Learning from Retry Cases

Why the Previous Attempt was Failed?

A calcified CTO

Toyohashi Heart Center

Kenya Nasu, MD, FACC

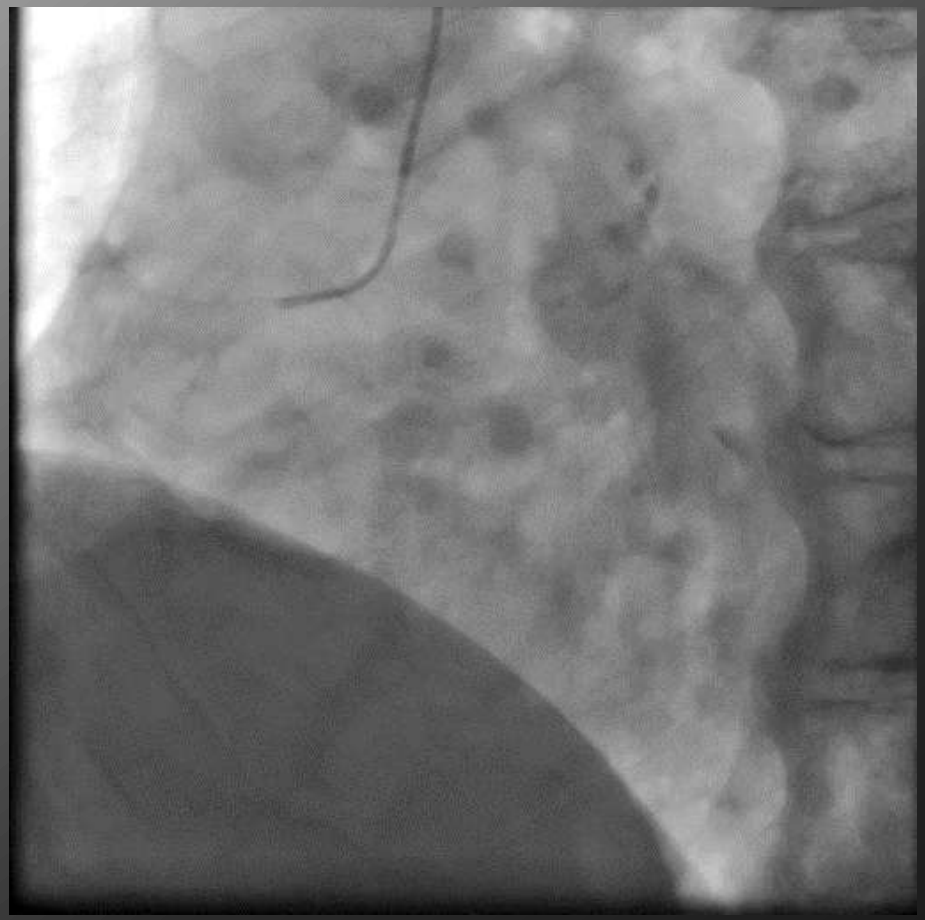
Case

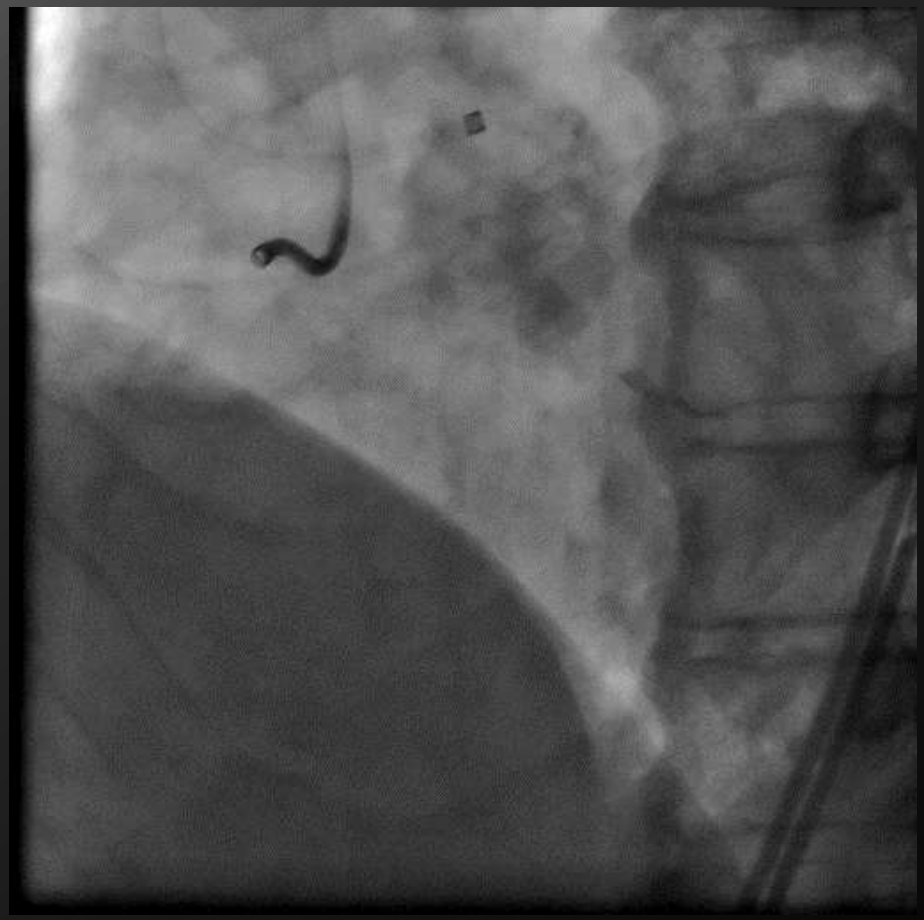
65 y.o M

Target lesion: RCA mid CTO

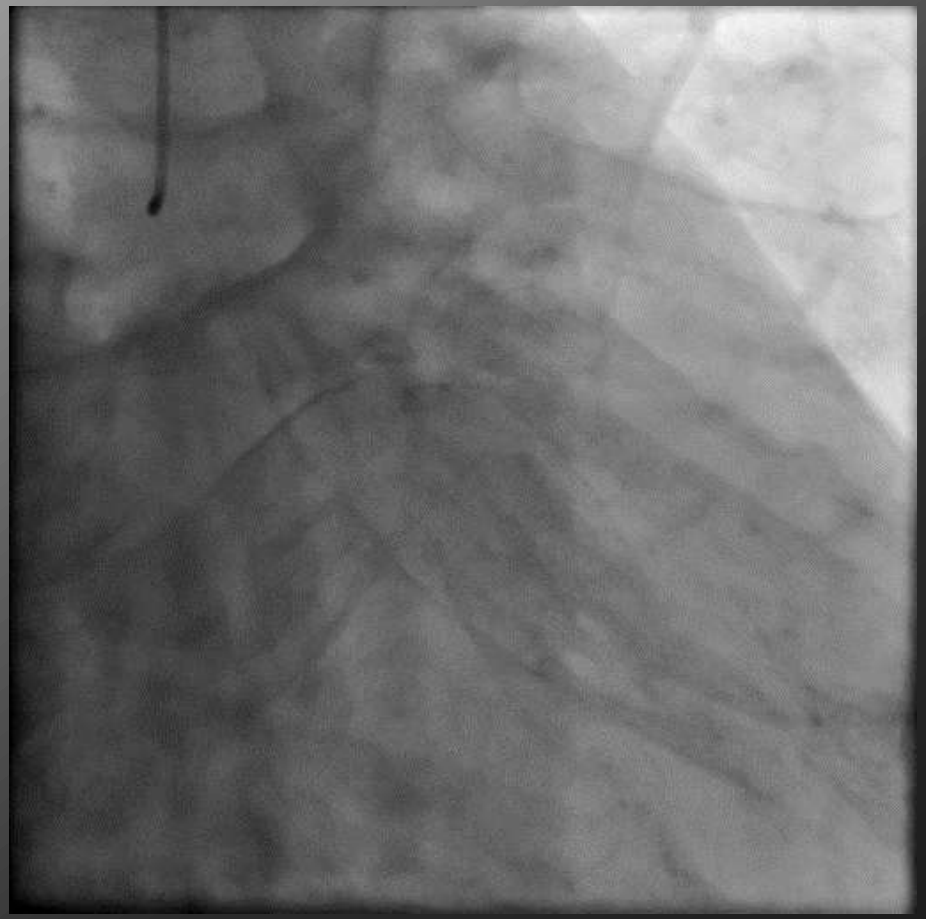
Risk factor: HT, HL

Control

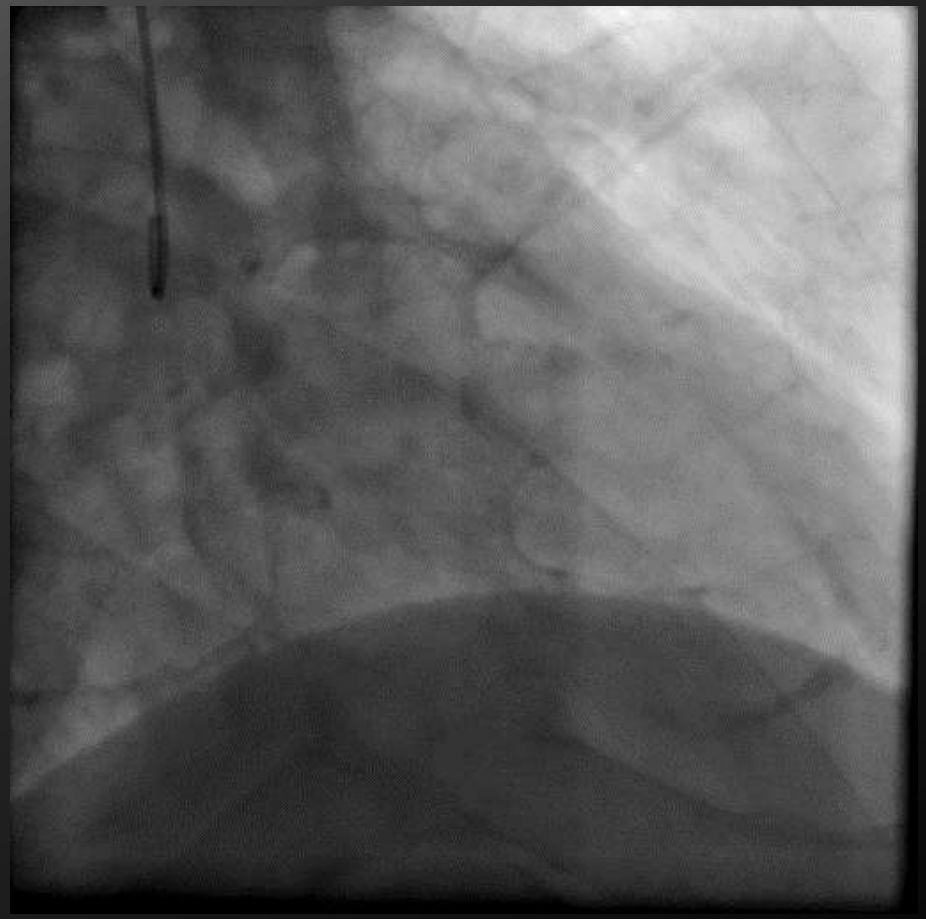




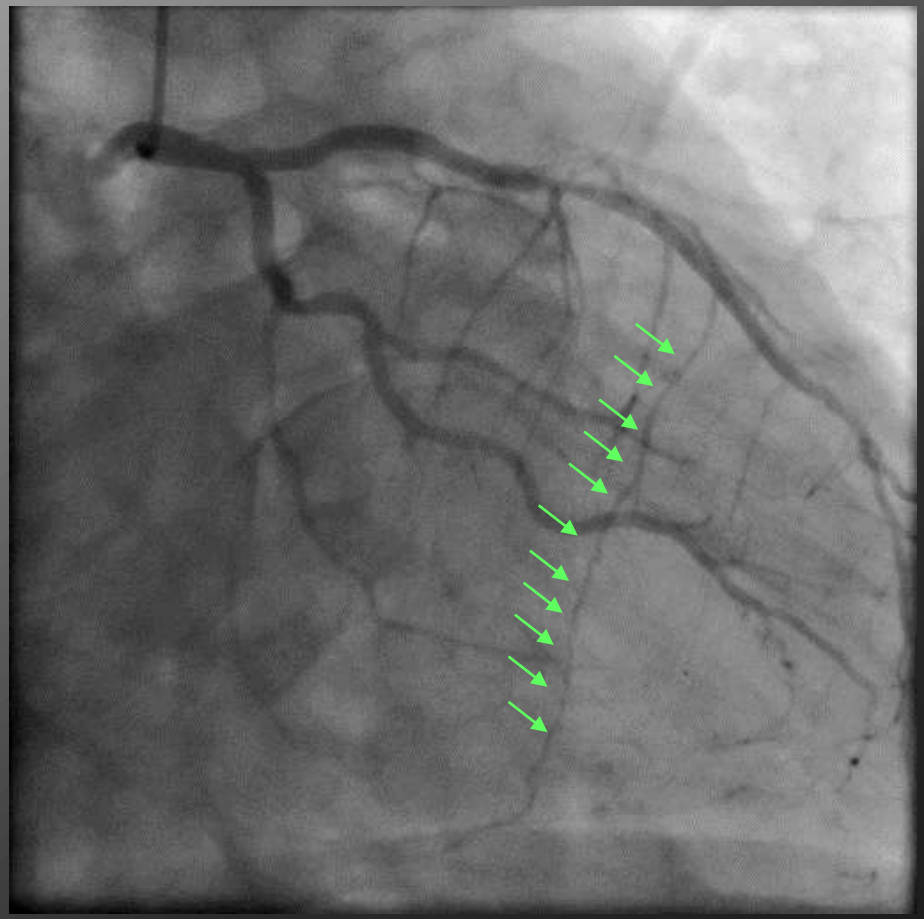
LAO



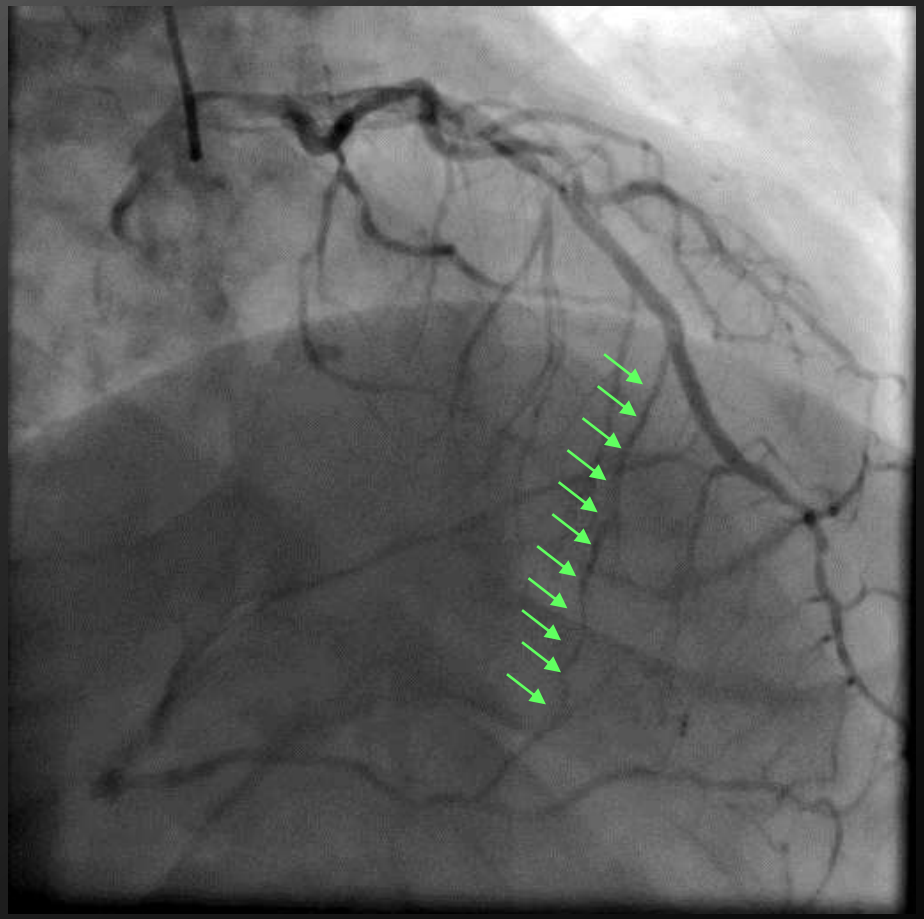
RAO CAU



RAO CRA

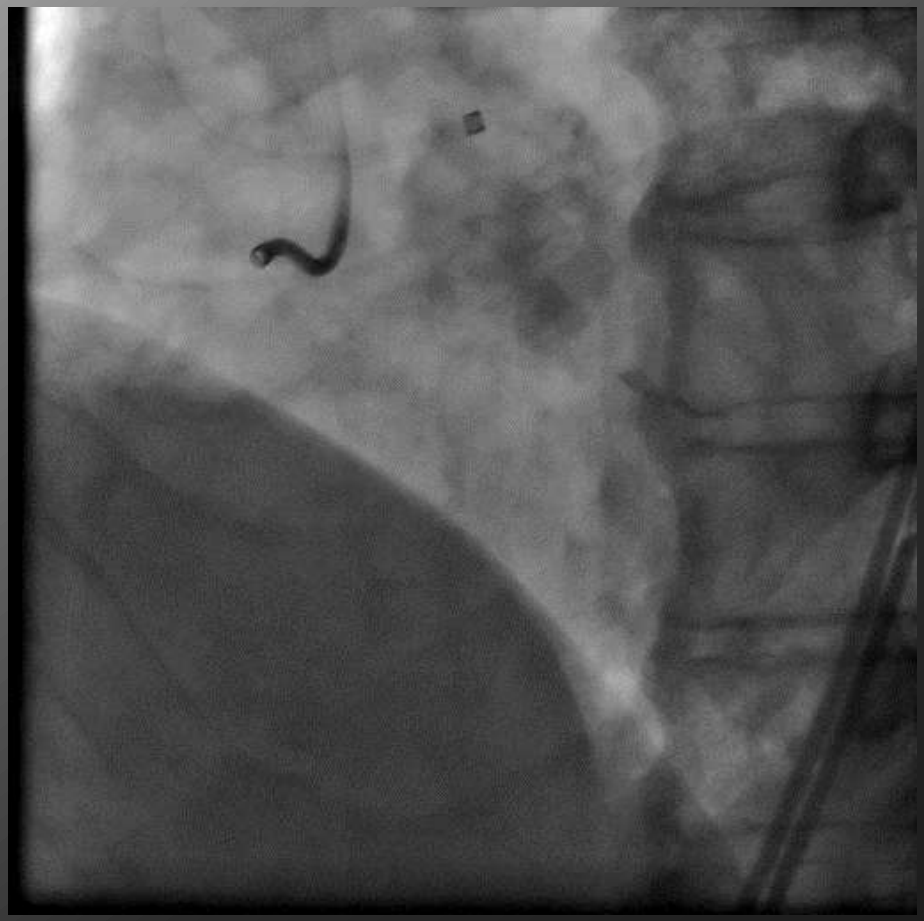


RAO CAU



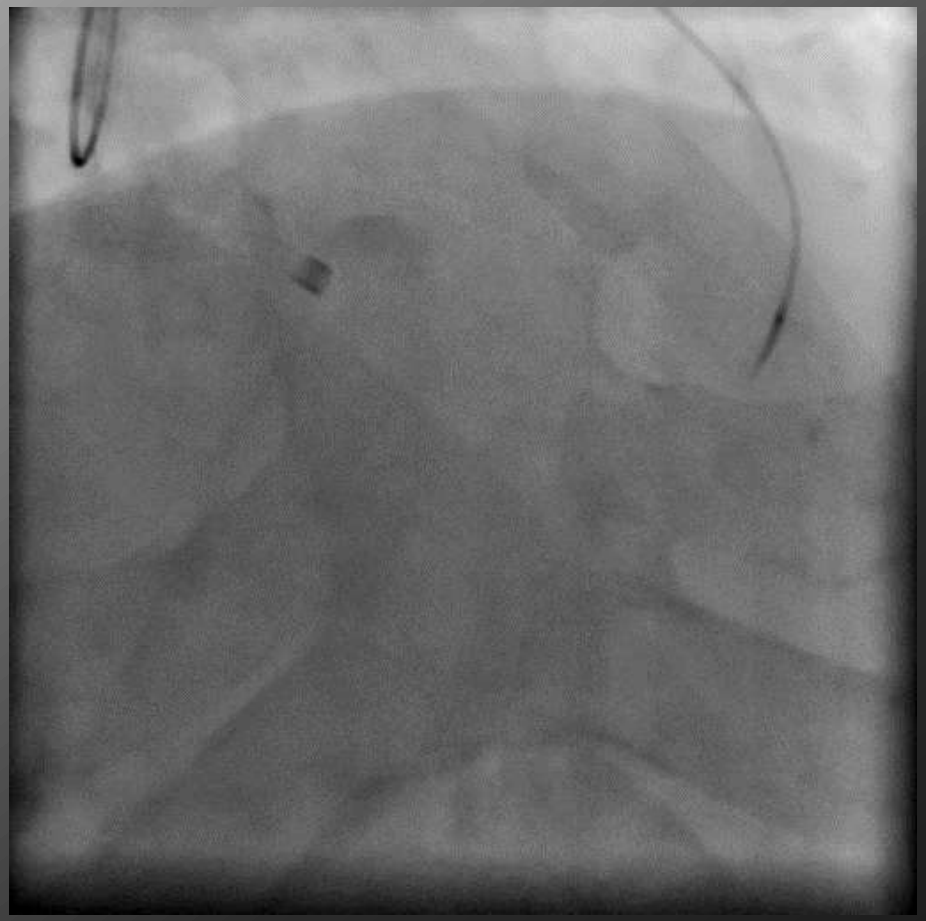
RAO CRA

Bil. angiography

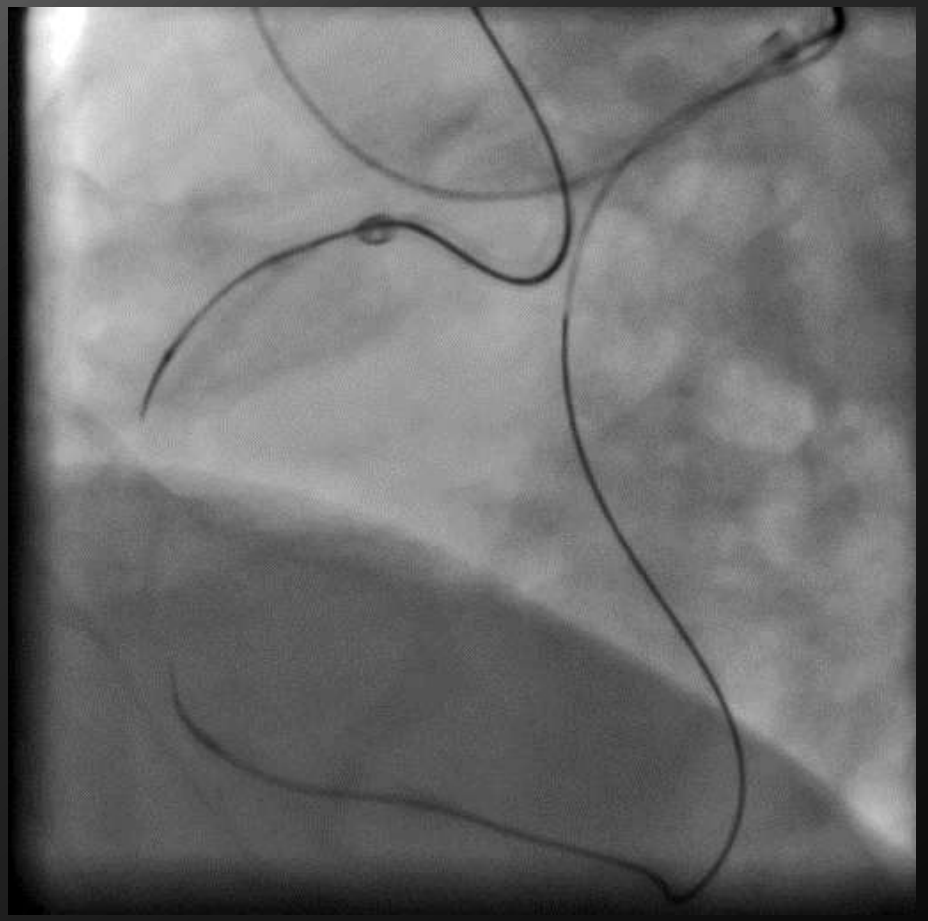


System

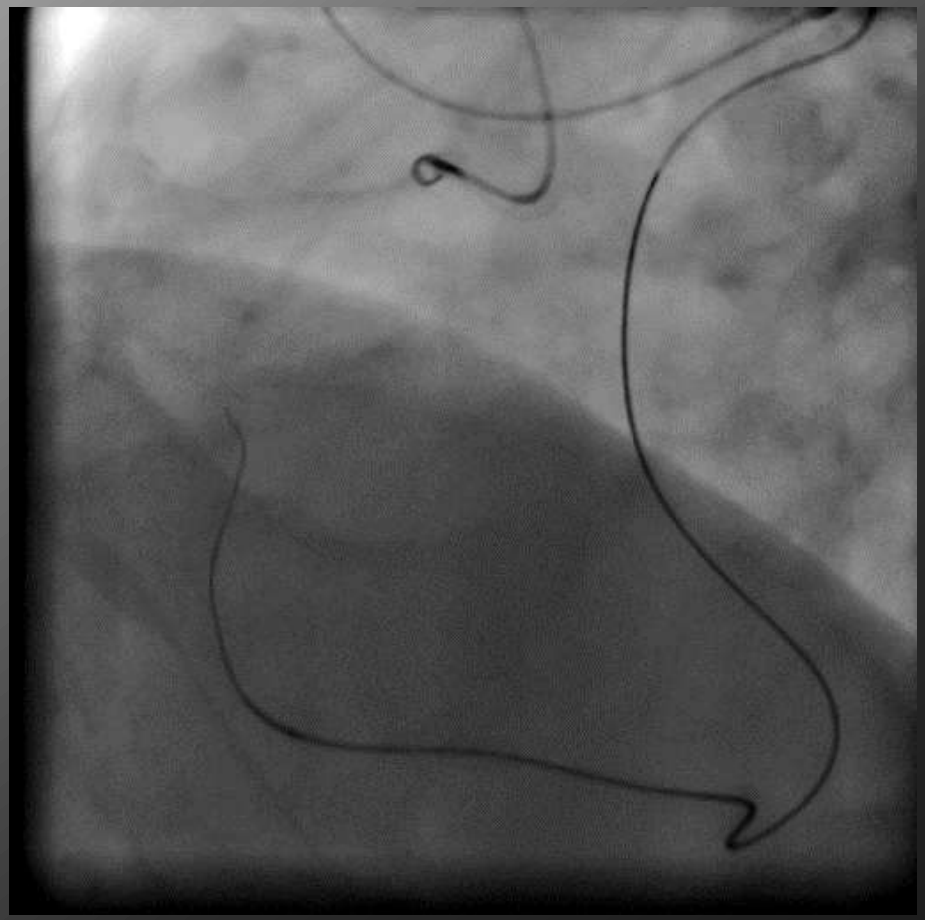
- **Bil. Femoral approach**
- **RCA: 8Fr AL1 SH**
- **LCA: 8Fr XB3.5 SH**
- **Start from Retrograde approach**



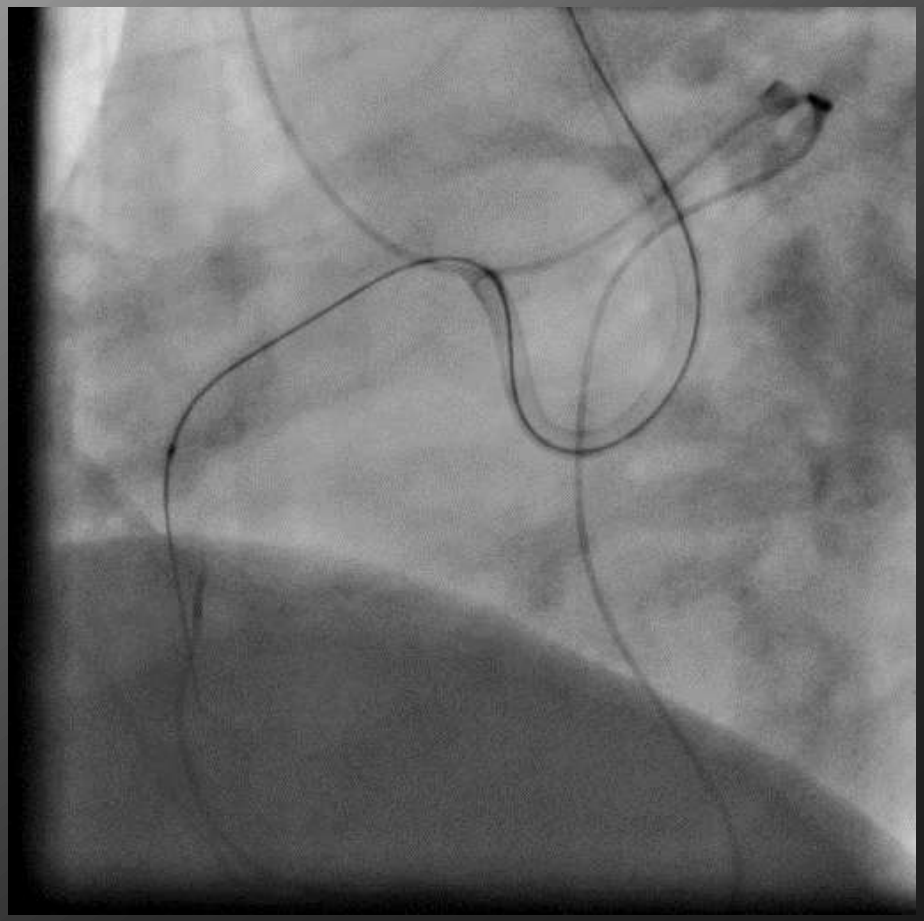
Tip injection

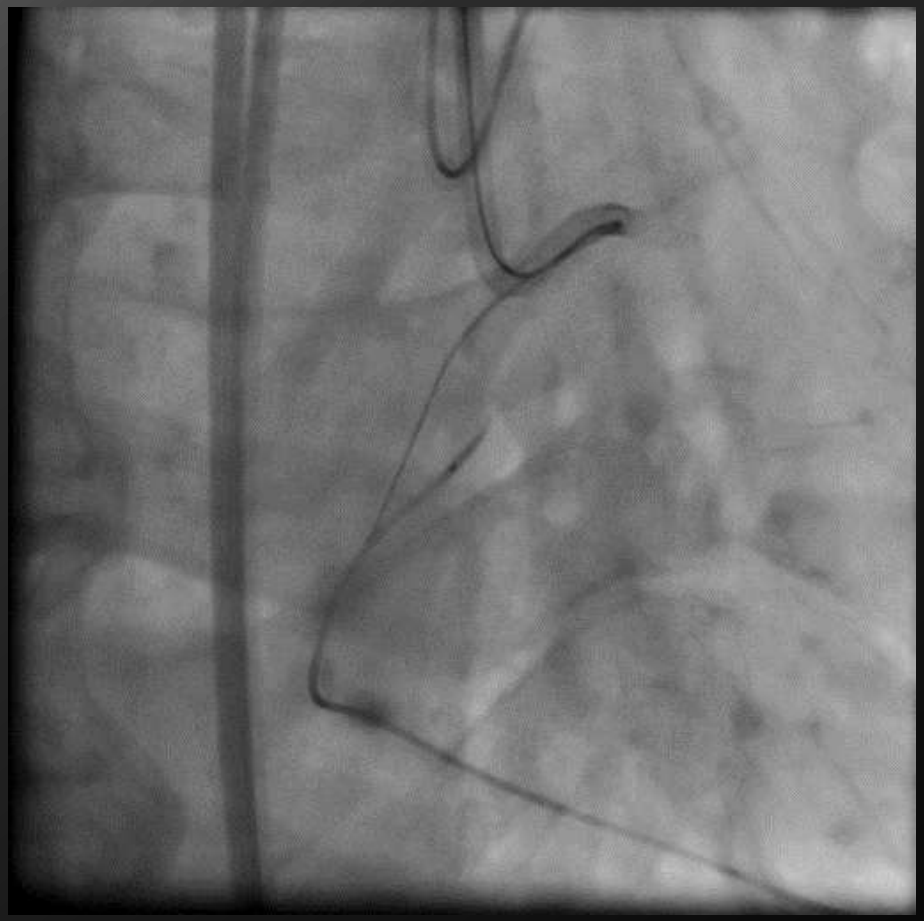


Tip injection from retro
Corsair was not performed

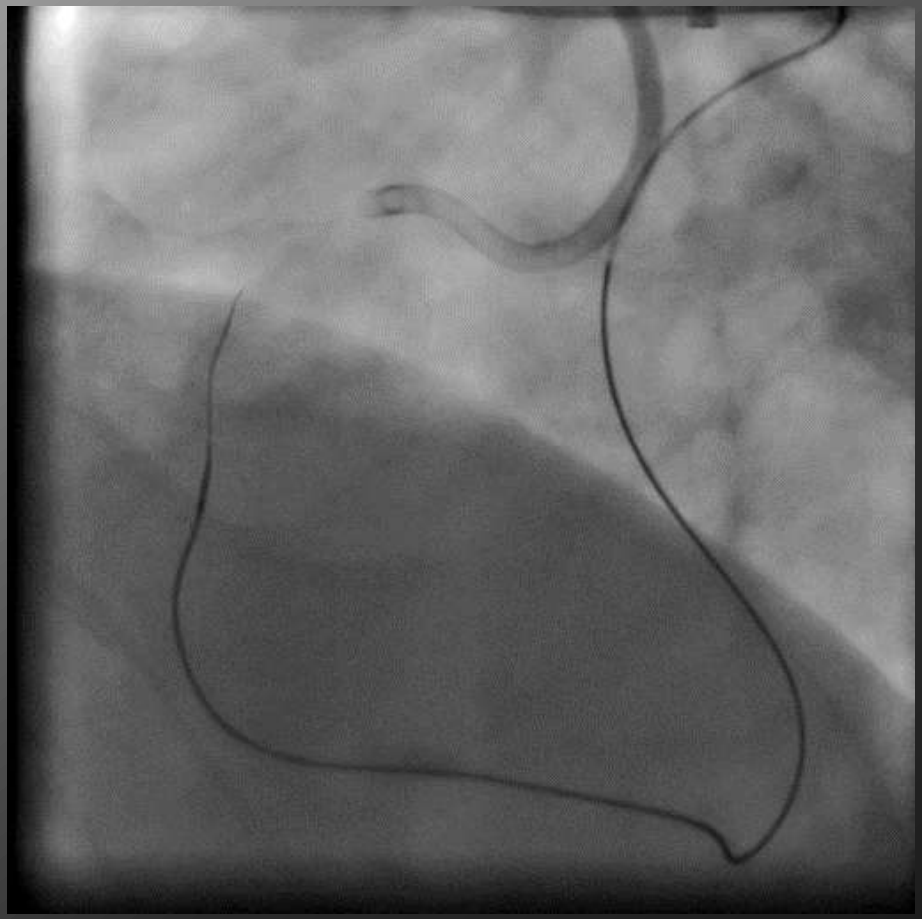


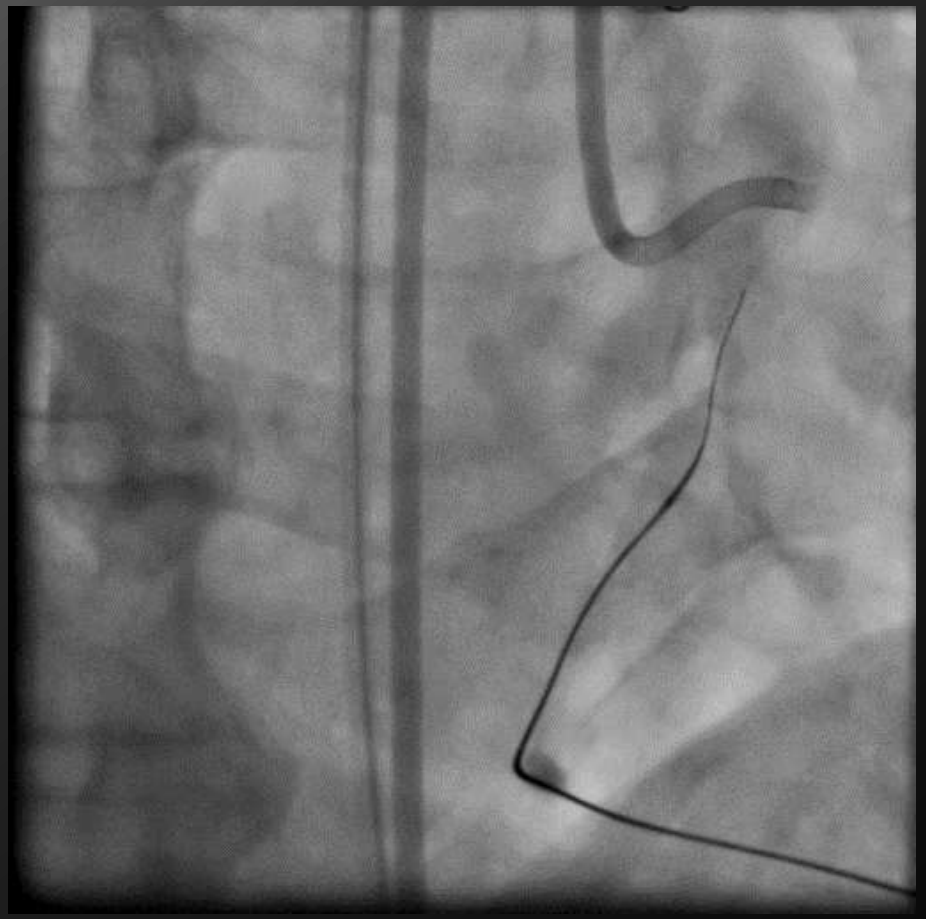
GAIA 1st →GAIA 2nd
from retrograde



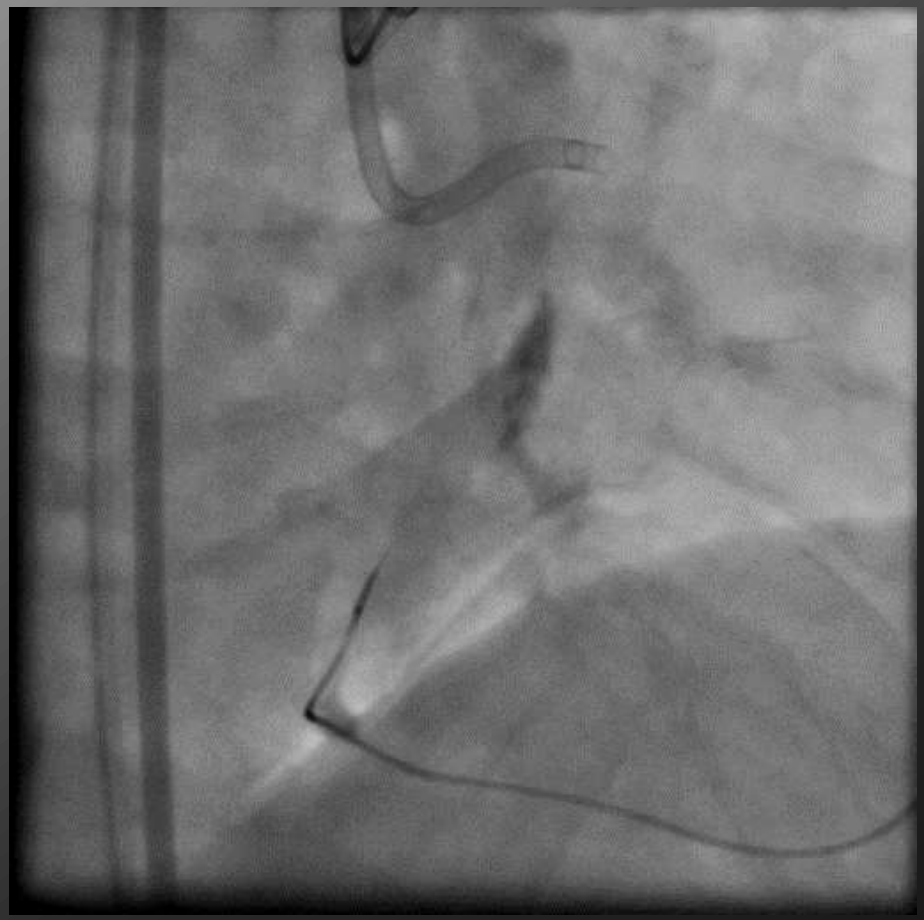


GAIA 2nd
from antegrade

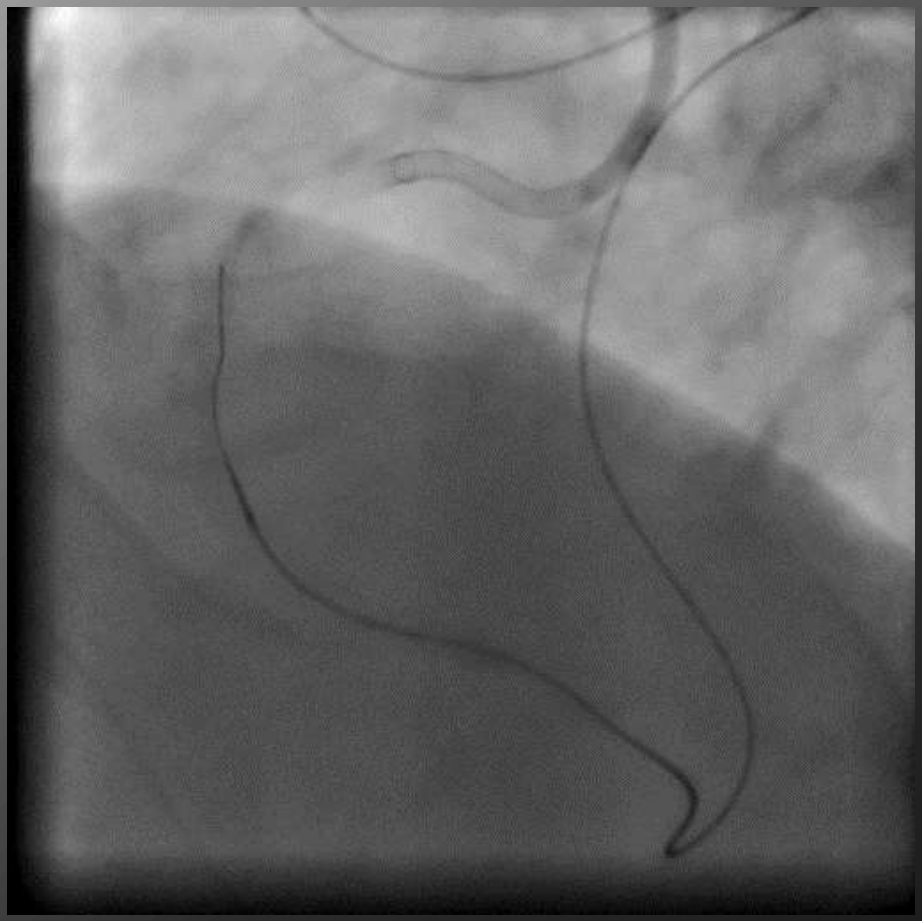




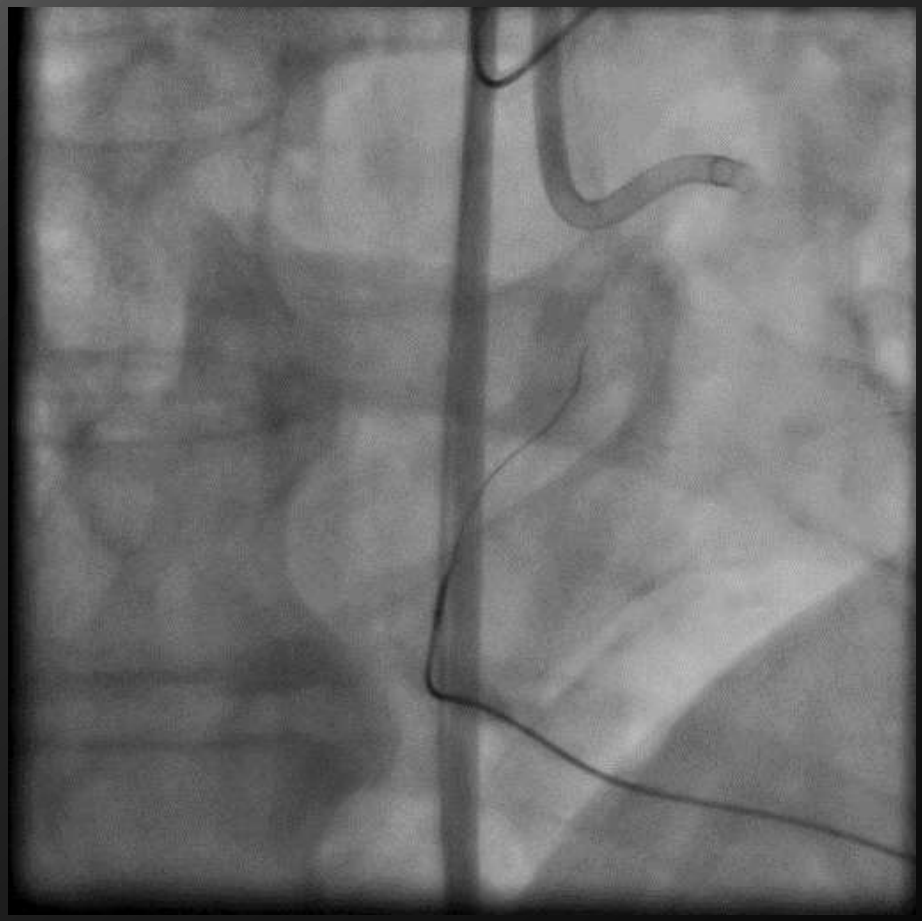
Advancement of retro wire to penetrate proximal cap



Wire perforation by retro wire



Retro wire at right side of calc



Retro wire at right side of calc

Summary of first attempt

- Selection of septal channel was successful
- Tip injection from retrograde Corsair was not done

  = the morphology of distal cap was not identified.
- Retro wire always advanced in the right side of angiographic calcification in both LAO and RAO although proximal cap was located at left side of calcification.

  = Retro wire advanced in sub intimal space.
- Penetration of proximal cap was difficult

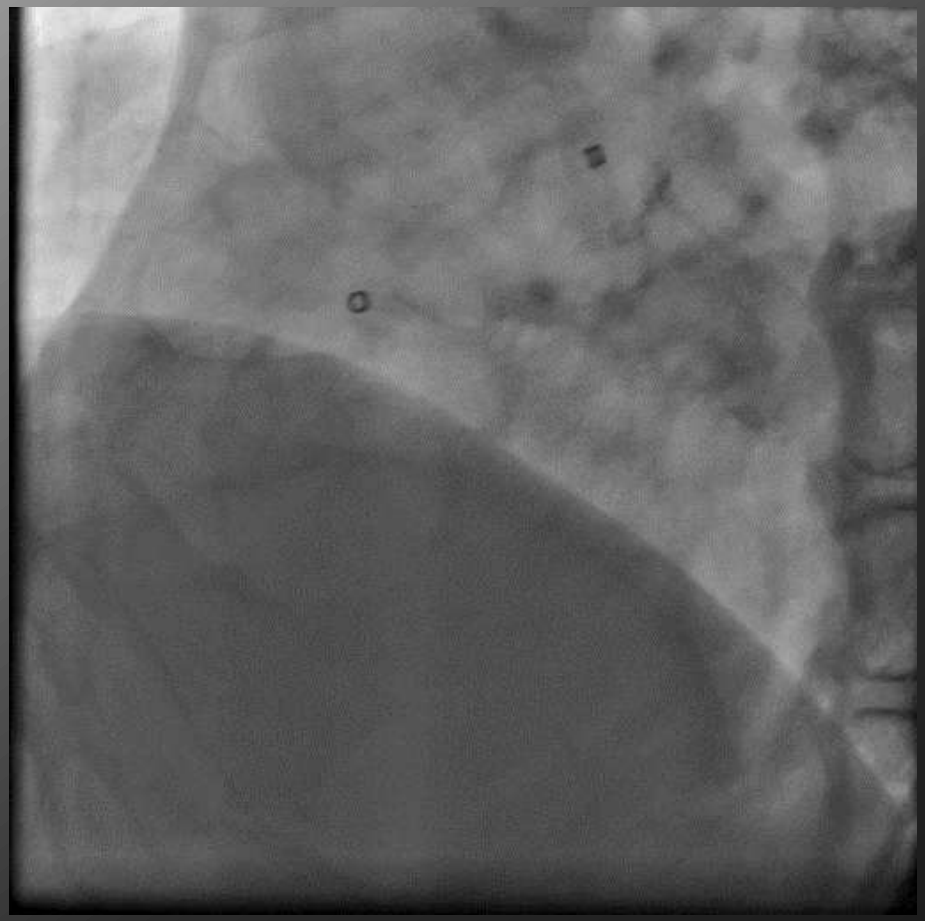
Plan for second attempt

- Check the connection of septal channel again

= Septal channel was often occluded after usage of retrograde approach

- Check the morphology of distal cap by tip injection
- Try to penetrate distal cap between the calcification and advance to the proximal from retrograde
- Try to penetrate proximal cap by a stiff wire to the direction of retro wire
- Reverse CART

2nd attempt 3 month later



LAO

System

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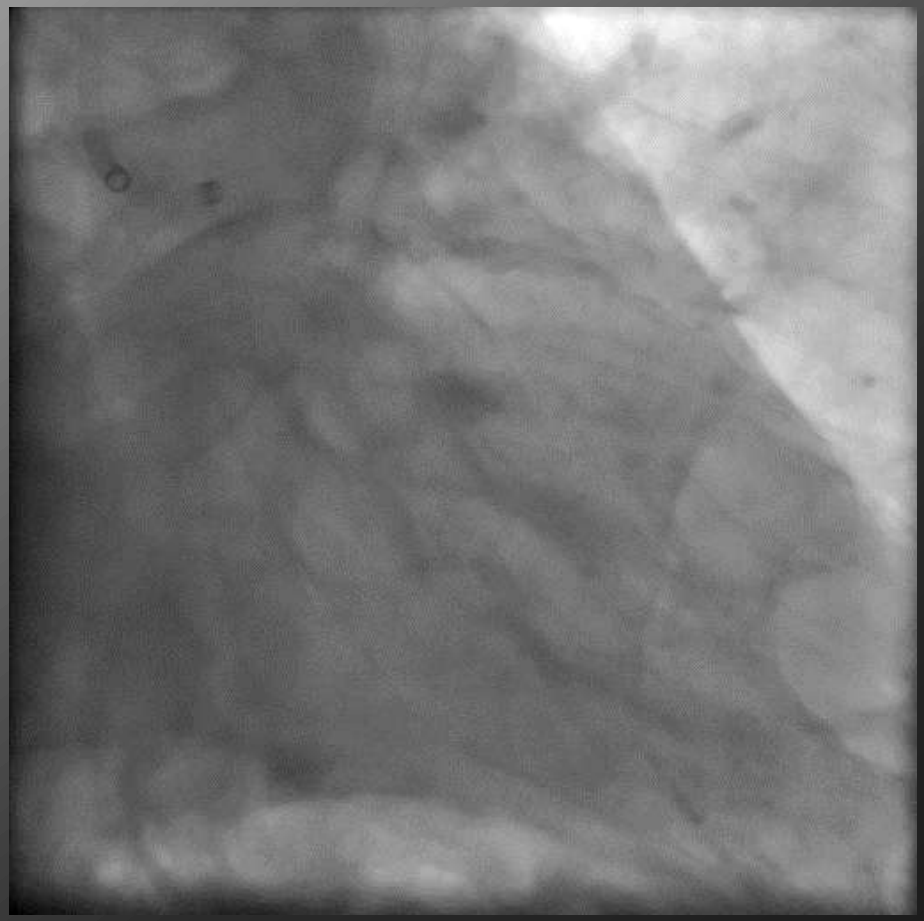
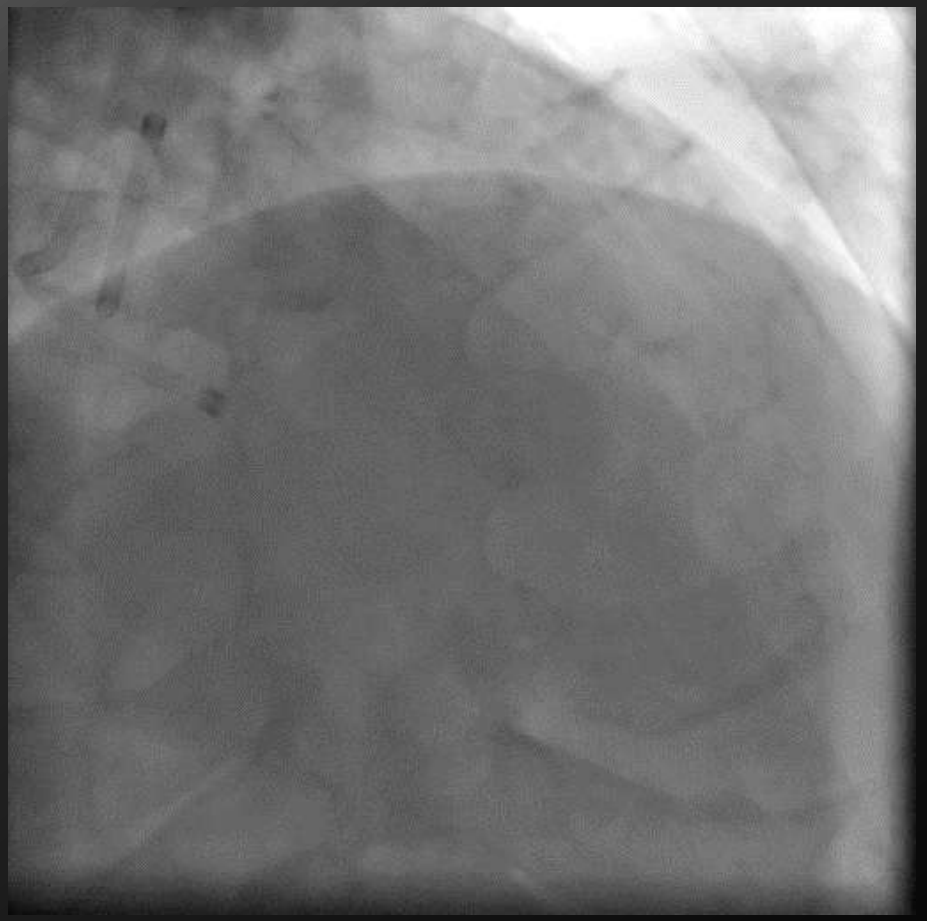
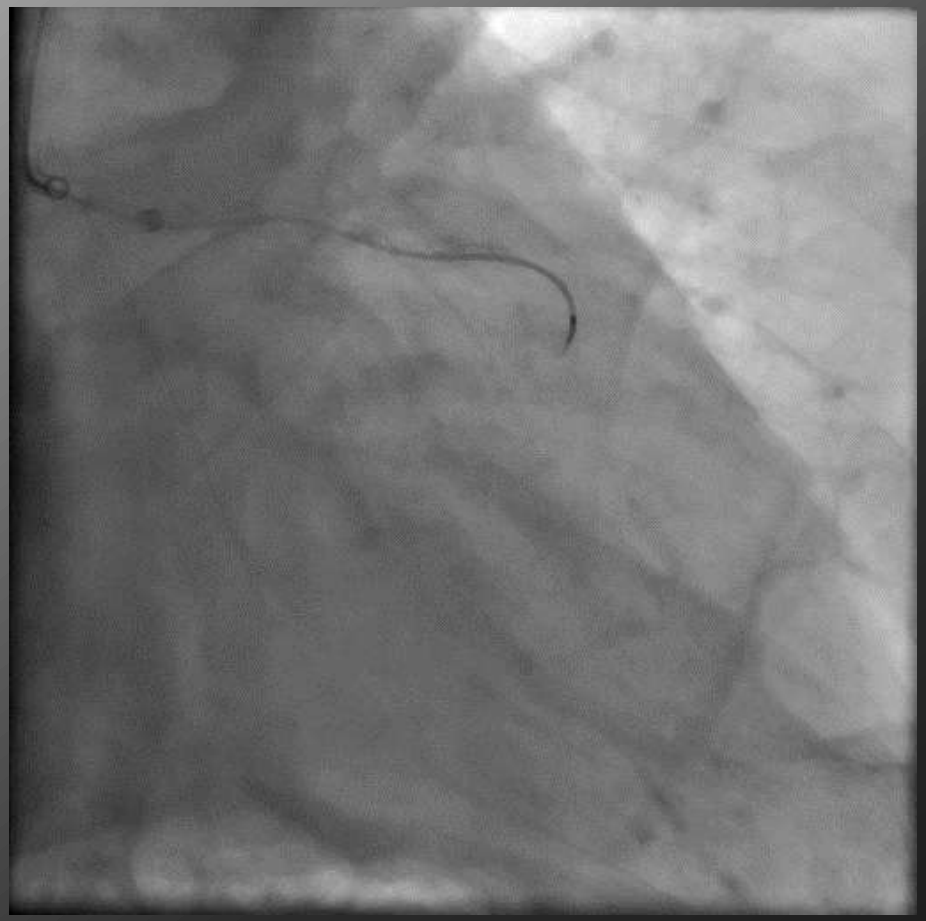


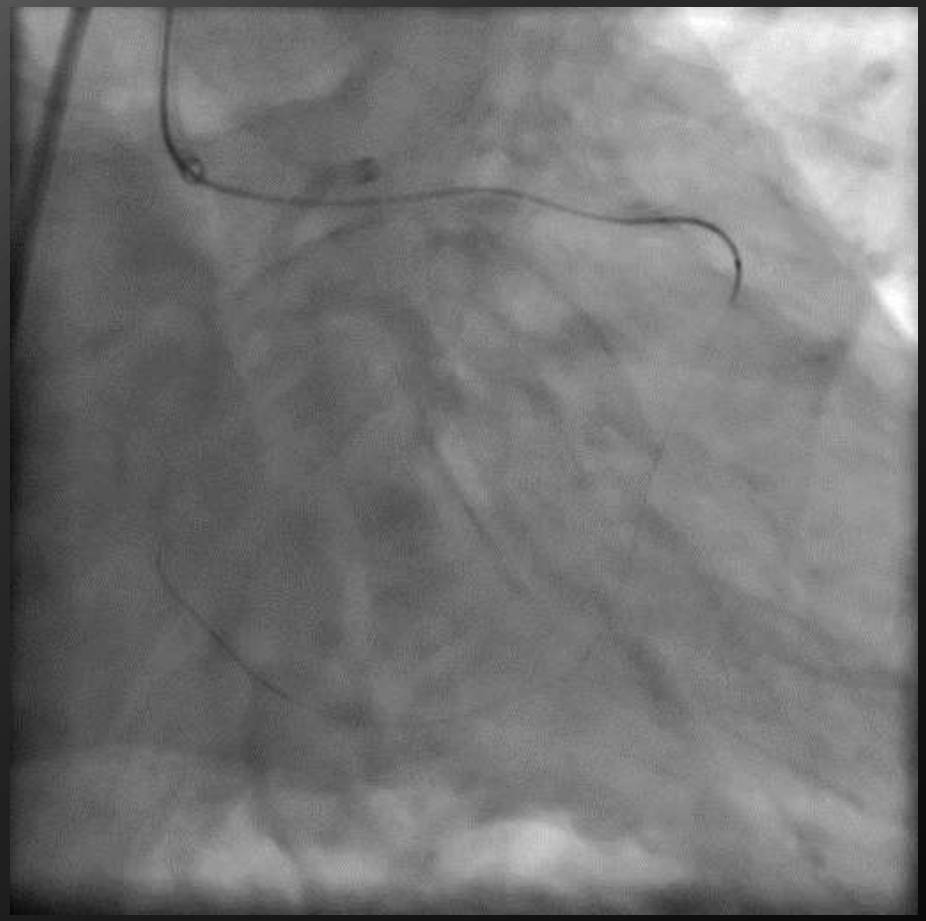
RAO CAU



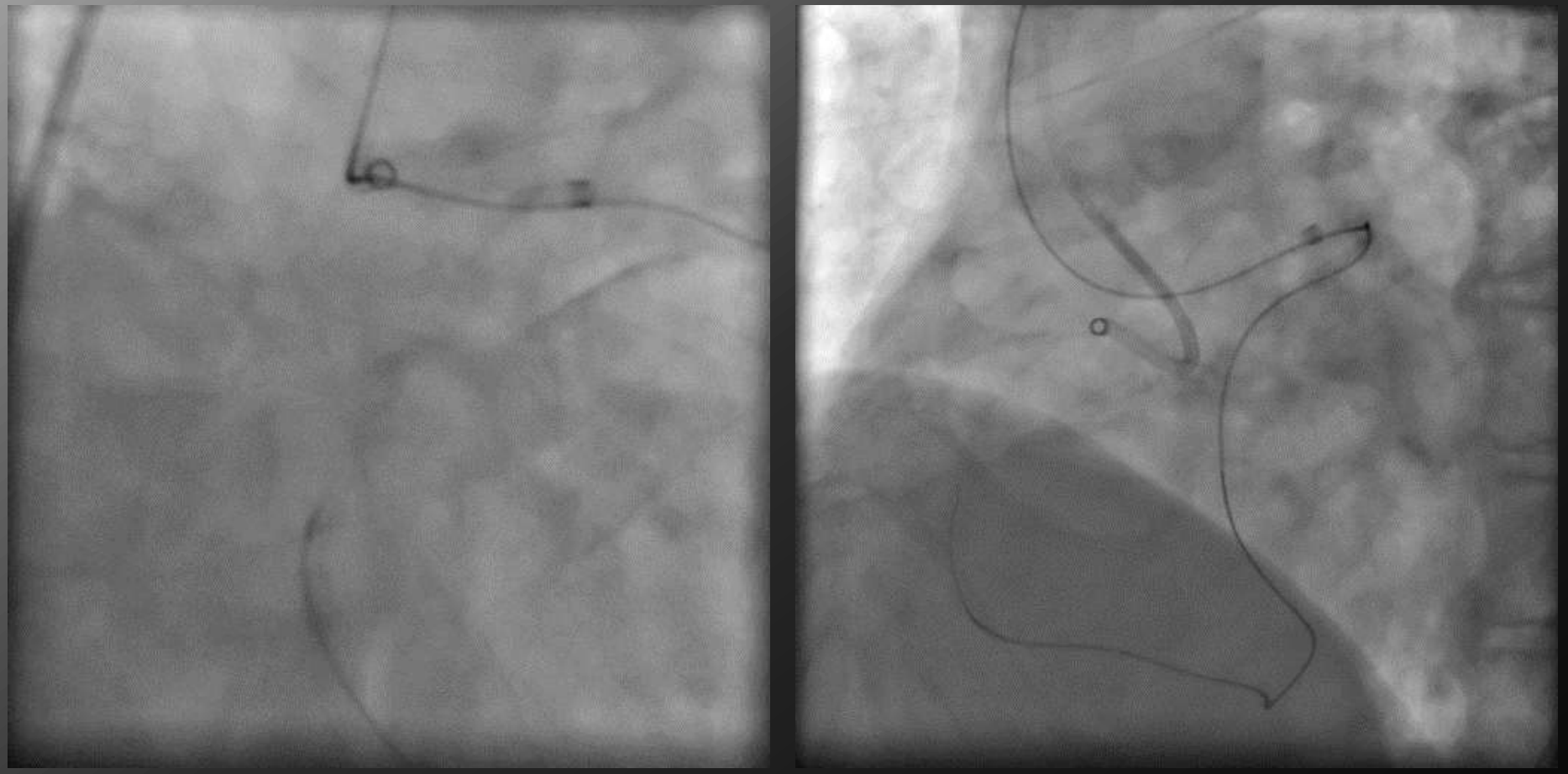
RAO CRA



Tip injection

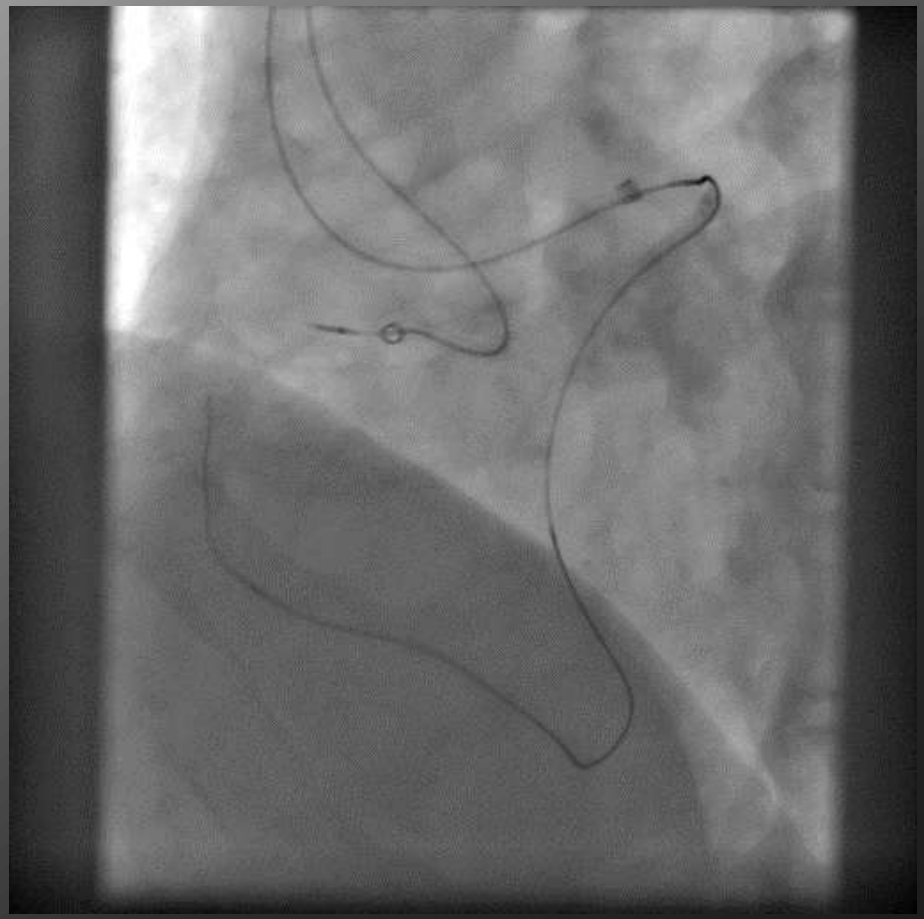


Septal surfing

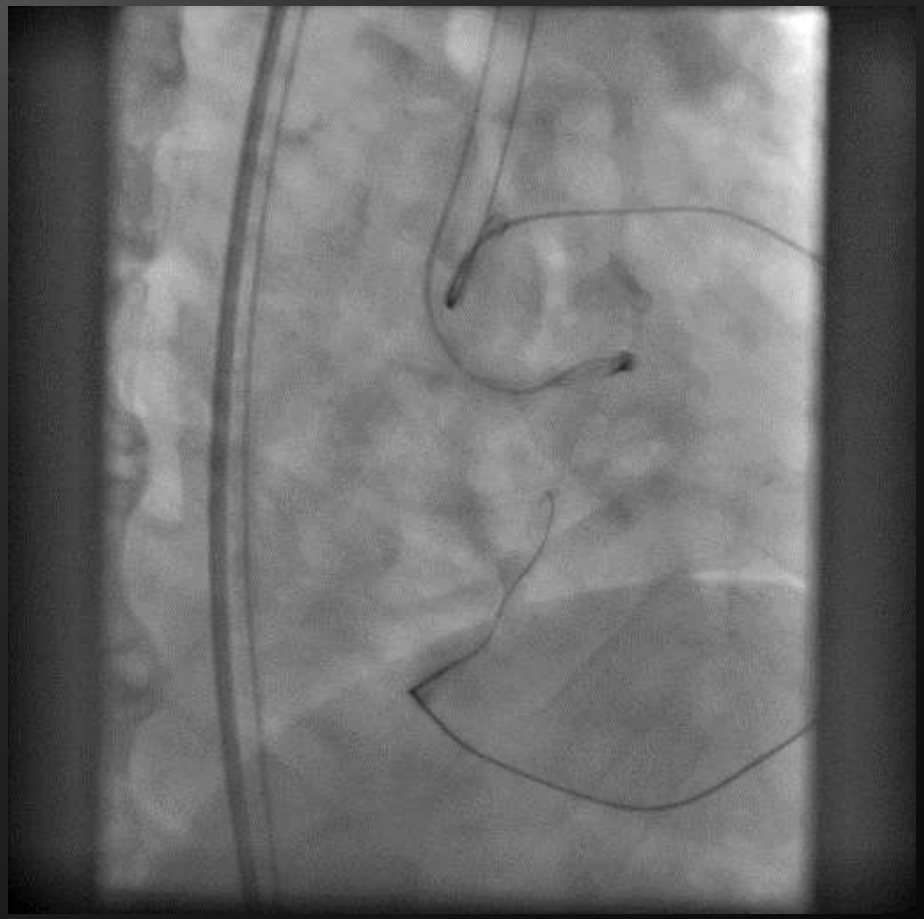


Tip injection

Guide wiring by GAIA 2nd from retrograde

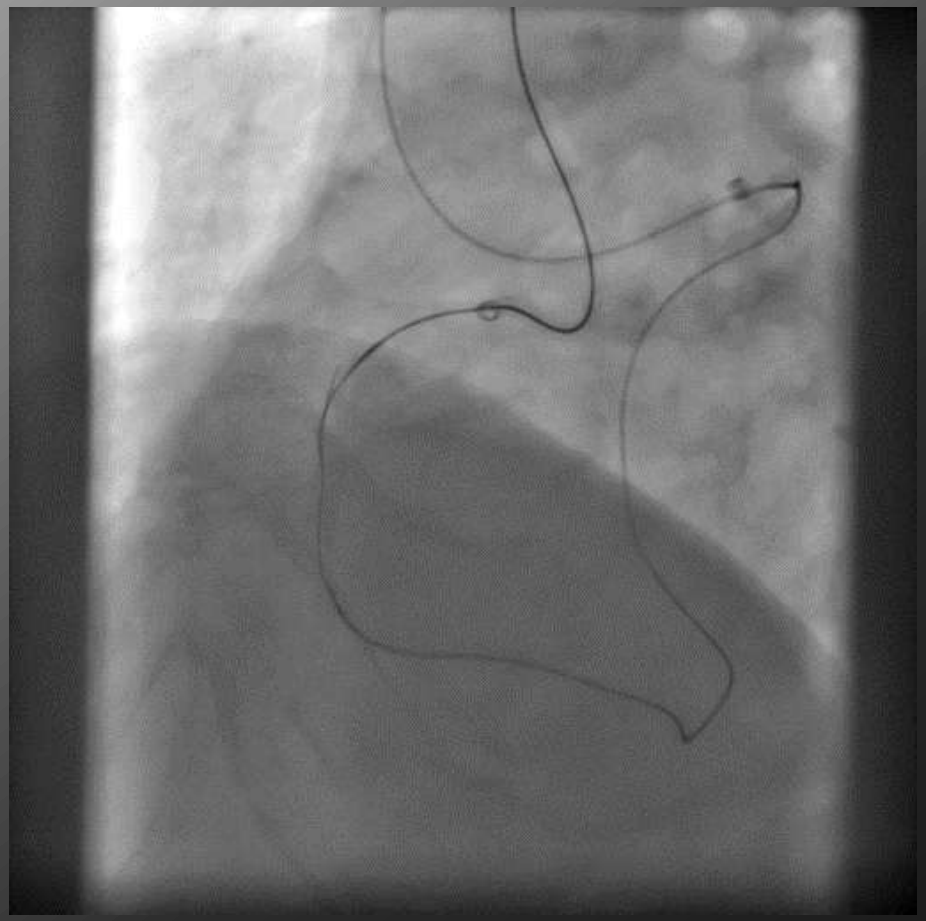


LAO

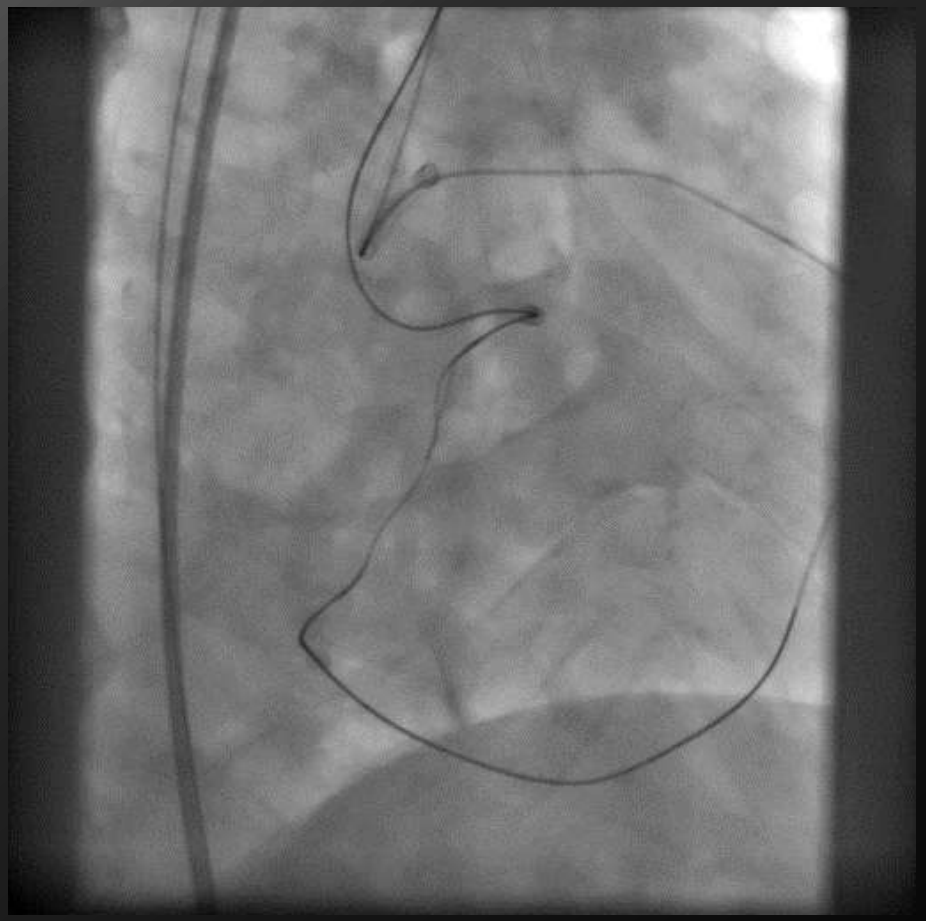


RAO

Penetration proximal cap by Conquest pro 12g

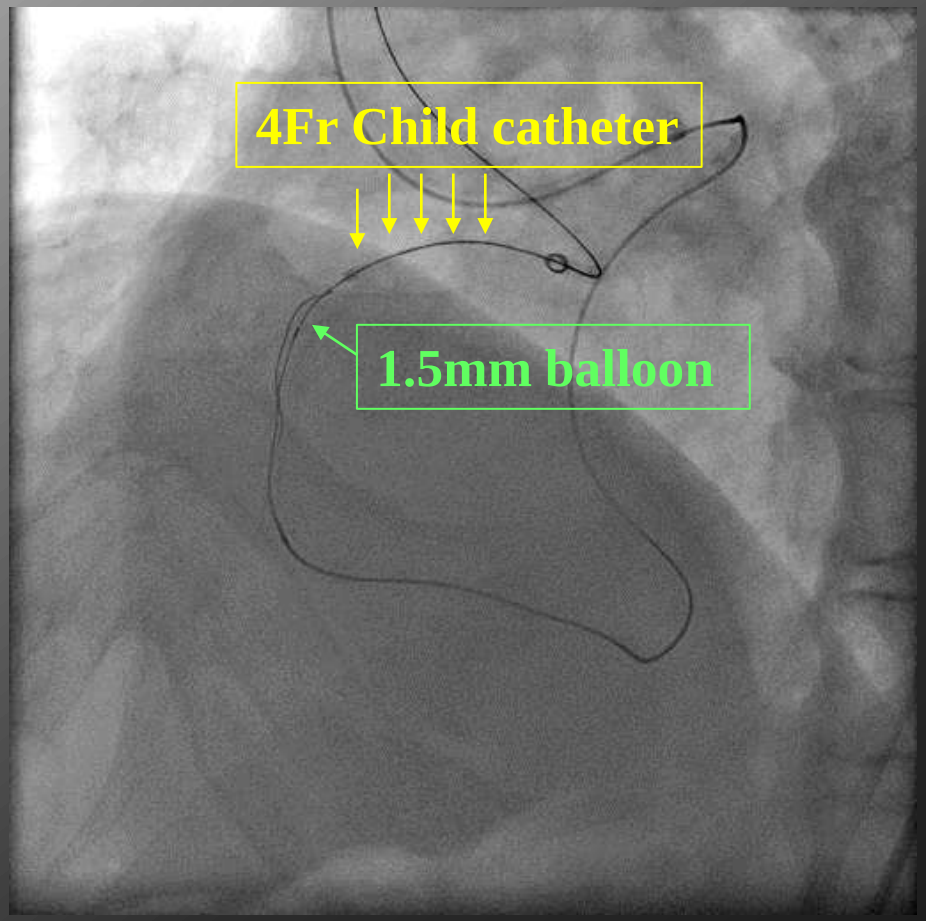


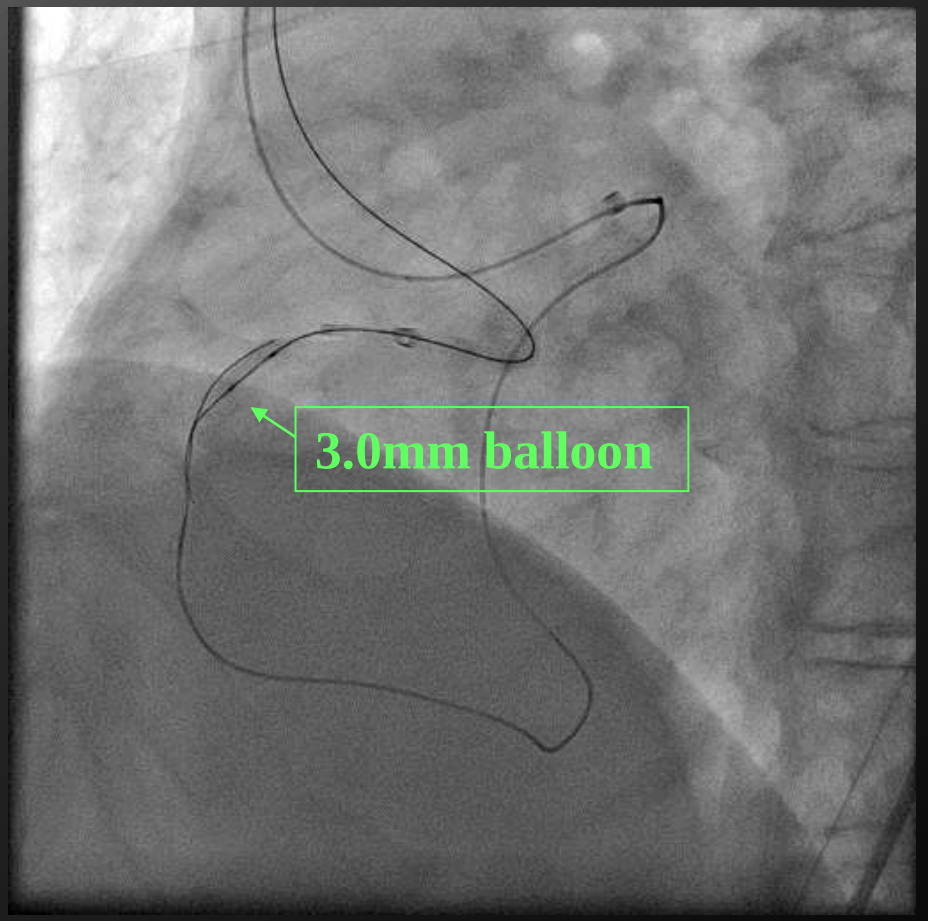
LAO

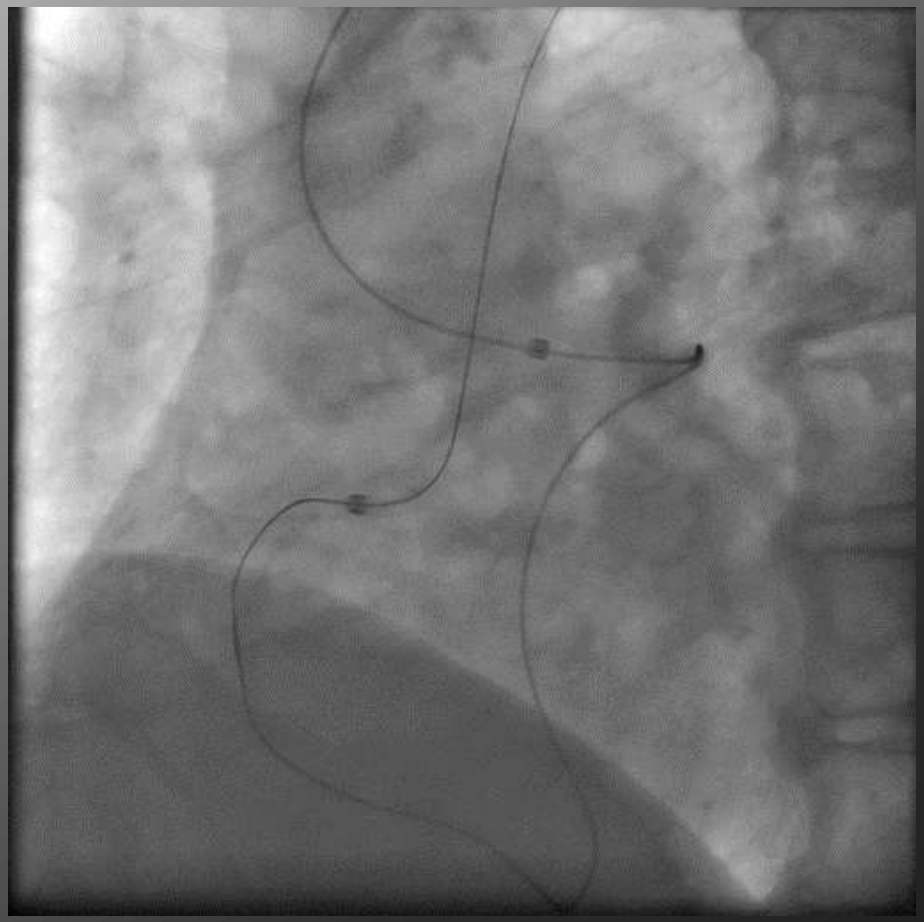


RAO

Modified Reverse CART







Corsair could not be advanced

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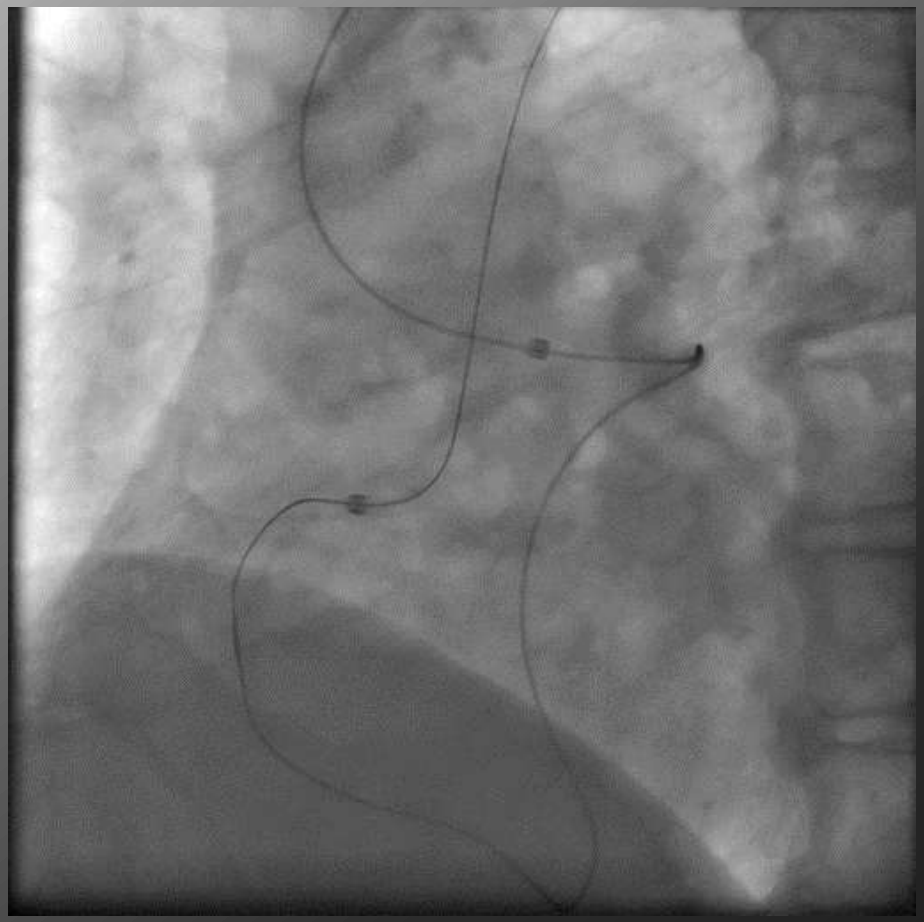
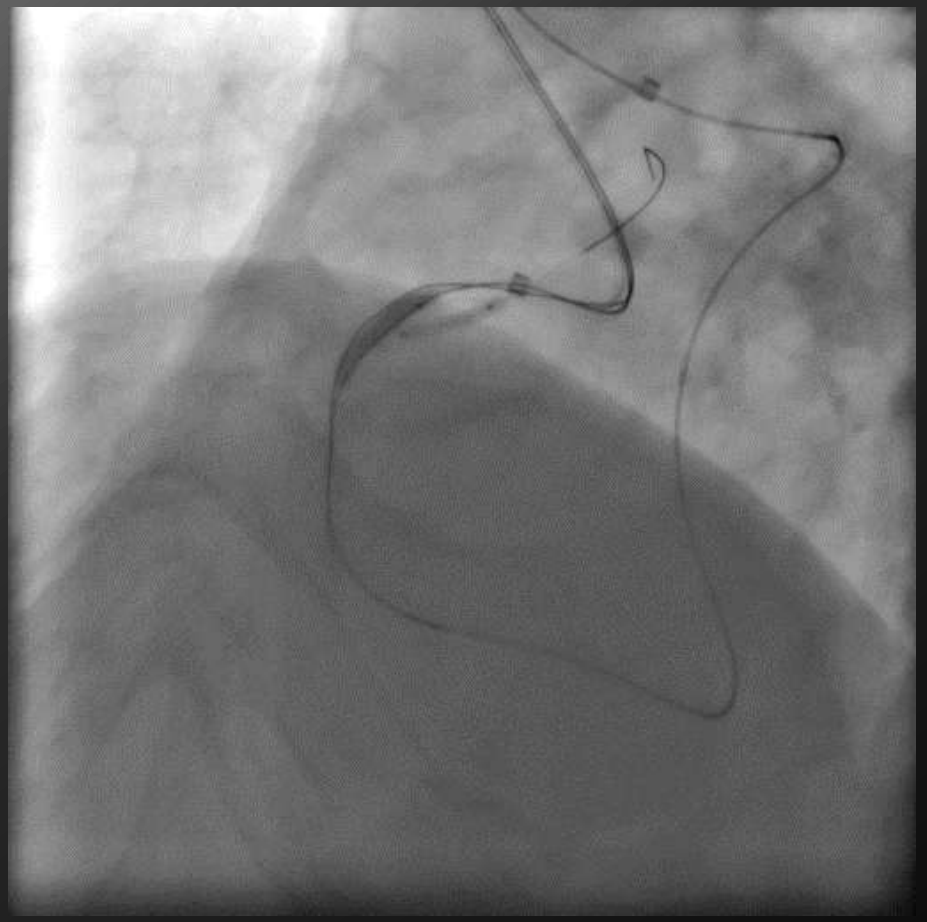
Rendezvous technique was failed





Change to new Corsair

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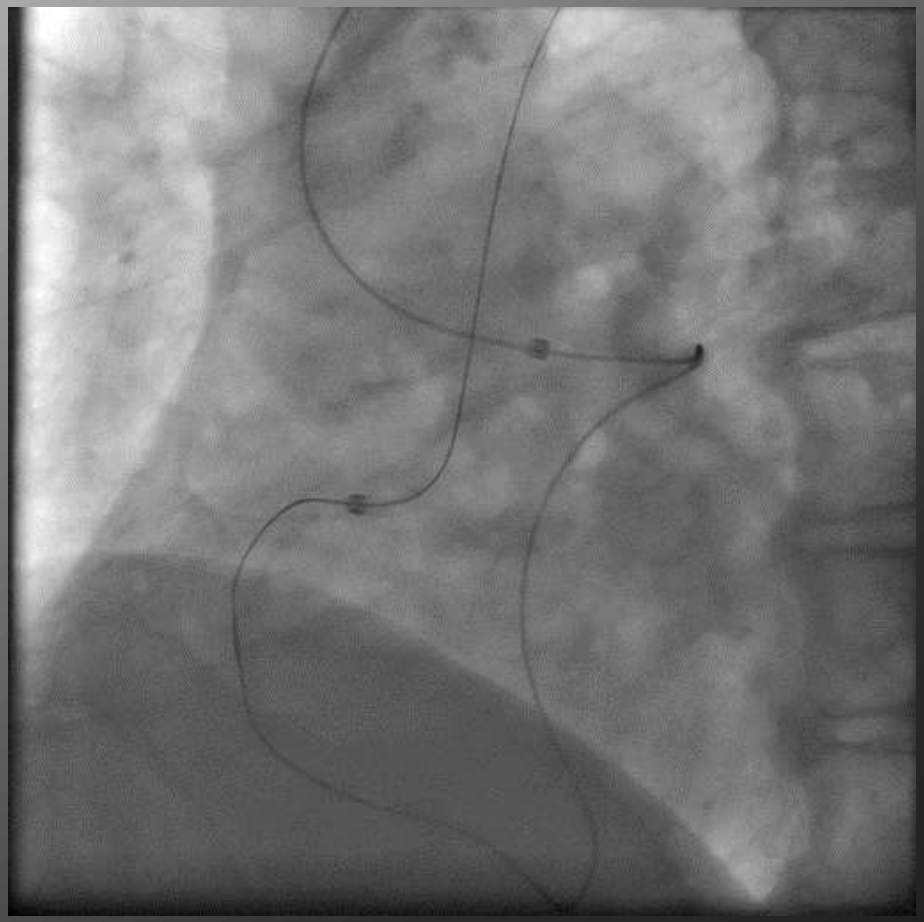
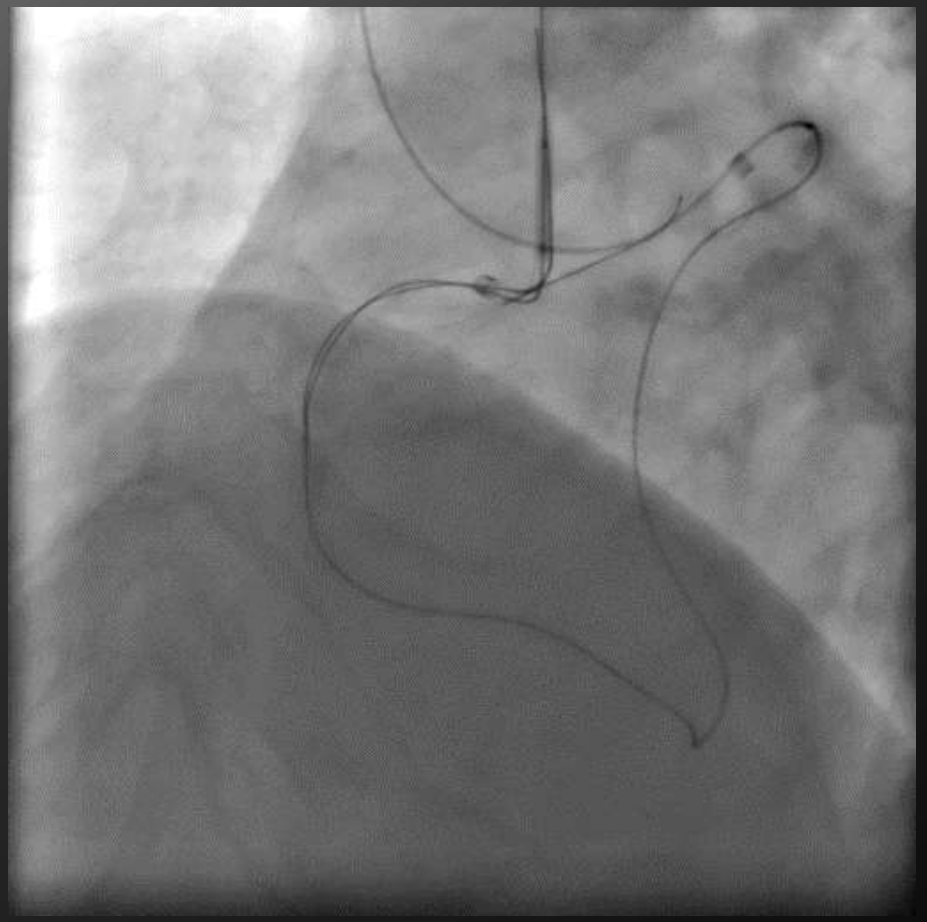
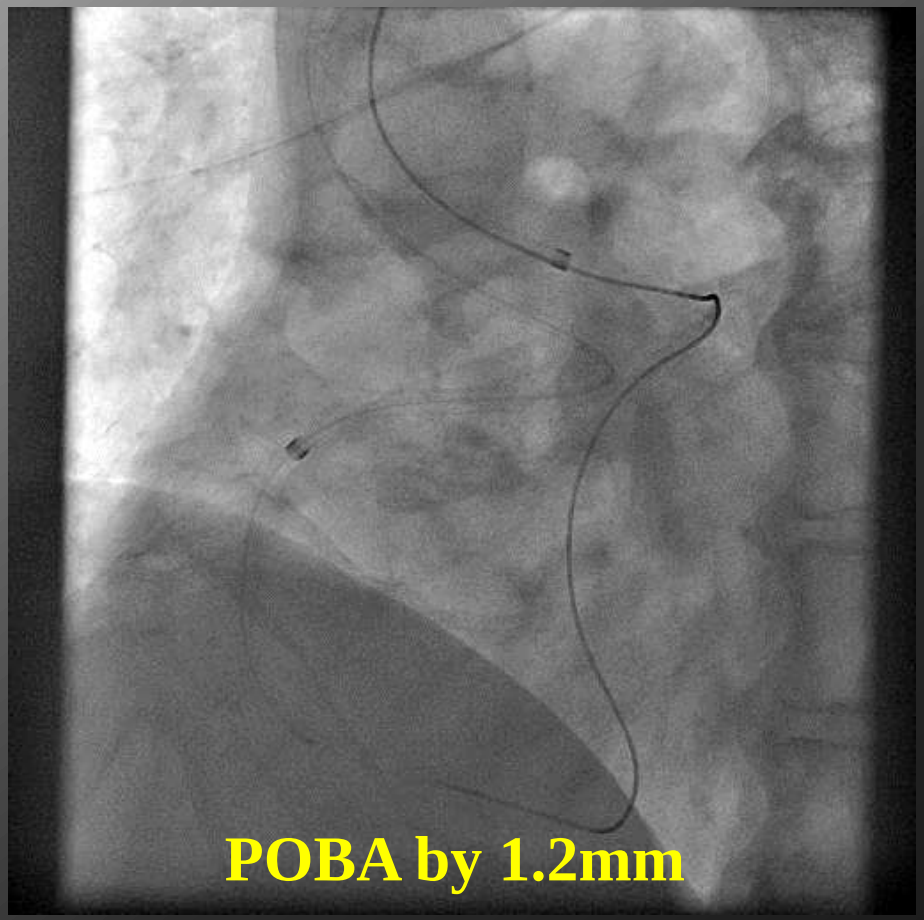
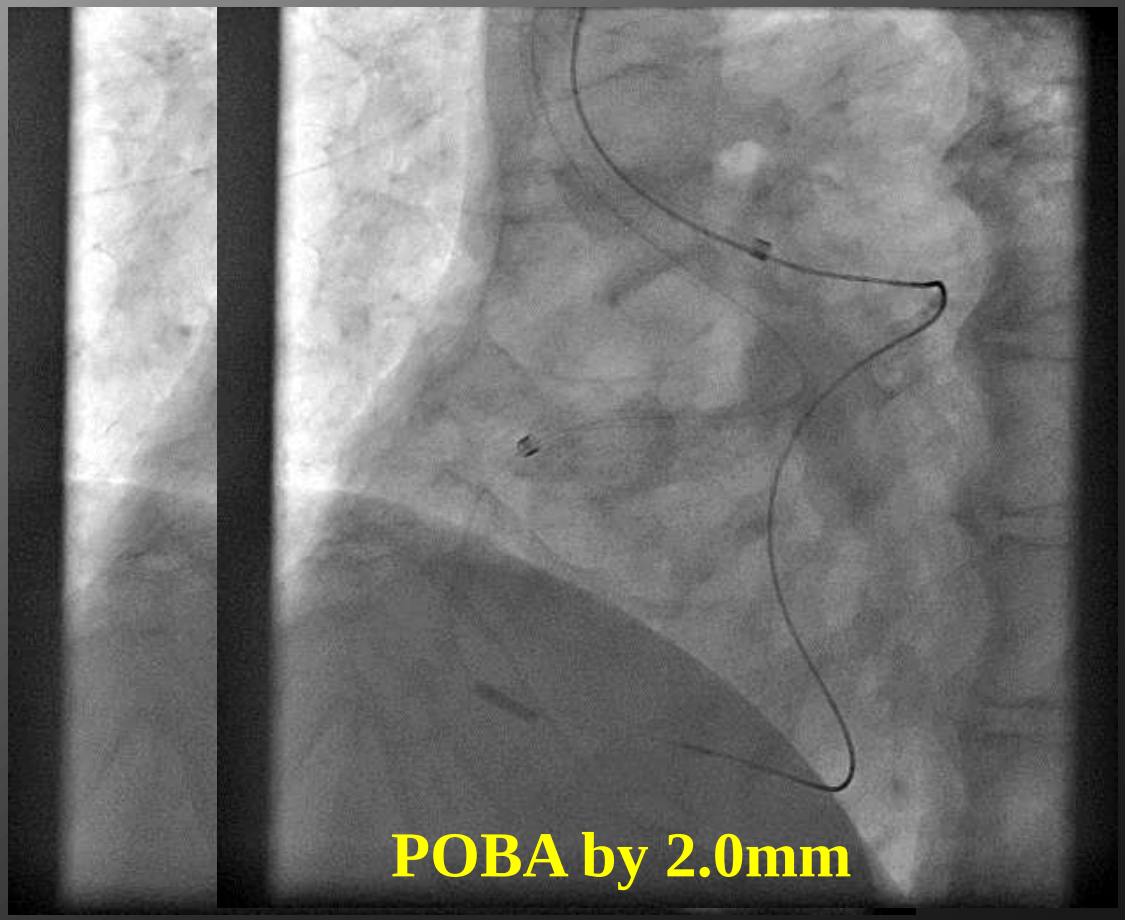
Ballooning for trapping

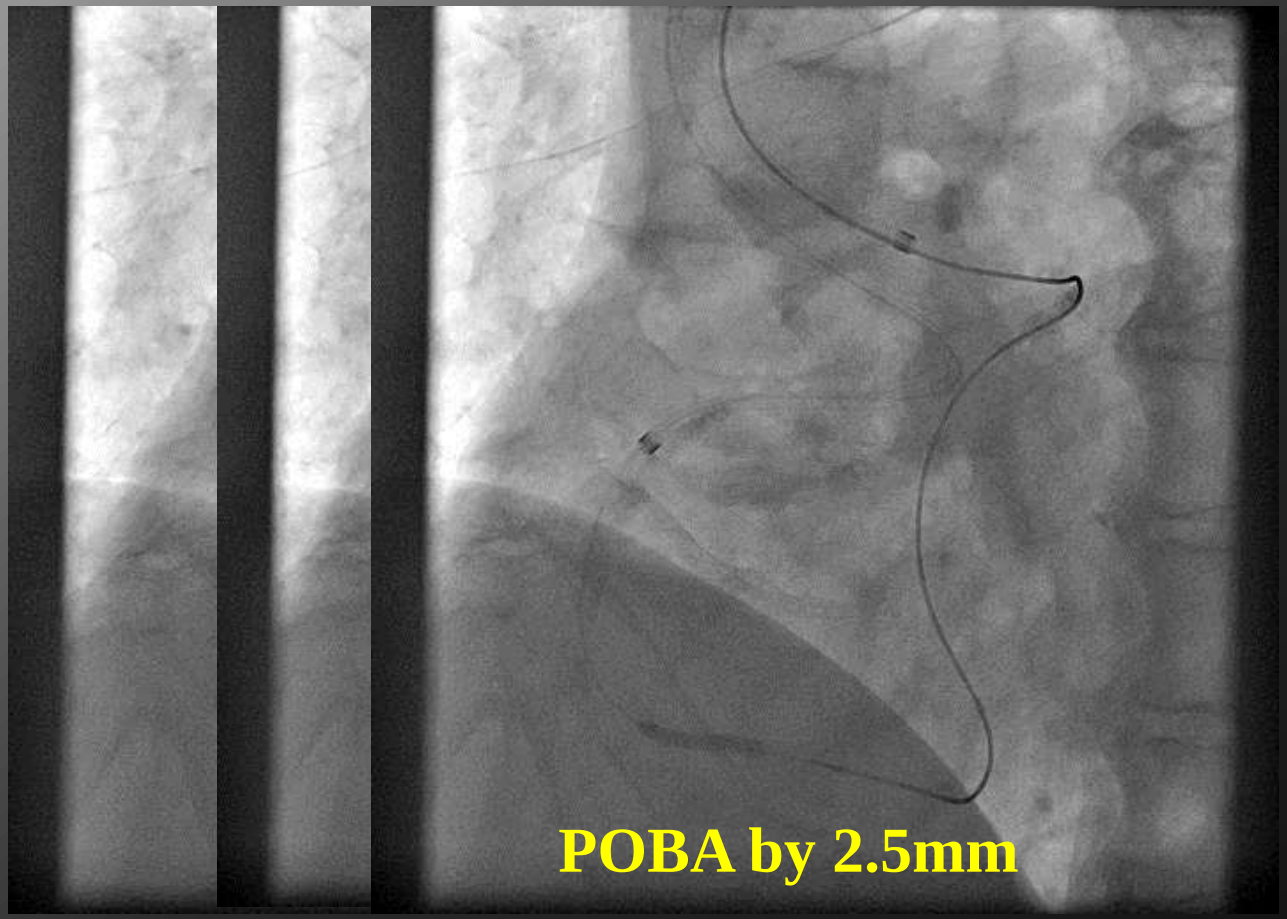




Change to RG3


POBA by 1.2mm


POBA by 2.0mm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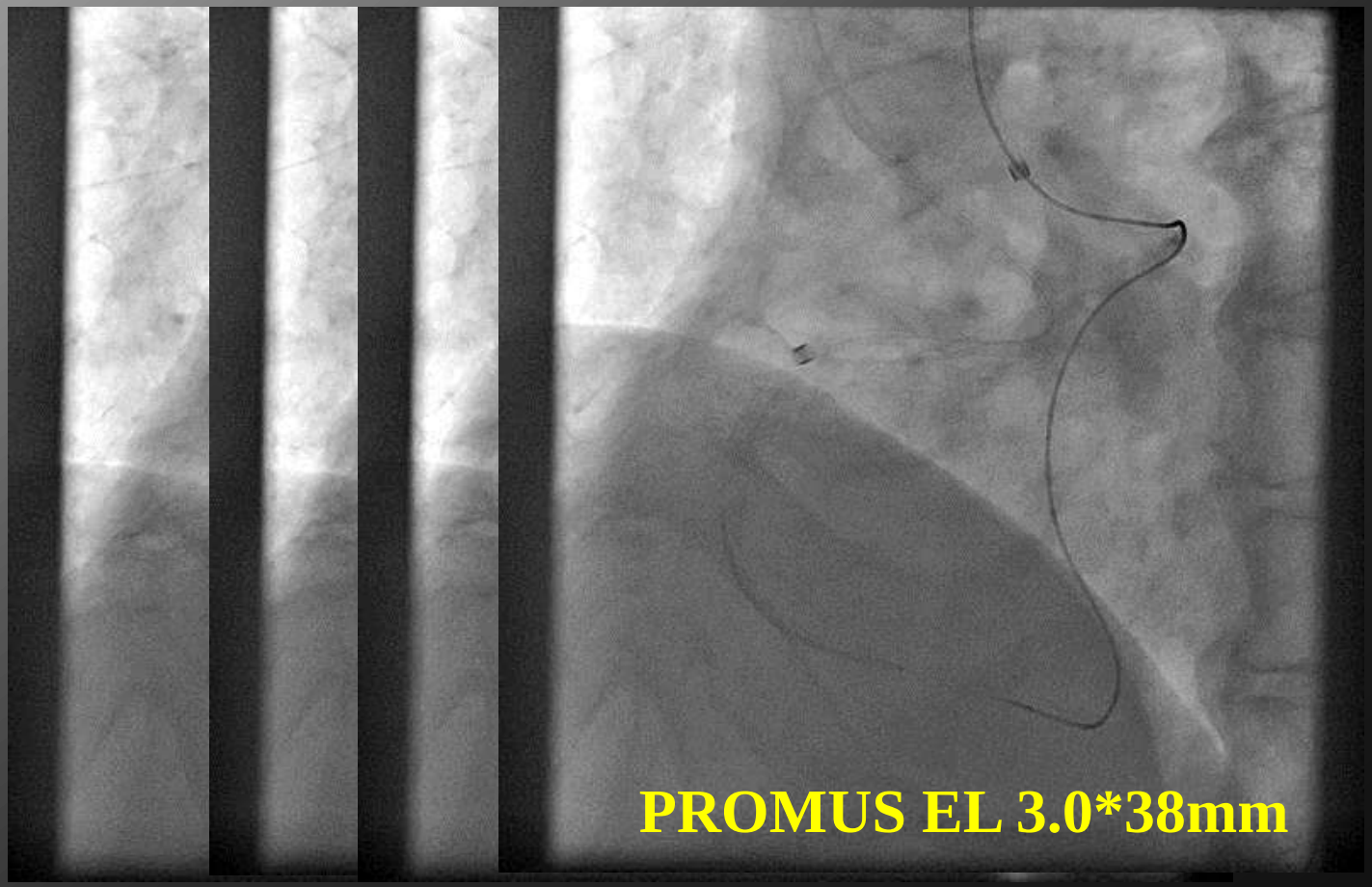
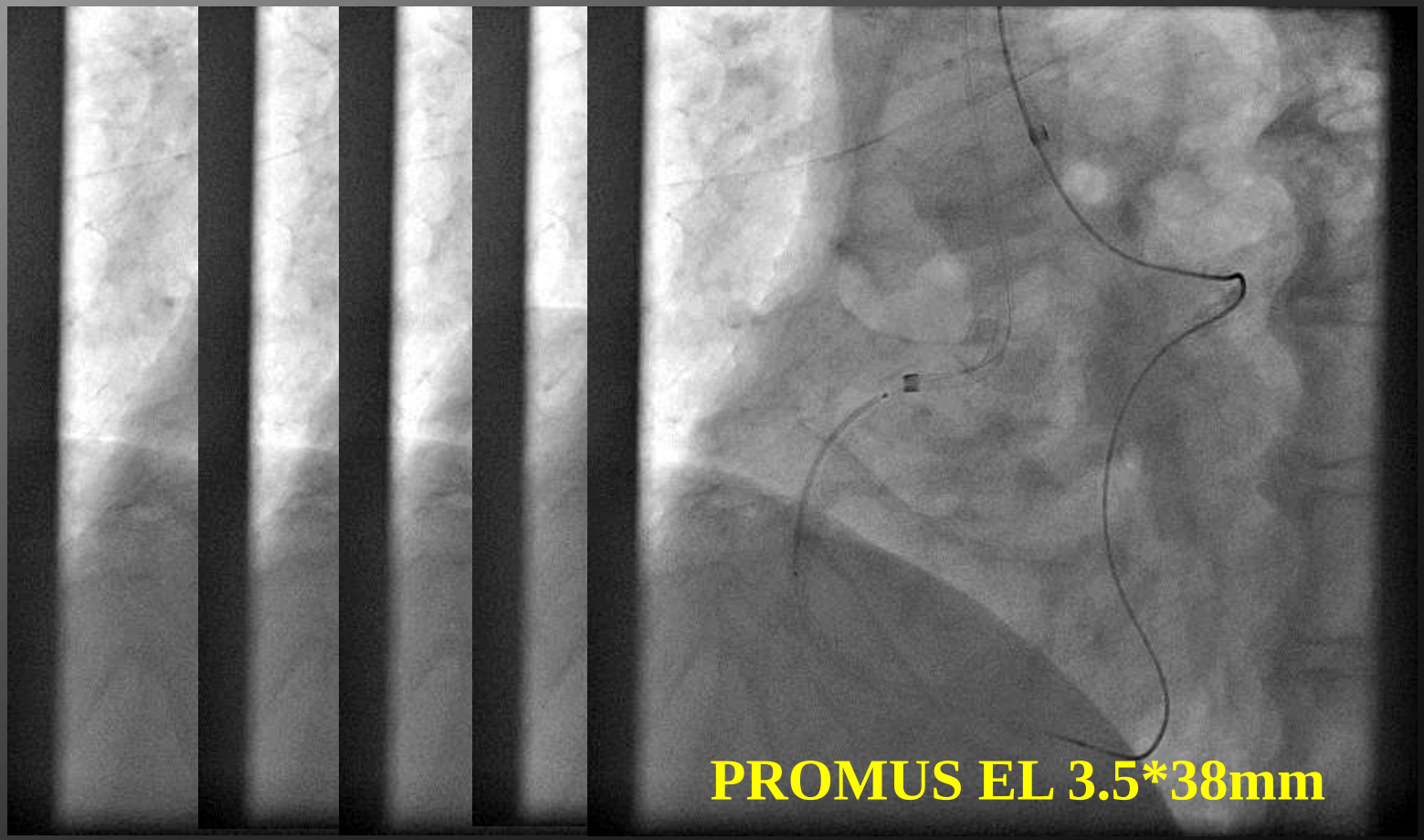
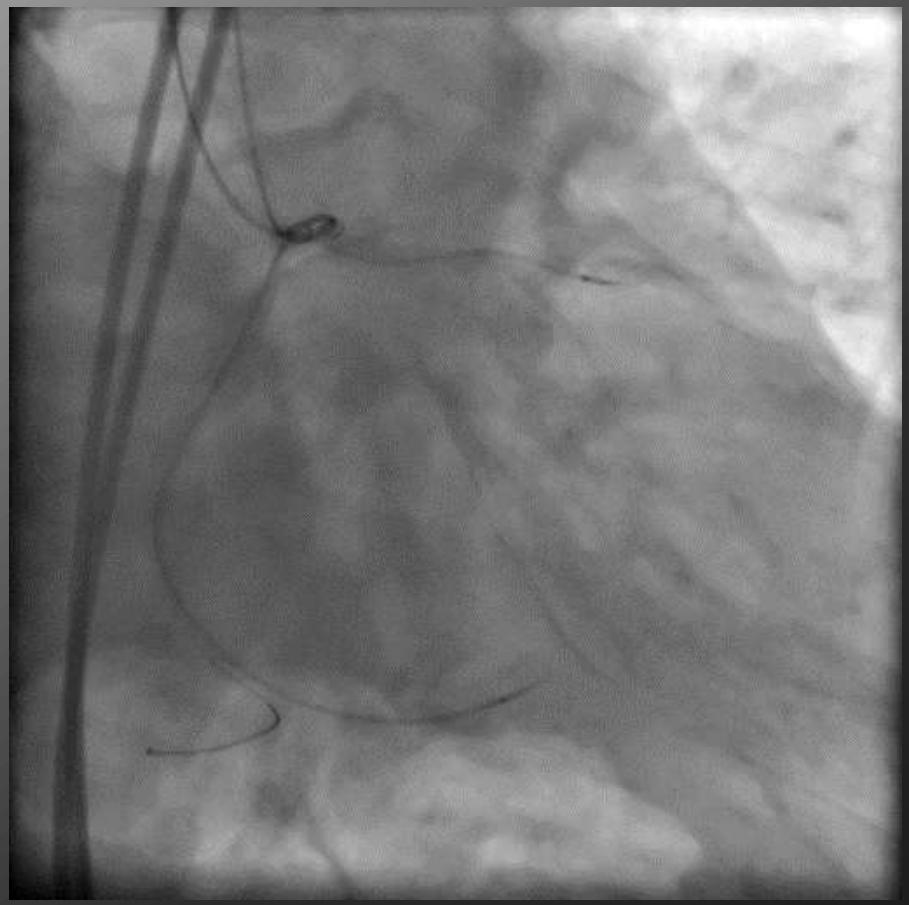
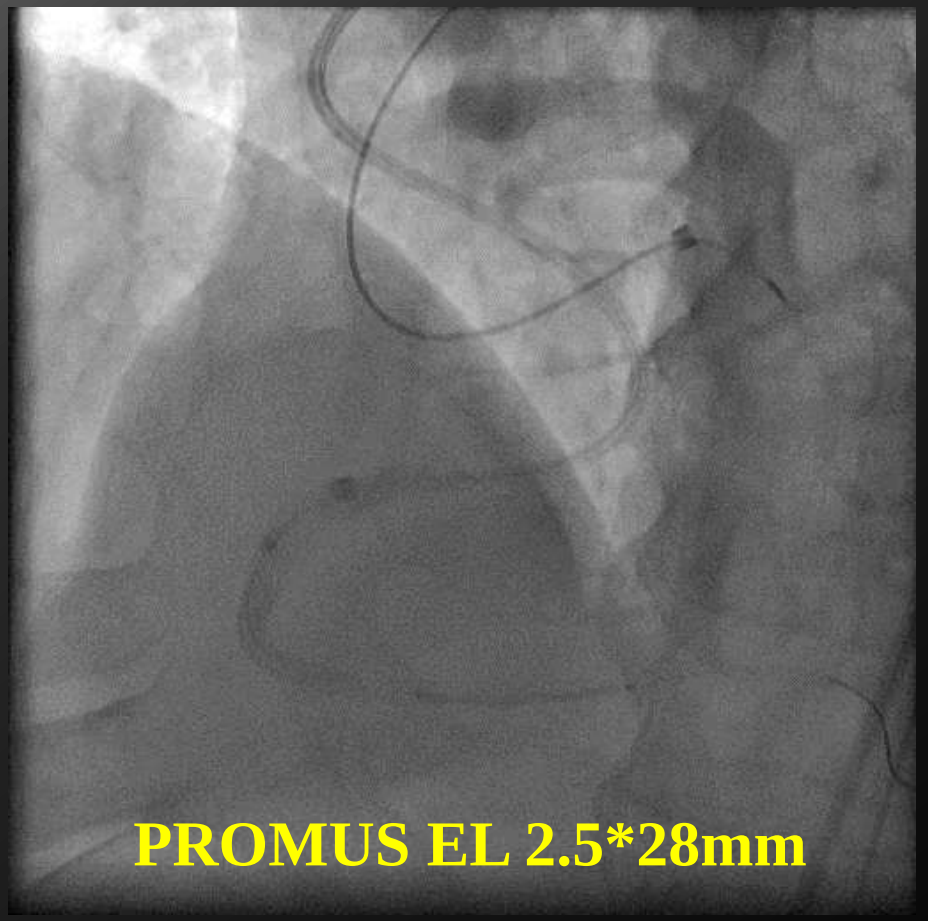
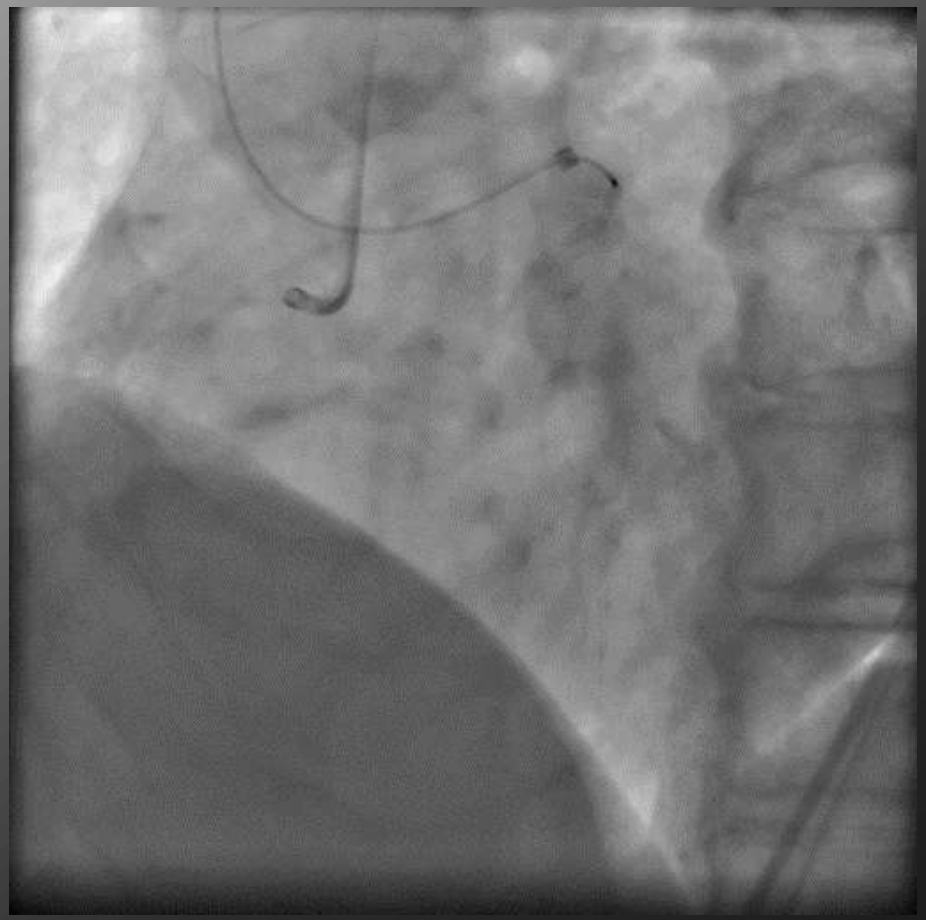
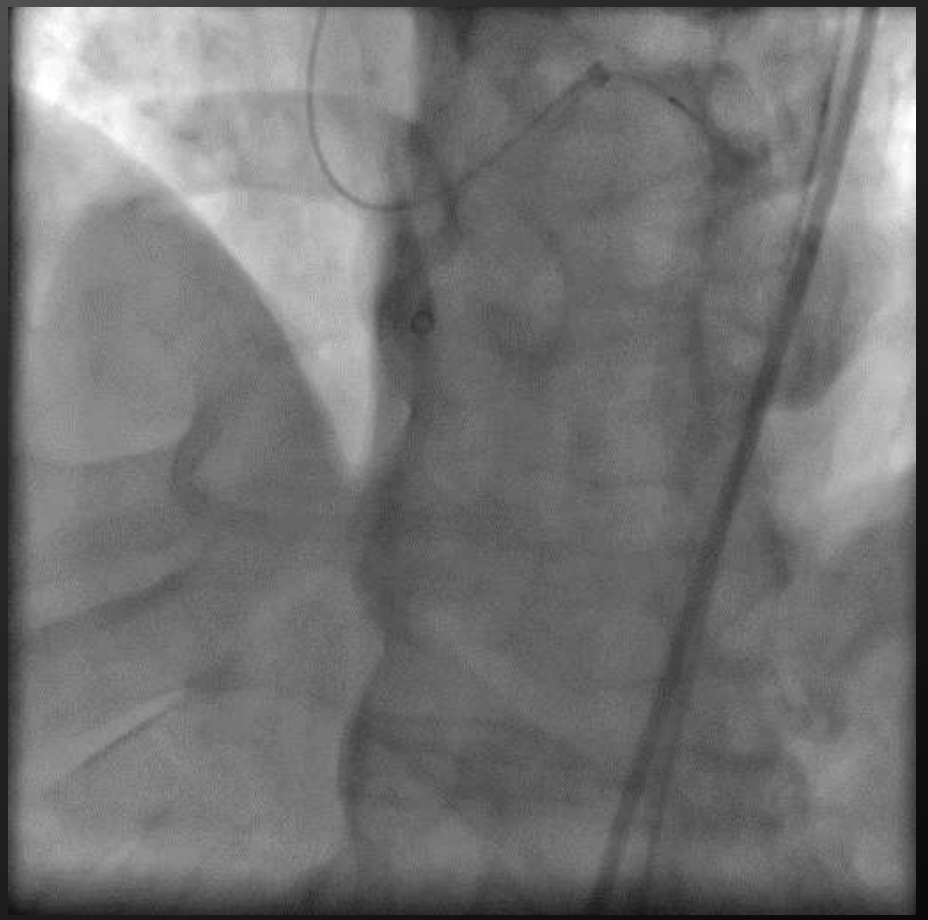

PROMUS EL 3.0*38mm


PROMUS EL 3.5*38mm




PROMUS EL 2.5*28mm





Summary

- In severe calcified CTO lesion, to complete Reverse CART is very difficult.
- If antegrade wire can penetrate proximal cap, knuckle wire is one of the options for sub-intima tracking.
- After wire crossing, externalization is also difficult.