

6th  
**IMAGING &  
PHYSIOLOGY  
SUMMIT 2013**

Functional Angioplasty  
Integrated Use of FFR & IVUS



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**Different Fate of Disrupted  
Coronary Plaque with Thrombus**

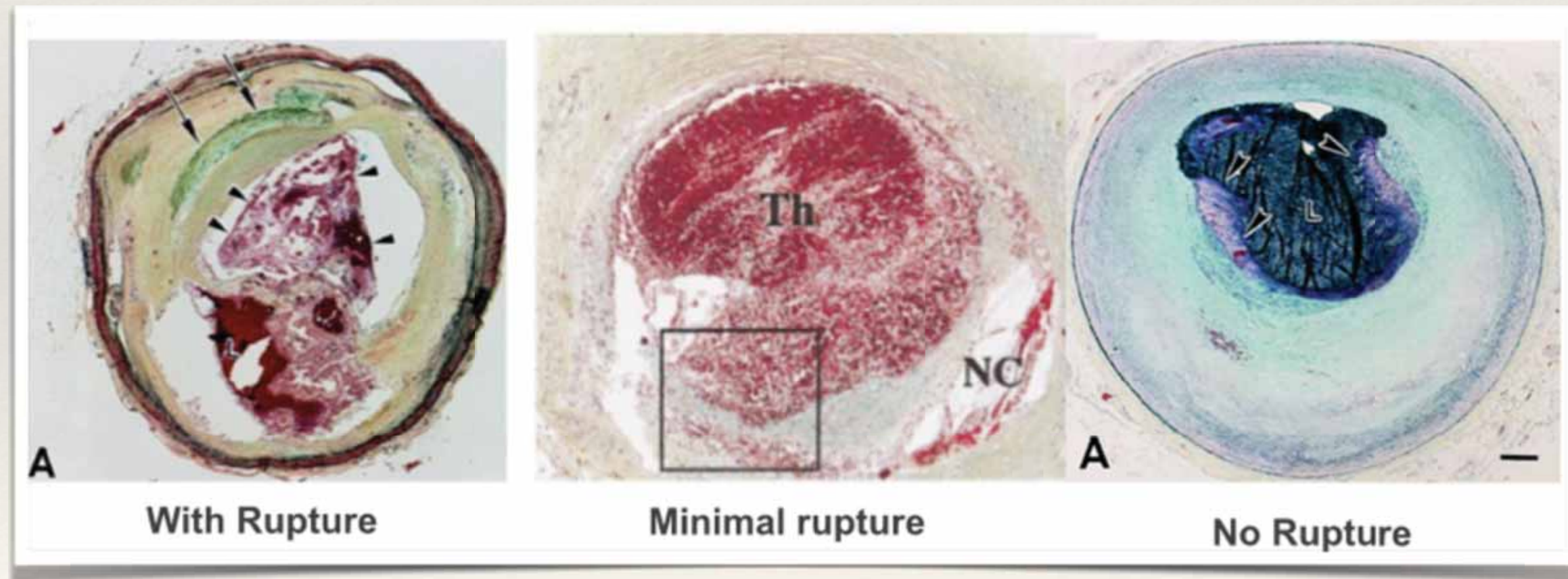
Keimyung University  
Dongsan Medical Center

Hyuck Jun YOON

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# Background

- ❖ In autopsy studies, at least 25% of thrombotic coronary occlusions are caused by plaque erosion in which thrombus often overlies atherosclerotic plaque without evident disruption of the fibrous cap.



Farb A et al. Circulation 1996;93:1354-1363

Virmani R et al. Arterioscler Thromb Vasc Biol. 2000;20:1262-1275

# Case 1



❖ **47 YO / Male, Yang MK**

❖ **Chief Complaints**

Resting onset Chest Pain for 1 hour

❖ **Risk Factor**

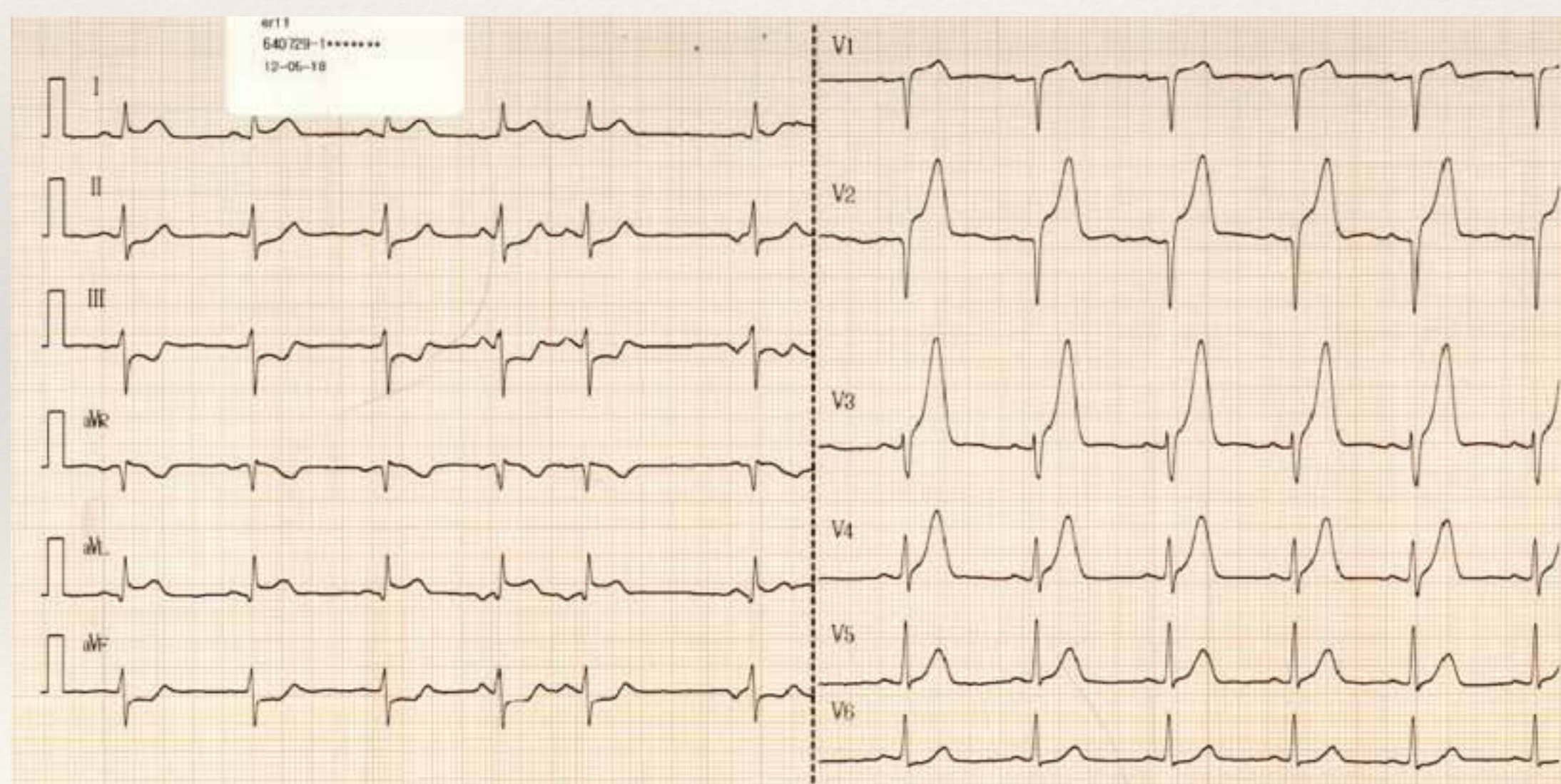
DM(-), HTN (-), **Smoking (+)**

❖ **Vital Sign**

BP 120/80 mmHg, HR 80 bpm

# Case 1

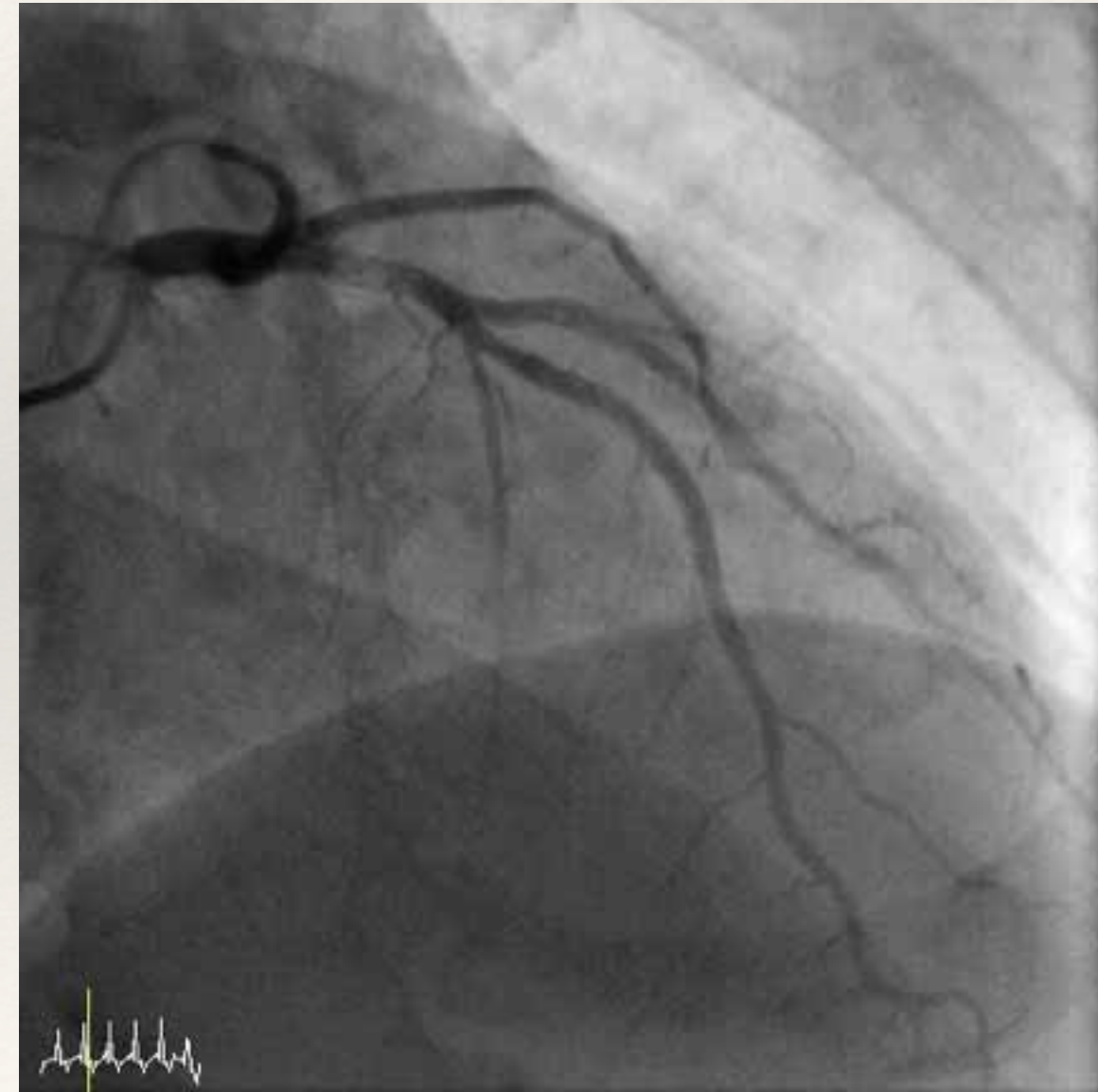
## ECG



# Case 1

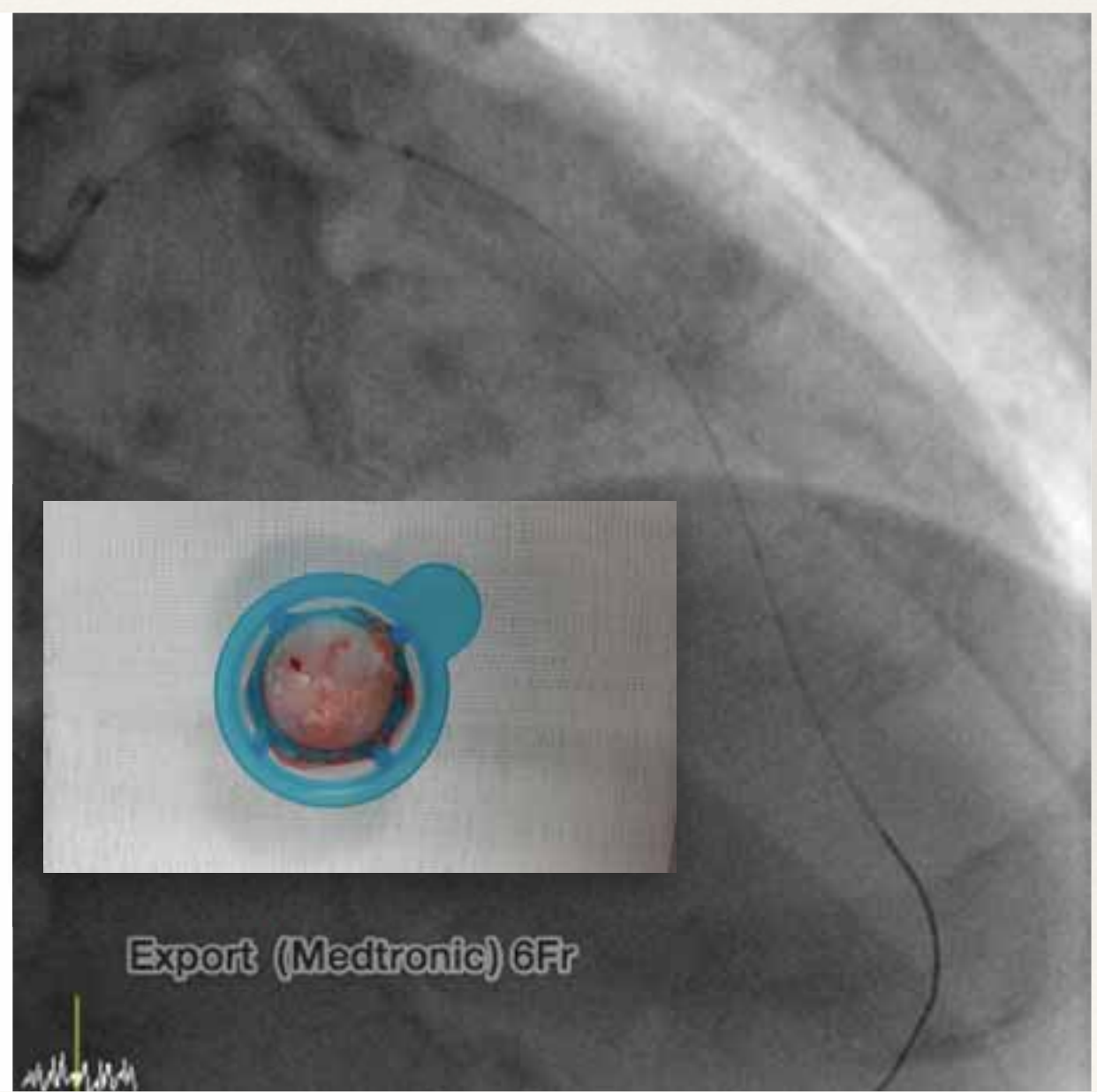
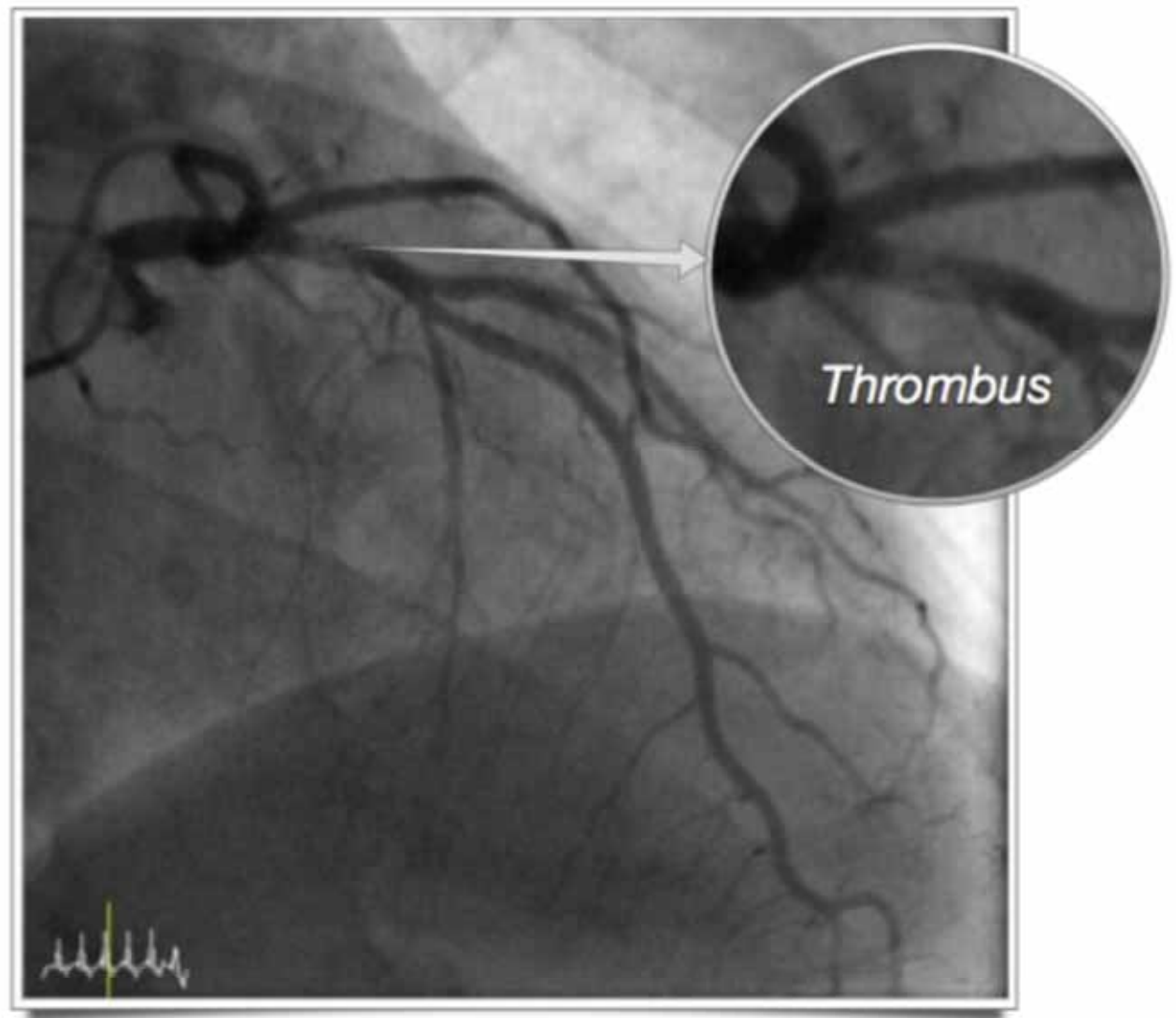


## Primary PCI



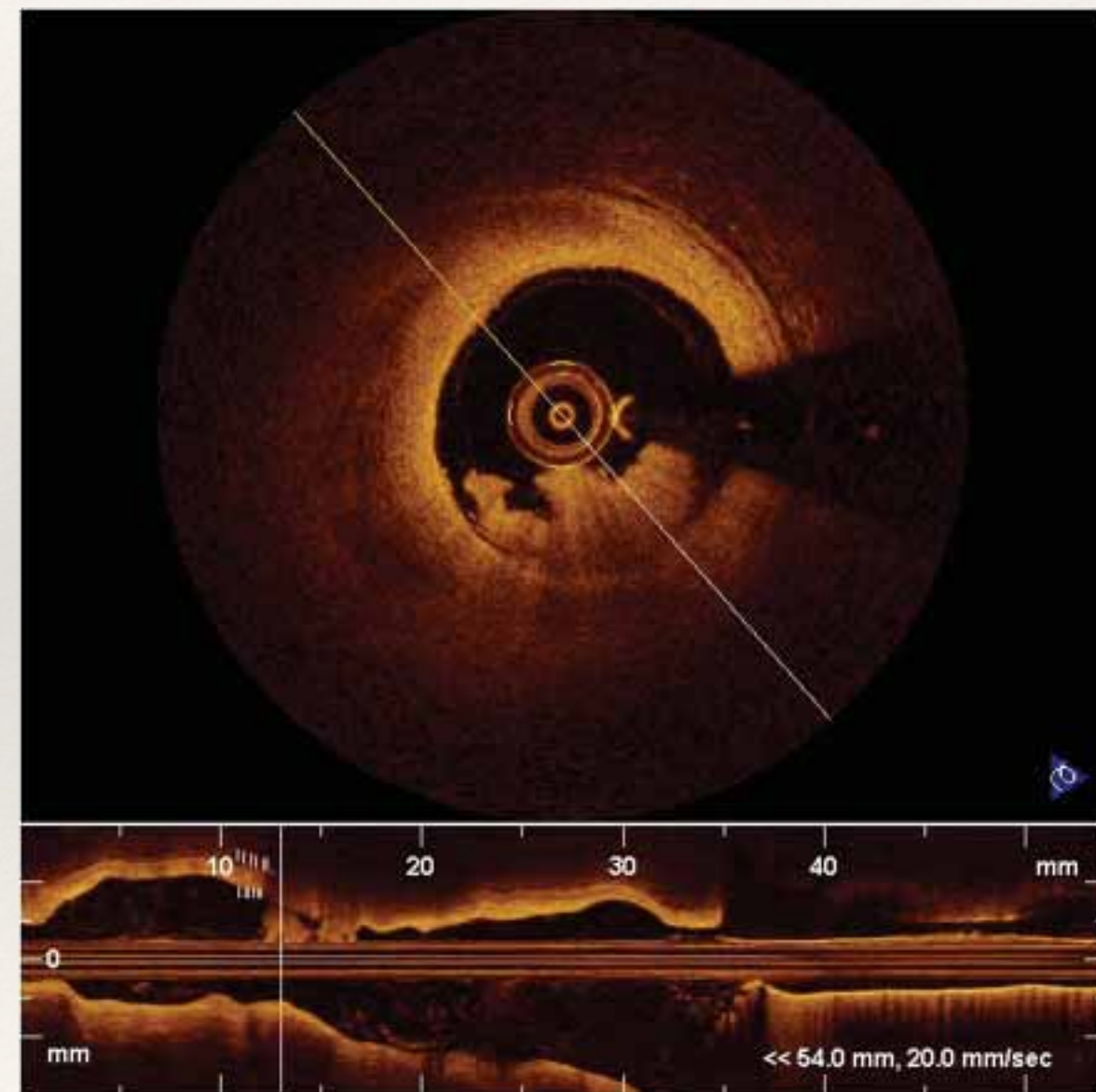
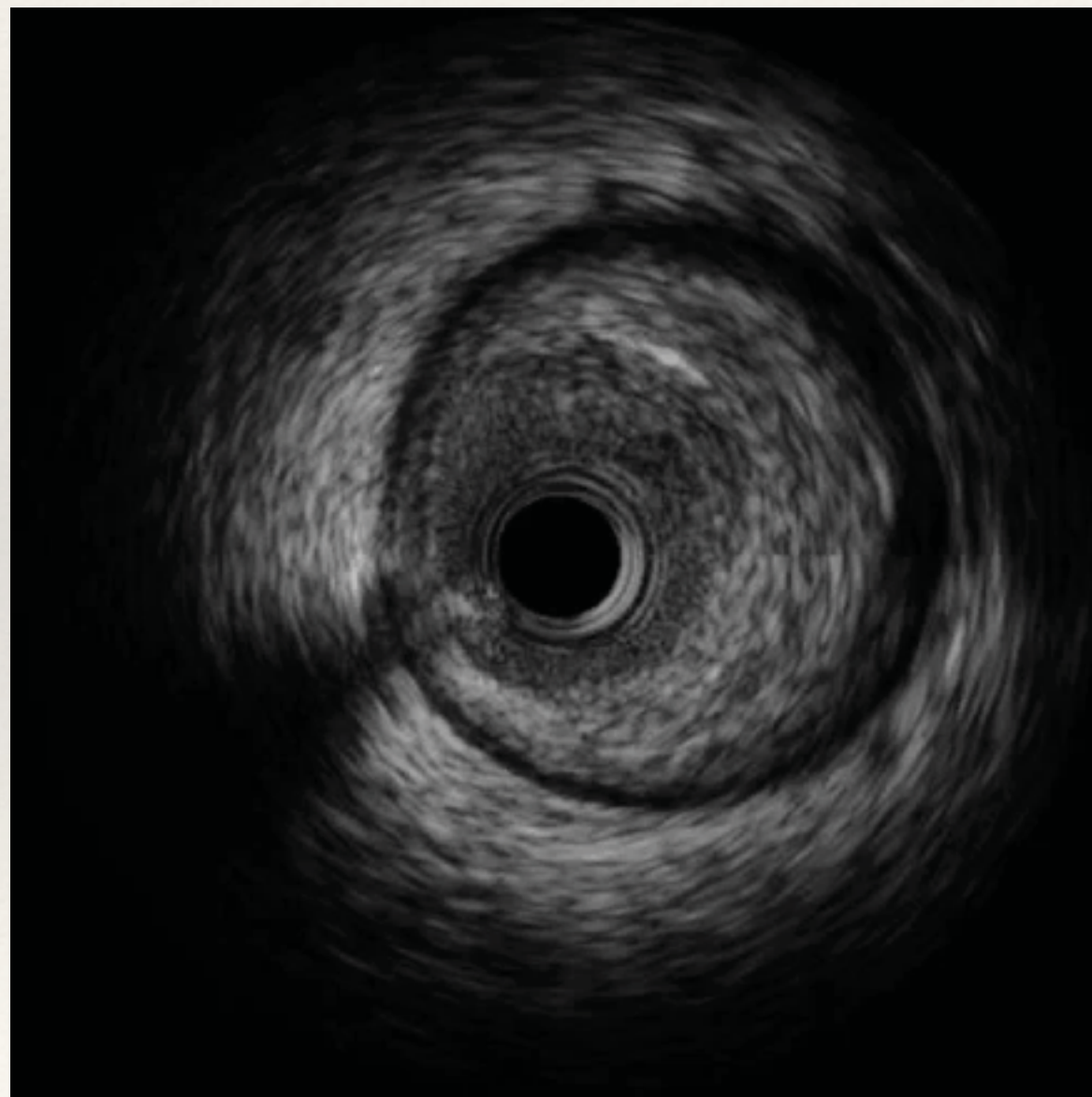
# Case 1

## Primary PCI



# Case 1

## IVUS & OCT

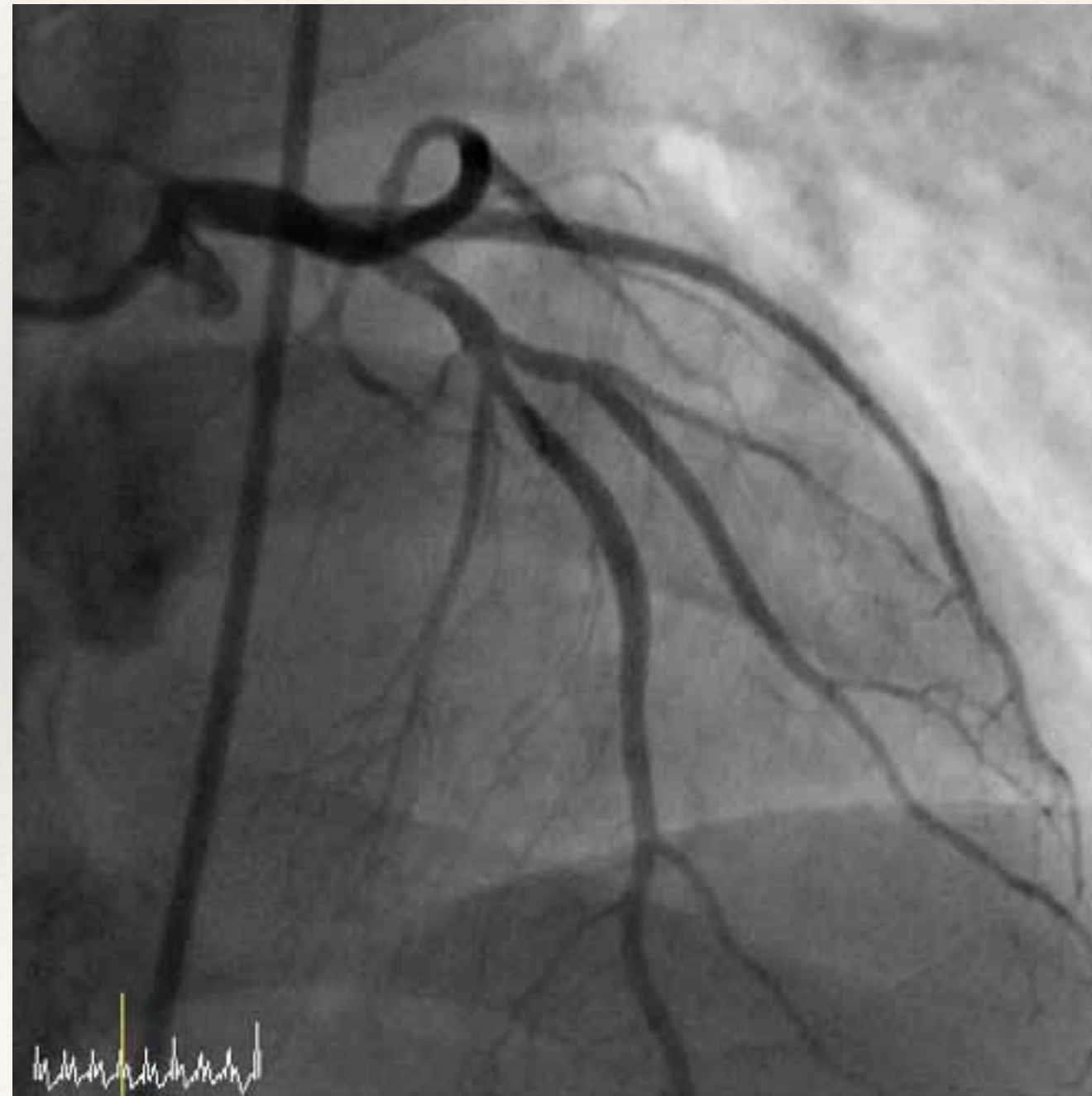


Thrombus over the plaque in proximal LAD

# Case 1



## Post Aspiration CAG





# Case 1

## Therapeutic Plan

- **Just Stent !!!**

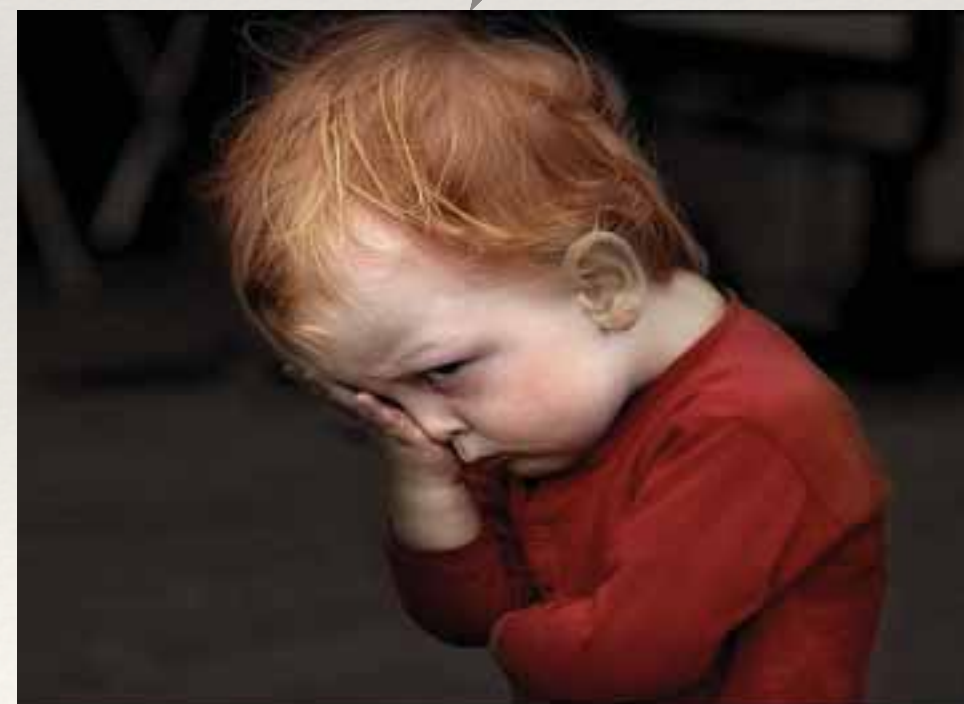
✓ **STEMI**

- **No Stent !!**

✓ **TIMI 3**

✓ **Relieved Chest Pain**

To stent  
or not to  
stent



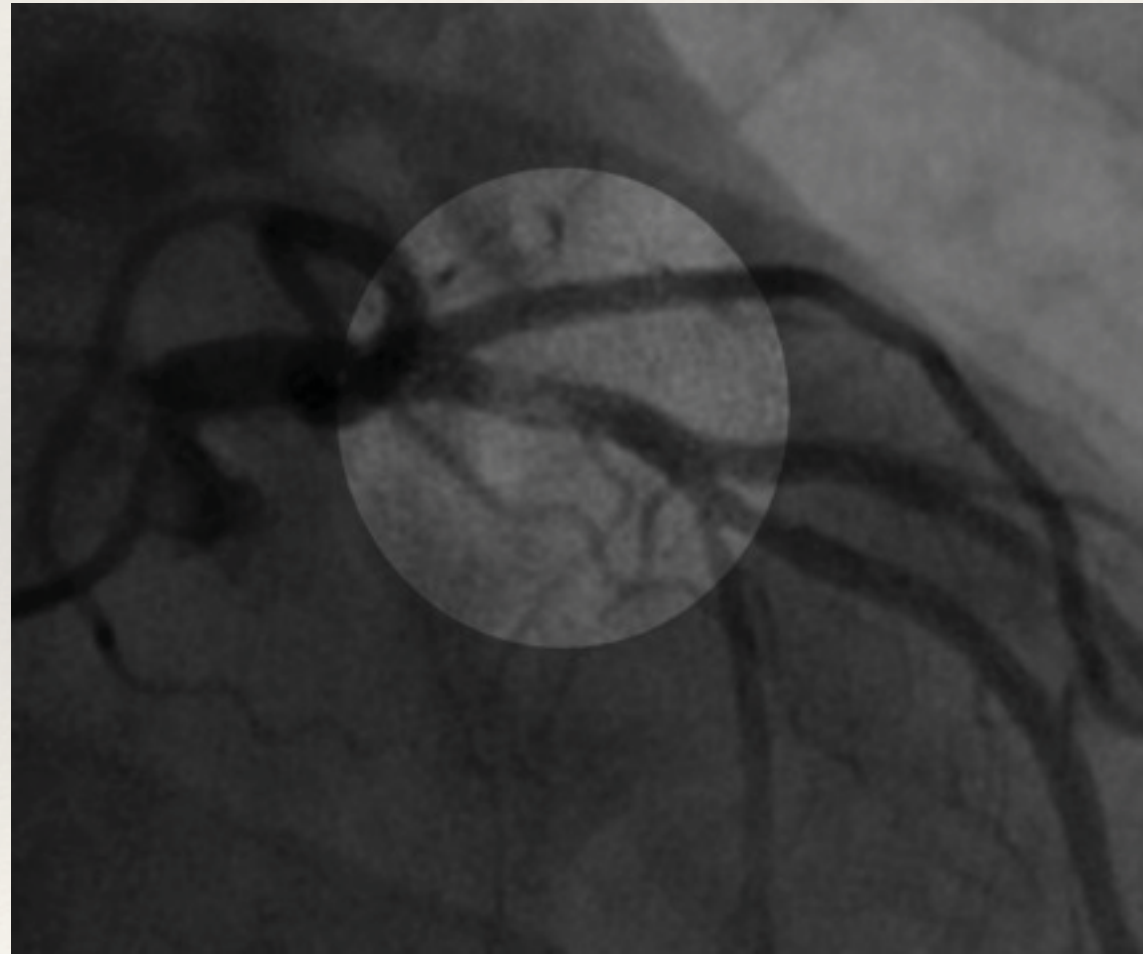
# Case 1

## Therapeutic Plan

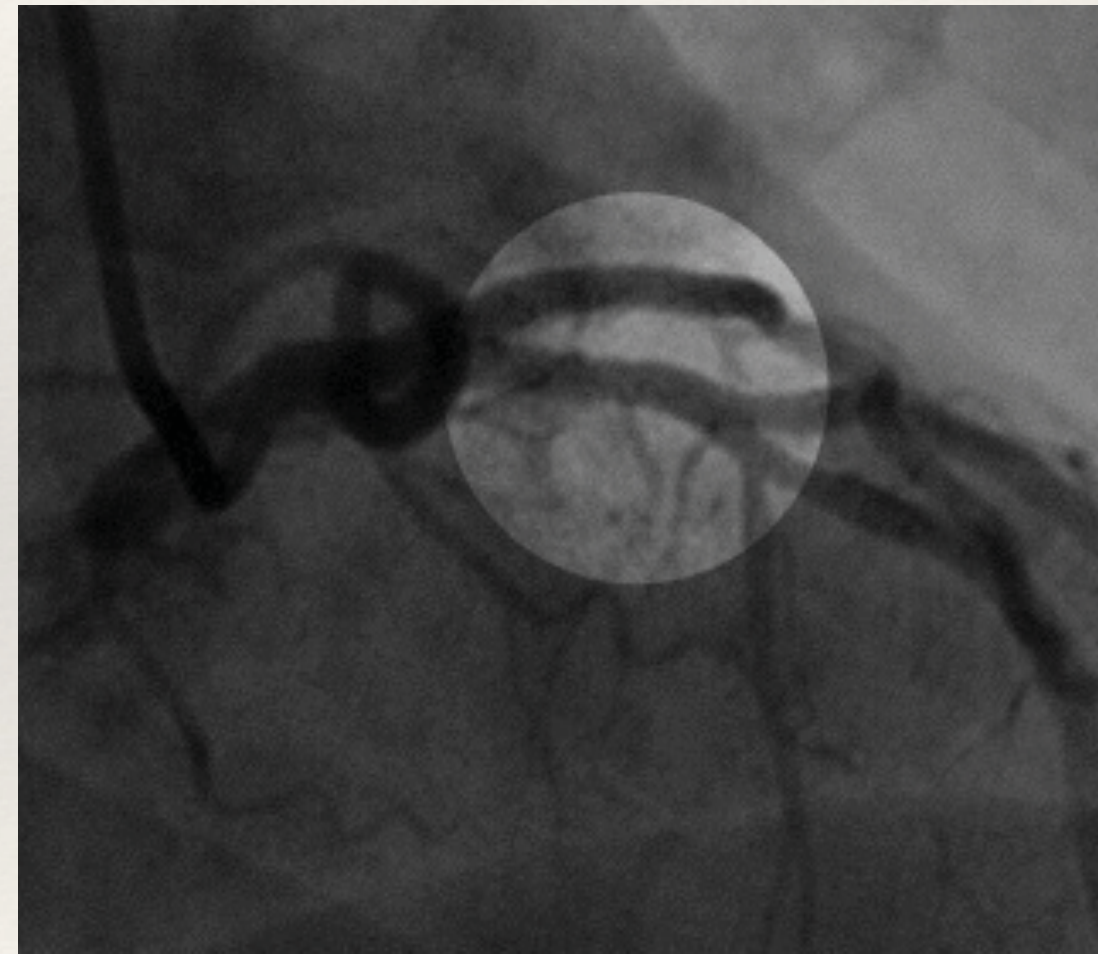
- **No Stent !!**

**Gp IIb/IIIa Receptor Blocker  
anticoagulation (UFH) for 48hrs  
&  
Re-Evaluation**

# Case 1

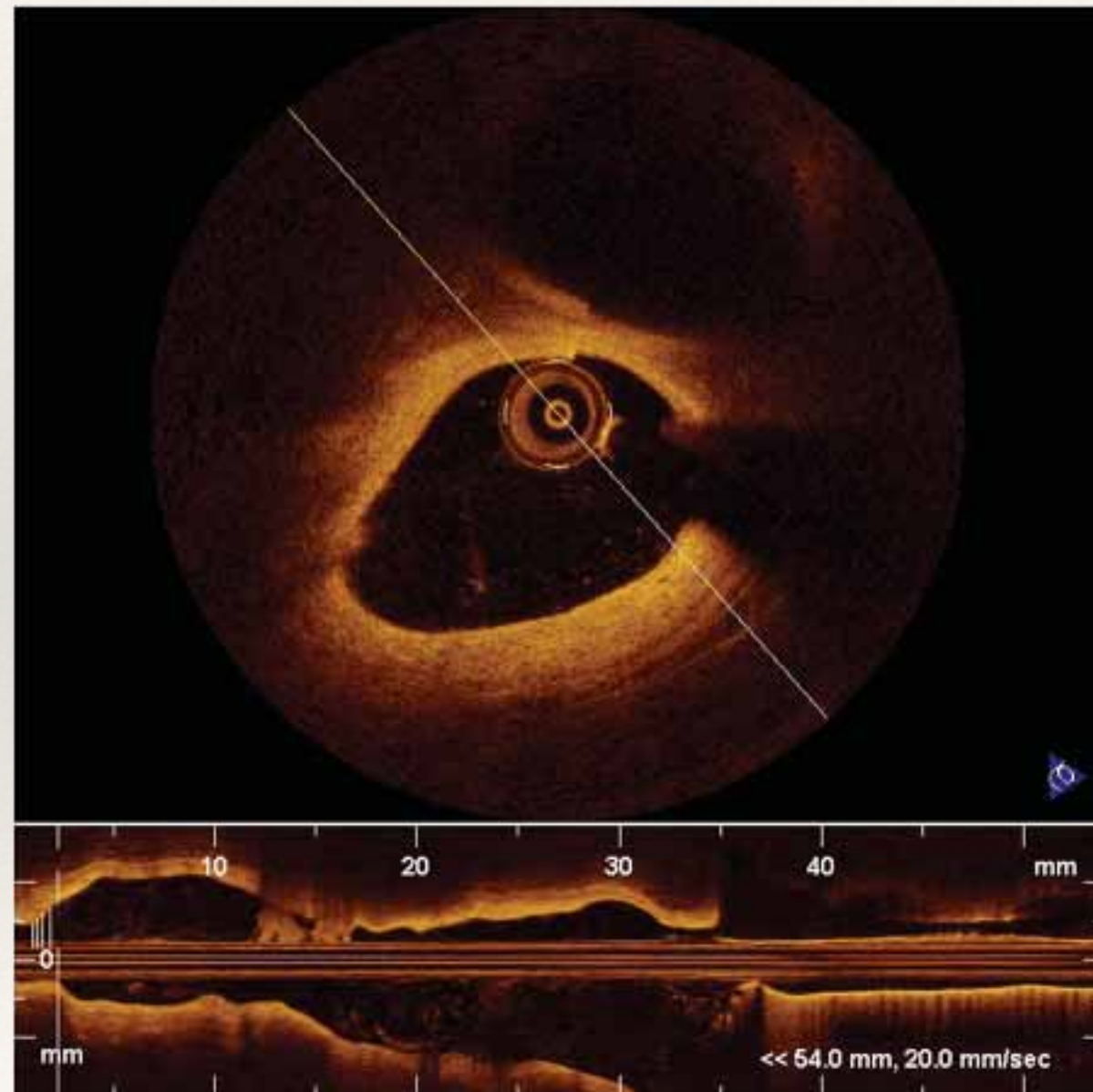


Initial

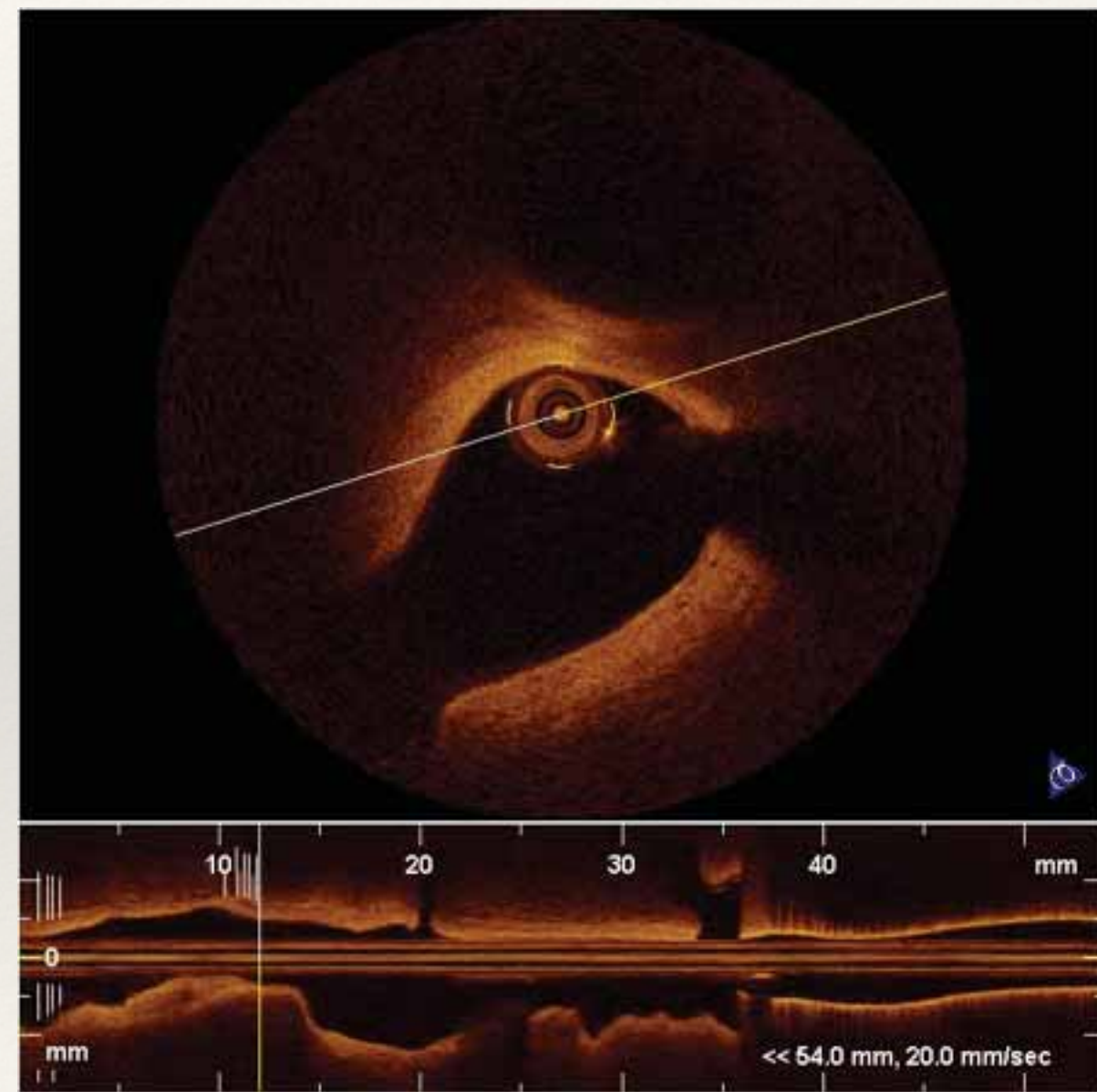


3days later

# Case 1



Initial



3days later

# Case 1

## Clinical Course

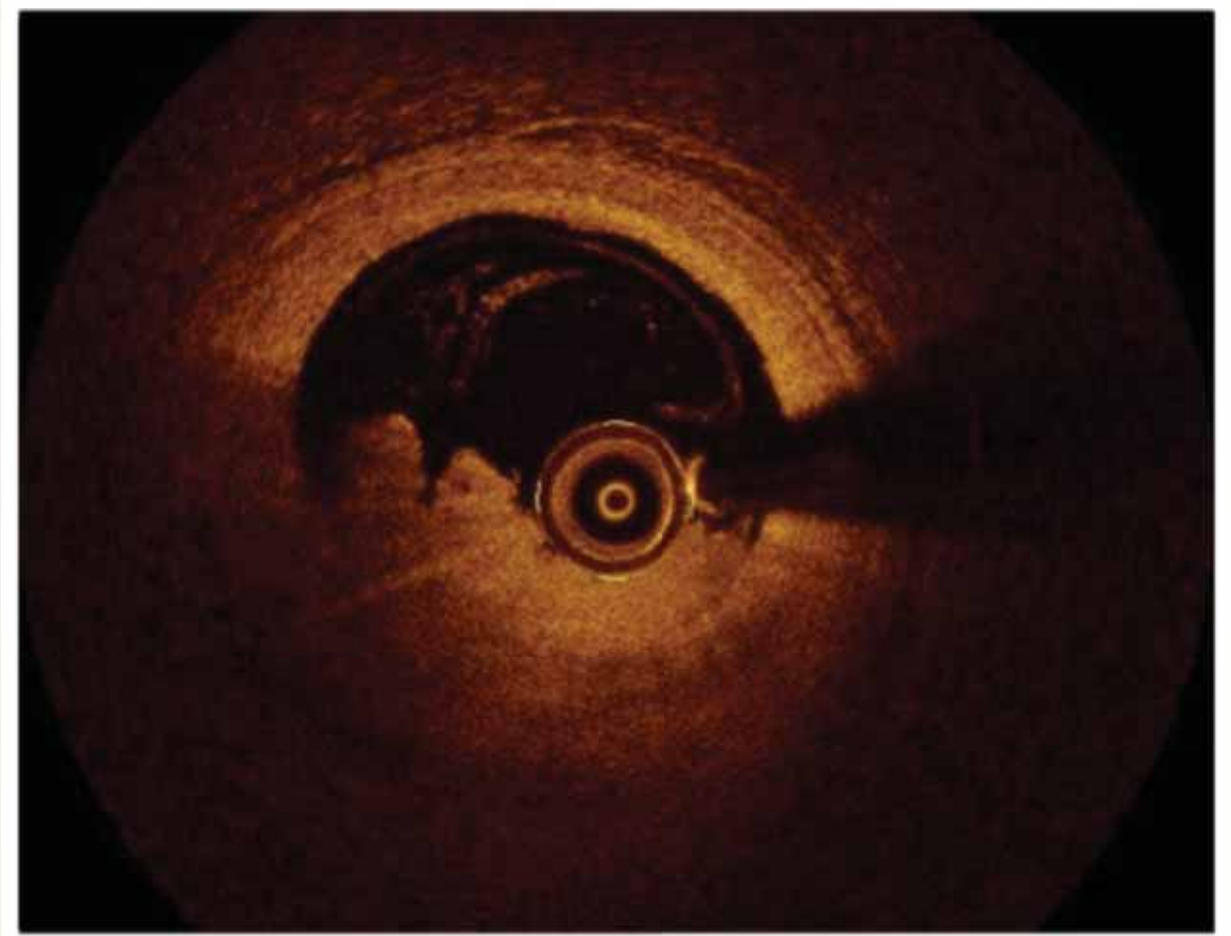
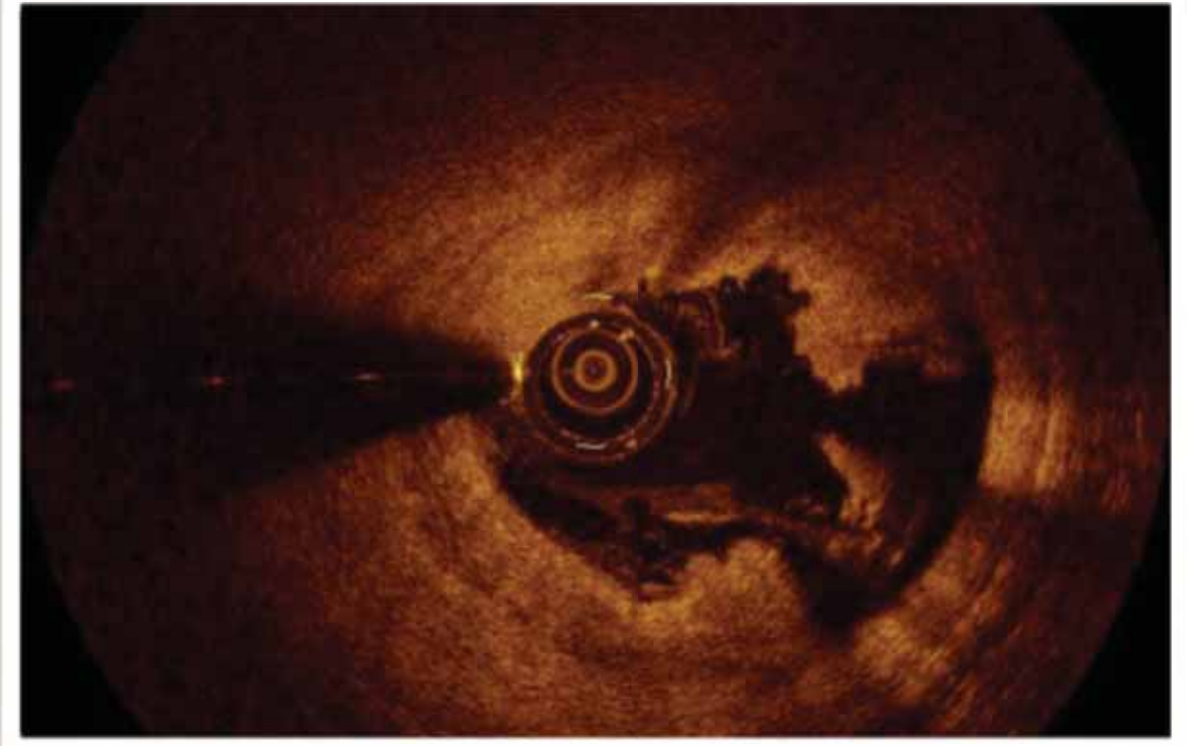
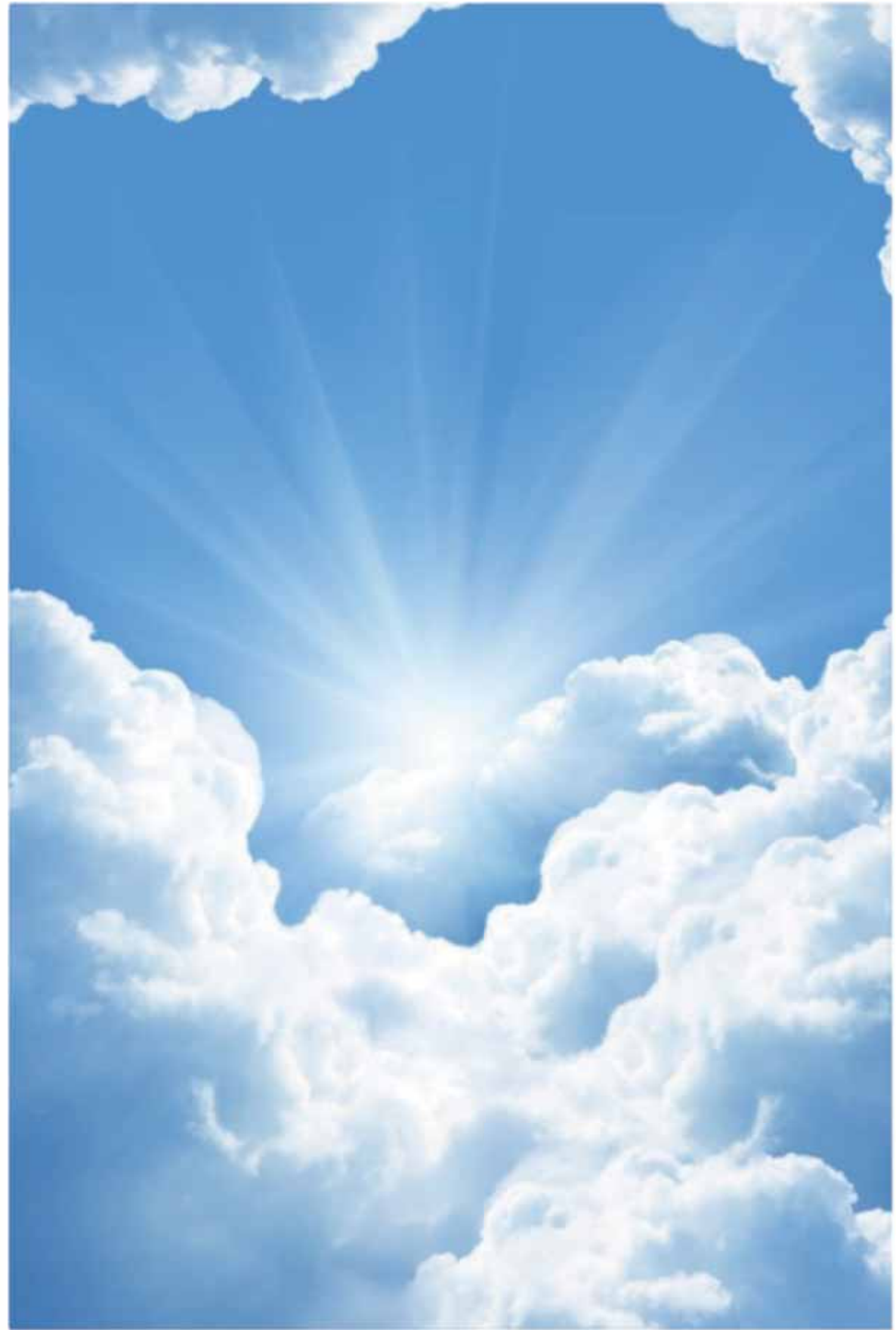
❖ **No Chest Pain during 16 Months FU**

❖ **Medication**

Aspirin + Clopidogrel -> Aspirin

Rosuvastatin 10 mg

Perindopril 4 mg, Isosorbide dinitrate 120mg



# Case 2



❖ **50YO Male**

❖ **Chief Complaints**

Resting onset chest pain for 1hour

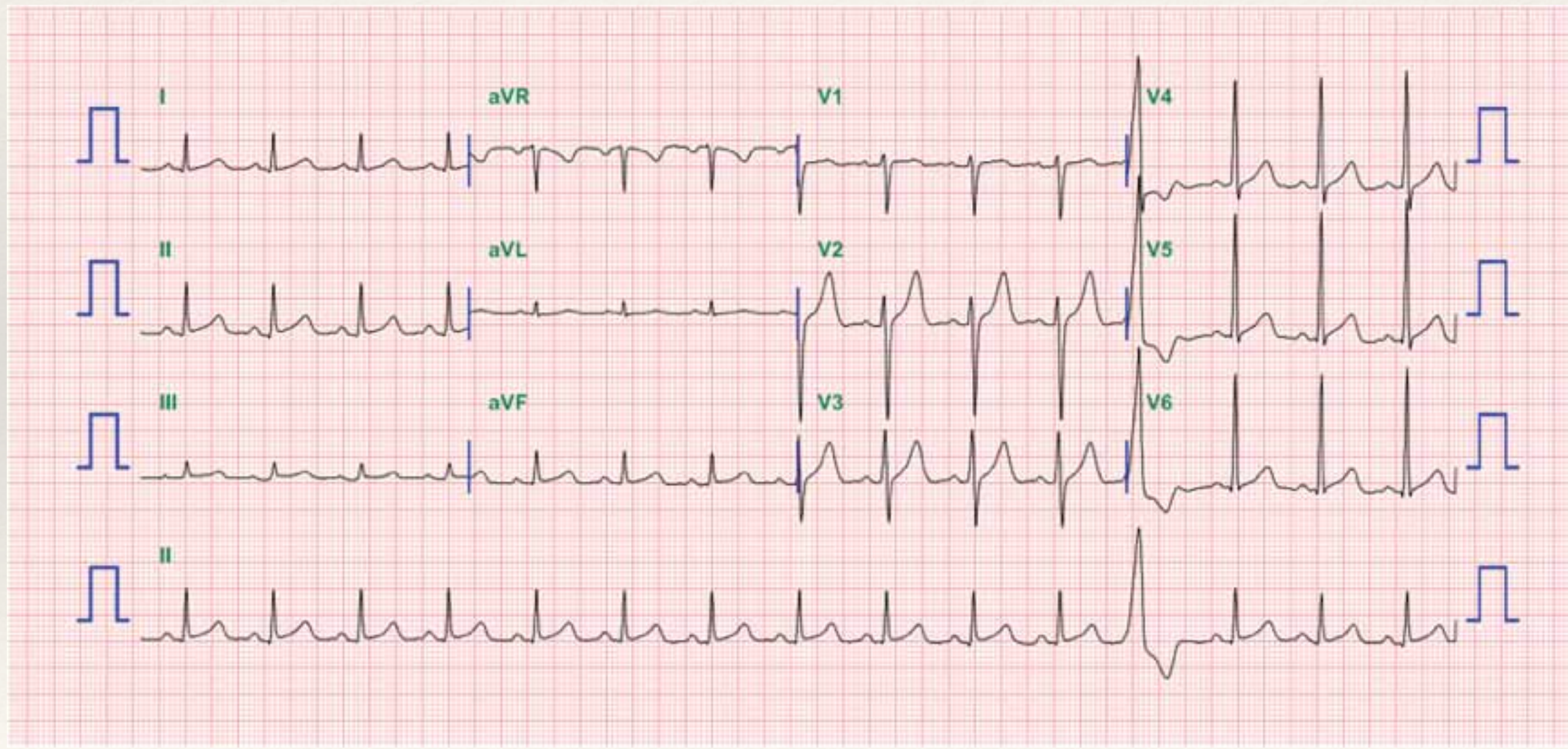
❖ **Risk Factors**

DM (-), HTN (-), **Smoking (+)**, Gouty Arthritis

❖ **Vital Sign**

BP 110/80 mmHg, HR 86 bpm

# Case 2





# Case 2

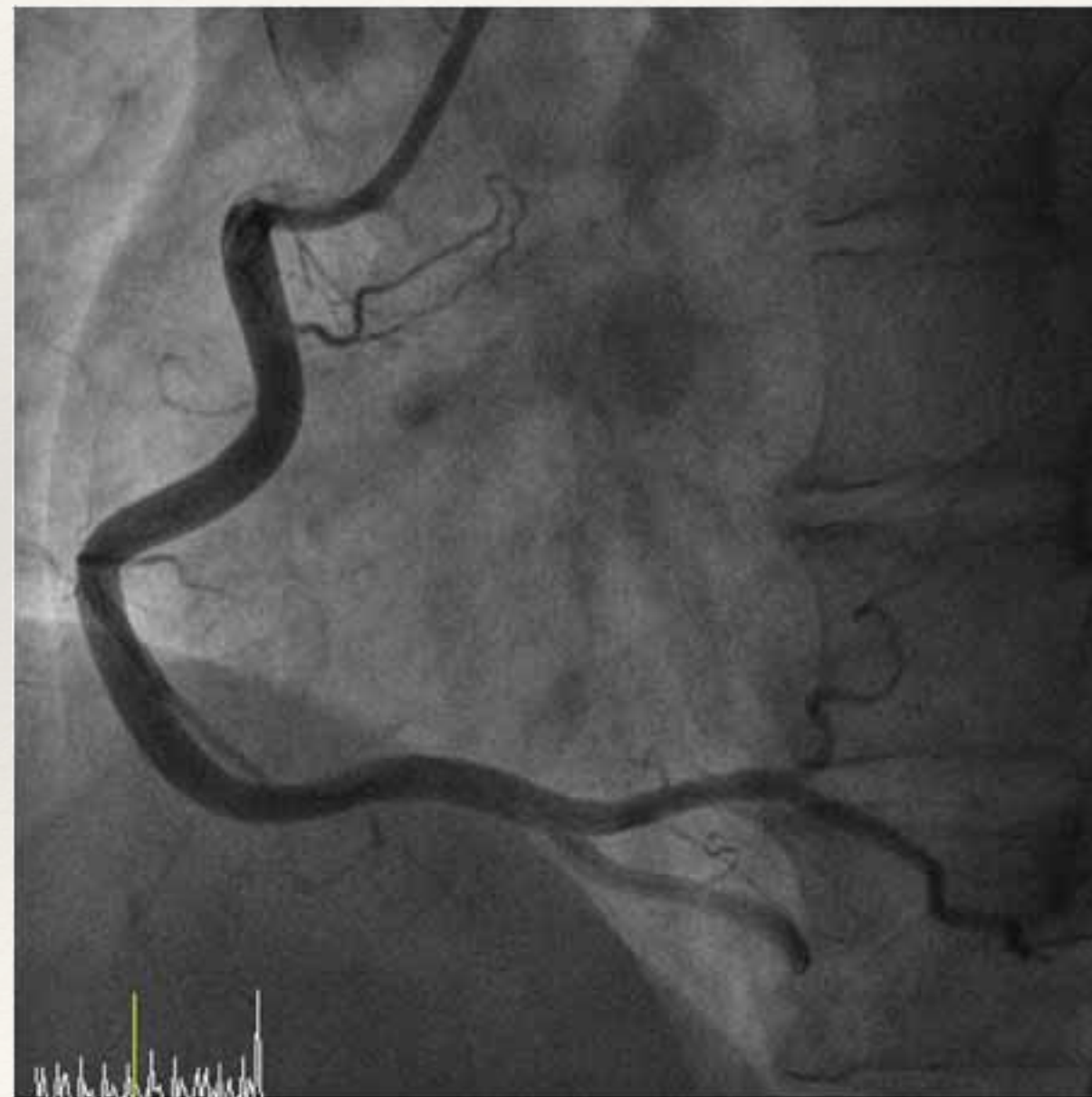
- ❖ **CK-MB** 8.6 ng/mL (n<5.0)
- ❖ **Troponin-I** 0.64 ng/mL (n<0.10)
- ❖ **Portable TTE**

**Apicospetal Hypokinesia**

# Case 2



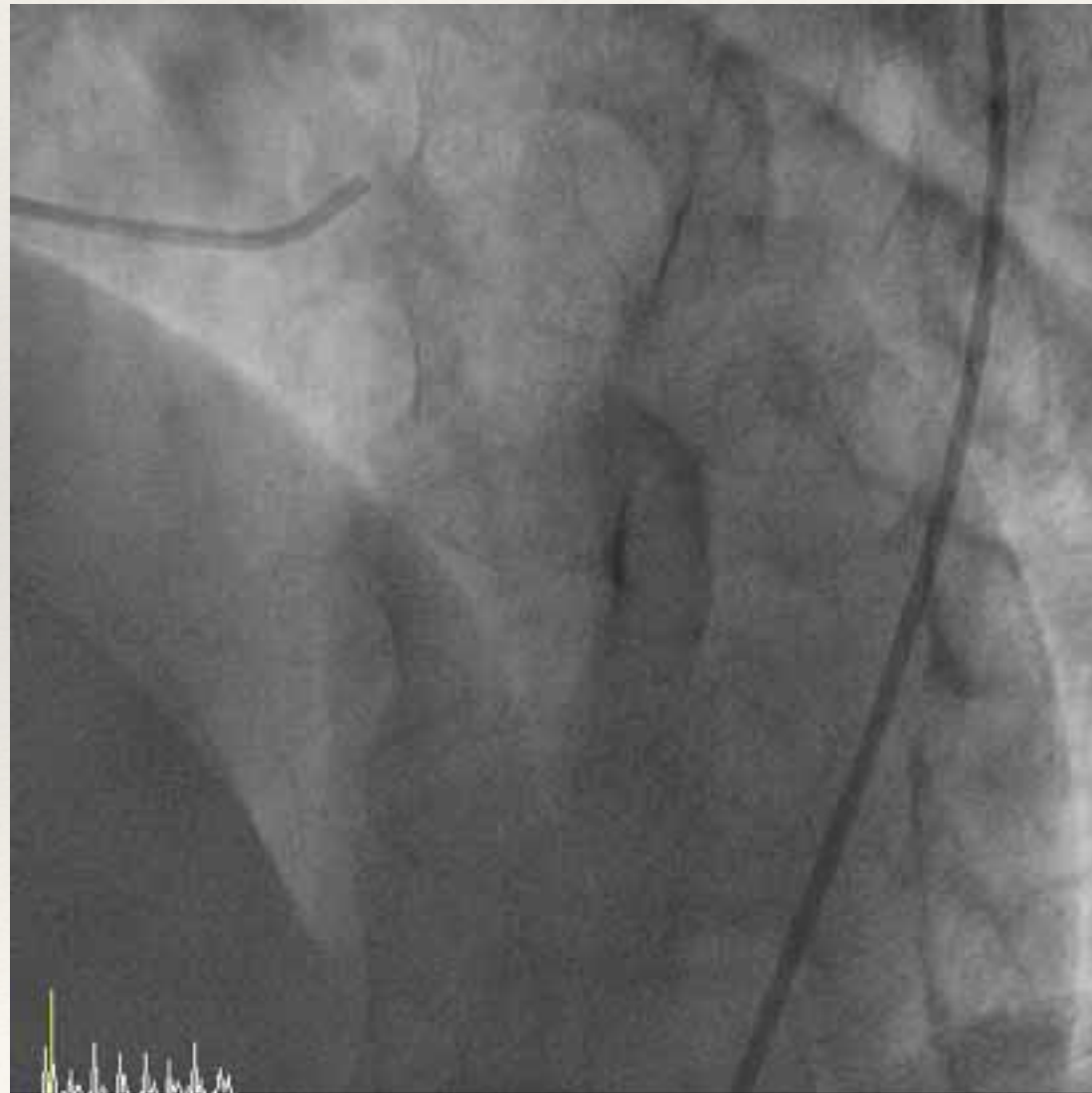
## Emergent CAG



# Case 2

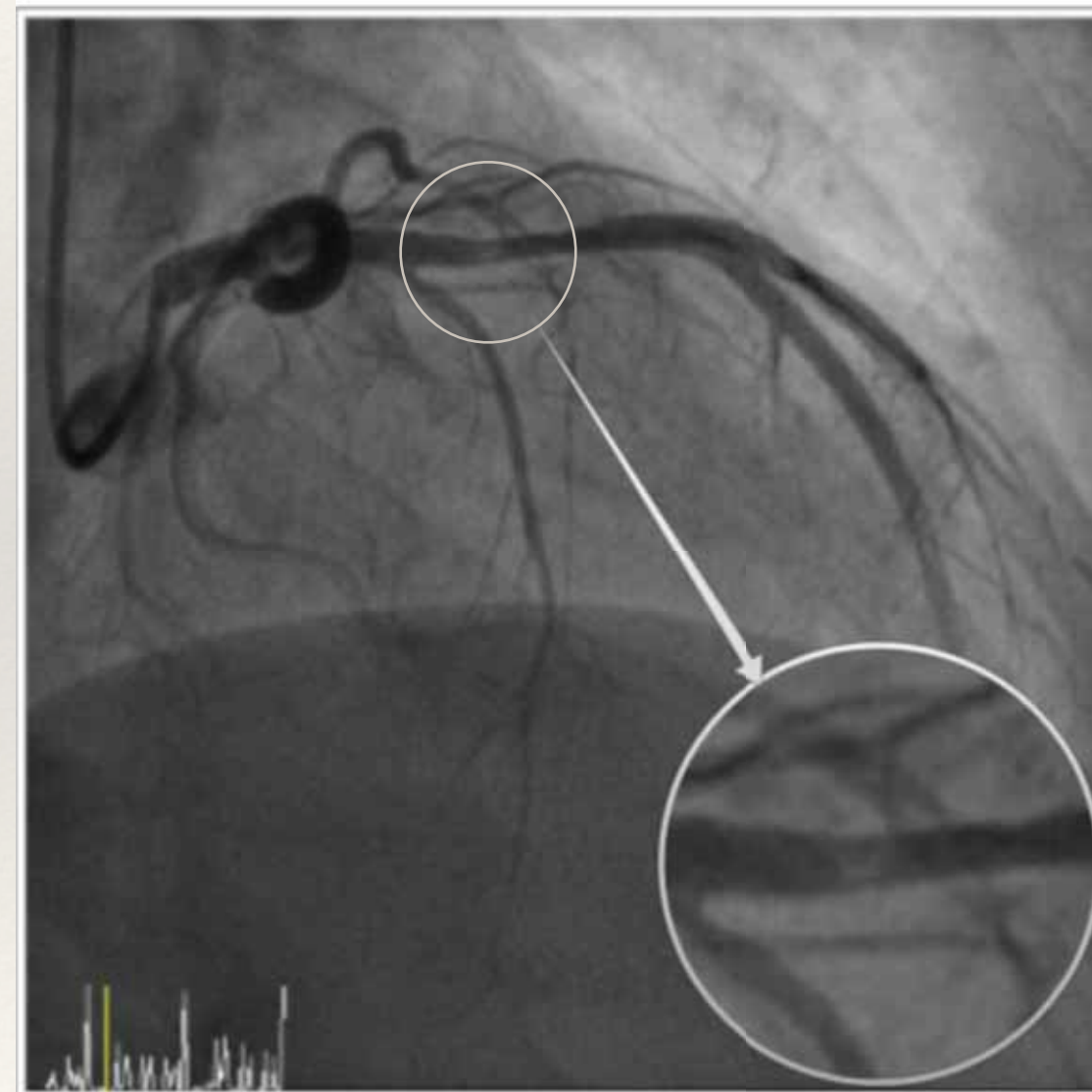
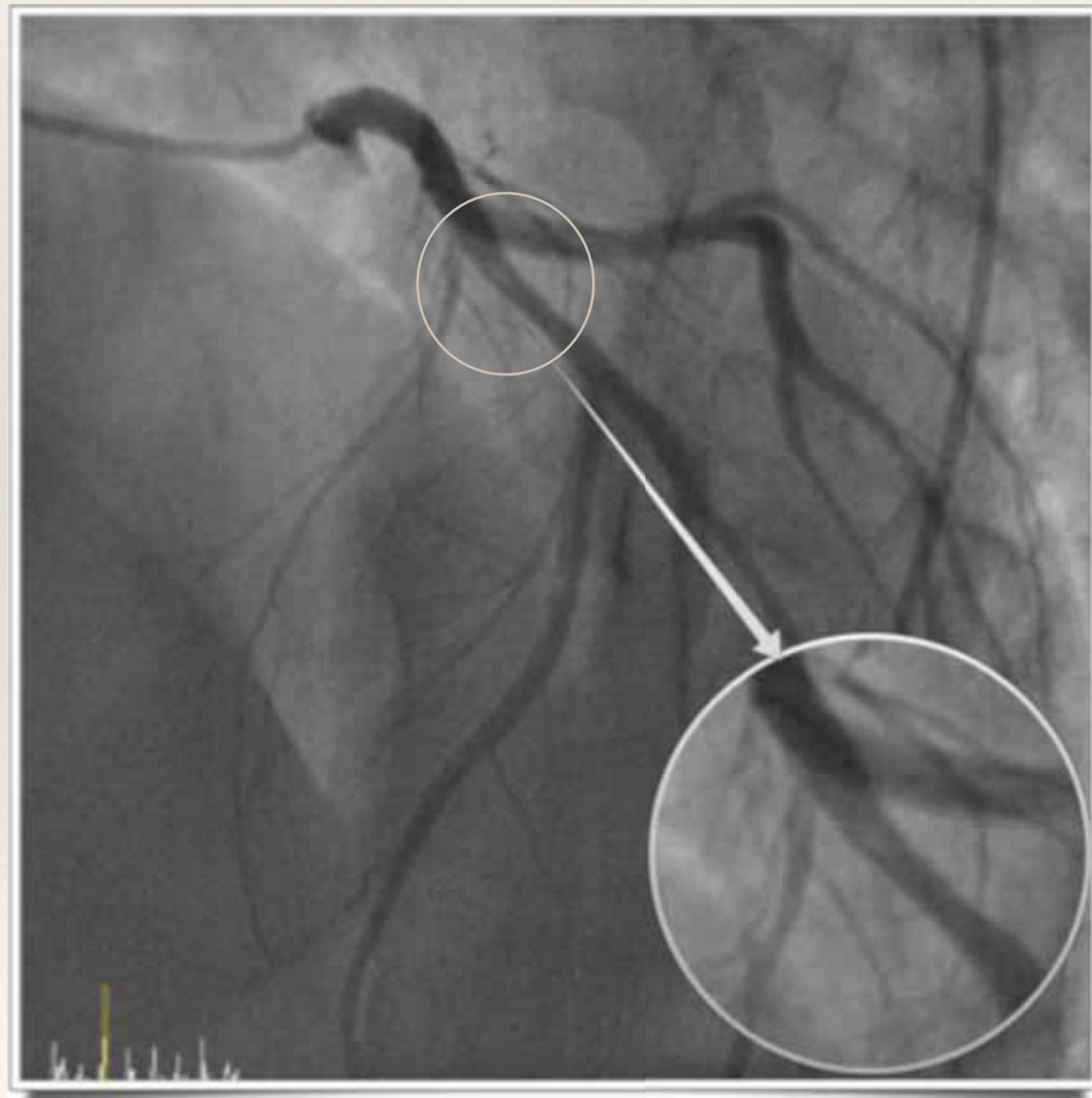


## Emergent CAG



# Case 2

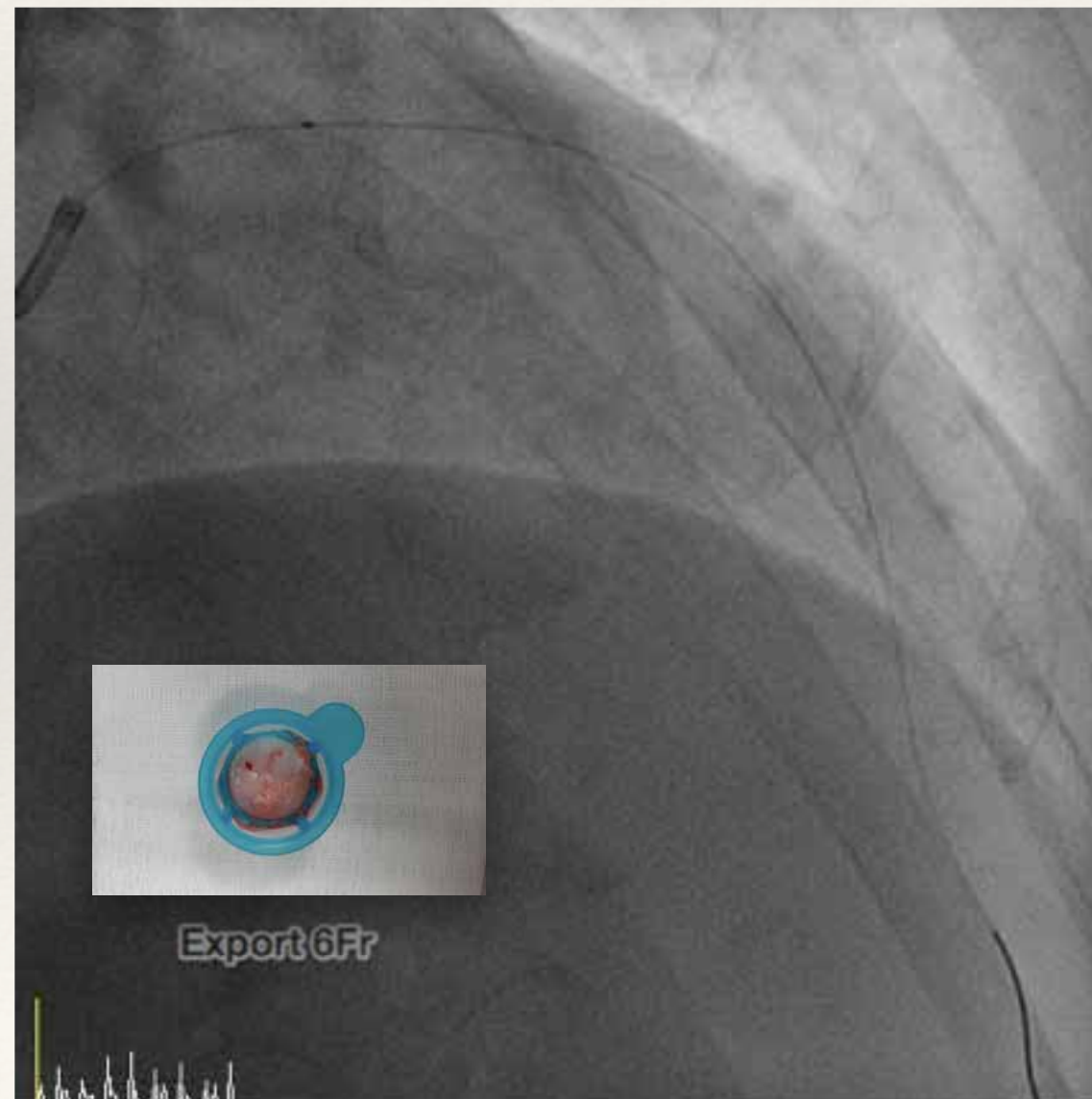
## Emergent CAG



# Case 2



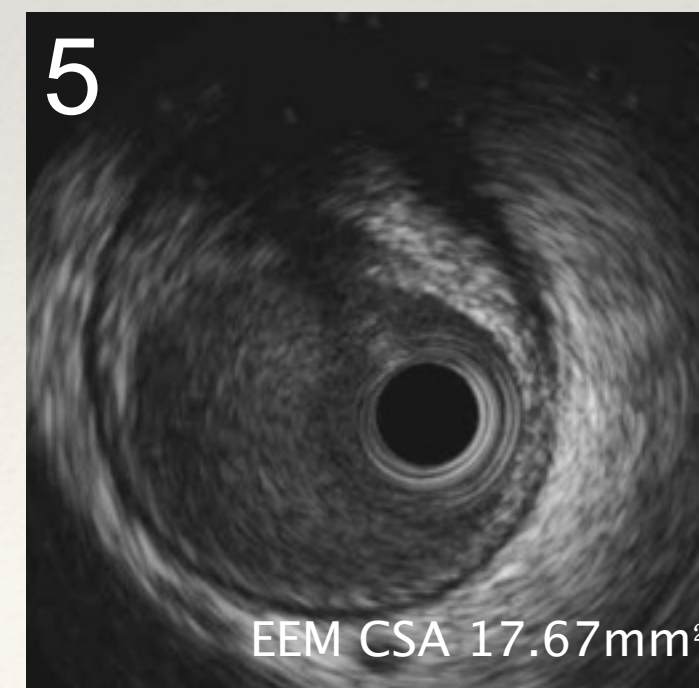
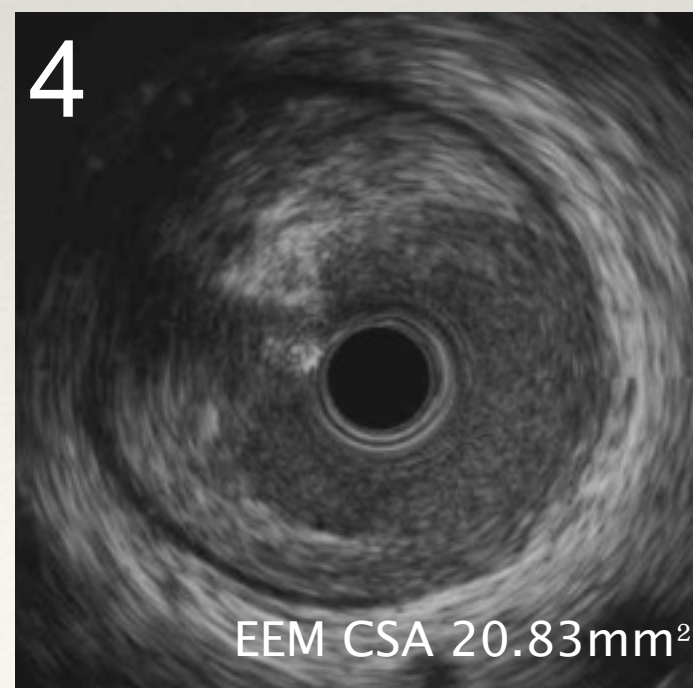
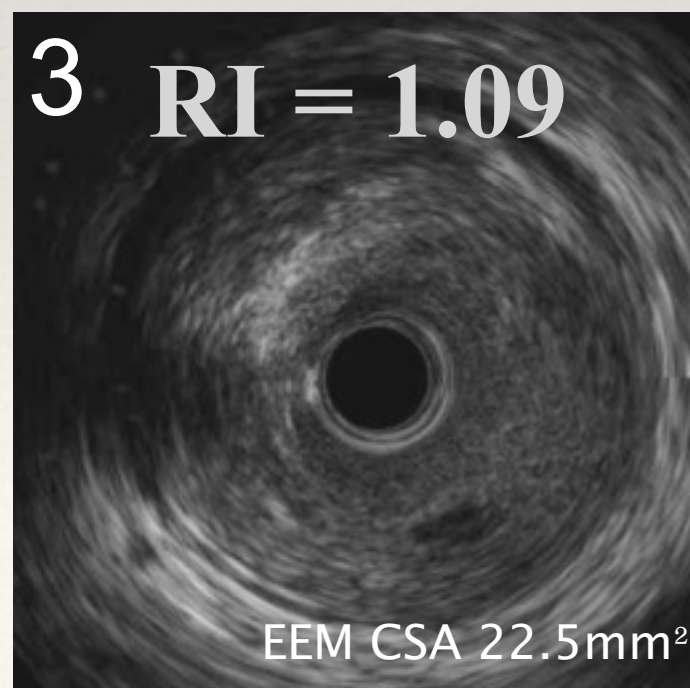
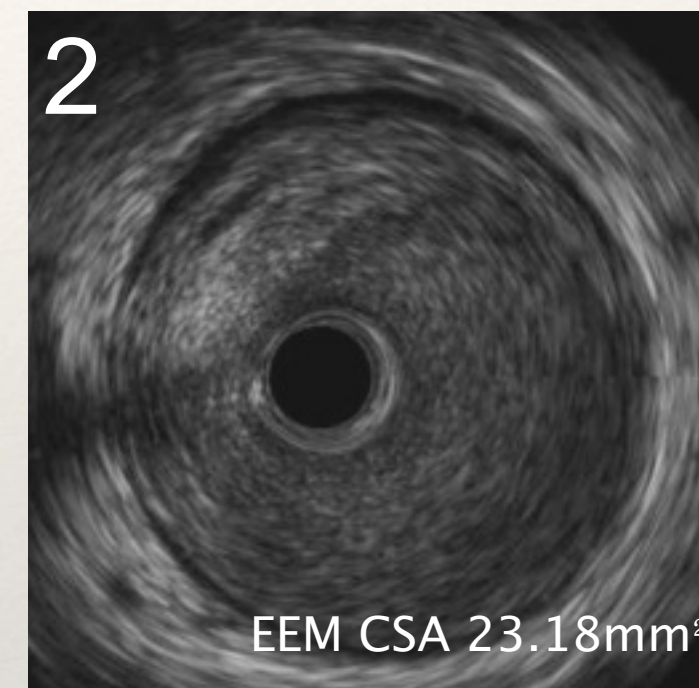
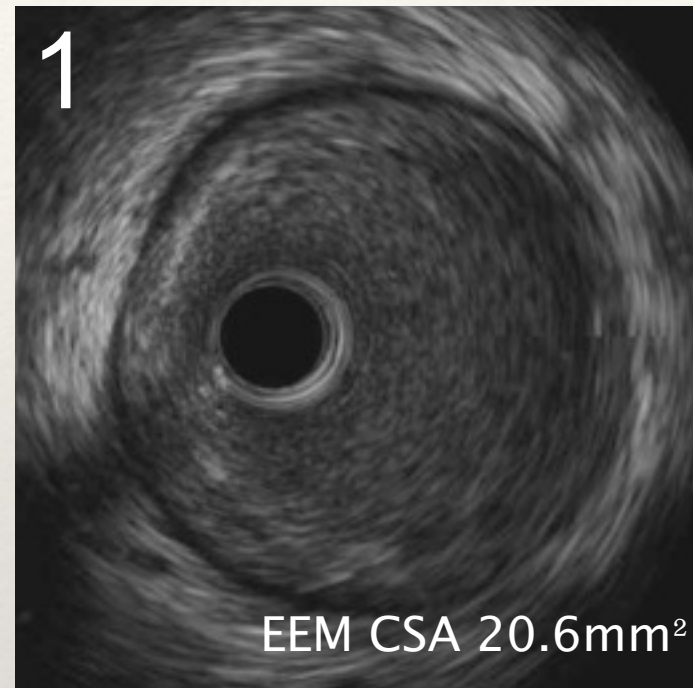
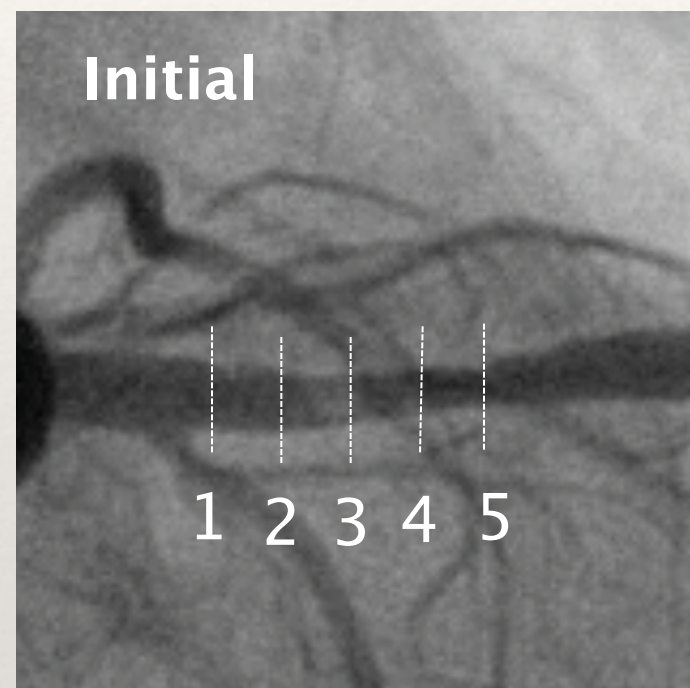
## Thrombus Aspiration



# Case 2



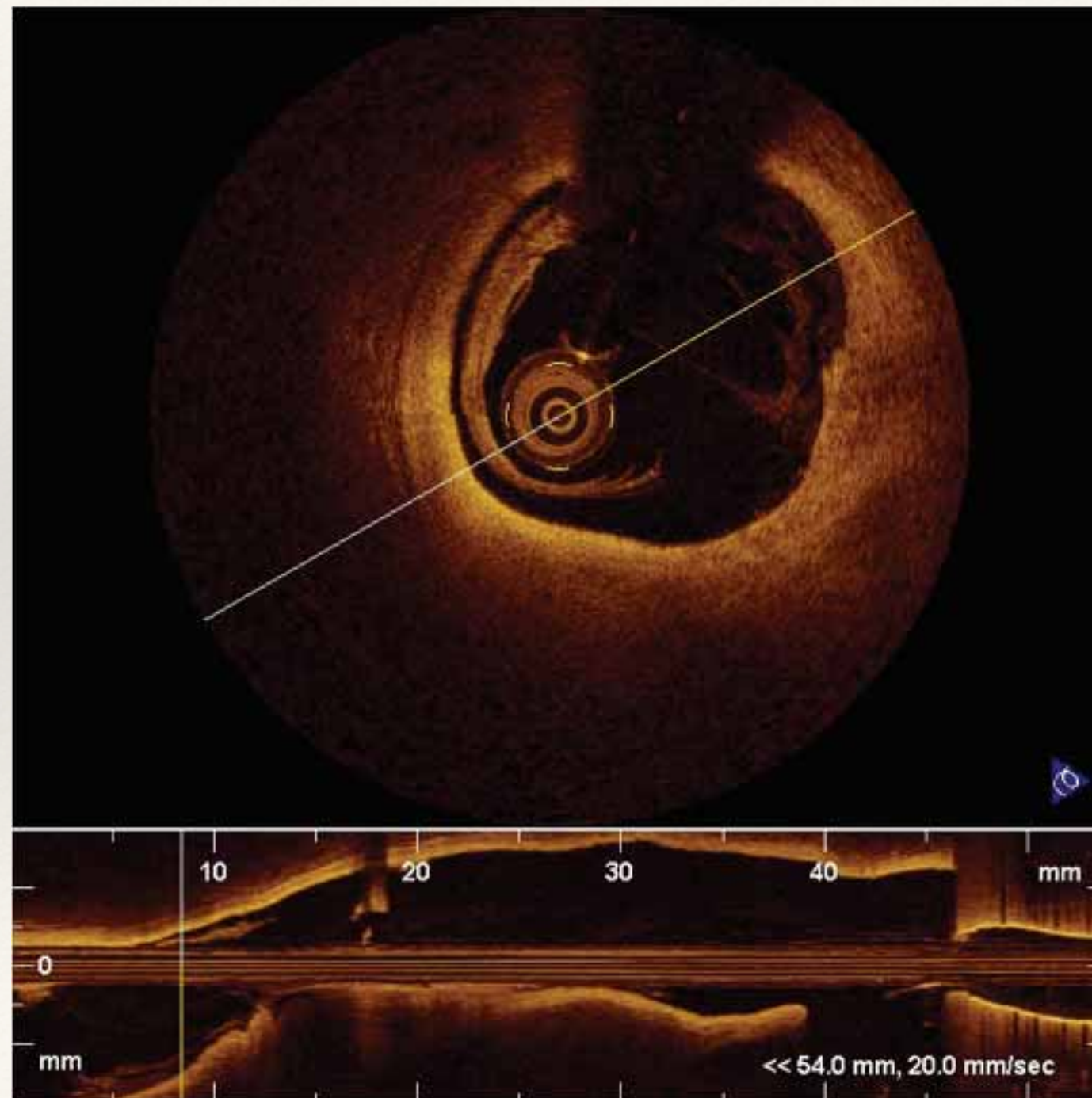
## IVUS



# Case 2

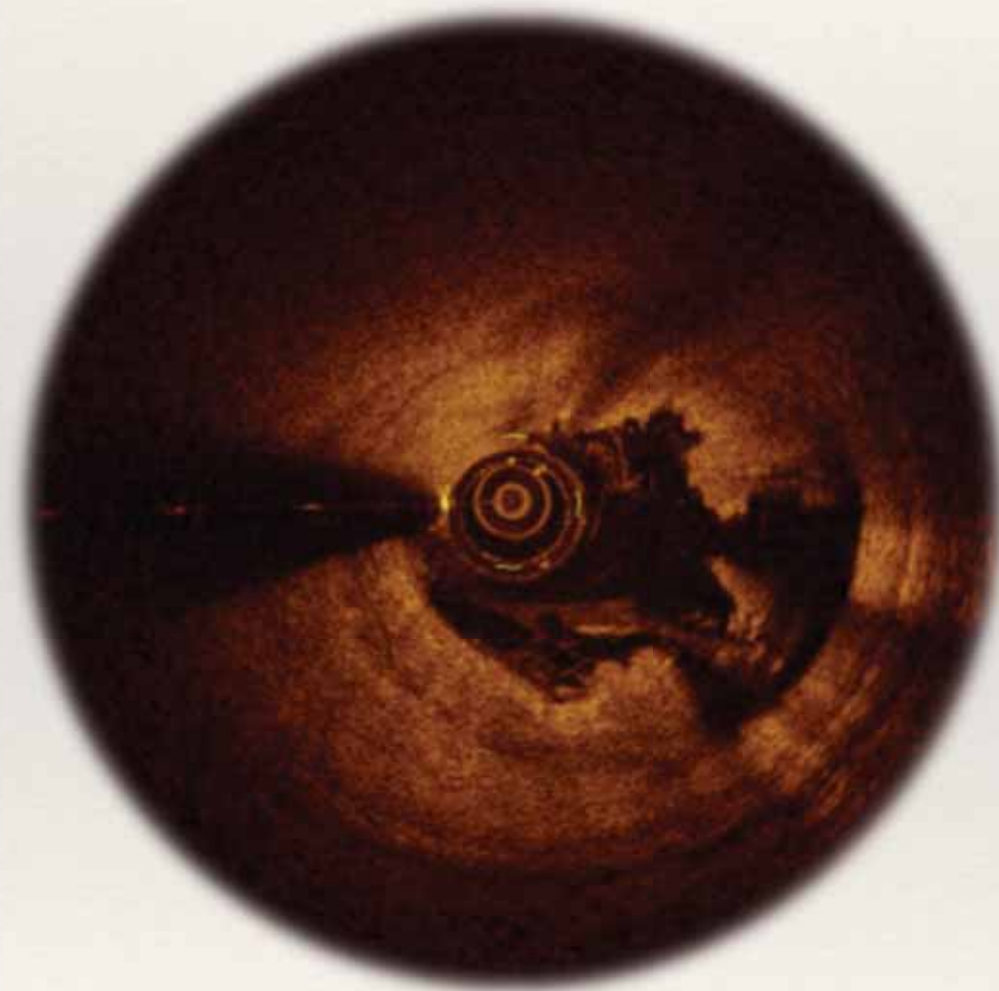


OCT

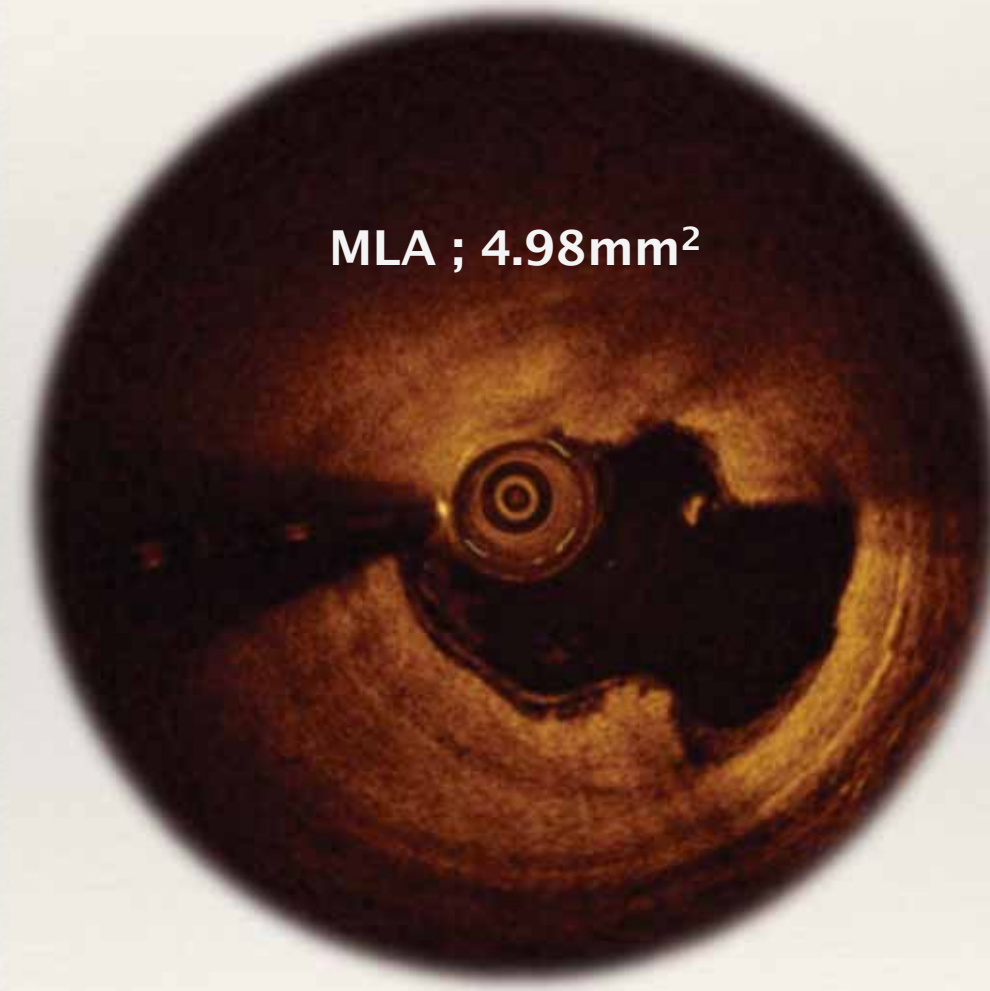


# Case 2

OCT



**Initial OCT**



**Post aspiration  
OCT**



# Case 2



## Therapeutic Plan

- **Just Stent !!!**

- ✓ Ruptured Plaque
- ✓ Abundant Residual Thrombus

To stent  
or not to  
stent

- **No Stent !!**

- ✓ TIMI 3 & No Chest pain
- ✓ Enough Lumen Area

# Case 2



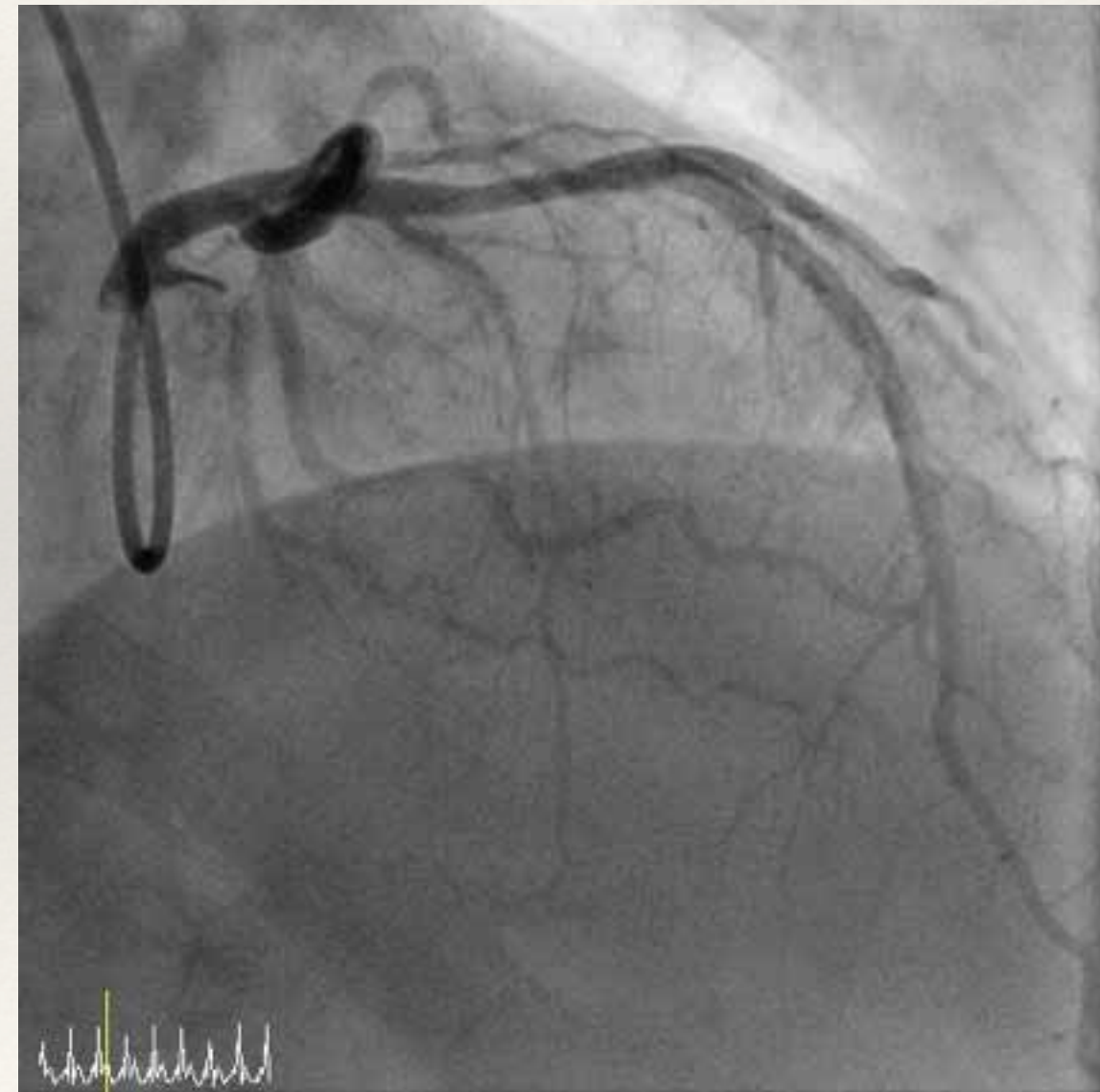
## Therapeutic Plan

- **No Stent !!**

**anticoagulation (UFH) for 48hrs  
&  
Re-Evaluation**

# Case 2

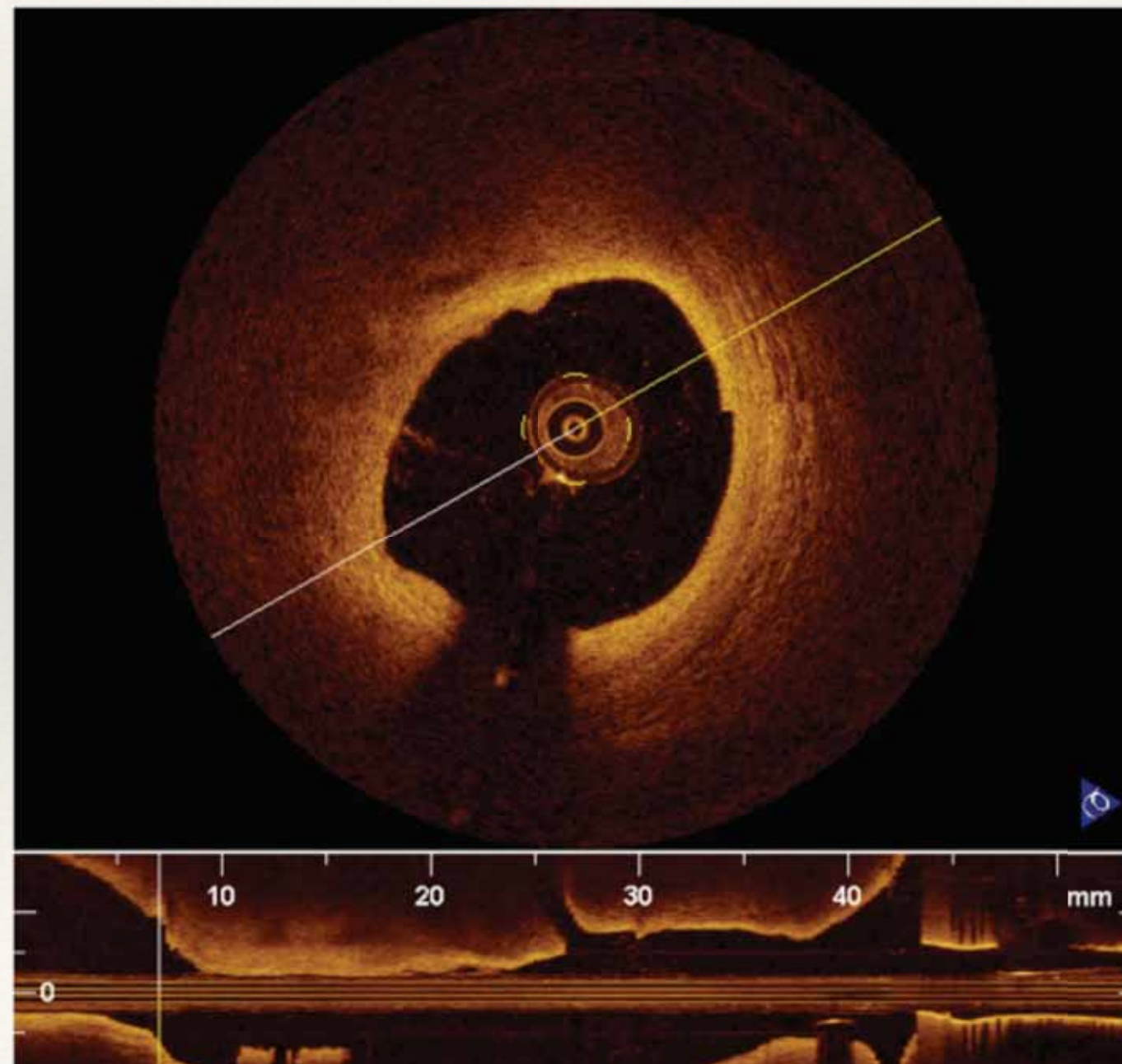
## FU CAG (3day after)



# Case 2

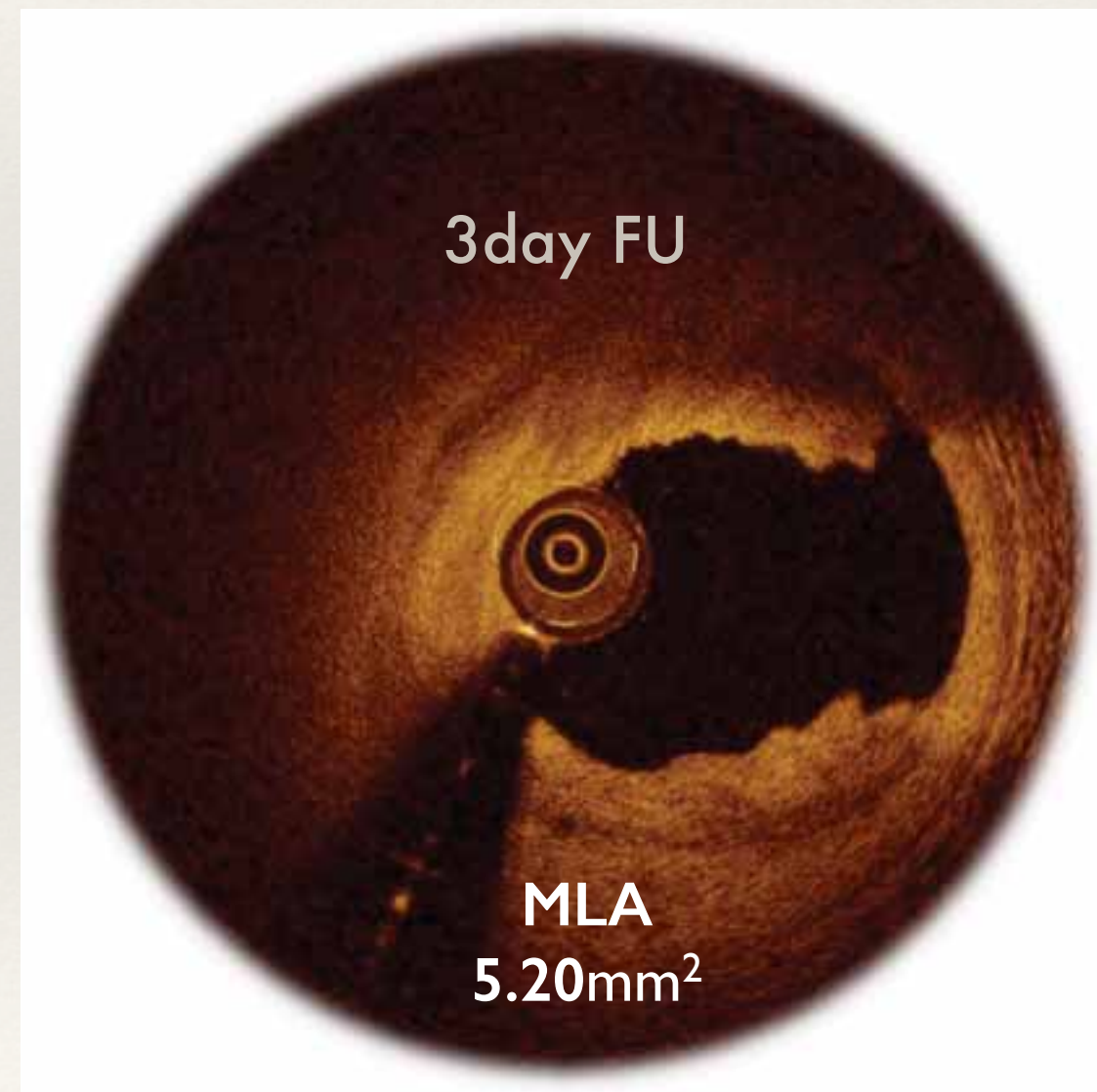
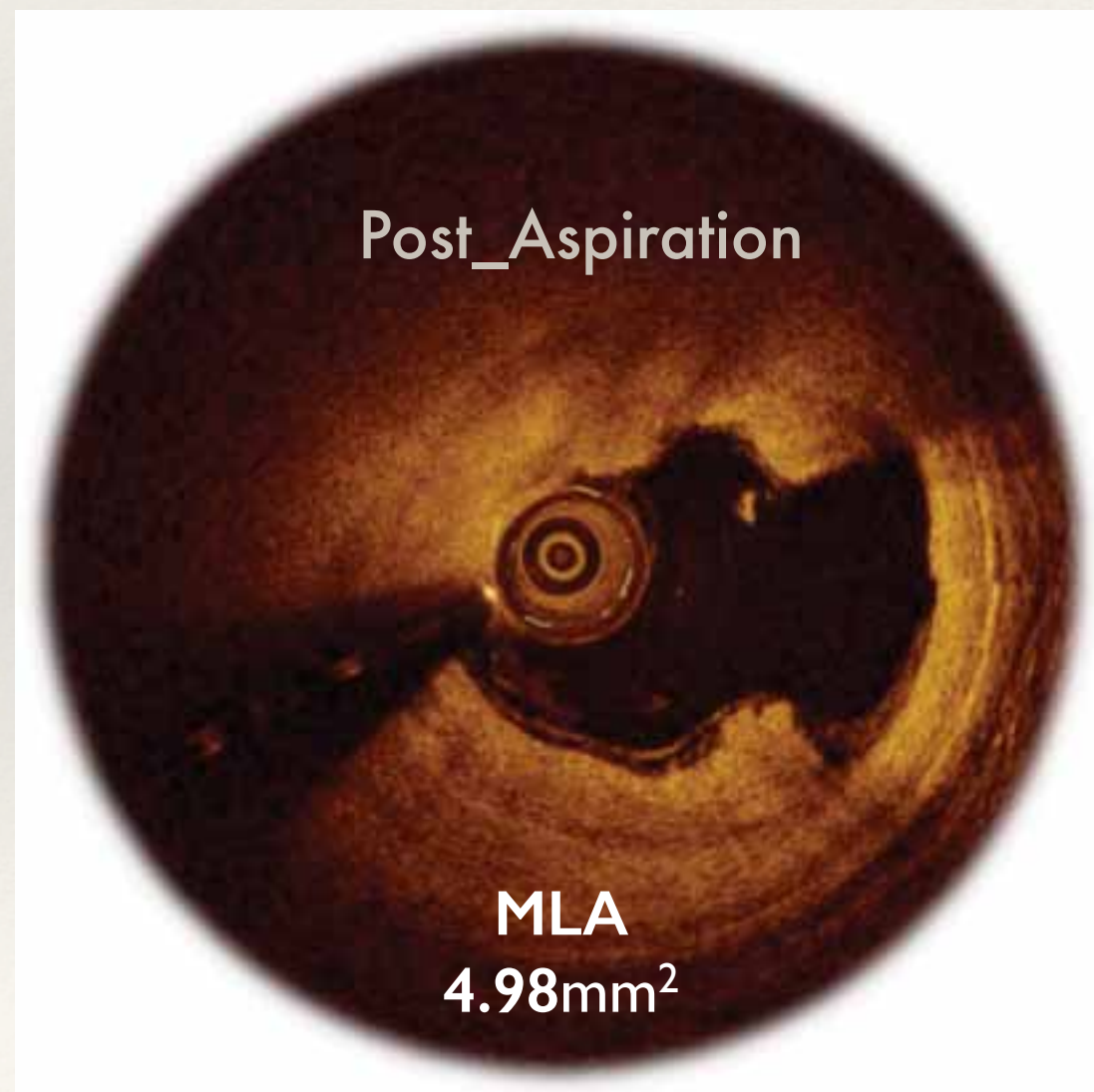


## FU OCT



# Case 2

## FU OCT



# Case 2



## Medical Therapy without Stent

- ✓ Aspirin 100mg
- ✓ Clopidogrel 75mg
- ✓ Perindopril 4mg
- ✓ Atorvastatin 40mg

# Case 2



## Clinical Course

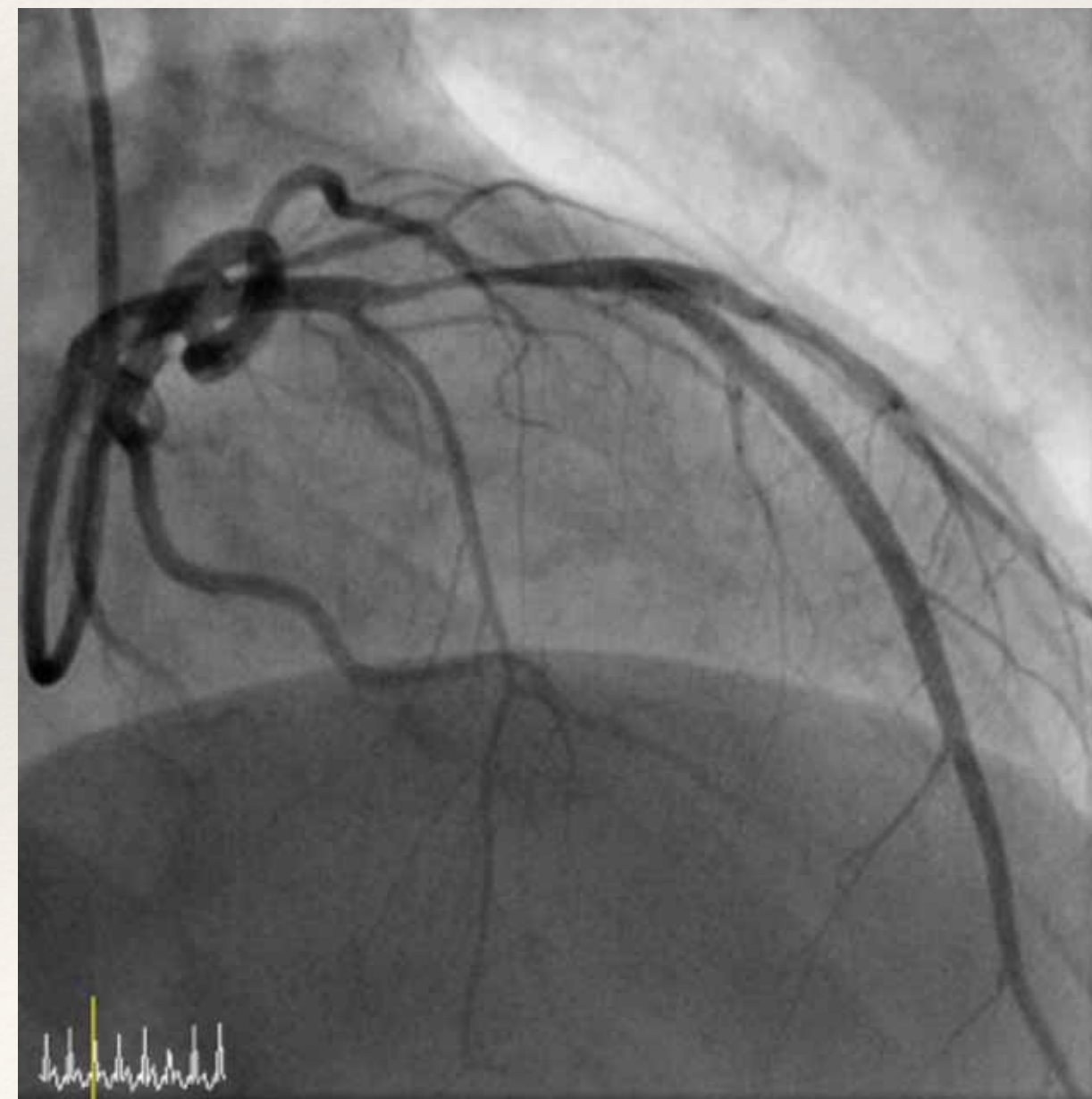
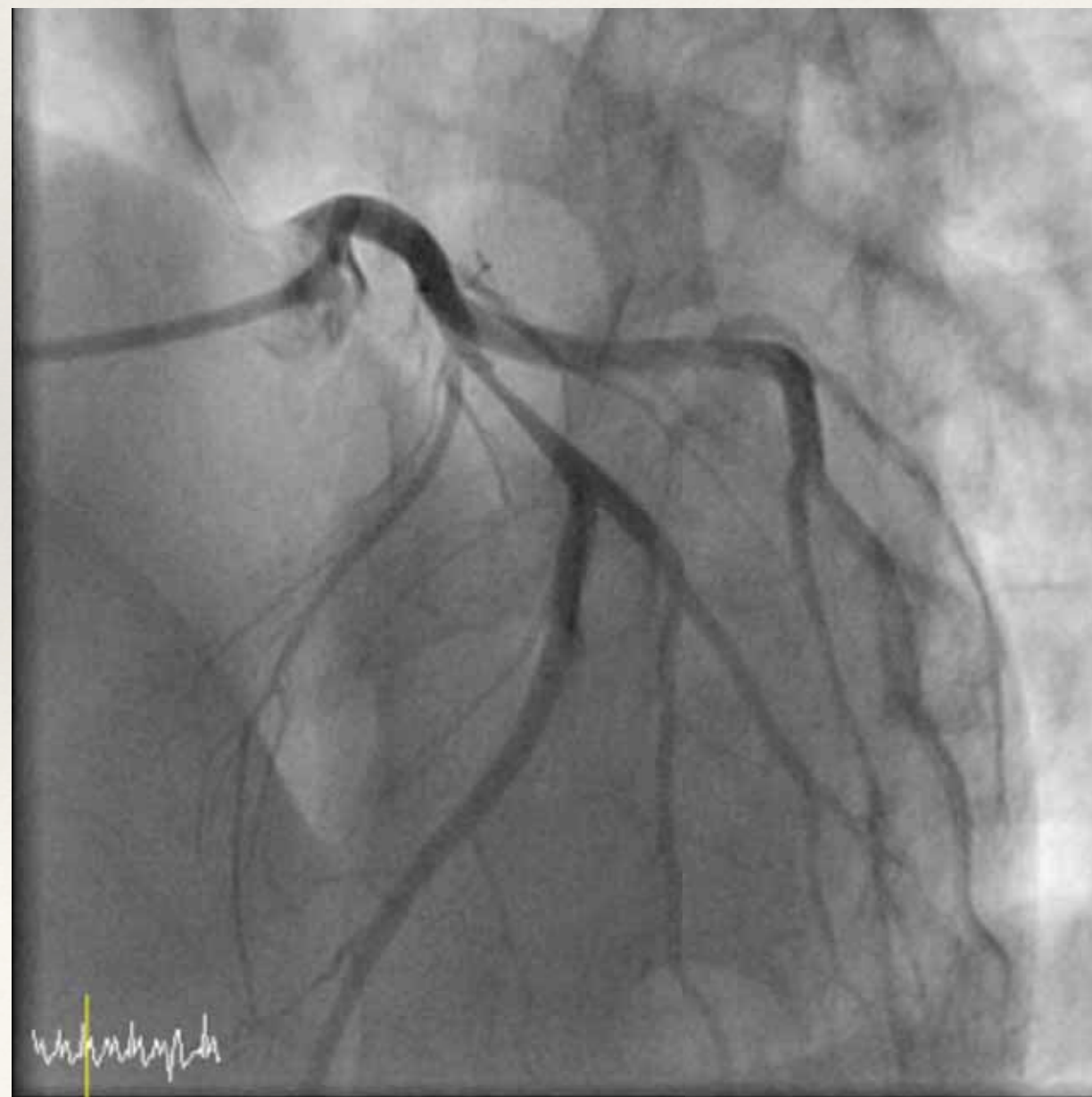
### # NSTEMI

- No chest pain during 10months
- Improved LVEF after 6months
- *effort induced chest pain after 10Mo, (TMT; +)*

➔ Recommend **FU CAG**

# Case 2

## FU CAG (11 months)

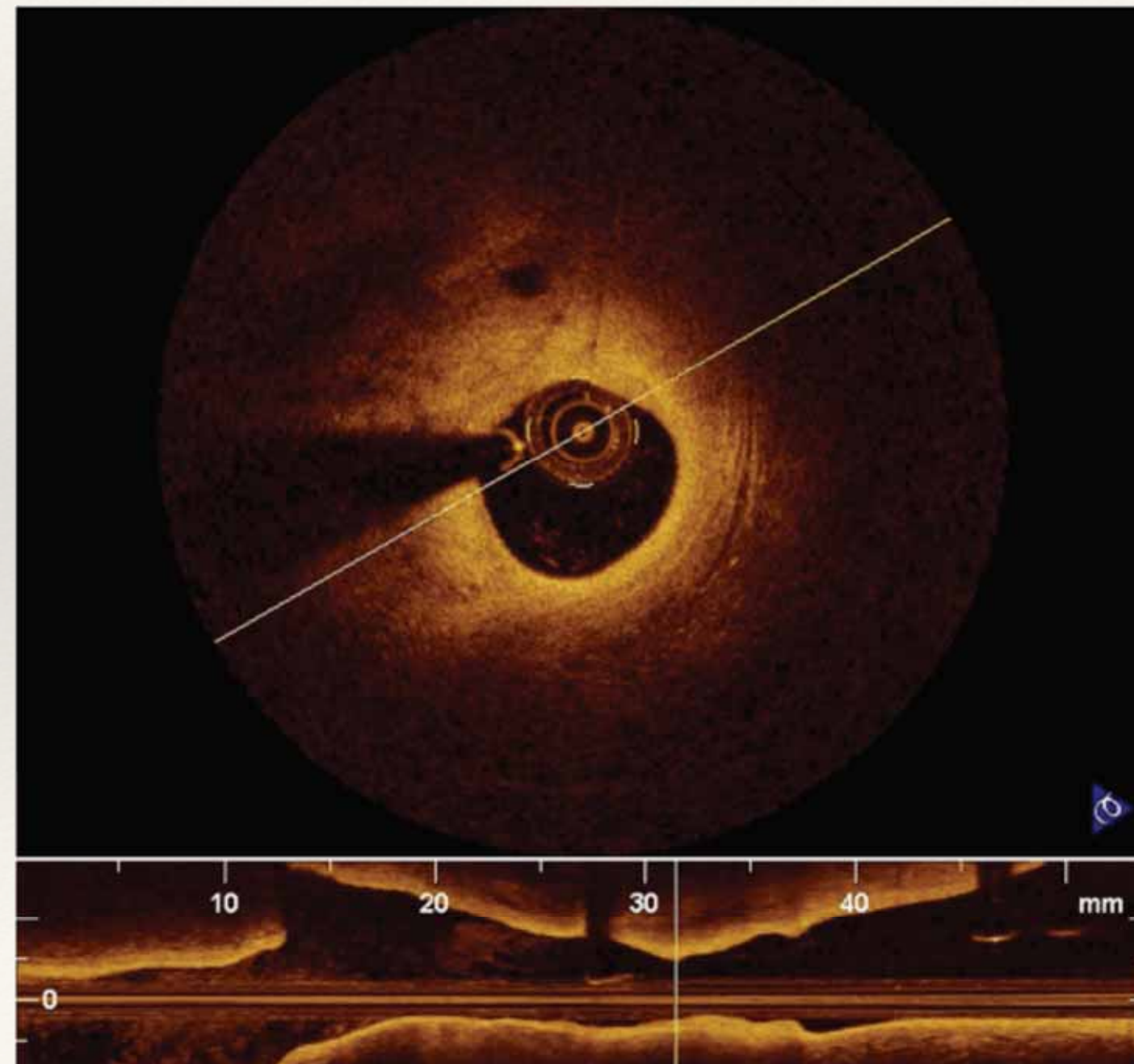




# Case 2



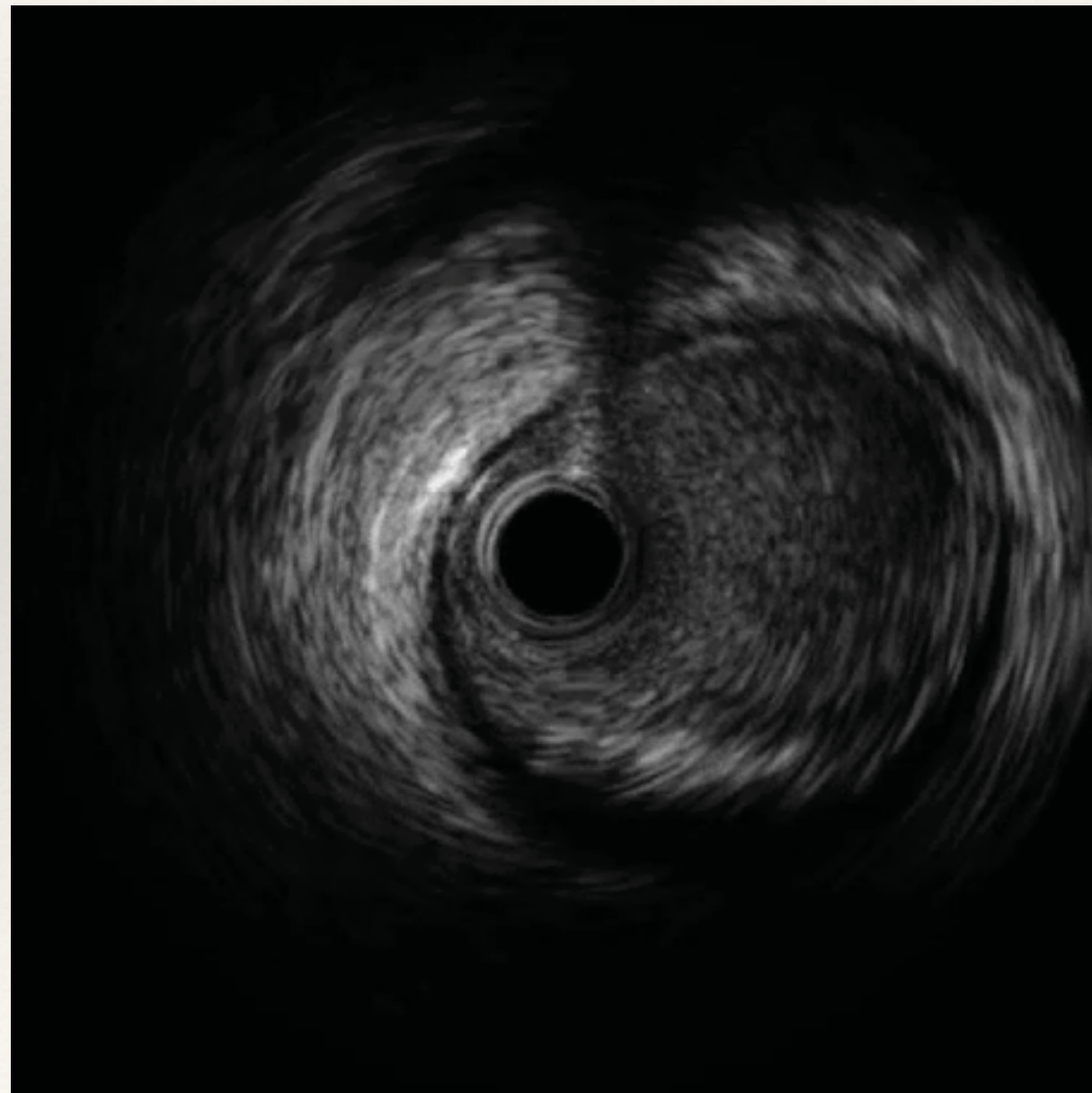
## FU OCT (11 months)

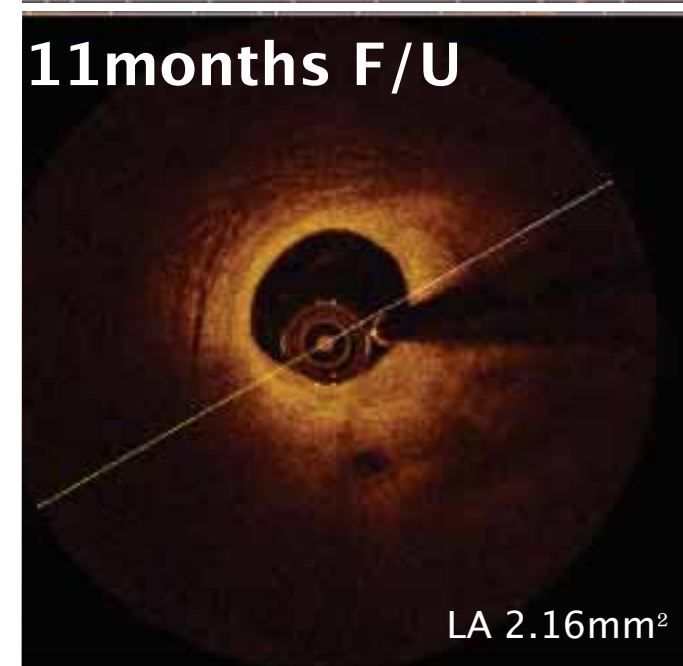
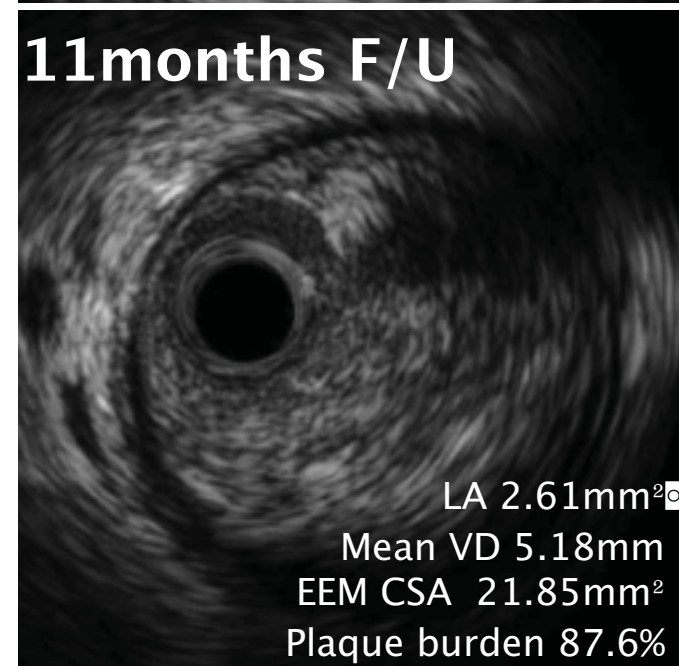
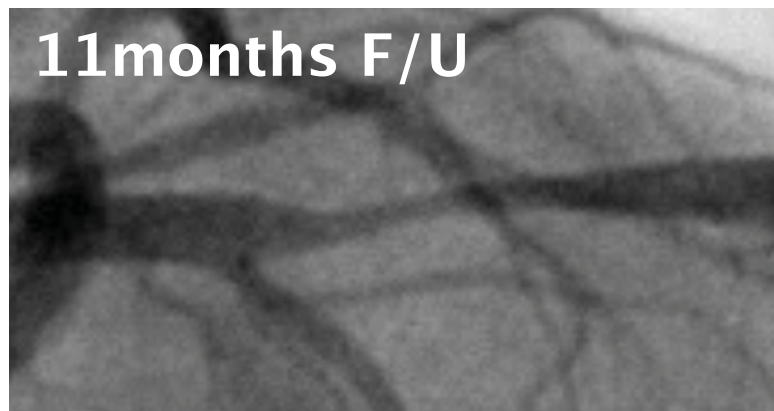
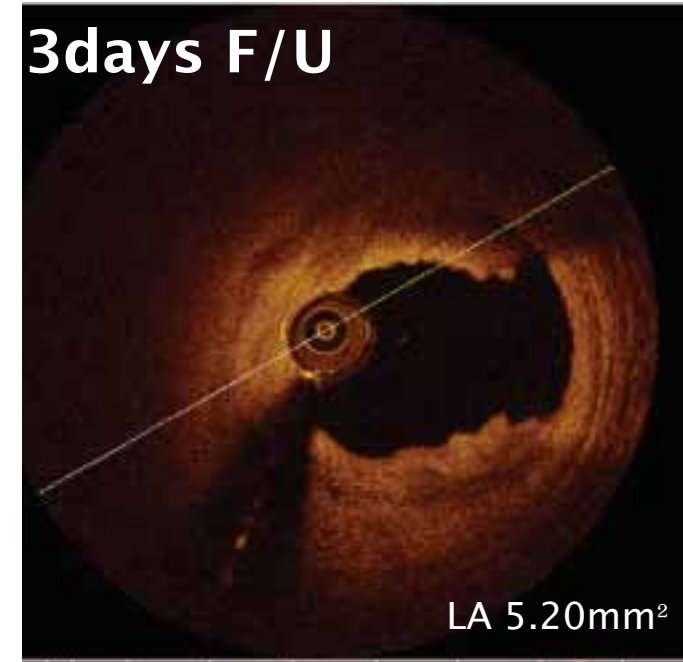
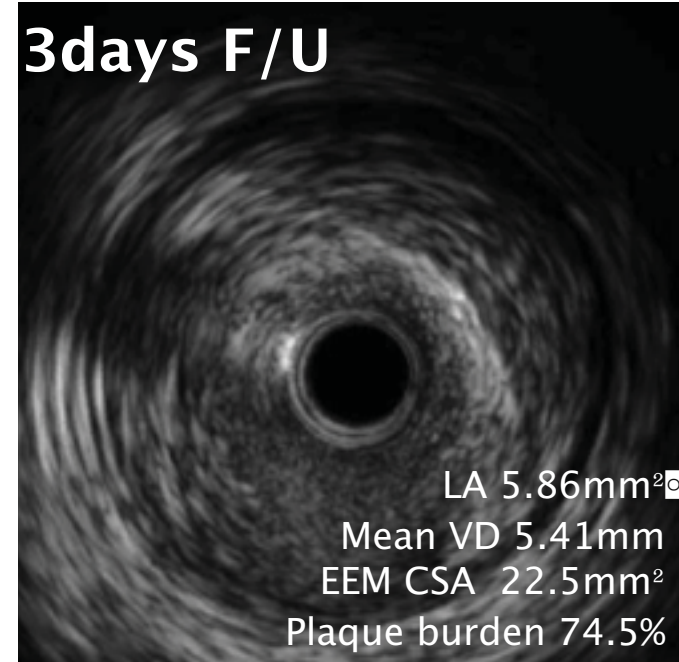
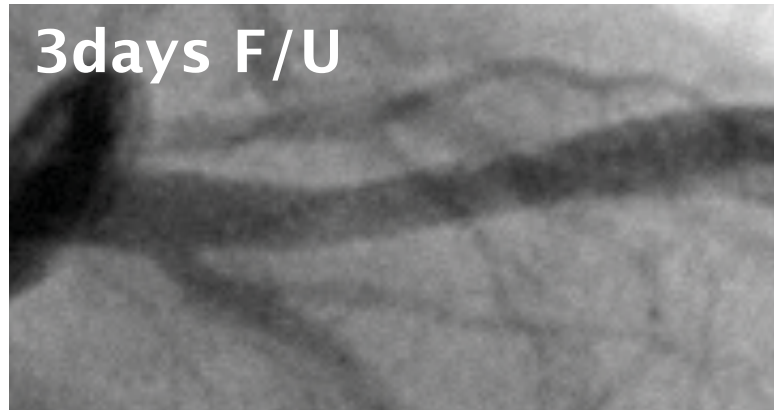
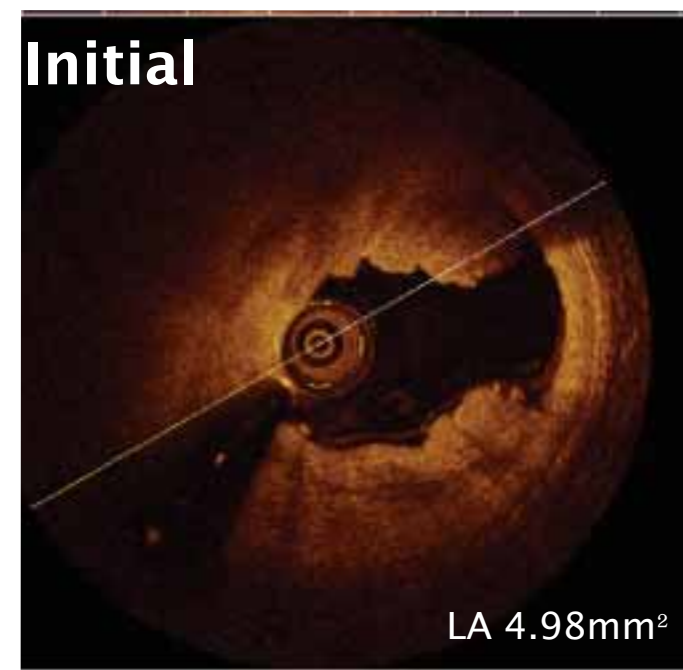
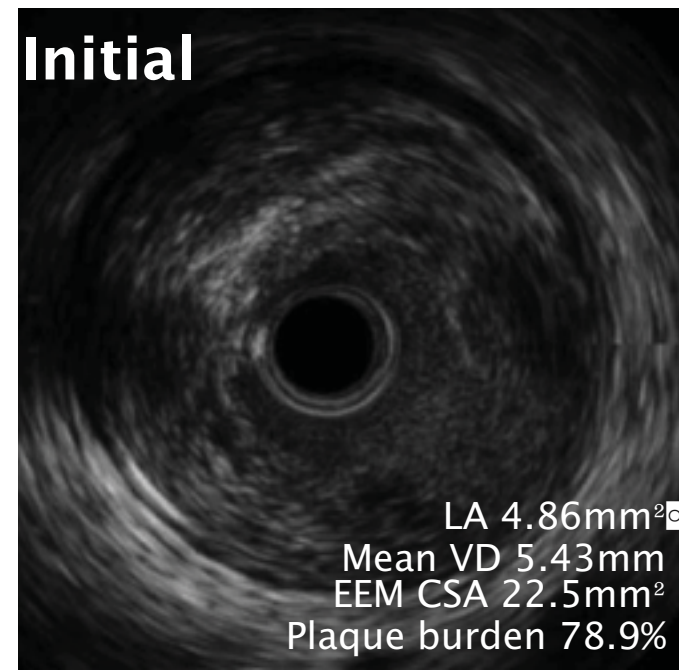
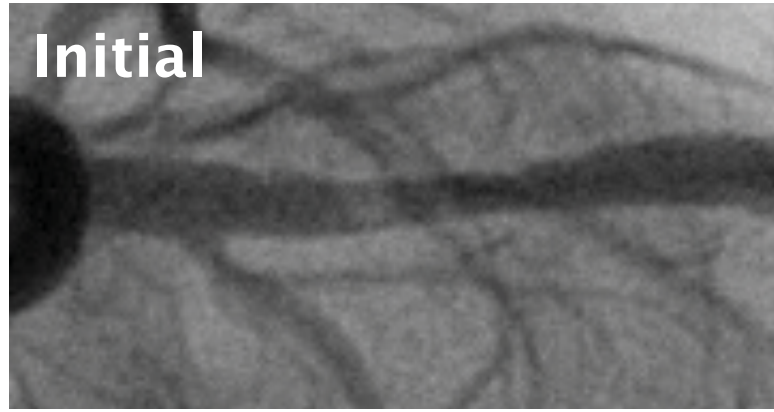


# Case 2



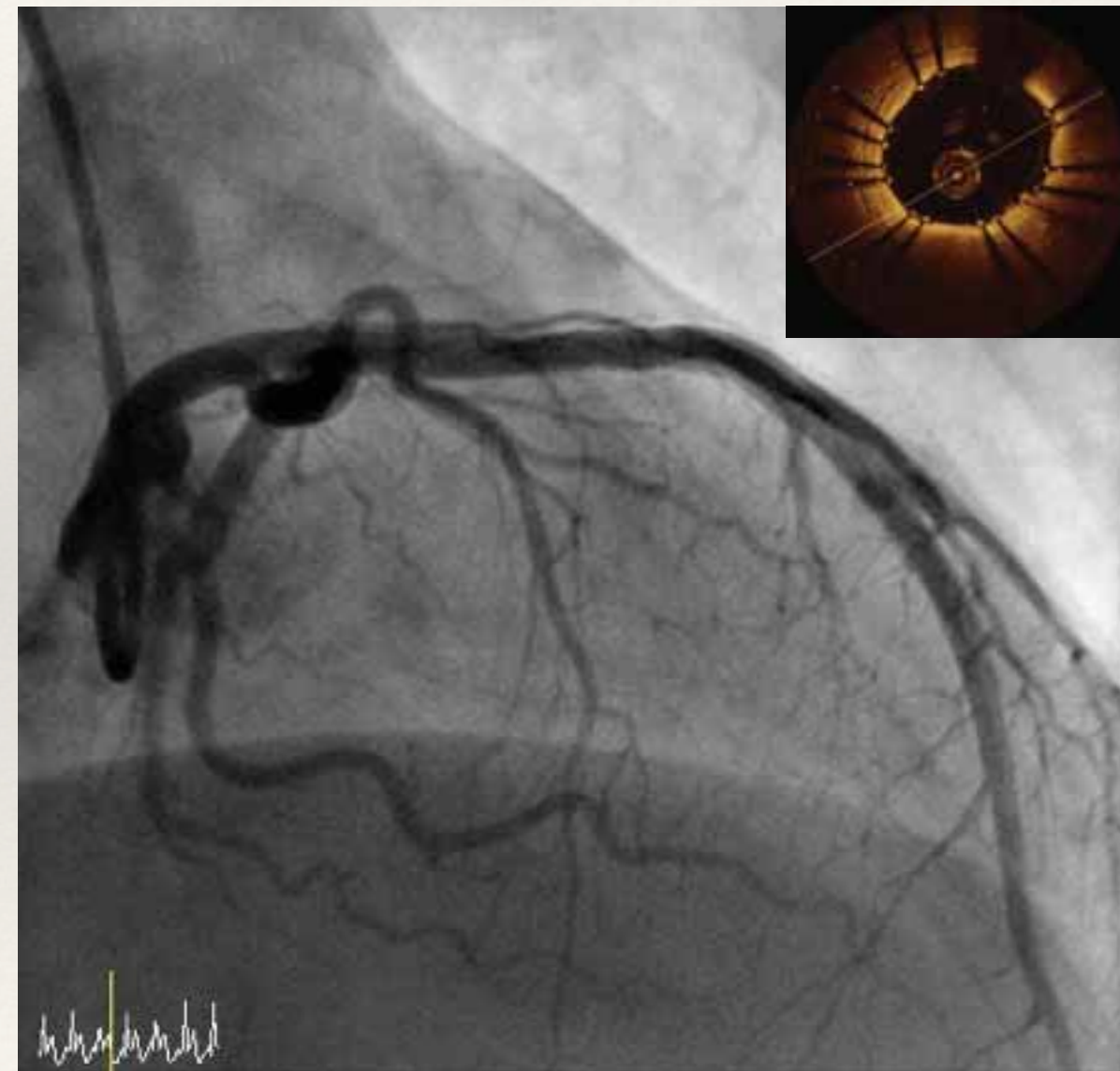
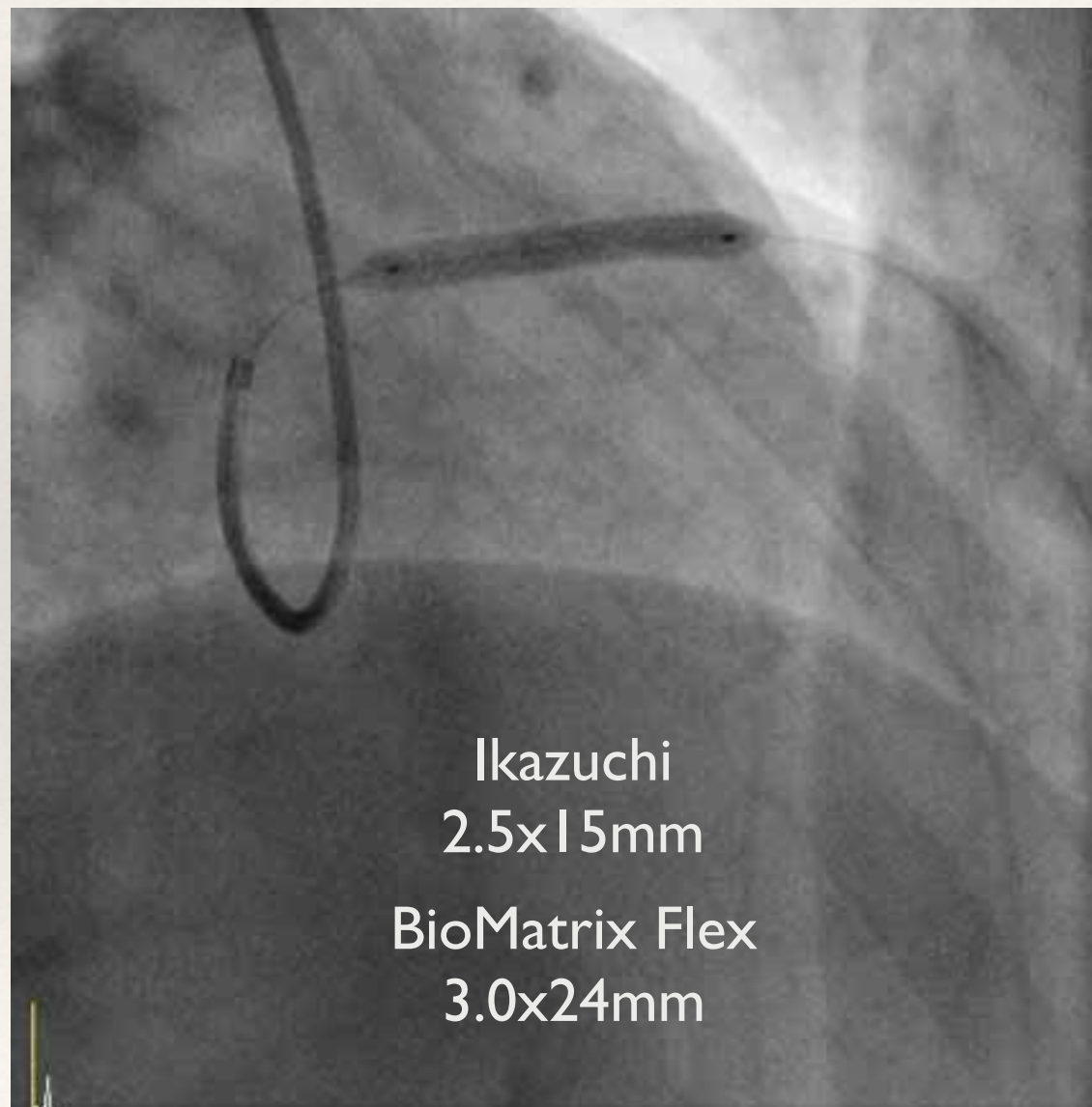
## FU IVUS (11 months)





# Case 2

## PCI



Uneventfully FU for 12months

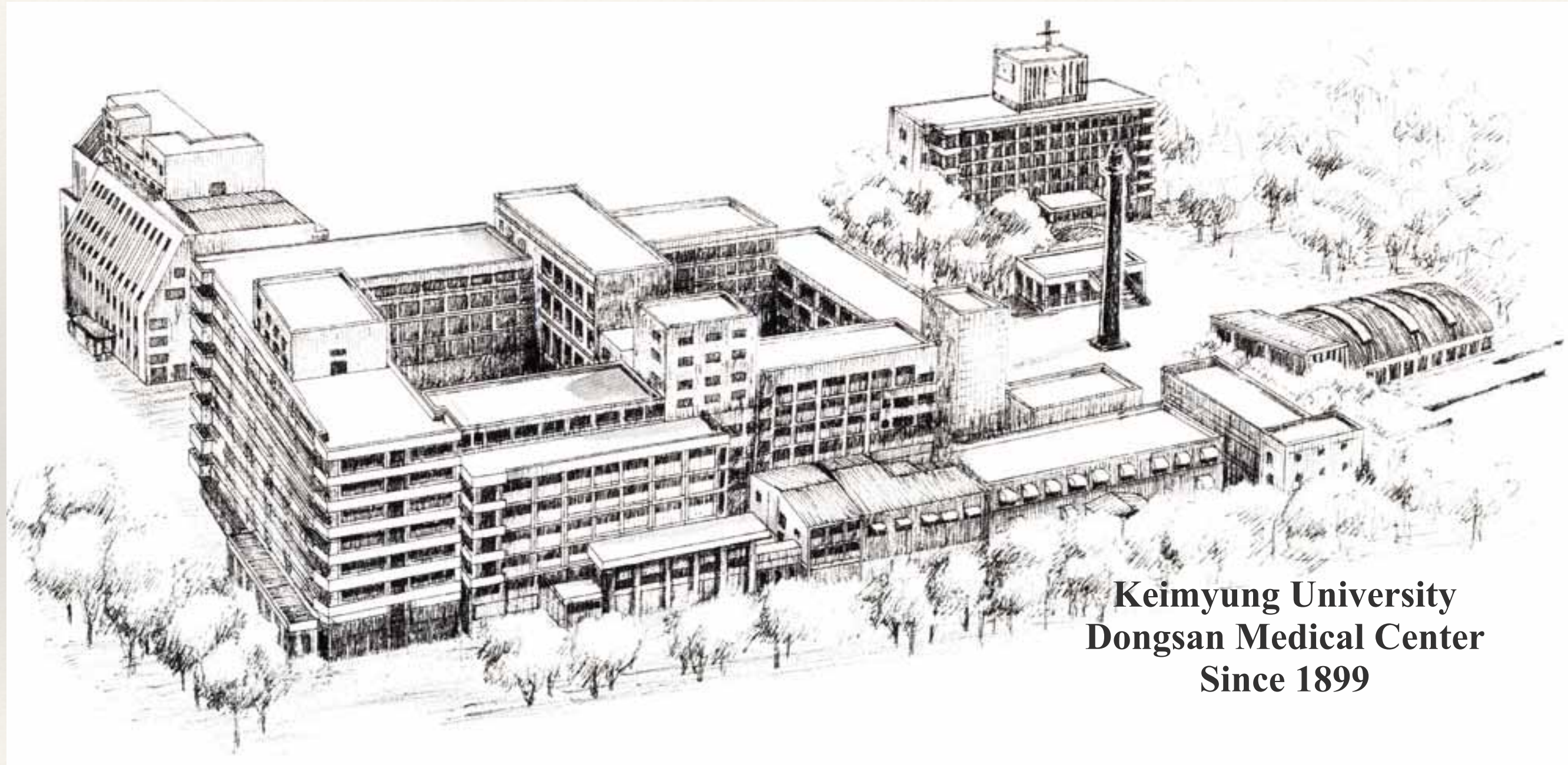
# Question



- ✓ Thrombus aspiration alone during PCI as Treatment of AMI, is it safe or not...?
- ✓ Can we expect the pattern of Plaque healing & Thrombus Resolution

3.0x24mm

Thank you for your attention.



**Keimyung University  
Dongsan Medical Center  
Since 1899**