



# **Interventional Definition of True and False Lumen**

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Dartmouth Medical College, Hanover, NH, USA

**AP, 62years, female: Mid RCA CTO**

8Fr Mach1  
FR3.5-SH



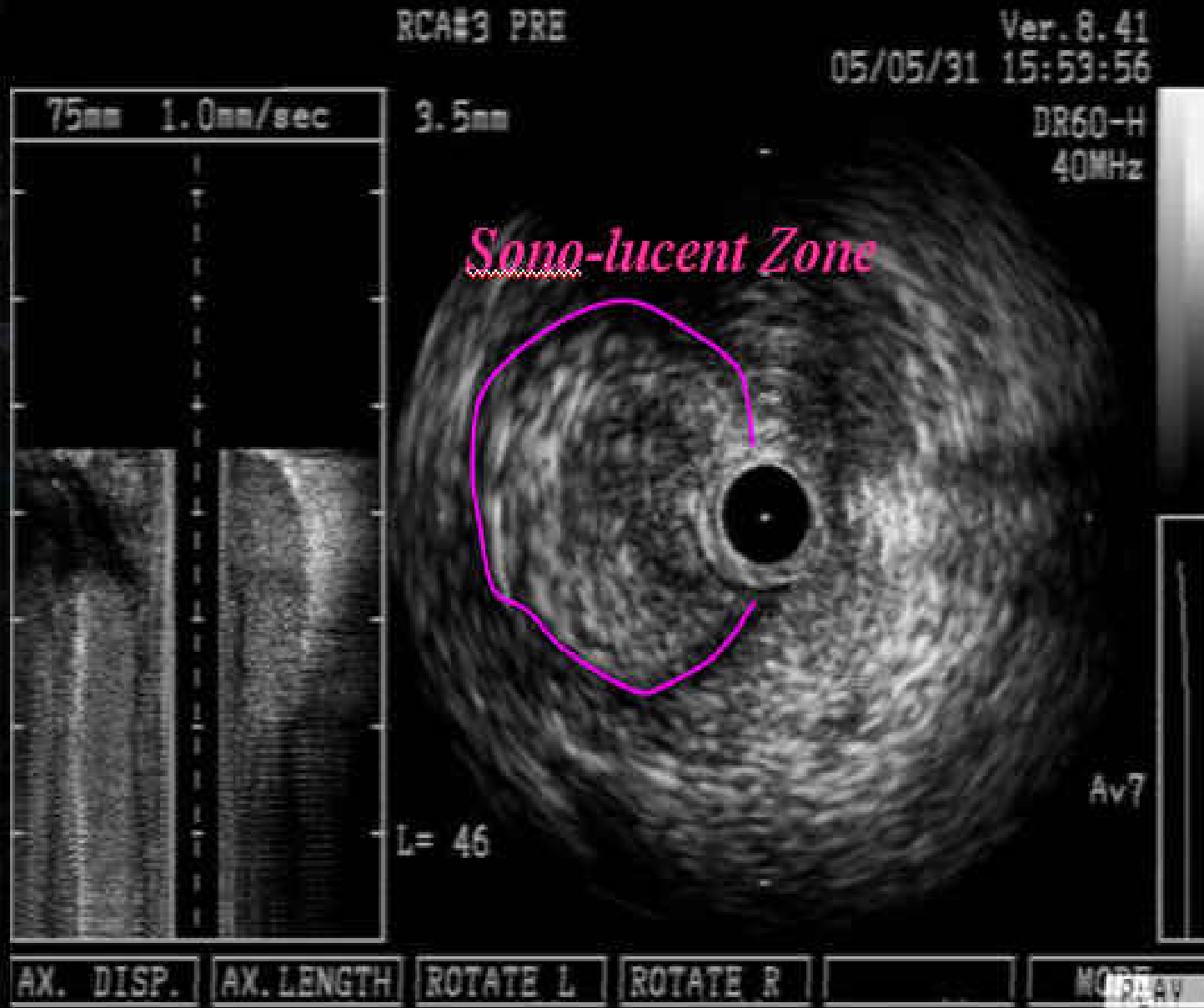
# Confianza Pro in the False Lumen



TC

09

# Typical IVUS Findings of False Lumen



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What is the *Border* between the “Sub-intimal Space”  
 (“False Lumen”) and the “ True Lumen” ?

*It will be Related to the Sono-lucent Zone  
in the IVUS Findings.*

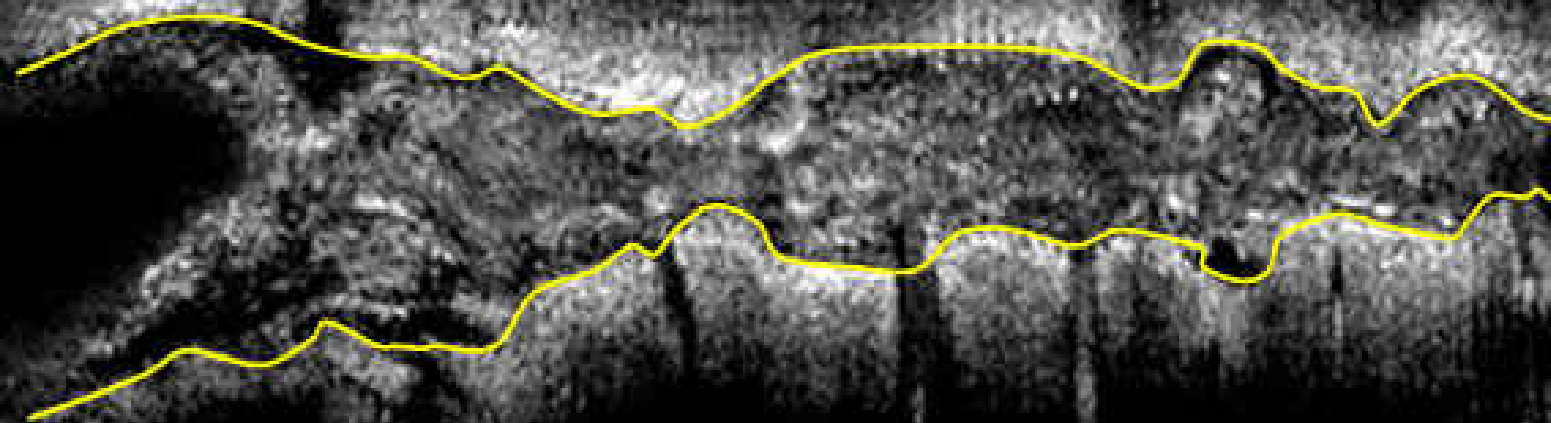
*External Elastic Membrane*

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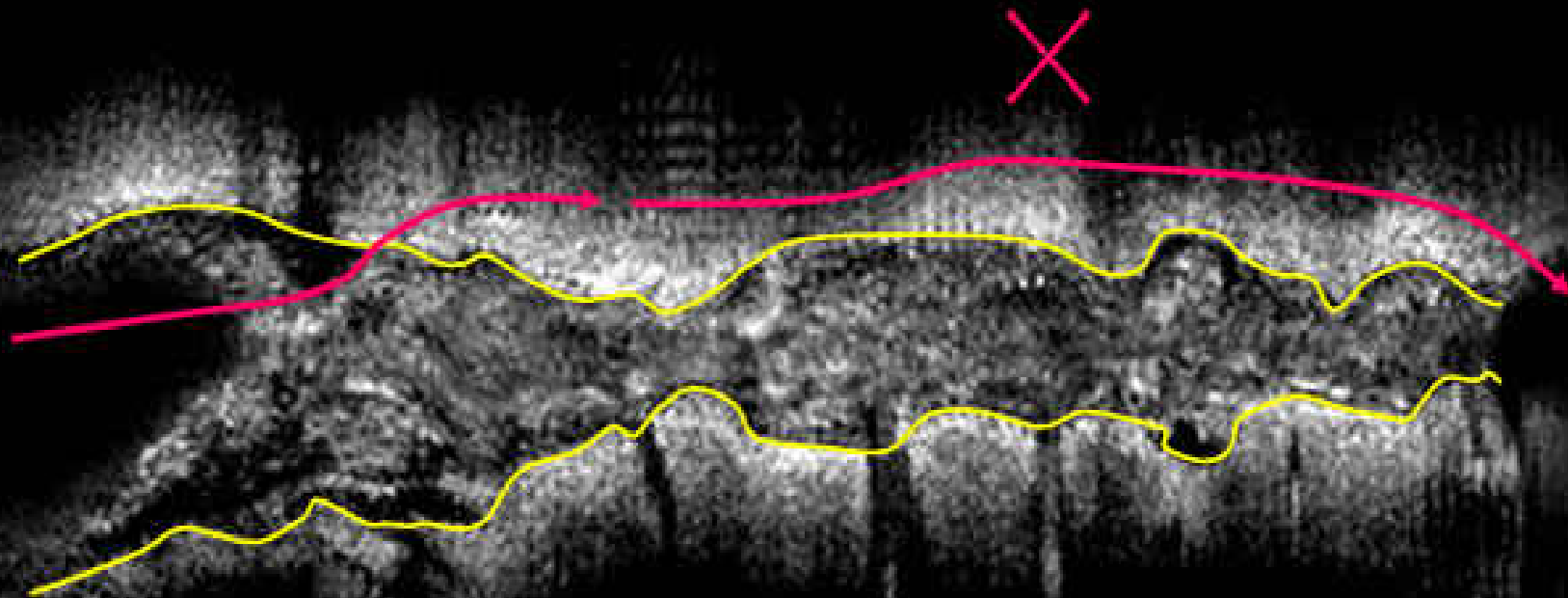
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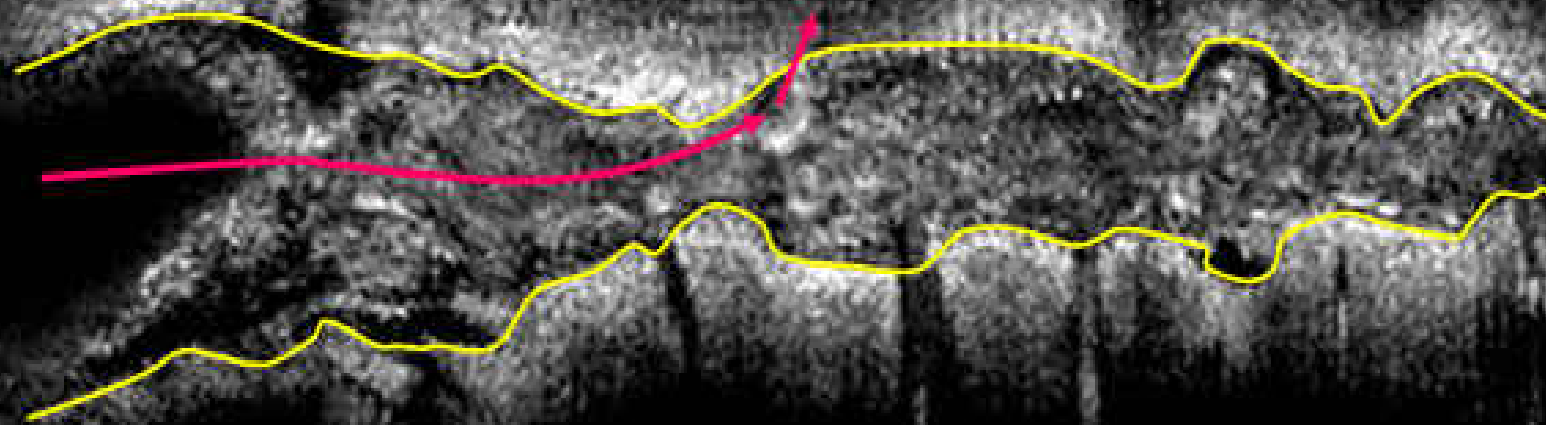
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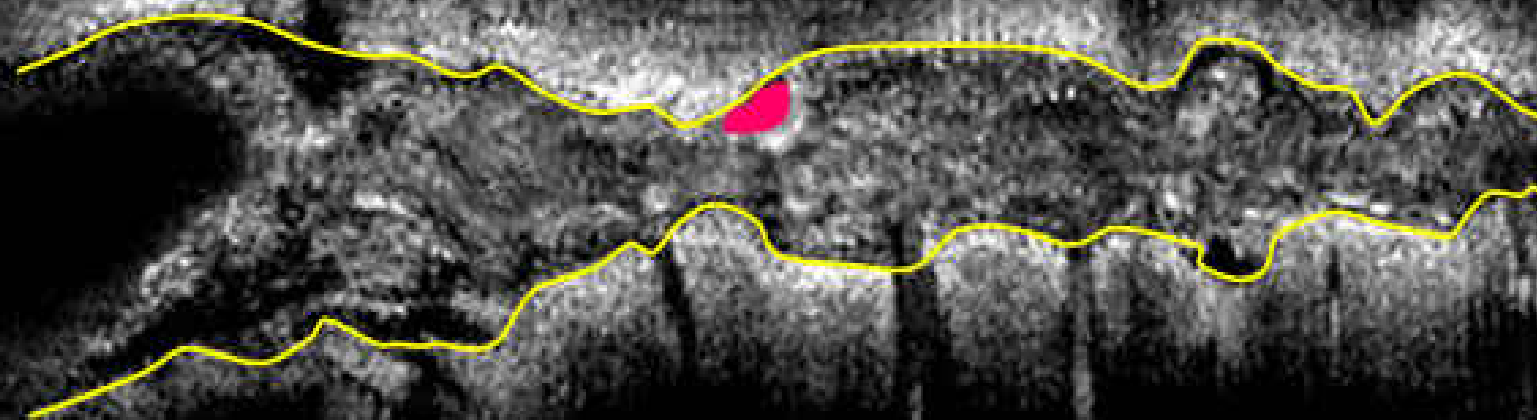


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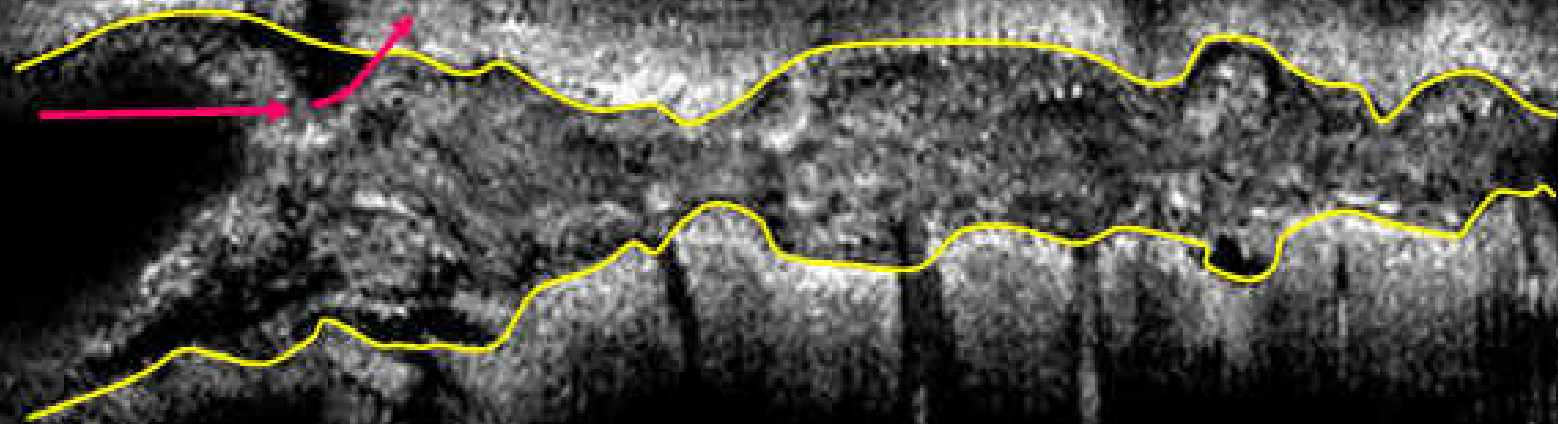
**calcification and tortuosity inside the CTO**

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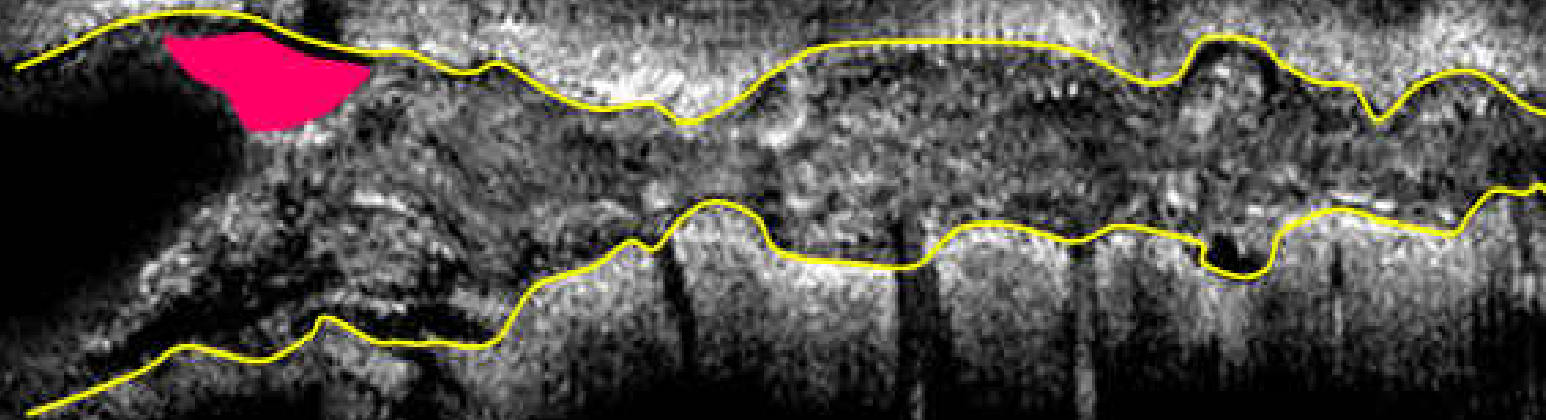
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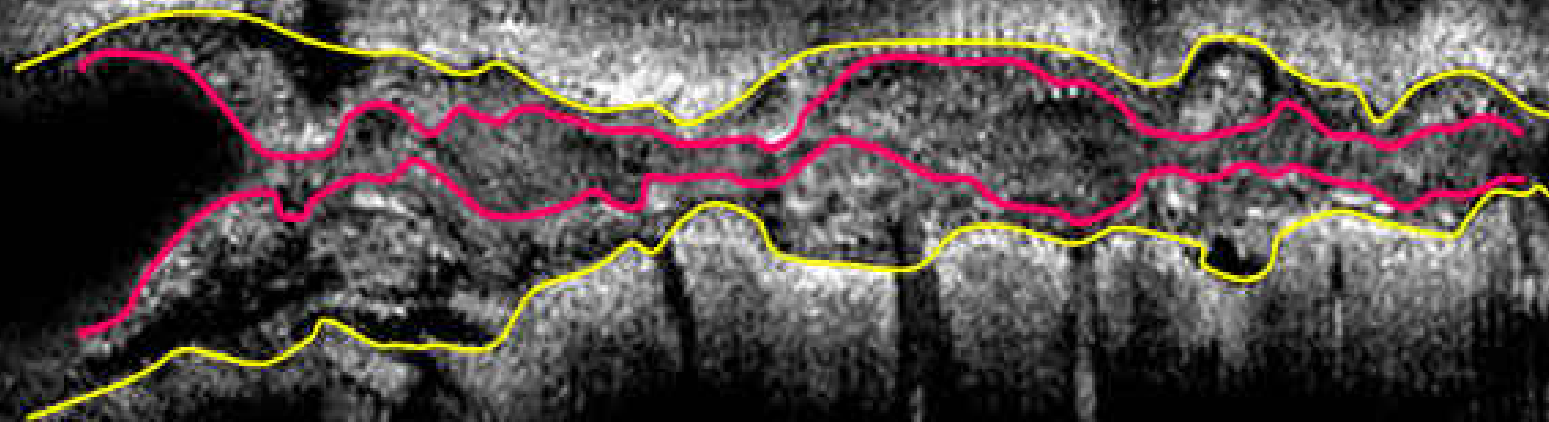
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# **The Basics of Antegrade Approach**



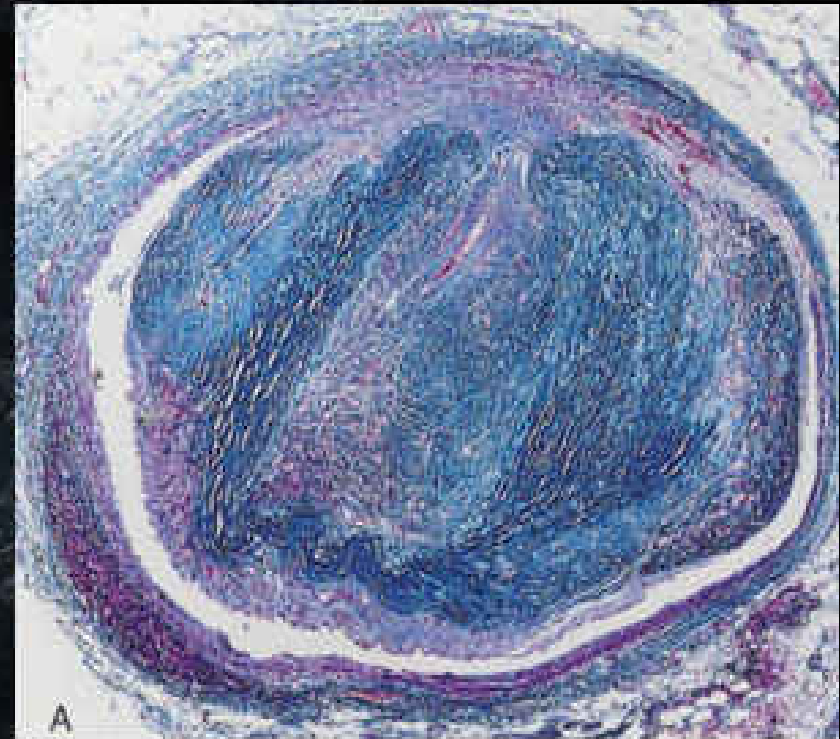
# Penetration of the Proximal Cap with a Stump

A Stump is a sign of an antegrade micro-channel

# CTO Pathology



Micro-channels (present in ~40%)  
increase success



Homogenous hard plaque  
lower success rates

## Antegrade Micro-channels

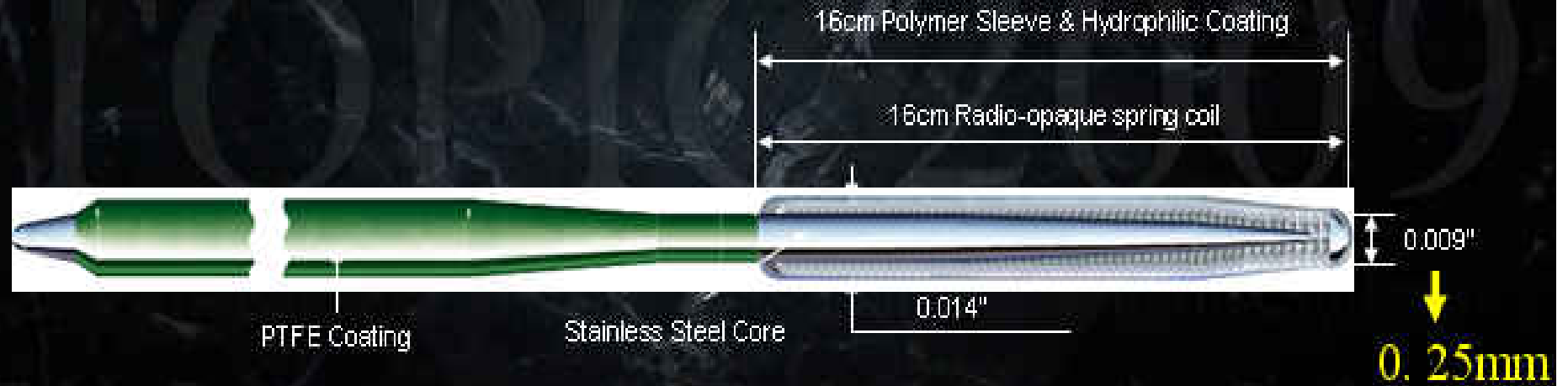
- Pathological antegrade micro-channels are frequently invisible by the angiography.
- Antegrade micro-channels are not always continuous to the distal true lumen. They are sometimes connected to vasa vasorum.
- It is very difficult to distinguish antegrade micro-channel and bridging collateral.



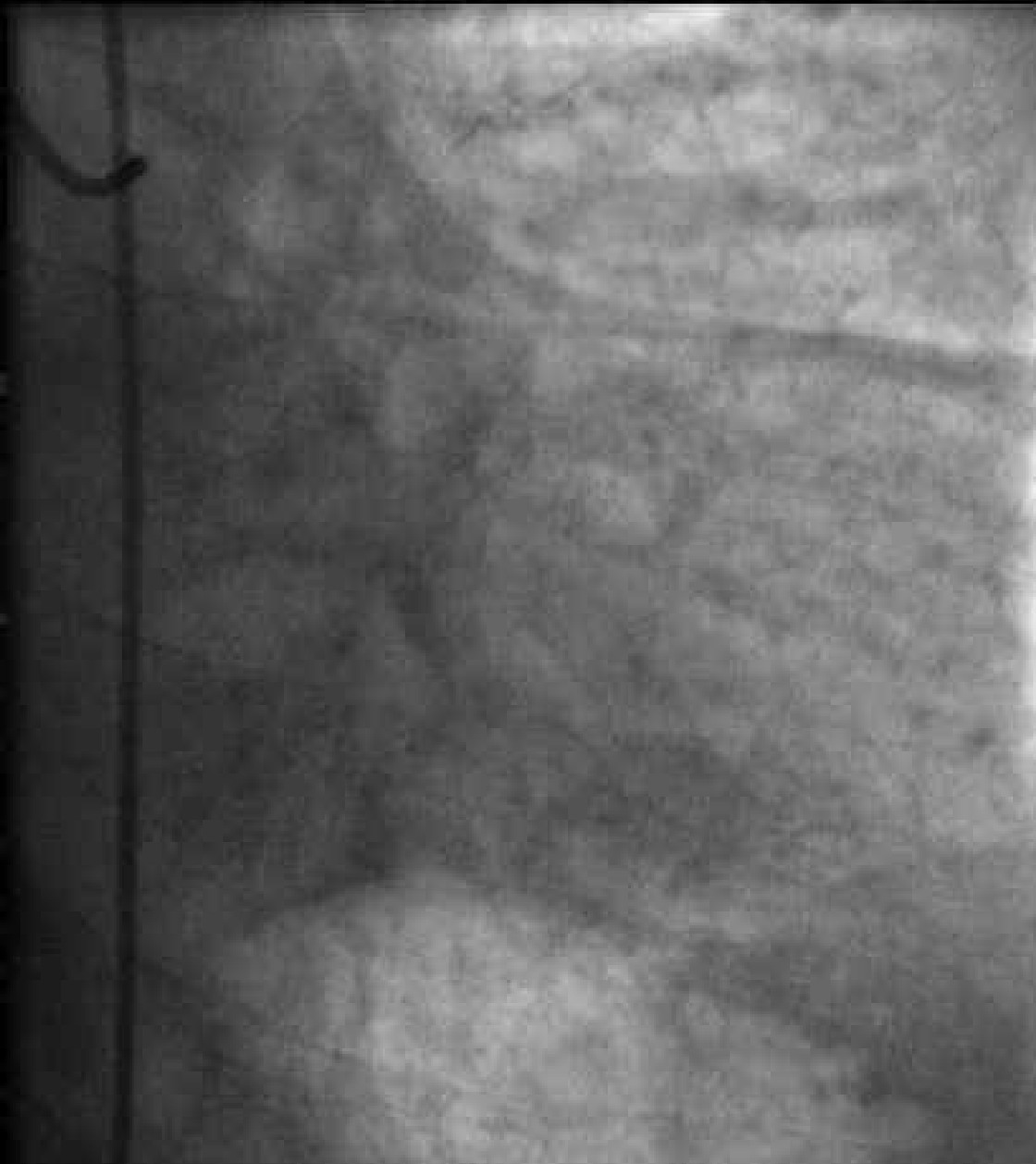
## Optimal Wire for Tracking Antegrade Micro-channels

- The wire can track antegrade micro-channels within a few minutes.
- If **there are no antegrade micro-channels** at all, the wire **should not enter the false lumen** (or stay in the true lumen)

# Fielder XT (Asahi Intecc)



# Effort AP, 65 years, male: Proximal RCA CTO



# Effort AP, 65 years, male: Proximal RCA CTO

7Fr Brite-tip  
JR4.0-SH

7Fr Heart-rail2  
BL3.5-SH



# Tip Injection from Finecross Micro-catheter

7Fr Brite-tip  
JR4.0-SH

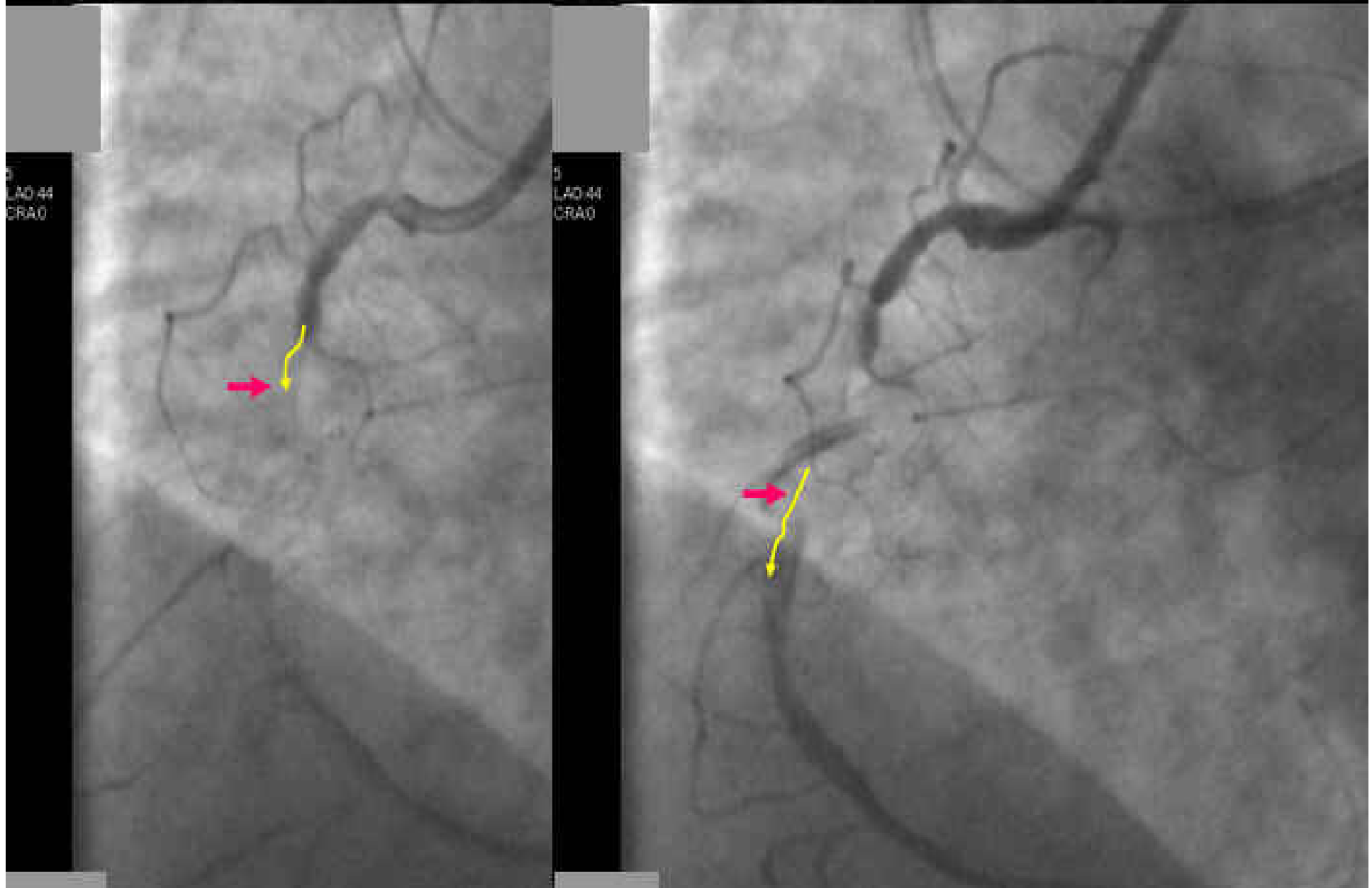
7Fr Heart-rail2  
BL3.5-SH



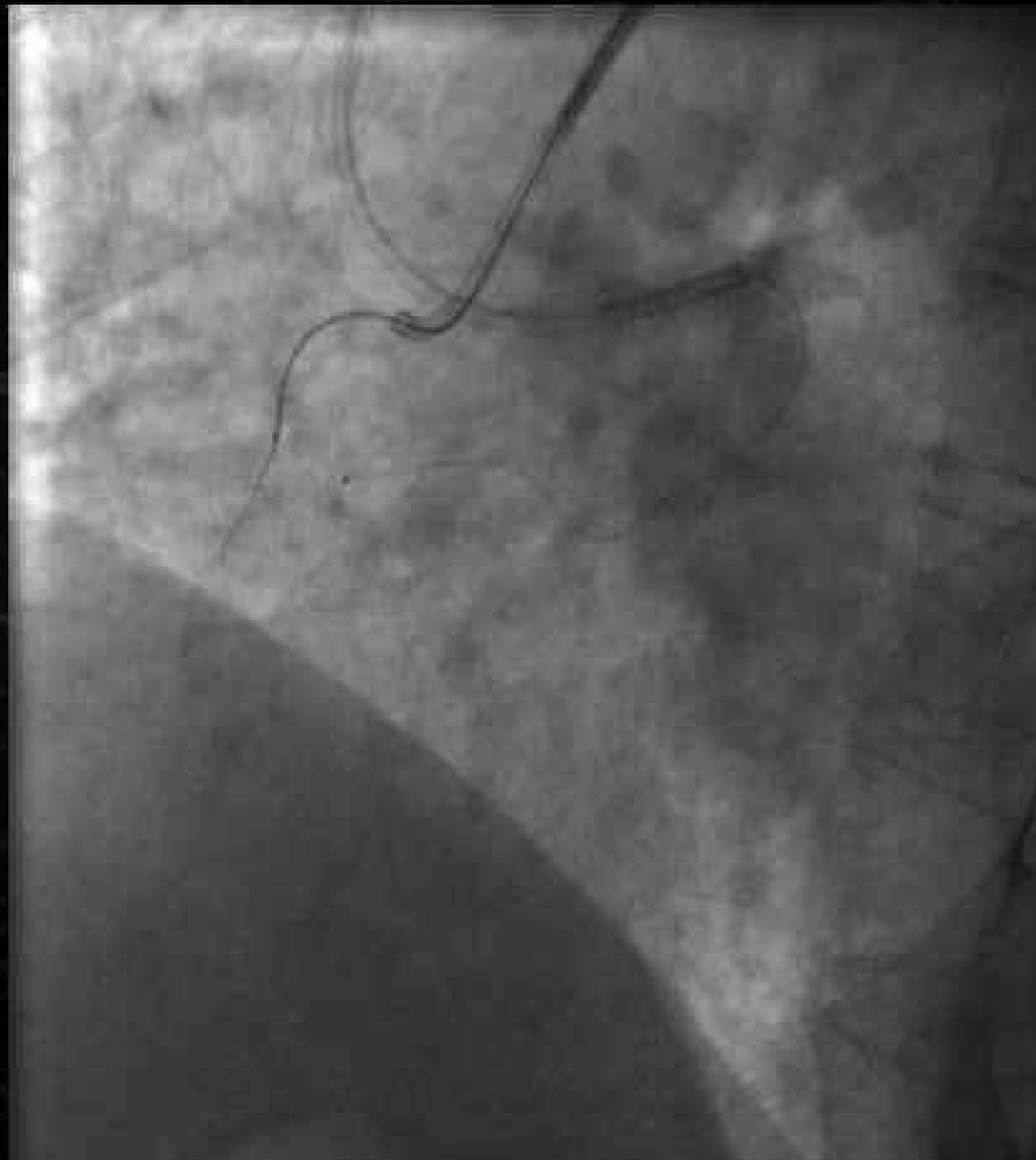
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Conference

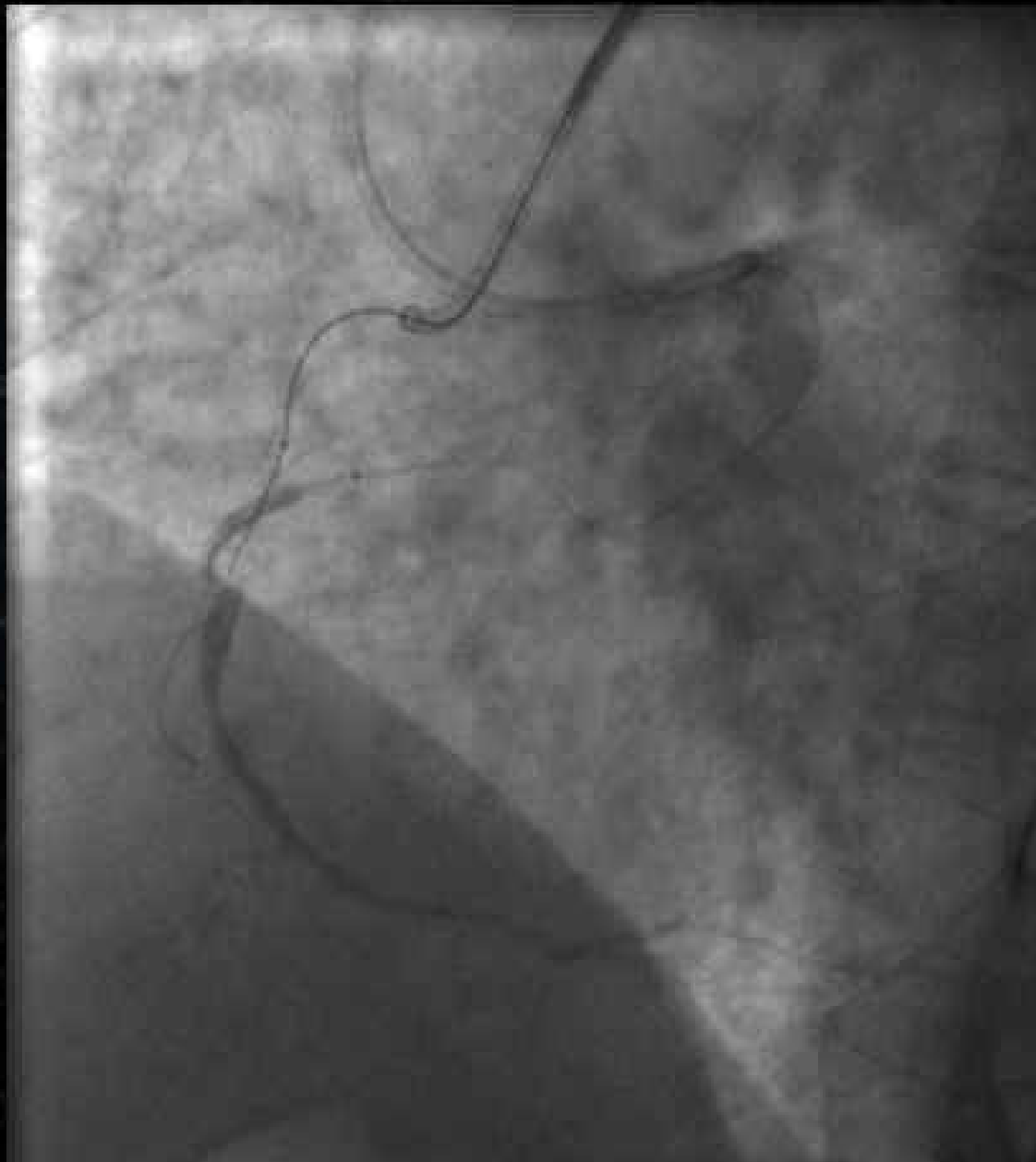
# Micro-channels could be Identified



# Tracking an Antegrade Micro-channel with Fielder XT



# Fielder XT could not be Advanced





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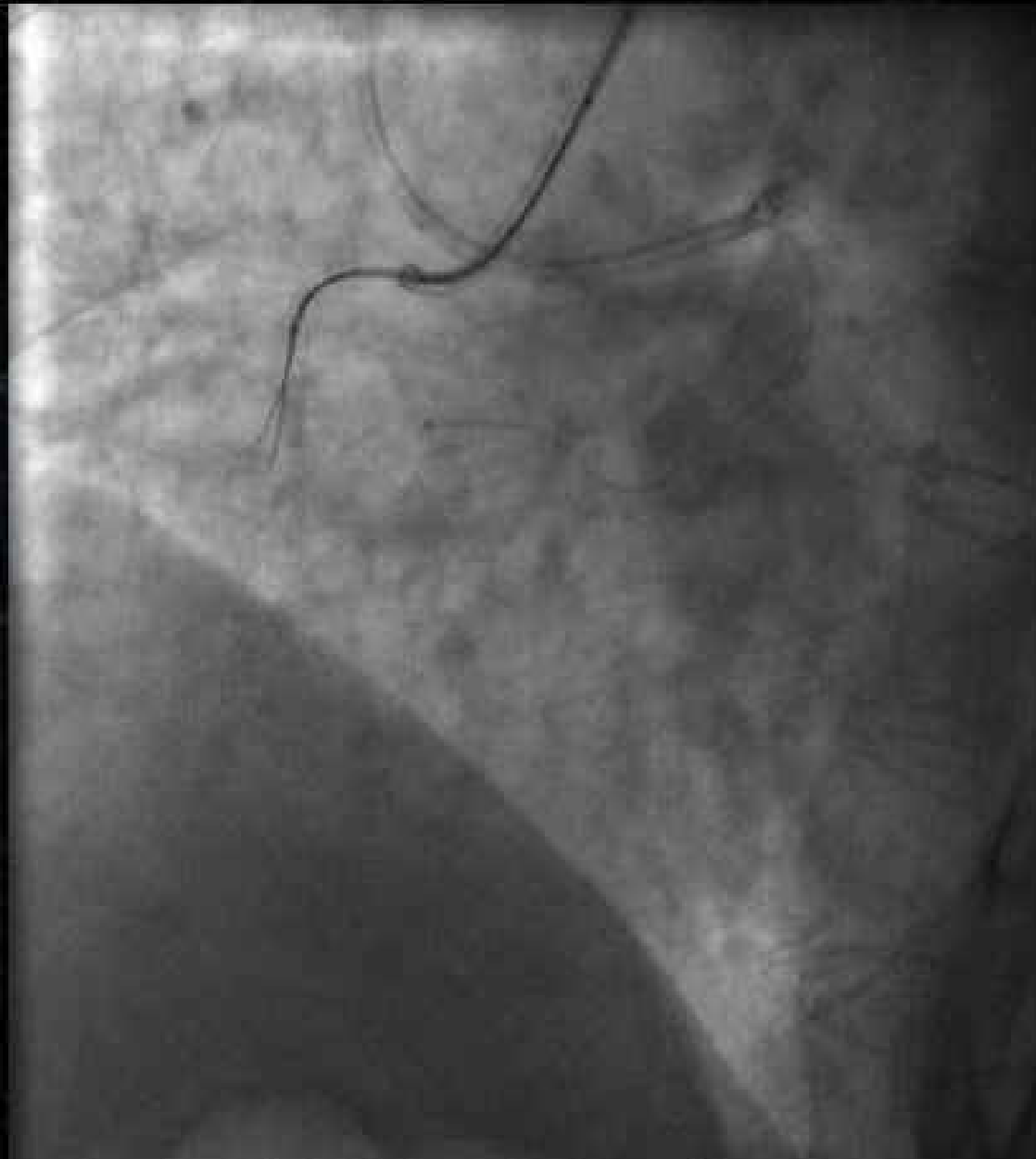
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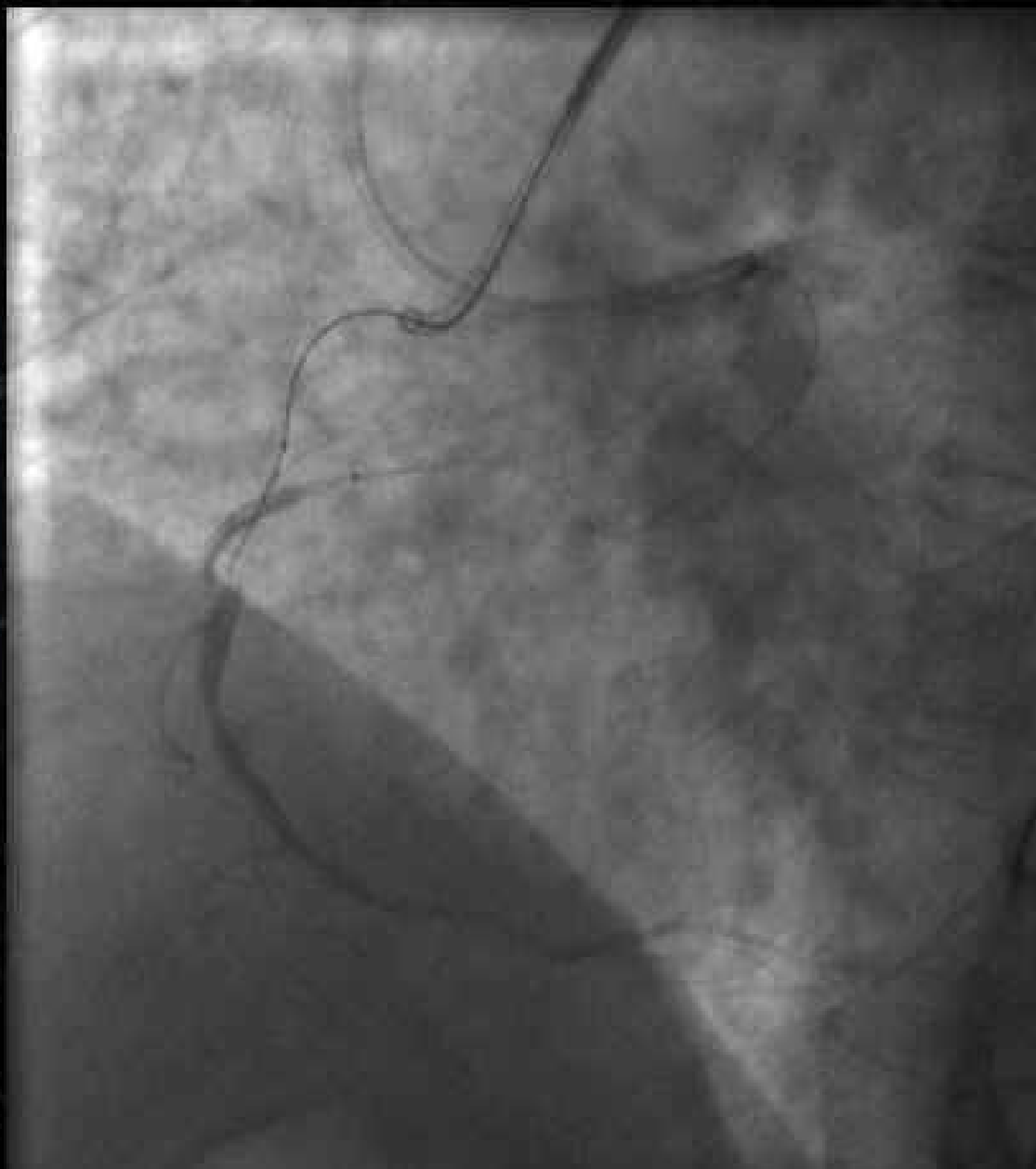
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# Failed Parallel Wire Technique with Confianza Pro 9 gr



# Fielder XT could not be Advanced



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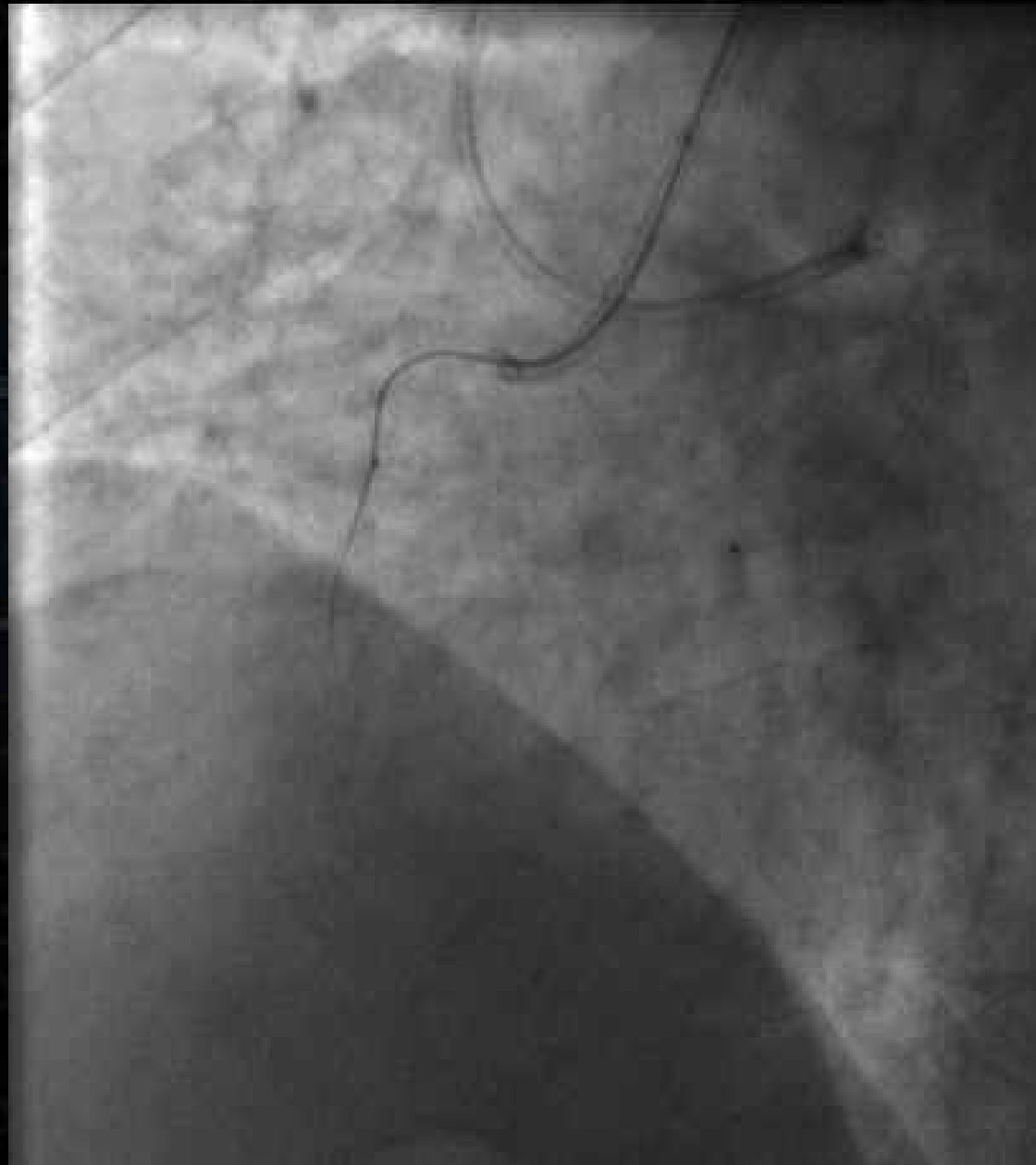
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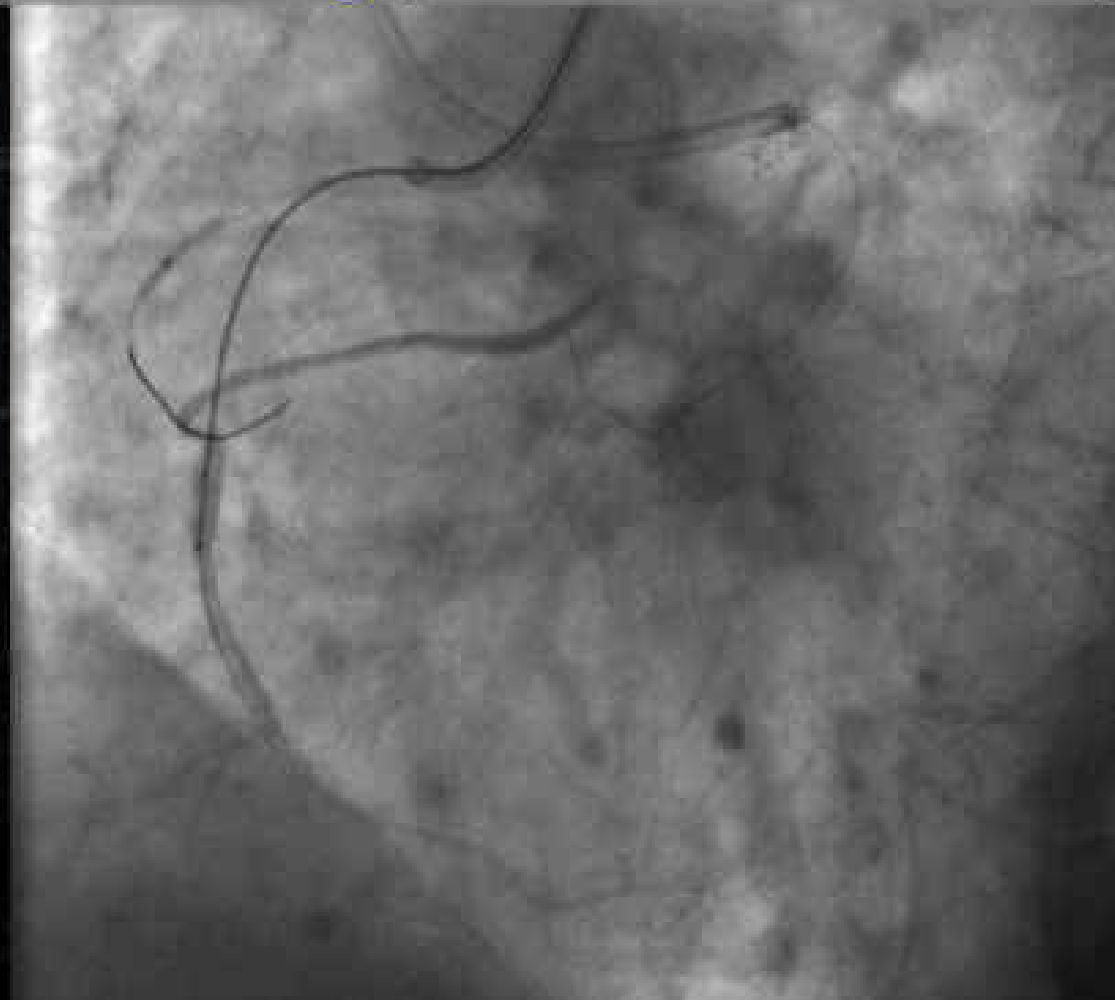
# Fielder XT could Pass through the CTO



# Tornus 2.1Fr with Anchor Balloon Technique

Procedures required in CTO-PCI are difficult to predict.

In order to apply lots of techniques (especially, **trapping balloon technique for device exchange**), we should use at least a **7Fr** guiding catheter.



# Final Results after Implantation of 3 Nobori Stents





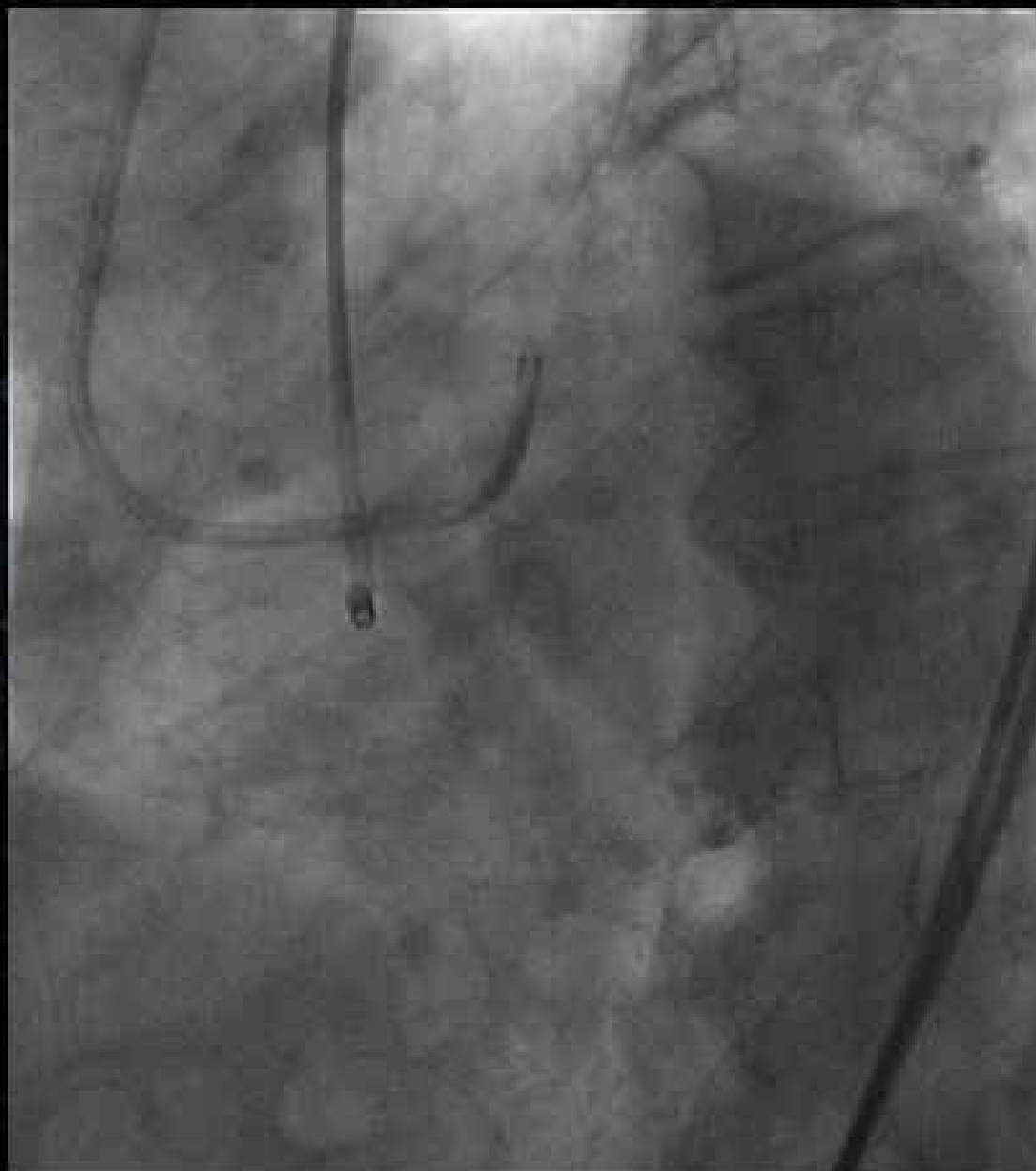
The background of the slide features a dark, low-contrast image of a person, likely a medical professional, performing a procedure on a large, anatomical model of a blood vessel. The person is wearing a white lab coat and is focused on the task. The overall aesthetic is professional and clinical.

**Combination of Antegrade Micro-channel Tracking and  
Use of Tornus to Penetrate the Proximal Cap**

# Effort AP, 71 years, male: Proximal LAD CTO

8Fr Brite-tip  
JL4.0-SH

7Fr Mach1  
90cm IM-SH

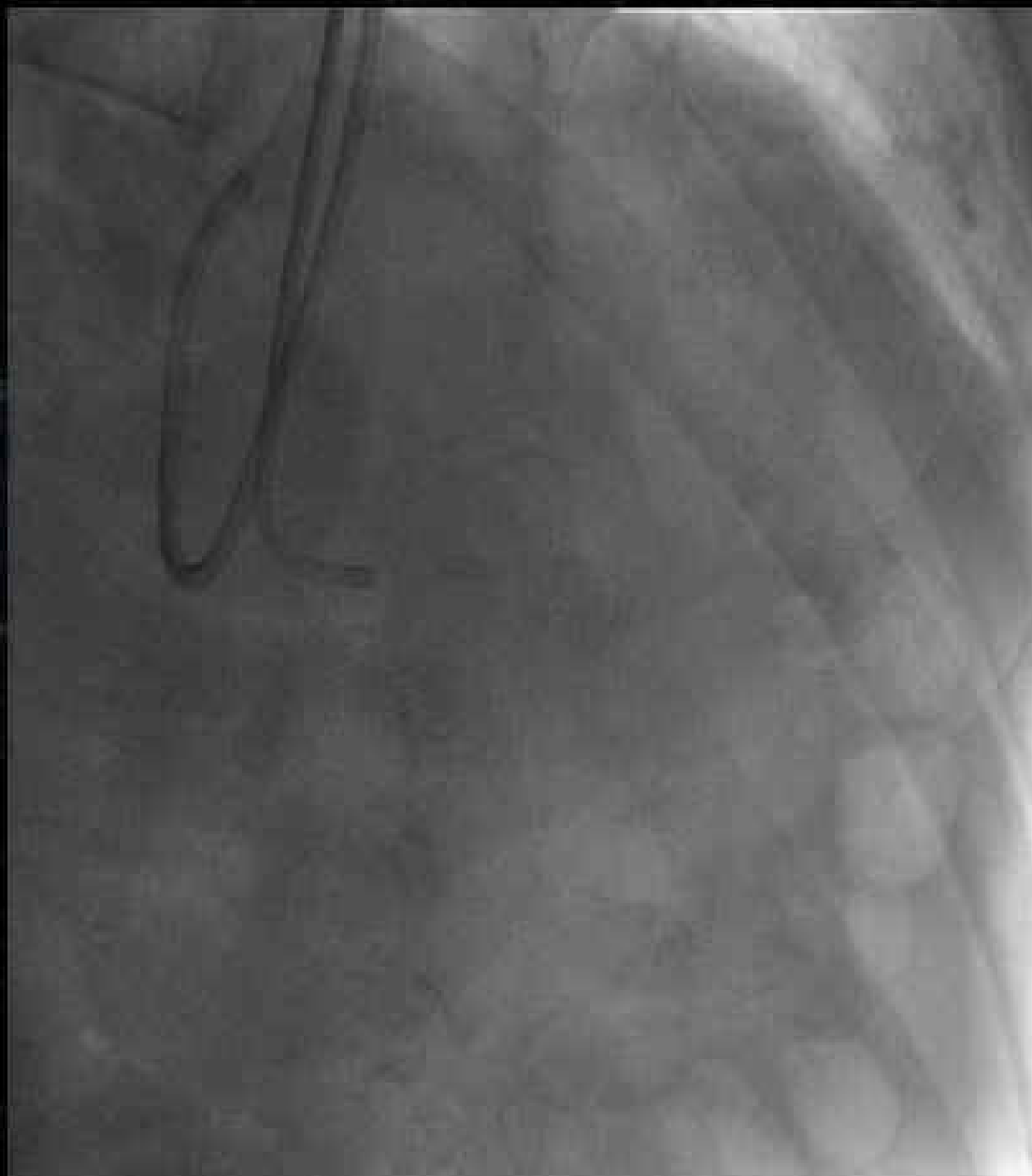


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# Effort AP, 71 years, male: Proximal LAD CTO

8Fr Brite-tip  
JL4.0-SH

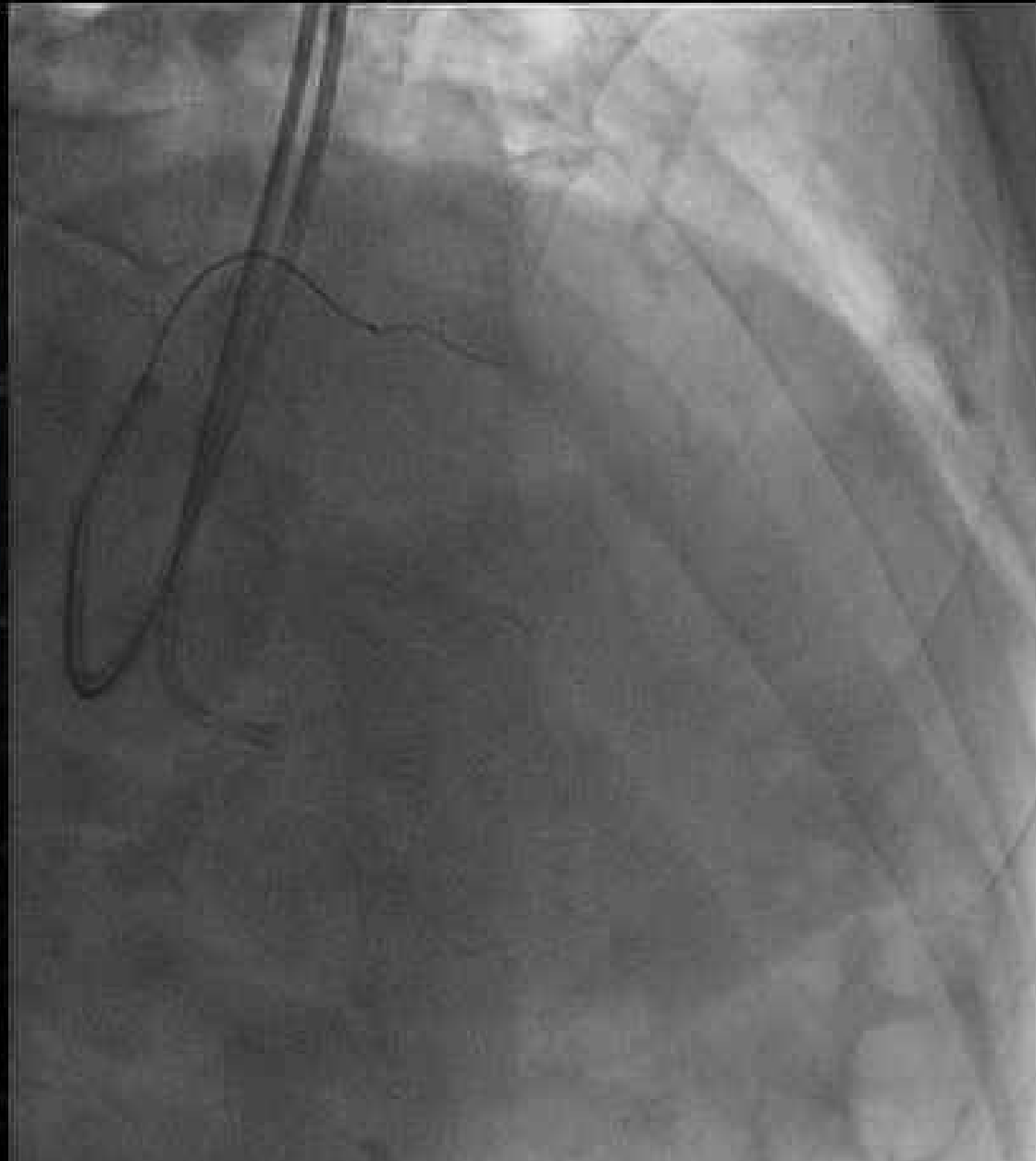
7Fr Mach1  
90cm IM-SH



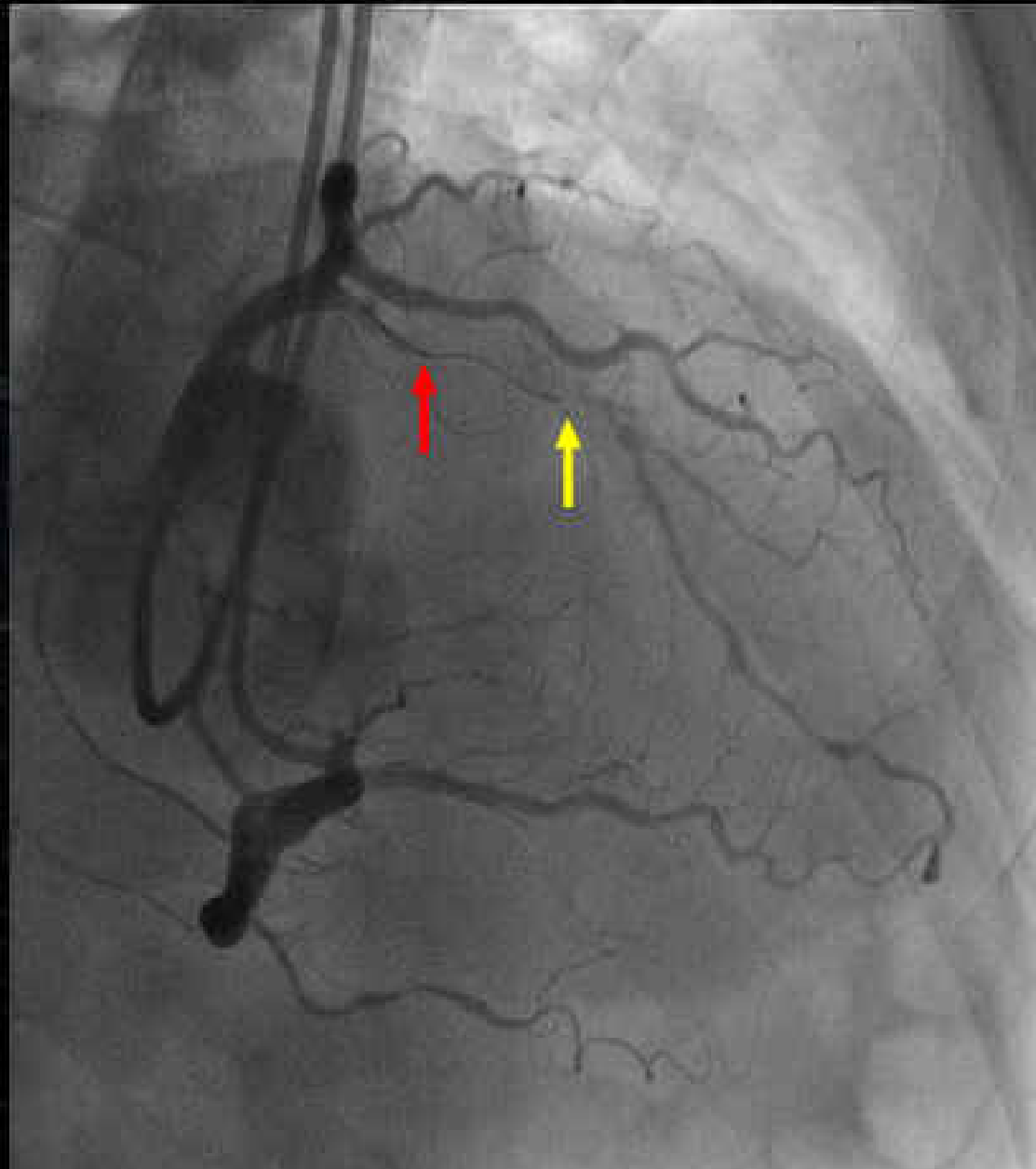
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# Antegrade Probing with X-treme



# Neither X-treme nor Finecross could be Advanced



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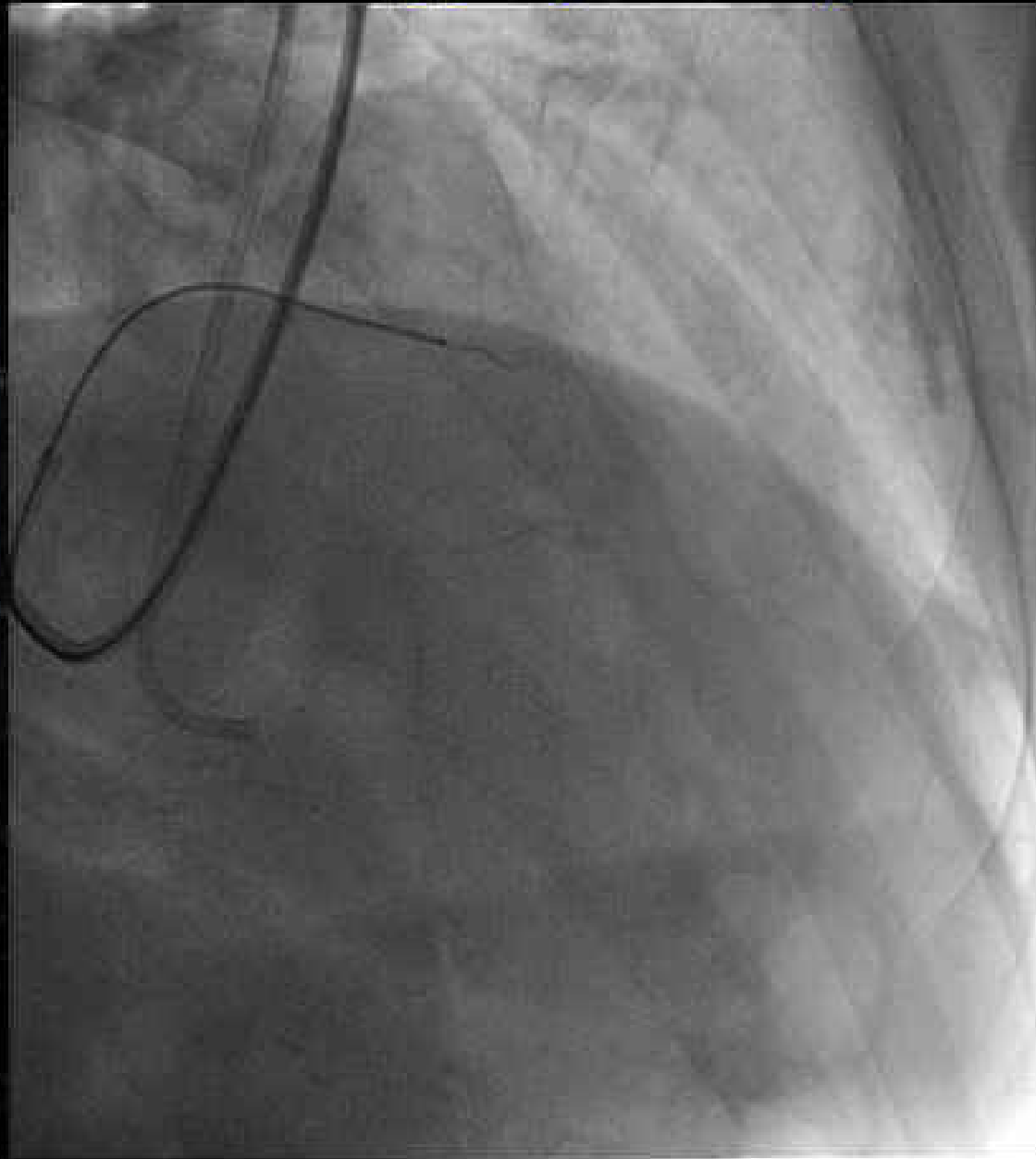
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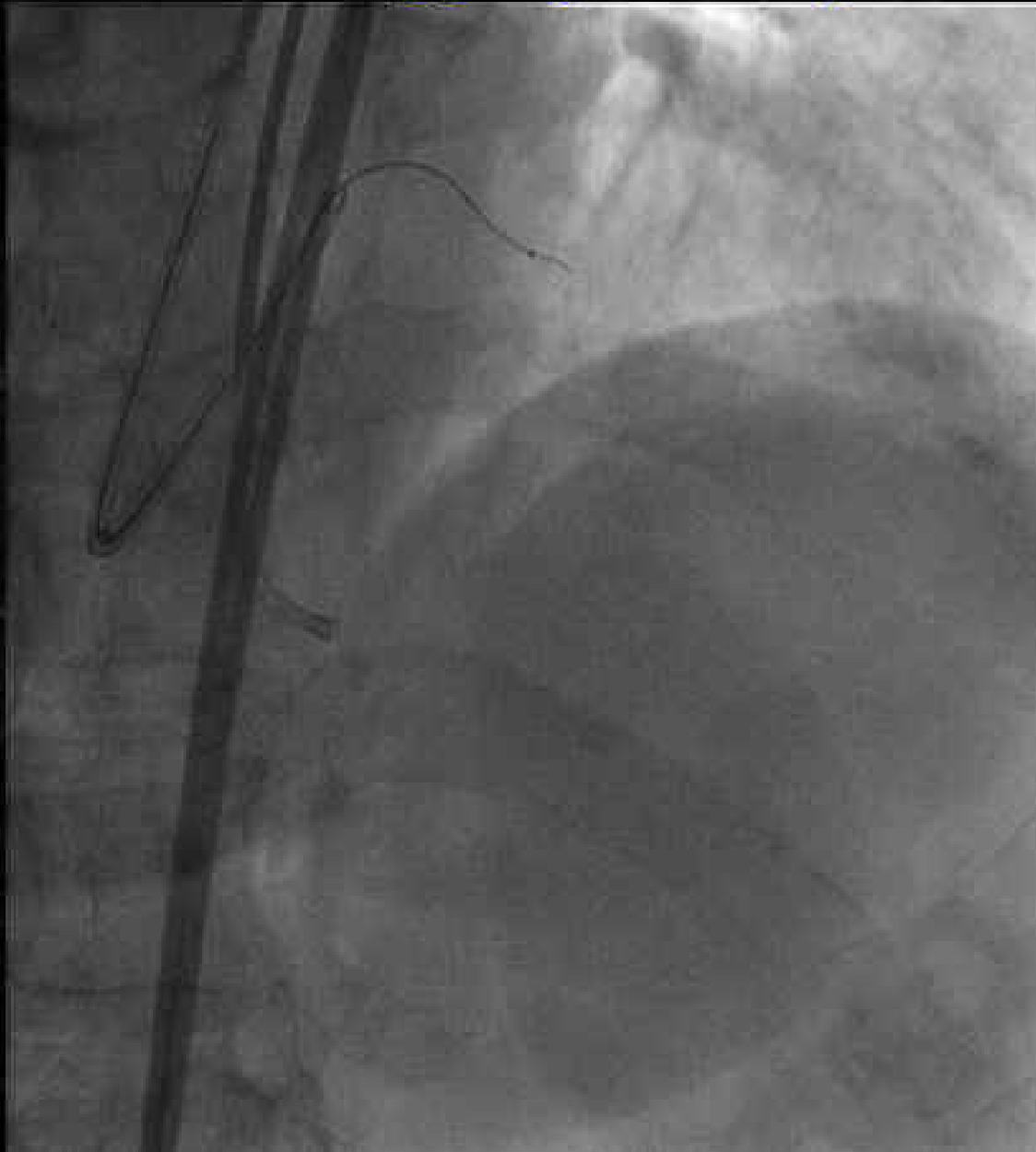
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# Exchange from Finecross into Tornus 2.6Fr with Trapping Technique

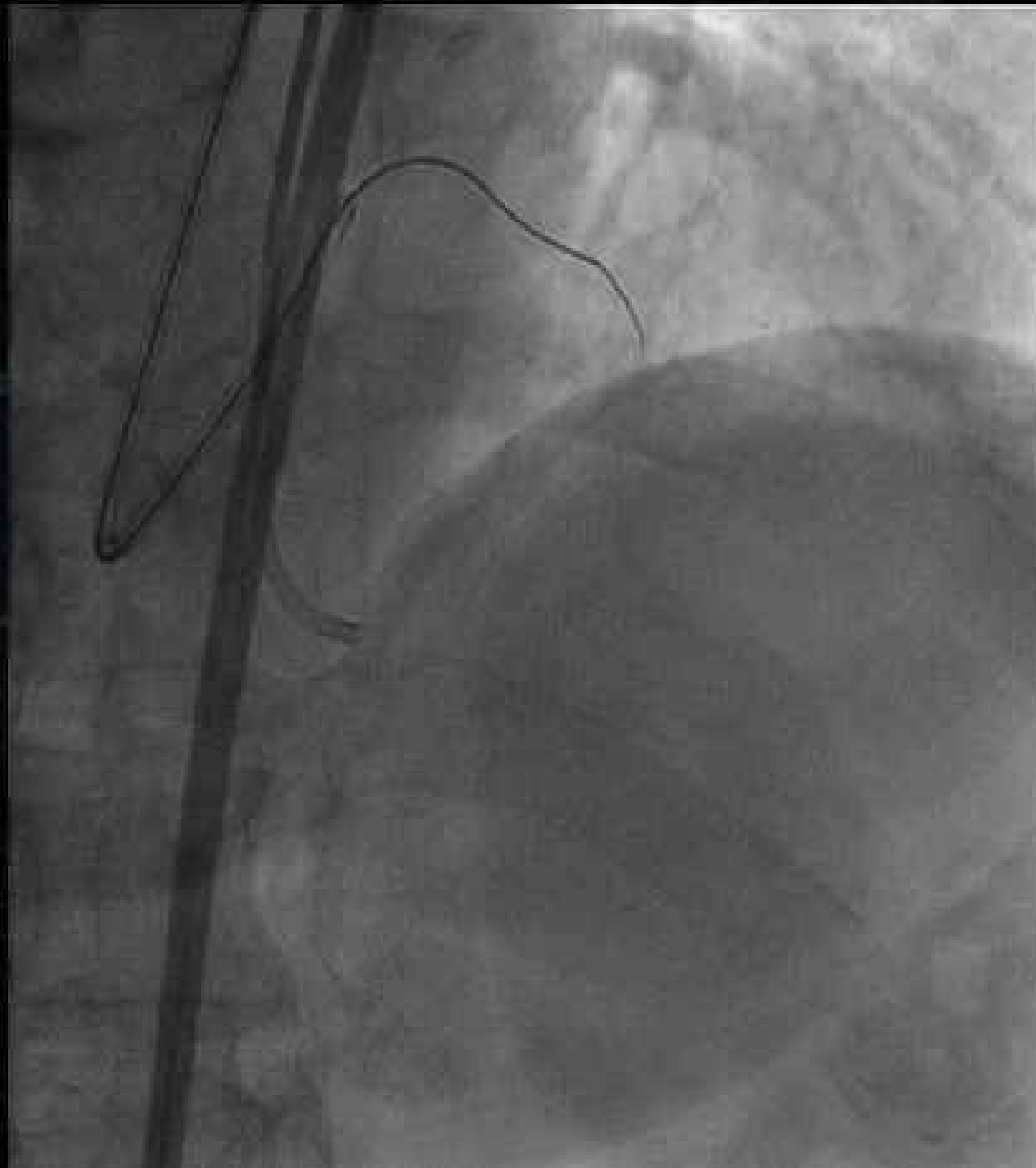


# Exchange from Tornus 2.6Fr into Finecross with Trapping Technique

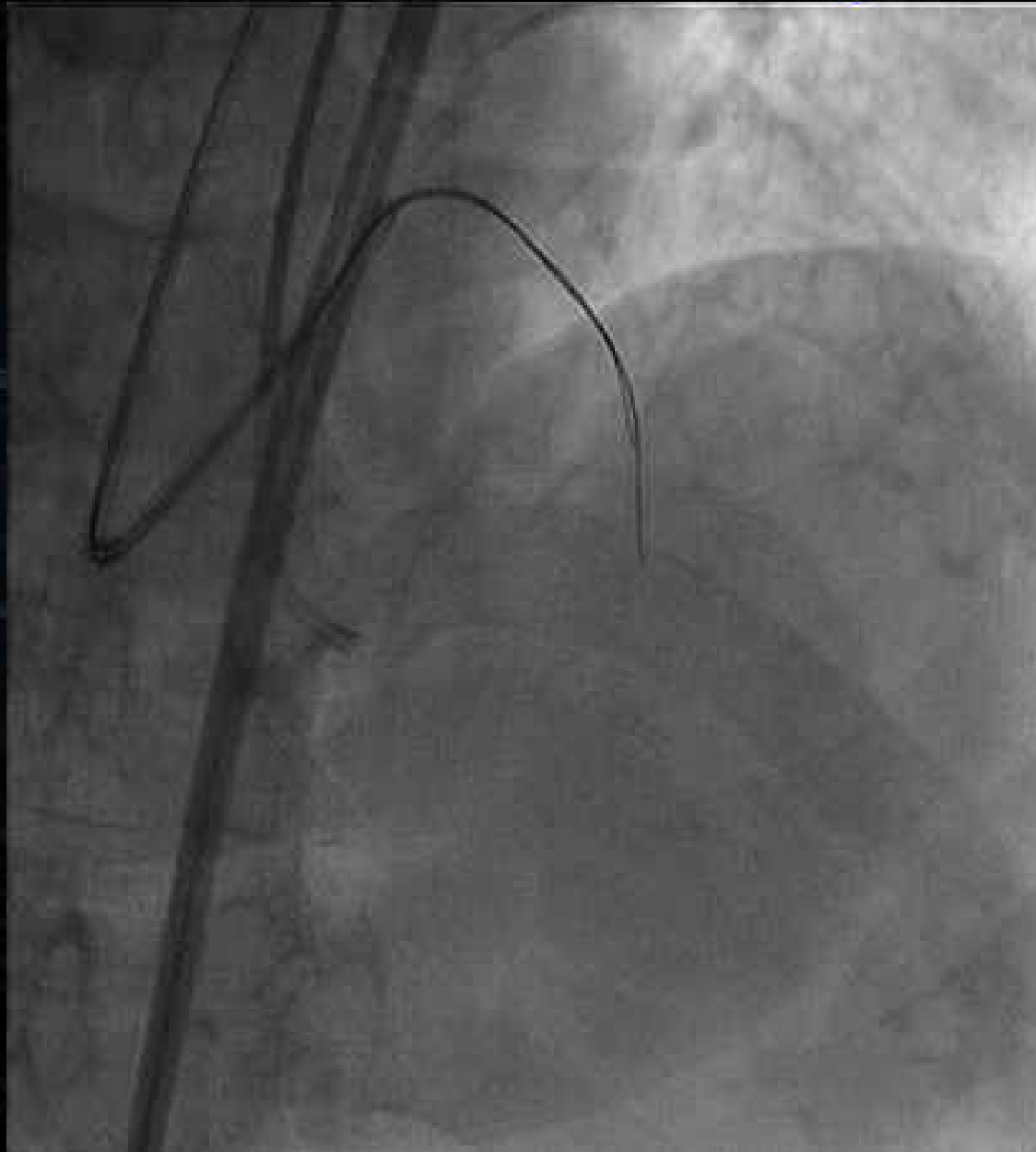




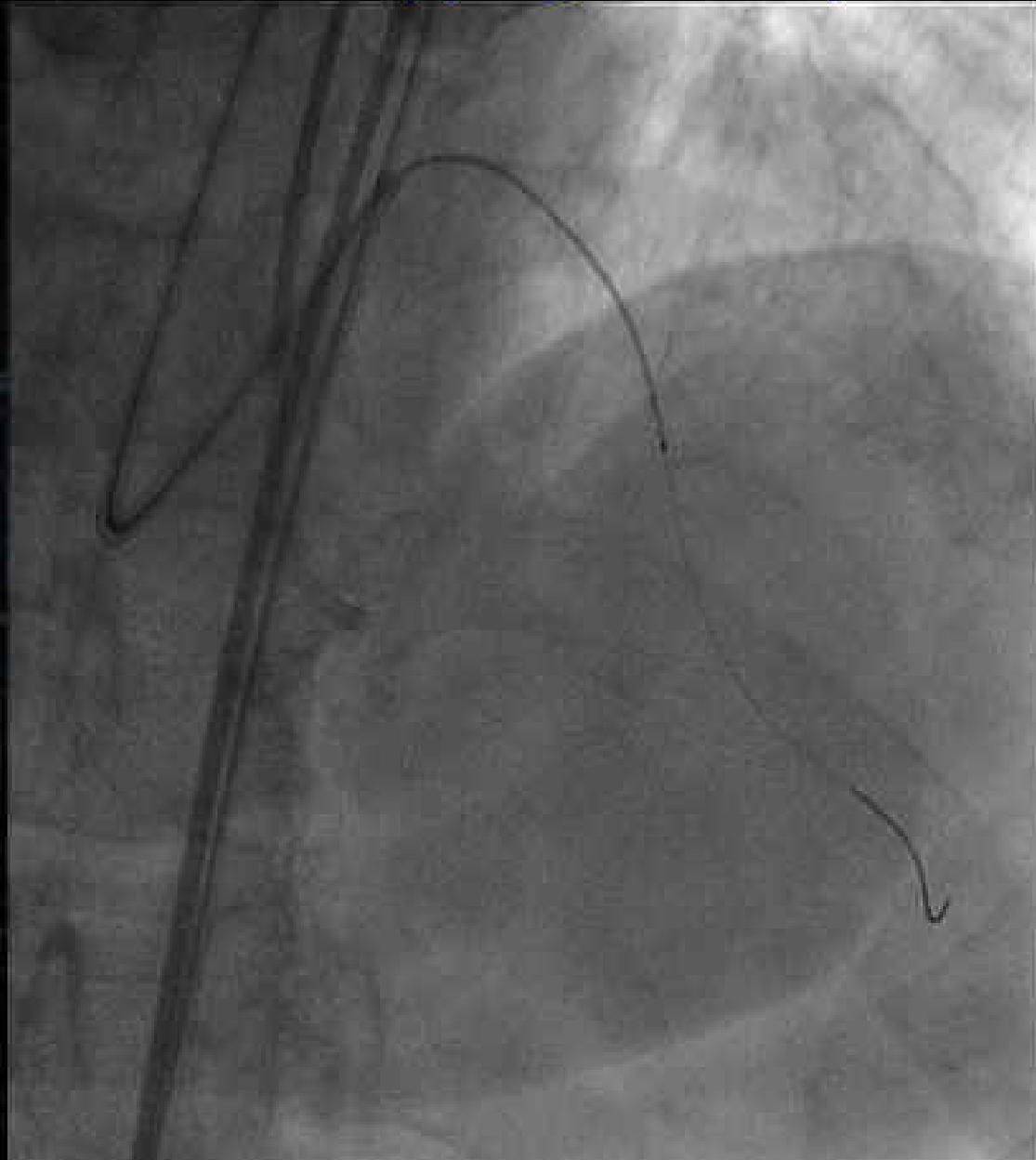
## Confianza Pro in the False Lumen



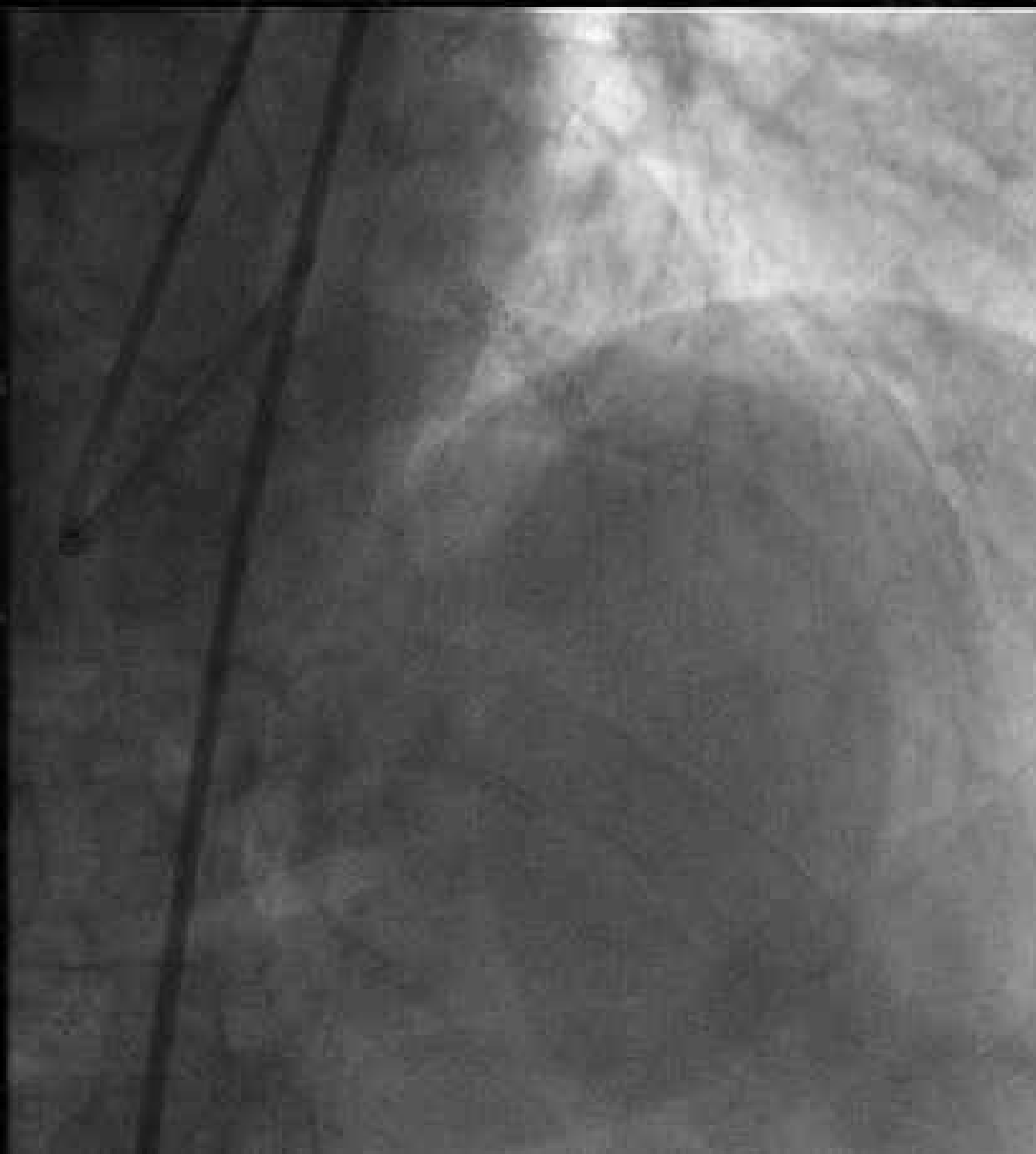
# Successful Parallel Wire Technique with Confianza Pro 12gr



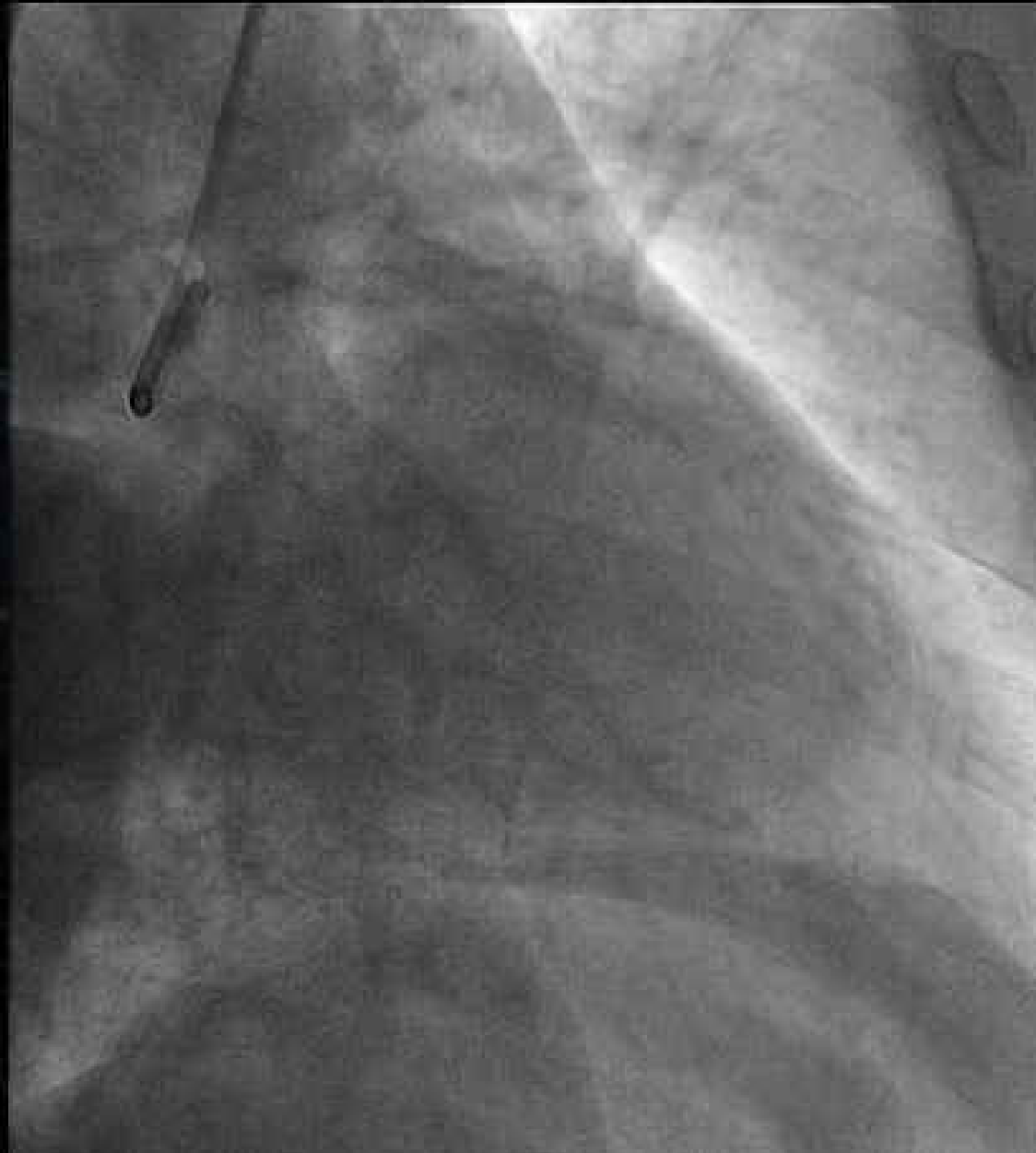
# Exchange from Finecross into Tornus 2.6Fr with Trapping Technique



## Final Results after Implantation of 2 Nobori Stents



## Final Results after Implantation of 2 Nobori Stents





**Pre-procedural Assessment  
of Vessel Structure by MSCT**

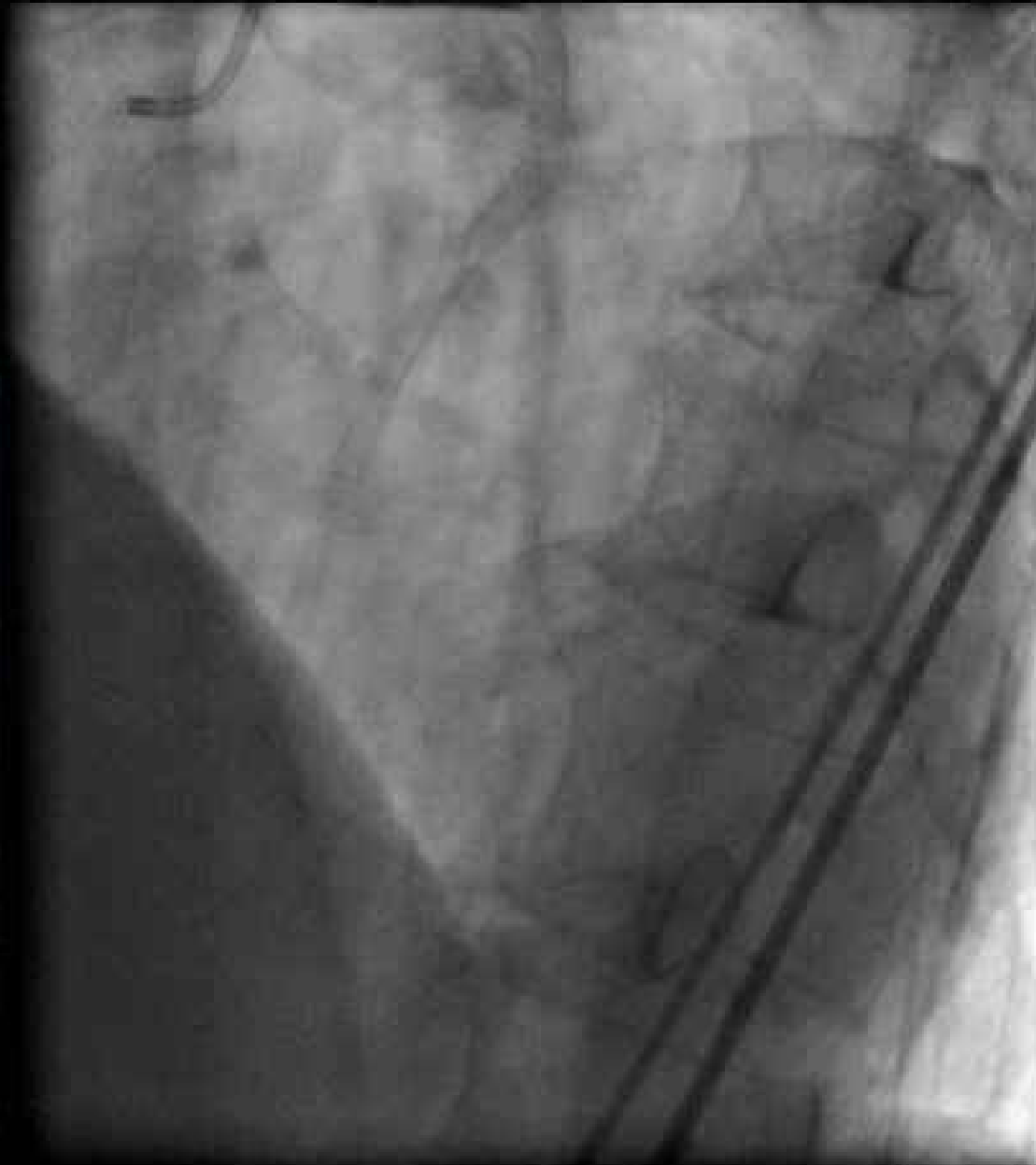
## Pre-procedural Assessment by MSCT

- MIP and Slab MIP views with the same angiographic projection for PCI are preferred.
- We can get enormous amount of information regarding calcification and tortuosity inside the CTO.

# Effort AP, 64 years, male: Proximal LCx CTO

7Fr Mach1  
VL3.5

6Fr diagnostic  
JR4.0



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# Effort AP, 64 years, male: Proximal LCx CTO

7Fr Mach1  
VL3.5

6Fr diagnostic  
JR4.0



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# Effort AP, 64 years, male: Proximal LCx CTO

7Fr Mach1  
VL3.5

6Fr diagnostic  
JR4.0



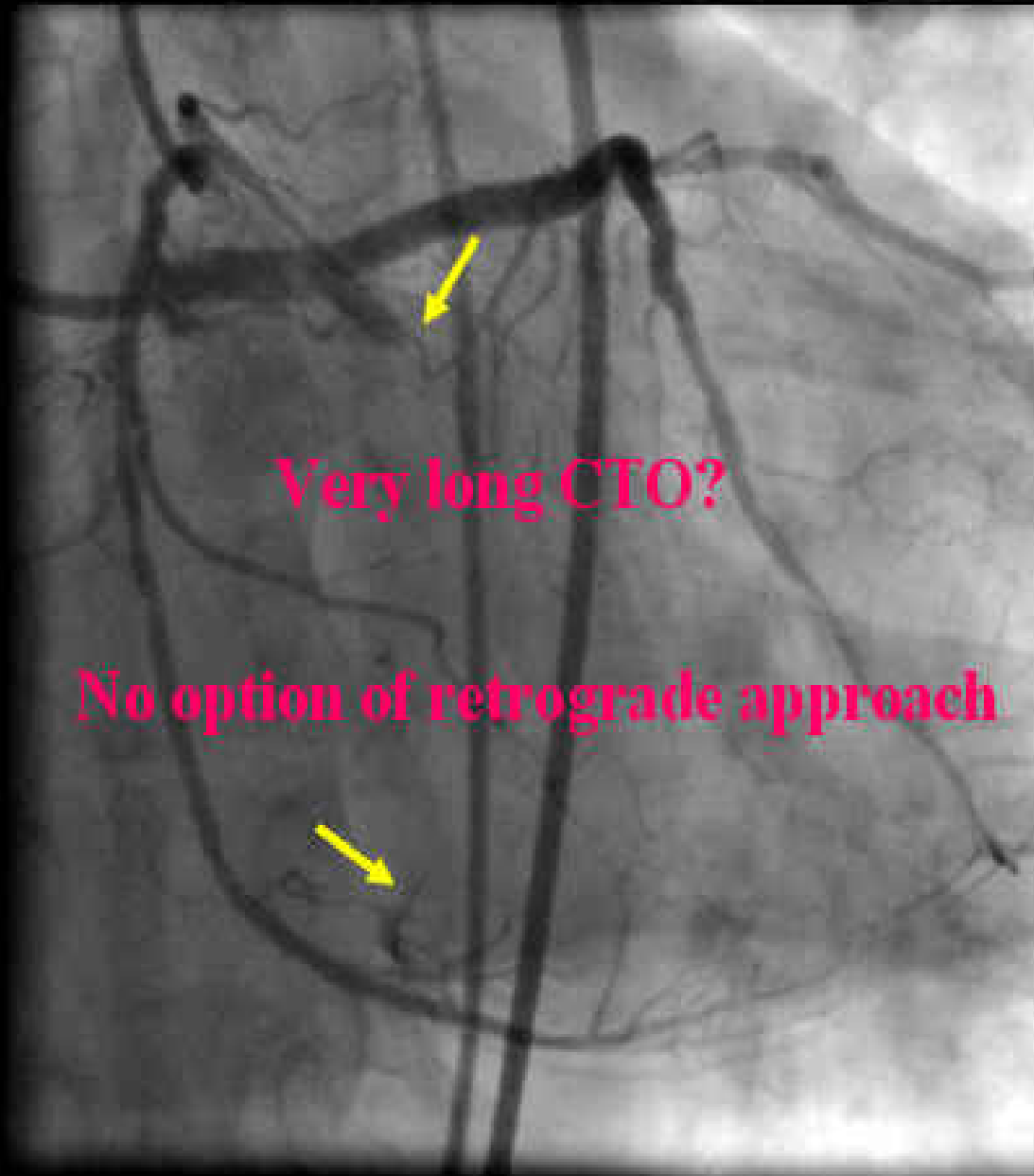
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Pericardial  
Conference

# Effort AP, 64 years, male: Proximal LCx CTO

7Fr Mach1  
VL3.5

6Fr diagnostic  
JR4.0



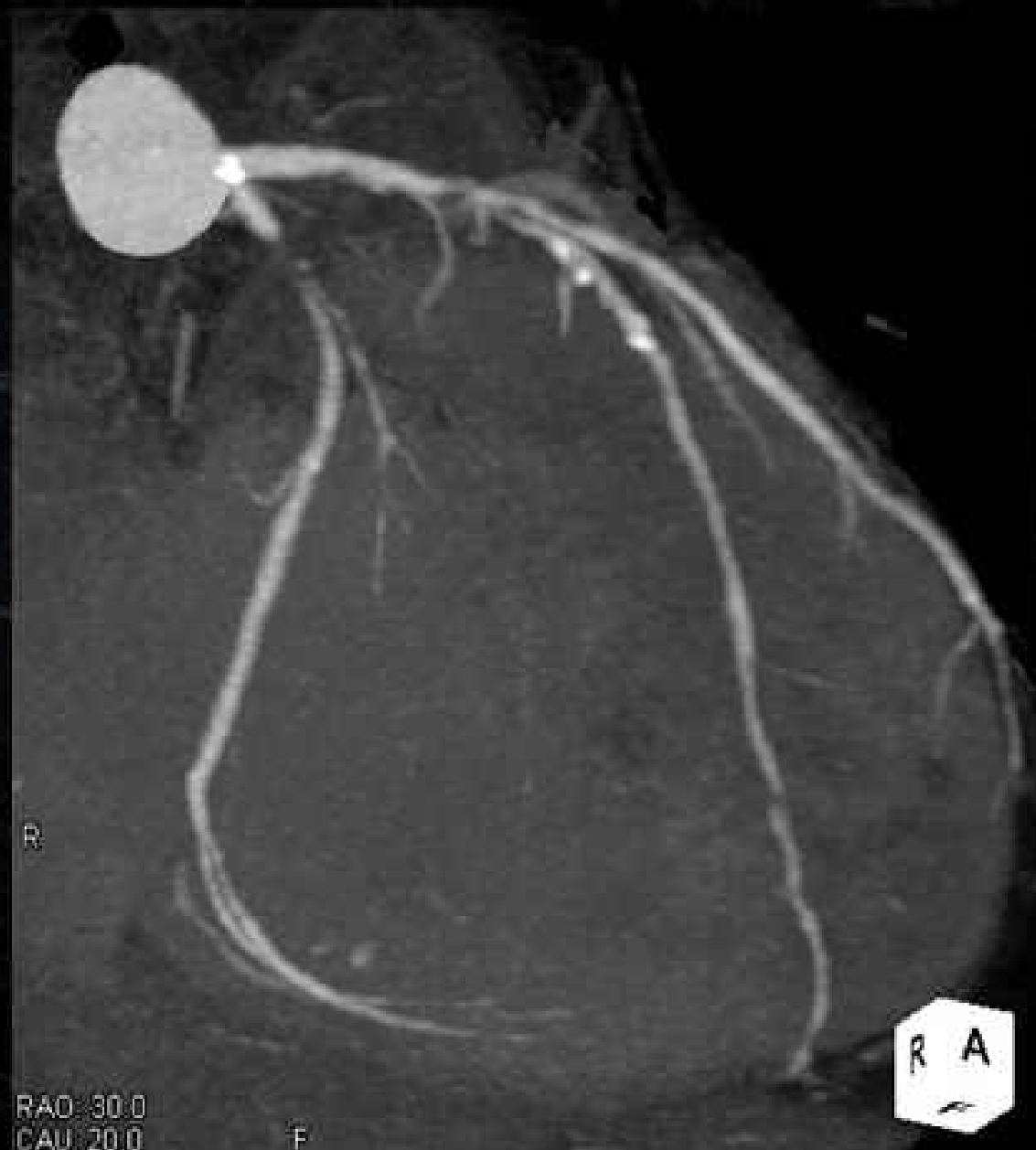
Very long CTO?

No option of retrograde approach

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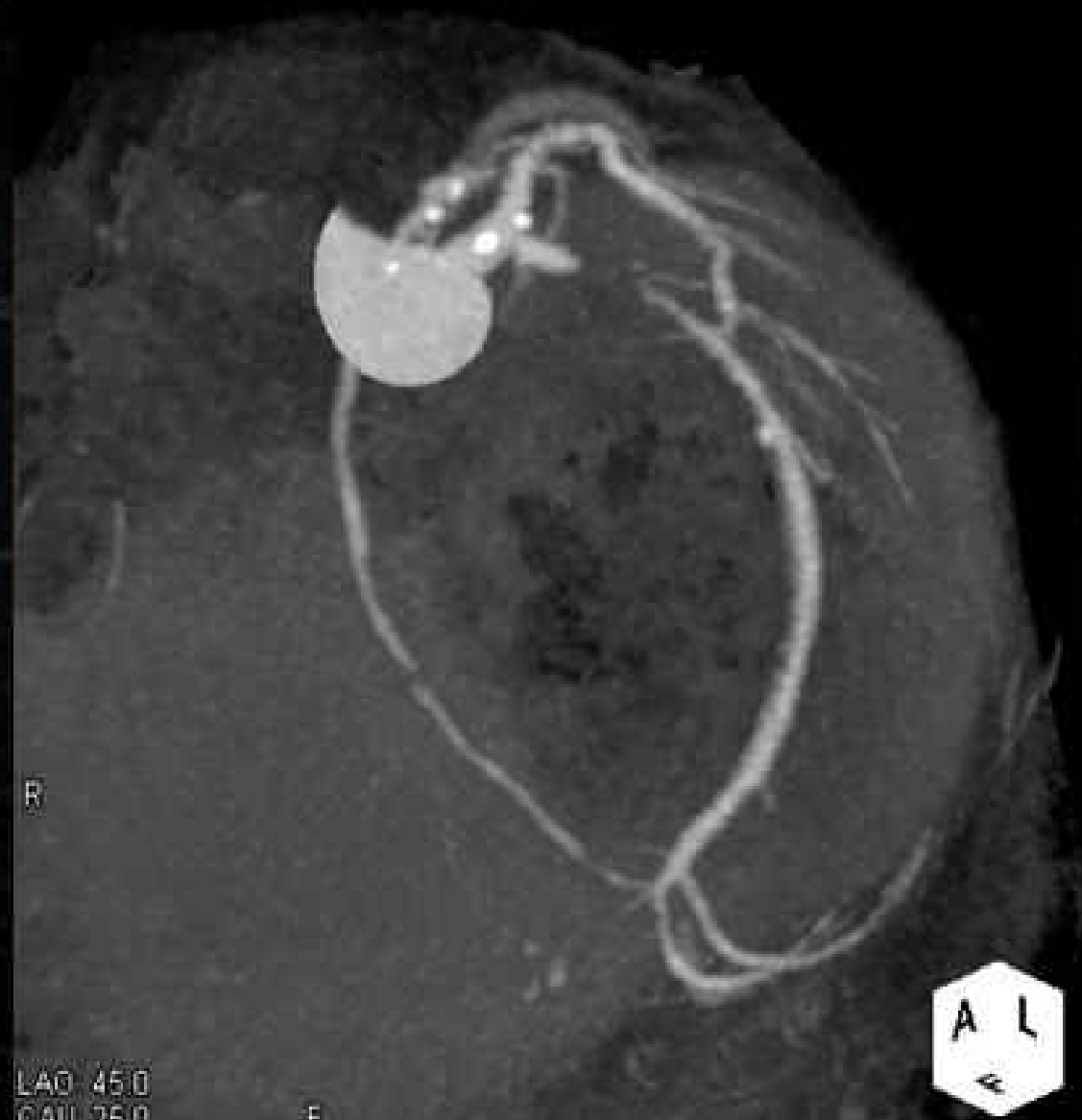
# MIP Image Equivalent to RAO 30 Caudal 20



# Slab MIP Image Equivalent to RAO 30 Caudal 20



# MIP Image Equivalent to LAO 45 Caudal 25



# Slab MIP Image Equivalent to LAO 45 Caudal 25



# Short Axis View





# Short Axis View

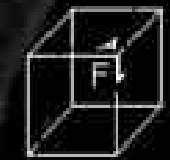


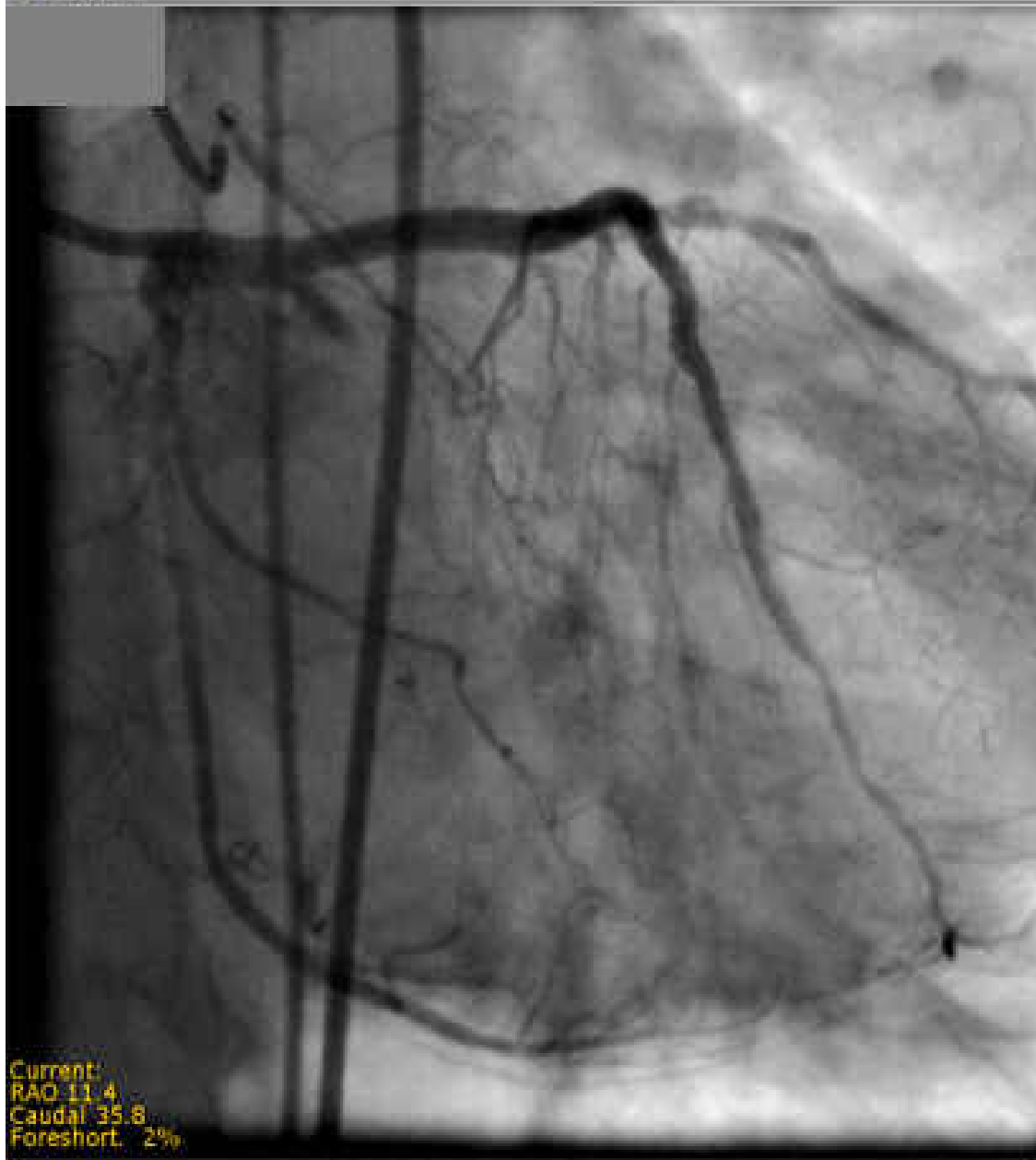
# Short Axis View



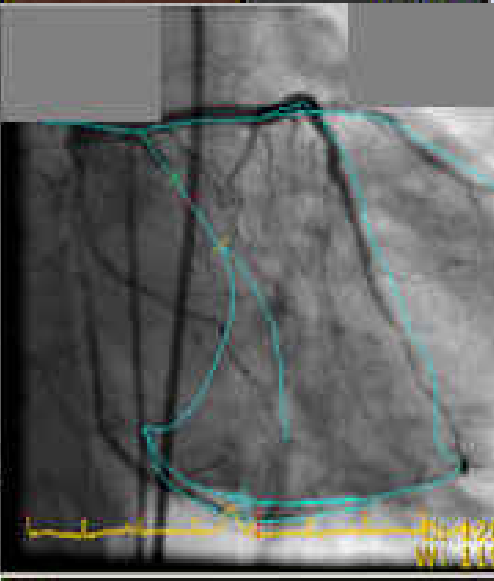
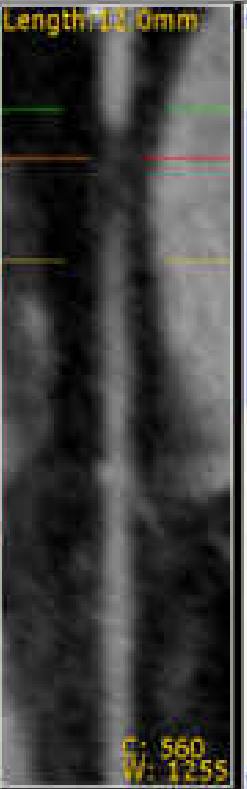
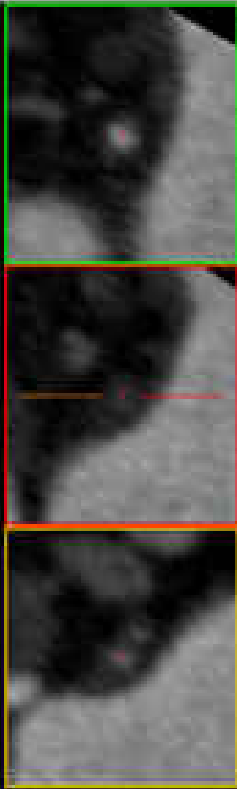
LAO 104.5  
CAU 25.9

F



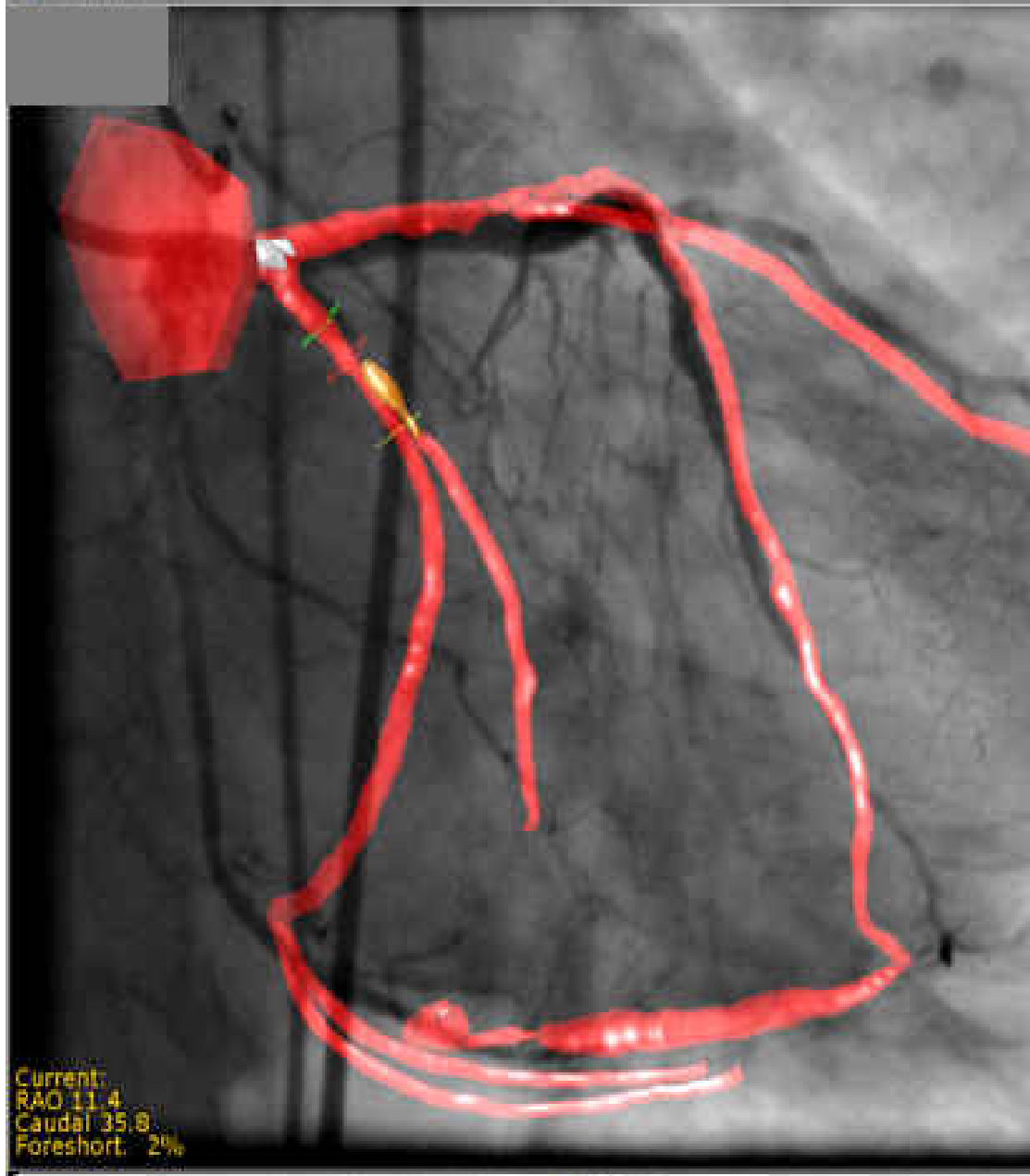


Current:  
RAO 11.4  
Caudal 35.8  
Foreshort. 2%

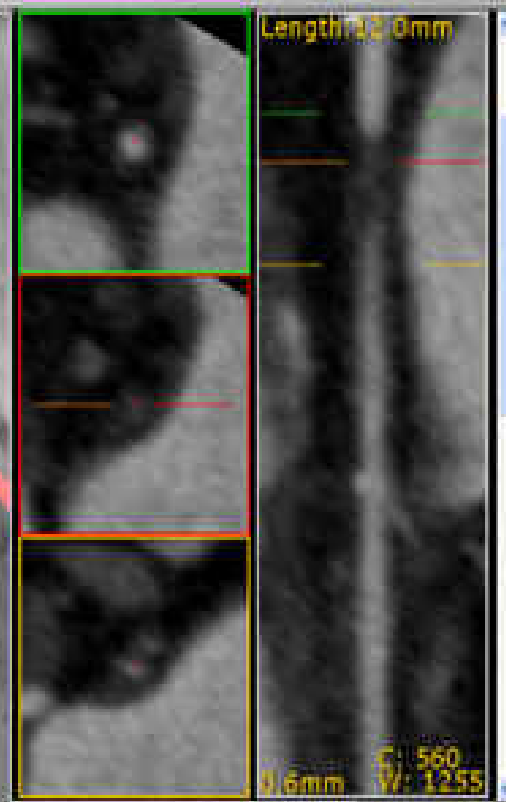
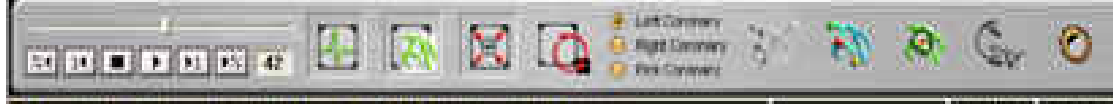


Navigation and control icons including a toolbar with various symbols for zooming, panning, and window management. On the right side of the toolbar, there are labels for 'Left Coronary', 'Right Coronary', and 'Pul Coronary' with corresponding colored icons.





Current:  
RAO 11.4  
Caudal 35.8  
Foreshort: 2%

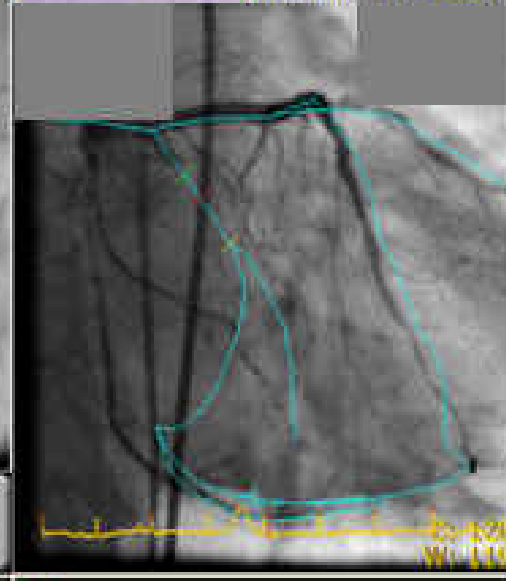


Length: 12.0mm

C: 560  
W: 1255

12 mm in length

No calcification



C: 401  
W: 110

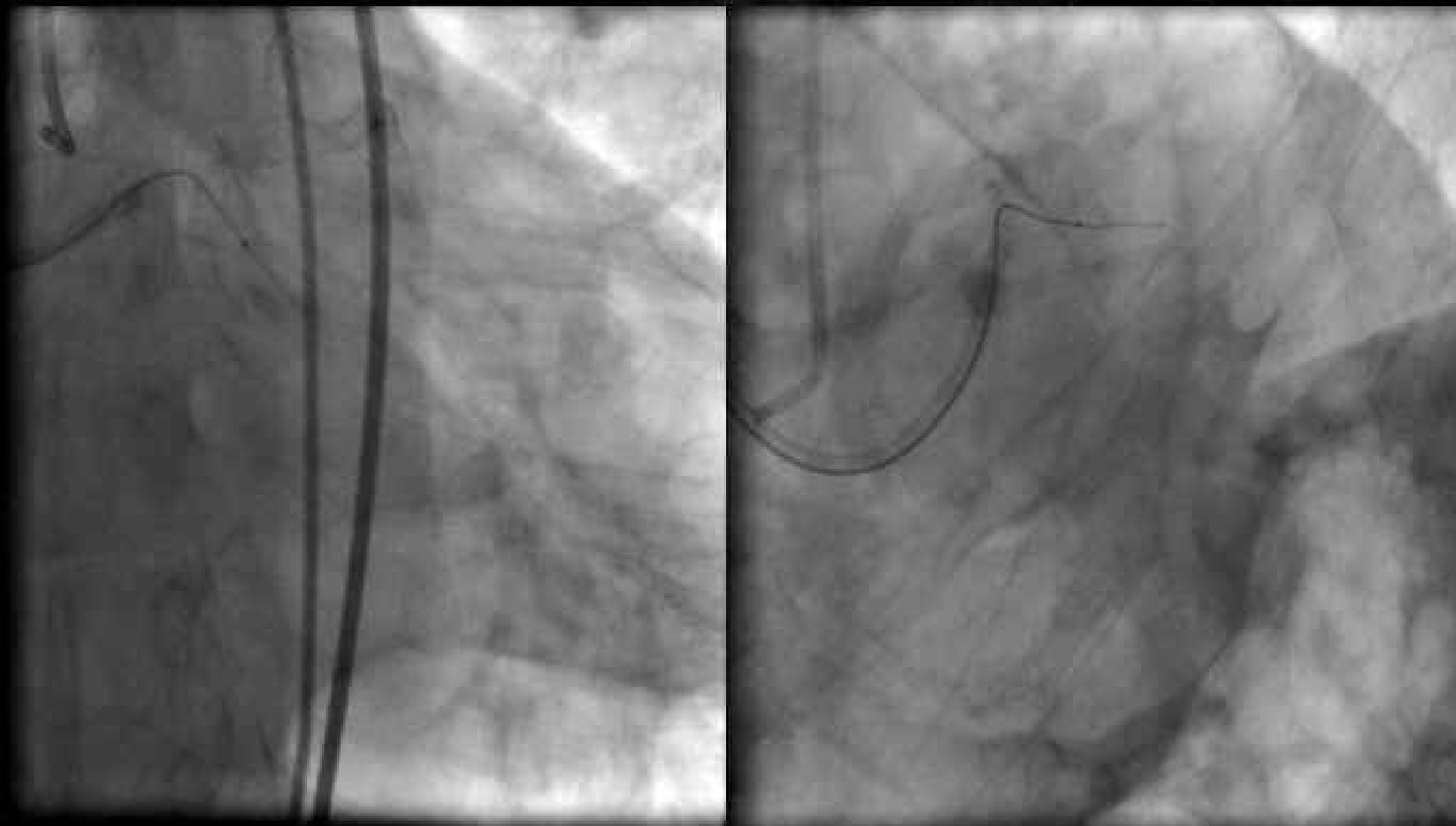
1/10/2011

LAO 55  
RAB 24

There should be an antegrade micro channels!

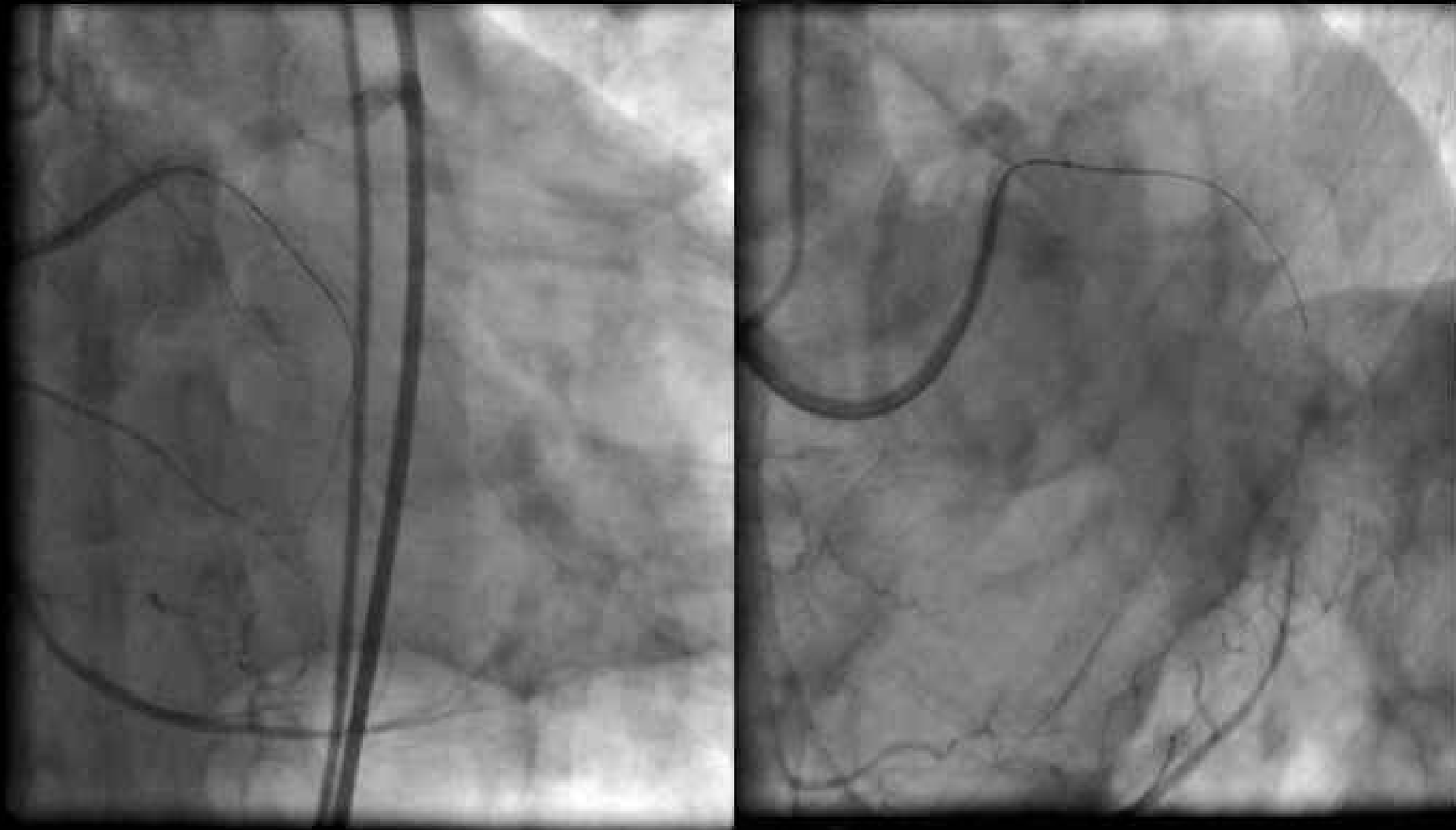
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# Antegrade Channel Tracking with Fiedler XT



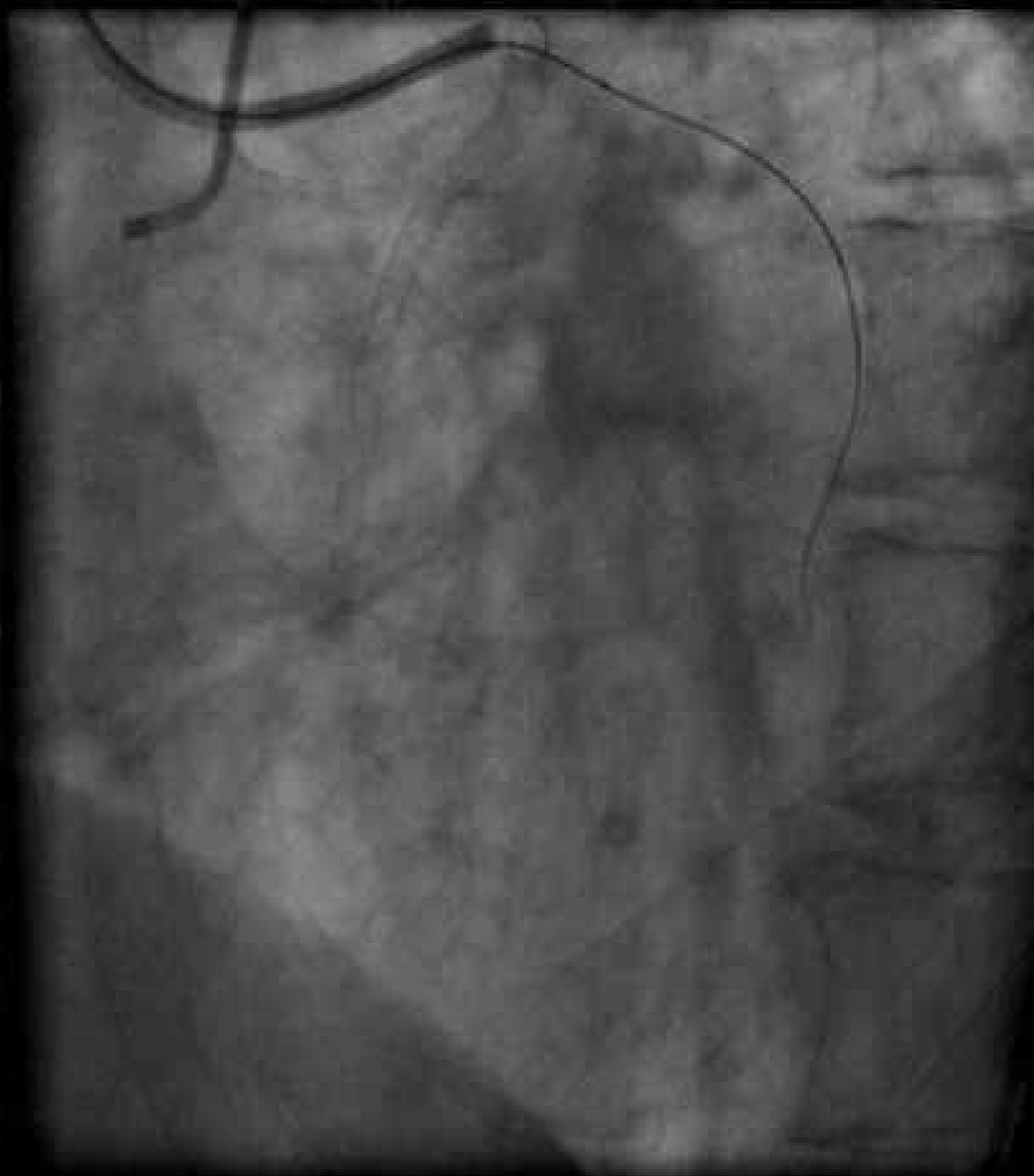
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# Antegrade Channel Tracking with Fiedler XT



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# Antegrade Channel Tracking with Fiedler XT

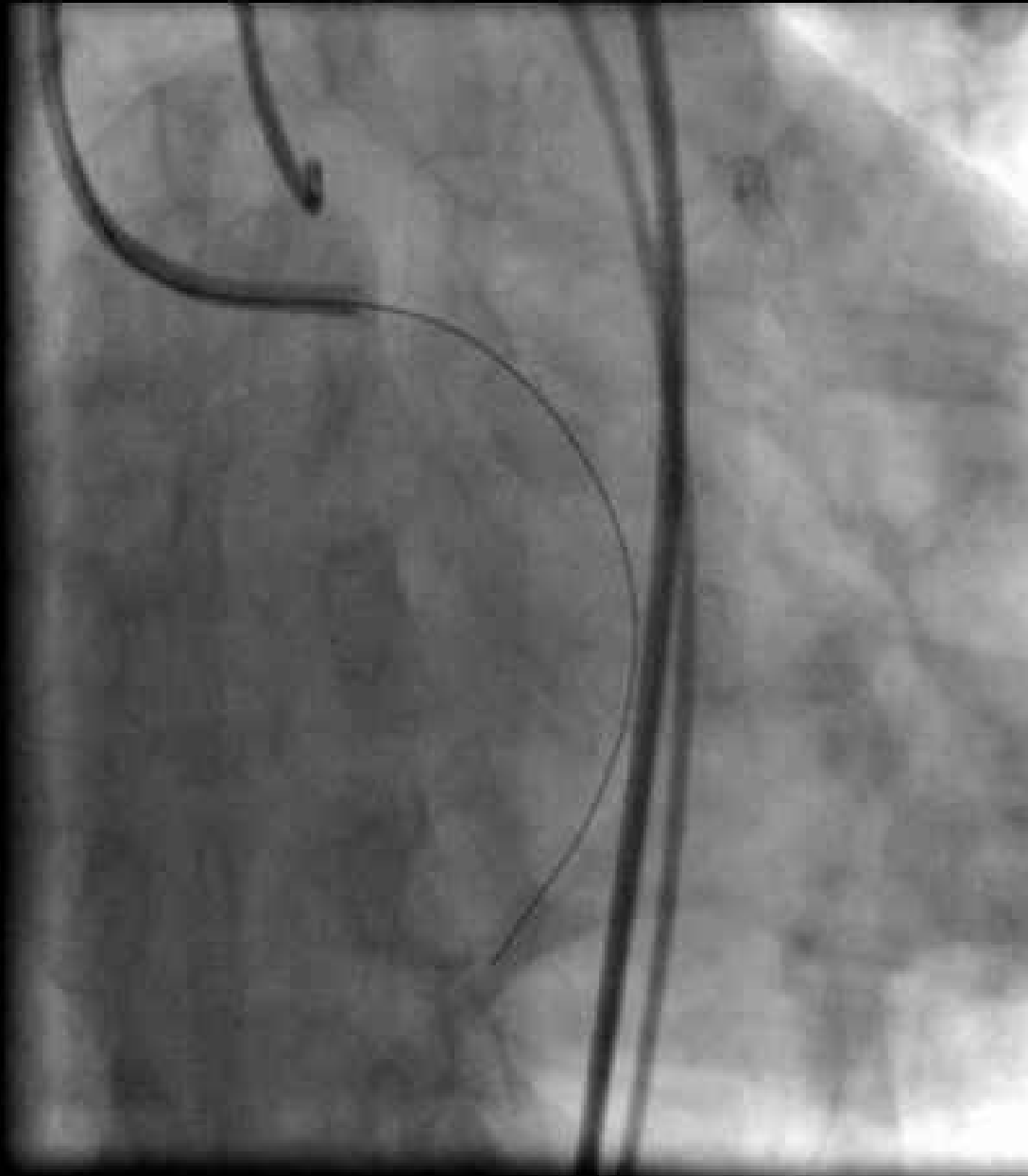




## Delivery of Tornus 2.6Fr through the CTO



## Delivery of Tornus 2.6Fr through the CTO



# IVUS Examination after Tornus 2.6Fr



## Final Results after Implantation of a Promus Stent



## Final Results after Implantation of a Promus Stent



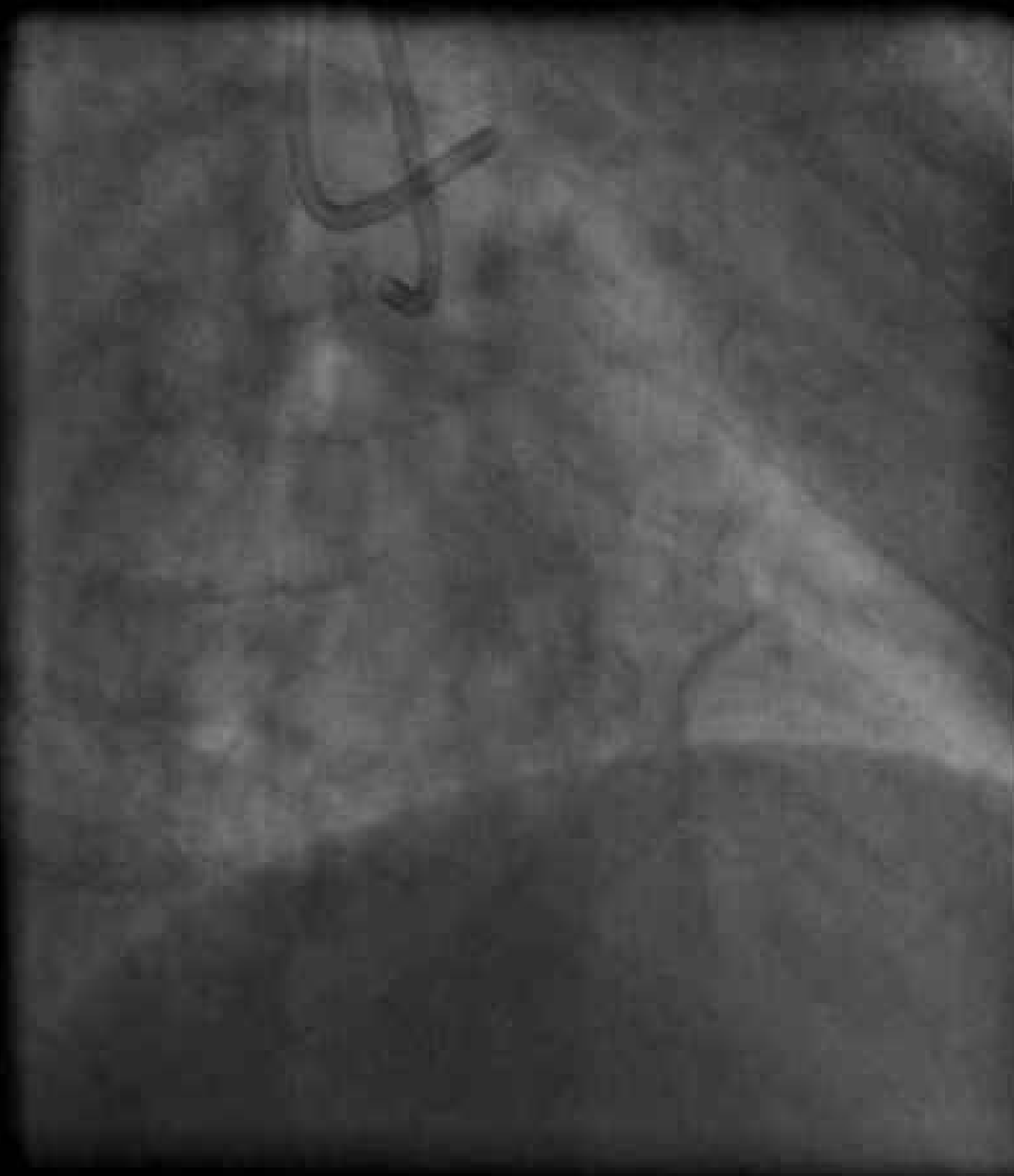




# OMI/CHF, 58 years, male: RCA CTO

8Fr Mach1  
IM-SH

7Fr Mach1  
VL4.0-SH





# OMI/CHE, 58 years, male: RCA CTO

8Fr Mach1  
IM-SH

7Fr Mach1  
VL4.0-SH



# Pre-Procedural MSCT Examination



LAO: 45.0  
CRA: 0.0

A L

F

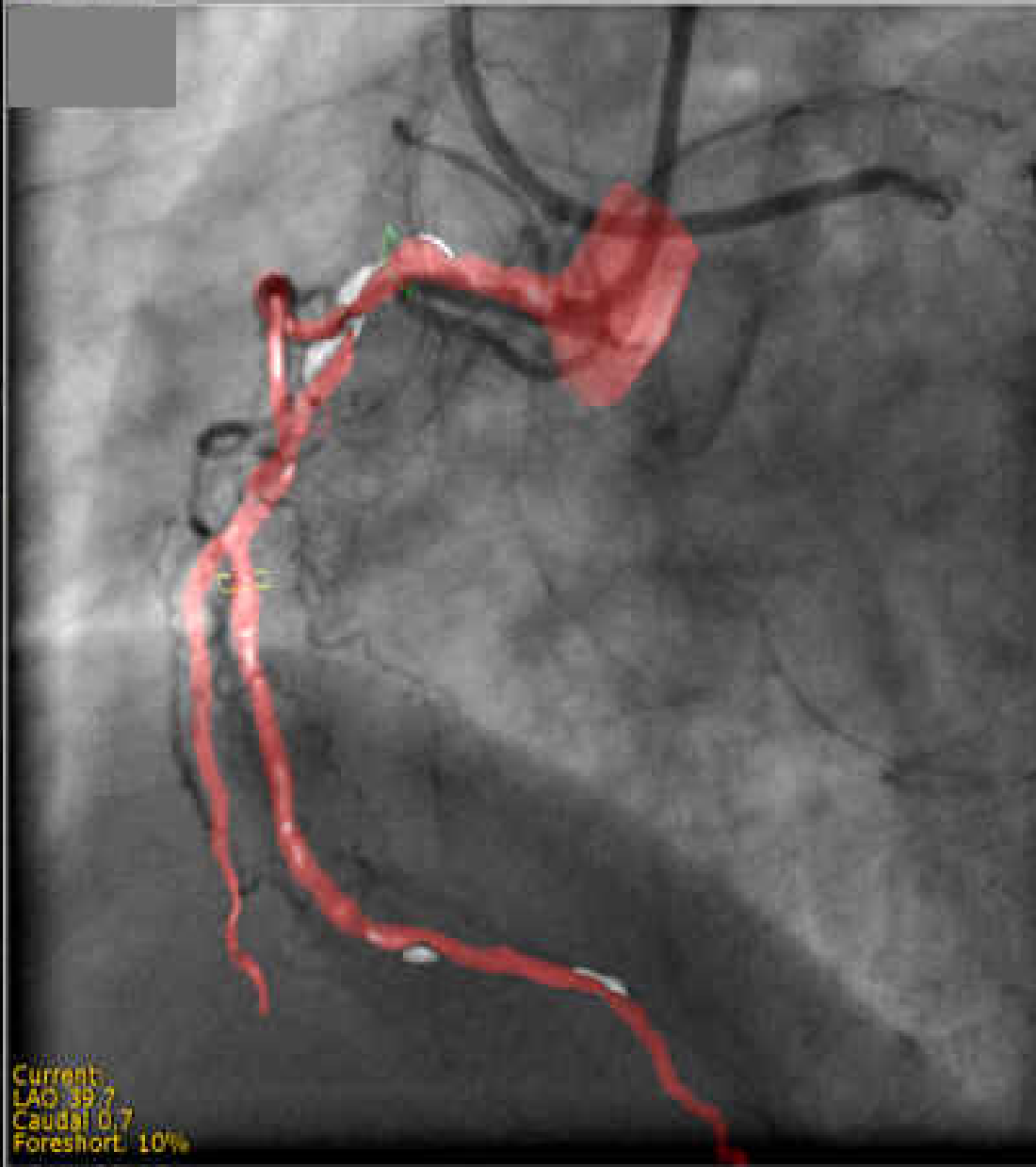
# Pre-Procedural MSCT Examination



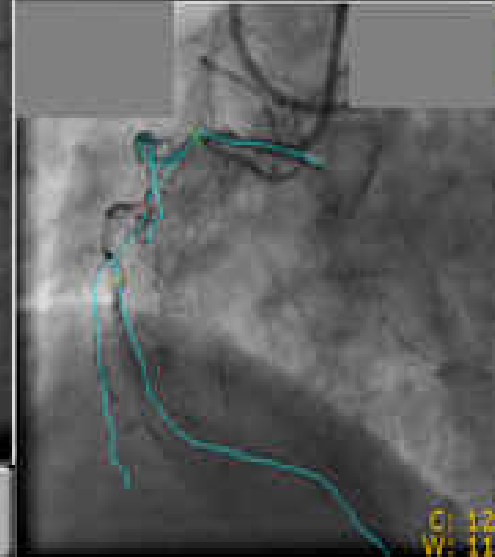
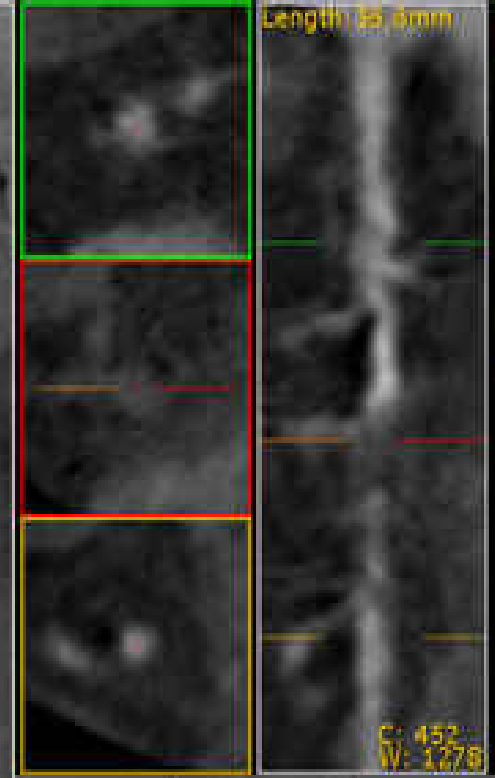
RAO: 30.0  
CRA: 0.0

F

R A



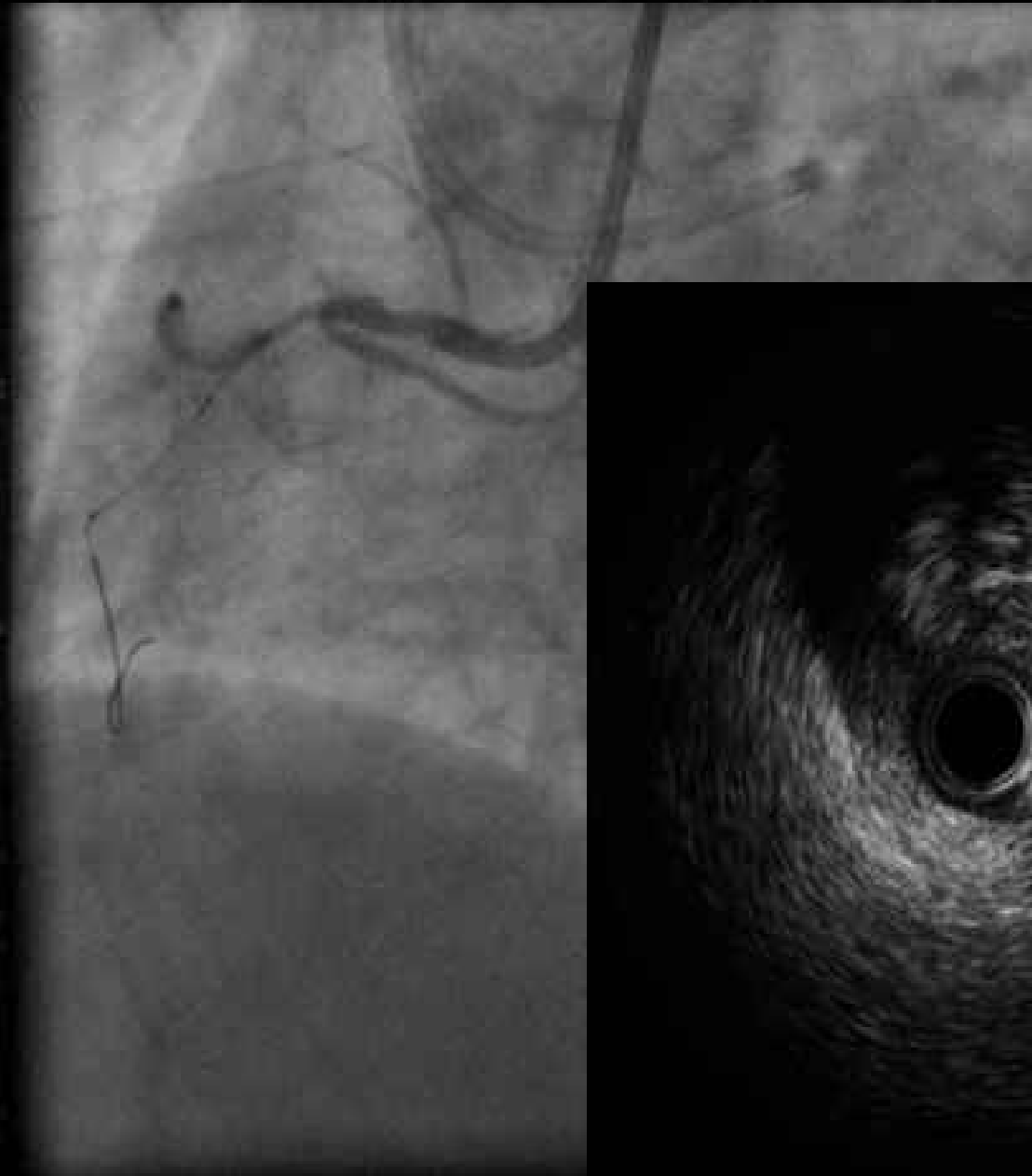
Current:  
LAO: 39.7  
Caudal: 0.7  
Foreshort: 10%



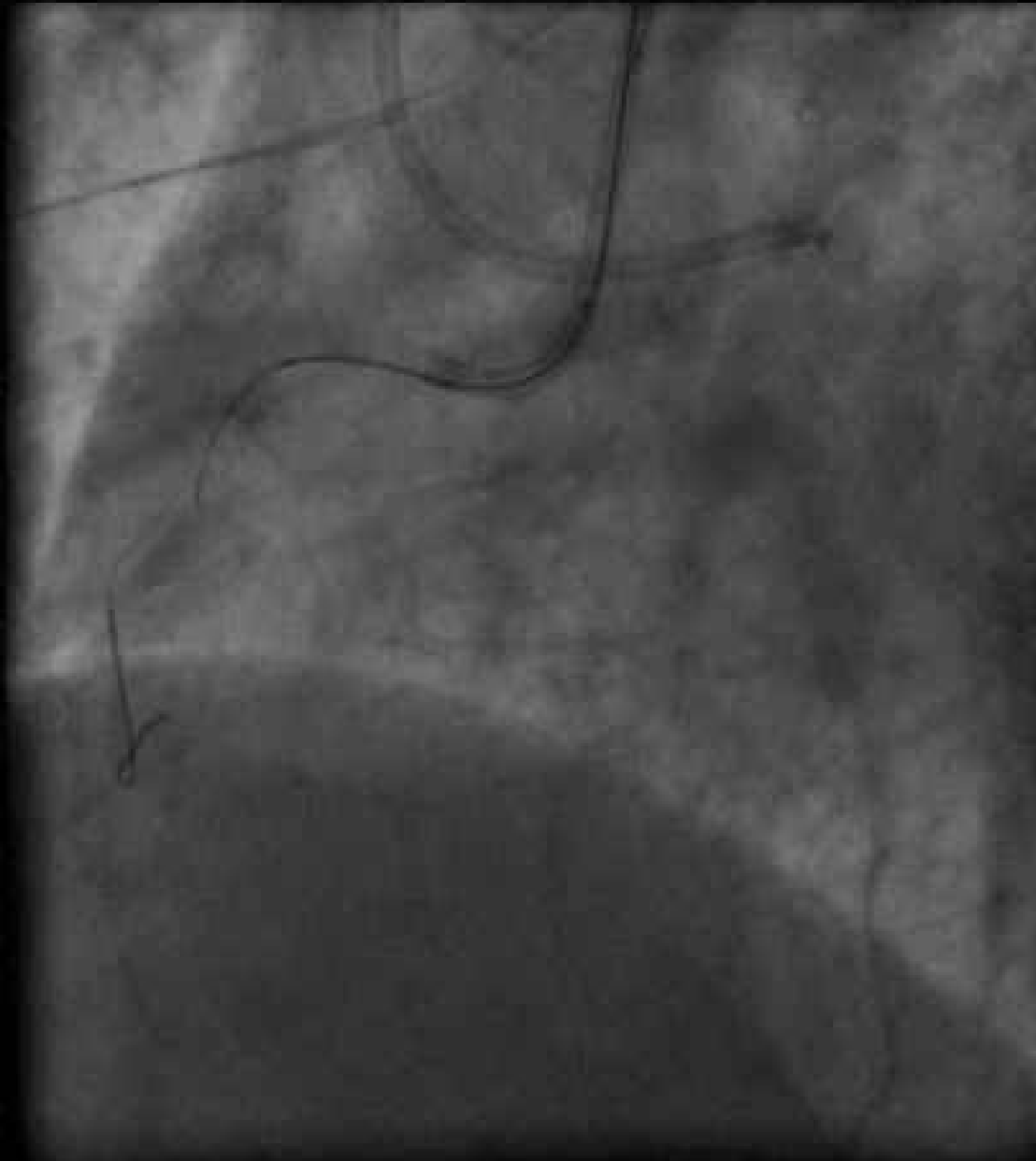
Navigation and control icons including a slider, a green cube, a red cube, a blue cube, and various tool icons.

- Left Coronary
- Right Coronary
- Post Coronary

# Dilatation of Proximal RCA for IVUS Examination



# Penetration of Proximal Cap with Confianza Pro

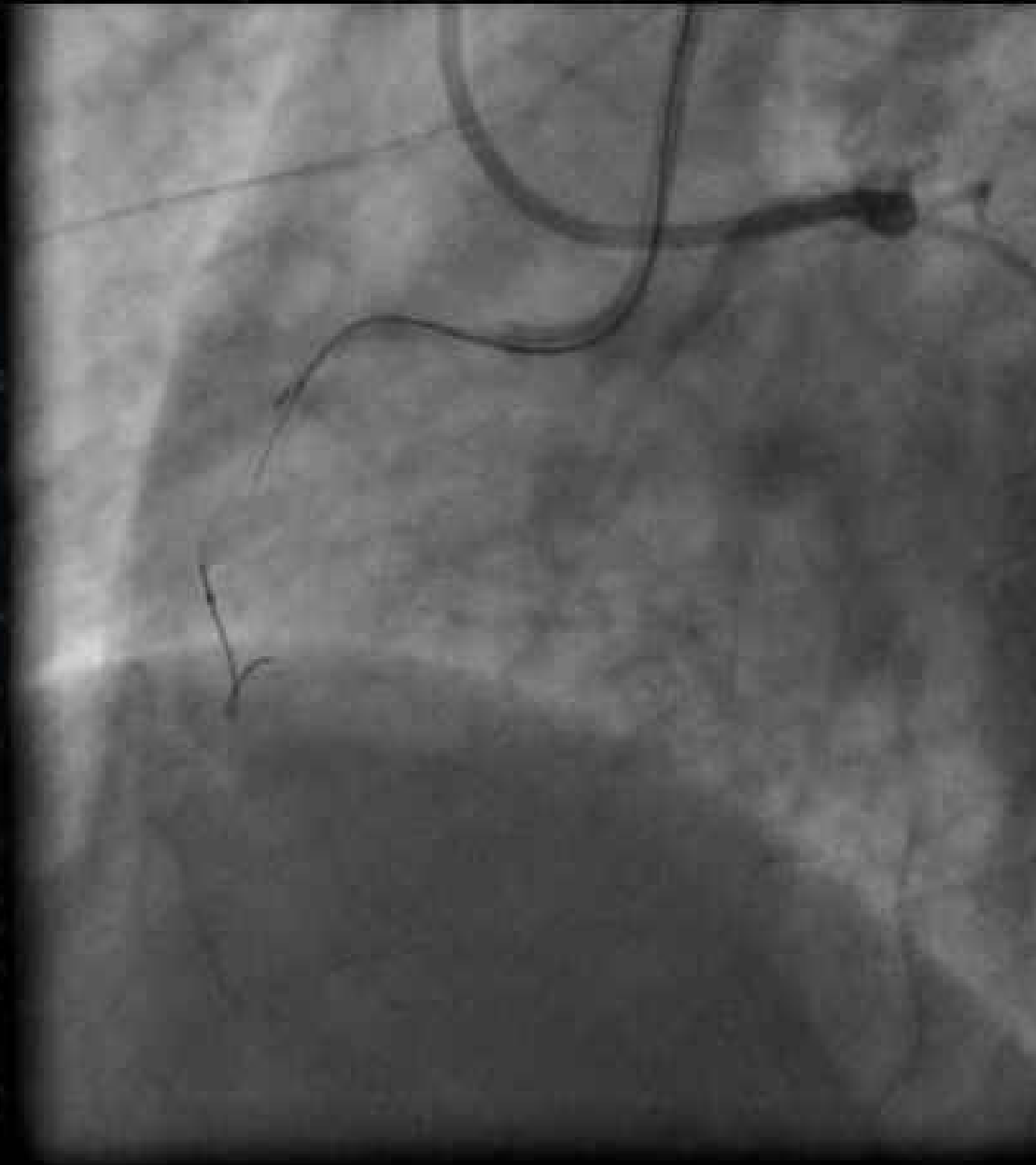


# Repeated IVUS Examination to Evaluate the Position of the Confianza Pro at Proximal Cap



[Click Here!](#)

# Penetration of Proximal Cap with Confianza Pro 12gr





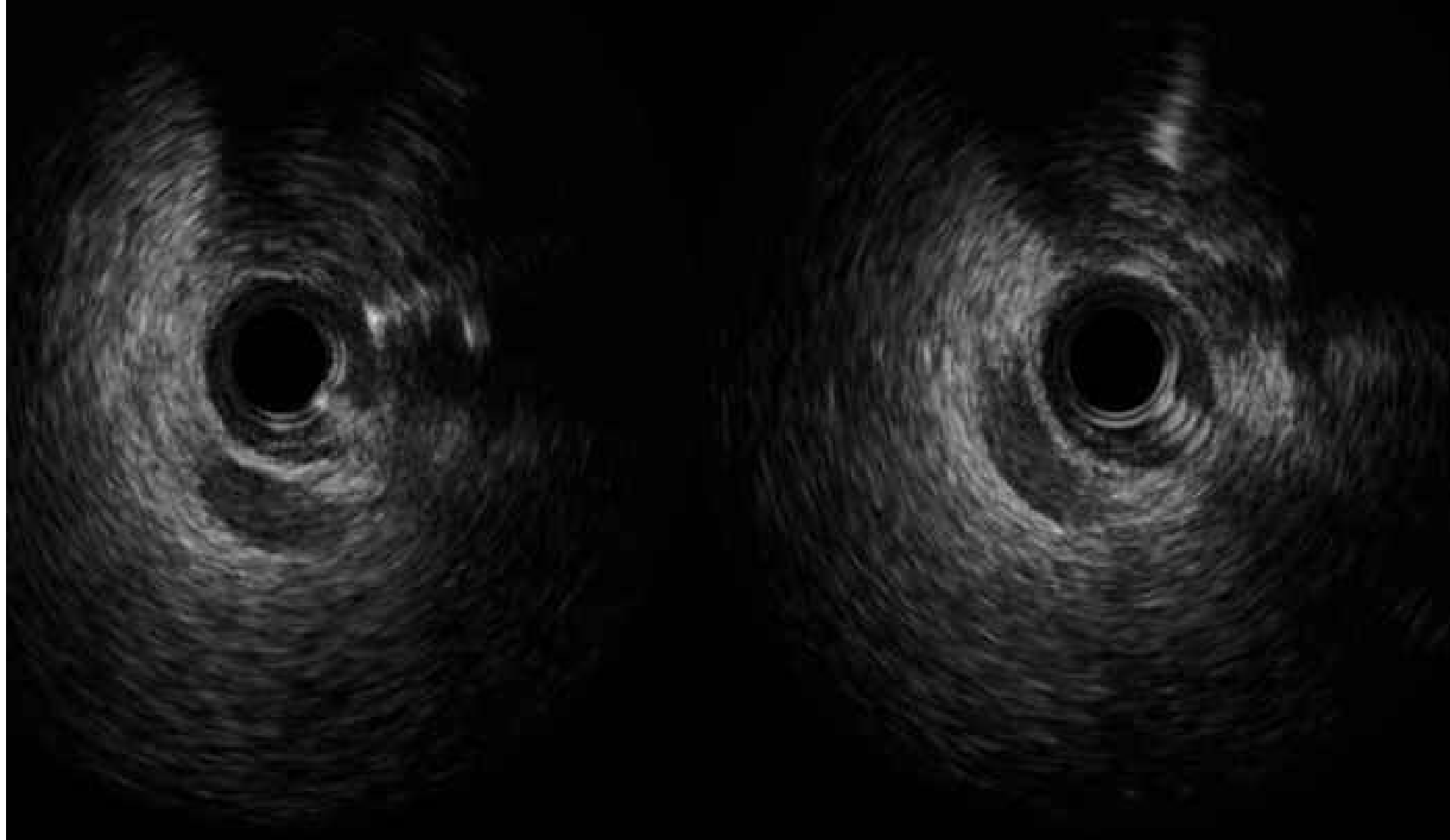
# Repeated IVUS Examination to Evaluate the Position of the Confianza Pro 12gr at Proximal Cap



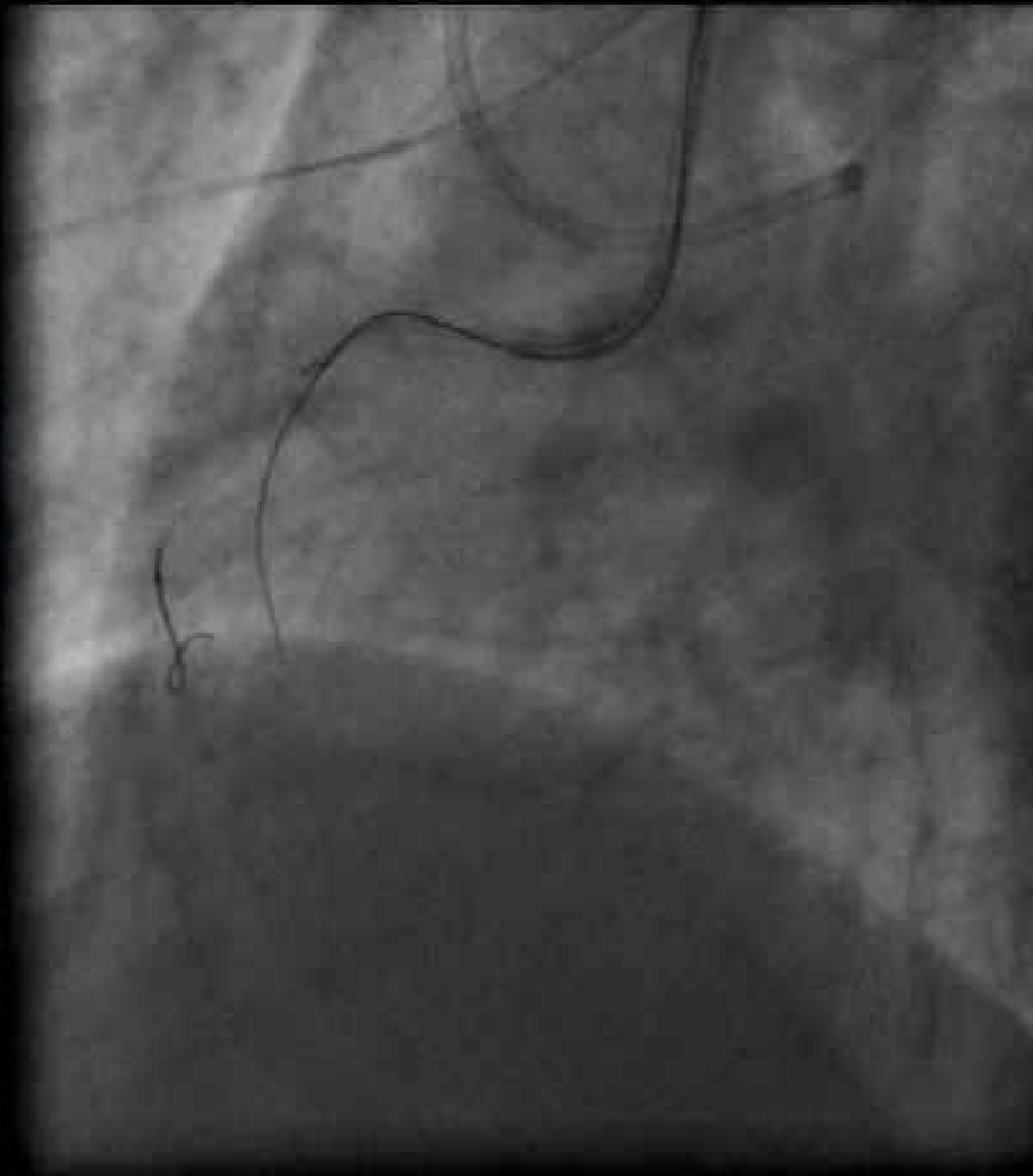
[Click Here!](#)

# Tokyo Percutaneous Cardiovascular Intervention Conference

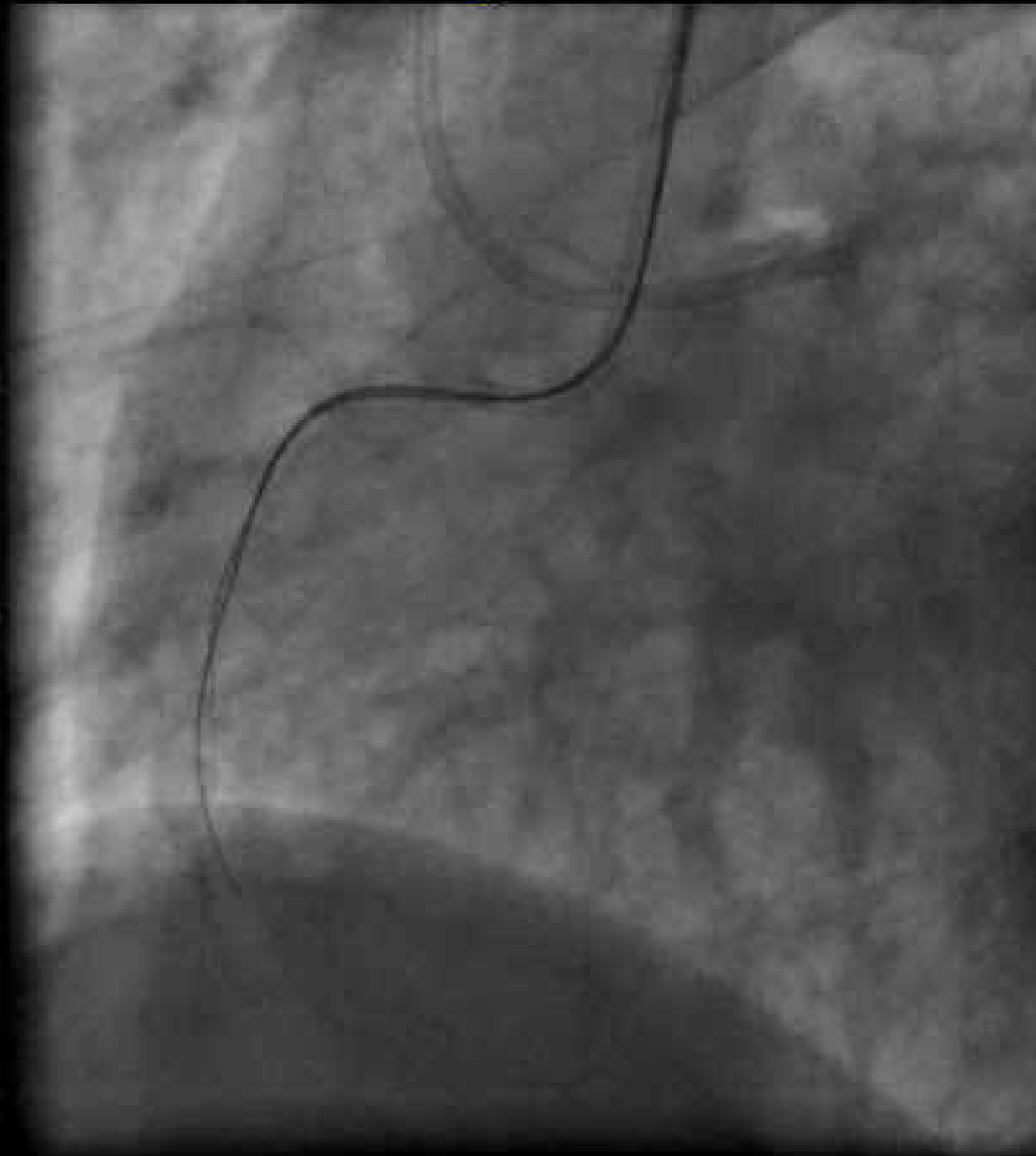
11-13 October 2006, The Grand Hyatt Hotel, Tokyo, Japan



# Penetration of Distal Cap with Confianza Pro 12gr



# Successful Penetration of Distal Cap by Parallel Wire Technique with Confianza Pro 12gr



## Final Results after Implantation of 2 Taxus Liberte Stents



## Conclusions

- Clear understanding of the differences between “true” and “false” lumen facilitates our PCI for CTO, especially in complex antegrade approach.