

**CTO-PCI : To Treat, or Not To Treat**

**Case 1. Antegrade CTO-PCI:  
Tips, Tricks, and Troubleshooting**

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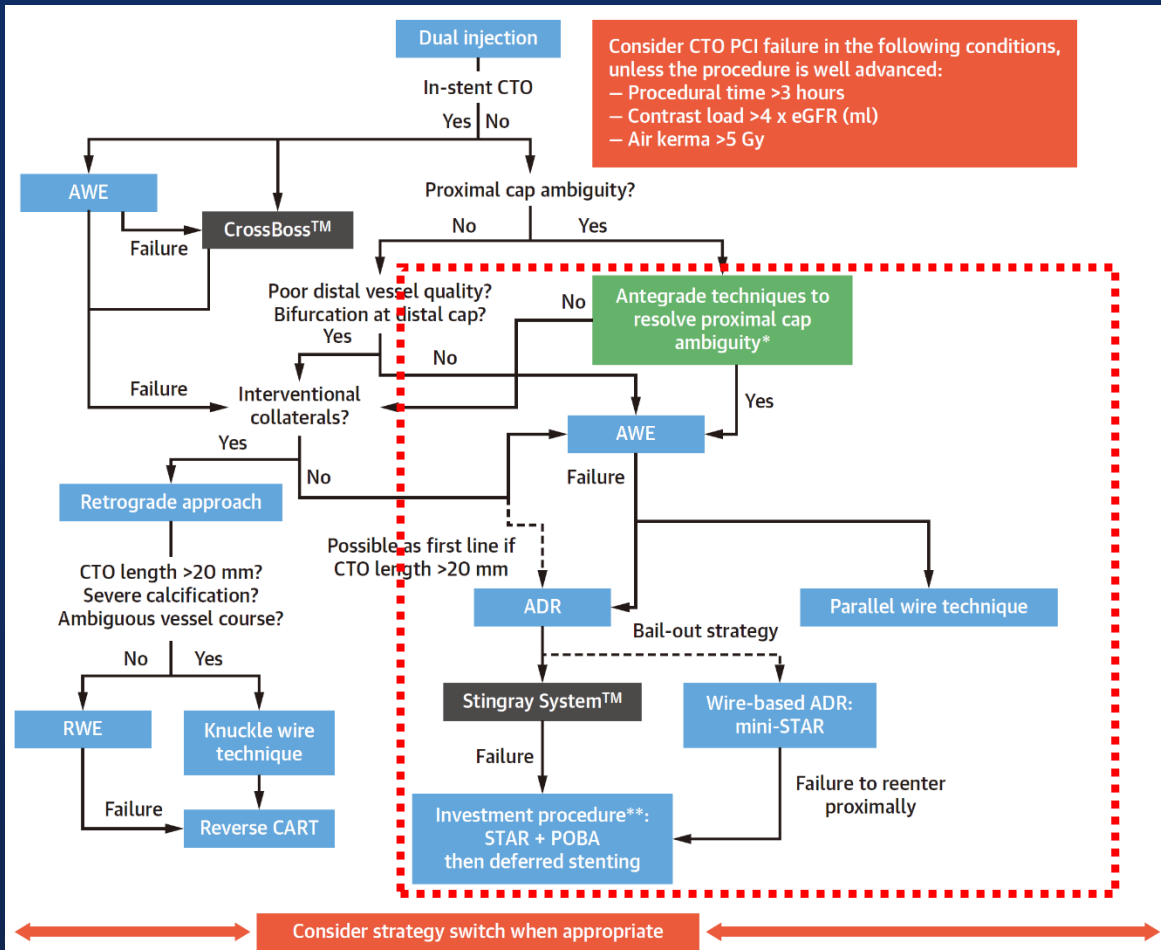
**Cardiovascular Center, Seoul National University Hospital,  
South Korea**

# Disclosure

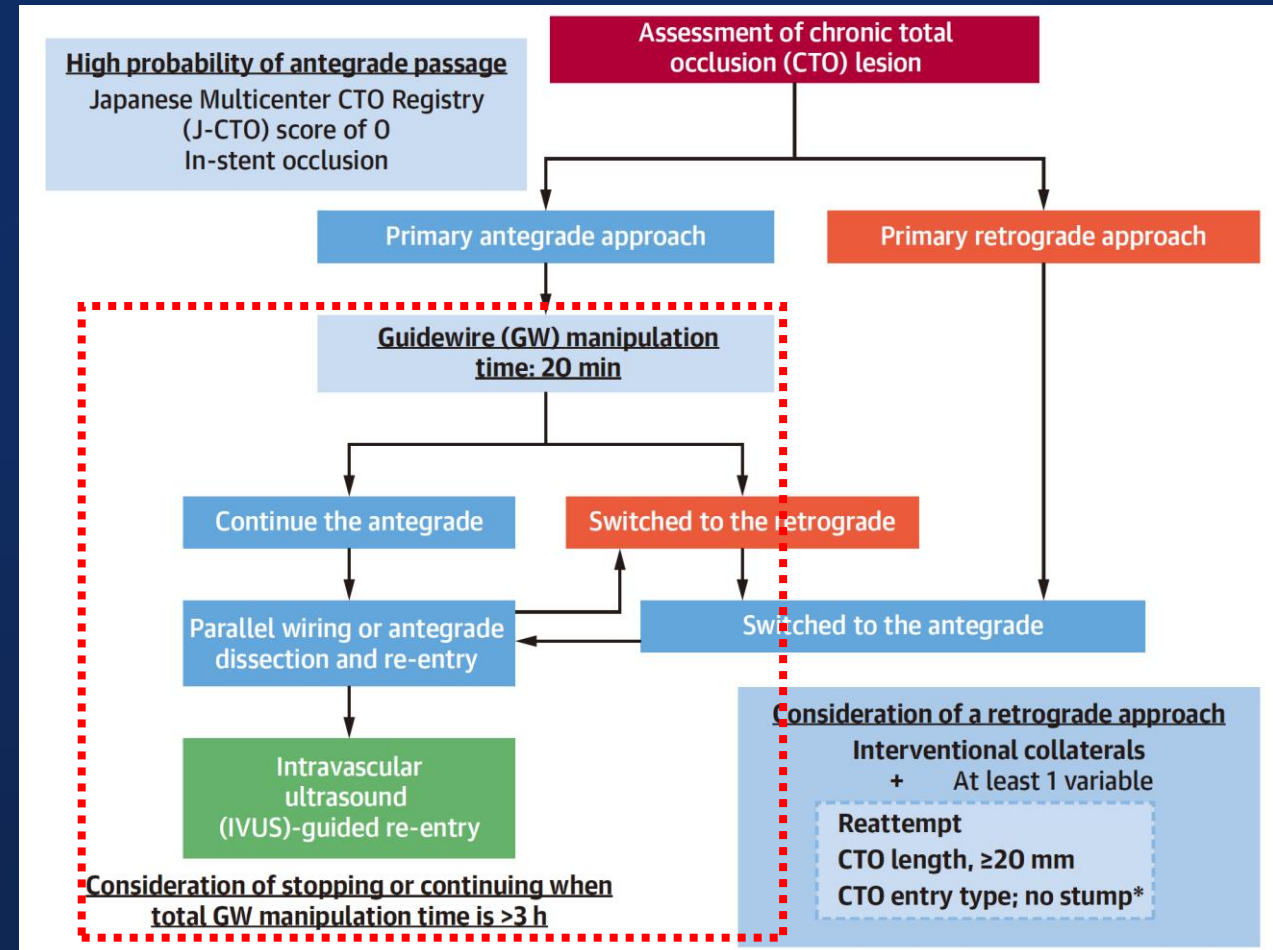
- None

# Current CTO Algorithm for Antegrade Approach

## The EuroCTO Algorithm



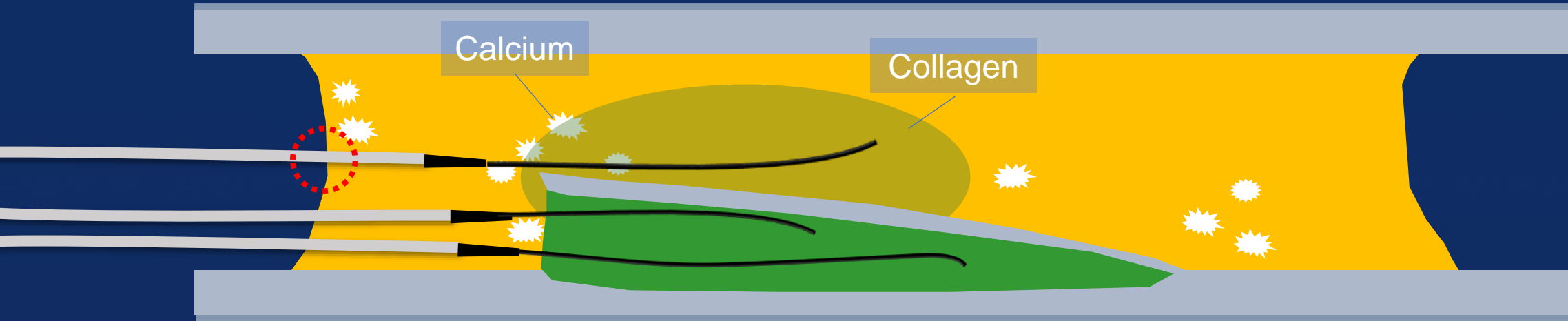
## The Japanese CTO Algorithm



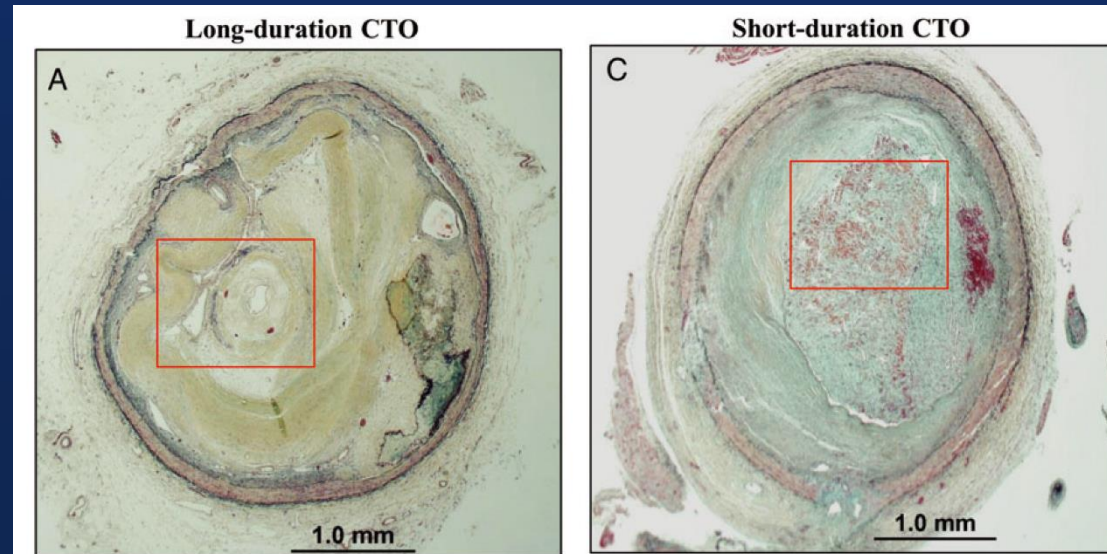
# Keys to the Successful PWT:

1. A New Resistance to the Tactile Sensation

2. Rerouting from a Point where the 1st Wire Enters the Subintimal Space



Collagen



Proteoglycan,  
fibrin

# Case 1: M/43

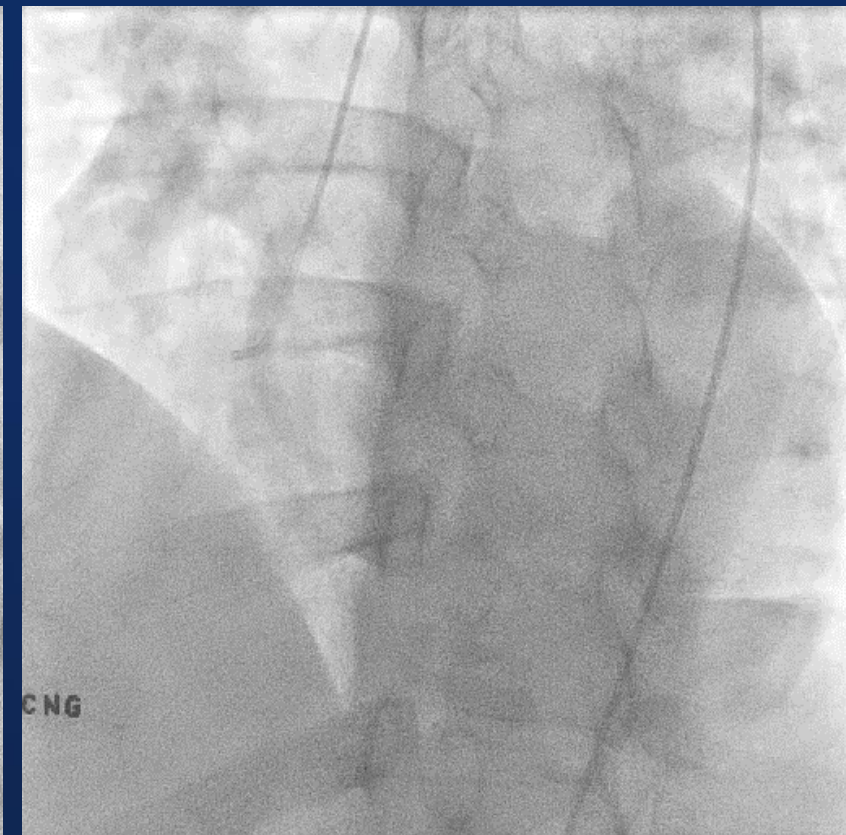
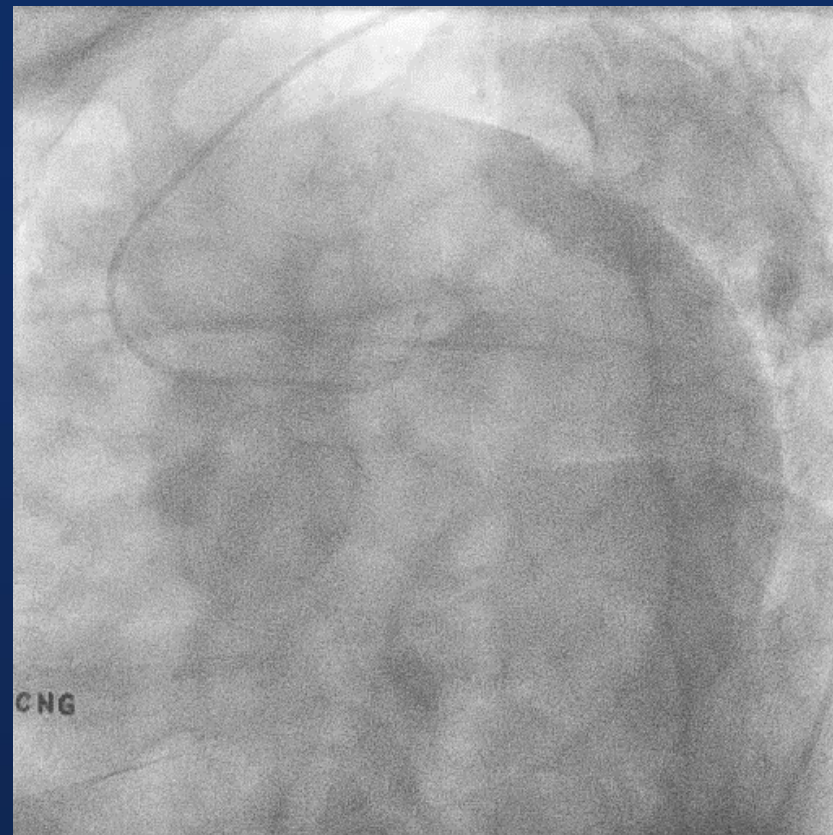
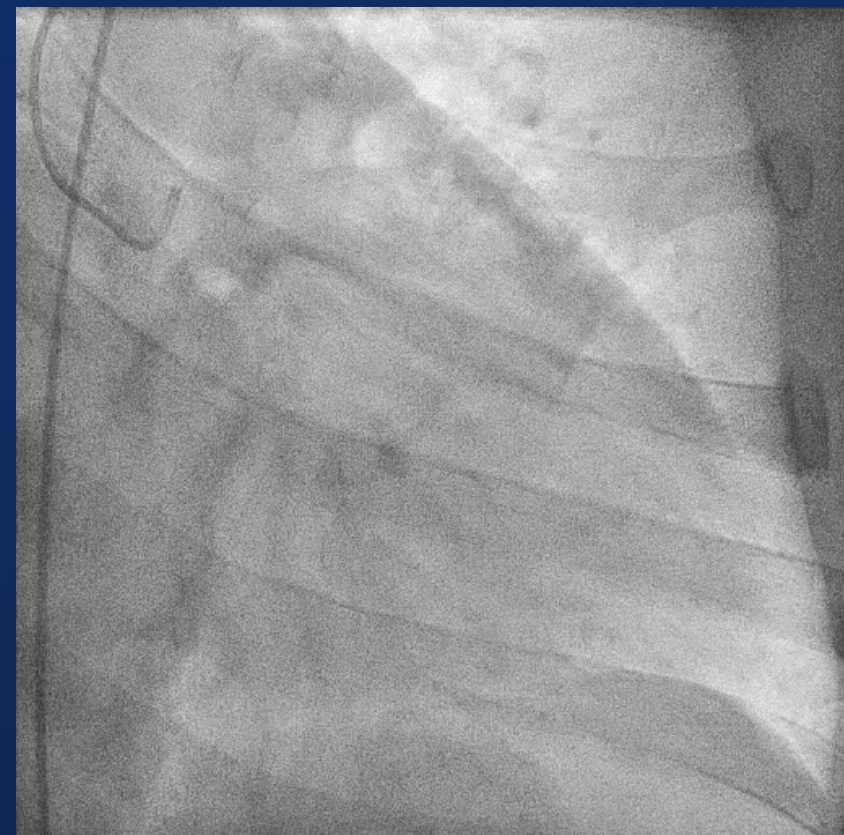
- Silent ischemia
- Claudication: Lt SFA occlusion
- DM/HTN (+/+)
- 5YA, h/o cerebral infarction, R/O cardioembolic
- EchoCG: dilated LV cavity 56/40mm, LVEF 58%, no RWMA, increased LV wall thickness

# Case 1: M/43, LCx CTO

RAO caudal

LAO caudal

RCA: LAO cranial

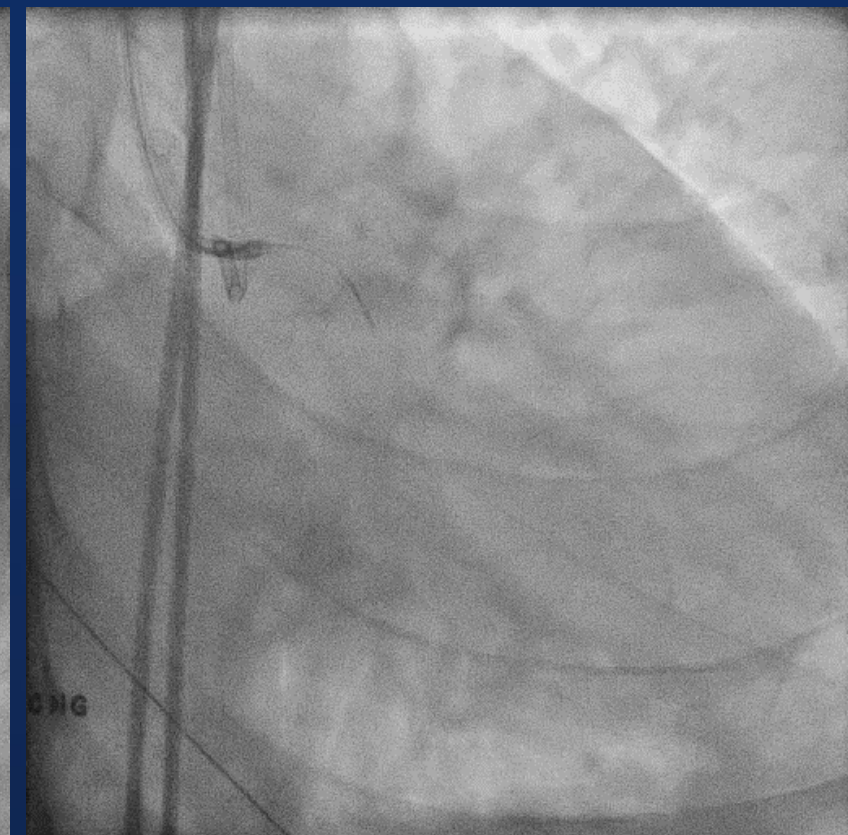
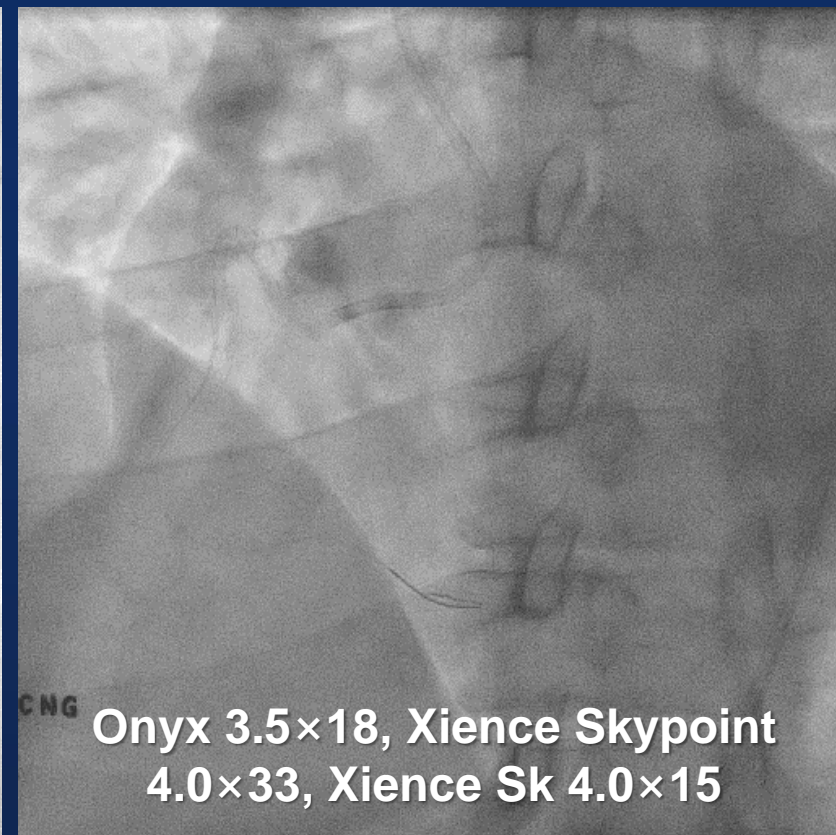
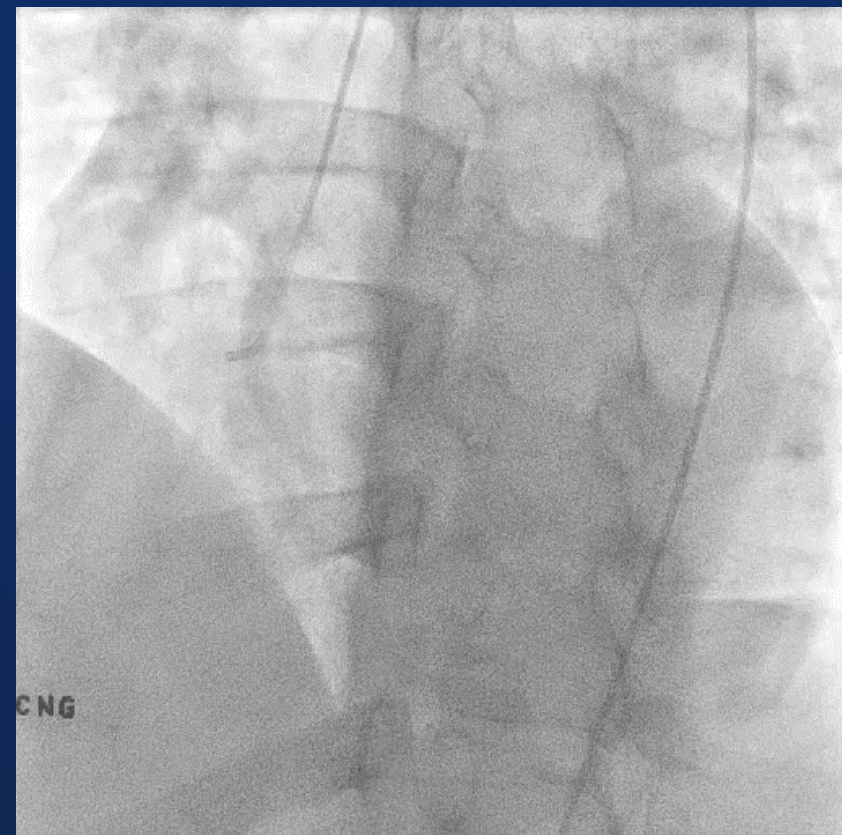


# Case 1: M/43, after RCA Intervention

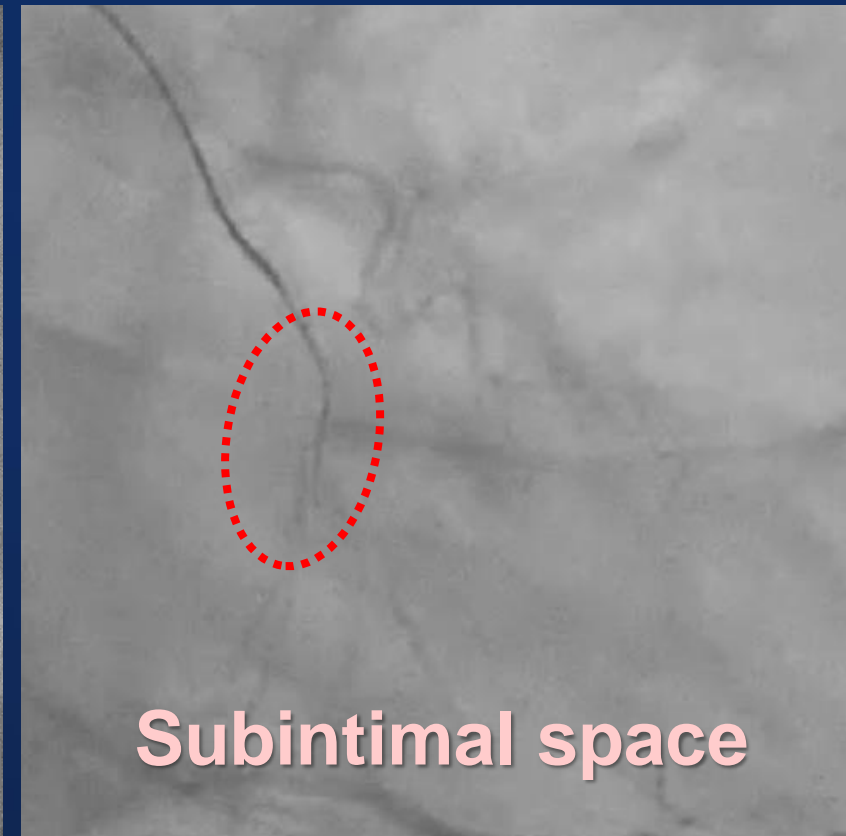
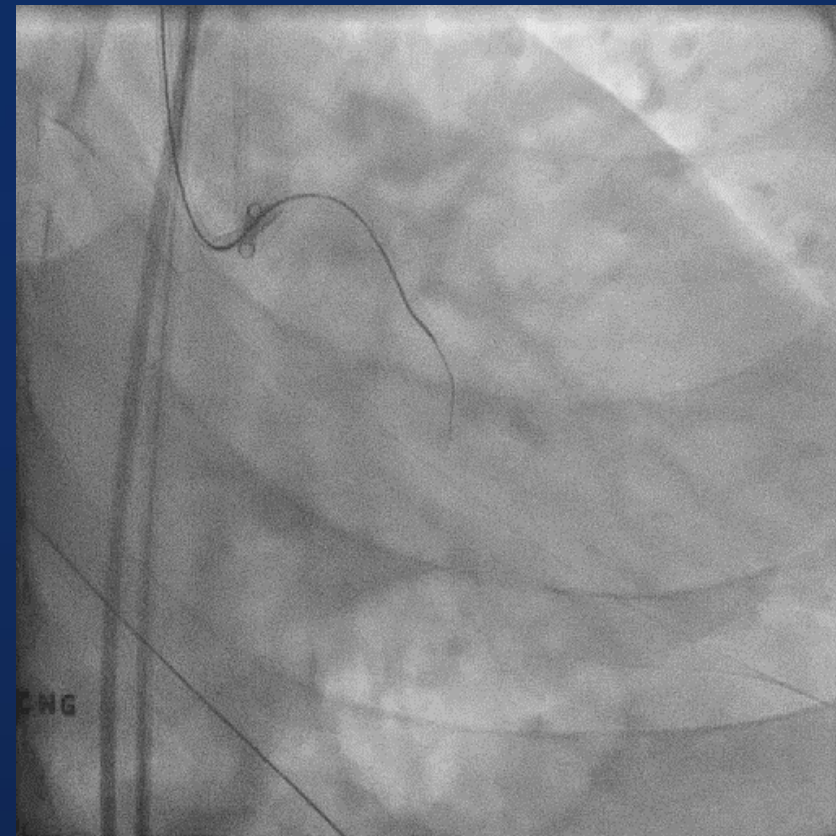
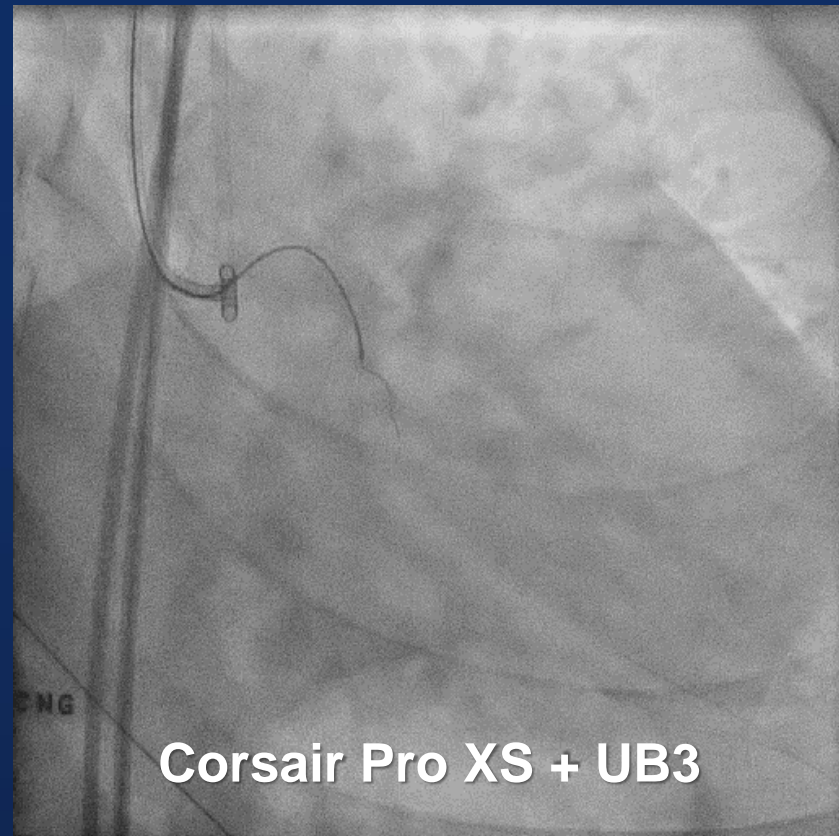
Baseline RCA

After RCA stenting

Tip injection to LCx



# Case 1: M/43, Antegrade Wiring

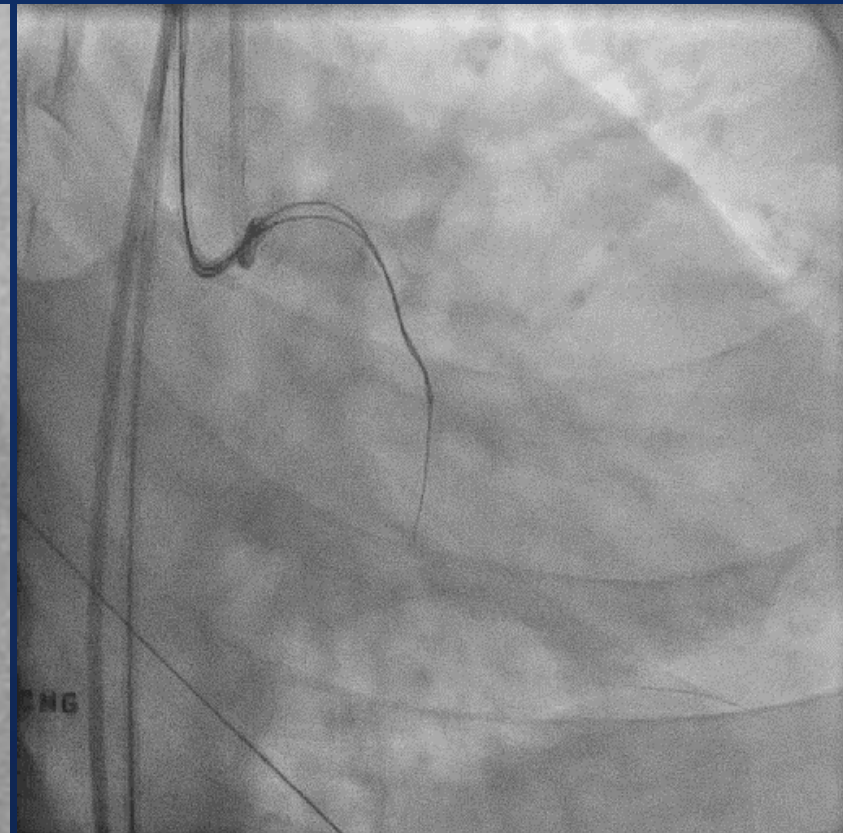
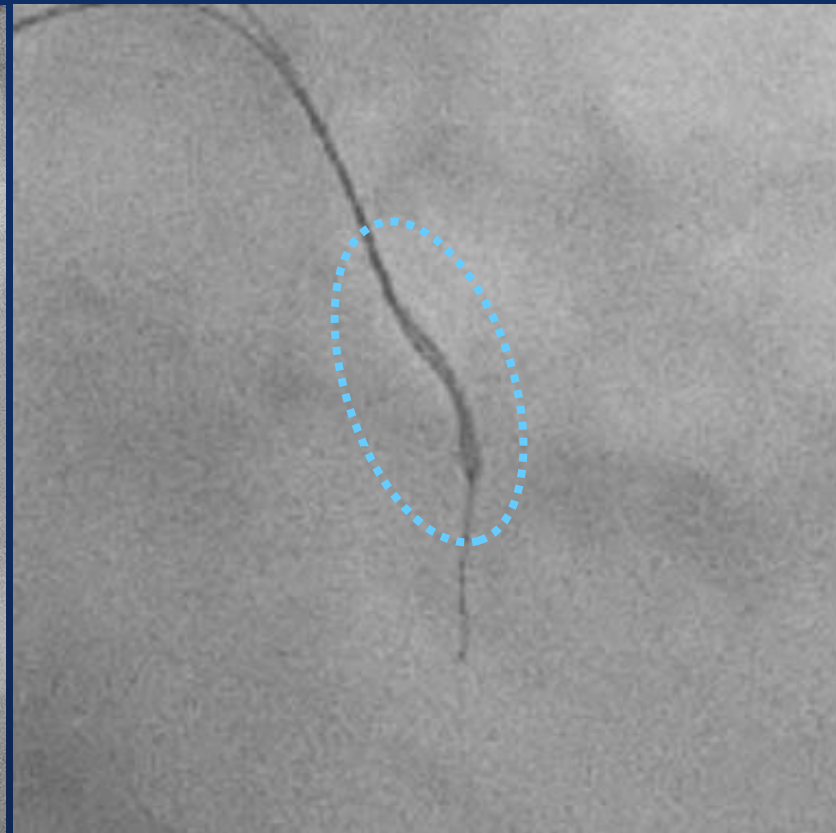
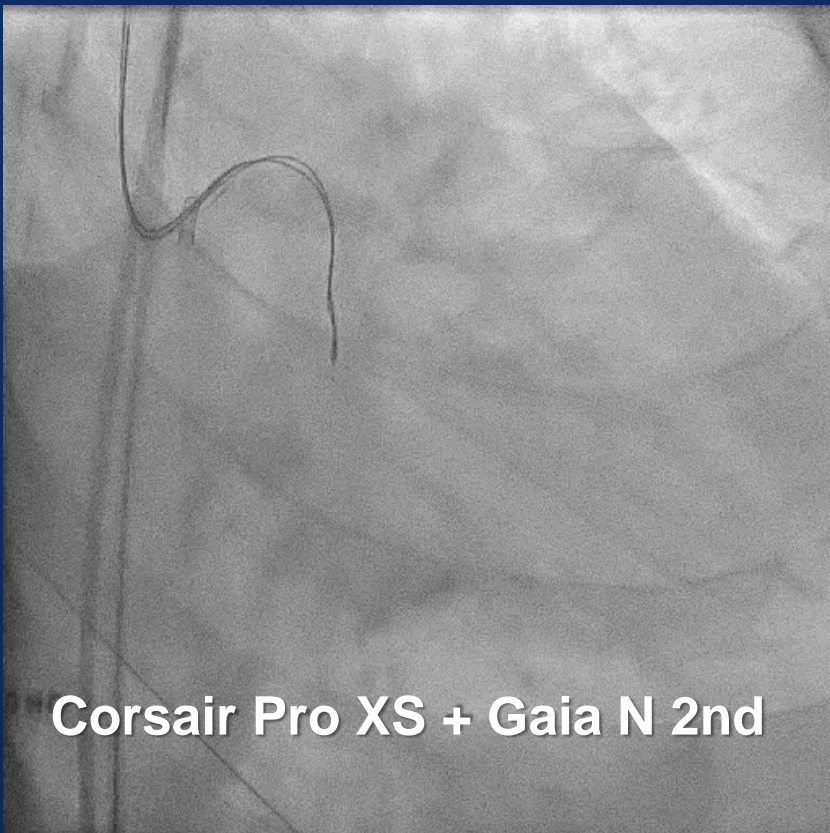




# How Would You Do As a Next Step?

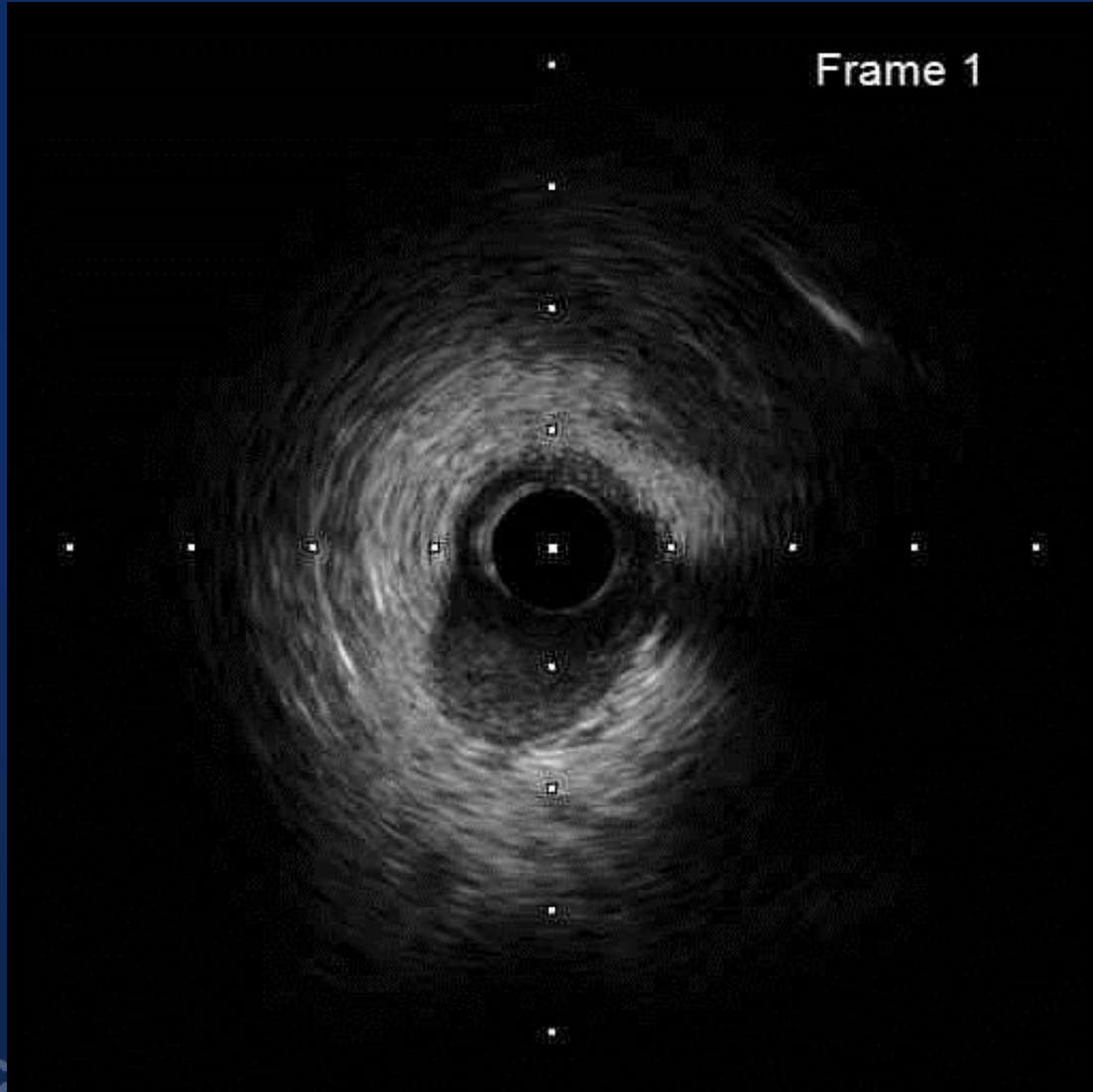
- ① Antegrade Wire Escalation
- ② Retrograde approach through the epicardial route
- ③ IVUS-guided wiring
- ④ Parallel Wire Technique

# Case 1: M/43, Parallel Wire Technique

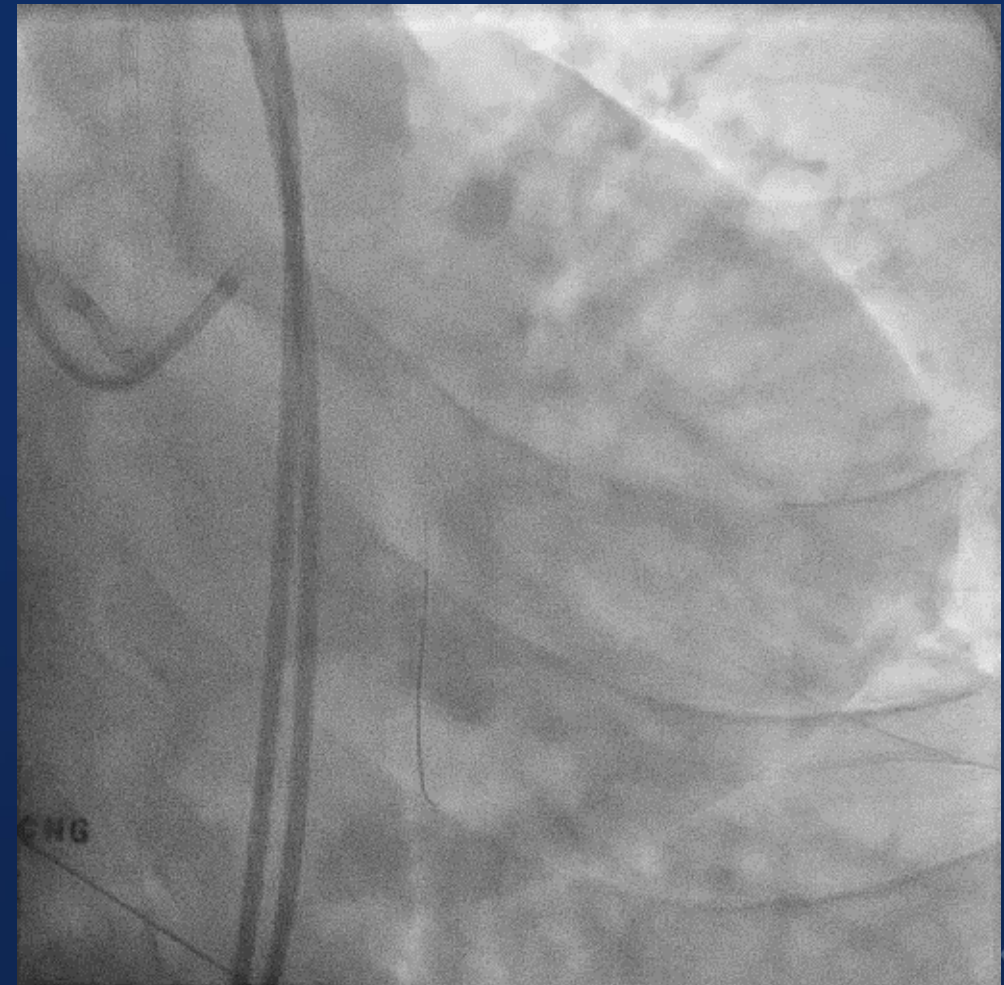


# Case 1: M/43, Ballooning

Frame 1

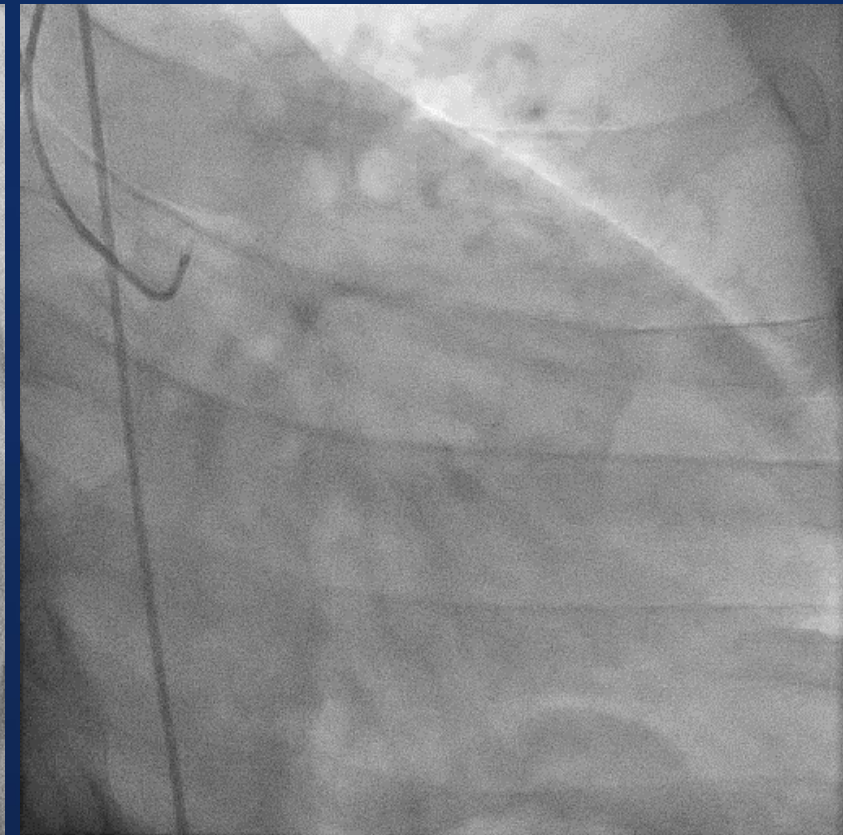
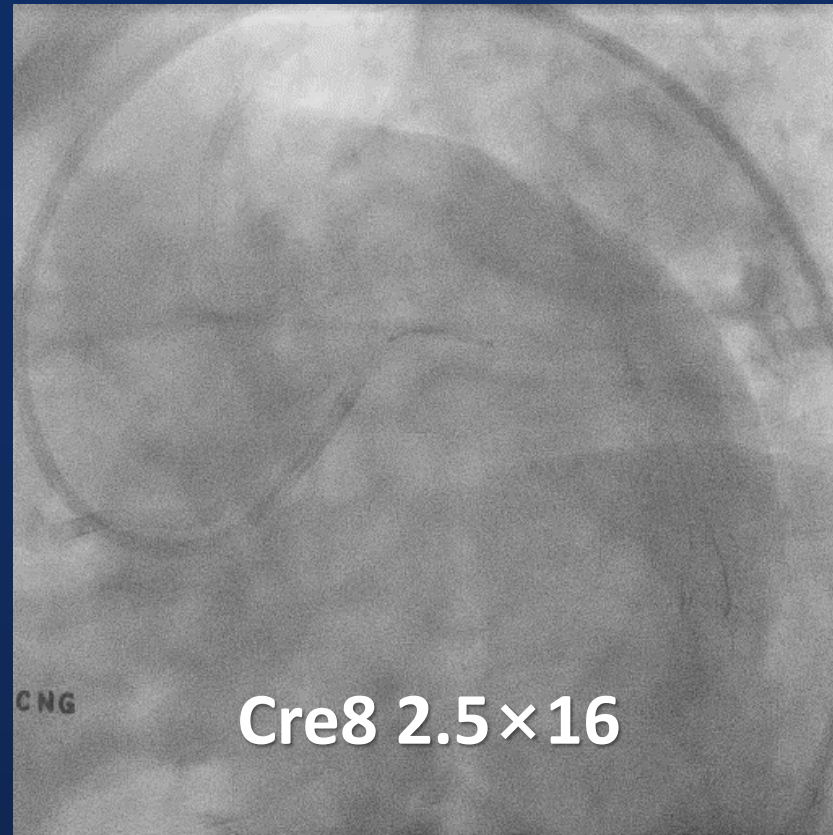
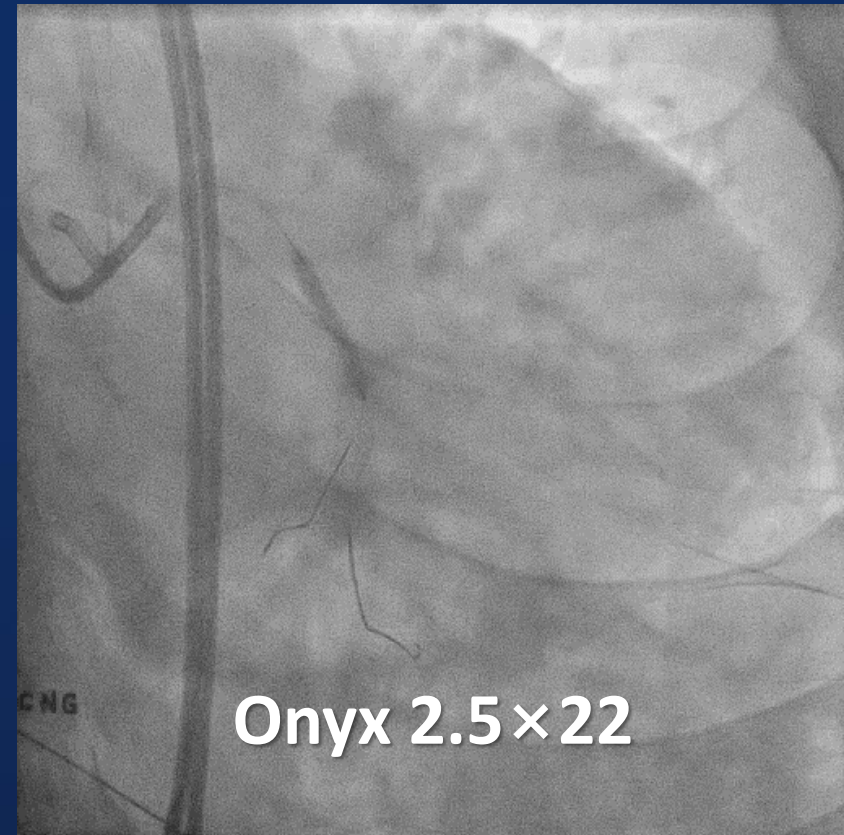


After ballooning



# Case 1: M/43, Stenting & Final Angiogram

## Final Angiogram

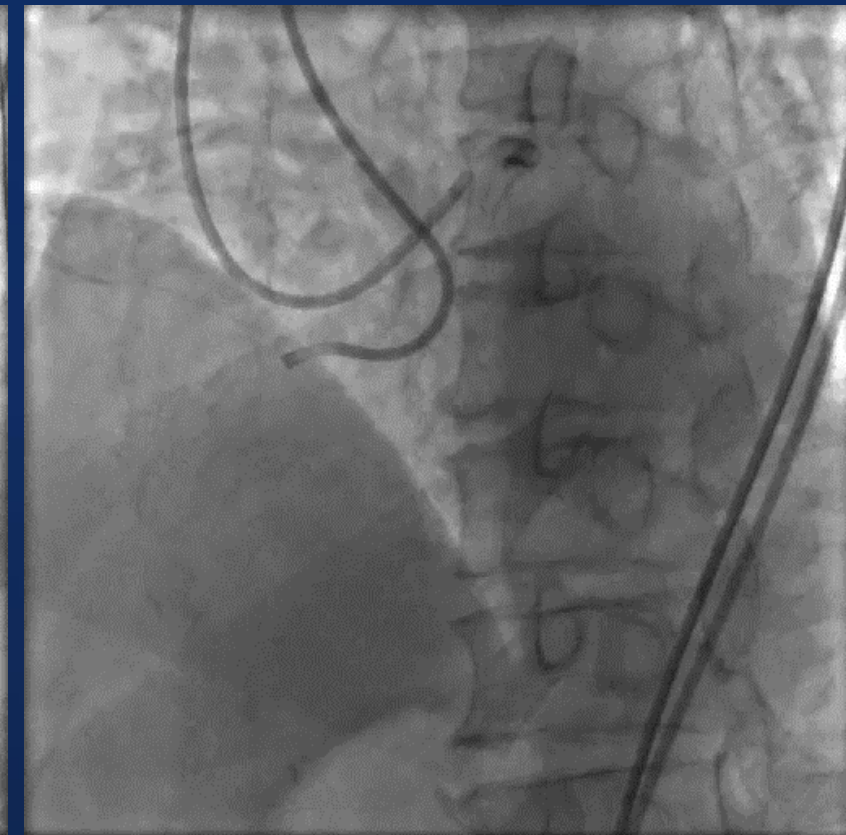
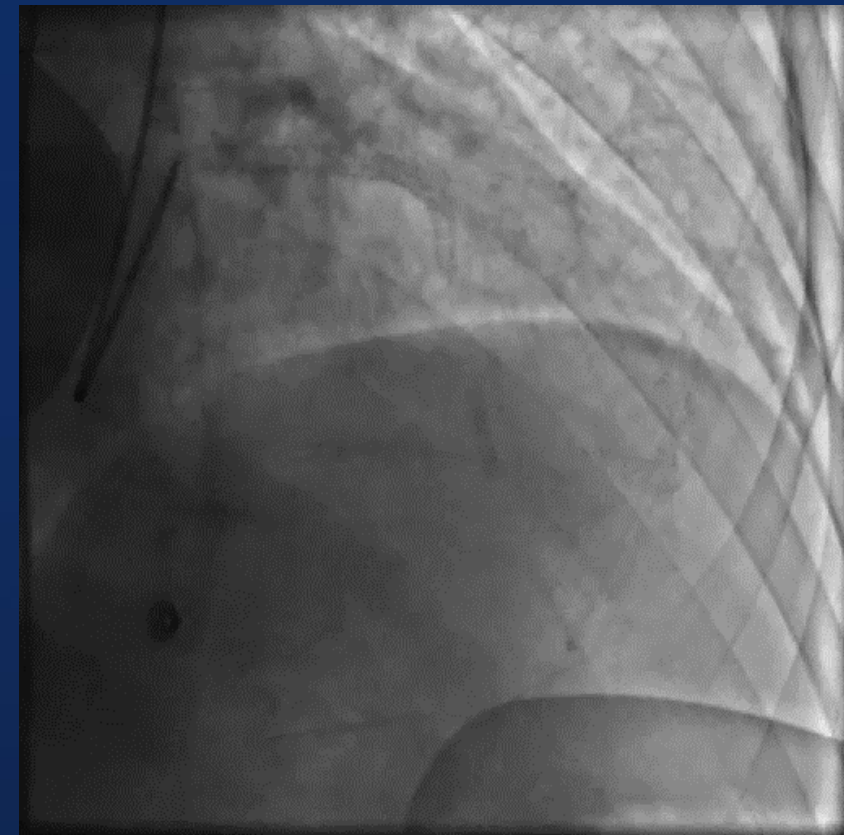


## Case 2: M/64, 10 year-old RCA CTO

AP cranial

LAO

Bilateral: LAO cranial



# Case 2: Wiring

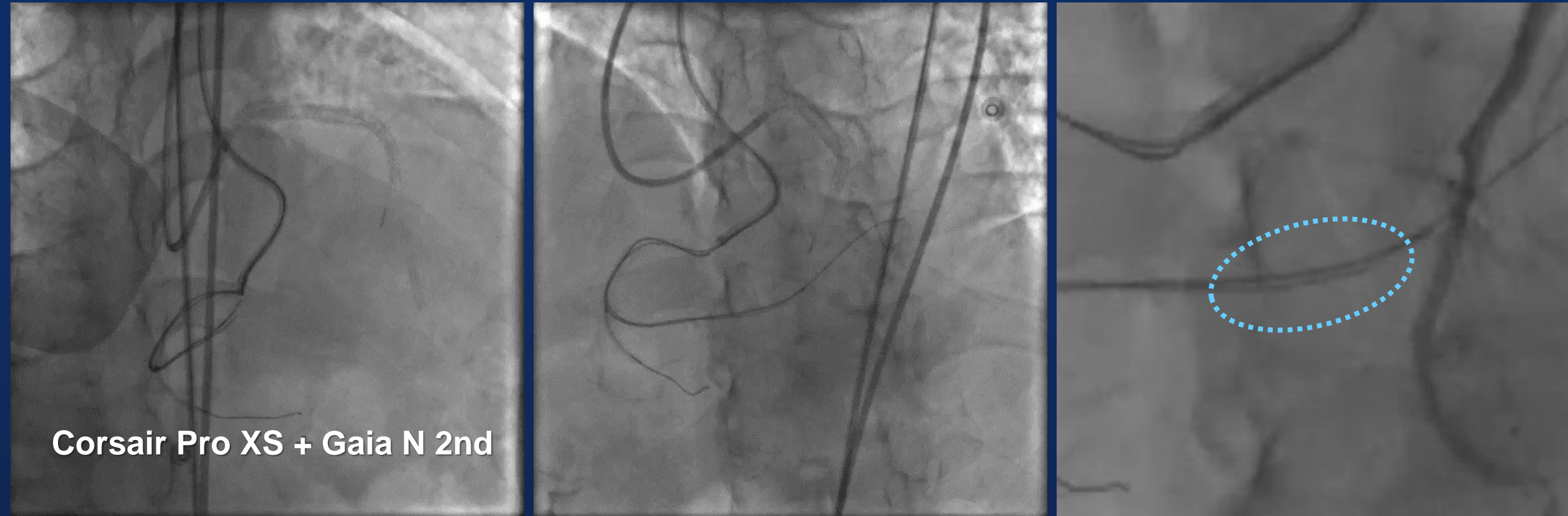
LAO

LAO cranial

Corsair Pro XS + UB3

Subintimal space

# Case 2: Parallel Wire Technique



Corsair Pro XS + Gaia N 2nd


# Case 2: Stenting & Final Angiogram

After ballooning

After Stenting



Caravel + UB3



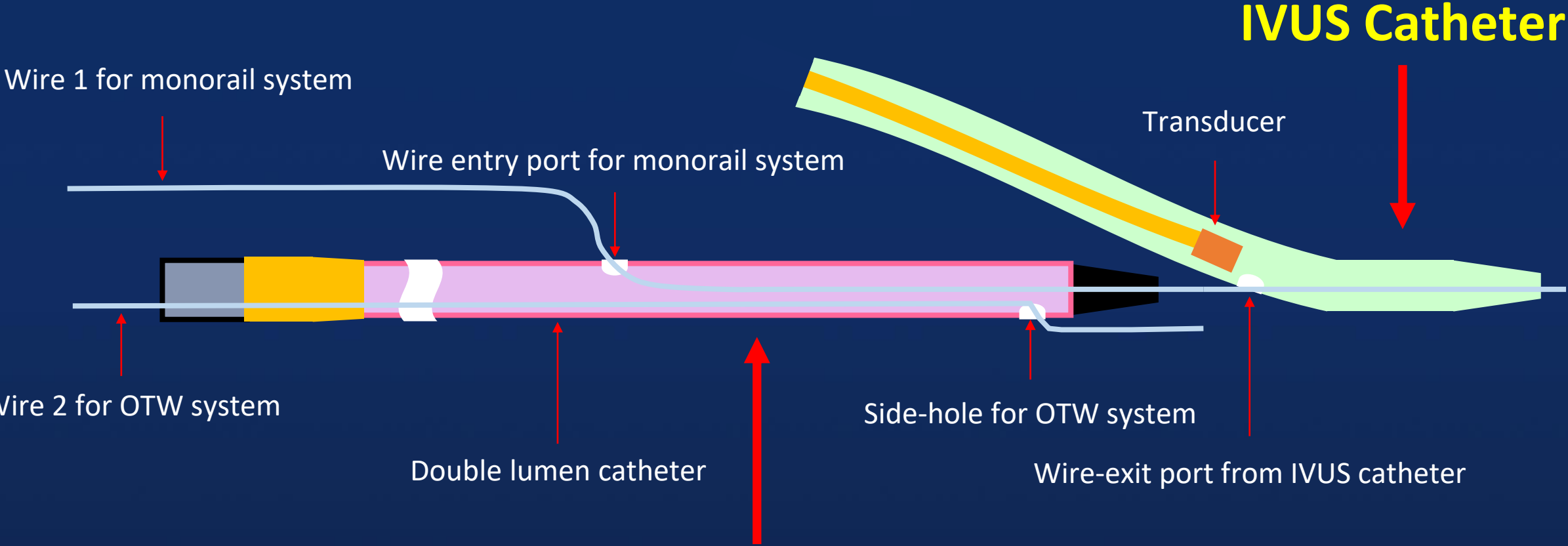
Xience Sk  
2.5×48, 3.0×28, 3.0×48



# Pitfalls of IVUS-guided wiring

- ✓ Difficulty in IVUS catheter delivery
- ✓ Expanding subintimal space
- ✓ 8 Fr. guiding catheter required to use IVUS+microcatheter

# Double Lumen Catheter + IVUS



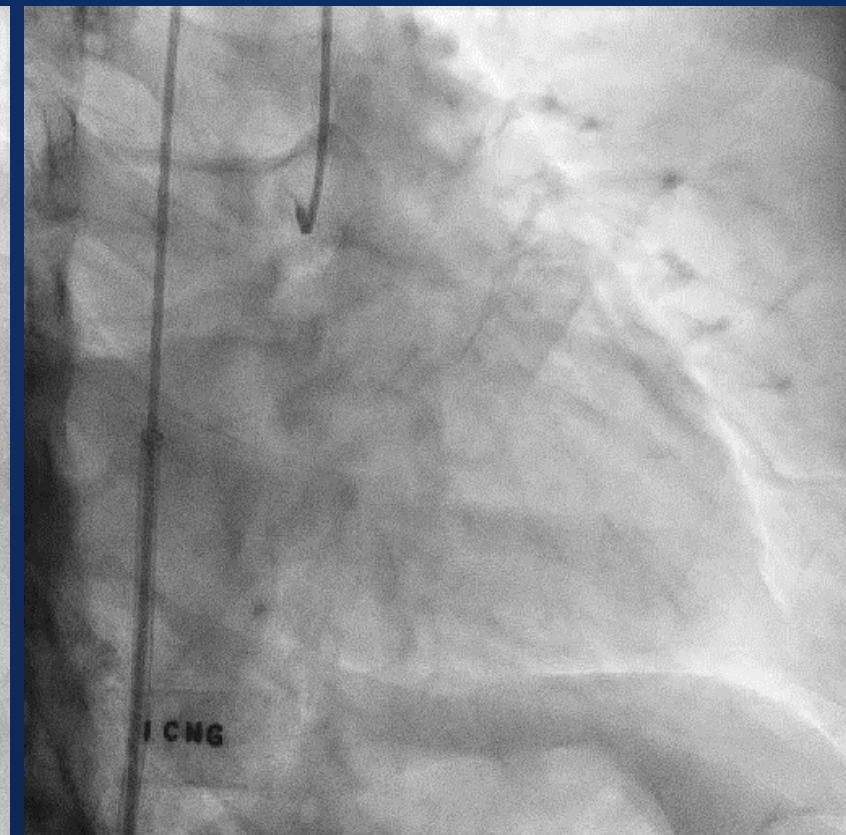
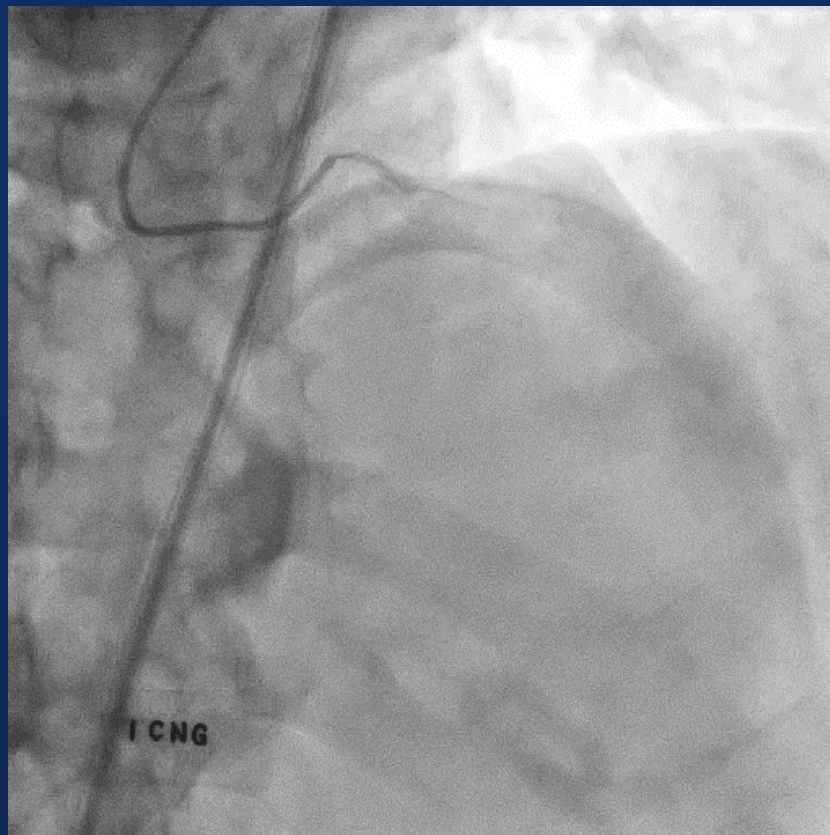
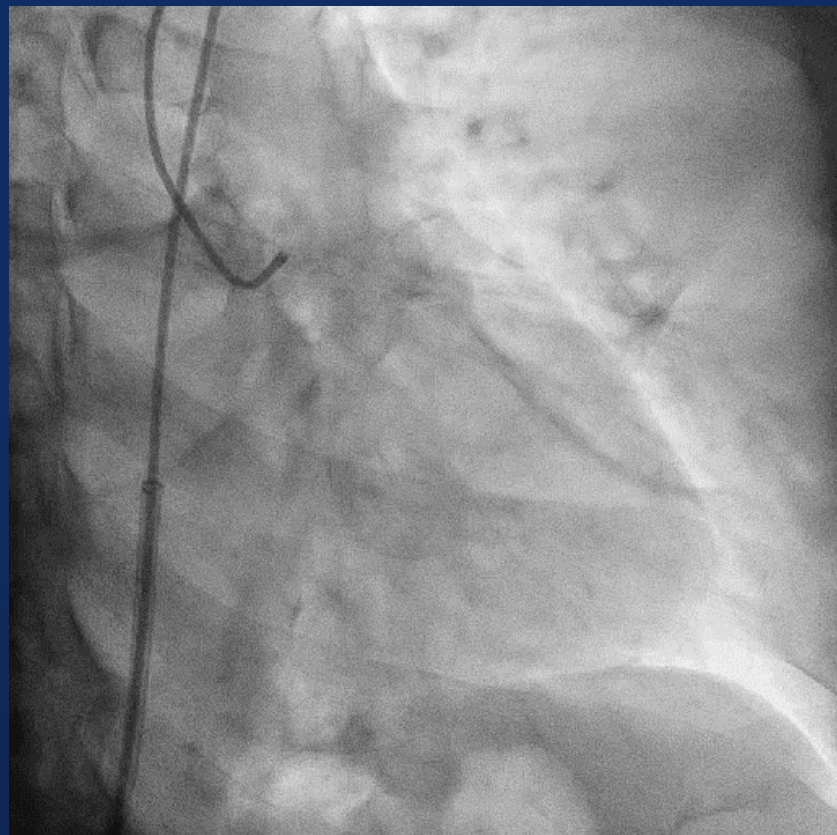
## Double Lumen Catheter

# Case 3: M/66, LAD CTO

RAO caudal

AP cranial

RCA: RAO caudal

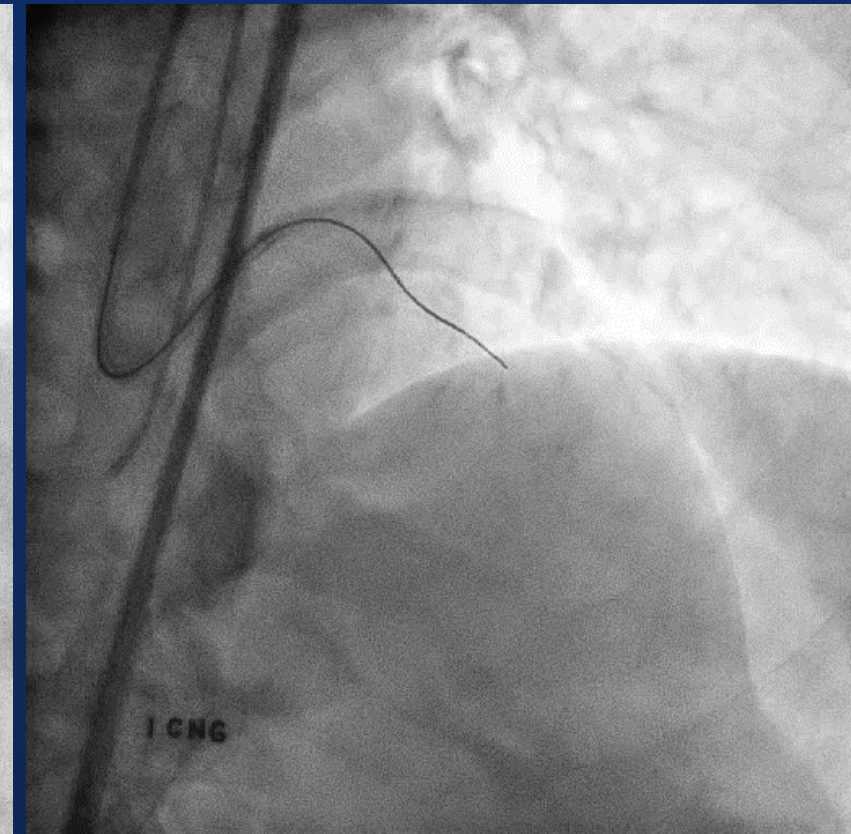
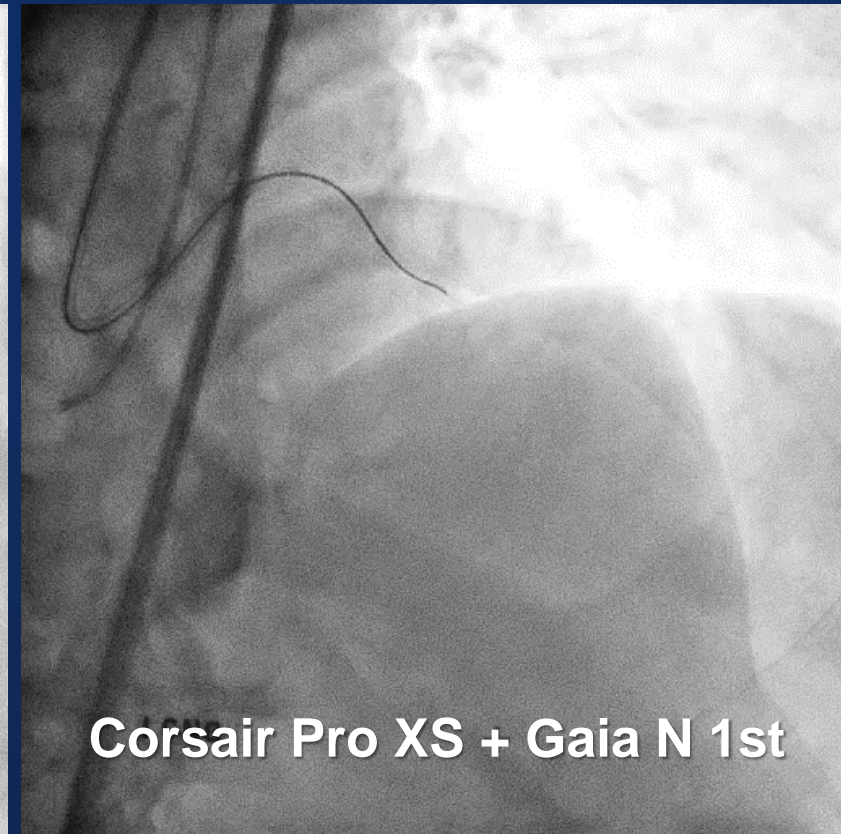
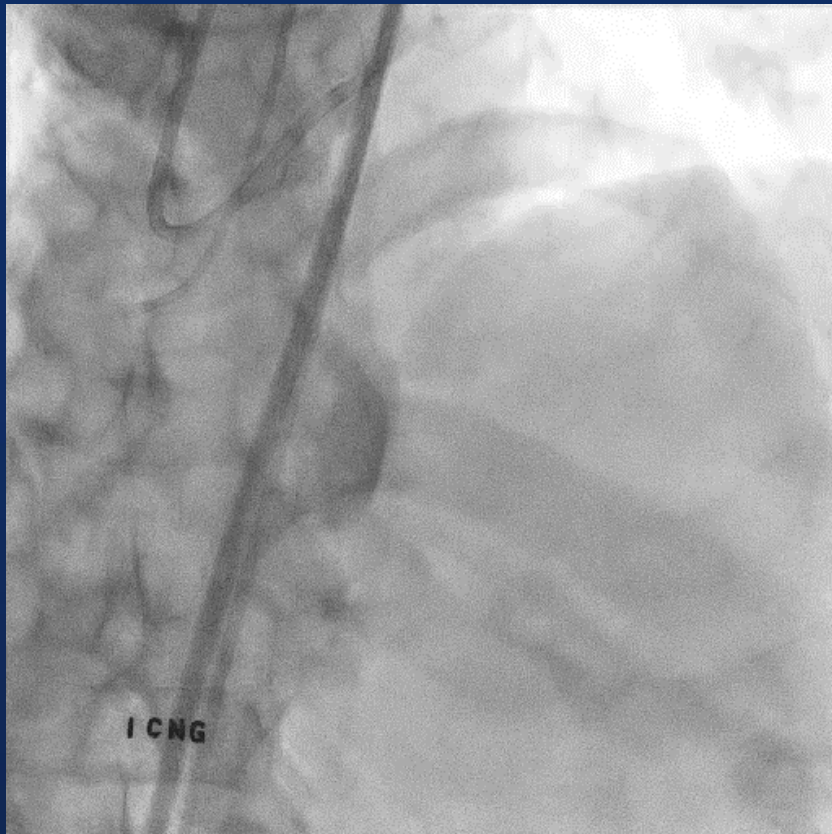


# Case 3: M/66, Antegrade wiring

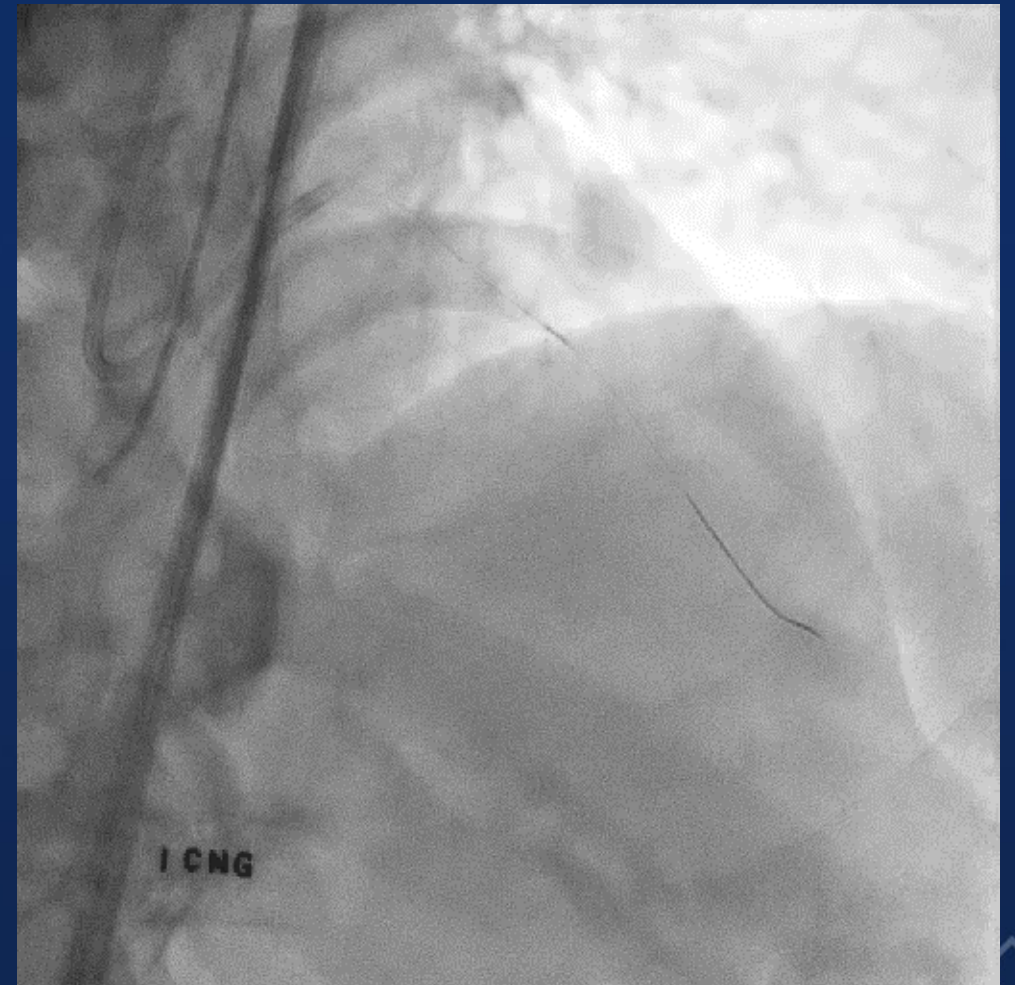
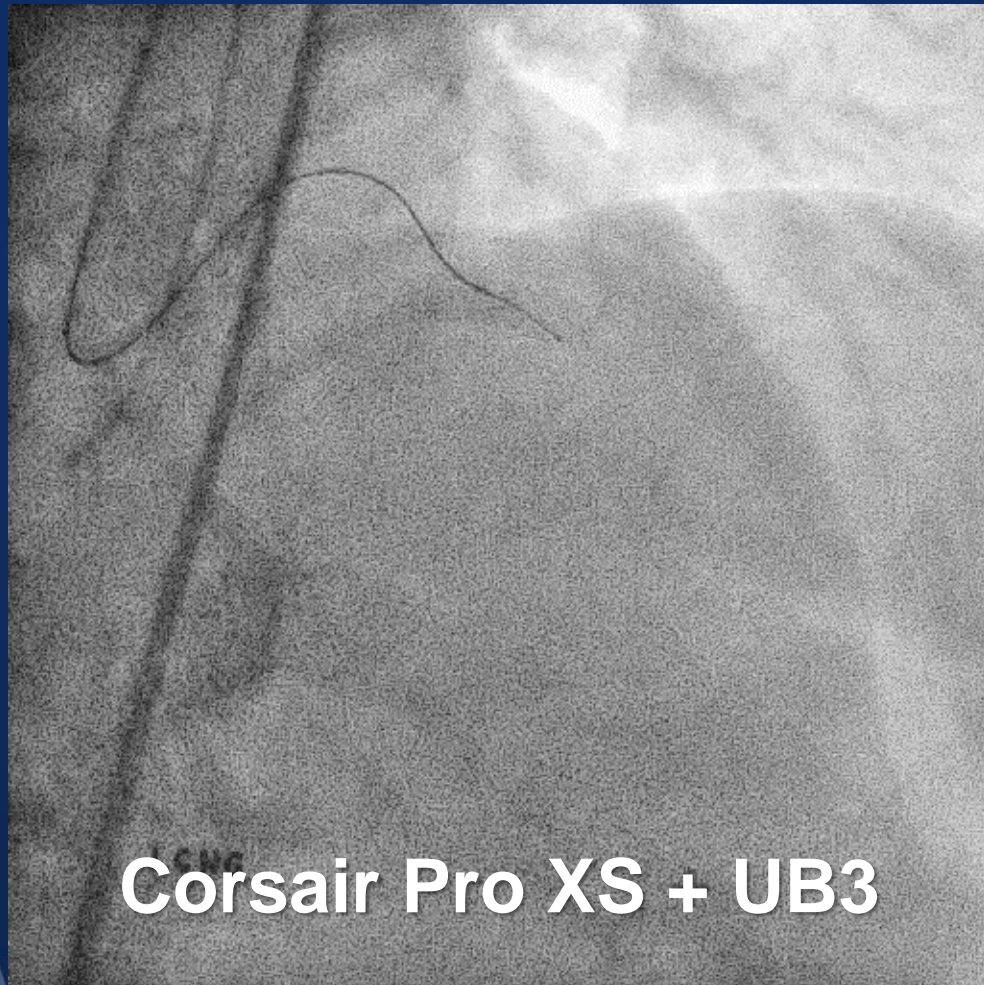
Bilateral injection

AP cranial

RCA: RAO caudal



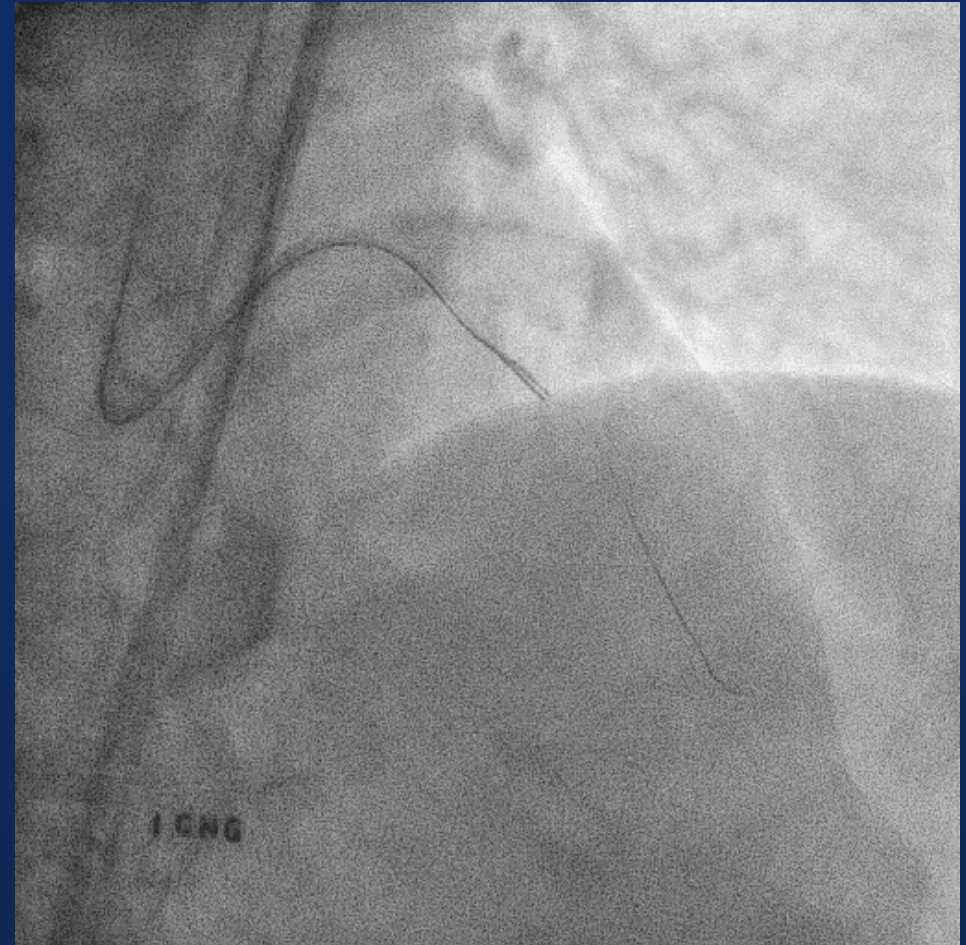
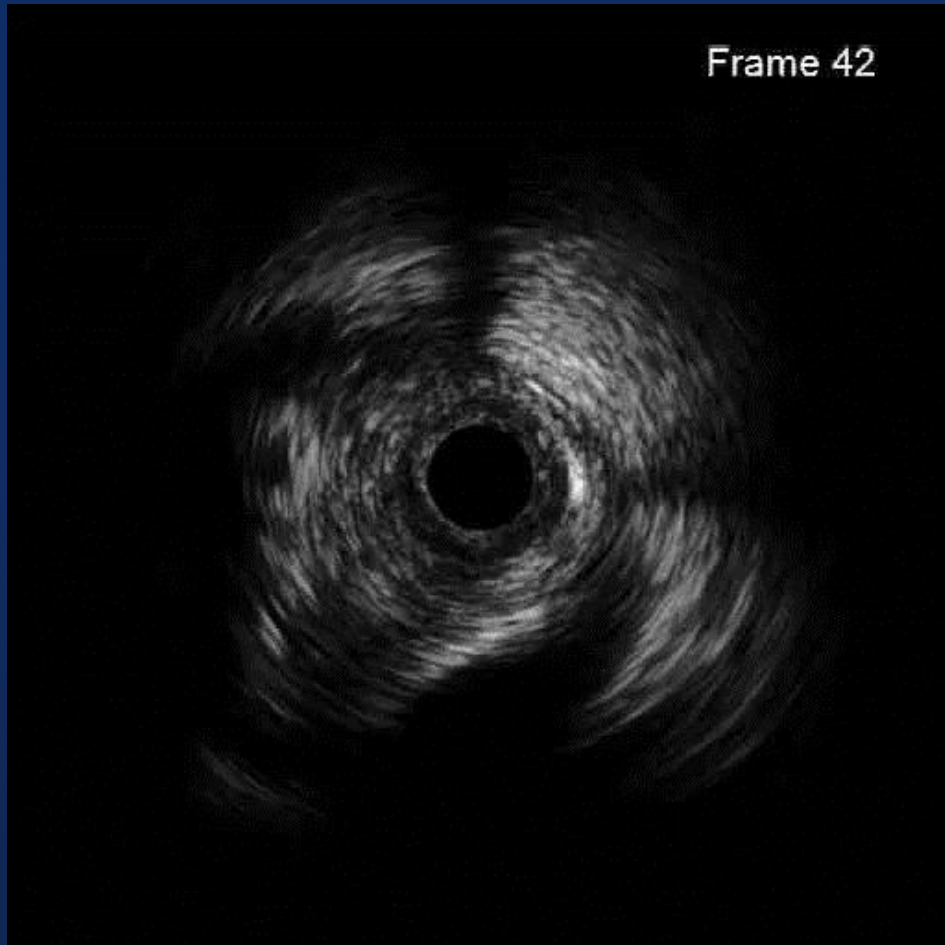
# Case 3: M/66, Antegrade wiring



# How Would You Do As a Next Step?

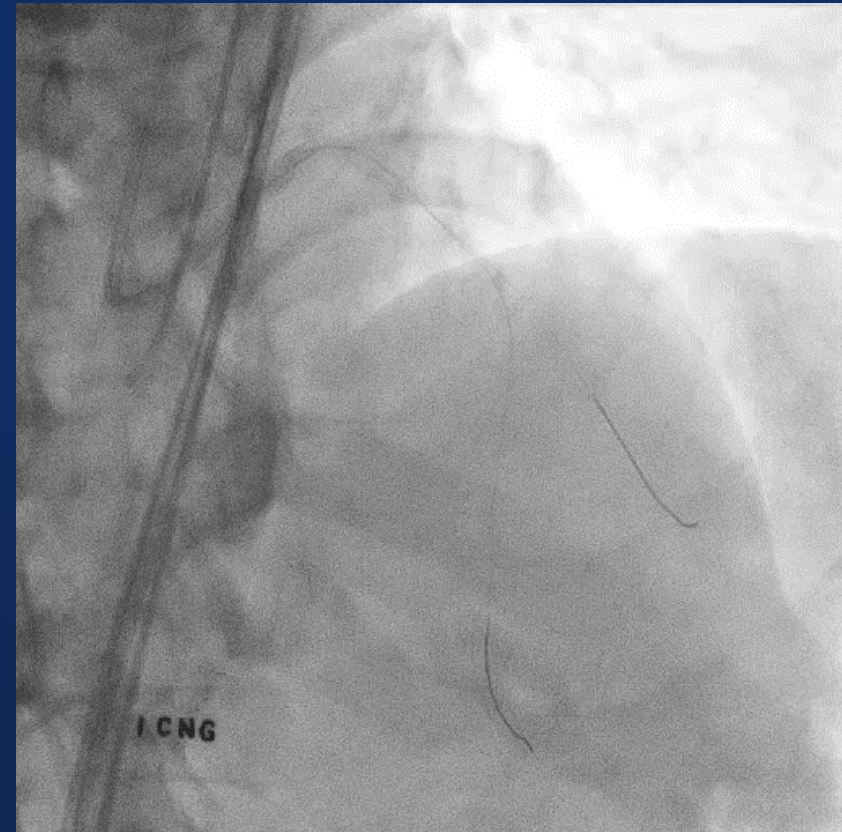
- ① Antegrade Wire Escalation
- ② Retrograde approach through the septal route
- ③ Parallel Wire Technique
- ④ IVUS-guided wiring

# Case 3: M/66, IVUS-guided Wiring



# Case 3: M/66, Stenting

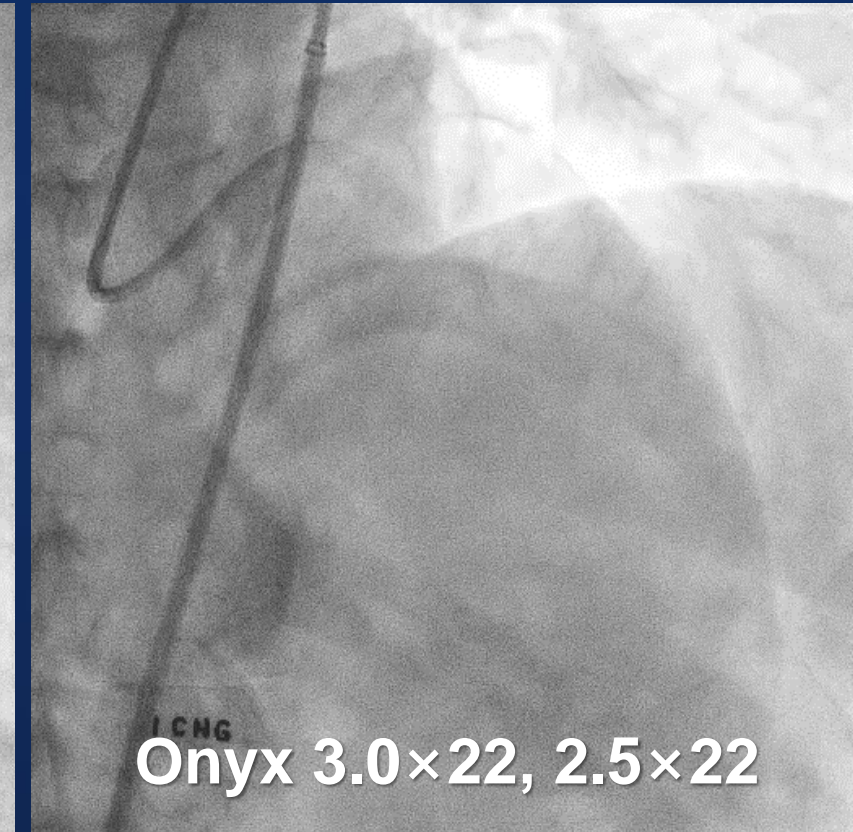
After wiring



Final RAO caudal



Final AP cranial





# Take Home Messages

- Parallel Wire Technique
  - Using the 1<sup>st</sup> wire as a landmark
  - Occluding the subintimal space created by the 1<sup>st</sup> wire
- Keys to Successful Parallel Wire Technique
  - ✓ A New Resistance to the Tactile Sensation
  - ✓ Rerouting from a Point where the 1st Wire Enters the Subintimal Space
- IVUS-guided wiring: IVUS+DLC to use 7 Fr. guiding catheter + get a greater support