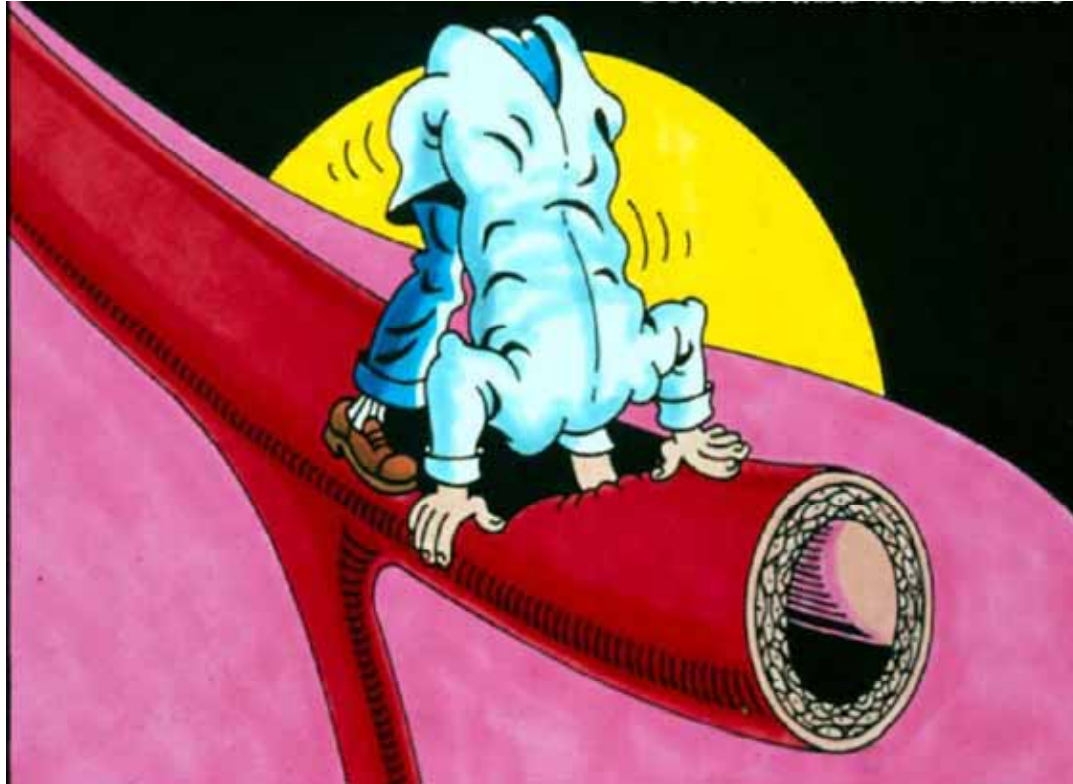


IVUS : Pre & Post Intervention



Role of IVUS I

- **Evaluate Lesion Characteristics**
 - Calcification, fibrous, lipid/necrotic zone, mixed plaque, concentric, eccentric, size, length
- **Assessment may impact treatment choices**
 - Pre-dilatation
 - Plaque modification
 - Vessel remodeling
 - Stent selection, size and length
 - Medical management
 - No treatment

Role of IVUS II

- **For High Risk Lesion**
 - Bifurcations
 - Ostial lesions
 - Small vessels
 - Long lesions
 - Treatment of ISR
 - Left main disease
- **Post PCI**
 - Stent expansion
 - Stent apposition
 - Edge dissection
 - Ostial, edge placement

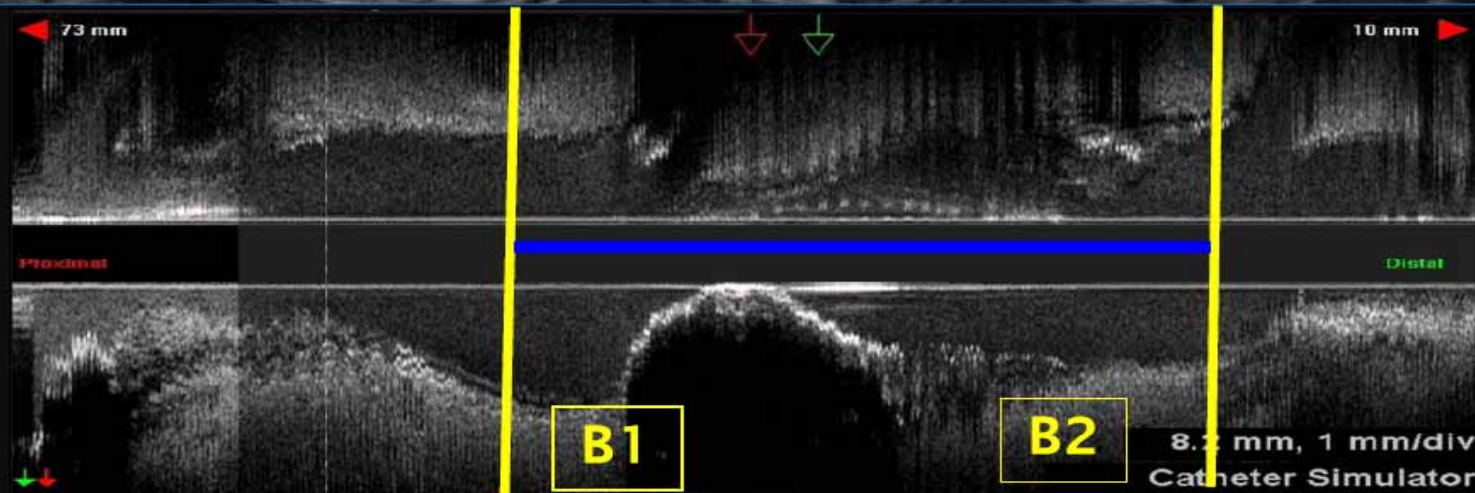
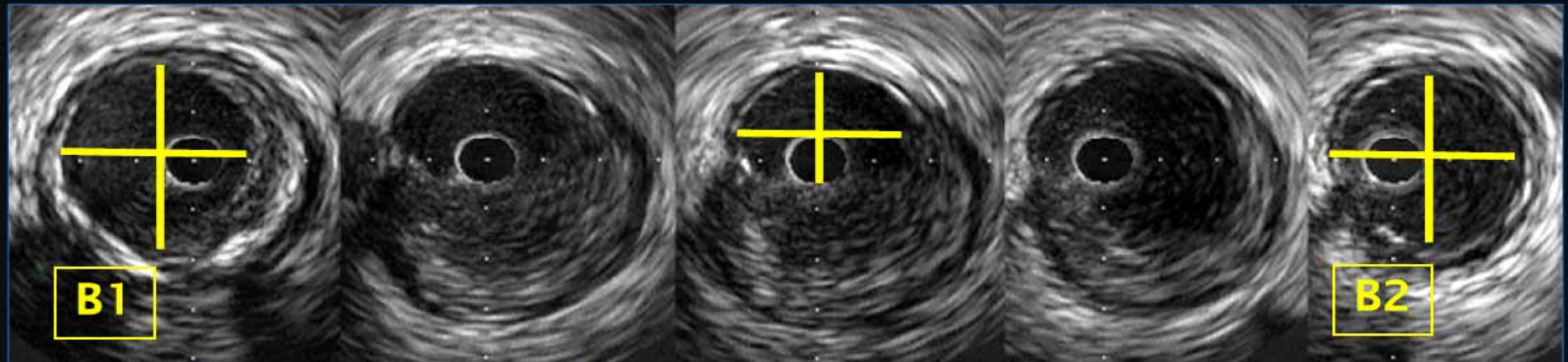
Diagnostic IVUS

Anatomic Assessment – Size, length, eccentricity, tapering and significance

Proximal Reference

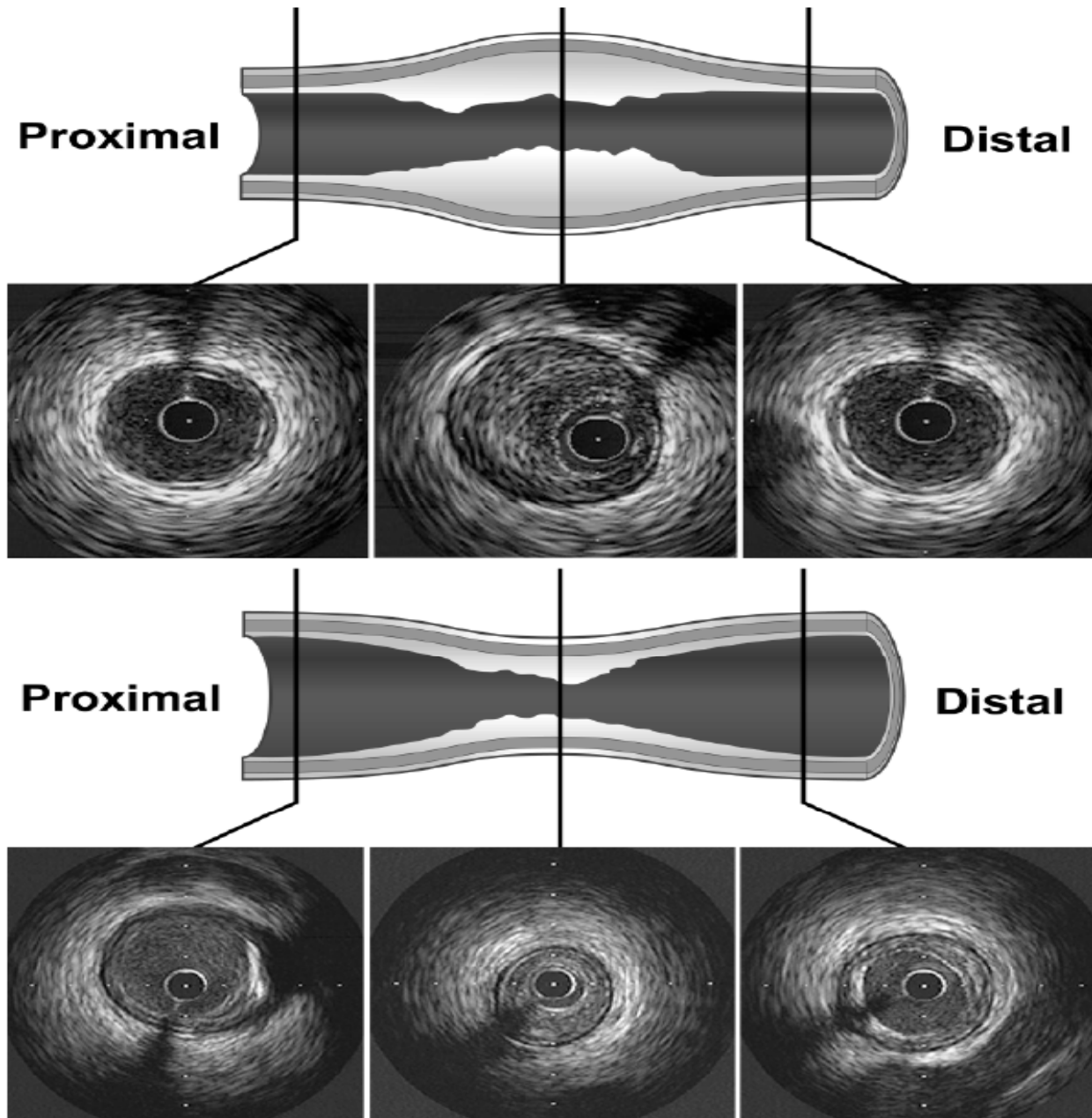
Lesion Site

Distal Reference

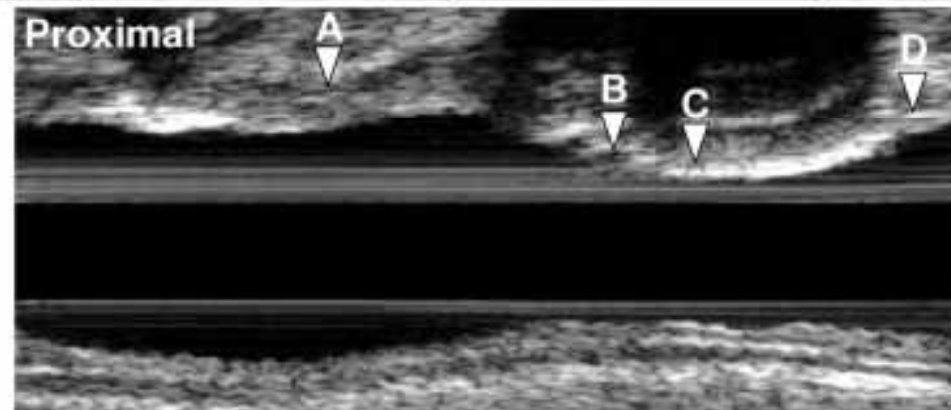
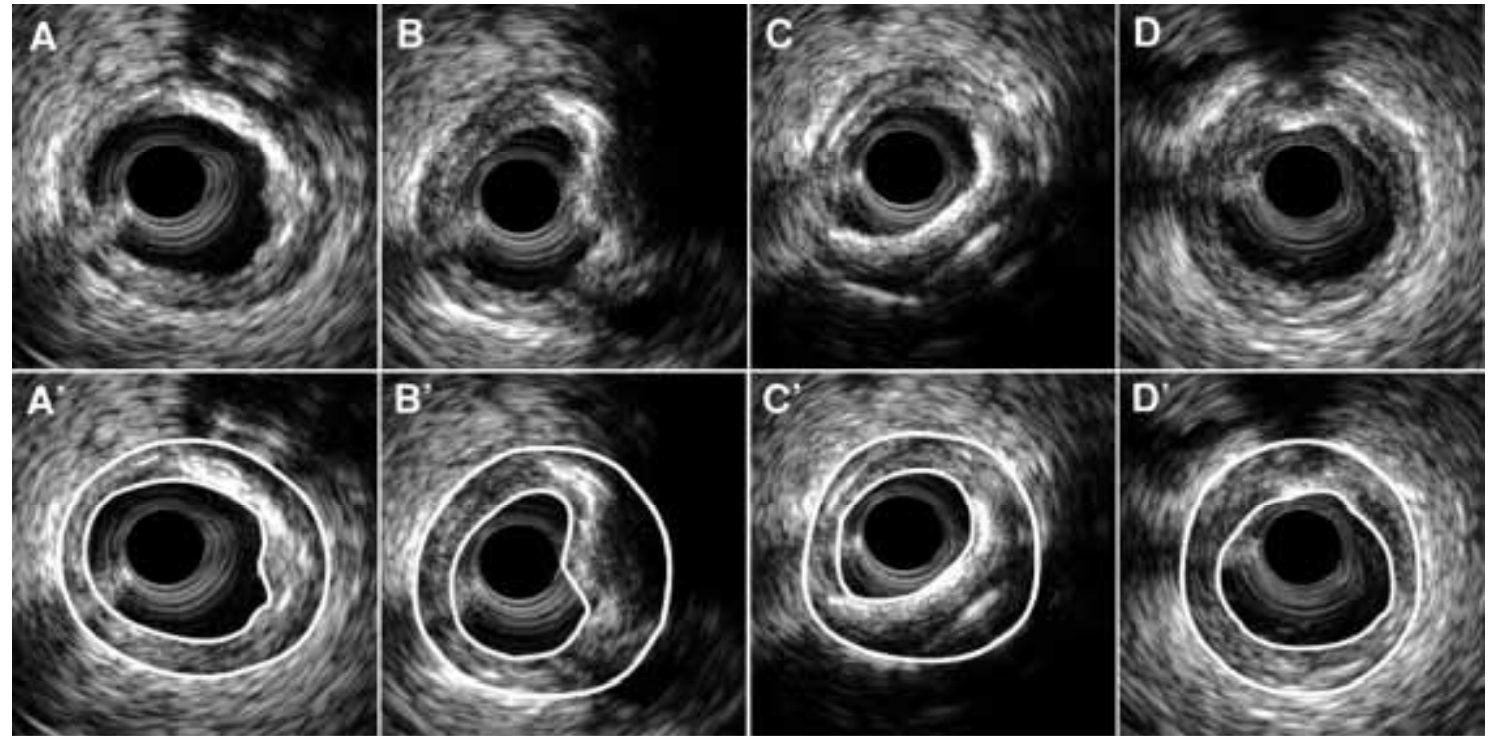
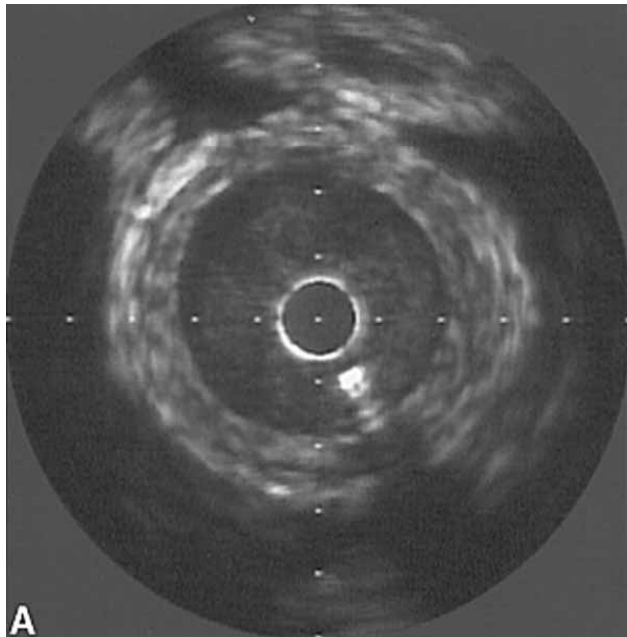


Images courtesy Dr. Gary Mintz and Dr. Neil Weissman. Results from case studies are not predictive of results in other cases. Results in other cases may vary.

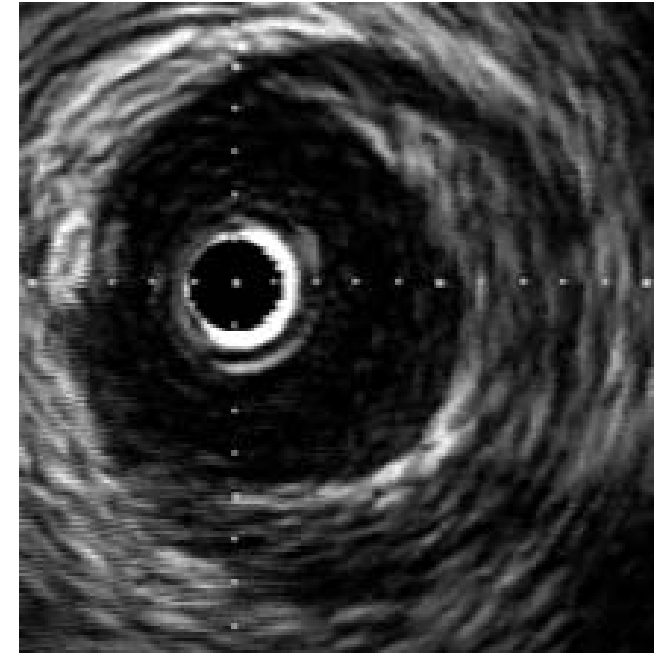
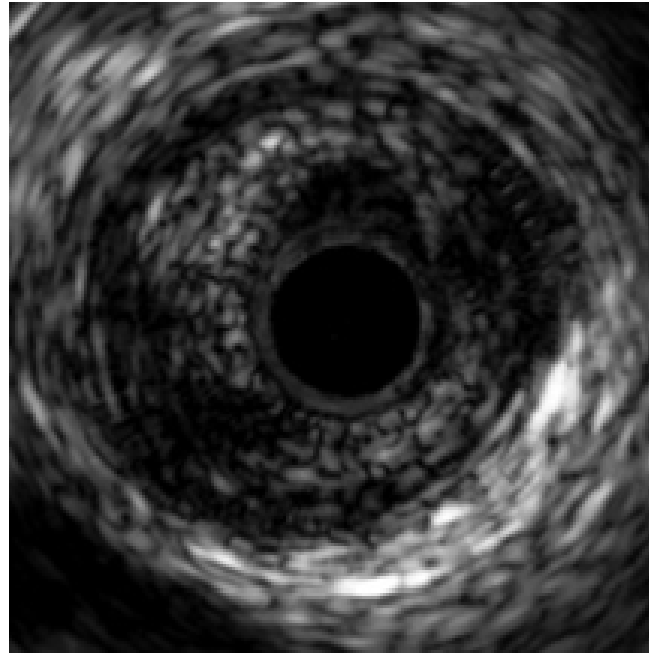
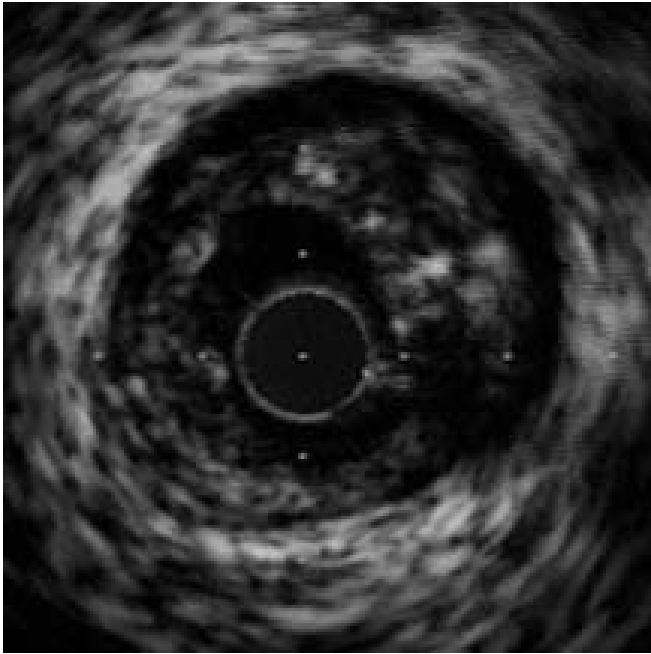
Vessel remodeling



Concentric vs. Eccentric

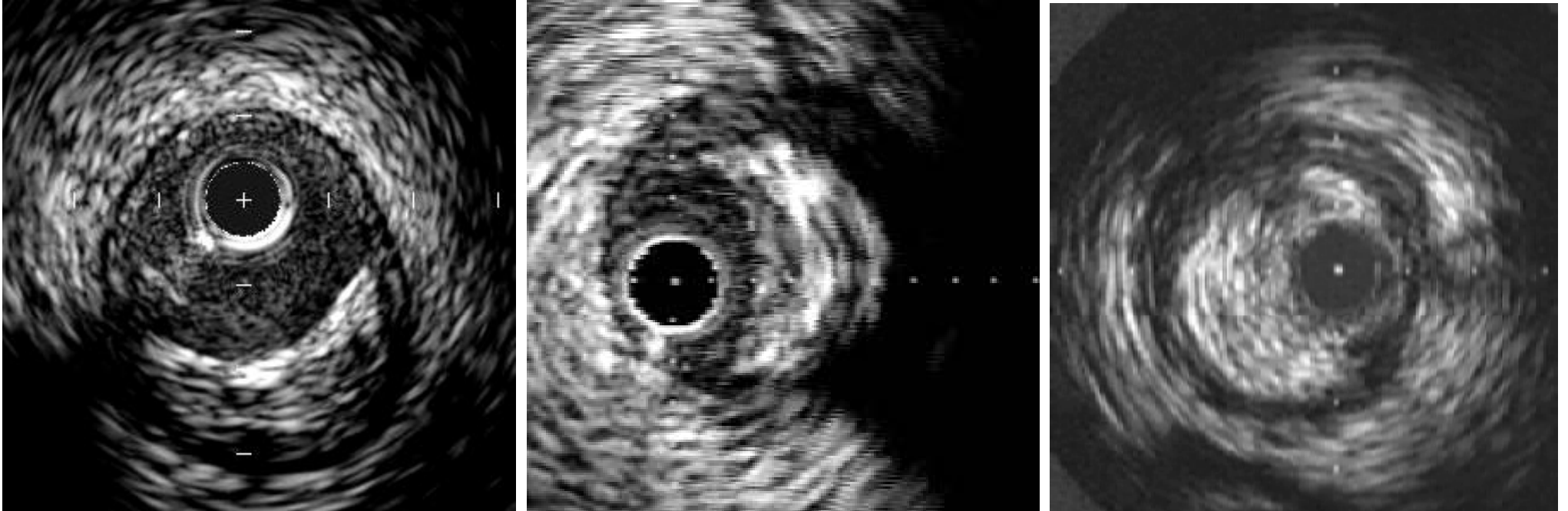


Soft Plaque (hypoechoic)



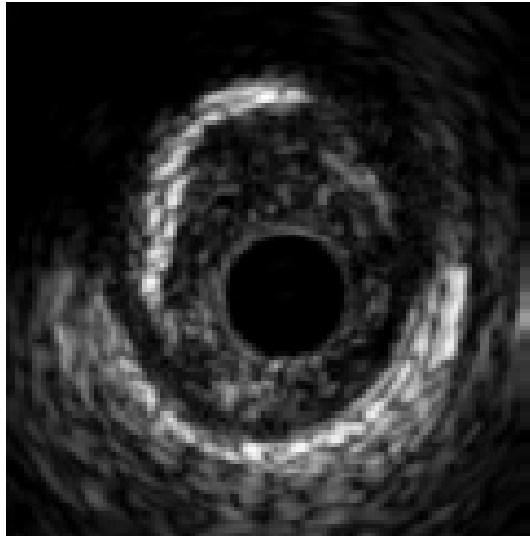
- Not as bright as the adventitia
- necrotic zone within plaque
- intramural hemorrhage
- thrombus

Fibrotic Plaque (hyperechoic)

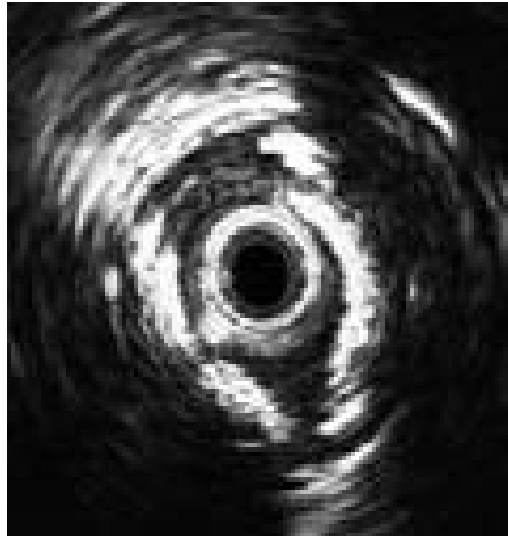


- As bright or brighter than the adventitia
- Majority of lesions are fibrotic

Calcium



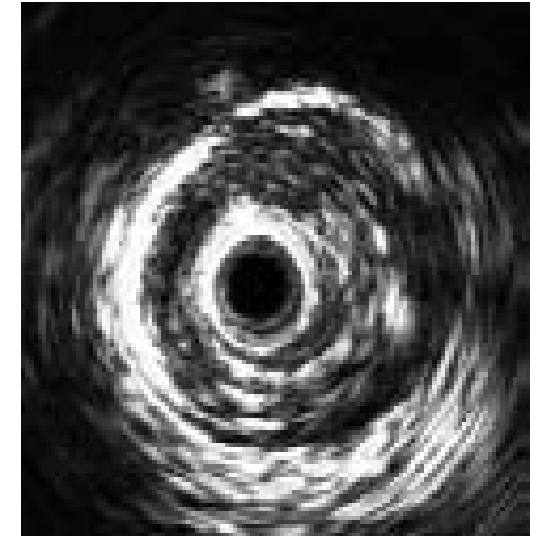
<Deep >



<Superficial>



<Arc >

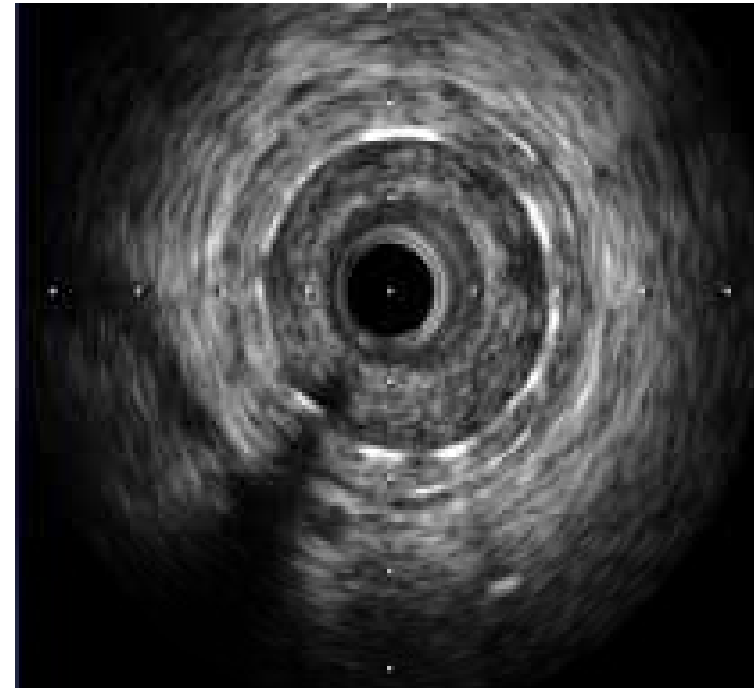
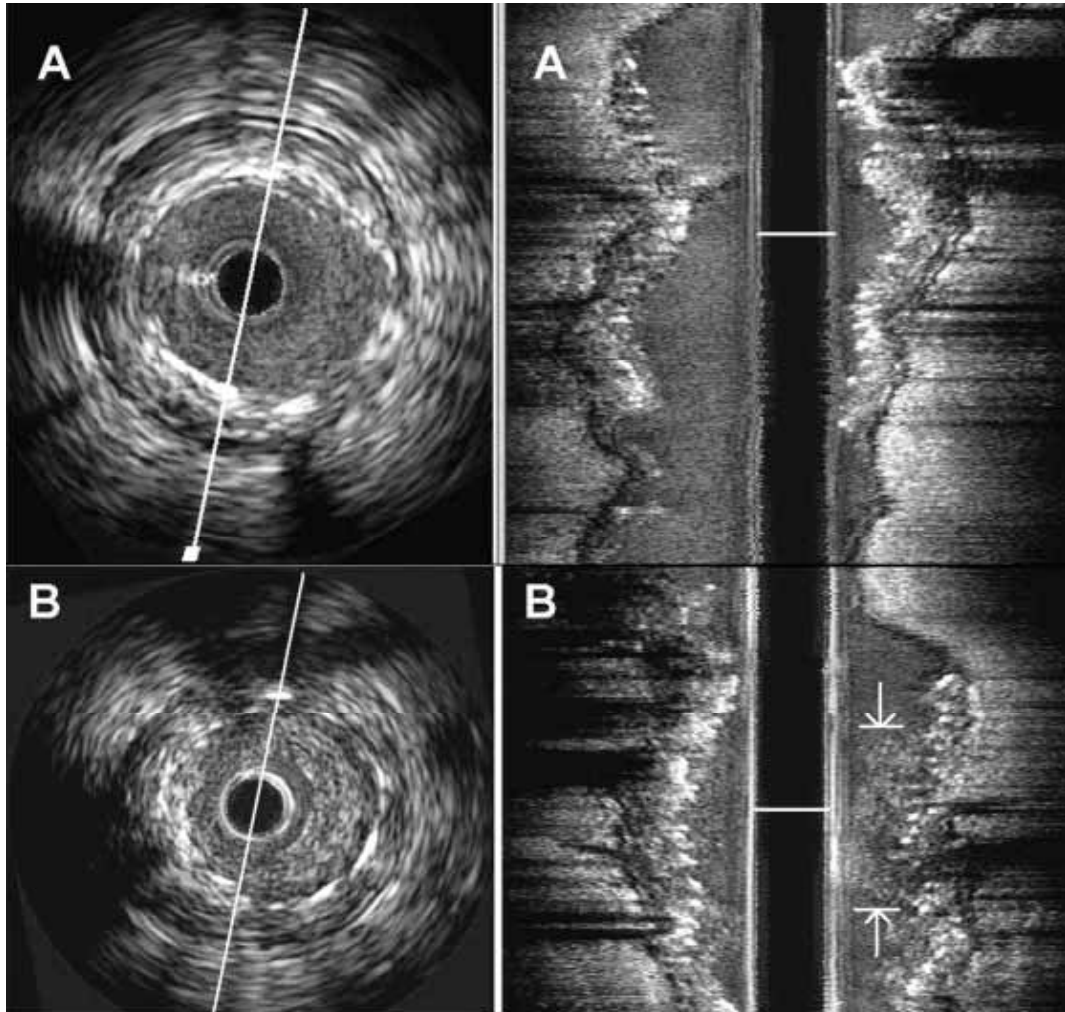


<Deep >

- Bright echoes (brighter than the adventitia)
- Acoustic shadowing
- Classified by its location
 - Superficial calcium is closer to the lumen than to the adventitia
 - Deep calcium is closer to the adventitia than to the lumen

In-Stent Restenosis

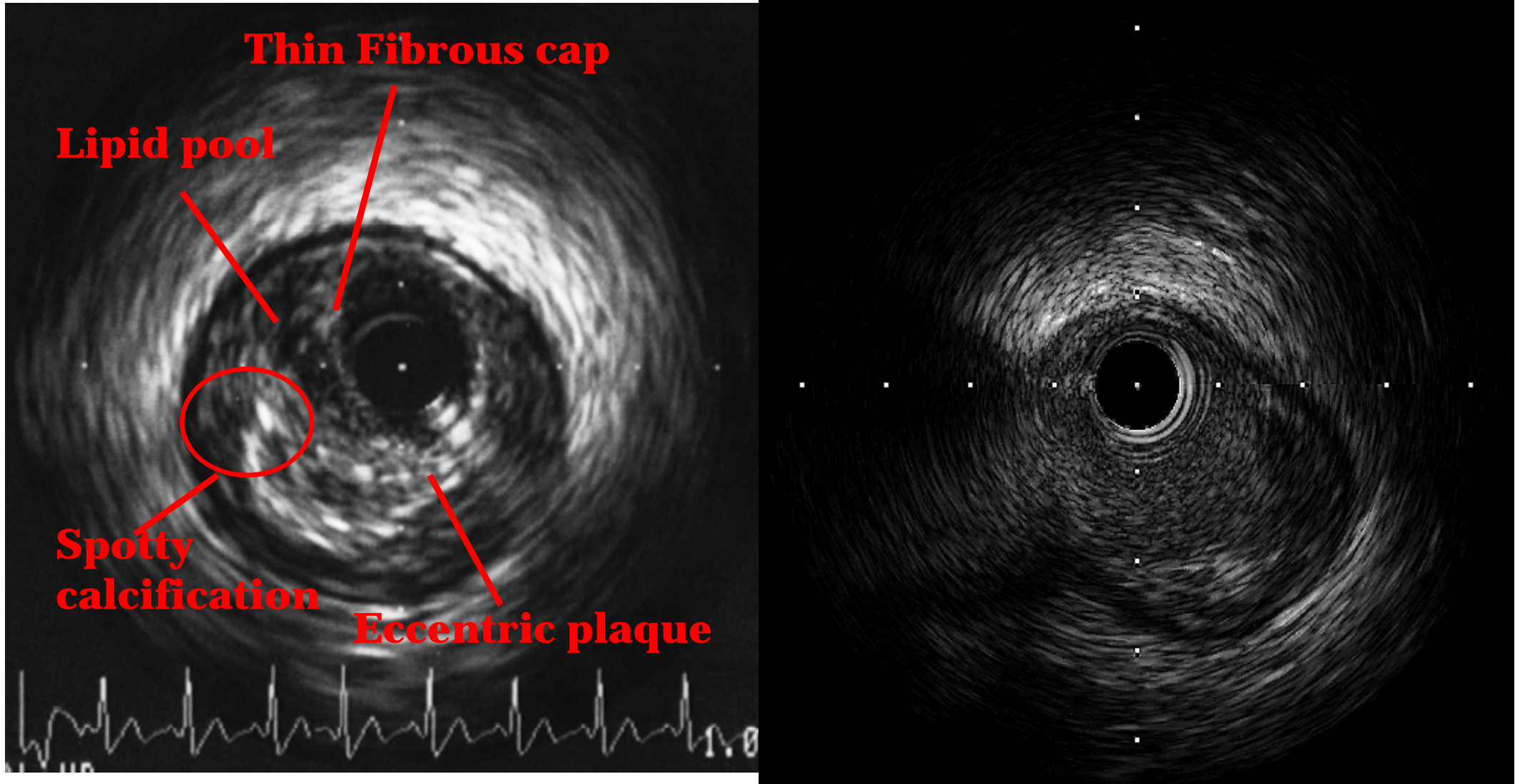
(very low echogenicity)



- Expansion
- Apposition
- Geographic miss
- Stent Fracture
- Other

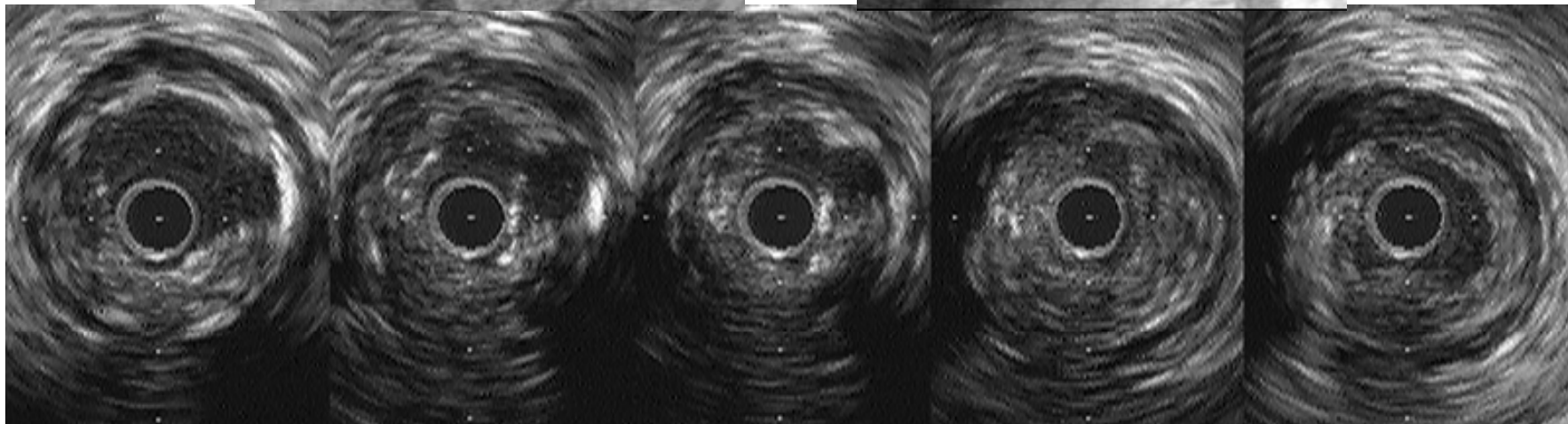
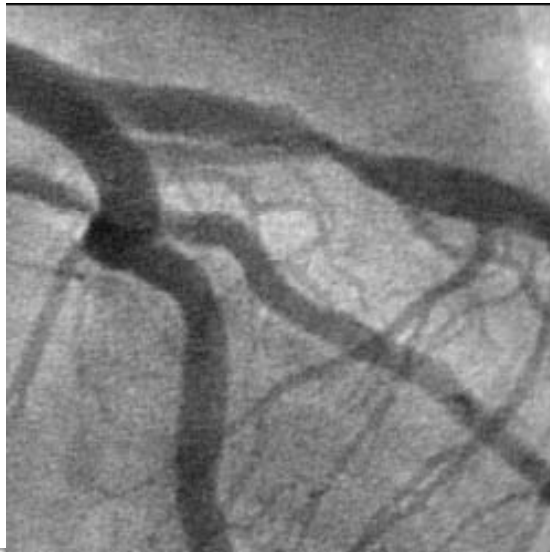
Vulnerable plaque

“Thin fibrous cap covering soft lipid pool”

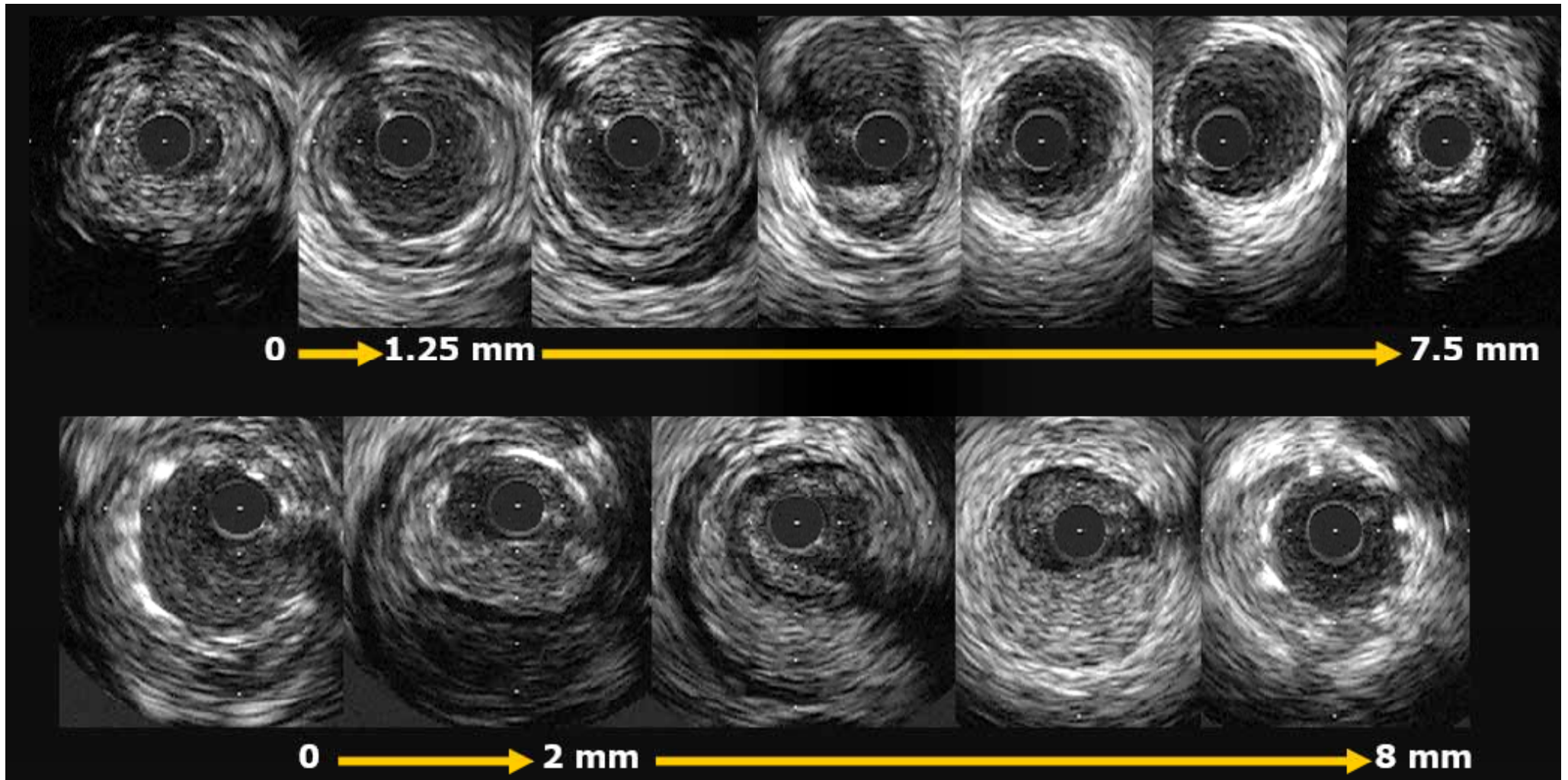


Thrombus

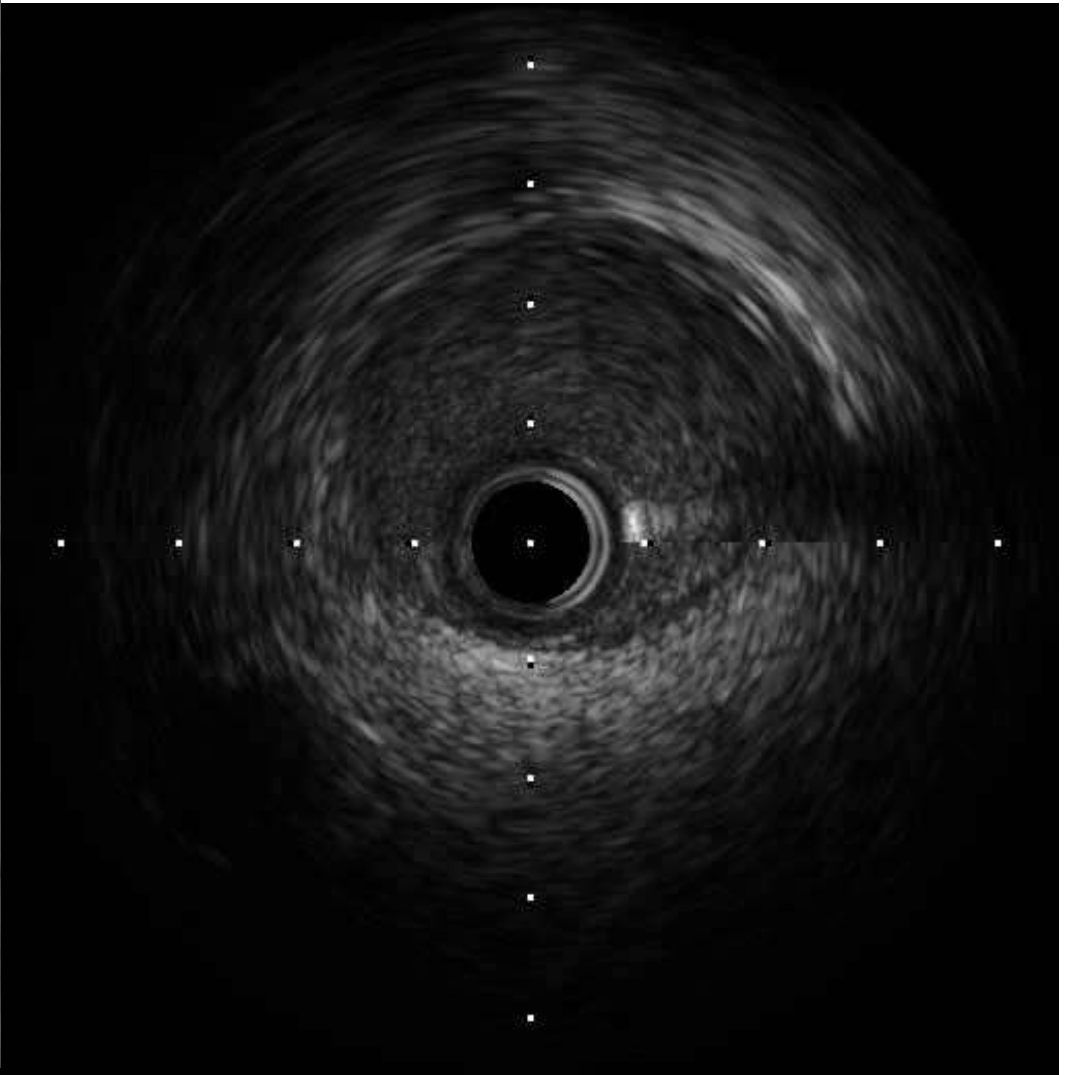
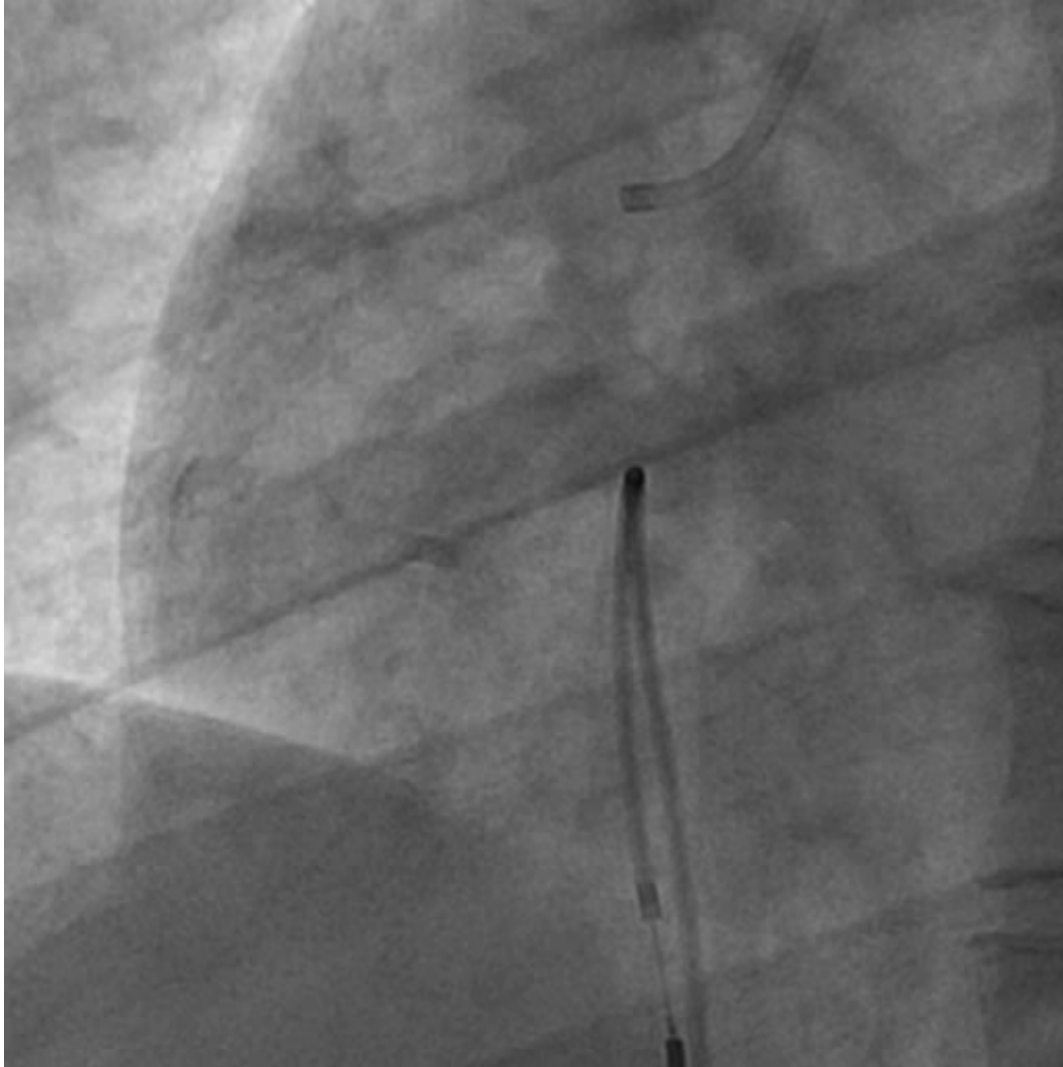
“Injection of contrast or saline may disperse the stagnant flow, clear the lumen”



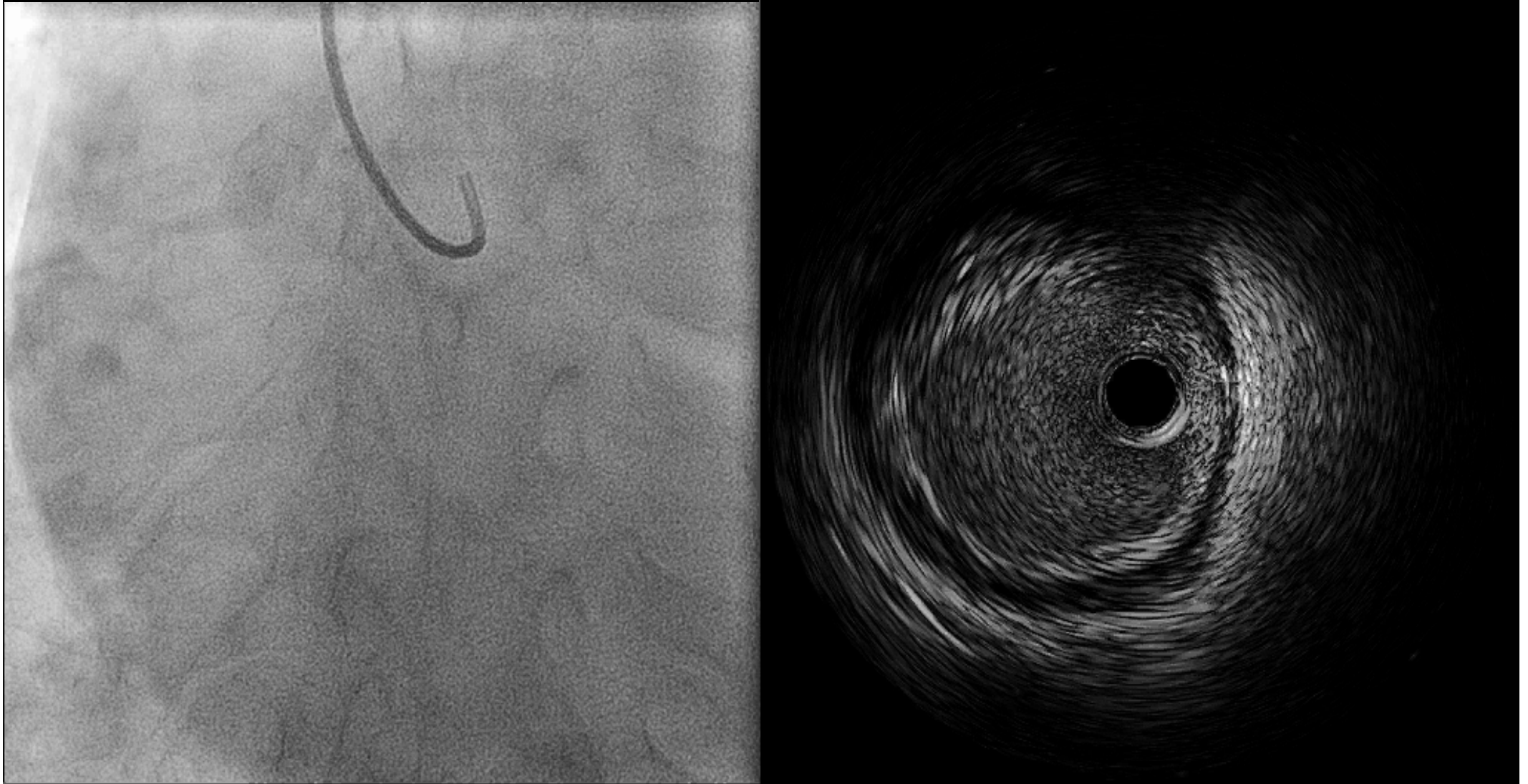
Intramural and extramural hematomas



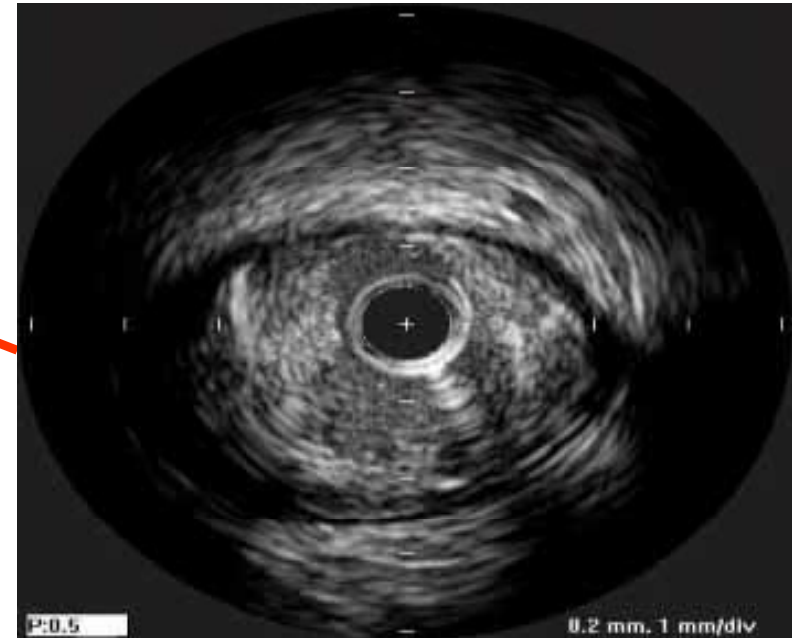
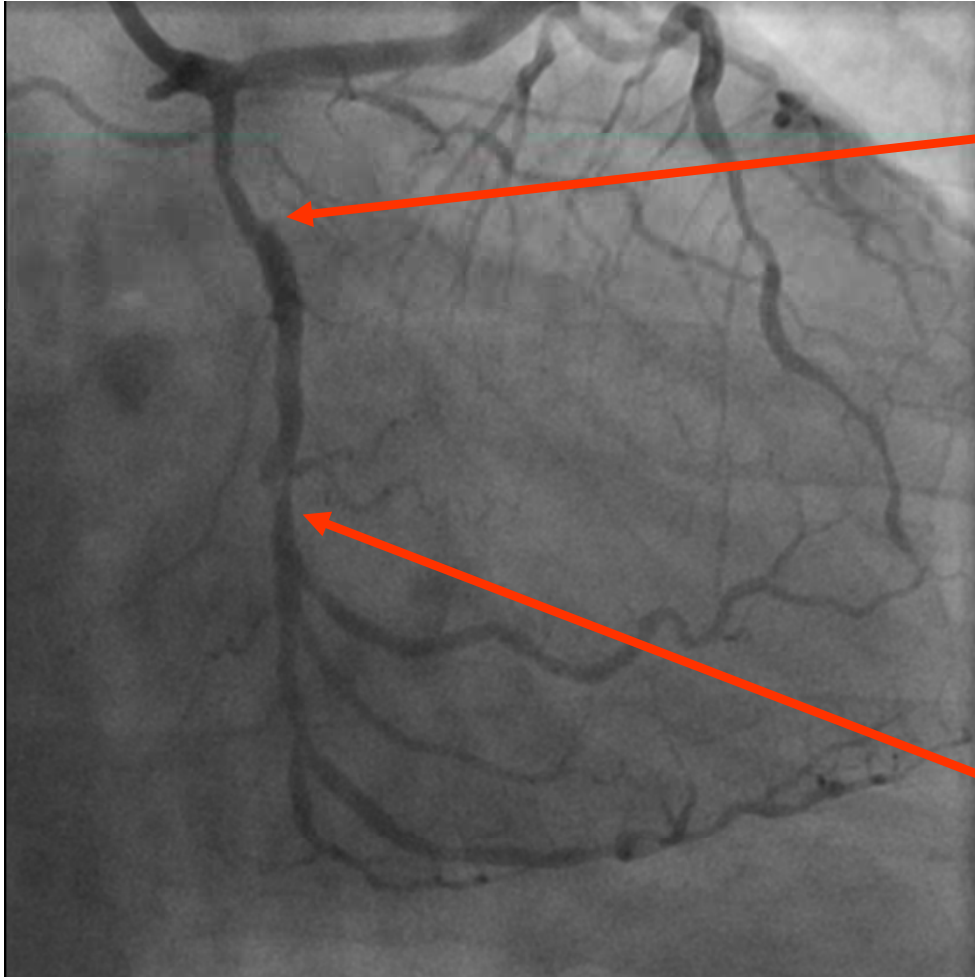
Dissection & Intramural hematoma



Spontaneous dissection



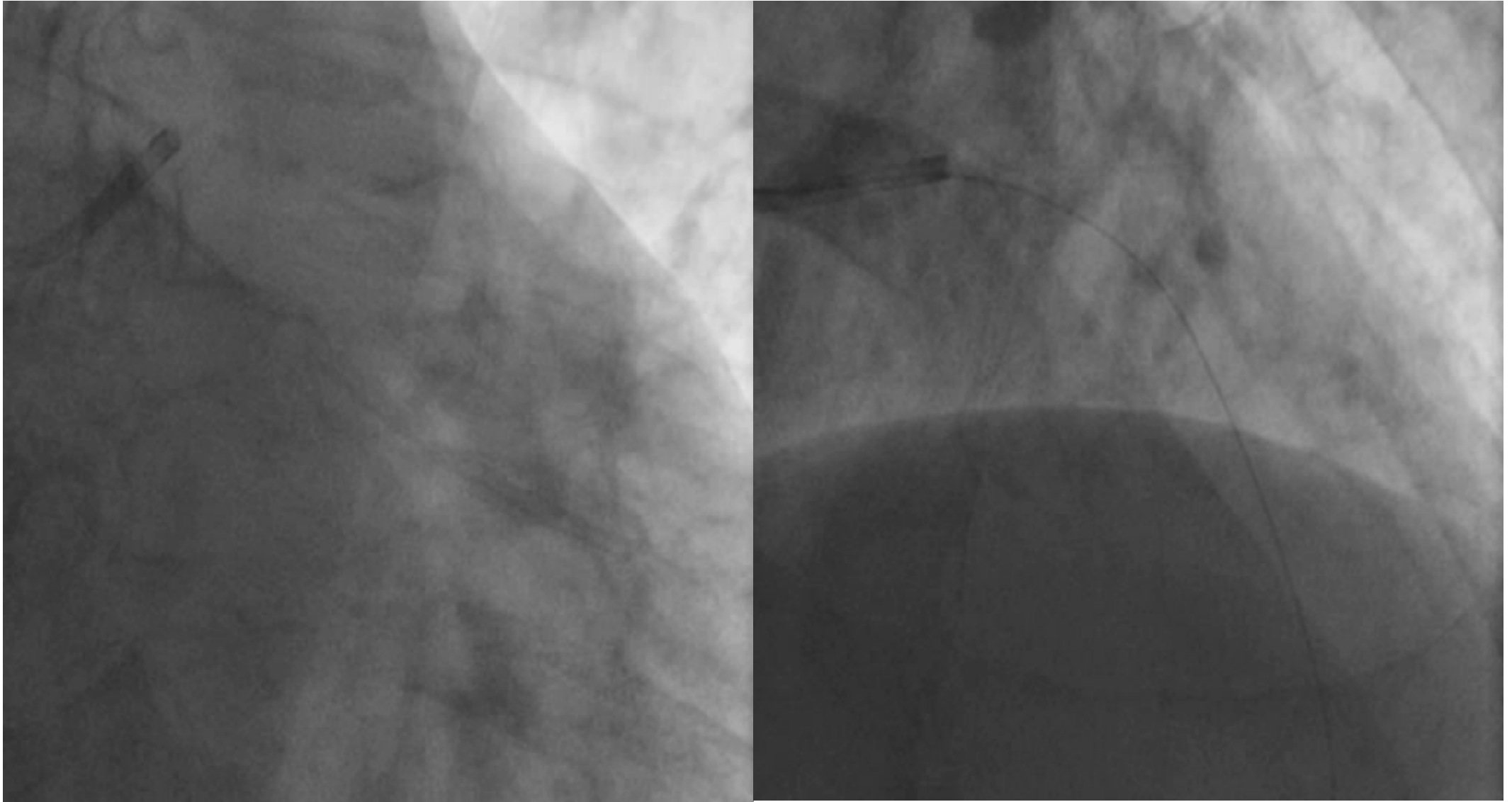
Multiple Plaque Rupture



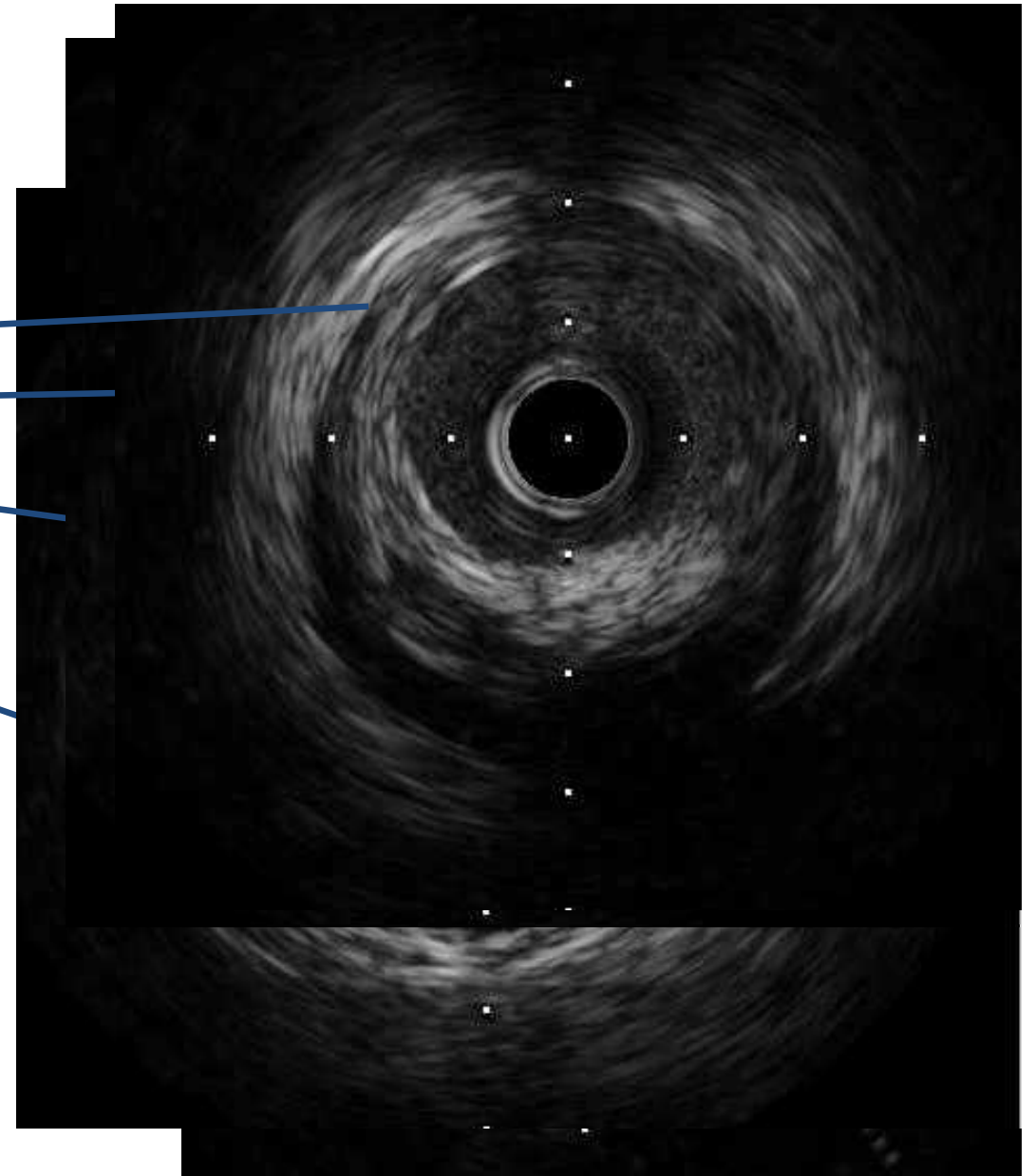
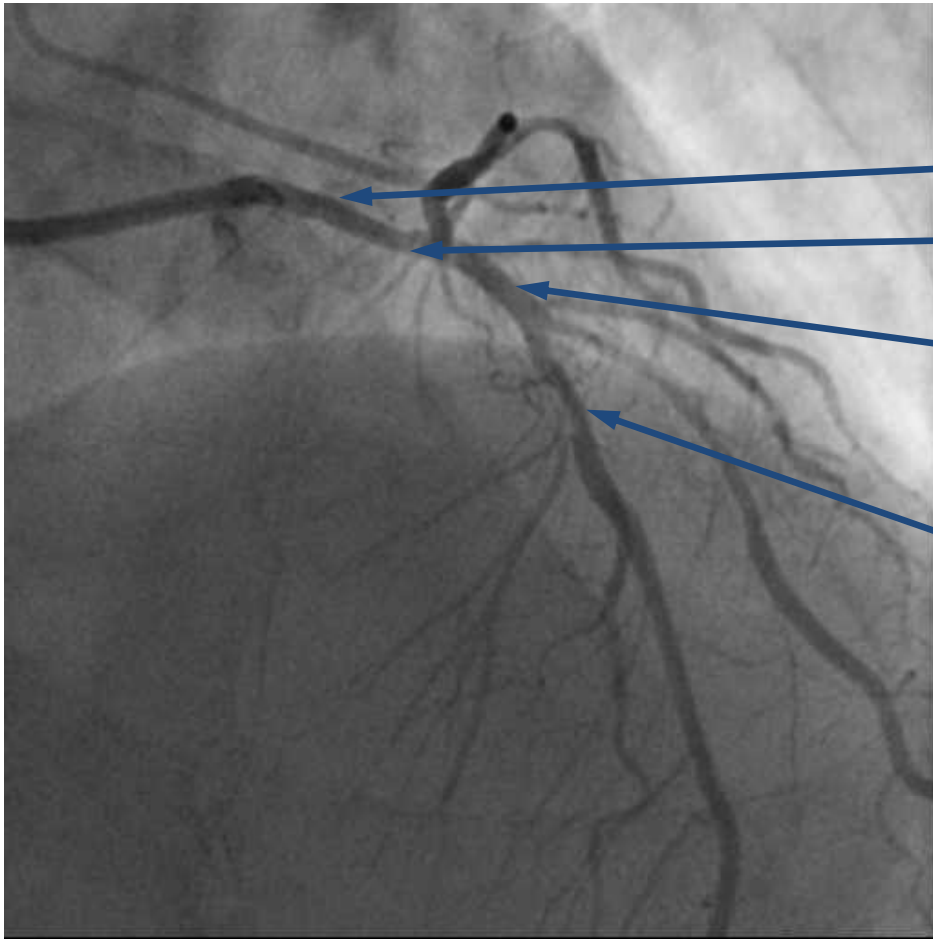
Case 1

- Dx. : Stable Angina
- Risk Factor : HTN, DM(20yrs)
- Lab : BUN/Cr 17.9/0.93 mg/dL,
HbA1c 7.6 %
TC/TG/HDL/LDL 216/75/46/146 mg/dL
- TMT(+), RWMA(-) EF 70%
- Point : Angio Vessel IVUS
가

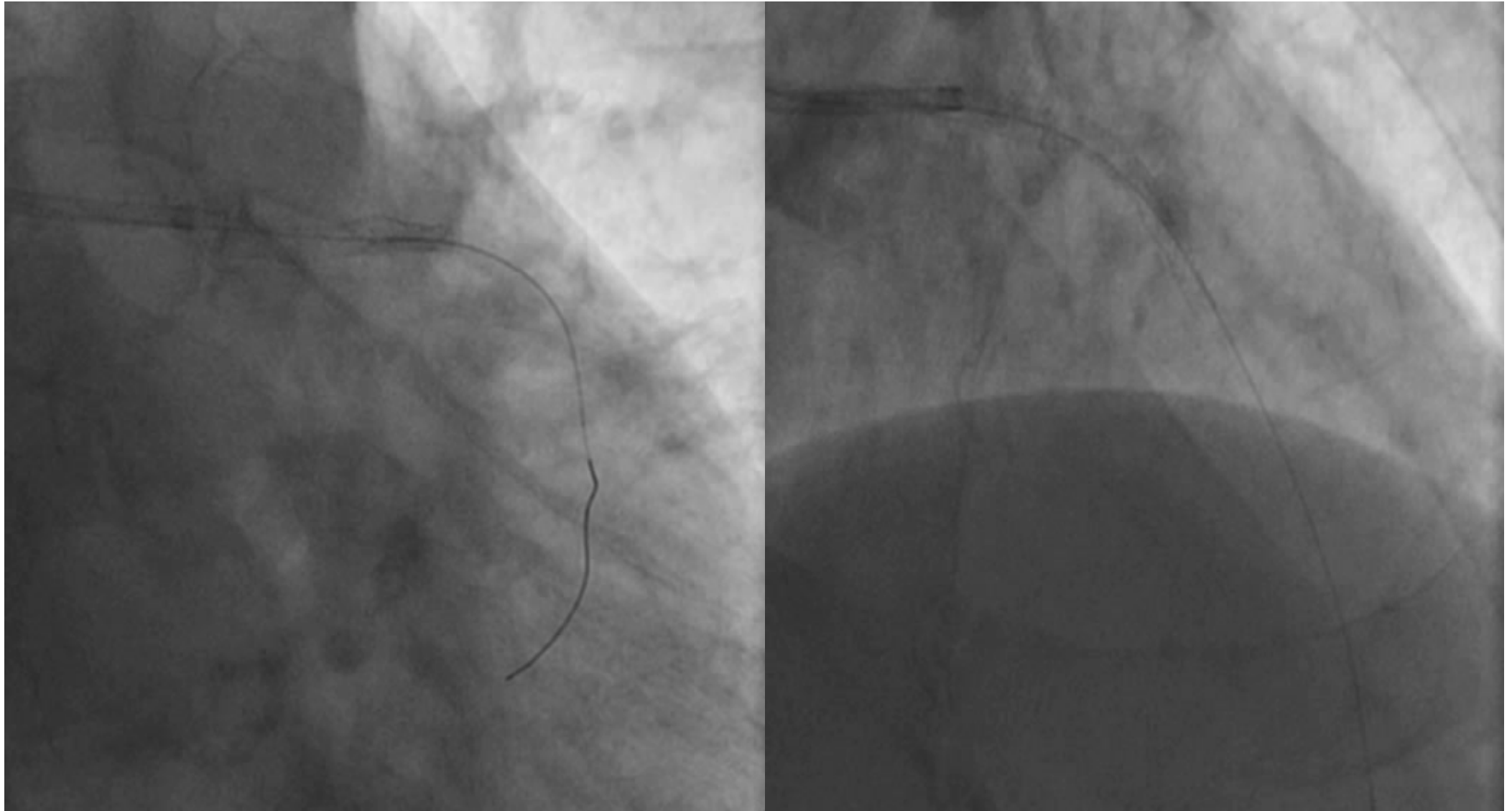
Pre PCI



IVUS finding

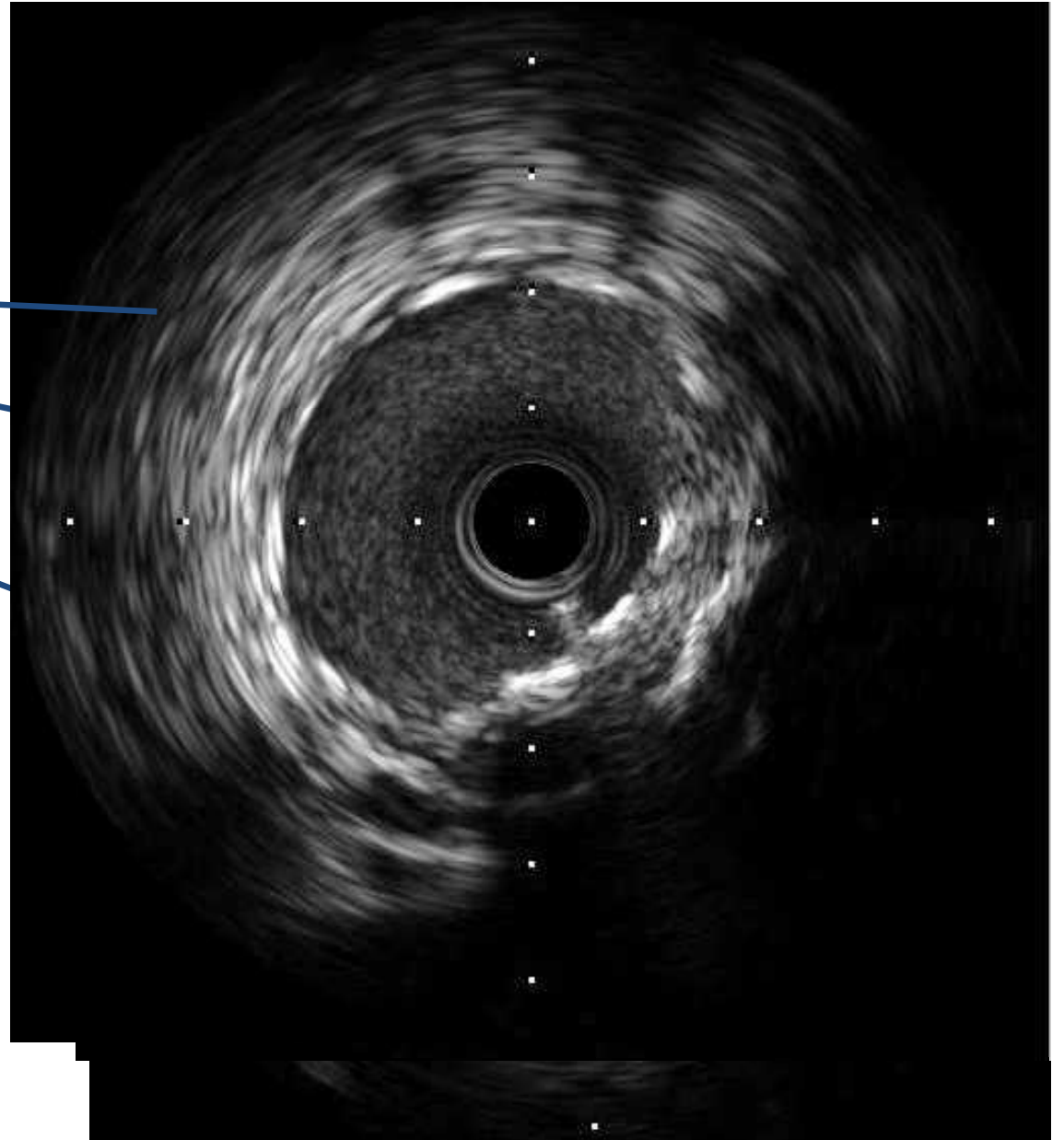
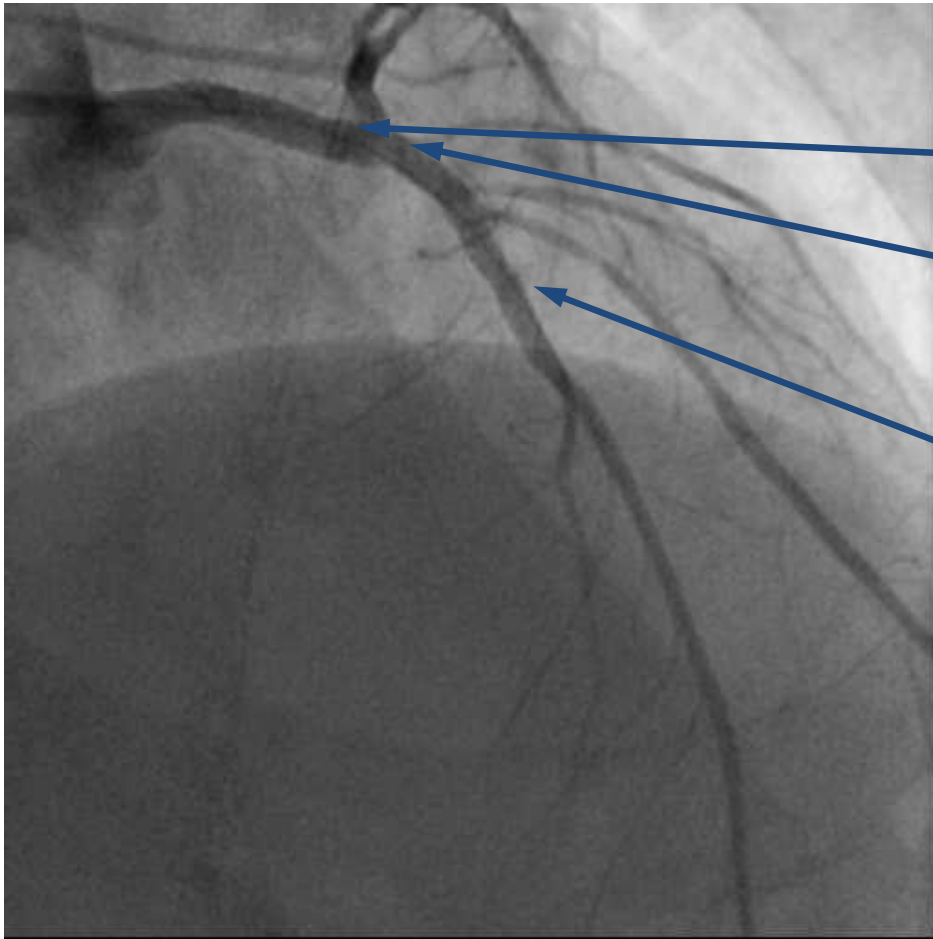


Post PCI



Xience 4.0*23,3.5*28

Post PCI IVUS



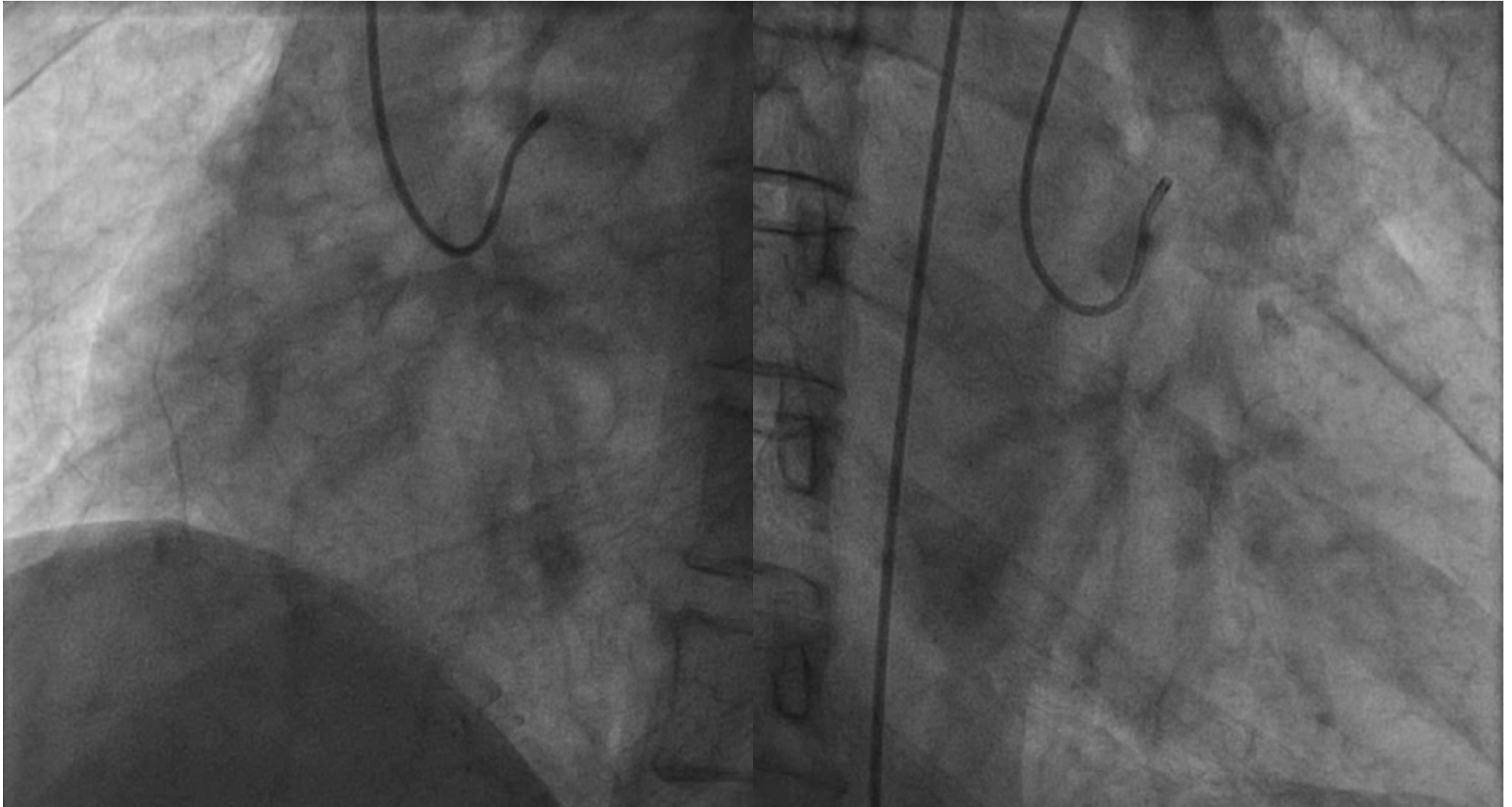
Case 2

- Cc. : MVR Pre op
- Point : RCA anomalous origin

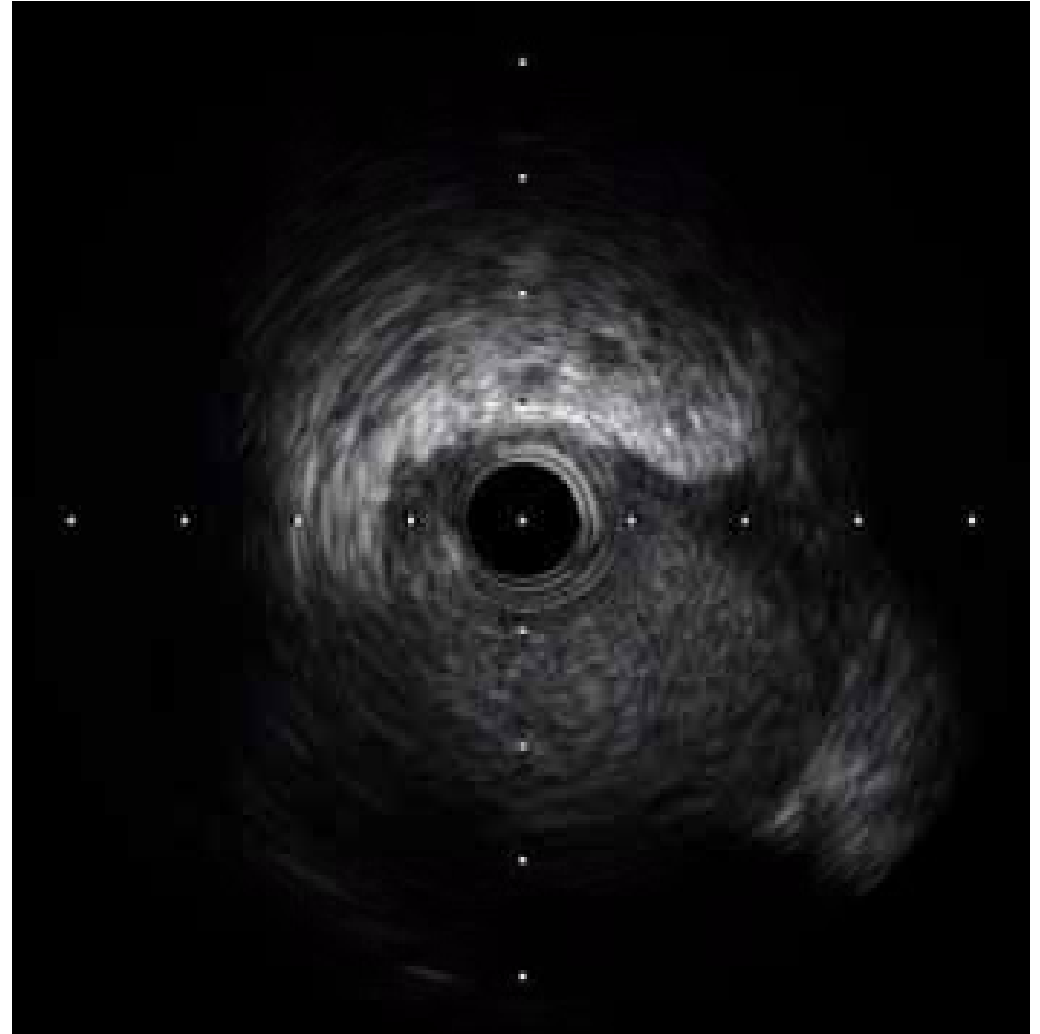
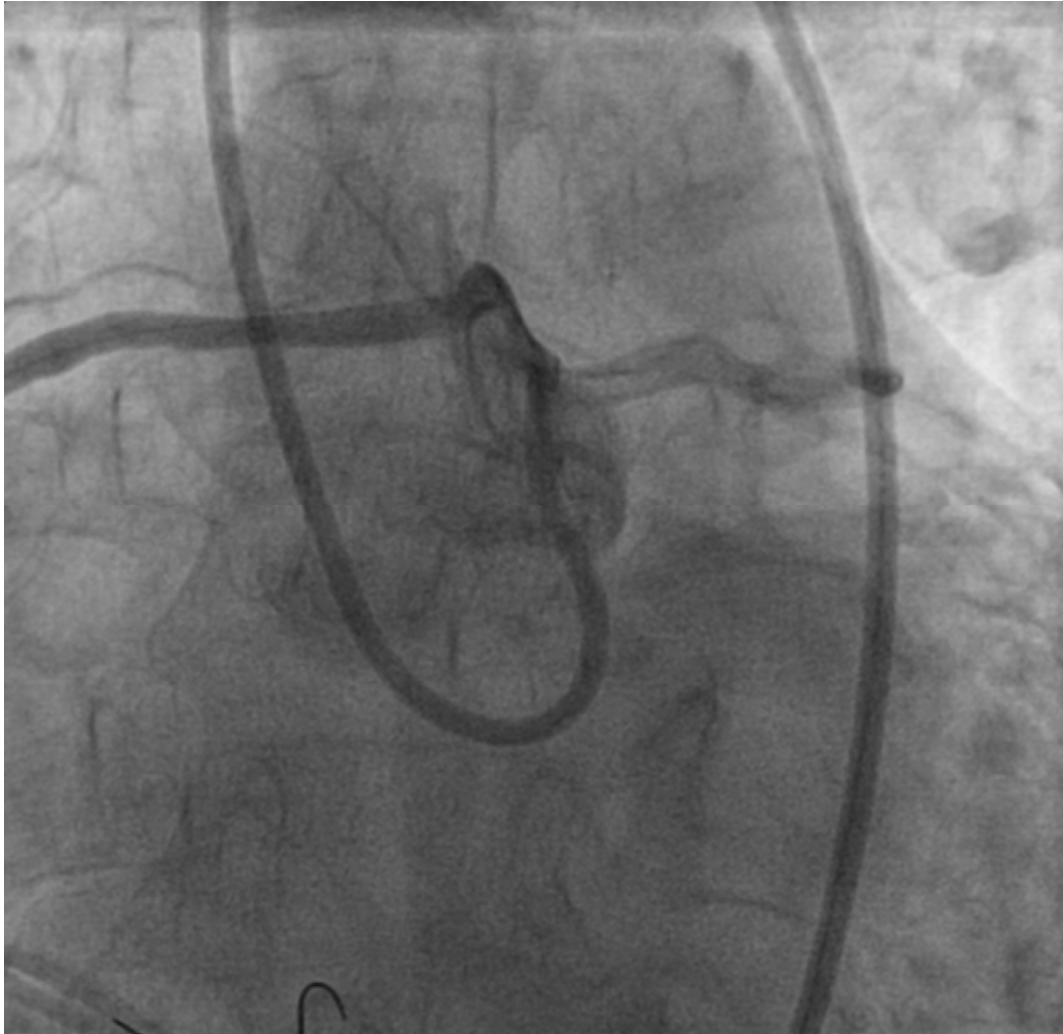
LCA Angio



RCA anomalous origin



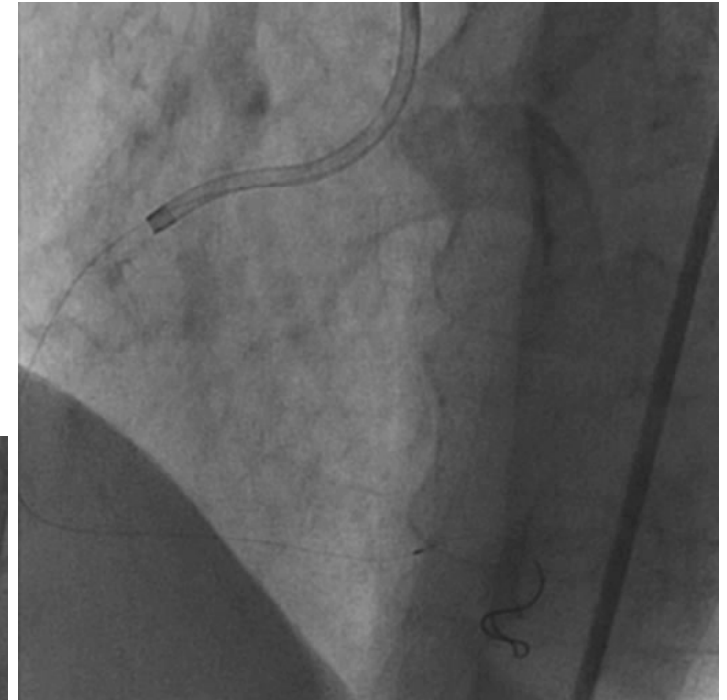
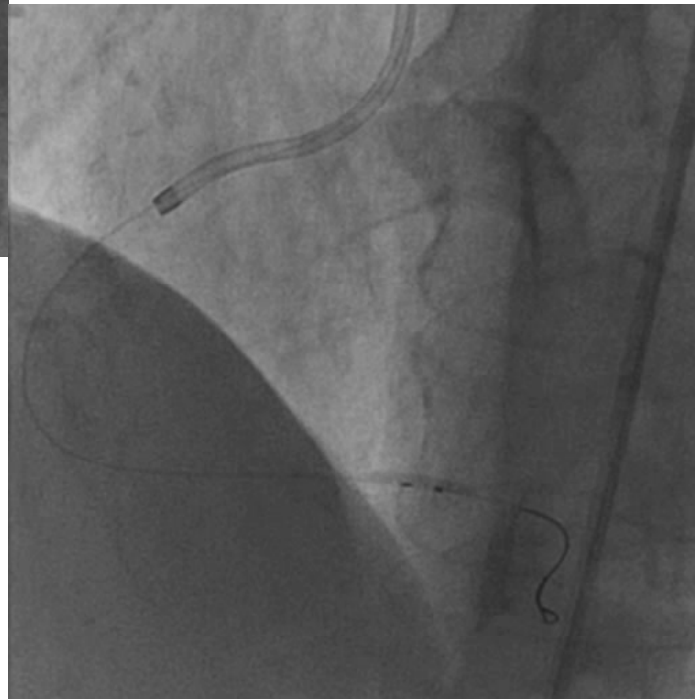
IVUS image



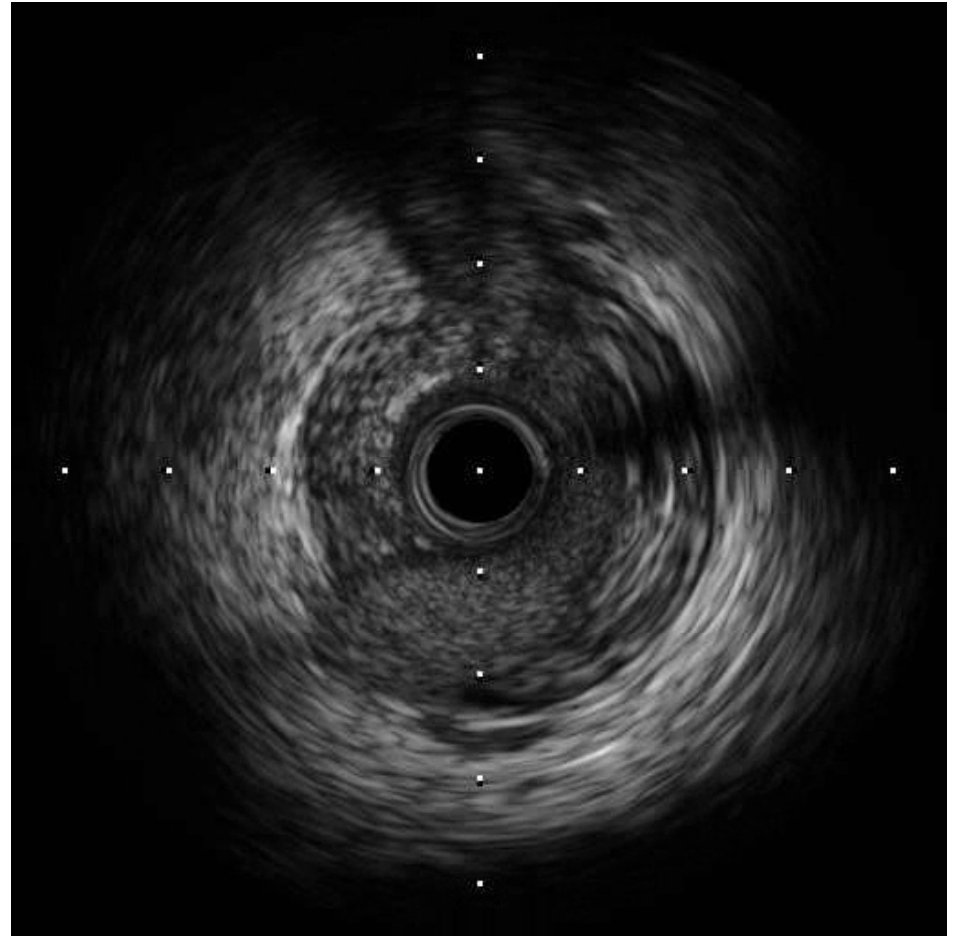
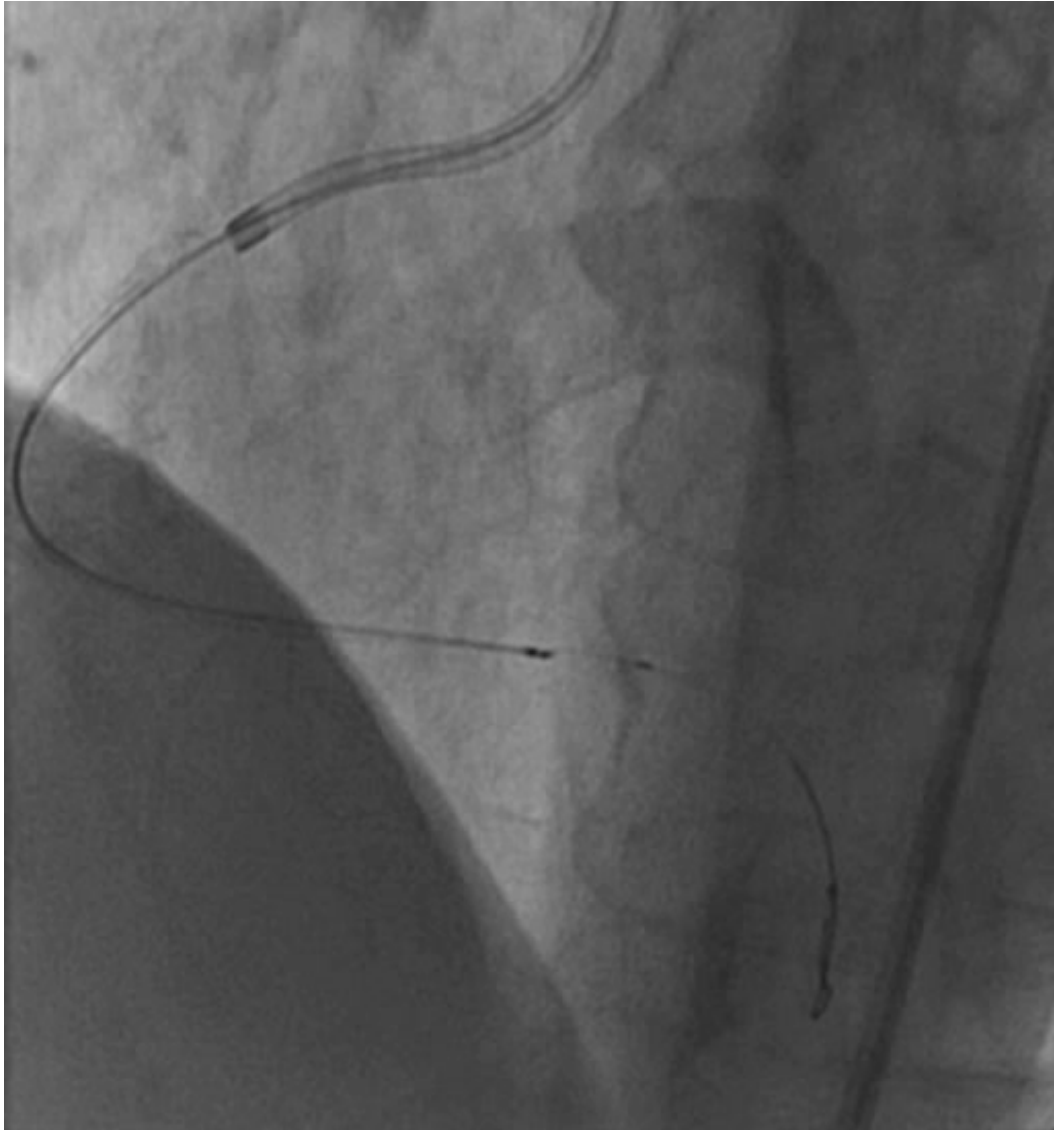
Case 3

- Dx. : Atypical chest pain
- Risk Factor : DM(20yrs)
- TMT(-), CAOD CT 1VD
- Point : Angio Vessel
stent size selection

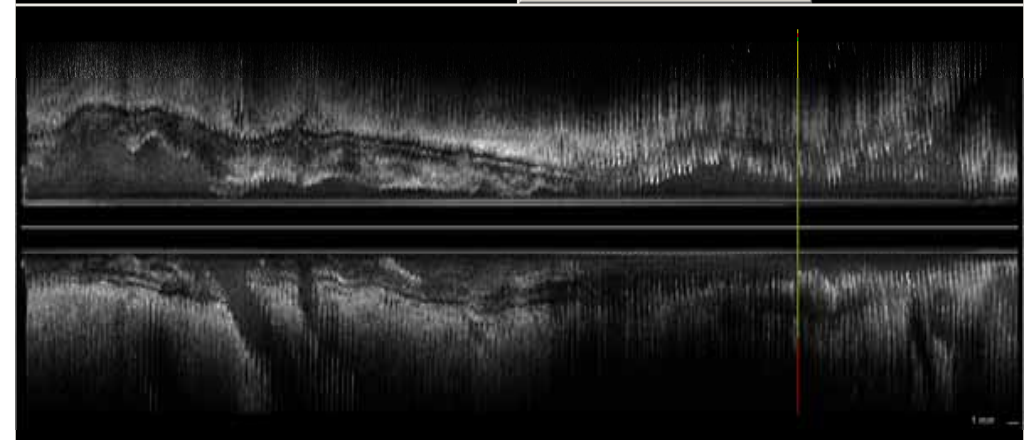
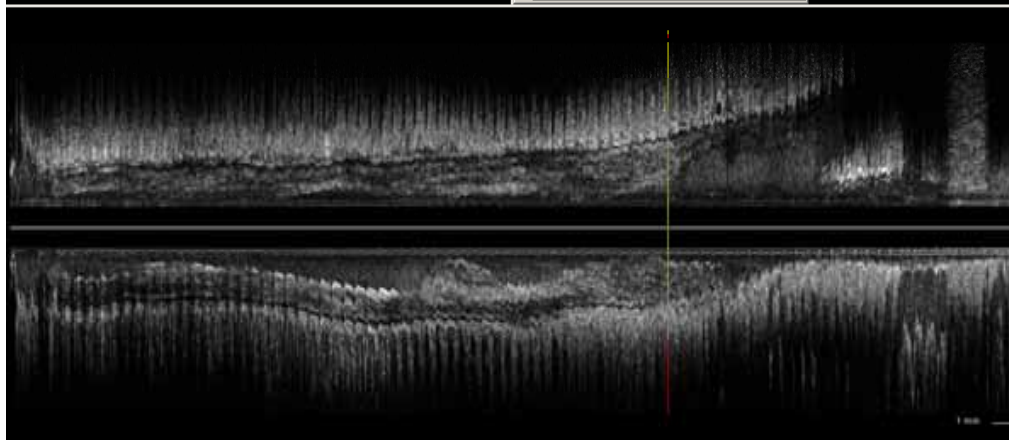
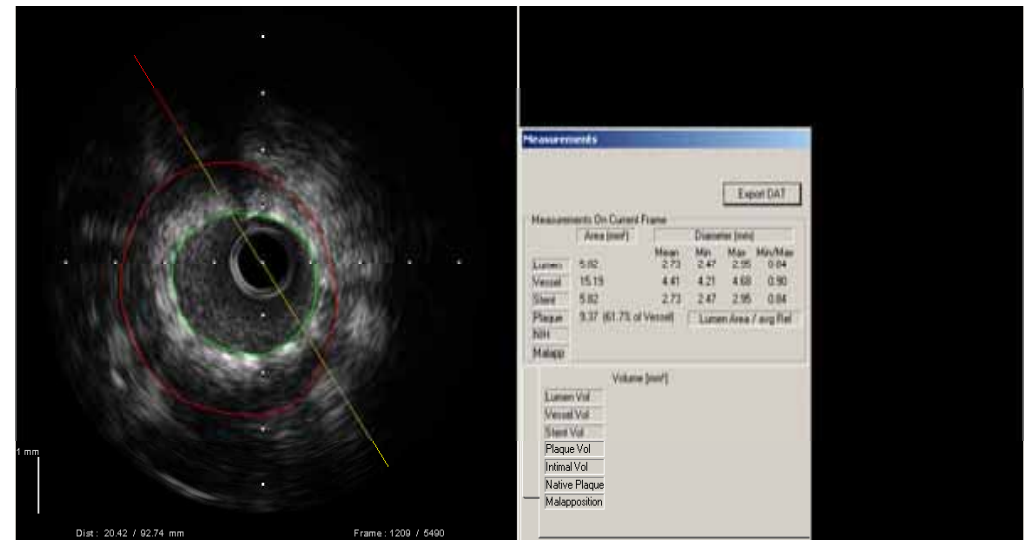
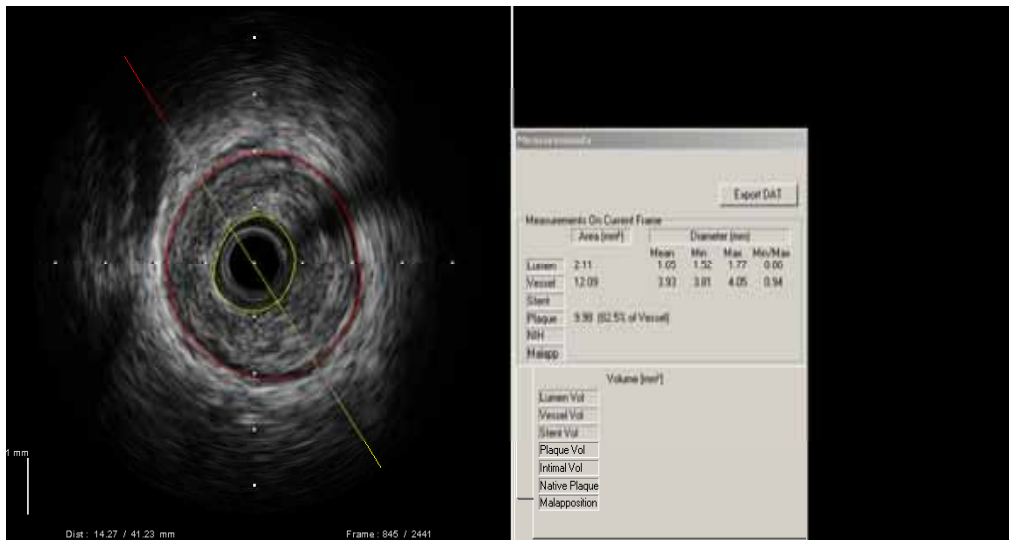
d-RCA lesion



d-RCA IVUS



IVUS measurement



Post stent



Stent size 3.5*28

1yr FU



IVUS Guide PCI

1. Diagnostic IVUS Assessment
2. Assessment of Lesion Significance
3. Angiographically Indeterminate Lesion
4. Guidance for Plaque Modification
5. Guidance for Stenting
6. Thrombosis and Restenosis
7. Assessment of Complex Patients/Lesions
8. Reduce In-stent restenosis