



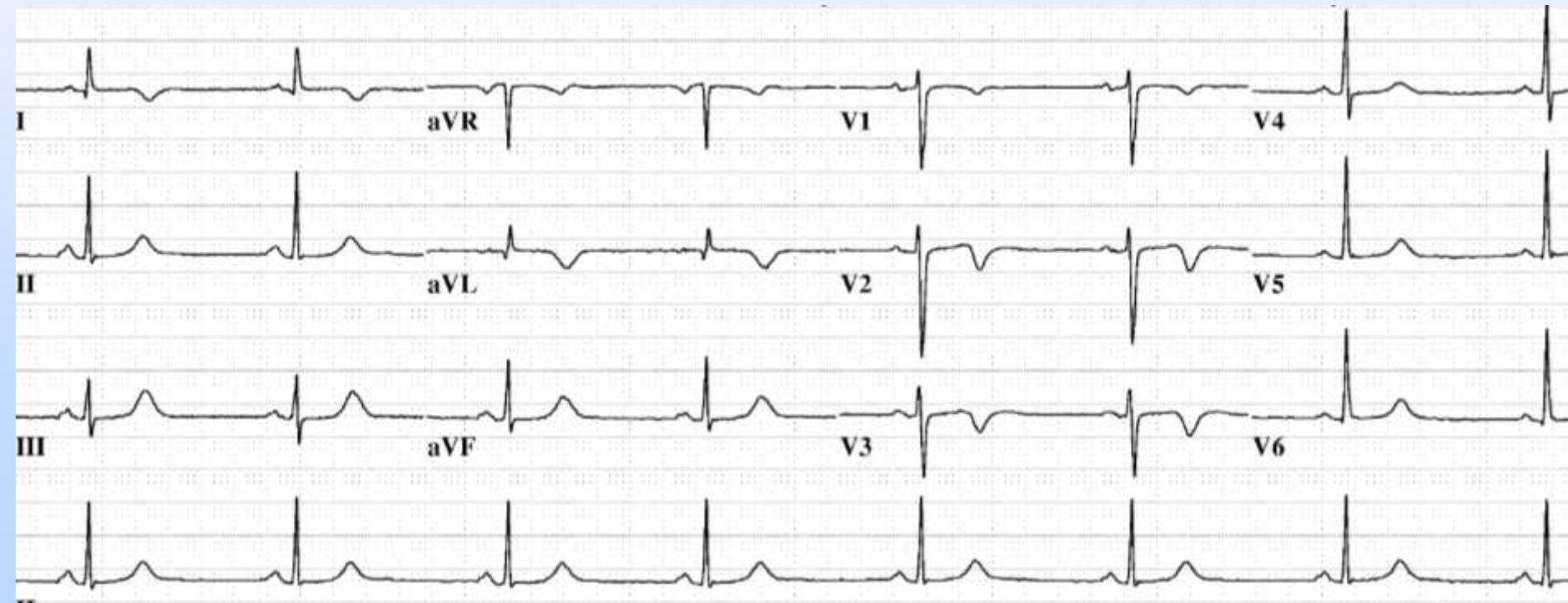
# Spontaneous Coronary Artery Dissection

## Controversies in Management

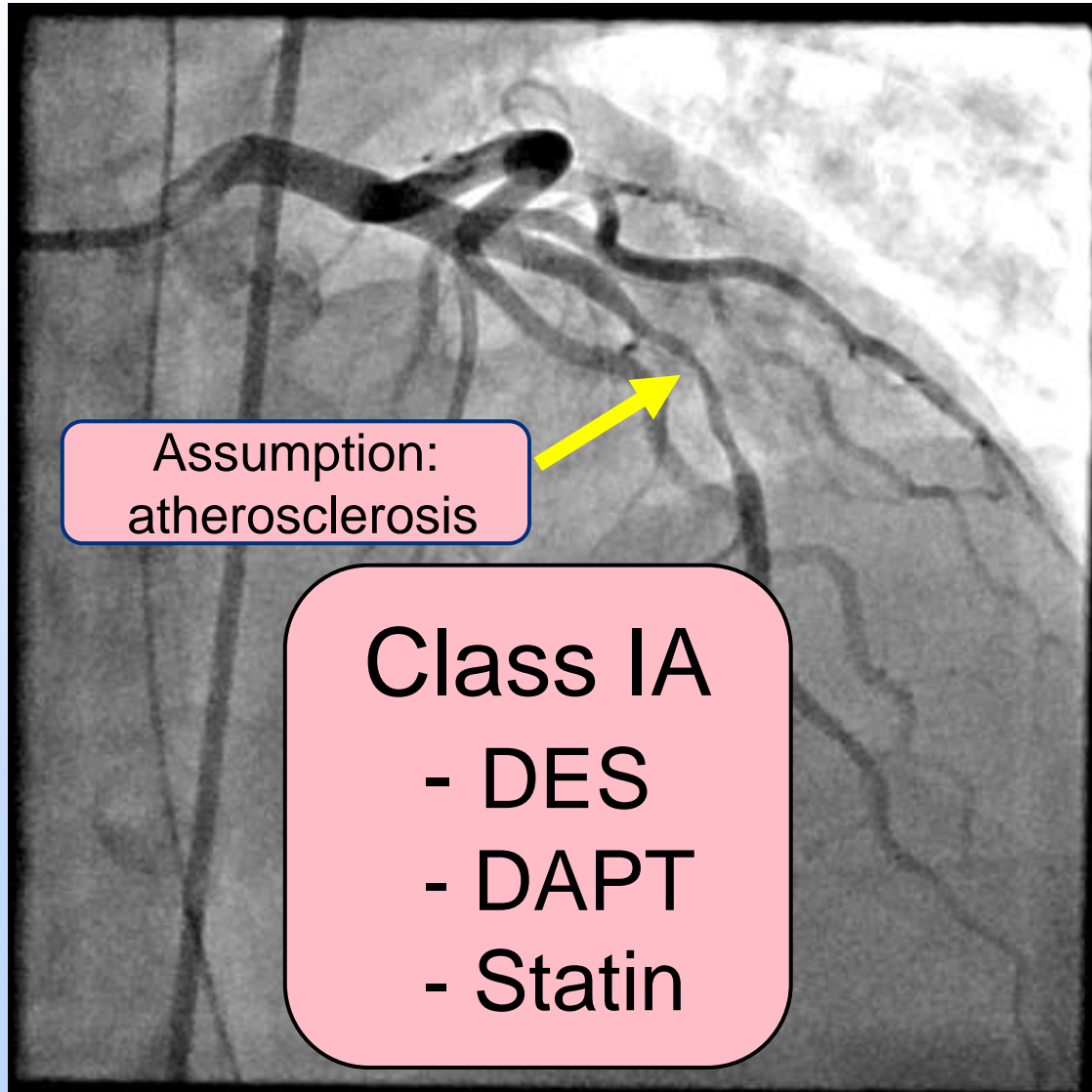
Rajiv Gulati, MD PhD  
TCTAP, Seoul  
April 26<sup>th</sup> 2016

# Case: 42 year old female

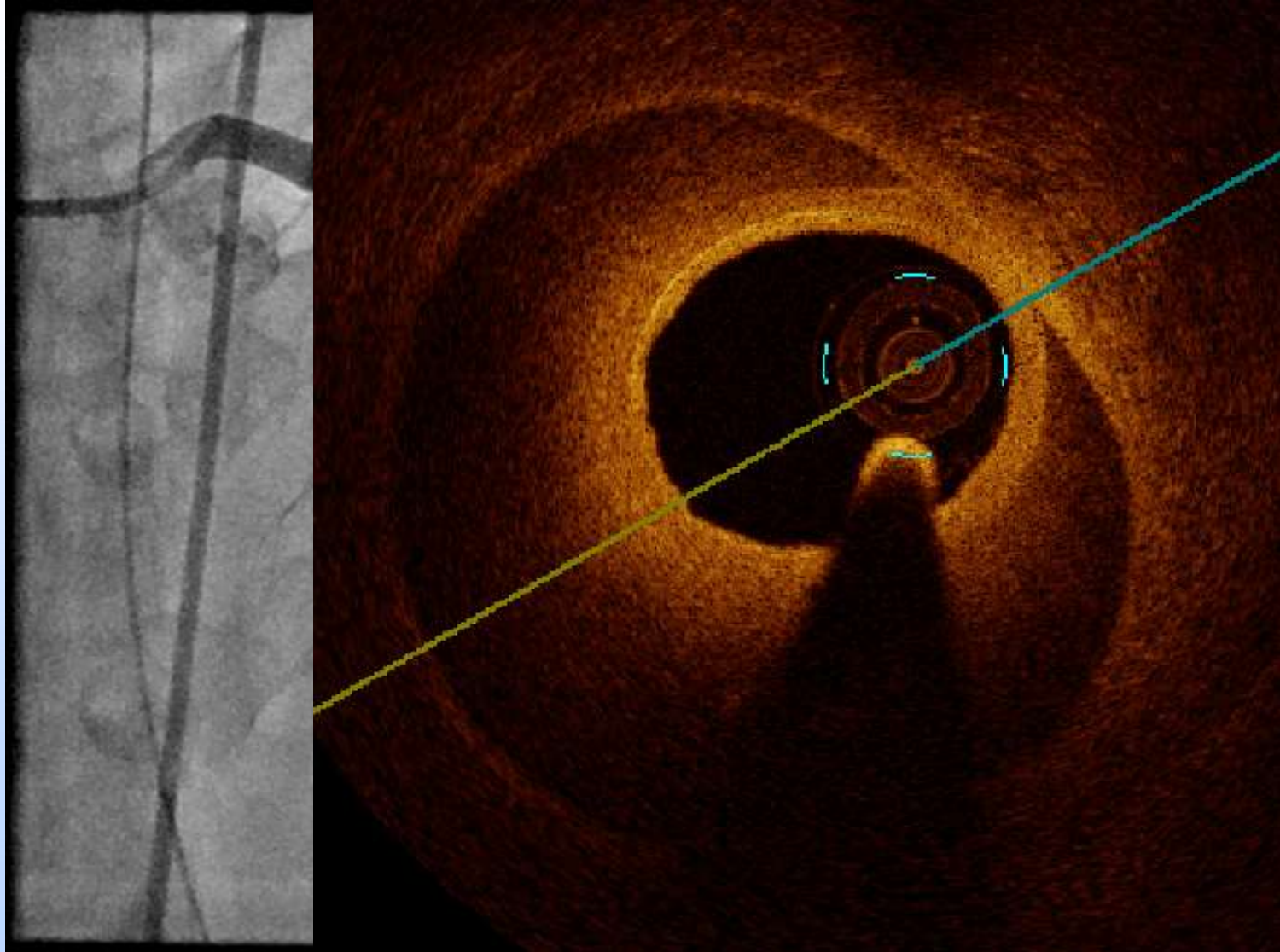
- Fit with no risk factors
- V Fib arrest, full recovery, troponin+



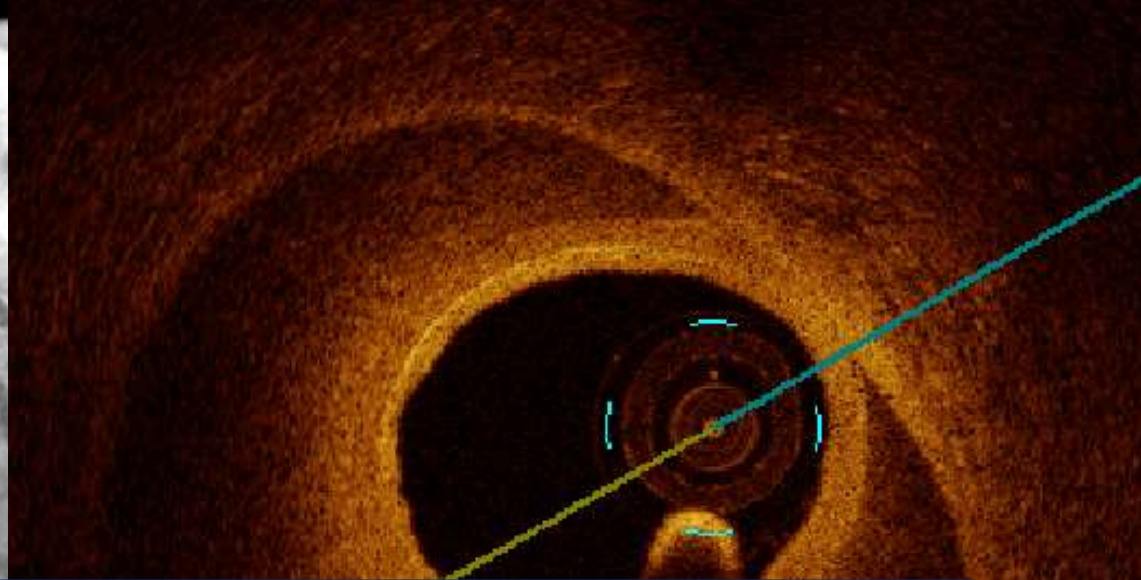
# Case: 42 year old female with ACS



# Case: 42 year old female with ACS



# Spontaneous Coronary Dissection (and Hematoma)



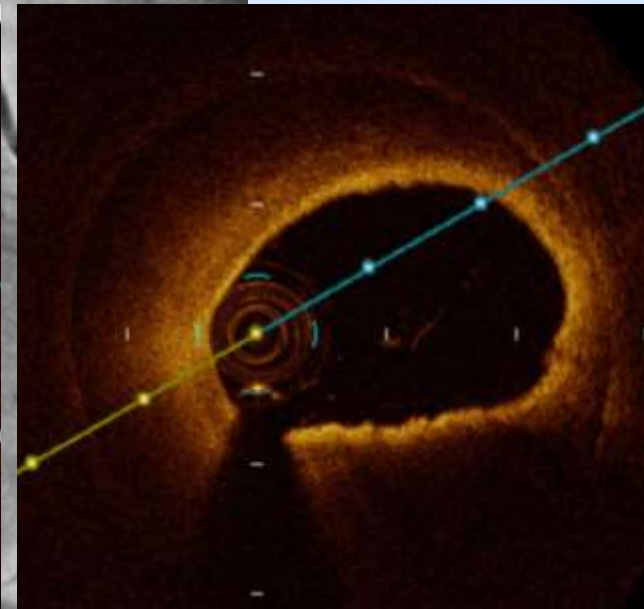
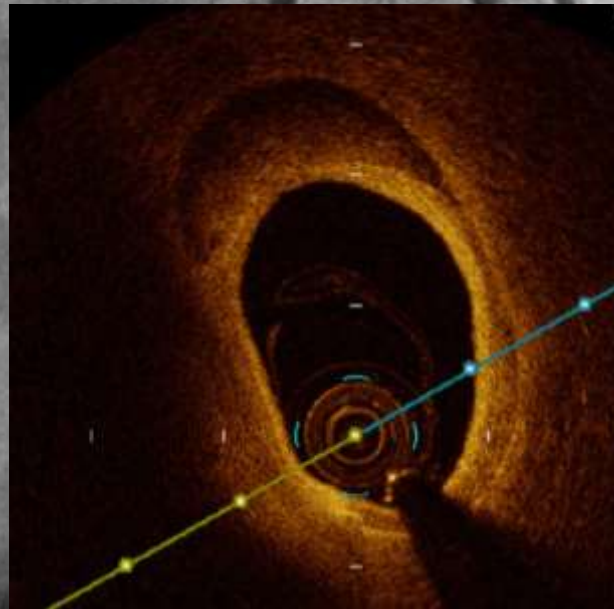
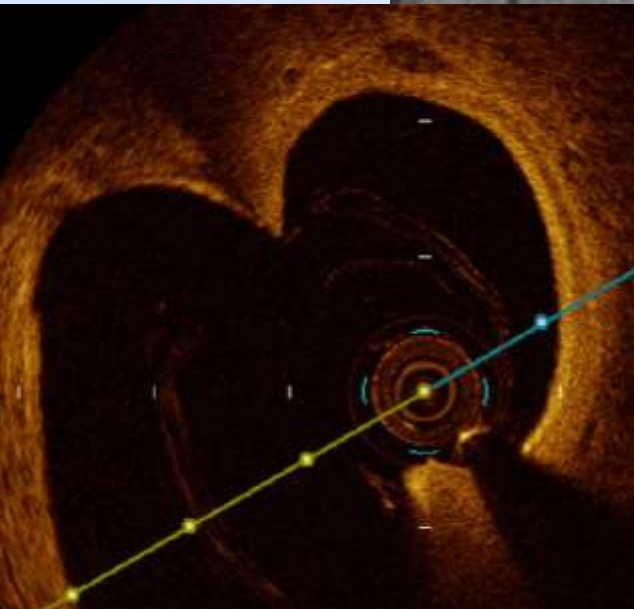
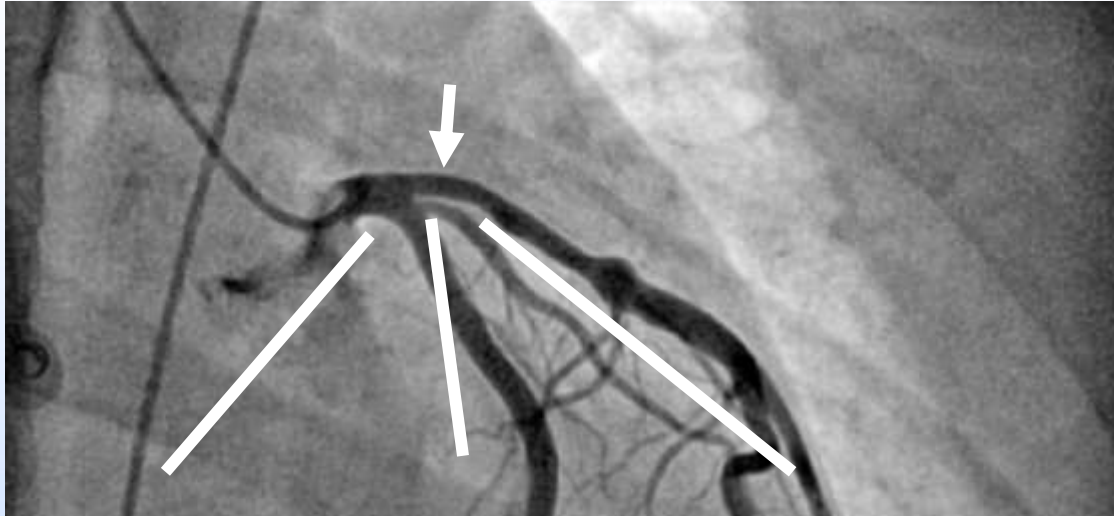
## Intravascular imaging of SCAD

- Recognition, why it matters
- Insights into pathophysiology and management

# Why are we missing SCAD

Cath lab assumption:  
stenosis = atherosclerosis

# 50 yr F with ACS

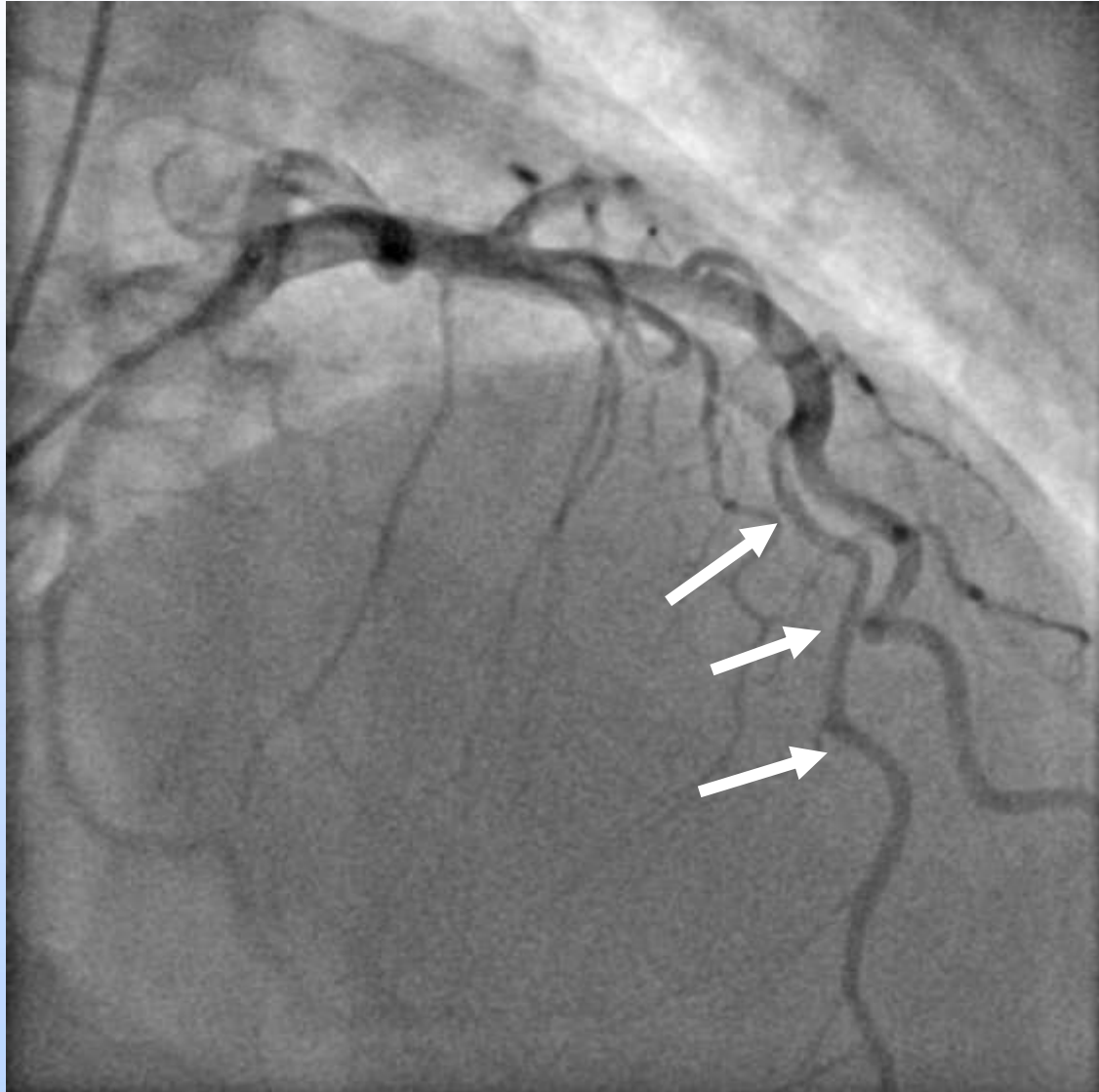


# Why are we missing SCAD

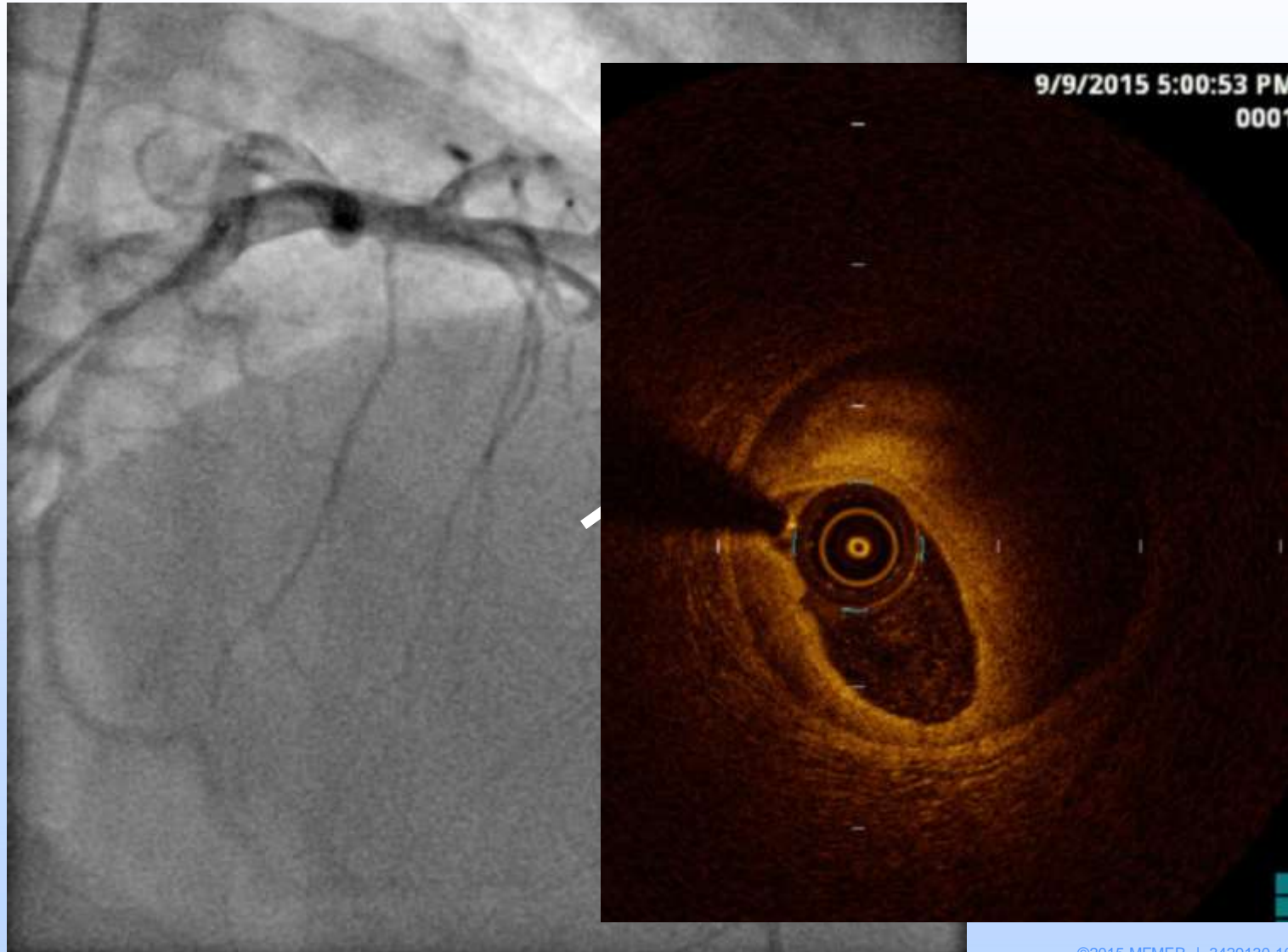
We assume atherosclerosis...  
...or spasm...



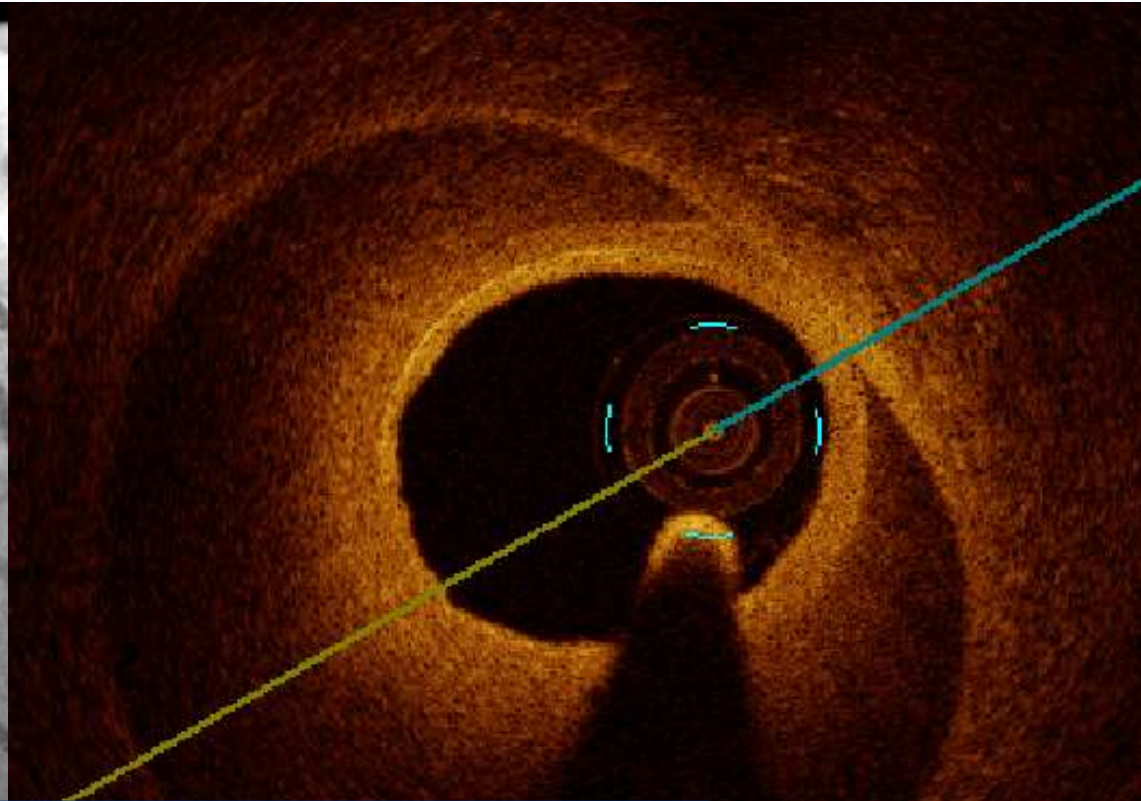
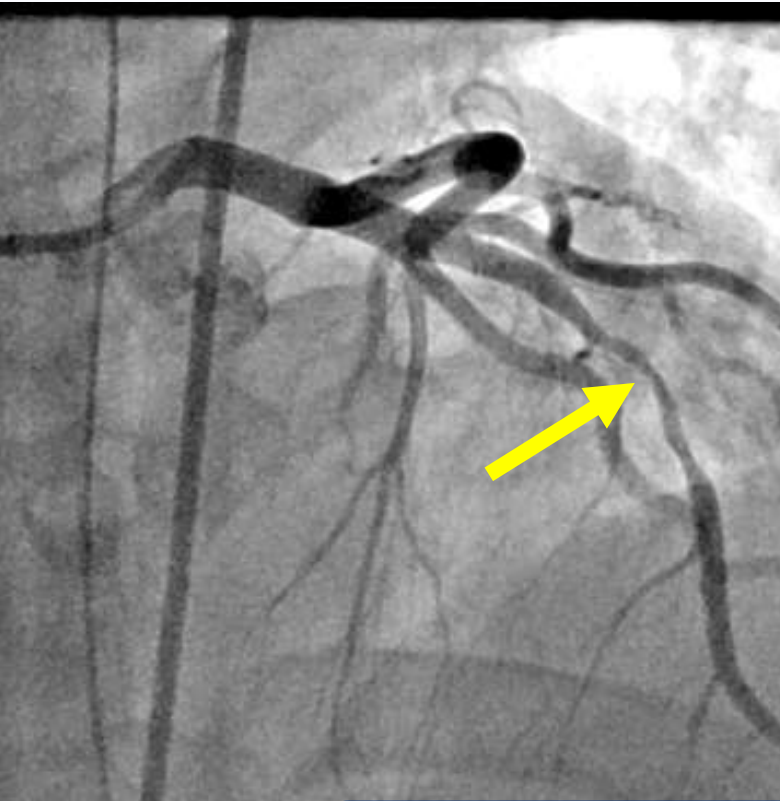
# 49 yr F with Torsades transient anterior ST-T changes



# 49 yr F with Torsades transient anterior ST-T changes



# What initiates SCAD?



Intimal  
tear



Medial  
hematoma

# Intimal tear vs medial hematoma

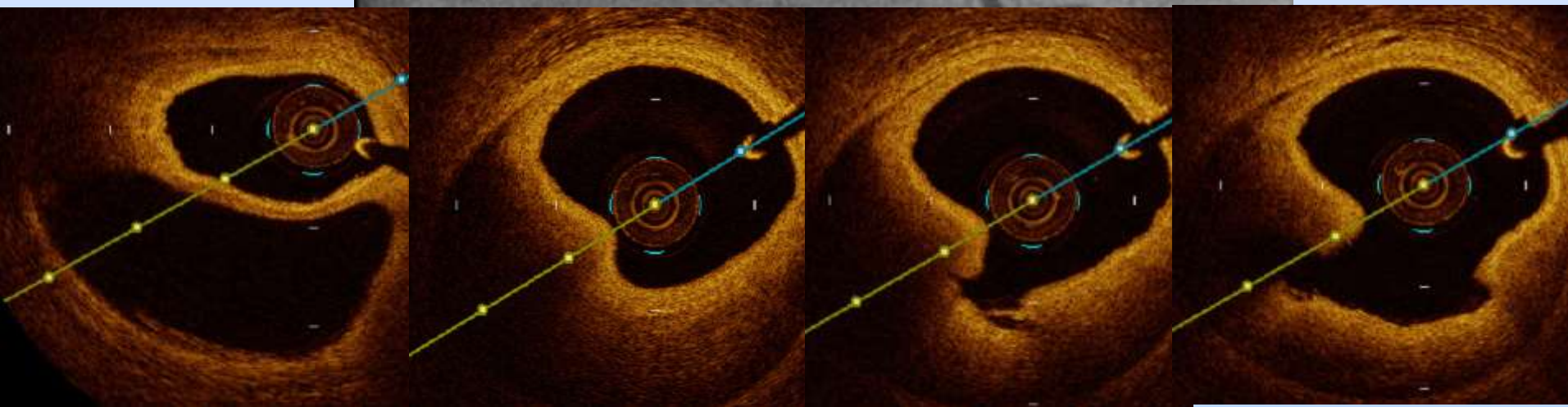


## OCT of SCAD n=12

- Hematoma only (no tear) 7/12
- Intimal tear in mid-distal aspect 4/12
- Intimal tear at origin, only 1/12

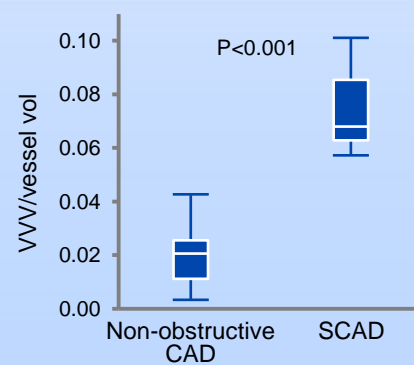
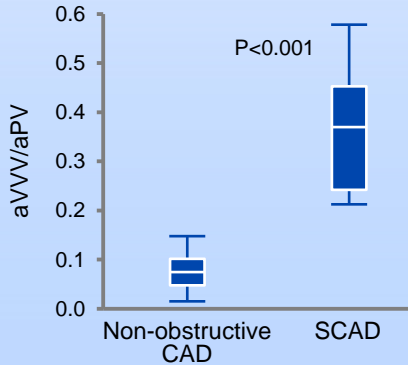
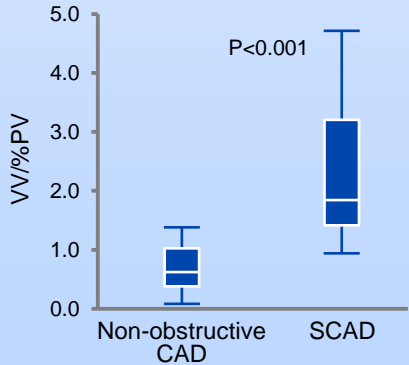
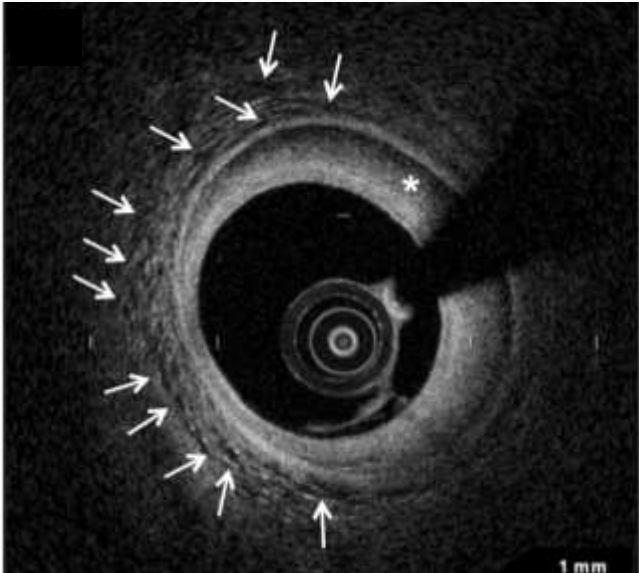
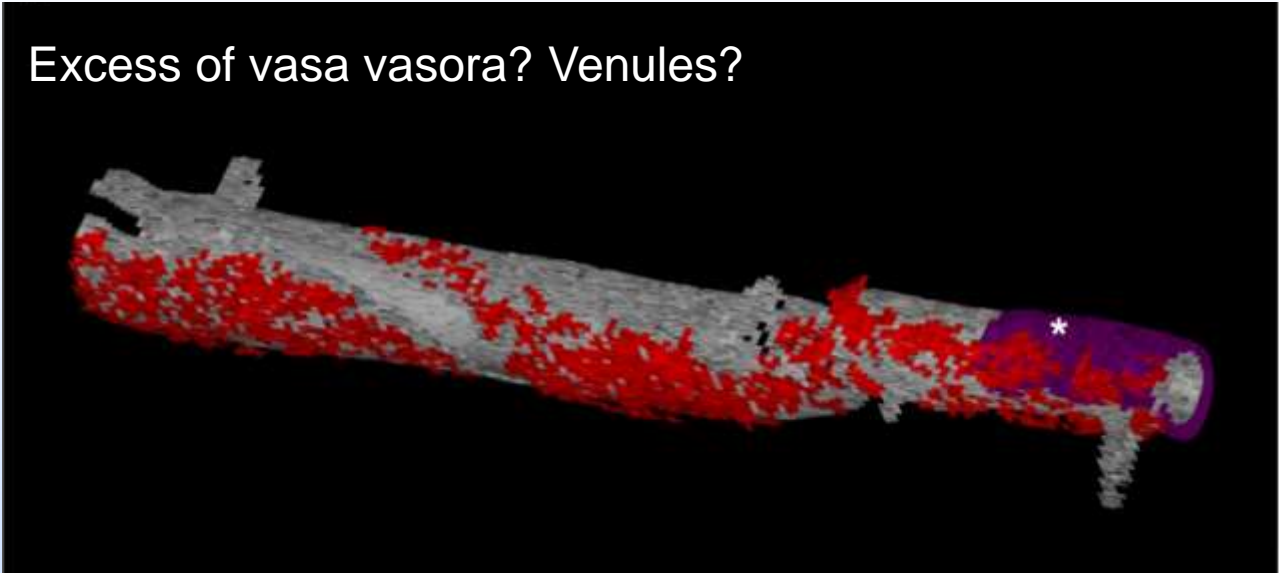
Prelim data

*Lends support to “outside-in” hypothesis of SCAD pathophysiology*



# Adventitial microvessel excess in SCAD

Excess of vasa vasora? Venules?



What is the underlying  
abnormality?

“Vulnerable Wall”

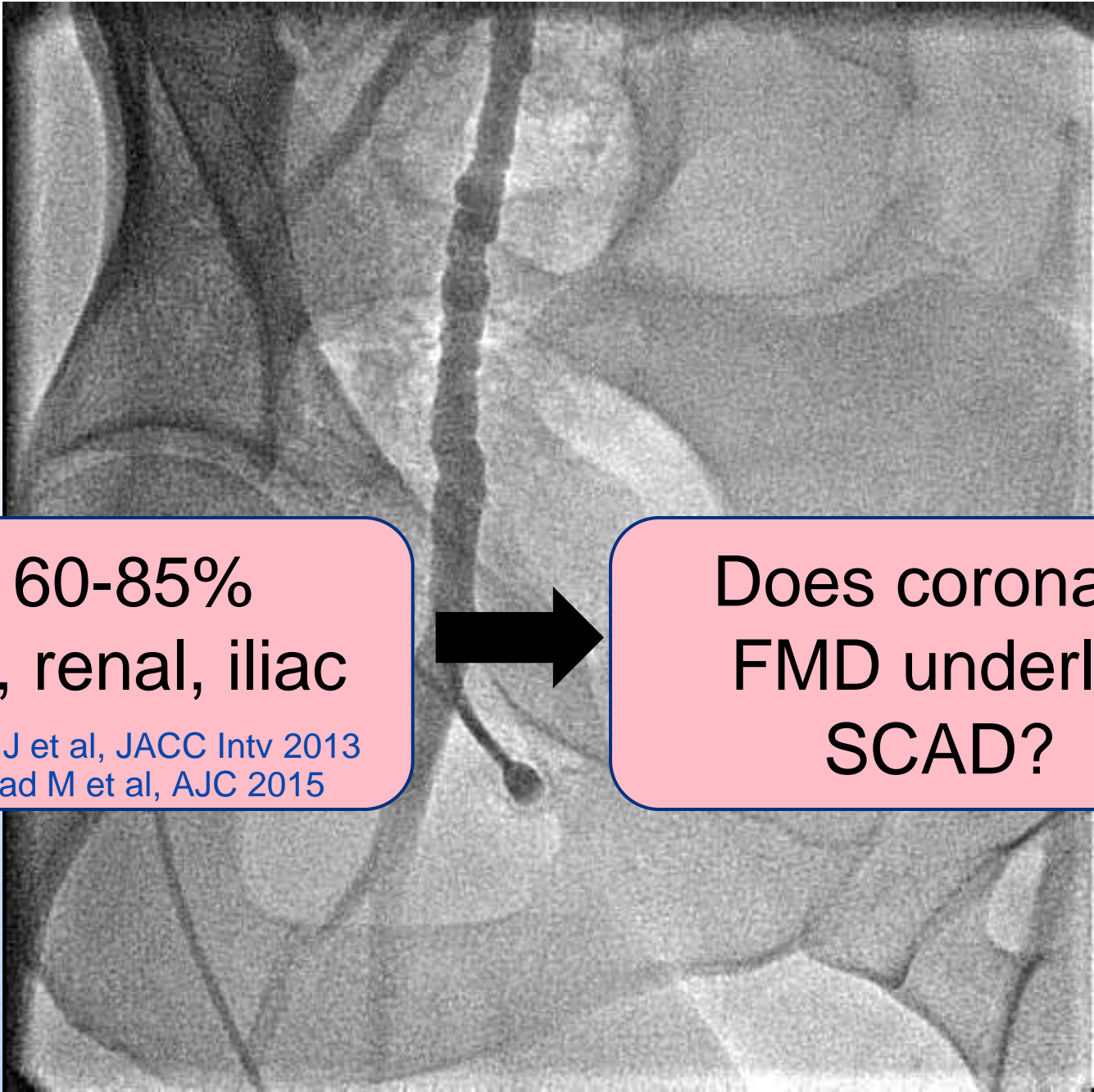
Clinical and imaging  
observations

# Spontaneous Coronary Dissection

N=87 - 246 retrospective series

- Mean age 42.6, Female 90%
- Associations
  - Low prevalence of atheroscl risk factors
  - Physical/emotional/hormonal stressors
  - .....

Tweet MS et al, Circulation 2012  
Eleid MF et al, Circ Intv 2014  
Tweet MS et al, Circ Intv 2014



**FMD** in 60-85%  
Carotid, renal, iliac

Saw J et al, JACC Intv 2013  
Prasad M et al, AJC 2015

Does coronary  
FMD underlie  
SCAD?



# Angiographic patterns in SCAD

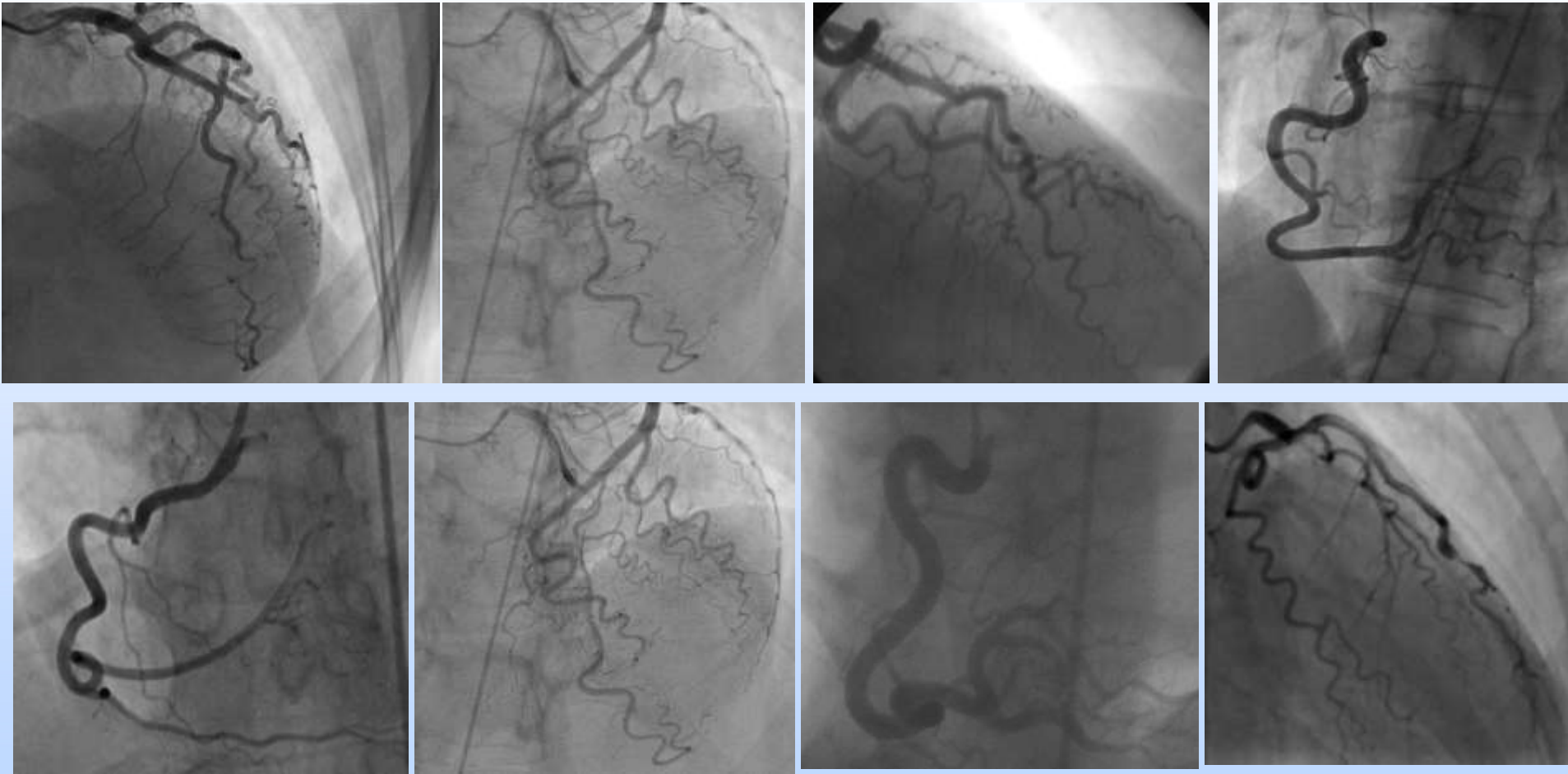
**First SCAD**  
**N = 246**

**Vs**  
age gender HTN

**Controls**  
**N = 313**

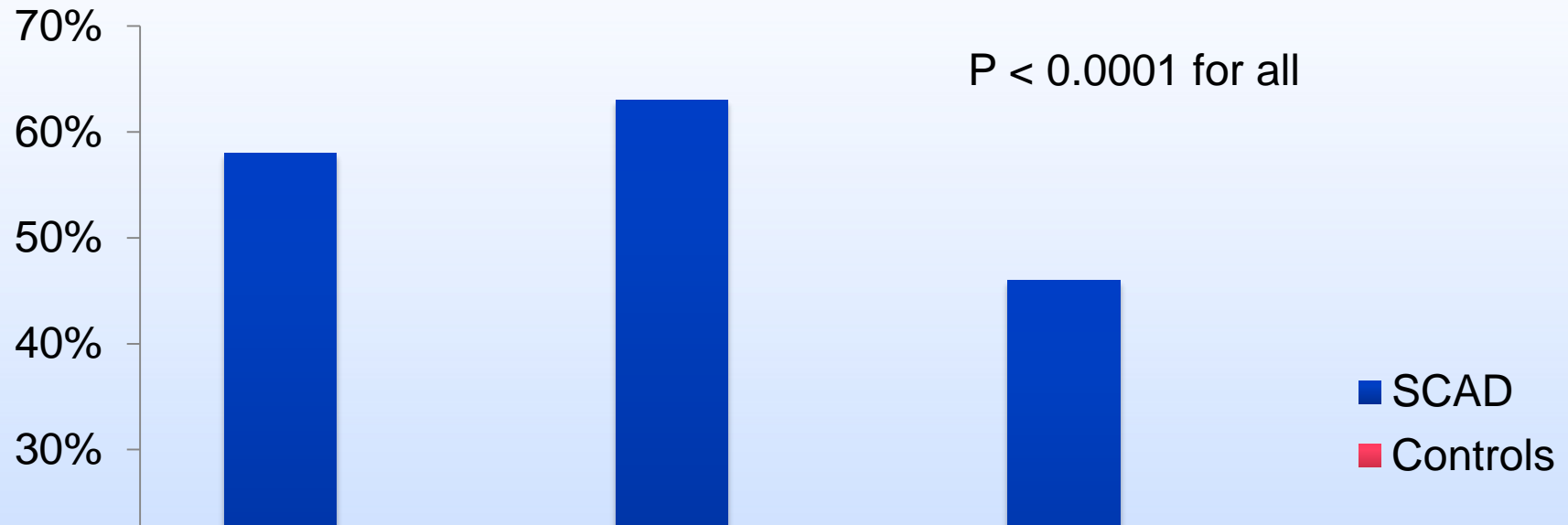
Typical “beading” of FMD  
is very rare in SCAD coronary arteries  
2% vs 0% p=0.02

# Coronary tortuosity is common in SCAD



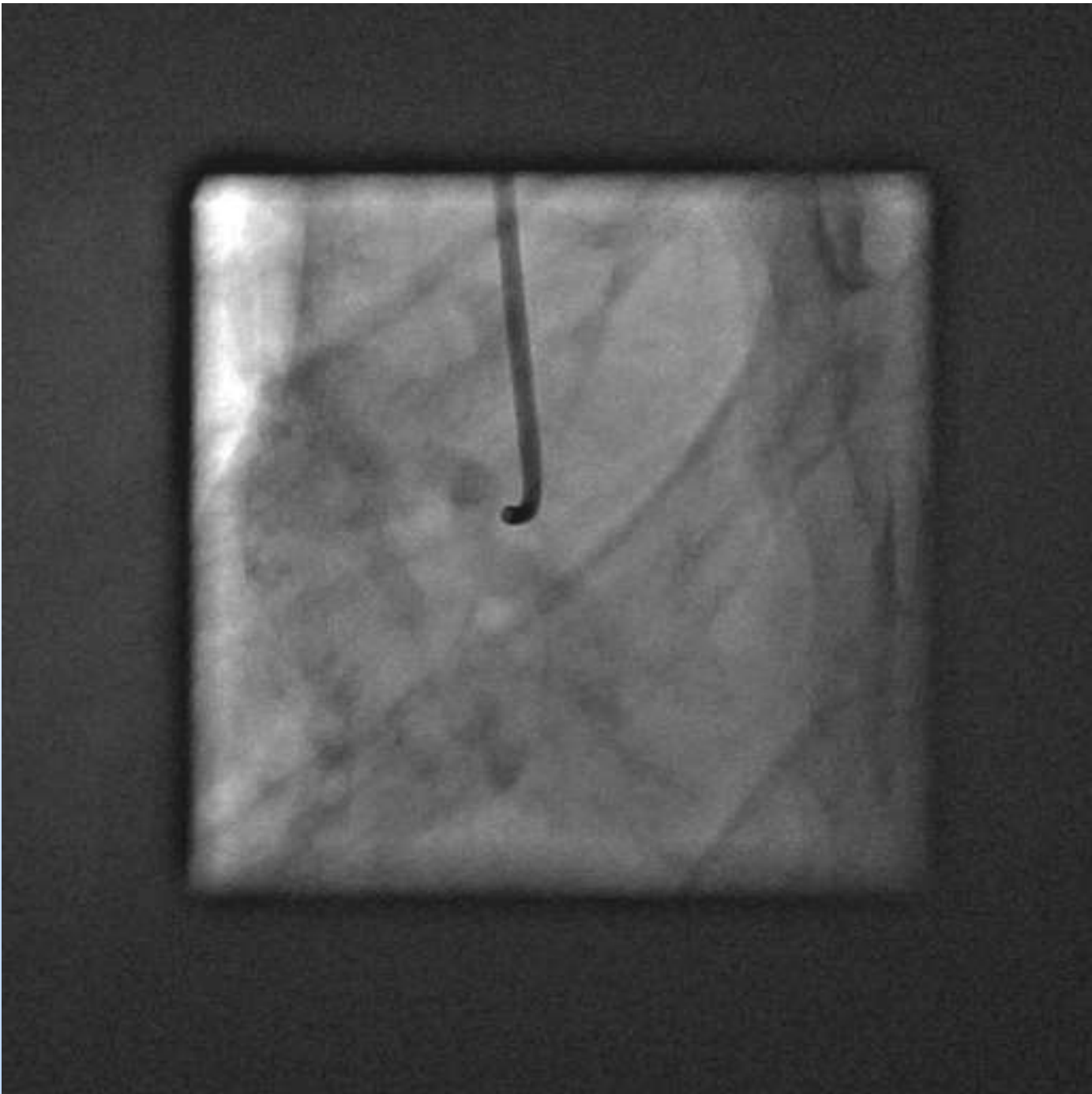
# Prevalence of tortuosity

## SCAD (n=246) vs Controls (n=313)



- Highly prevalent, unaffected by HTN
- Most prevalent in vascular FMD+ ( $p < 0.001$ )
- A predictor of recurrent SCAD

Does making the diagnosis  
matter to the clinician (and patient)?





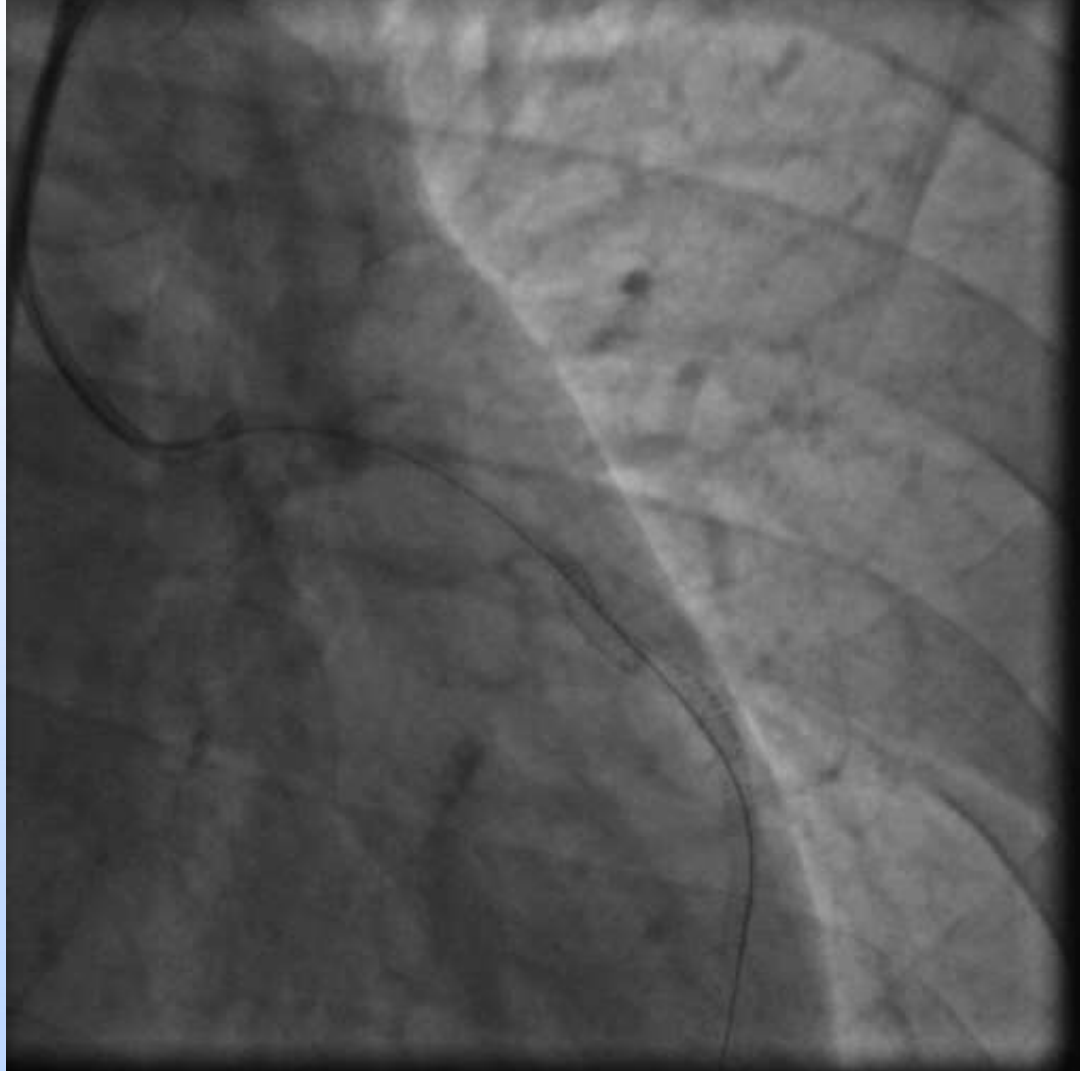


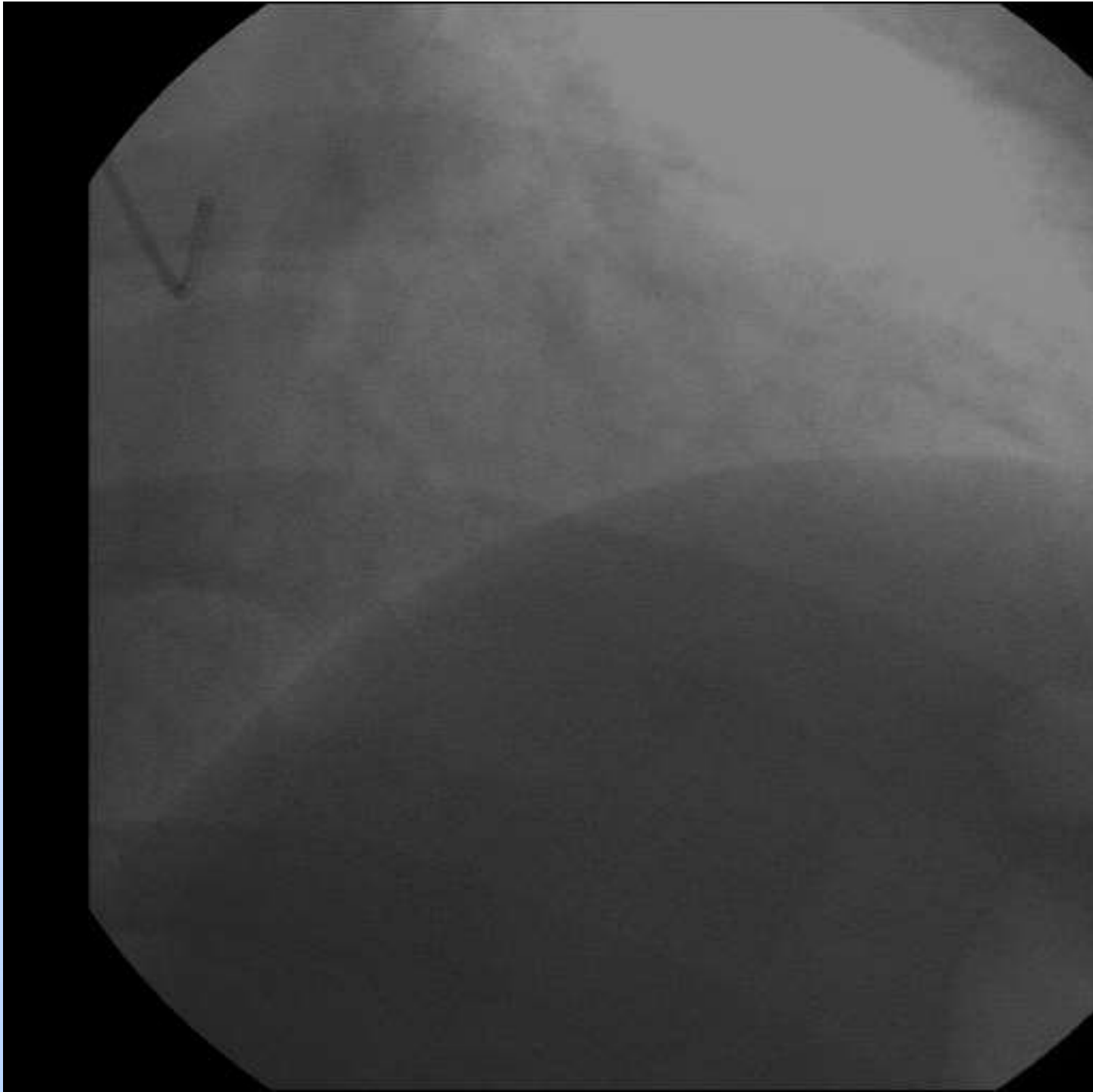
# SCAD PCI

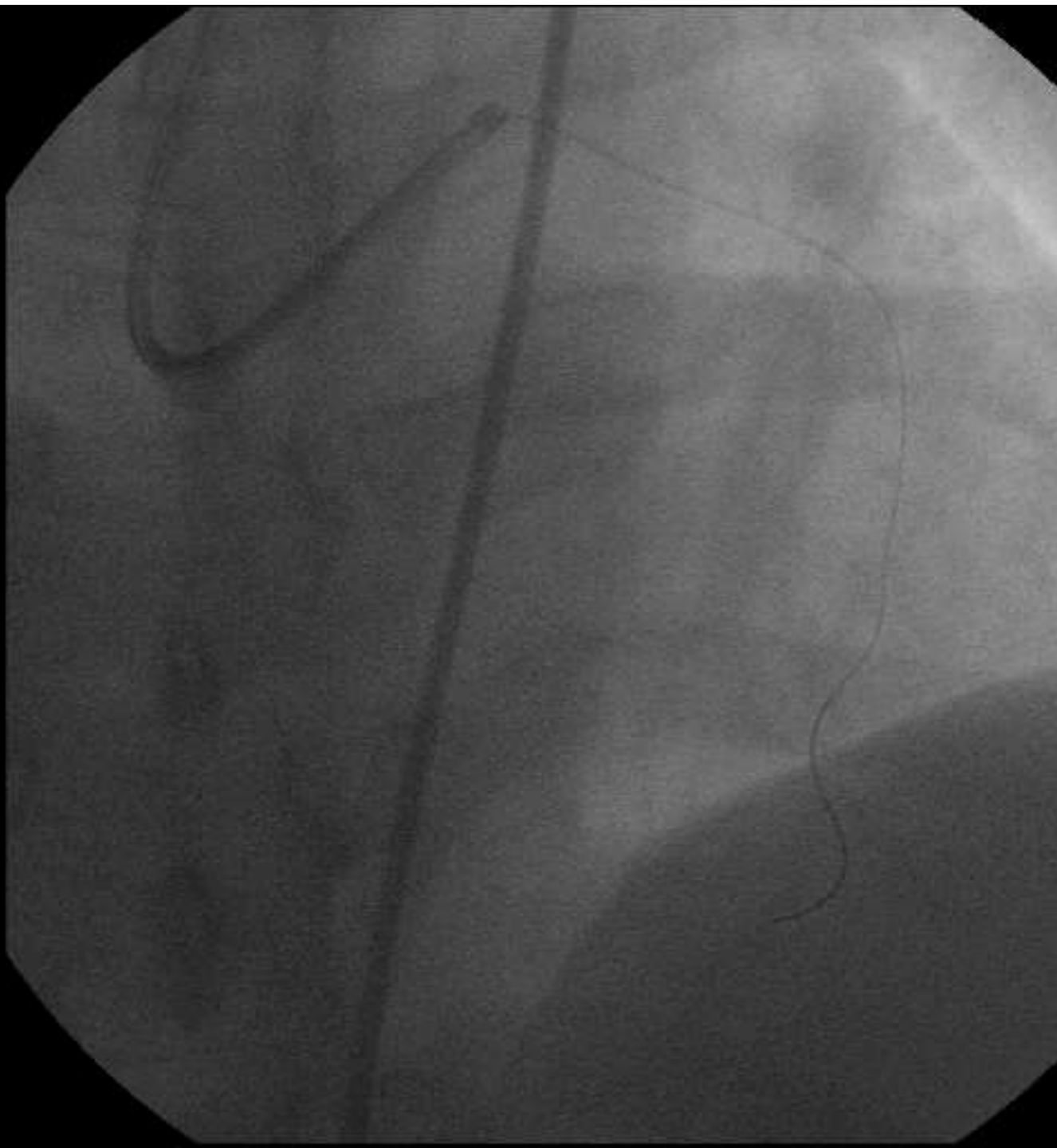


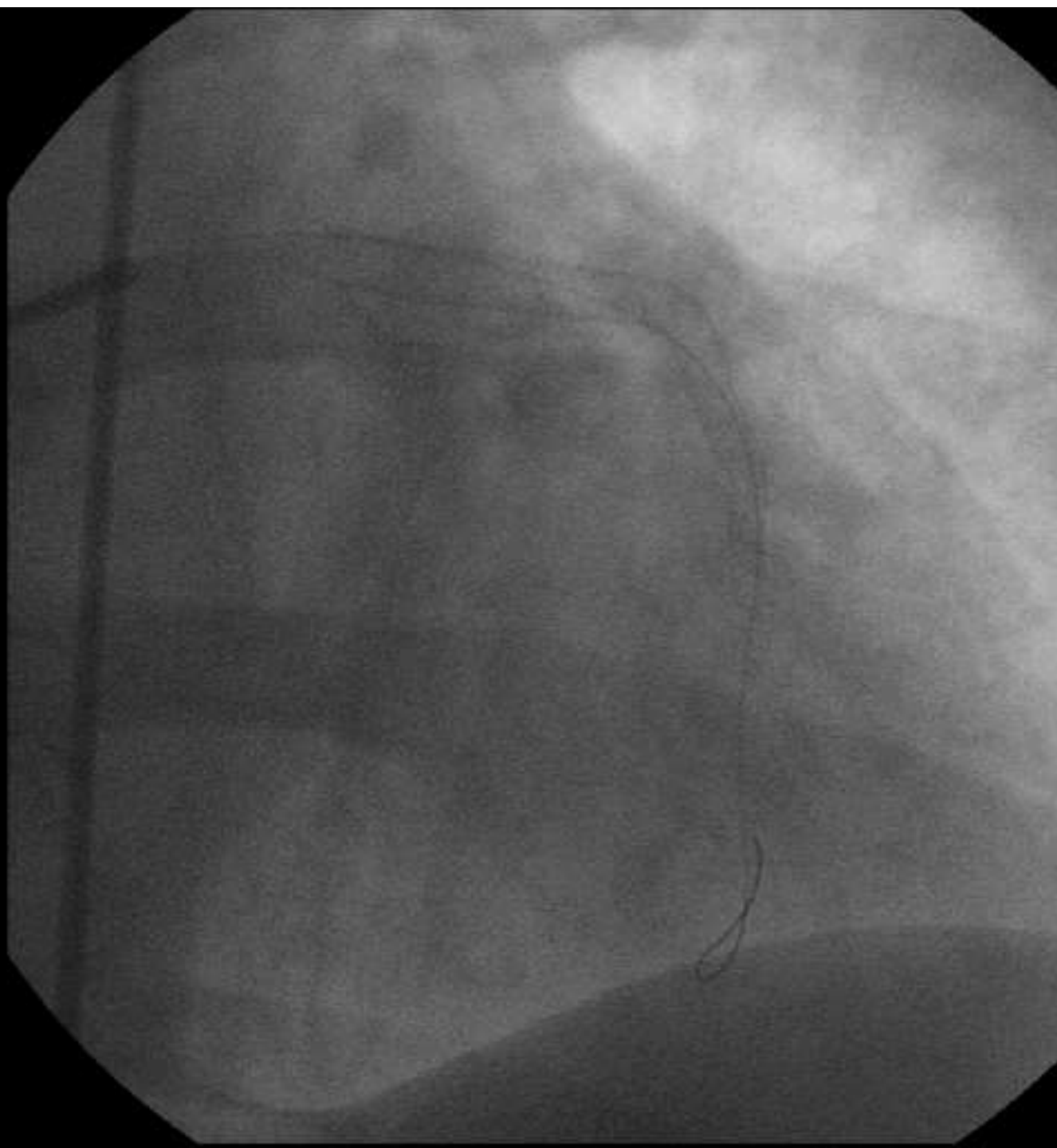


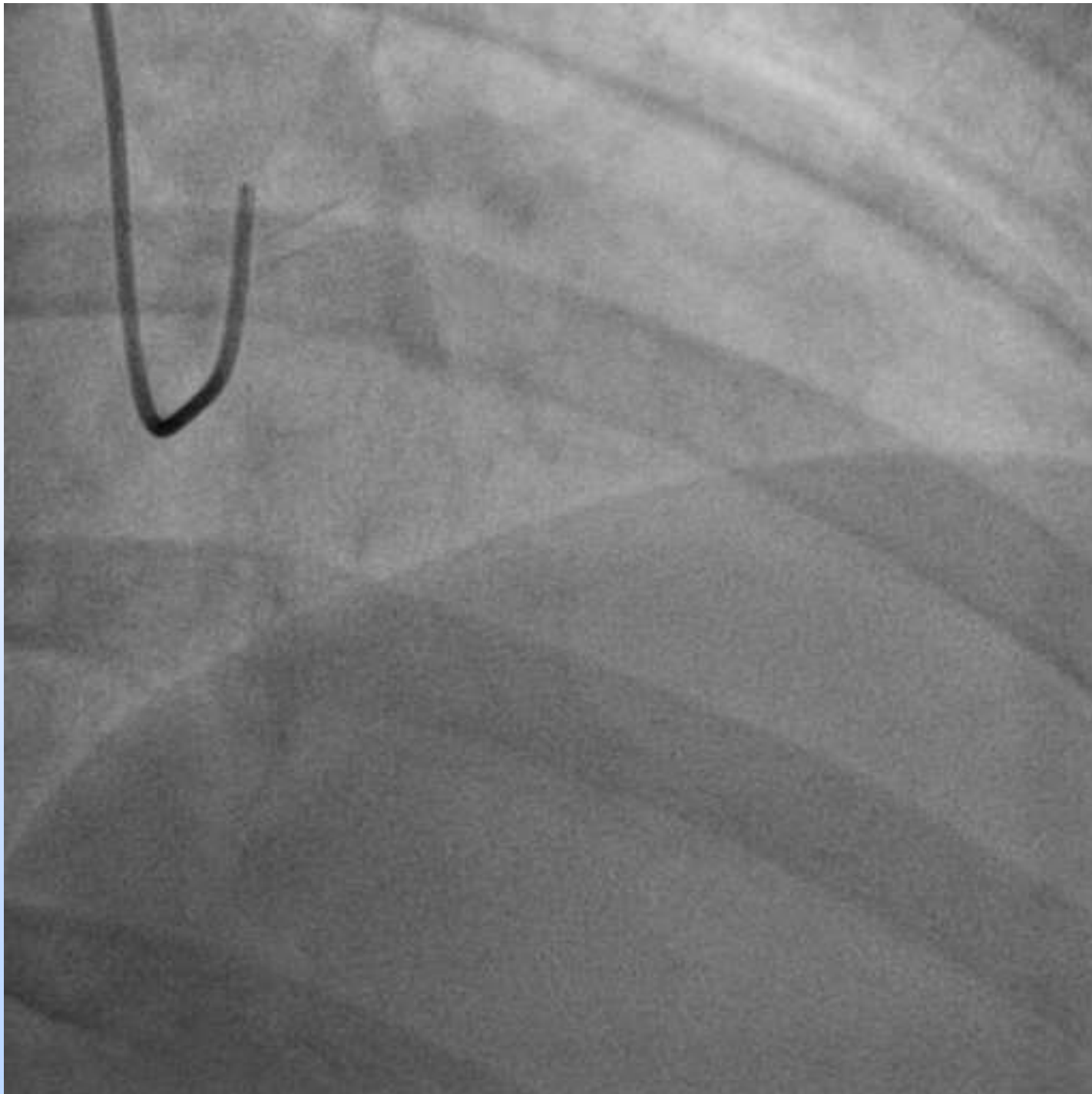
# Seal the exit → prox IMH accumulation?













No intervention  
3 months later

# Generally more favorable outcomes with conservative Rx vs PCI in SCAD with preserved flow

	PCI vessel occlusion (n=46)	PCI normal flow (n=41)	Conservative (n=94)
<b>In-hospital outcomes</b>			
Death	2%	0	0
Emergent CABG	17%	15%	4%
Extension Rx PCI	0	0	6%
Extension Rx consv	3%	3%	2%
PCI technical failure	27%	47%	NA

# SCAD

## Controversies in 2016

- Conservative Rx currently recommended
  - But risk of acute extension
  - What cons Rx? RCT planned late 2016
- PCI role and type remain understudied
  - PTCA alone? Cutting balloon to fenestrate?
  - BVS, esp for proximal disease?
- Do suspect SCAD in F<60 without risk factors. Note vasc FMD & coronary tortuosity





Thank you for your time

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