

The Essentials of Antegrade Approach with Emerging Device

Keiichi Igarashi

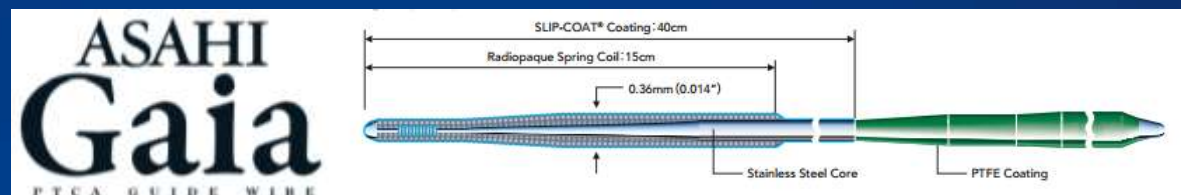
JCHO (Japan Comity Healthcare Organization)

Hokkaido Hospital

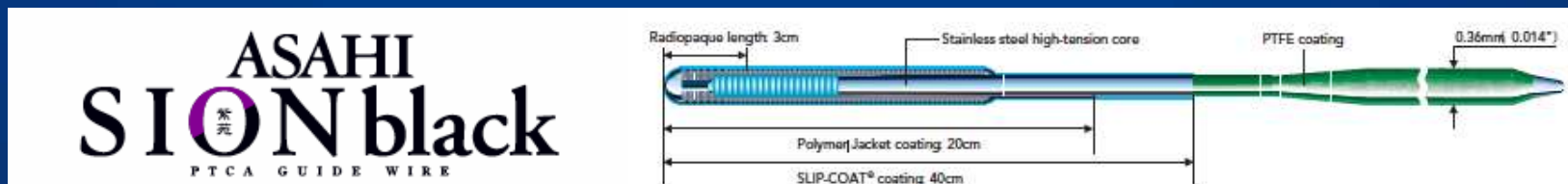


Emerging device for antegrade approach

- ASAHI Gaia family



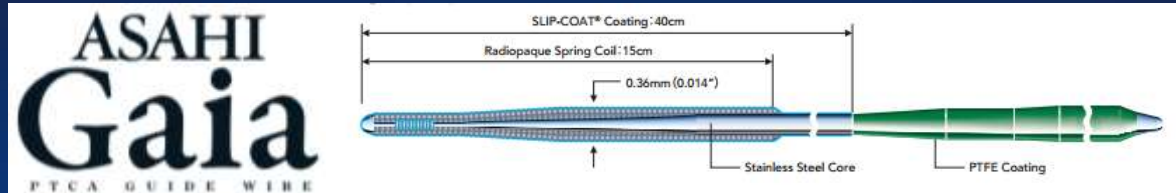
- SION black



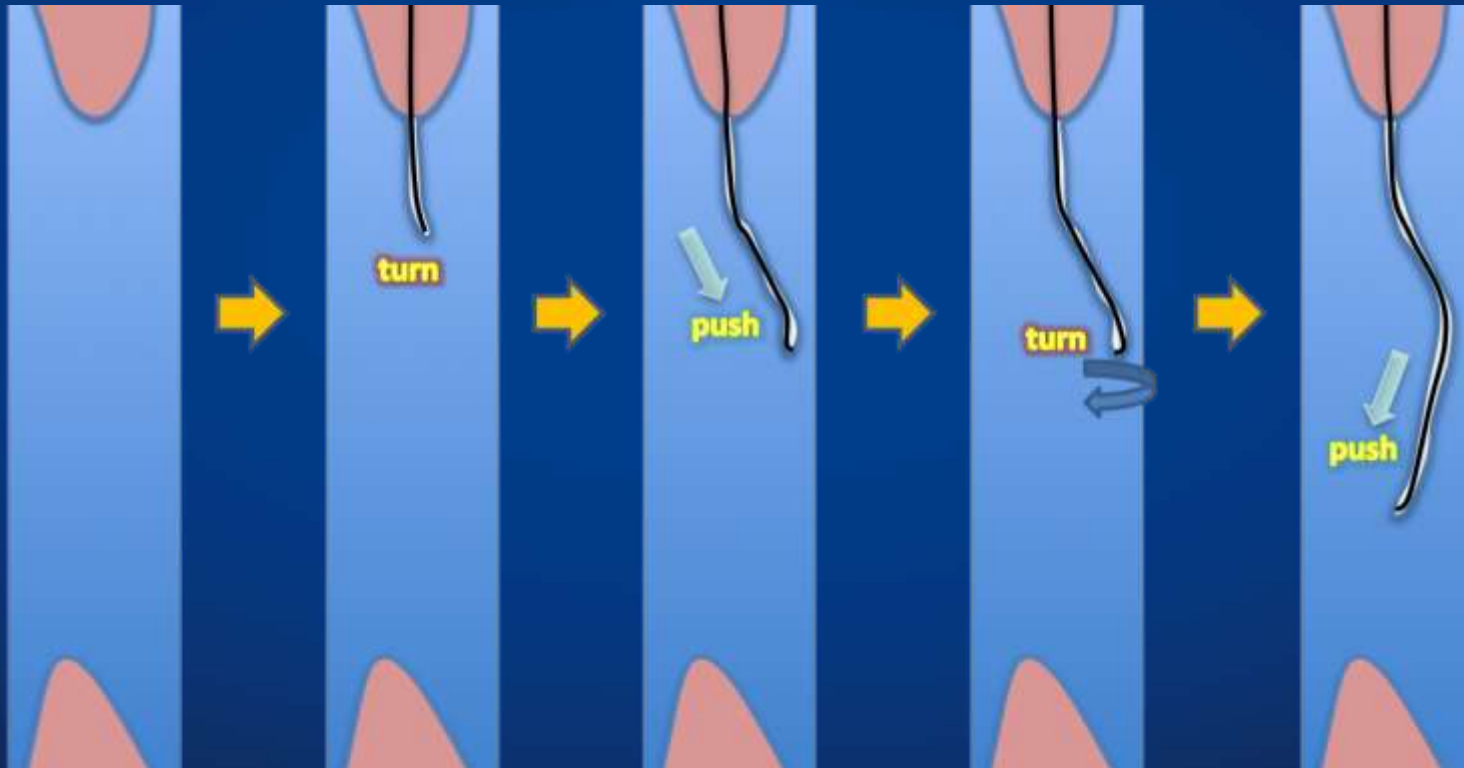
- Crusade



CTO PCI in Gaia era



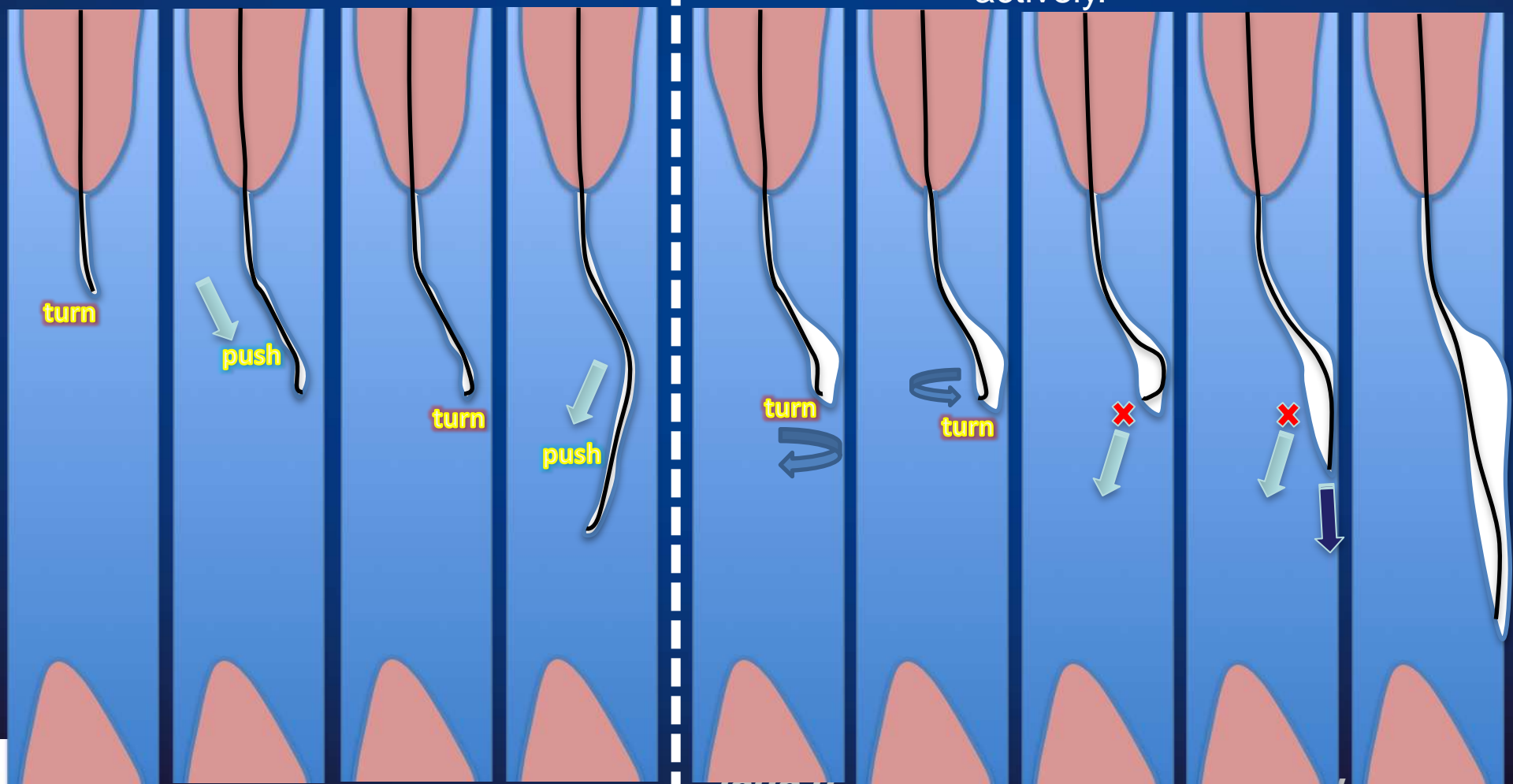
Active Wire Control



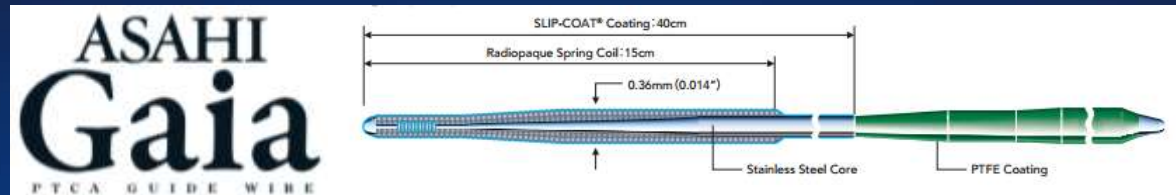
Active wire control



Don't rotate the wire too much. If intimal space is enlarged, it is difficult to control the tip actively.



CTO PCI in Gaia era



Active Wire Control

Points :

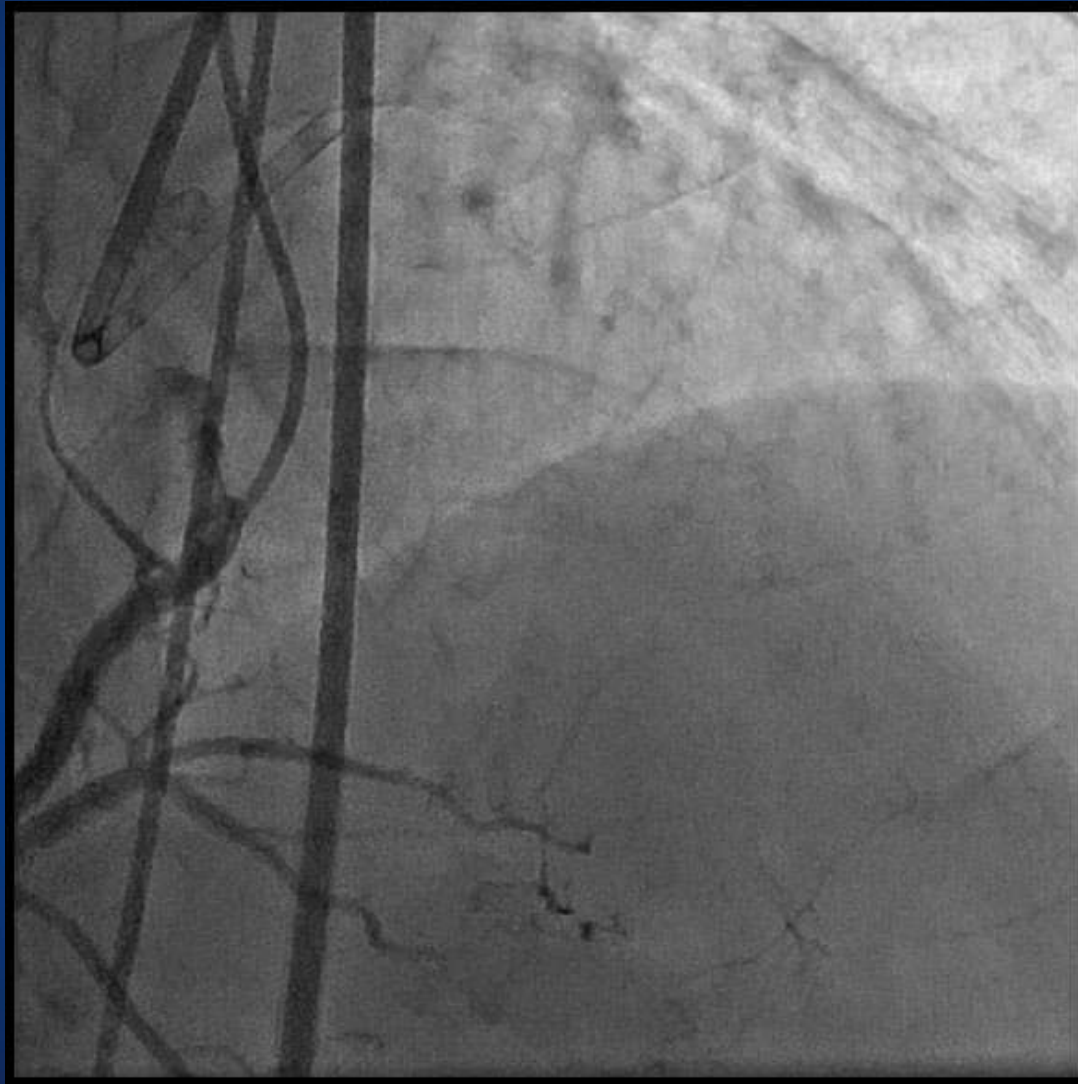
- Don't rotate the wire too much !
 - Understand exactly the vessel shape and the distribution of calcium in occluded site.
- ➔ Utilize information from coronary CT

Information from coronary CT

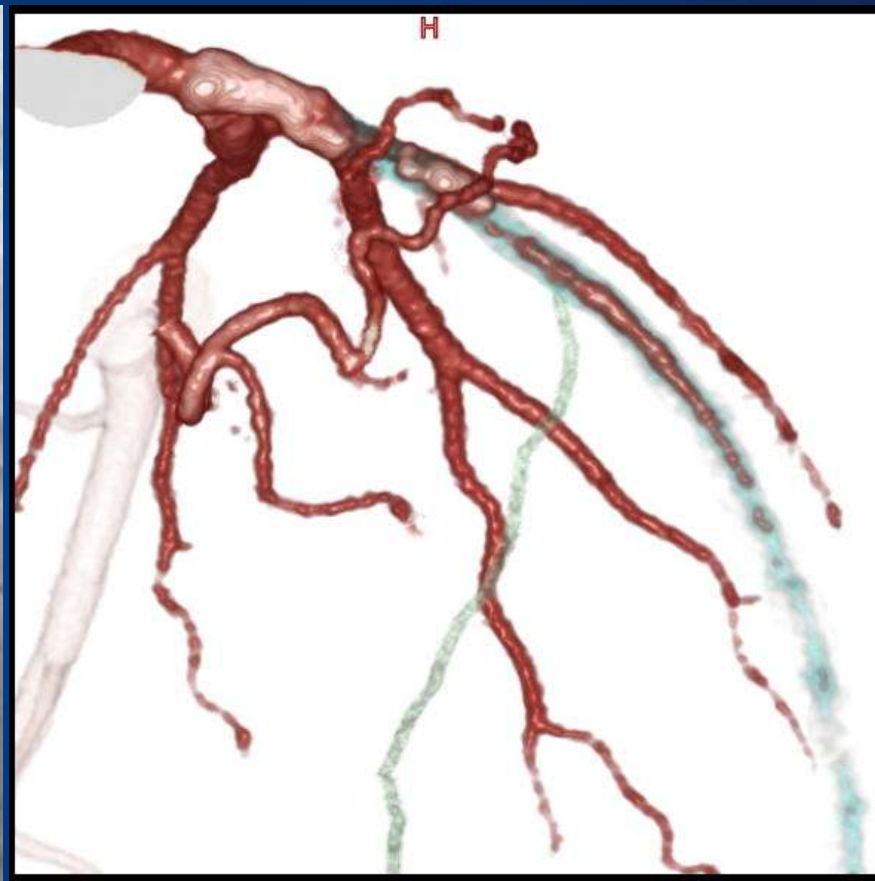
- Vessel shape, vessel size
- Distribution of calcium
- Entry point of CTO
- Appropriate projection for wiring



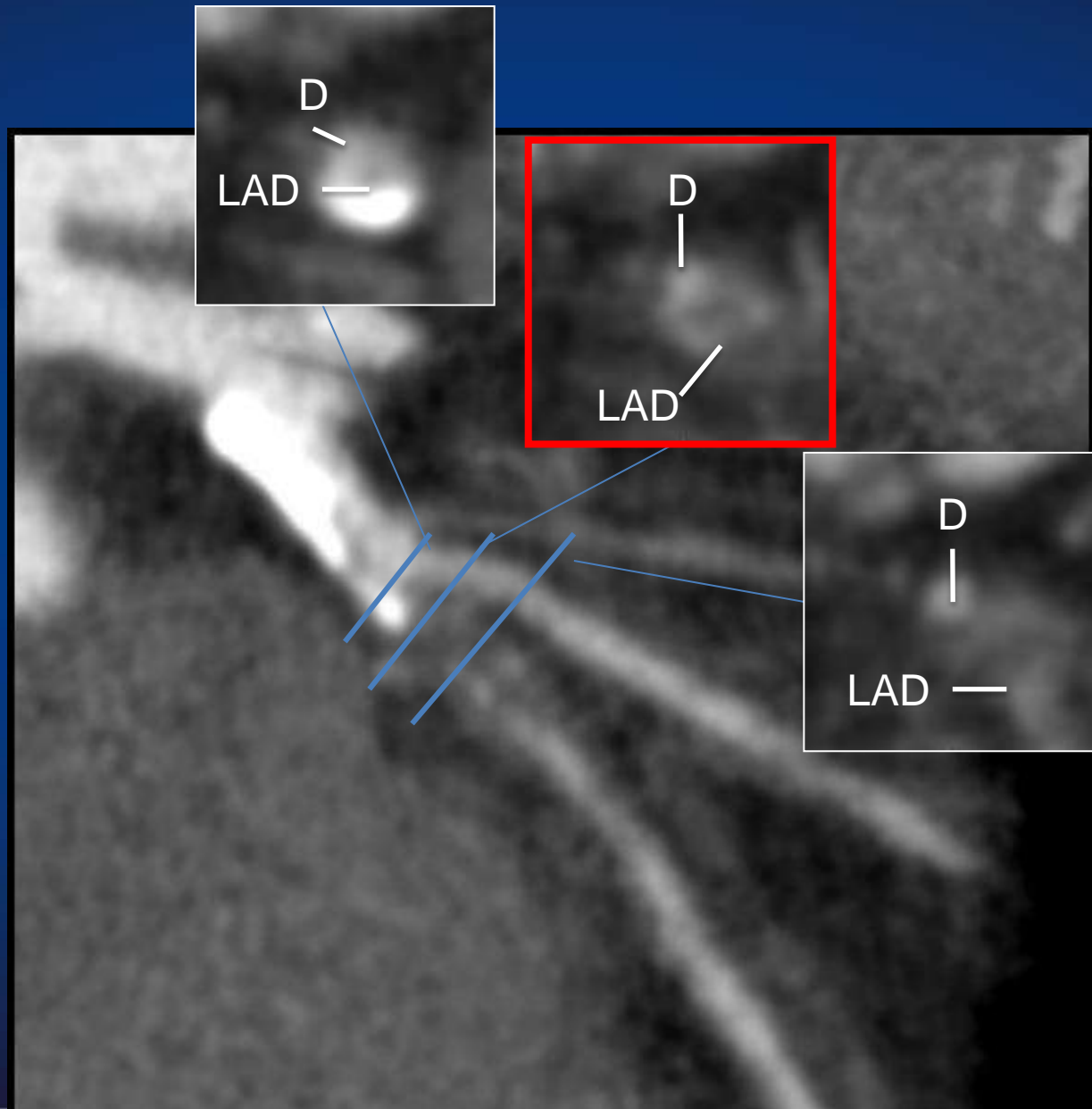
Entry point of CTO



Entry point of CTO



Entry point of CTO

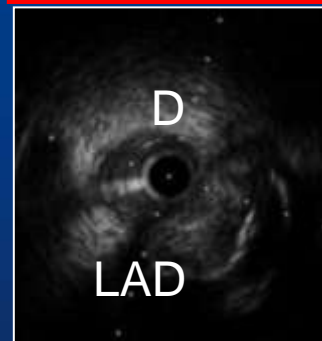
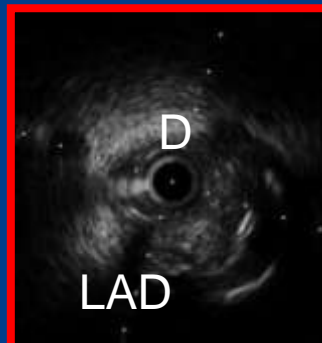
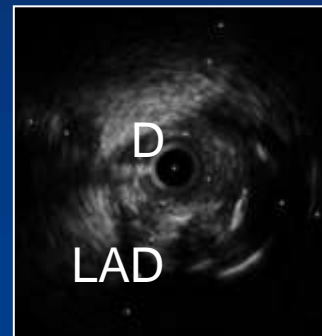


Entry point of CTO

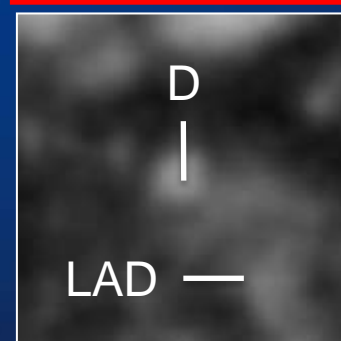
IVUS marking



IVUS



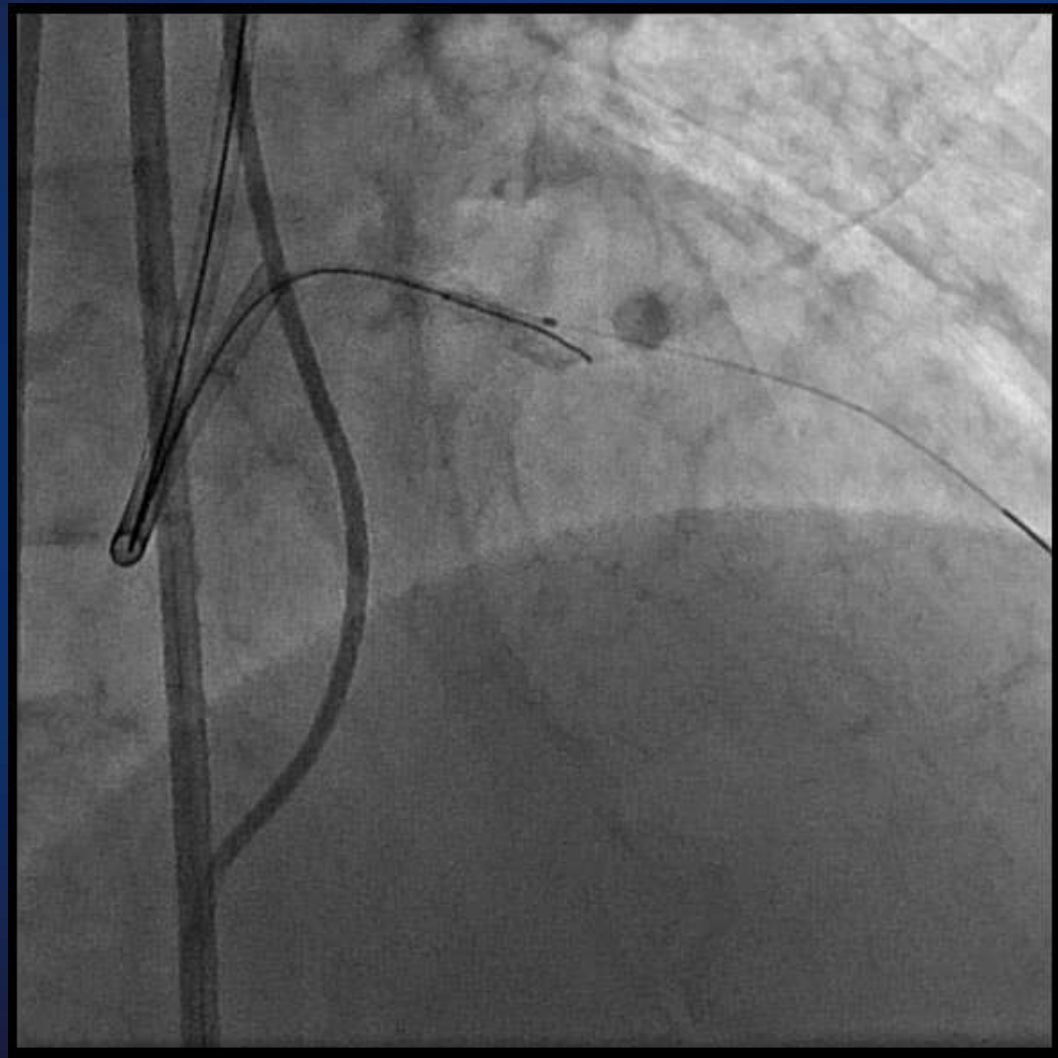
CT



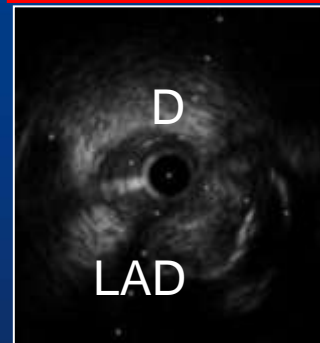
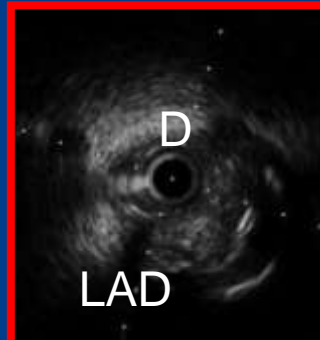
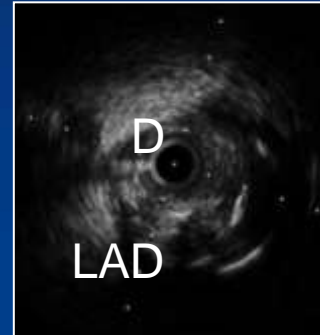
distal

Entry point of CTO

Gaia first



IVUS



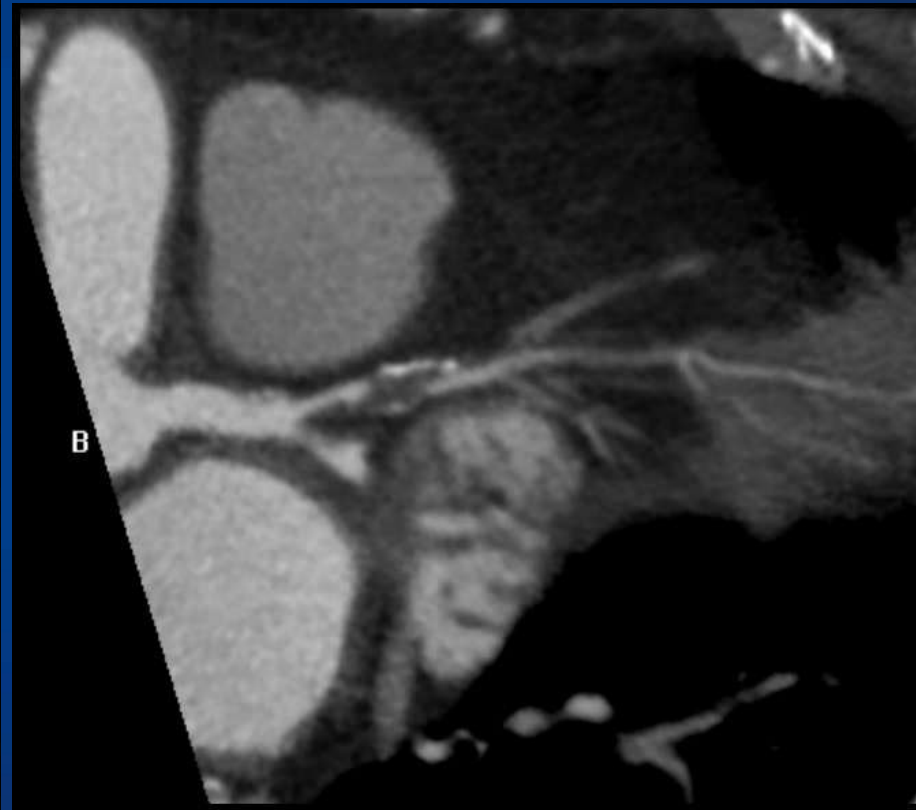
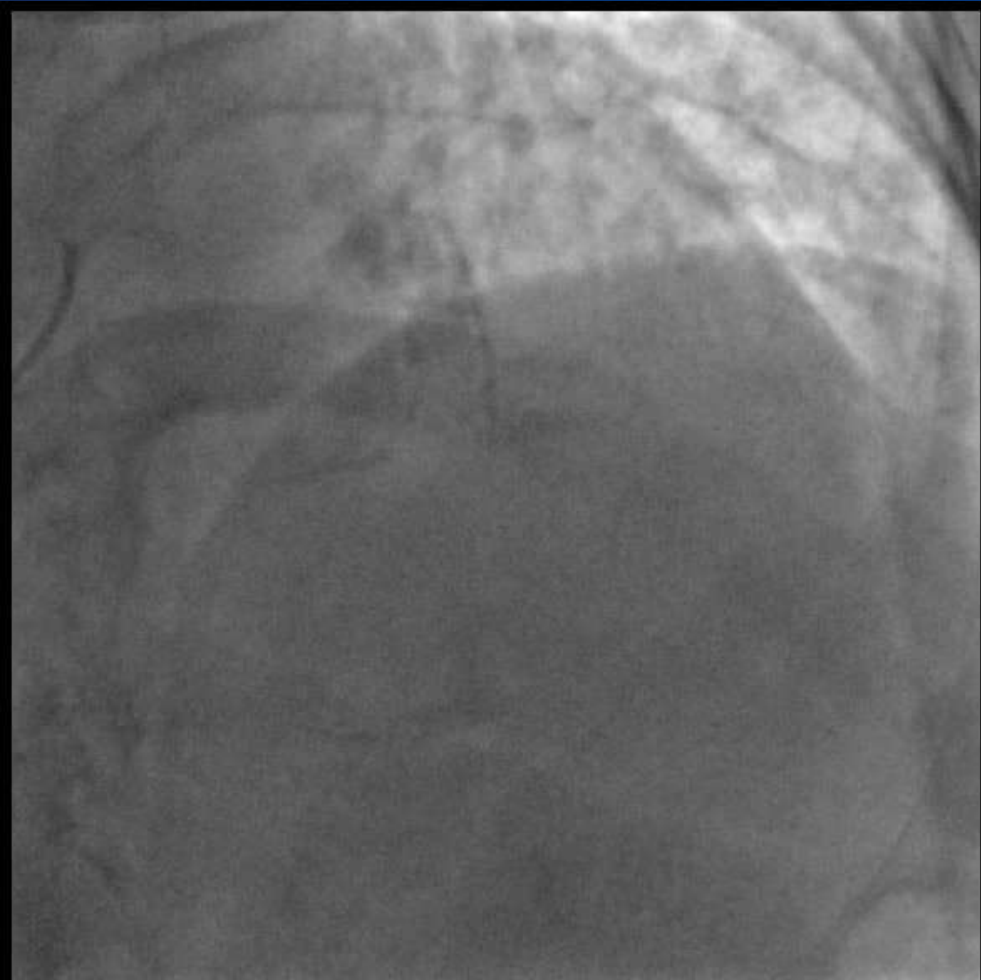
CT



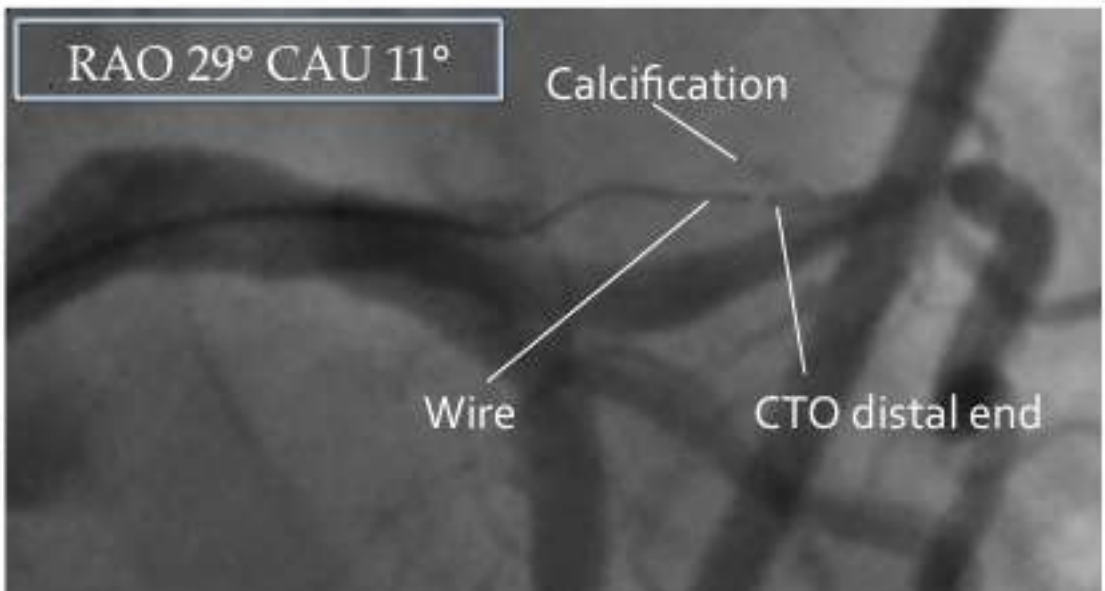
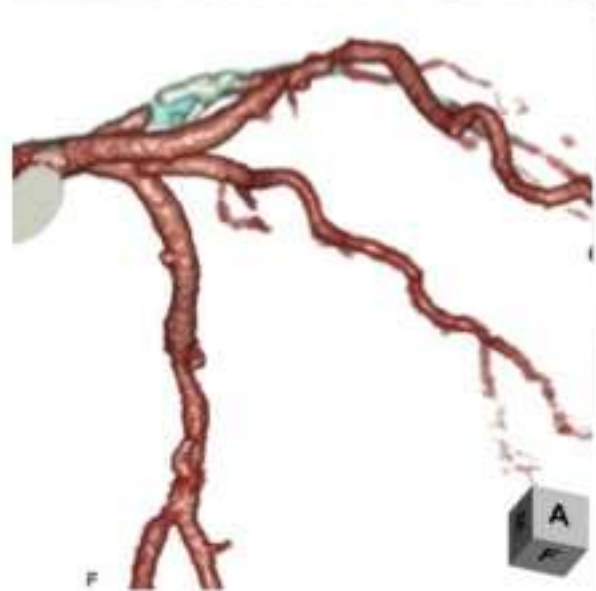
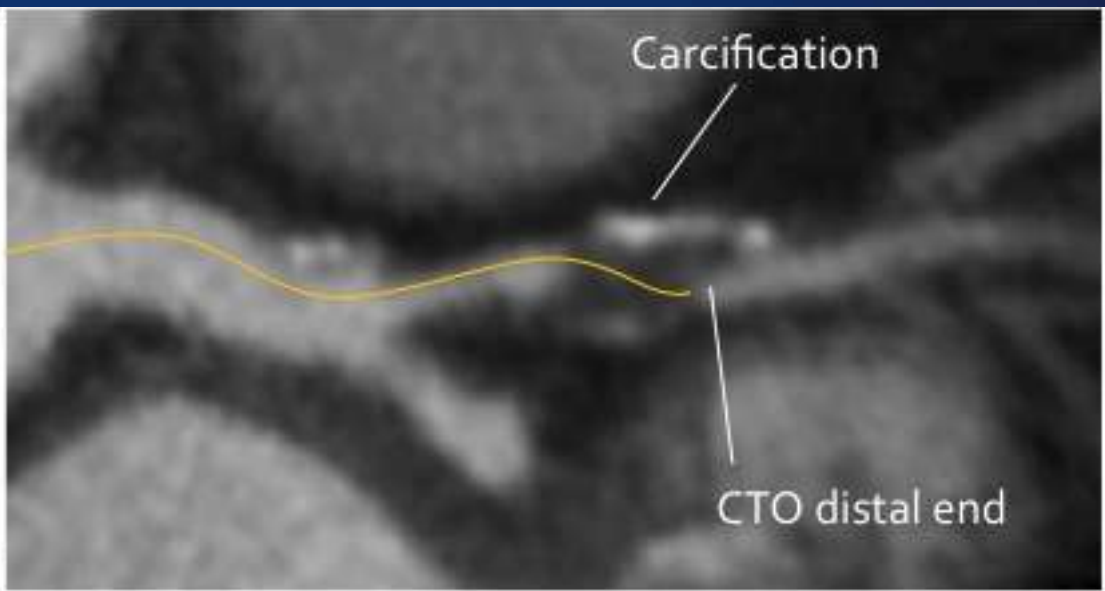
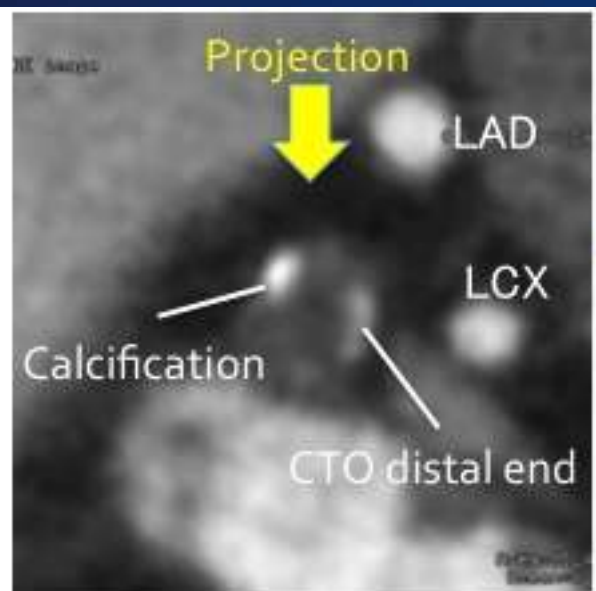
distal

Appropriate projection for wiring

Which projection angle should we use for CTO wiring?

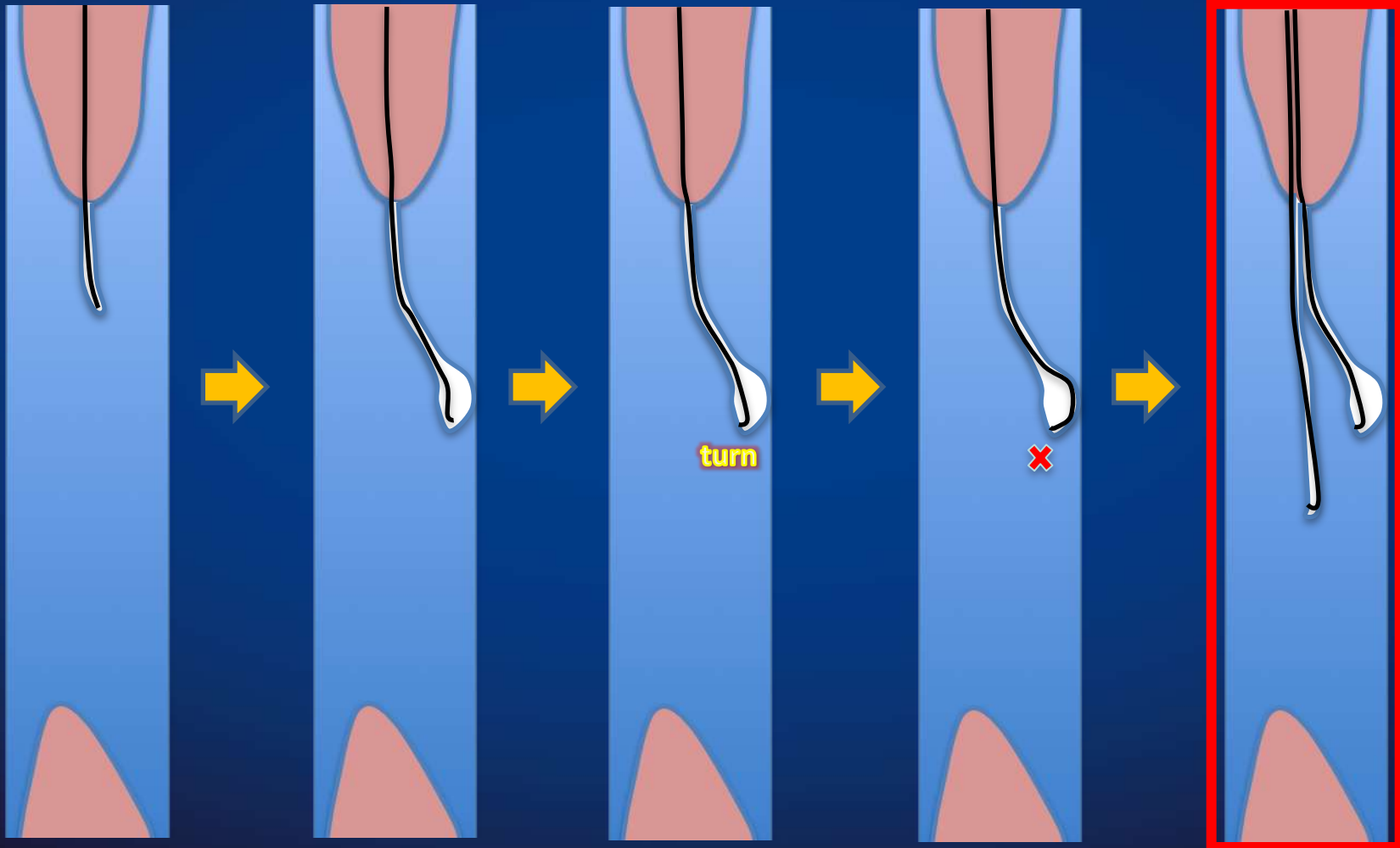


Projection for wiring derived by CT

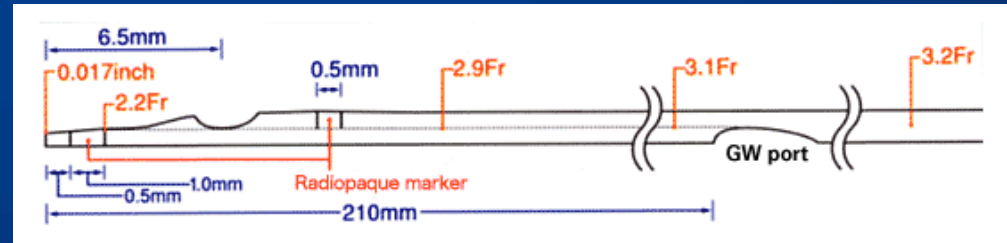


If an intimal space is made unfortunately...

Parallel wire technique

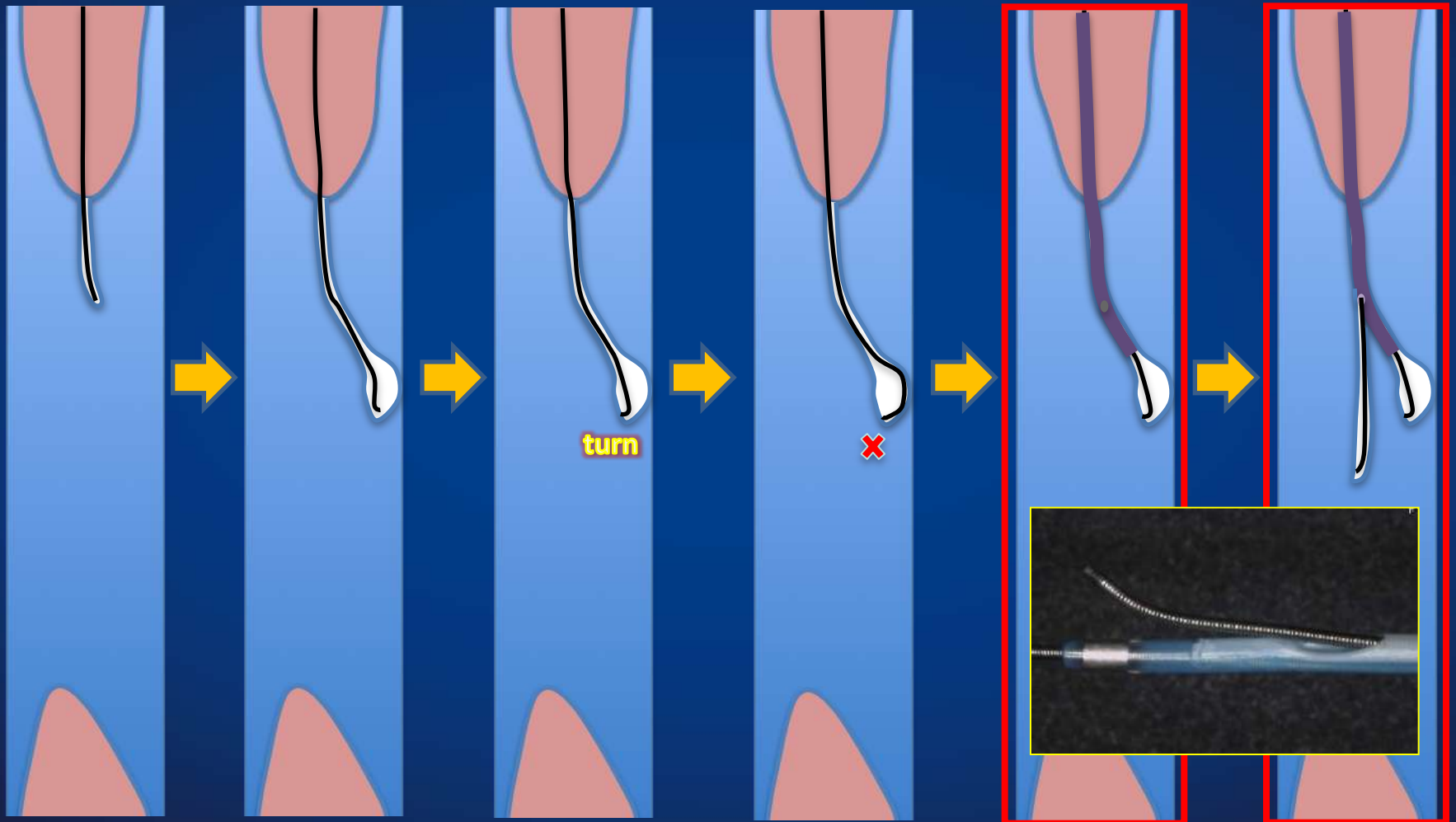


Double lumen catheter Crusade

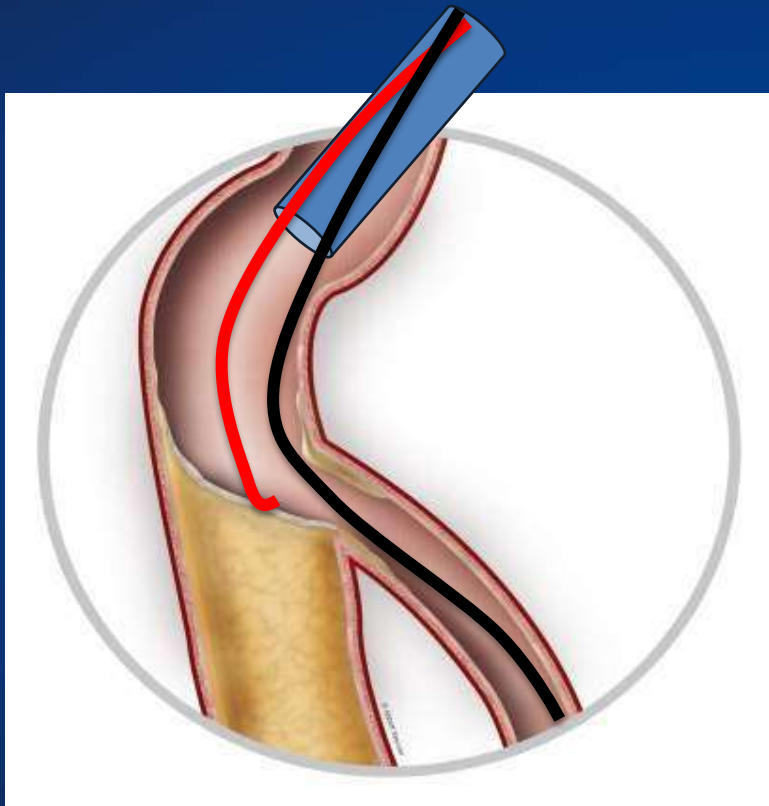


We can get stronger back up by using first wire.

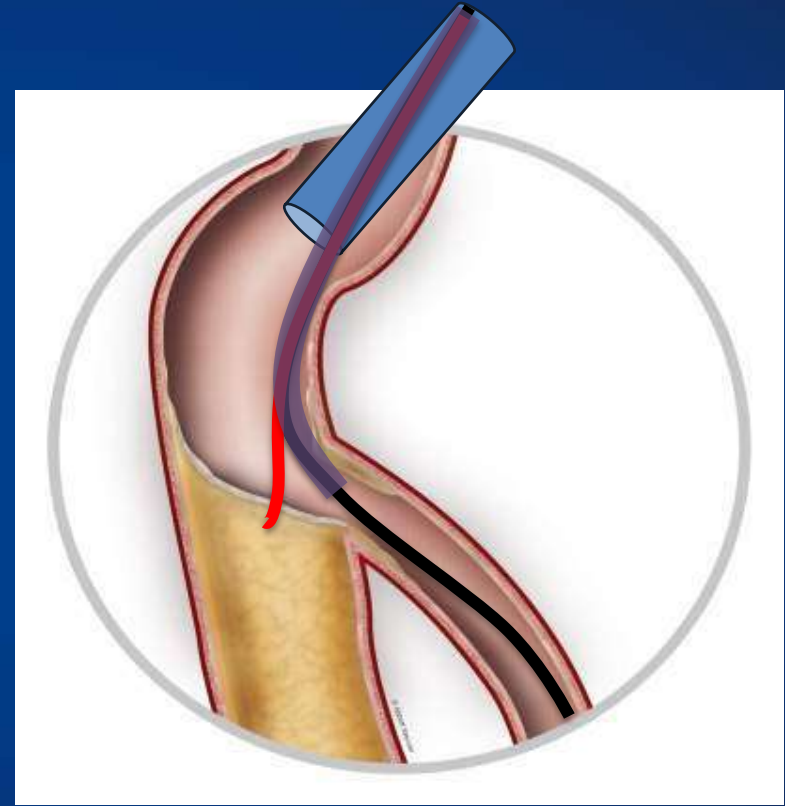
Strong back up with Crusade in parallel wire technique



Comparison of wire movement in non stump with side branch



without Crusade

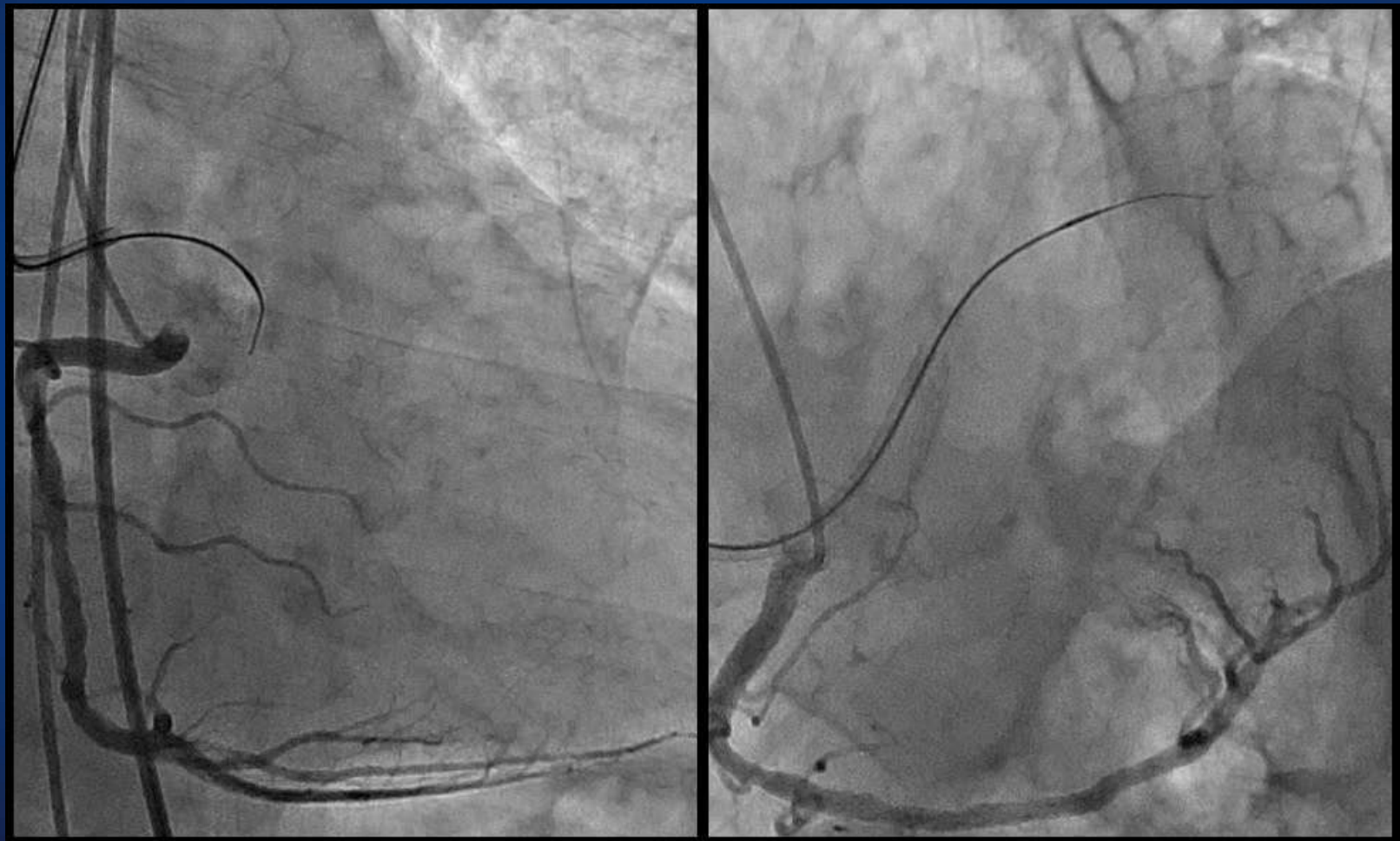


with Crusade

weak ← ————— **back up force** ————— → strong

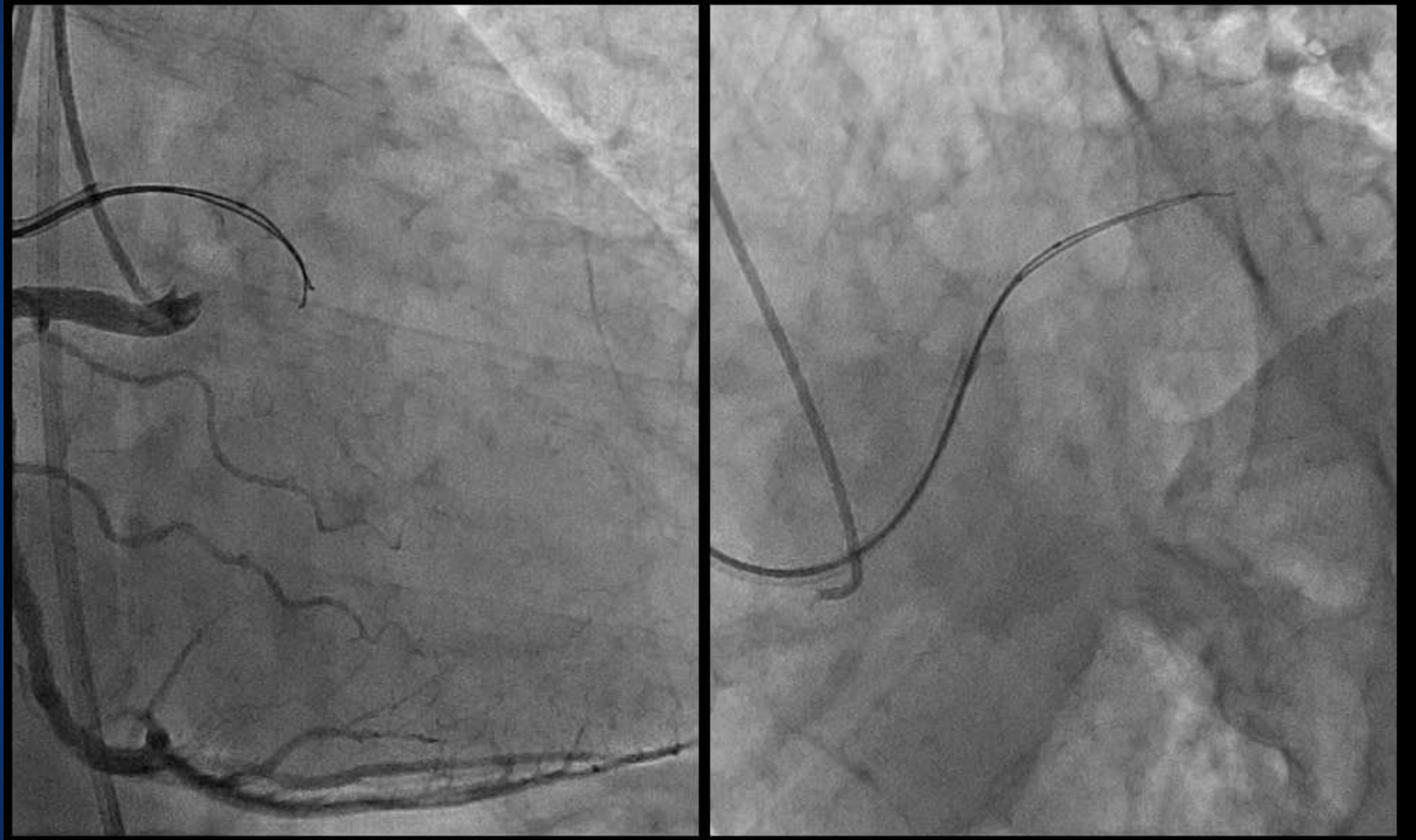
LCX CTO case

Corsair + Gaia 1st



Parallel wire technique with Crusade

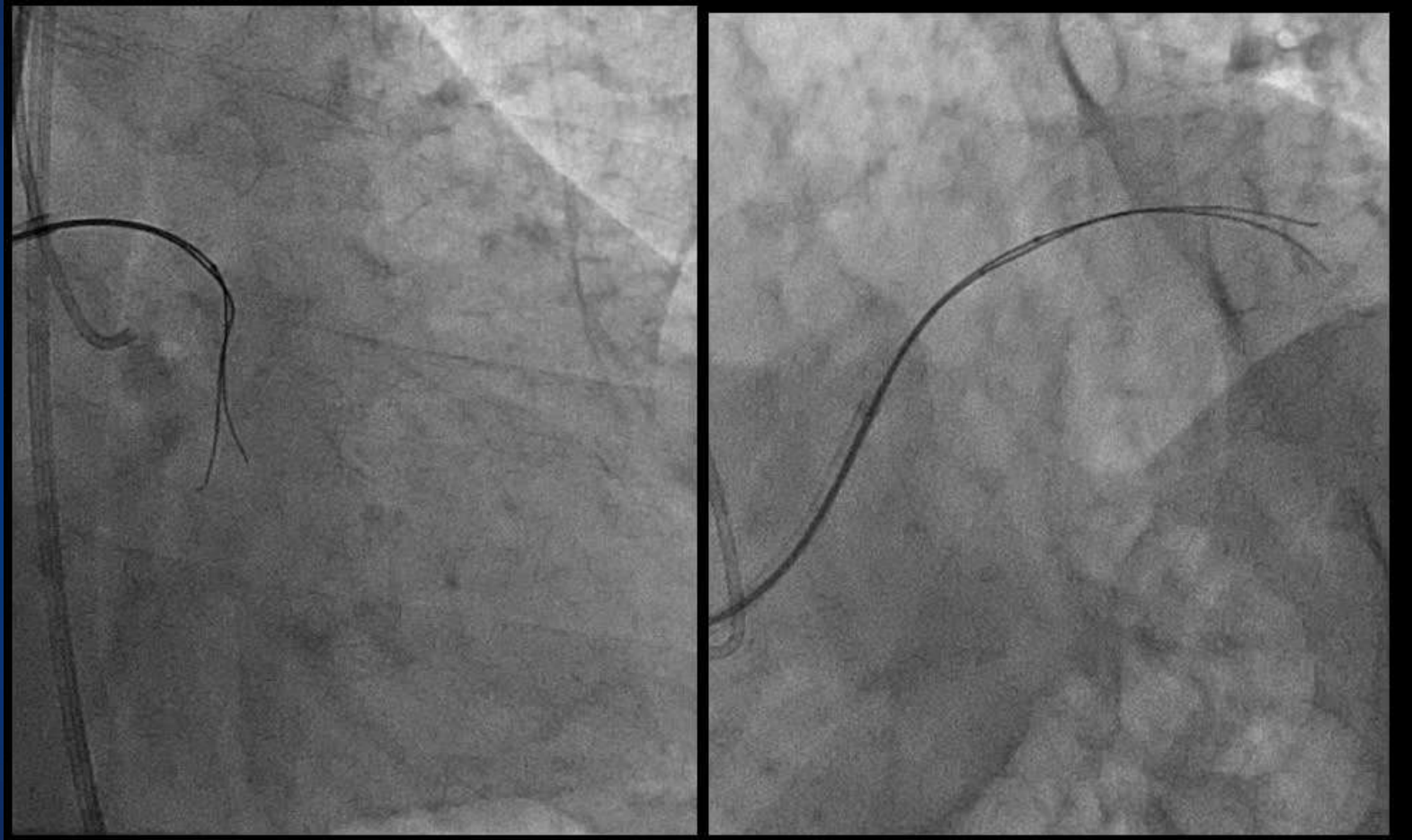
Caution! Crossability : Crusade < Corsair



In some case, Crusade can't be delivered into CTO lesion.
So 1st wire as merkmal was pulled out due to difficulty of crossing Crusade.

Parallel wire technique with Crusade

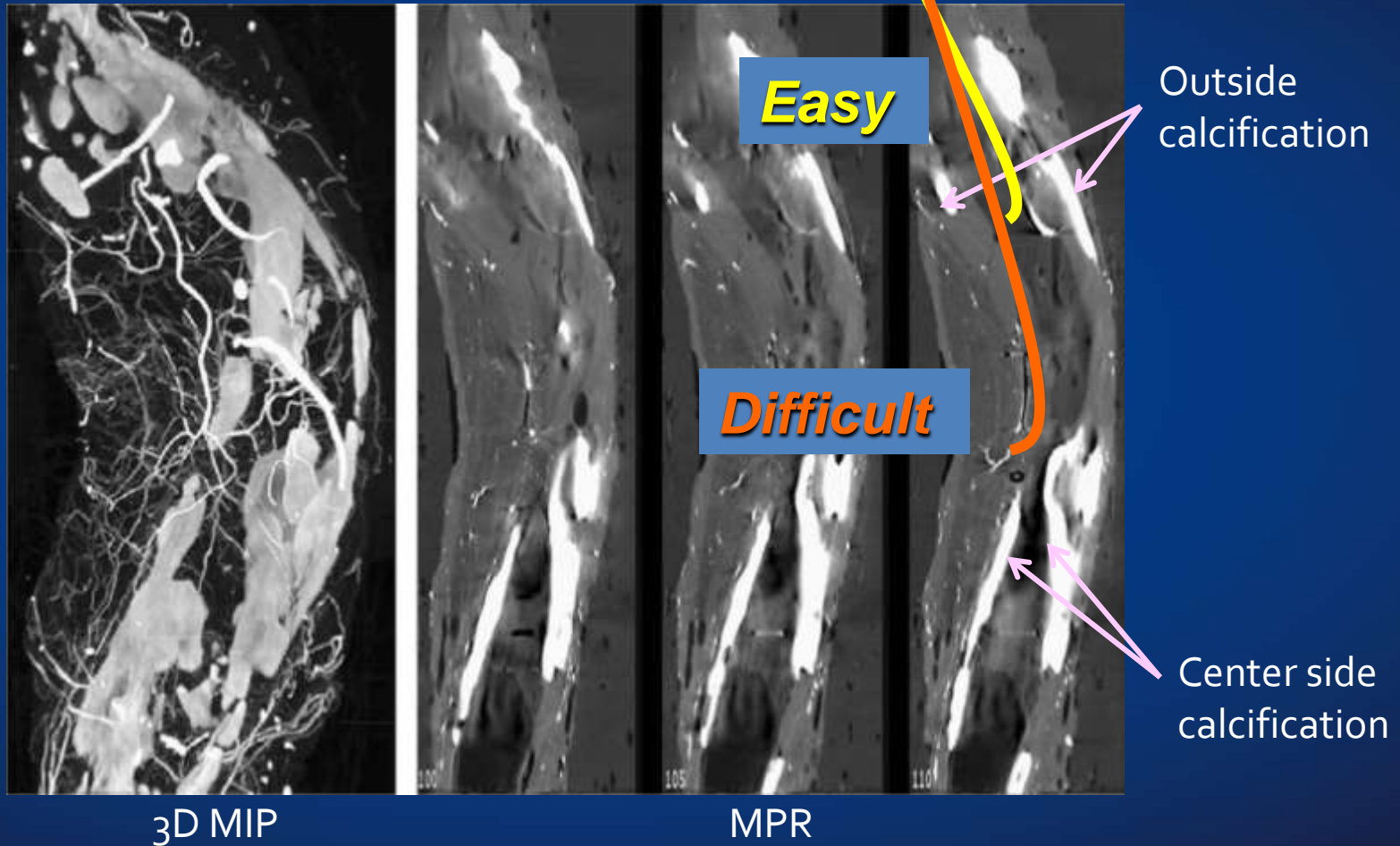
Caution! Crossability : Crusade < Corsair



After all, enough back up couldn't be acquired with Crusade in this case. We sometimes need pre dilatation before Crusade cross into CTO lesion.

Distribution of calcium

Microscopic CT images of CTO



Gregg W. Stone, David E. Kandzari, Roxana M, et al : Percutaneous recanalization of chronically occluded coronary arteries : A consensus document : Part 1 , Circulation. 2005; 112: 2364-2372

JCHO Hokkaido Hospital , Cardiovascular Center



SION black for severe calcified lesion



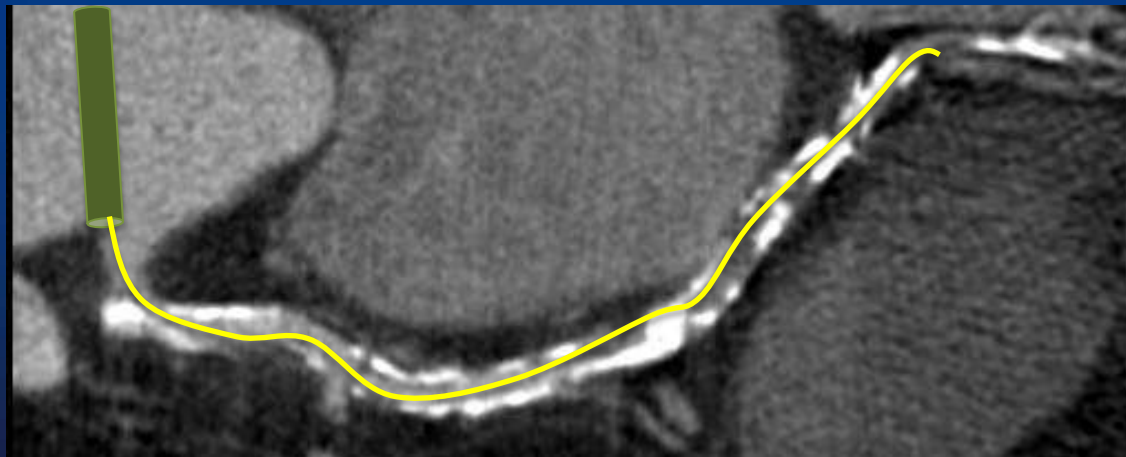
Polymer jacket + Composite core

Tip flexibility

Mini pre shaping



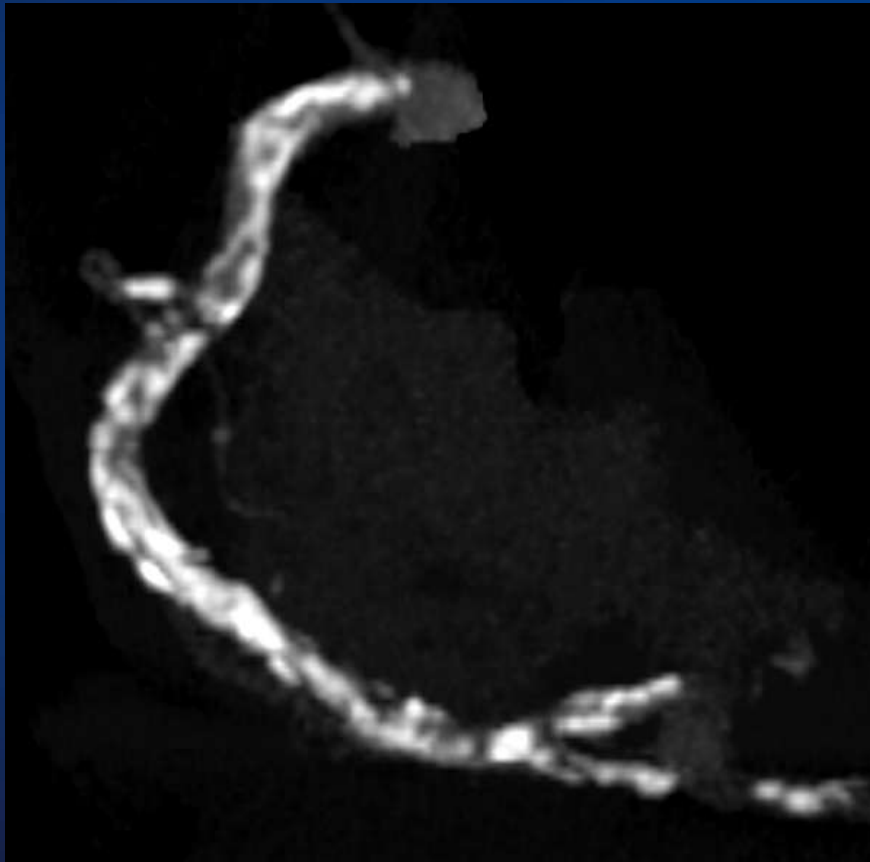
SION black is suitable for antegrade wiring in severe calcification.



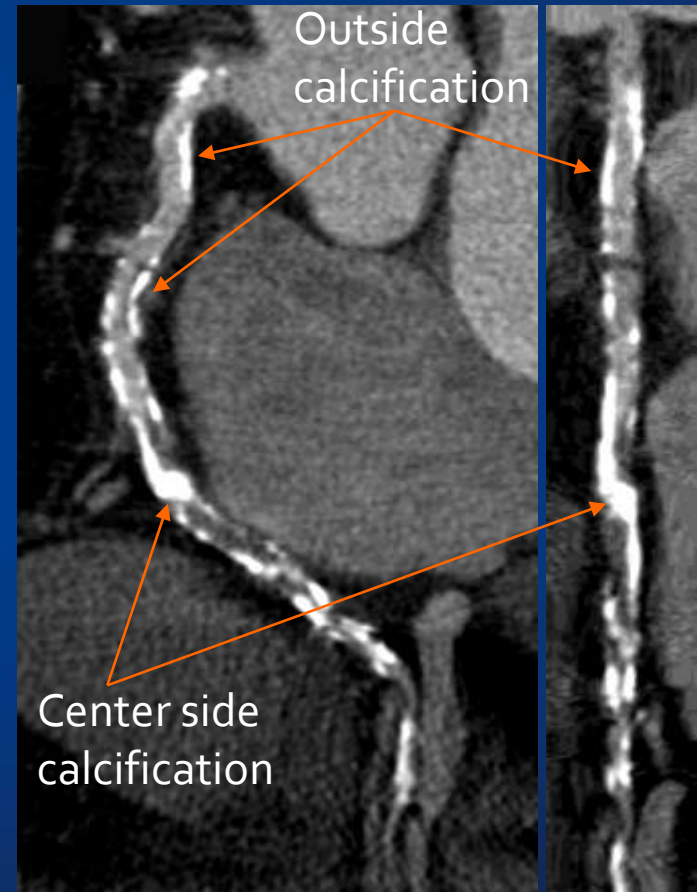
RCA CTO

Distribution of calcium

MIP



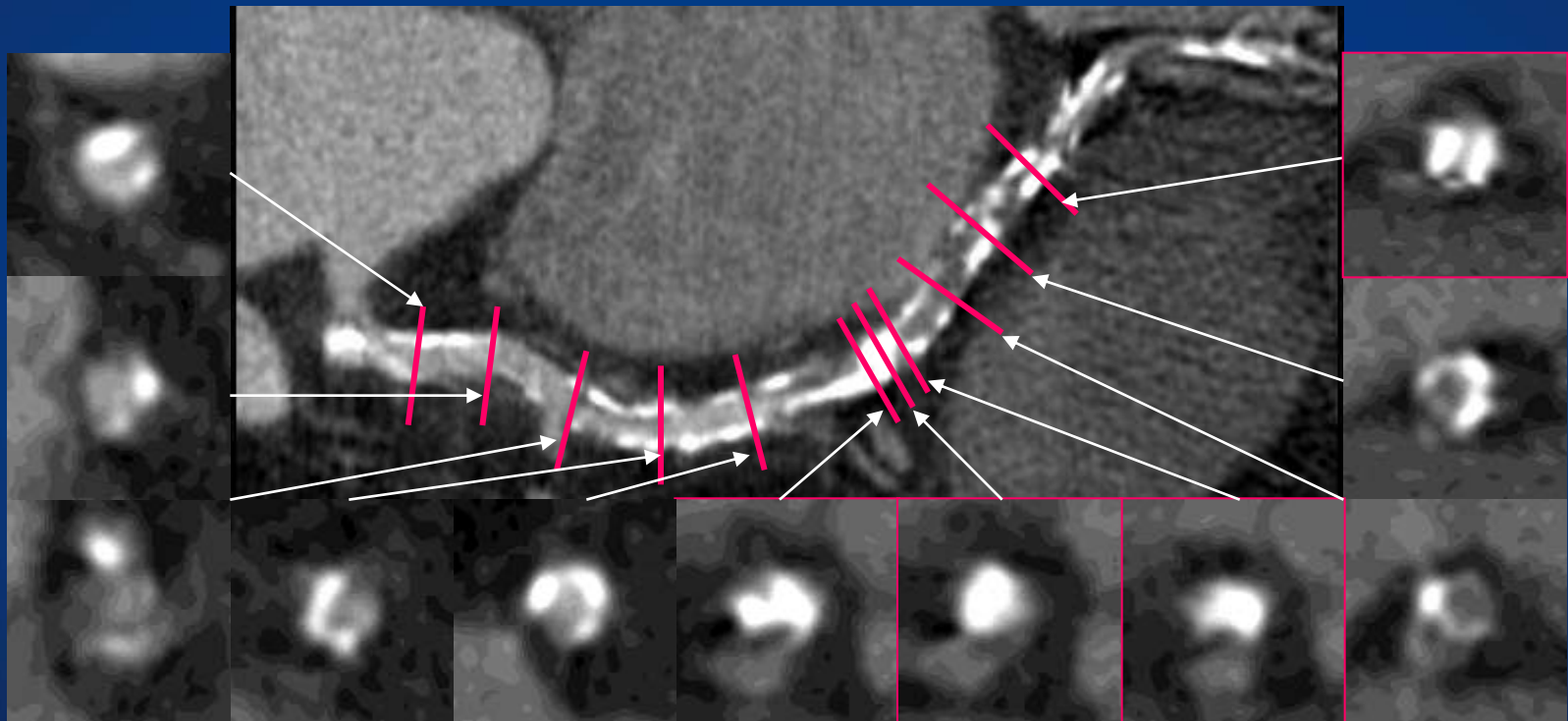
Curved MPR



RCA CTO

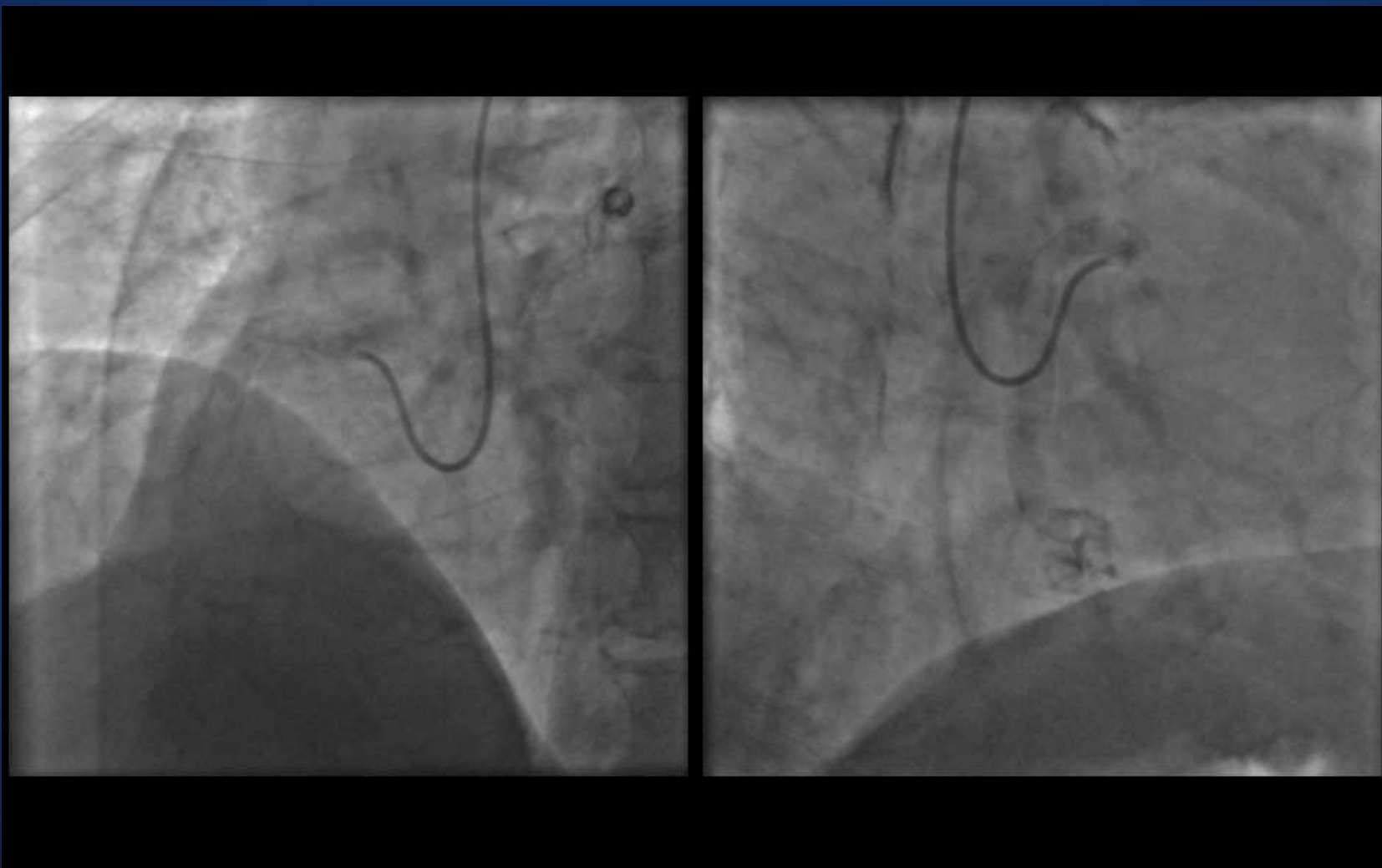
Distribution of calcium

Curved MPR

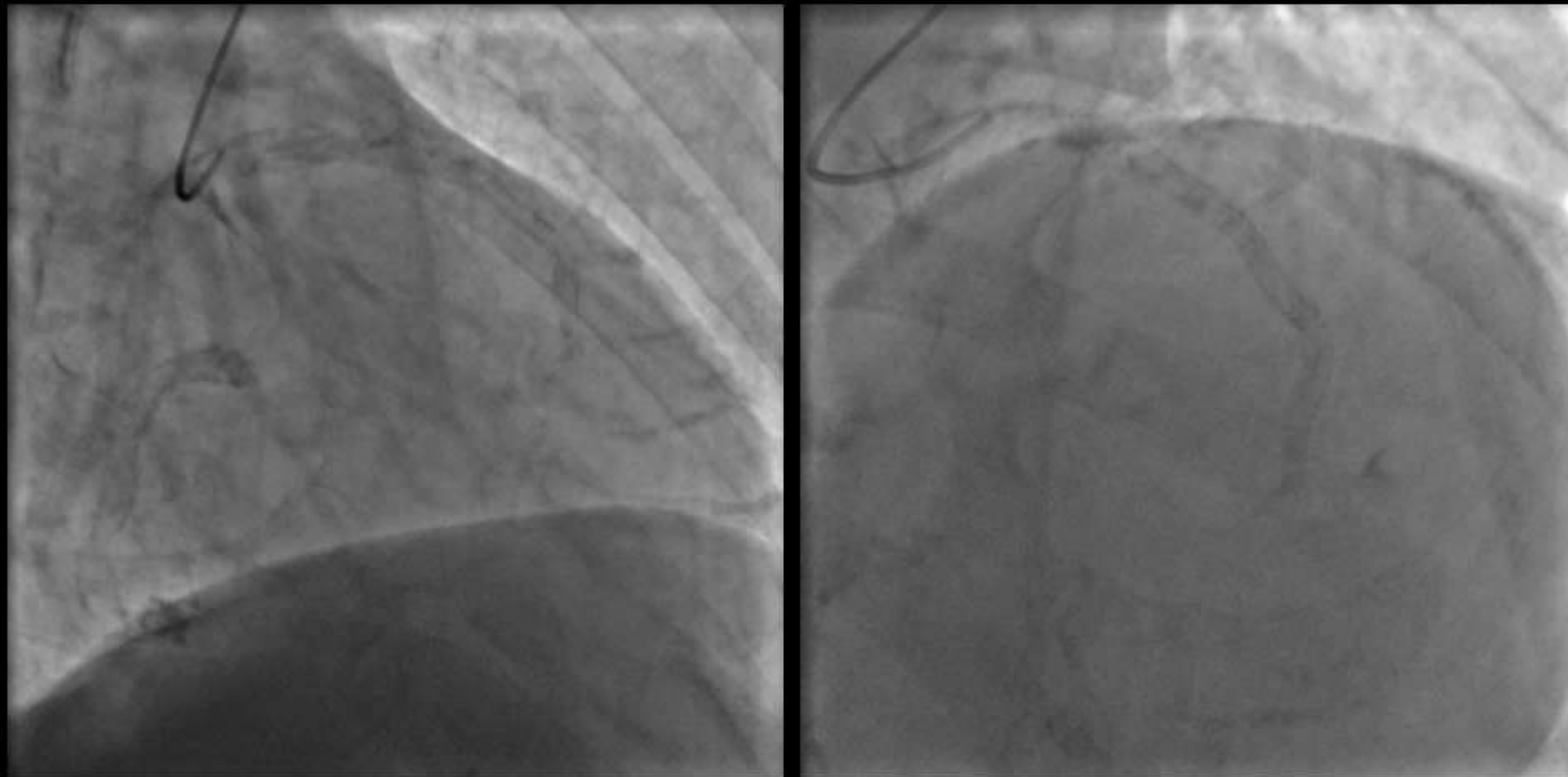


Cross sectional view

RCA CTO case

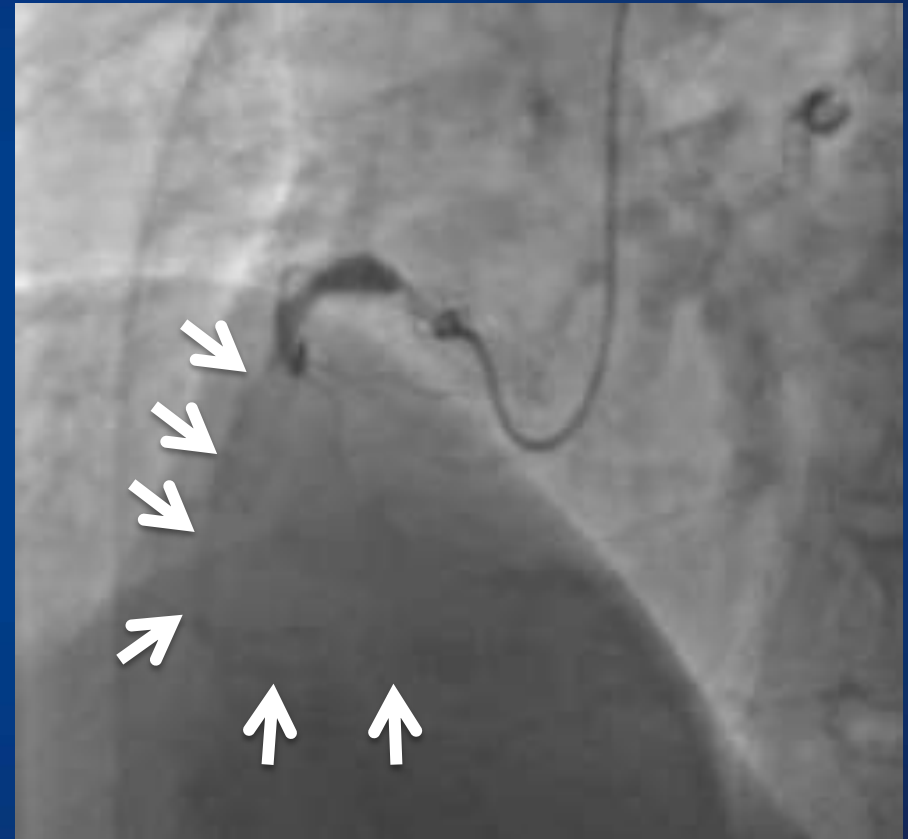


RCA CTO case



Retrograde case ?

- Occlusion length is long.
- Severe calcification.
- Renal dysfunction (eGFR 36.2)



Non contrast Coronary CT



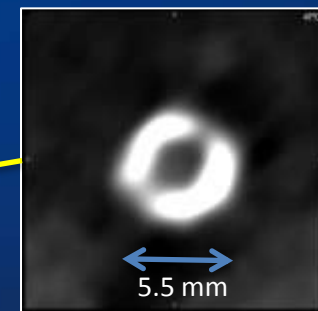
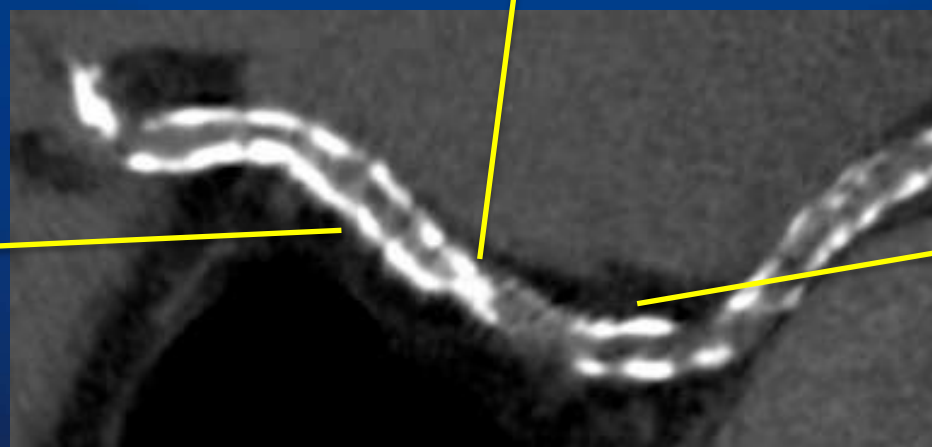
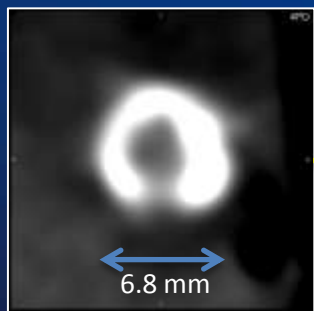
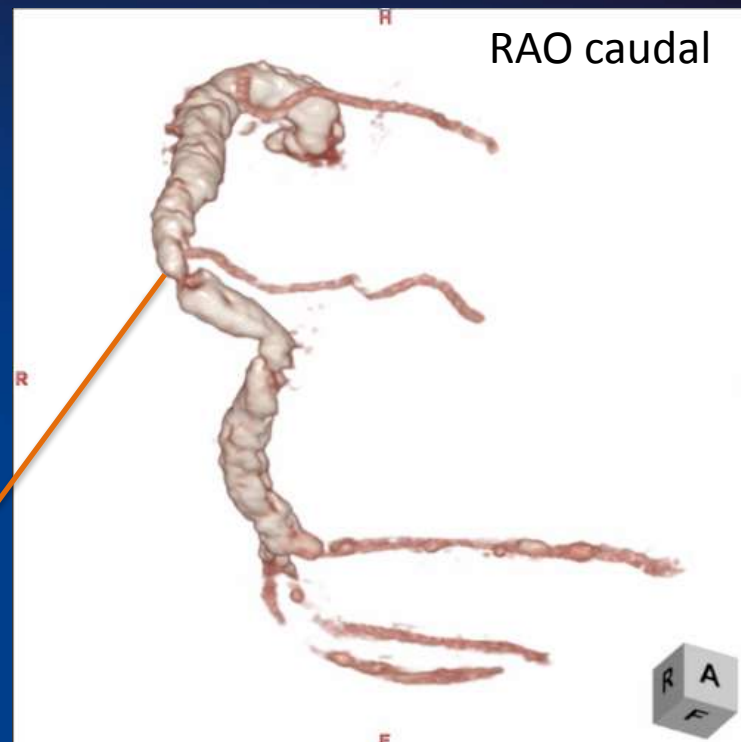
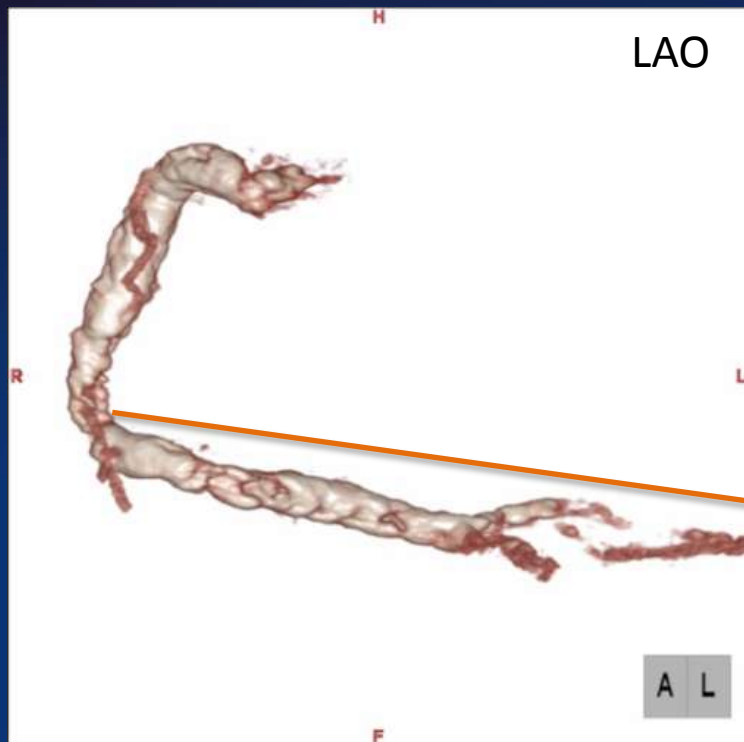
Curved MPR

Cross sectional image



Volume rendering image





Gaia 3rd

Gaia 3rd couldn't pass
at the center side calcification.



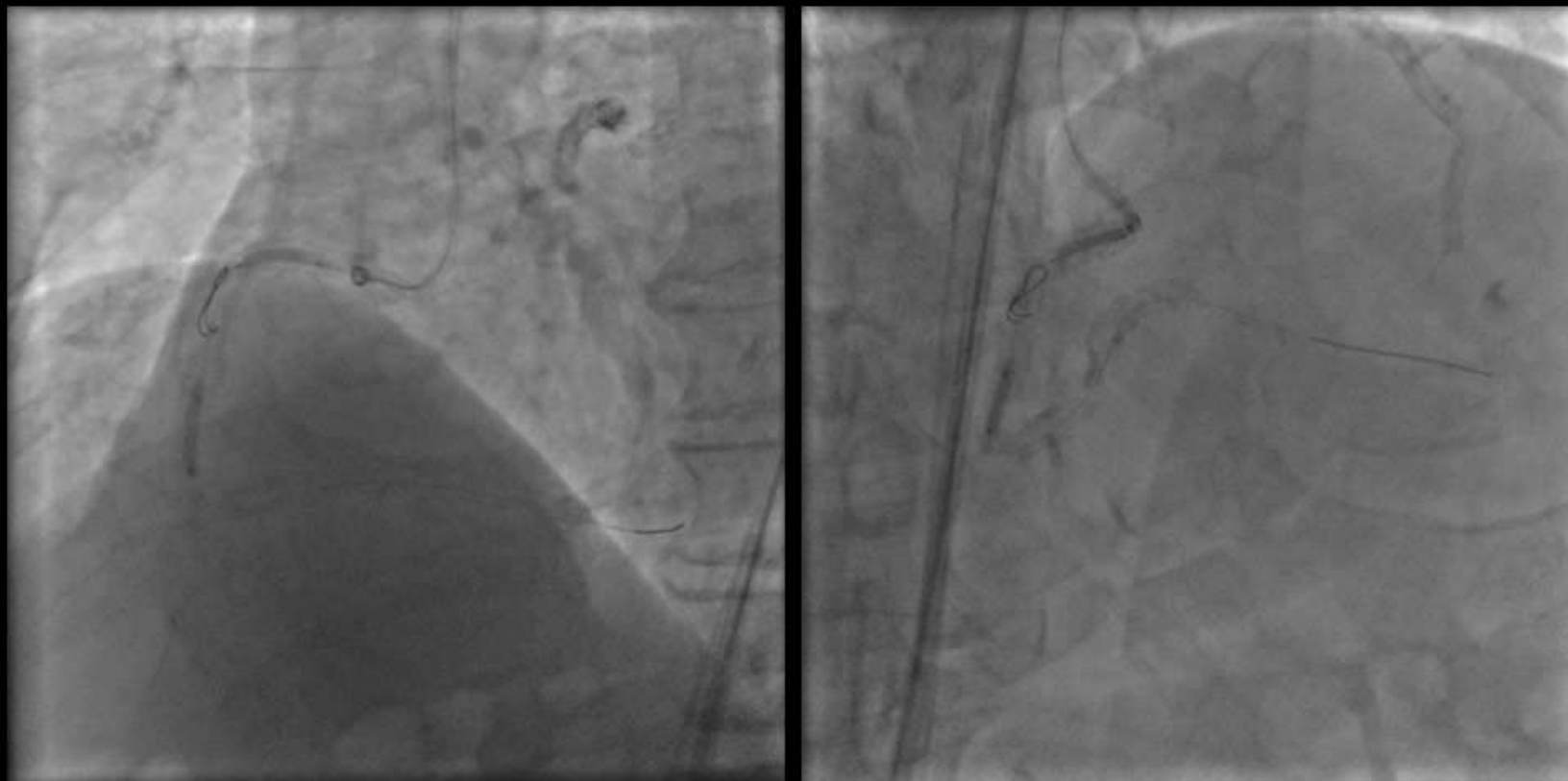
Sion black



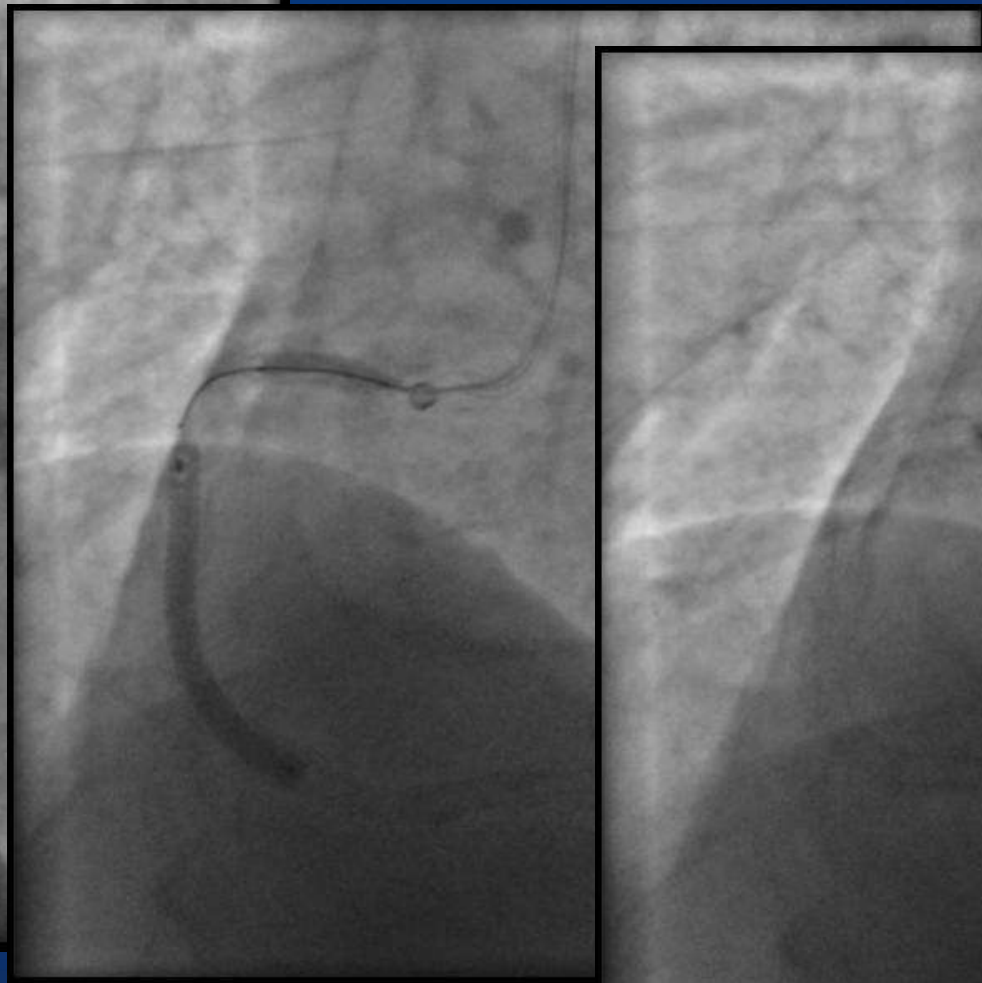
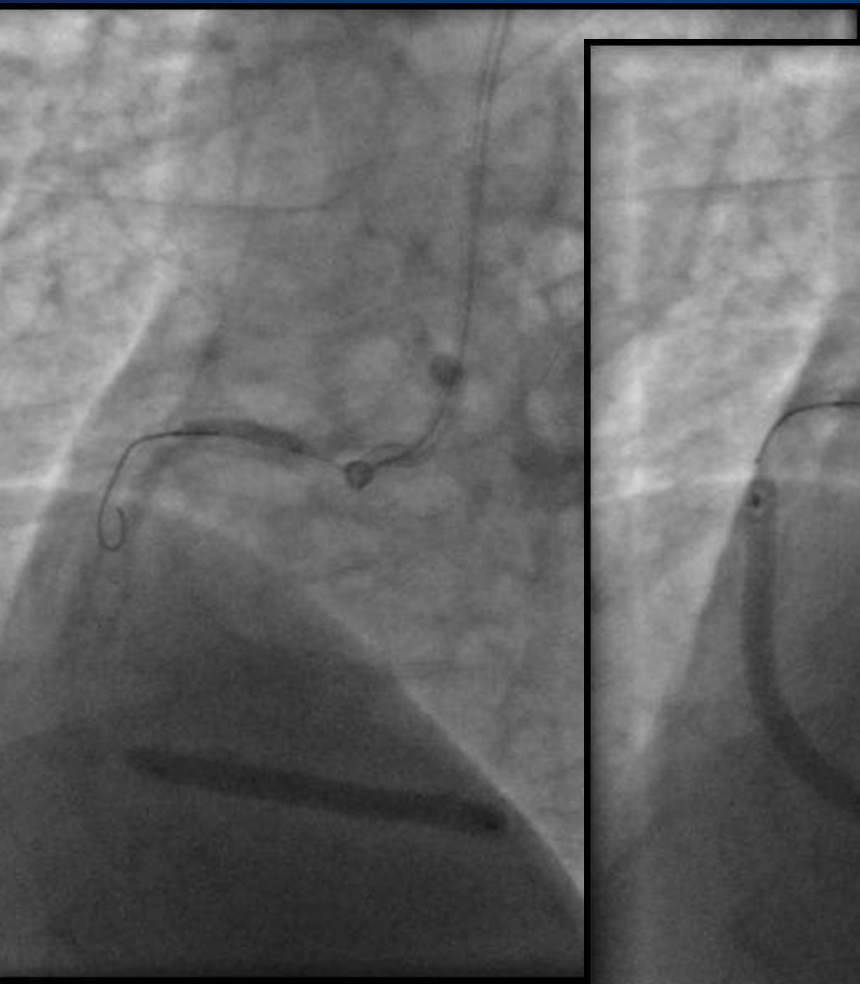
Sion black could cross easily through the severe calcified lesion.



Pre dilatation



STENT



Final CAG



Summary

- We can use Gaia family with “Active wire control” .
- CCTA can provide us with vessel shape, distribution of calcium, and appropriate projection in order to use Active wire control.
- Crusade can provide us strong back up in antegrade approach, but in some case we need pre dilatation for cross it into CTO lesion.
- Sion black has high crossability in severe calcified CTO lesion.

