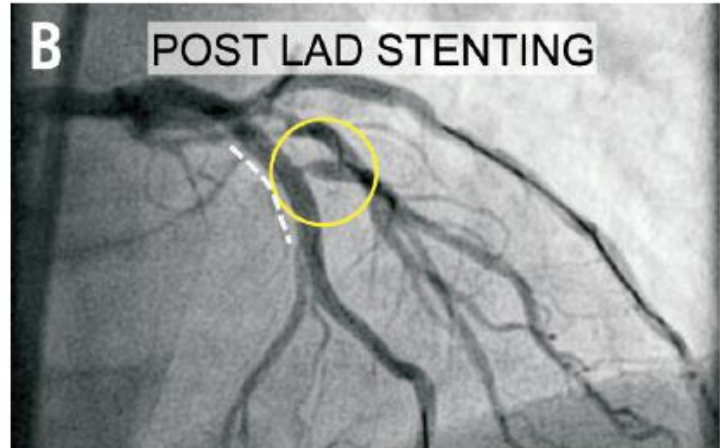
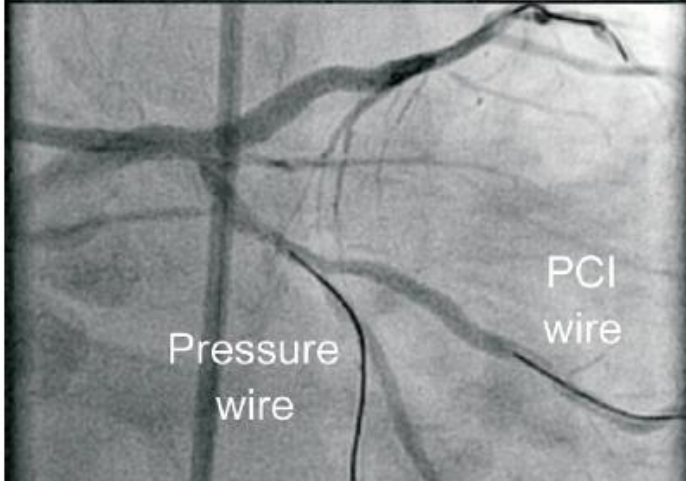
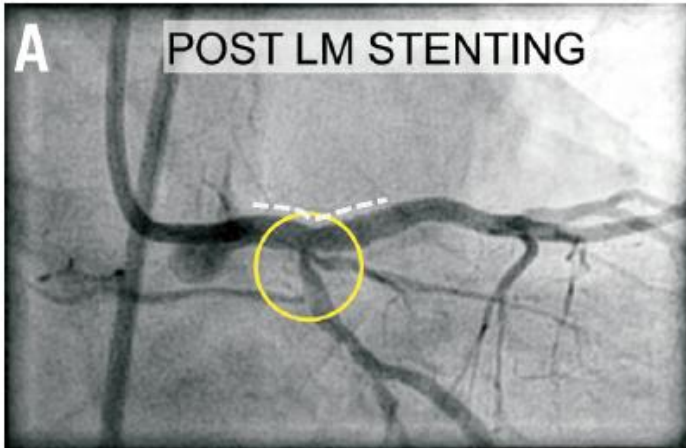
Professor Keith G Oldroyd  
West of Scotland Regional Heart & Lung Centre  
Golden Jubilee National Hospital  
Glasgow



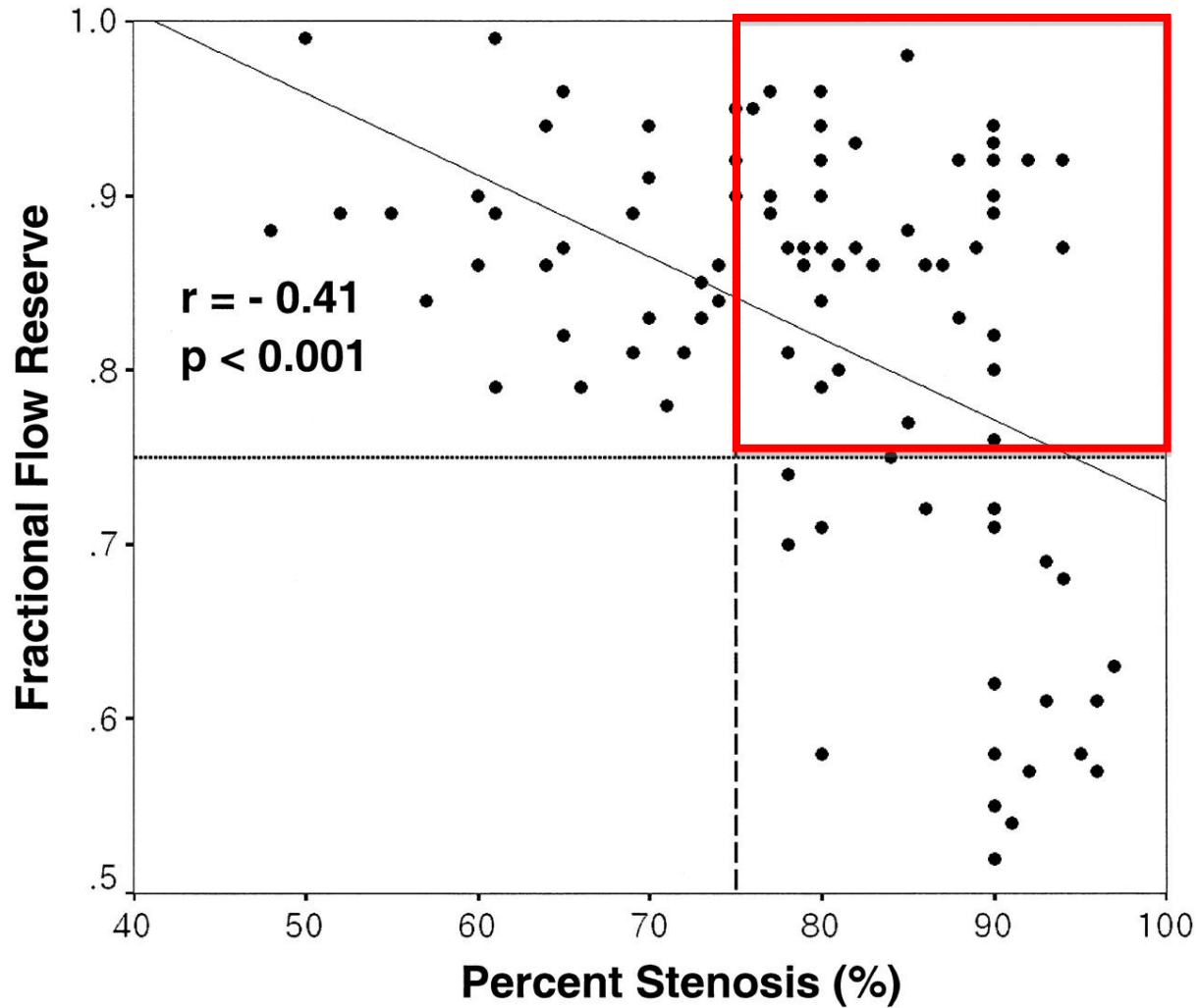
University  
of Glasgow

# Bifurcation Stenting





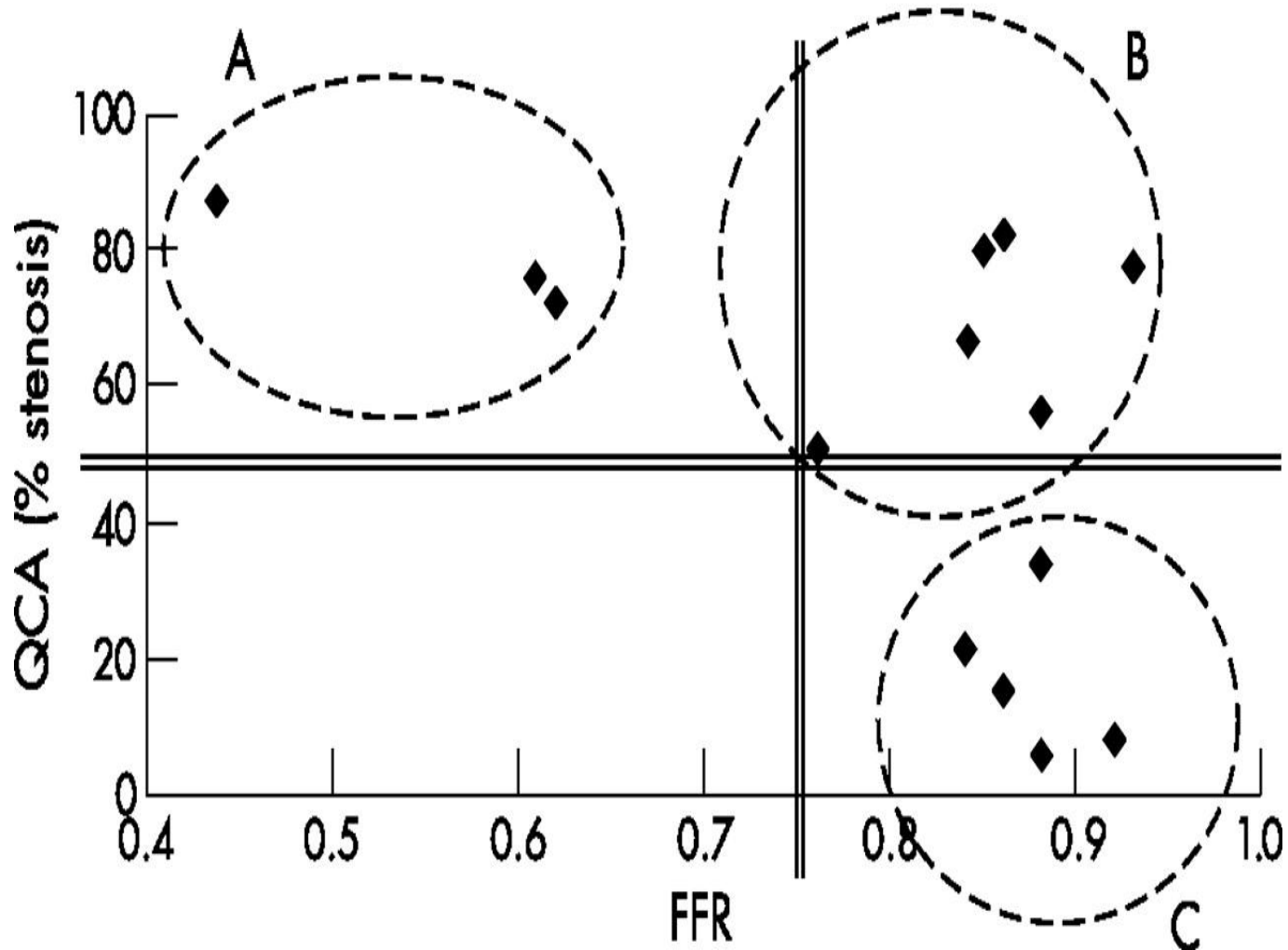
# FFR < 0.75 vs QCA in Jailed Side Branches



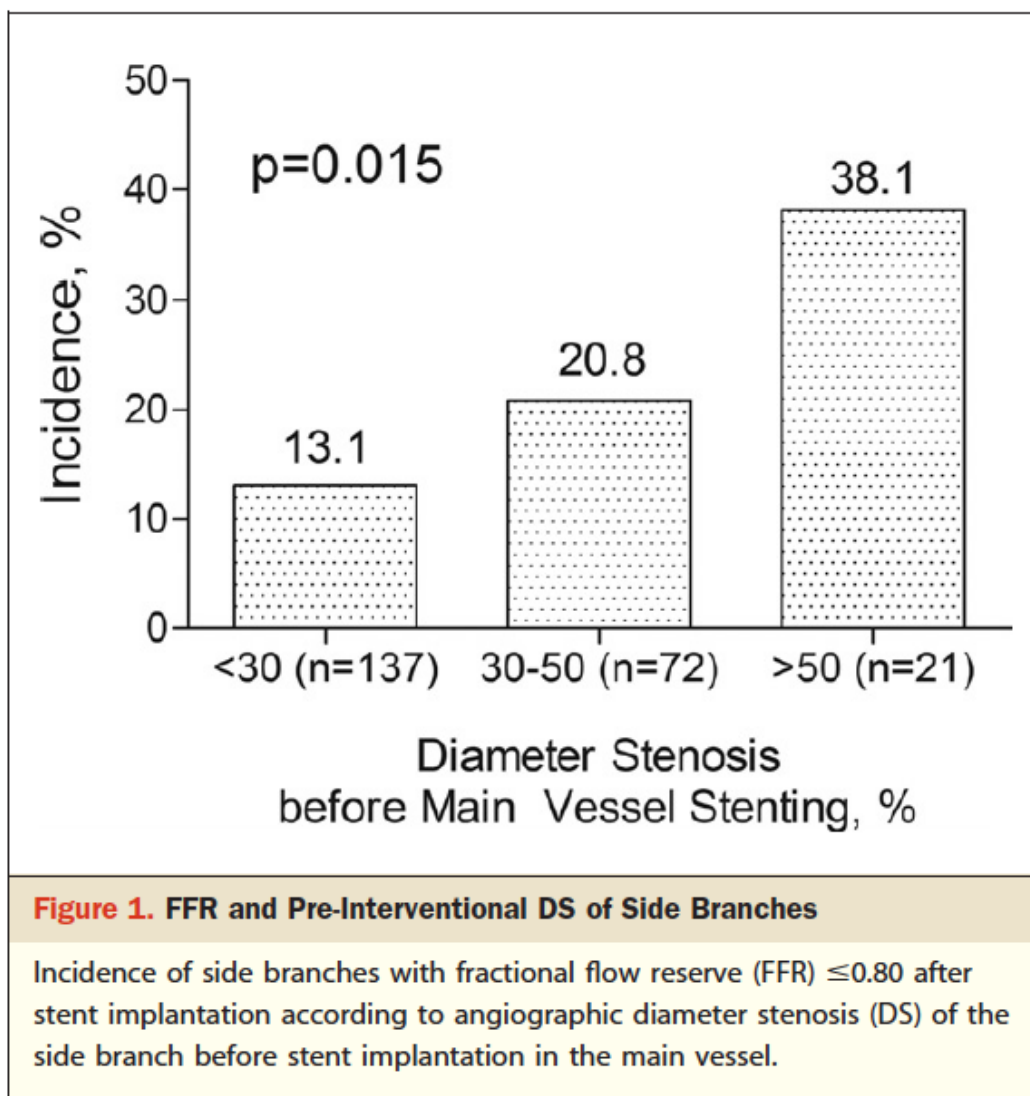
Koo et al. J Am Coll Cardiol 2005; 46: 633-637

# FFR in Jailed Side Branches

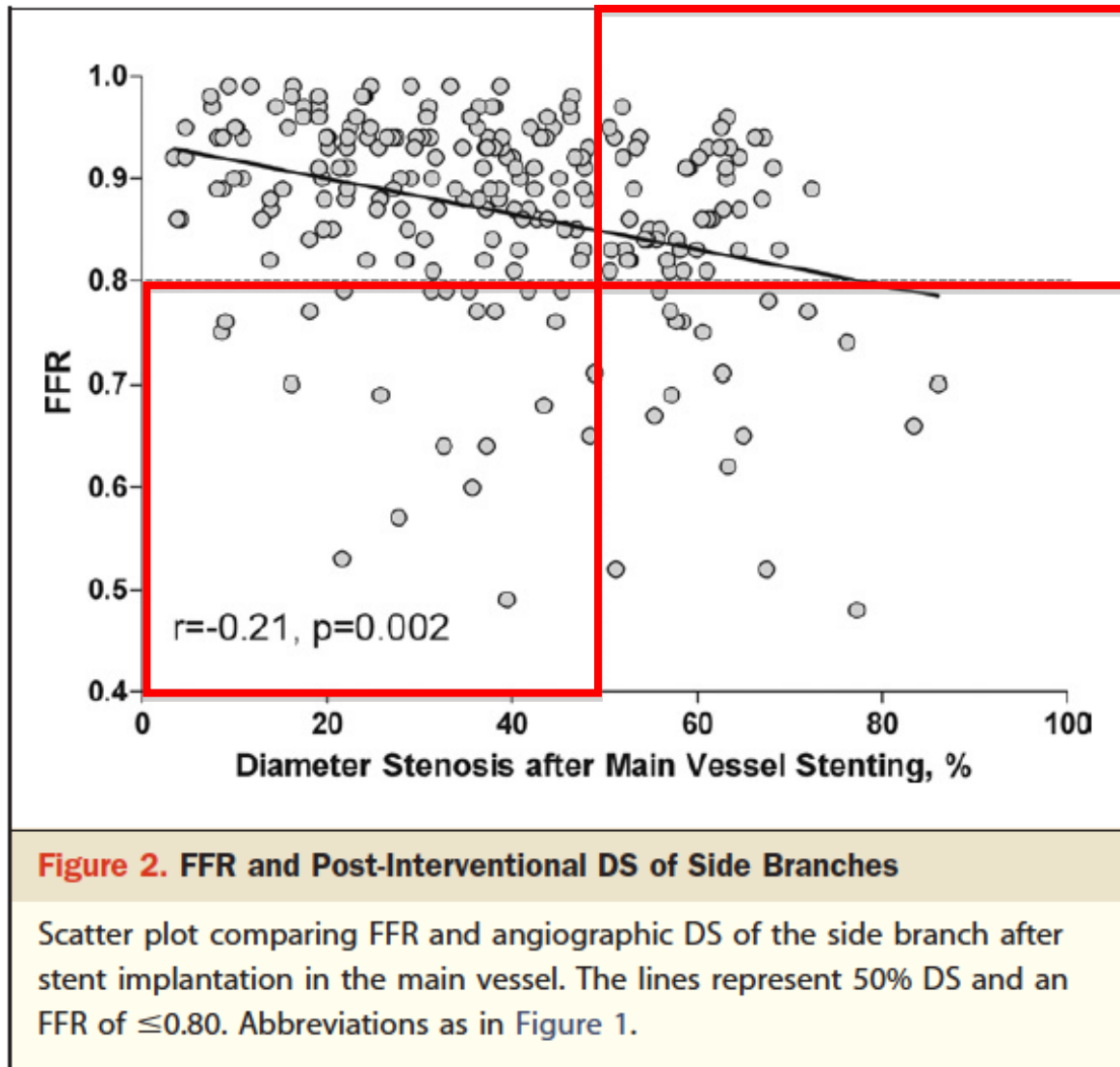
Side branch results following main vessel stent



# Pre-stenting %DS in SB to predict FFR $\leq 0.80$ in jailed SB after stenting



# FFR $\leq 0.80$ vs QCA in Jailed Side Branches



# Operator Assessment of Jailed SBs

**TABLE IV. Predictive Values of Angiographic Assessment for the Functional Significance (FFR < 0.75) of Jailed Side-Branch Lesions**

Assessment	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
% Diameter stenosis $\geq$ 75% by QCA Ischemia-inducible lesion <sup>a</sup>	56.7	56.7	56.7	56.7
EBC members	74.0	50.0	59.7	65.8
Korean experts	66.0	46.0	55.0	57.5
Trainees	54.0	48.0	50.9	51.1
Overall	64.7	48.0	55.4	57.6
% Diameter stenosis $\geq$ 75% by VE				
EBC members	60.0	50.0	54.5	55.6
Korean experts	80.0	26.0	51.9	56.5
Trainees	78.0	44.0	58.2	66.7
Overall	72.7	40.0	54.8	59.4

<sup>a</sup>From responses to the question of “Do you think this side-branch lesion will cause inducible myocardial ischemia?”

FFR, fractional flow reserve; QCA, quantitative coronary angiography; VE, visual estimation; PPV, positive predictive value; NPV, negative predictive value.



# Nordic-Baltic III

n=477

**No-FKBD**

n=239

**FKBD**

n=238

## SB FFR substudy

n=75

**No-FKBD**

n=33

**FKBD**

n=42

*8-month  
follow-up*

Angiography (n=33)

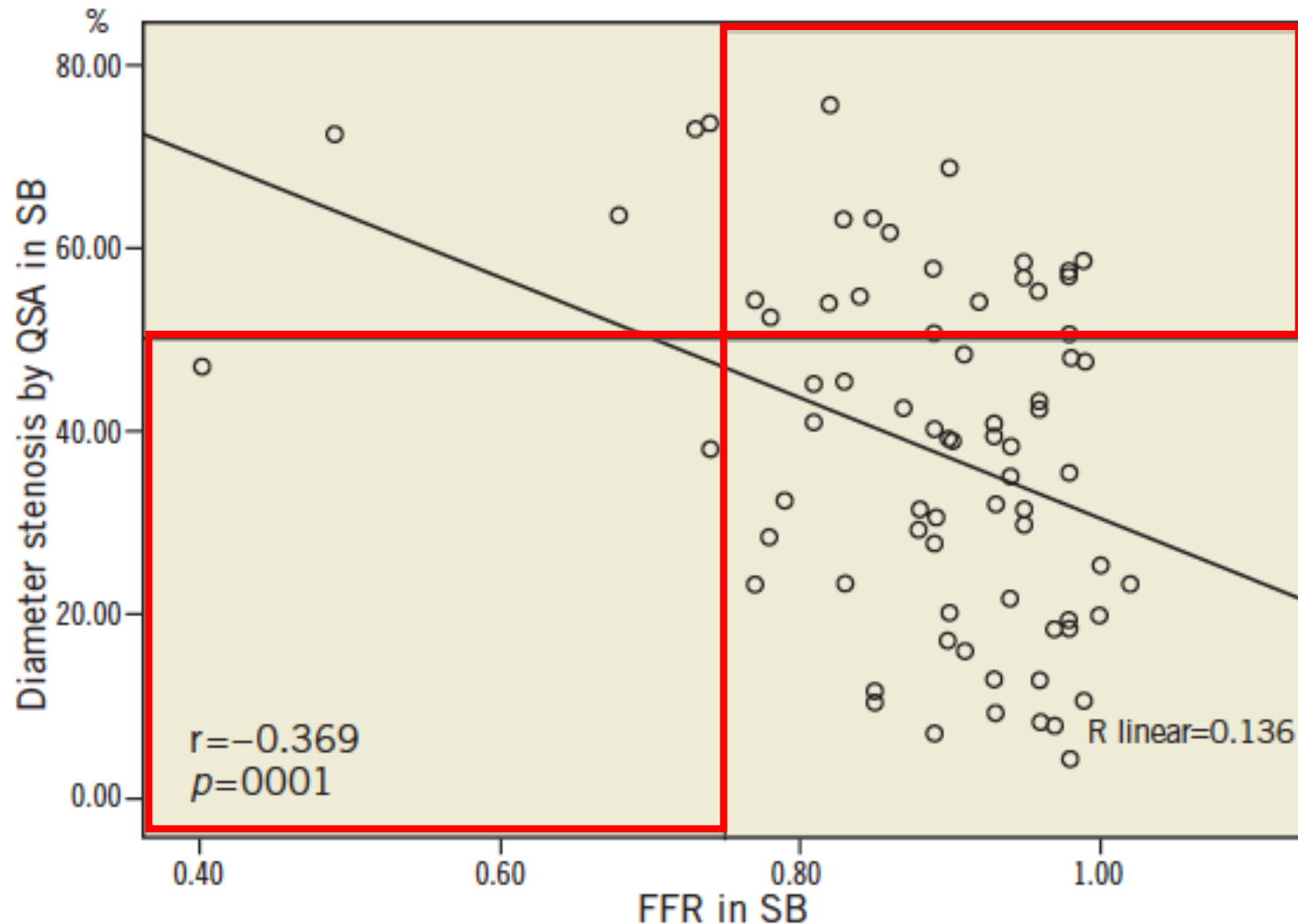
FFR (n=21)

Angiography (n=42)

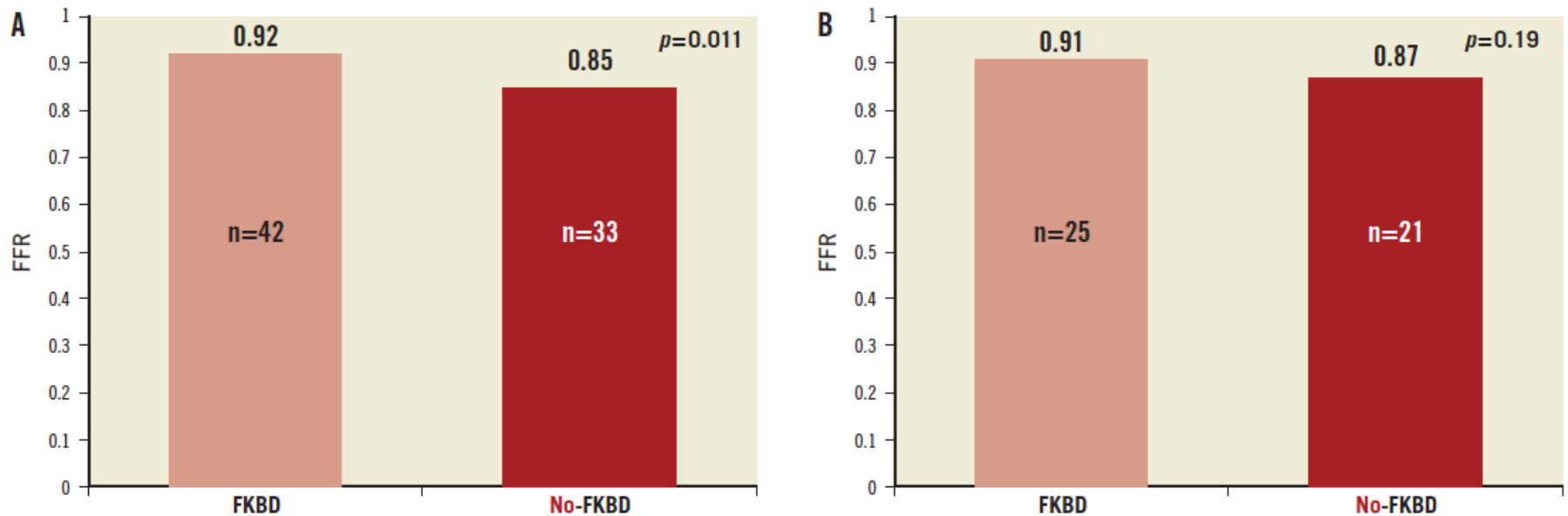
FFR (n=25)

# Nordic-Baltic III

## FFR Sub-Study – index procedure



# Nordic-Baltic III FFR Sub-Study



**Figure 4.** A) Mean FFR in SB after PCI. B) Mean FFR in SB at 8-month follow-up.

# Nordic-Baltic III

## FFR Sub-Study

FFR at index procedure vs. follow-up  
in the *FKBD* group

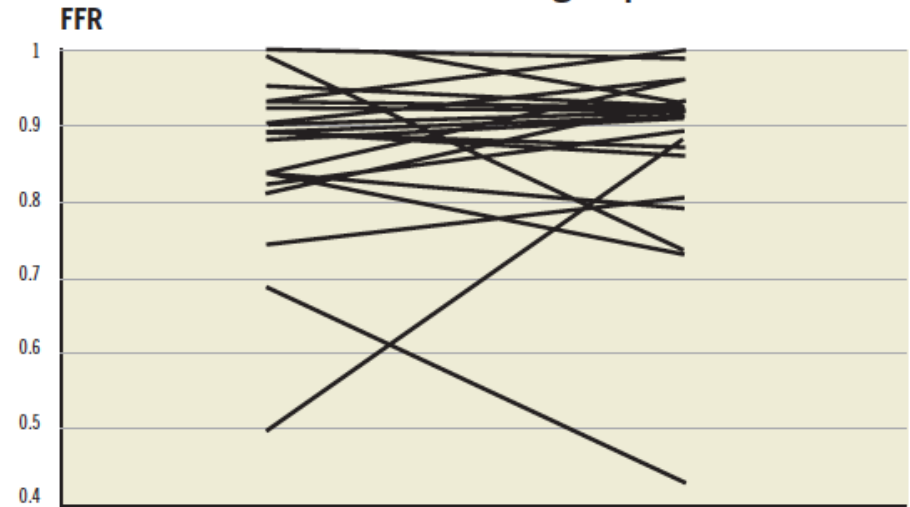


After PCI

Follow-up

		Mean	
After PCI	n=25	0.92	$p=0.804$
Follow-up	n=25	0.91	

FFR at index procedure vs. follow-up  
in the *No-FKBD* group



After PCI

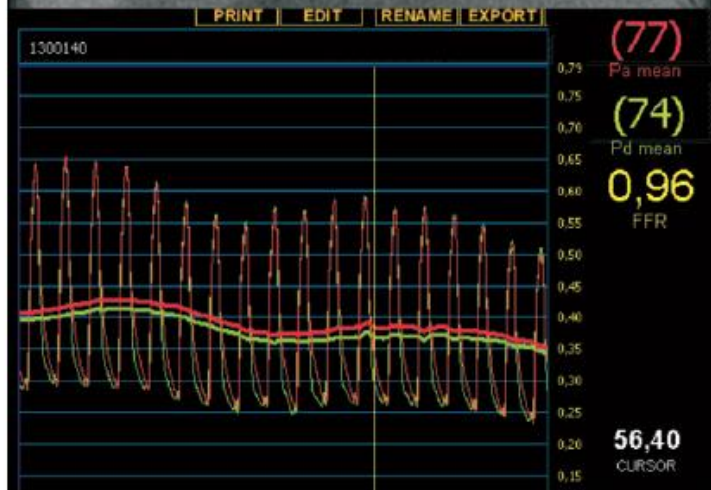
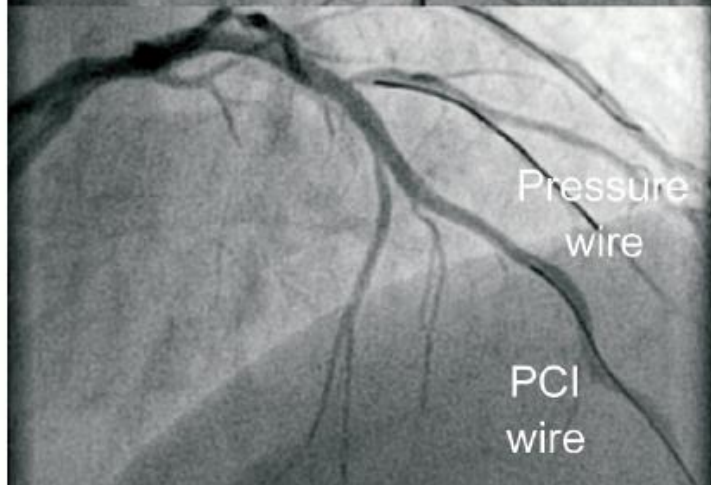
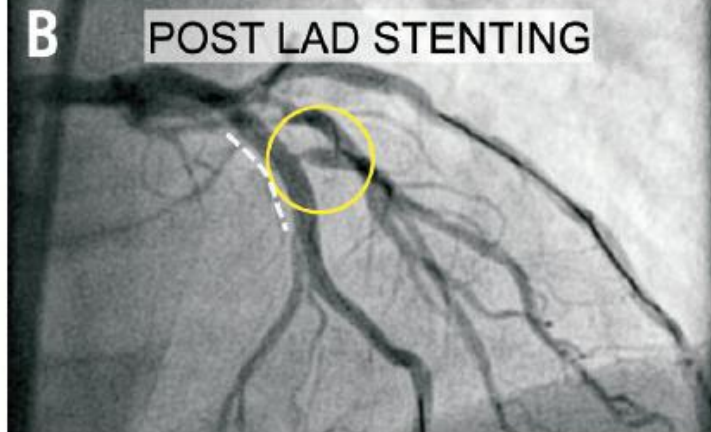
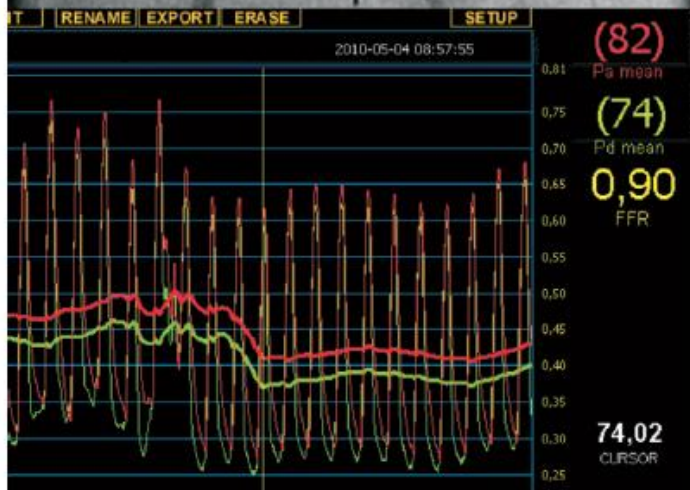
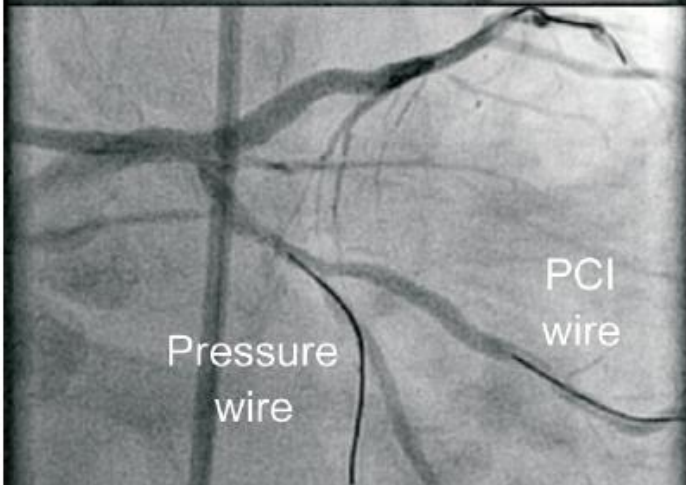
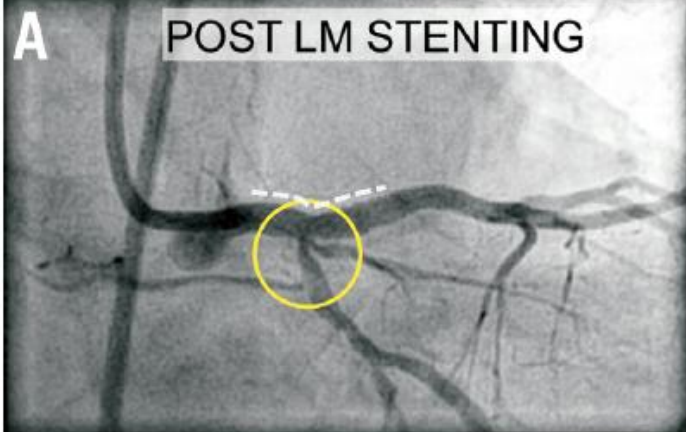
Follow-up

		Mean	
After PCI	n=21	0.87	$p=0.911$
Follow-up	n=21	0.87	

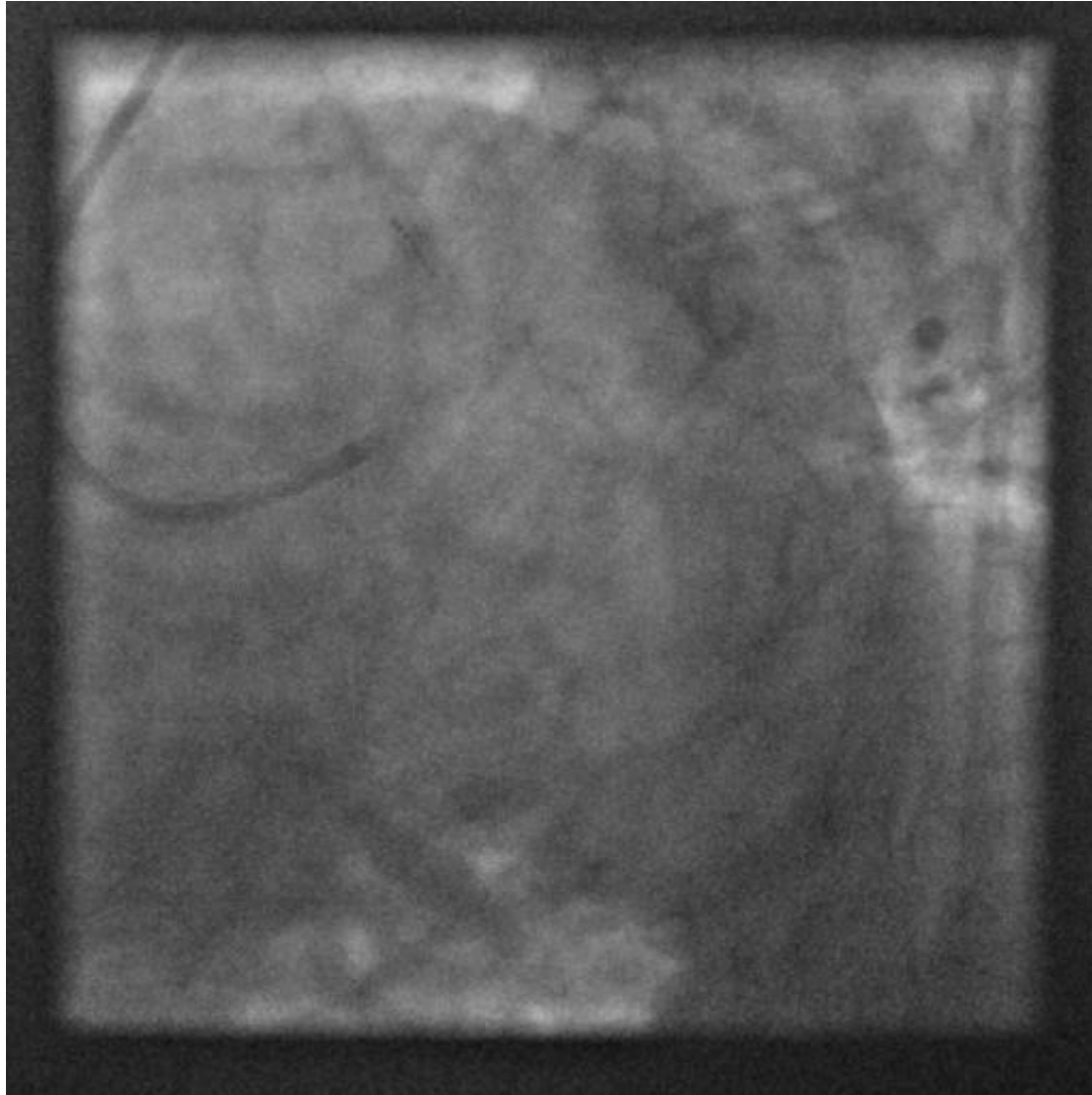
# Nordic-Baltic III

## FFR Sub-Study

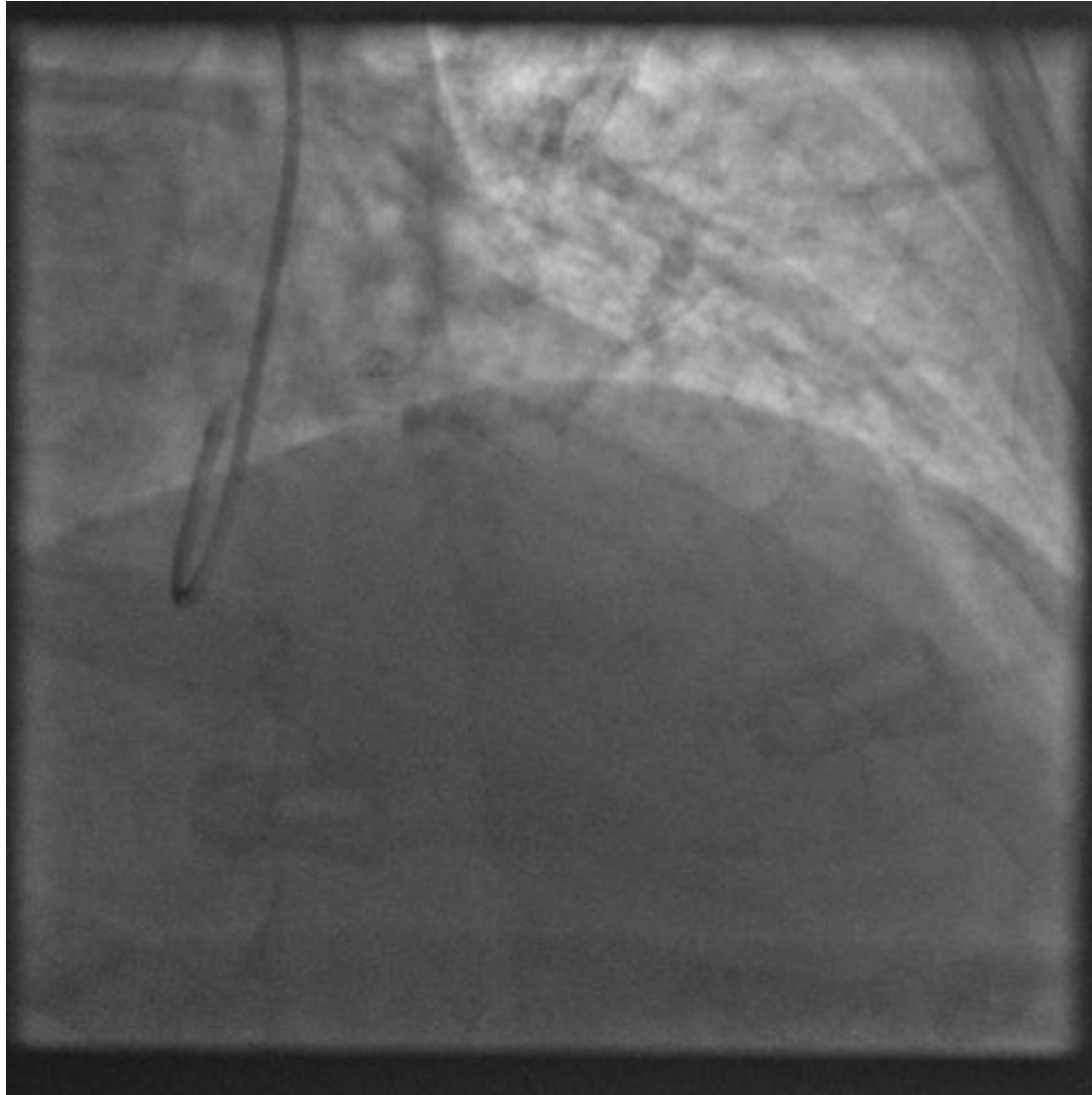
- Immediately post stenting
  - 6 lesions (19%) had FFR < 0.75; all in no FKBD
  - No FKBD predicted FFR < 0.75; p=0.006
- At 8/12 follow-up angiogram
  - 4 lesions (9%) had FFR < 0.75
- In patients with paired FFR data
  - 5/6 with initial FFR < 0.75 now had FFR > 0.80
  - 3 lesions FFR < 0.75
    - 1 in FKBD
    - 2 in no FKBD



JR – 5 weeks post PCI to LCx

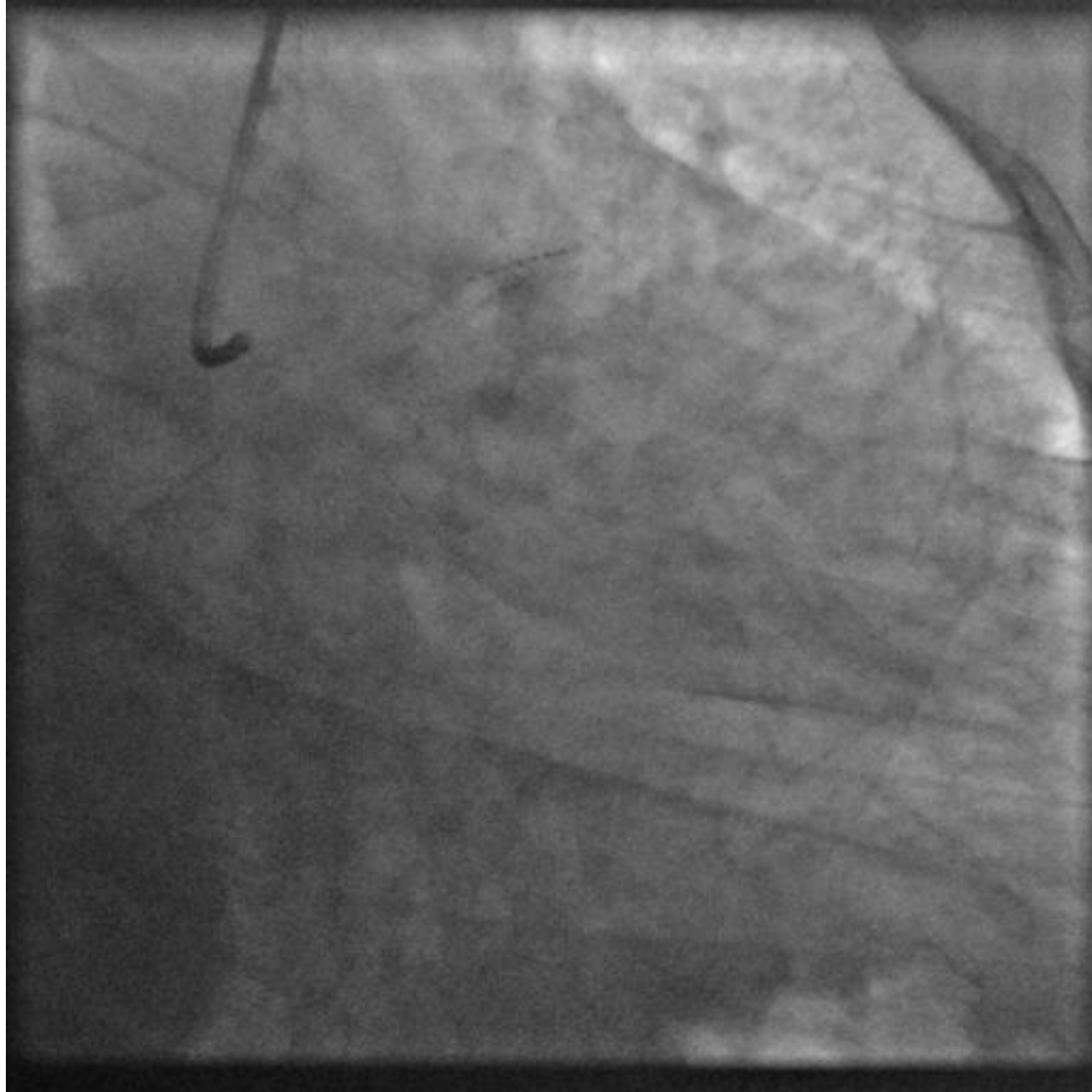


JR – 5 weeks post PCI to LCx

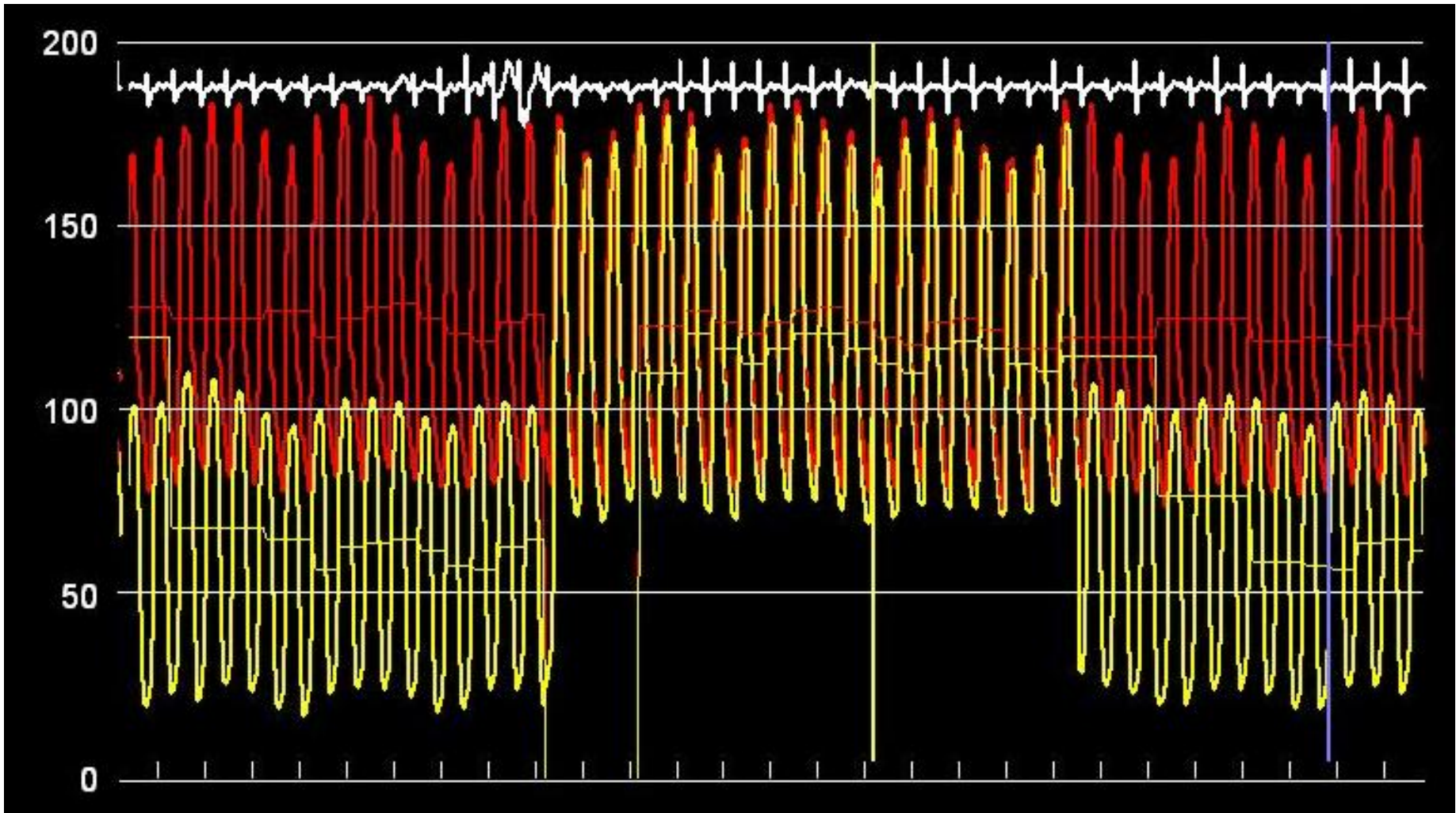




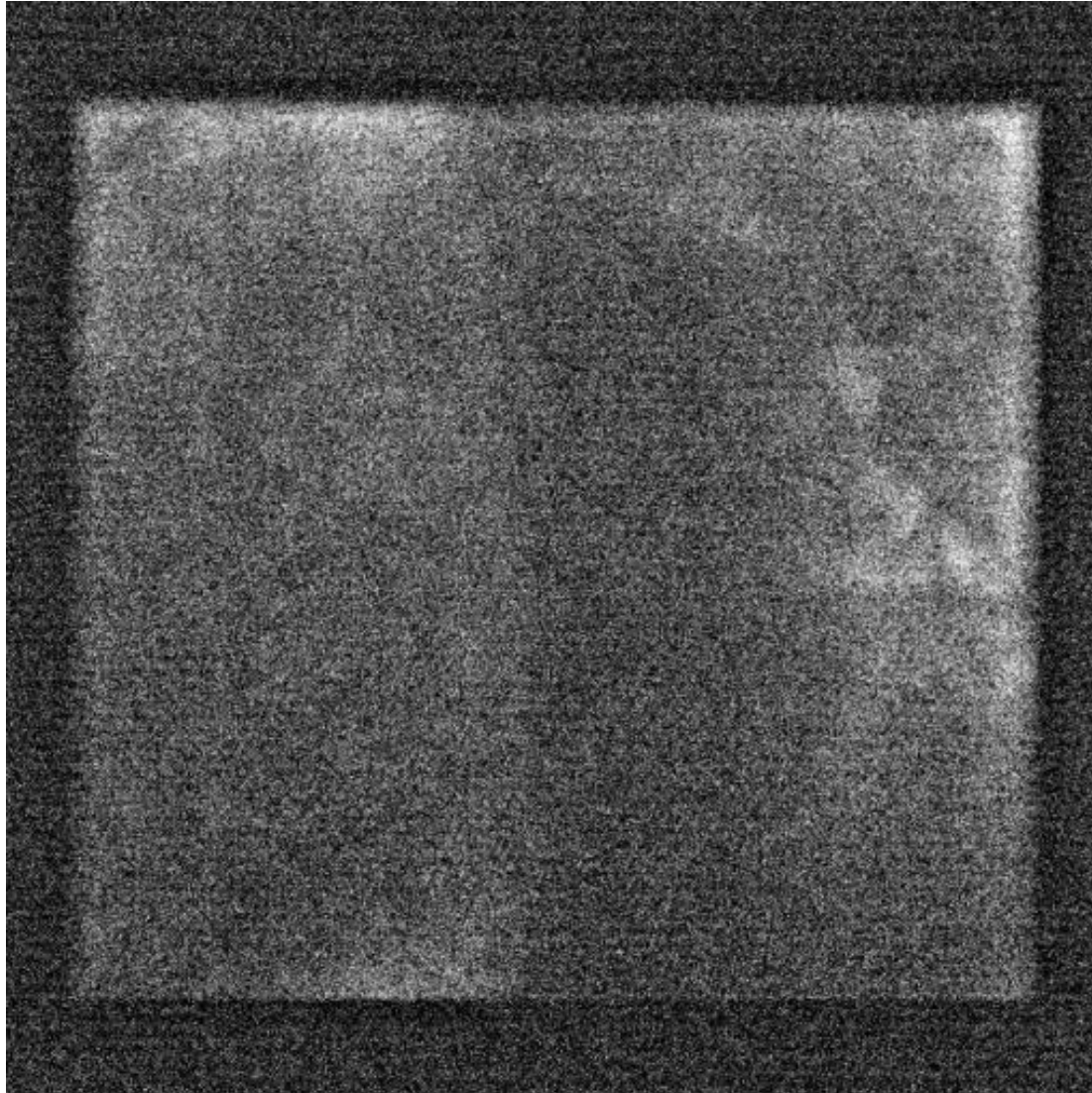
JR – 5 weeks post PCI to LCx



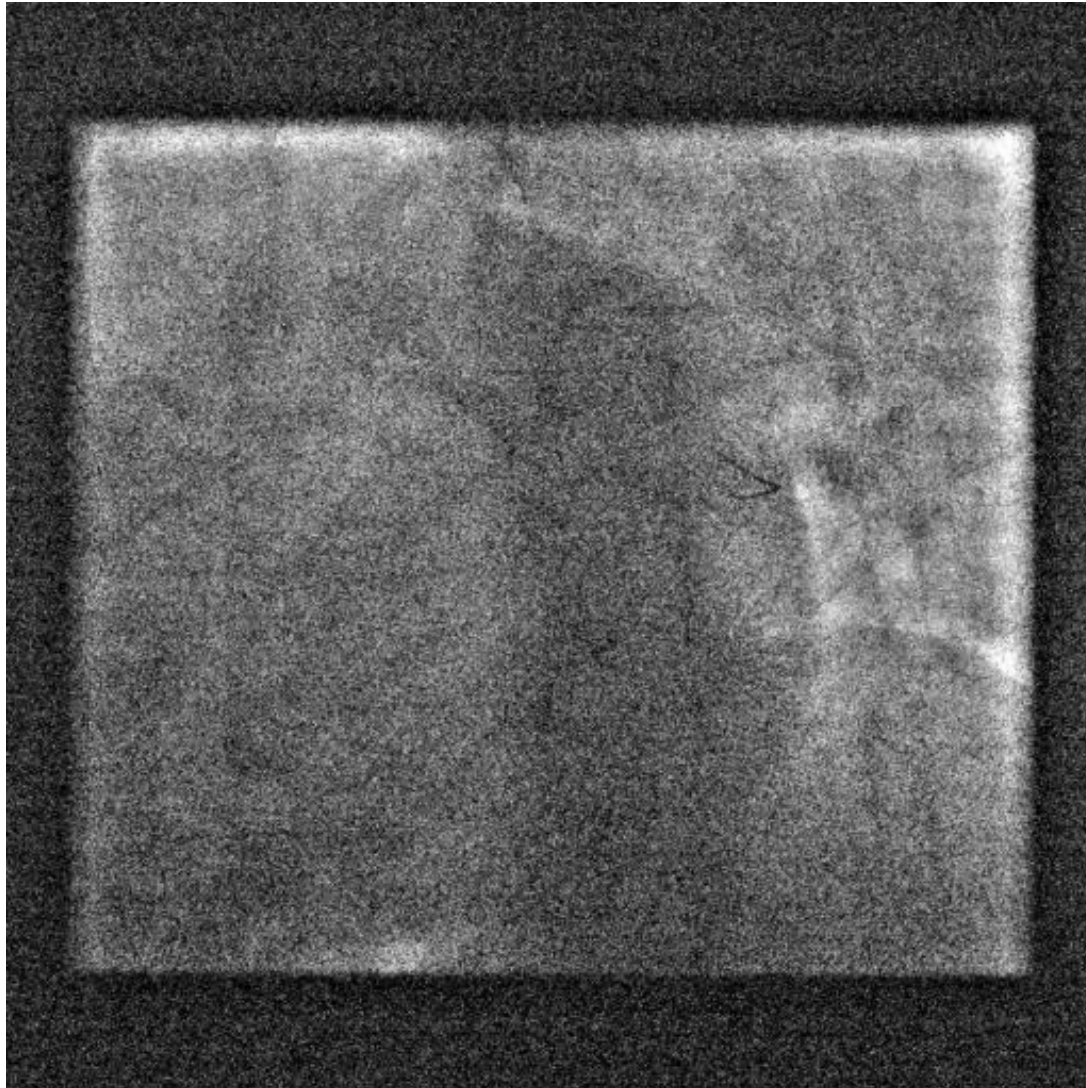
# JR – PW in OM1



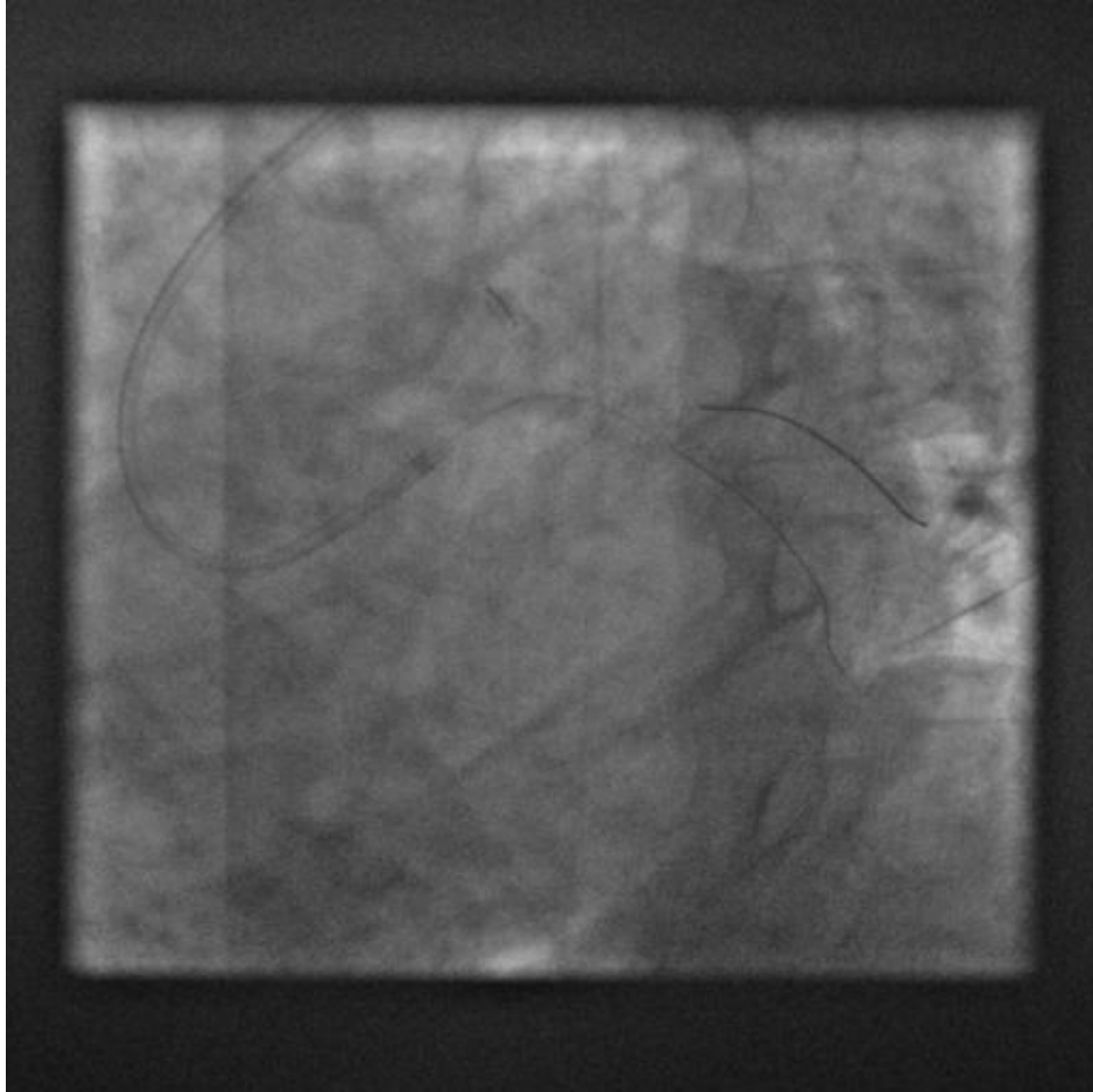
# JR - Anchor Guide



JR - FKB



# JR – Final Result



# FFR in Bifurcations

- Time
- Contrast
- Complications
  - 83 patients in Nordic-Baltic III FFR Substudy
  - 3 FTC with PW
  - 5 dissections
- Cost
  - microcatheter

# EBC 2013 Summary

## FFR to Assess Jailed SBs

- Don't jail the pressure wire.
- Pre-intervention SB-FFR is not helpful in predicting jailed SB-FFR
- SB-FFR reflects the functional significance of both the residual proximal MB disease and any SB ostial disease.
- The ischaemic burden is the issue so decisions to measure FFR should be focussed on large SBs.
  - ostial Cx post cross-over LM stenting

Thank You