

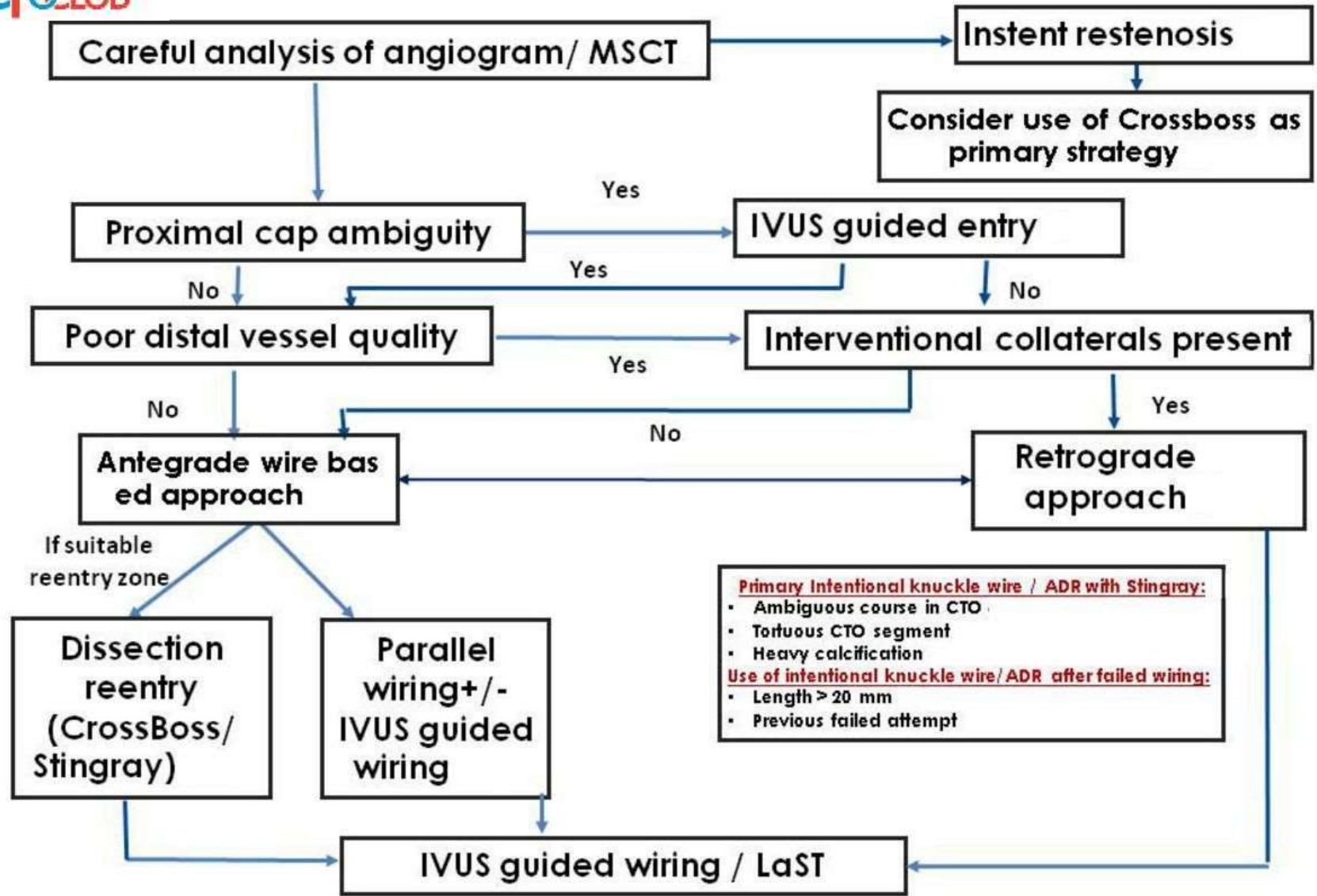


IVUS guided entry: a modified technique

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Primary Intentional knuckle wire / ADR with Stingray:

- Ambiguous course in CTO
- Tortuous CTO segment
- Heavy calcification

Use of intentional knuckle wire/ ADR after failed wiring:

- Length > 20 mm
- Previous failed attempt

Consider stopping if > 3 hr; 3.7x eGFR ml contrast; Air Kerma > 5 Gy unless procedure well advanced.



IVUS application in CTO PCI

IVUS guided entry

IVUS guided wiring

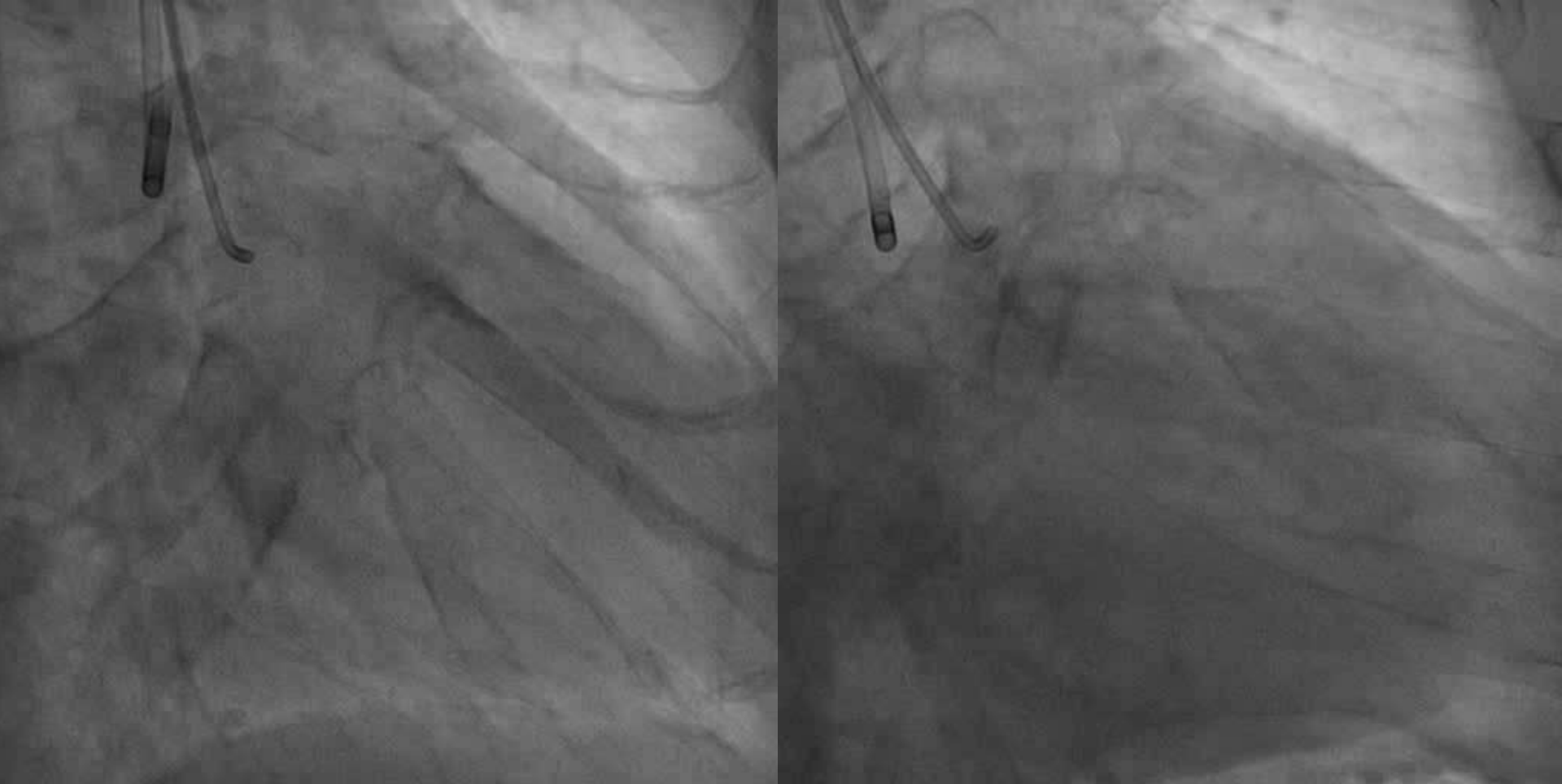


IVUS guided entry

- ❑ Precise orientation of the entry of the CTO (key factor for successful wire cross)
- ❑ Realizing plaque characteristics (aid for guide wire selection)
- ❑ Need appropriate side branch for IVUS catheter insertion



LAD CTO: Baseline angiograms

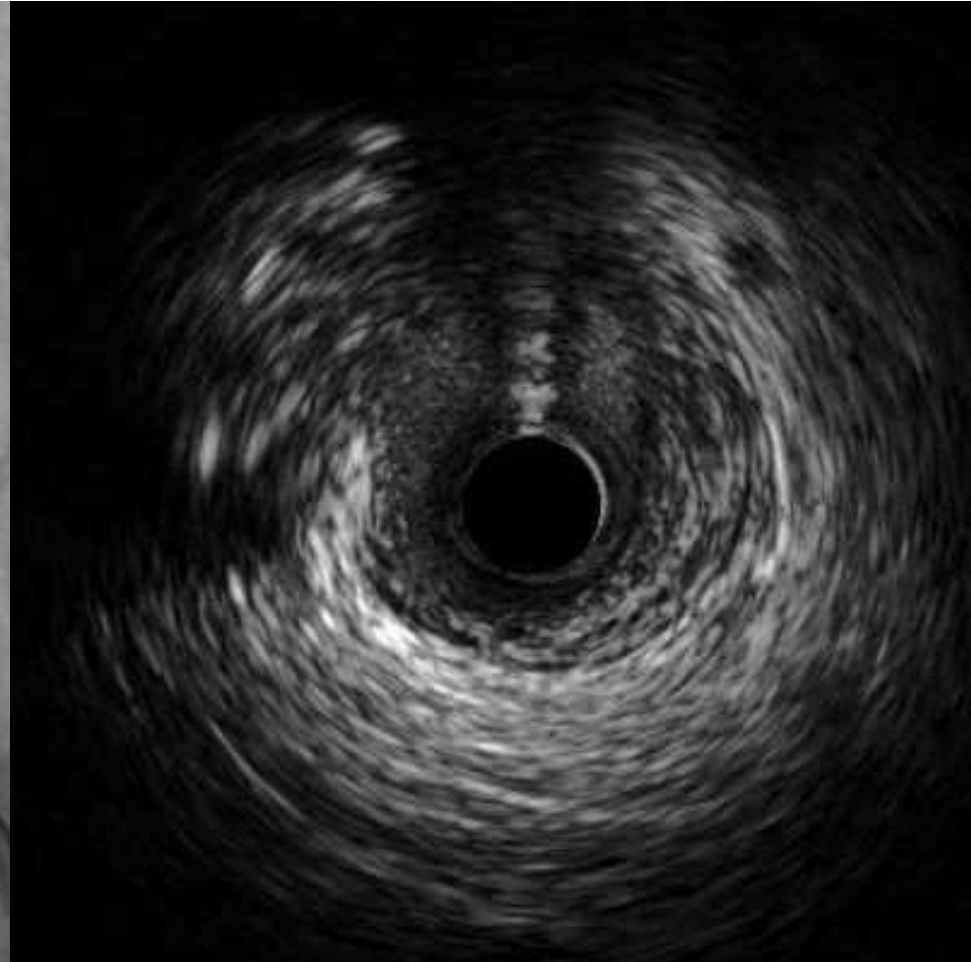
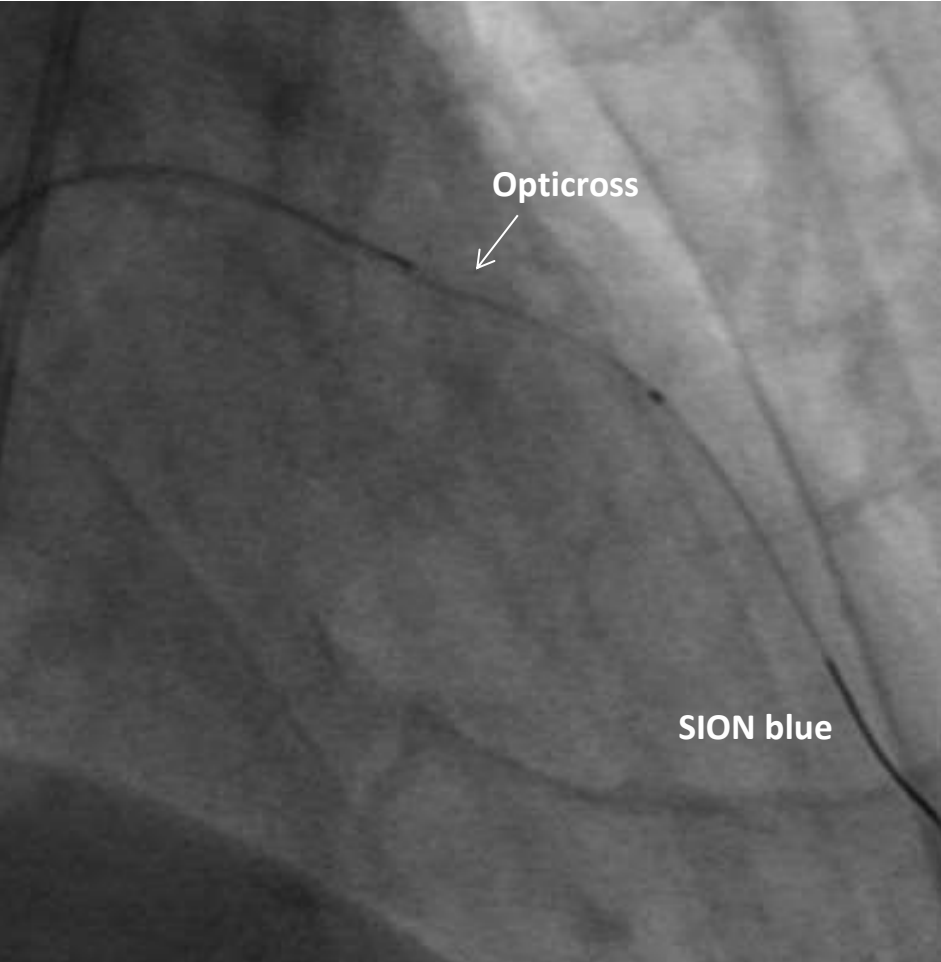




Procedure

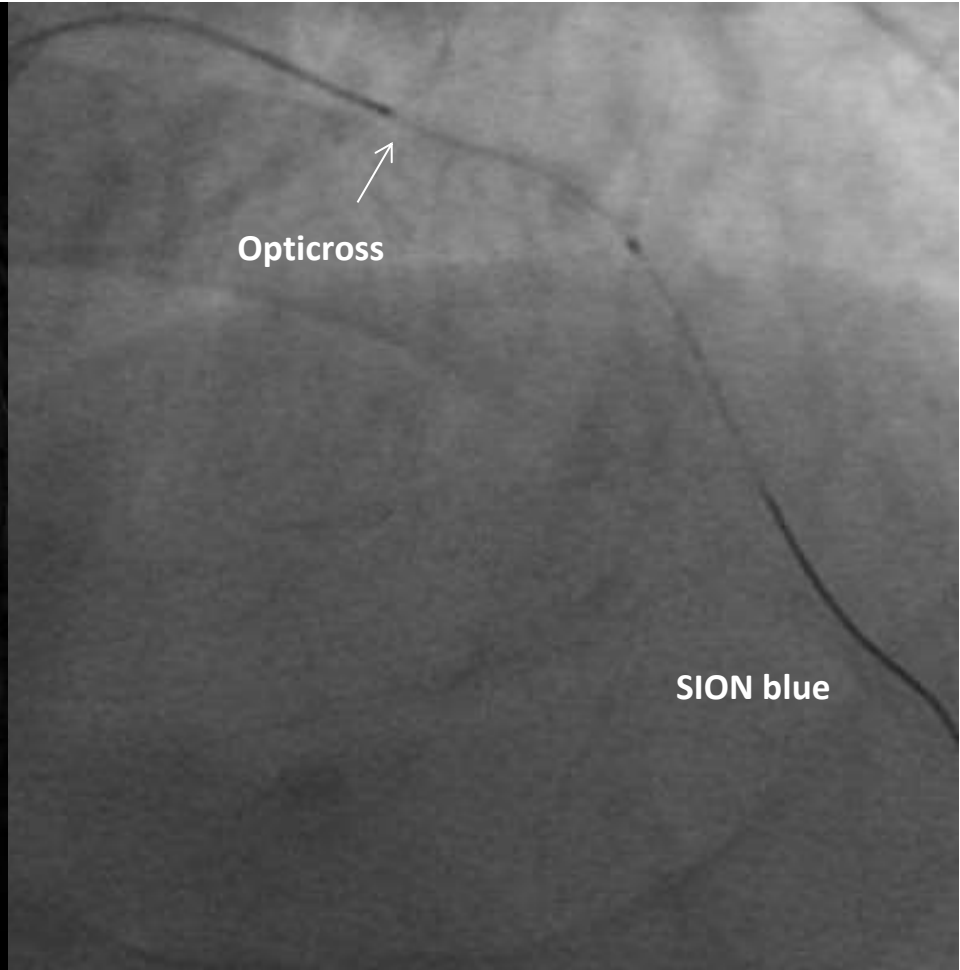
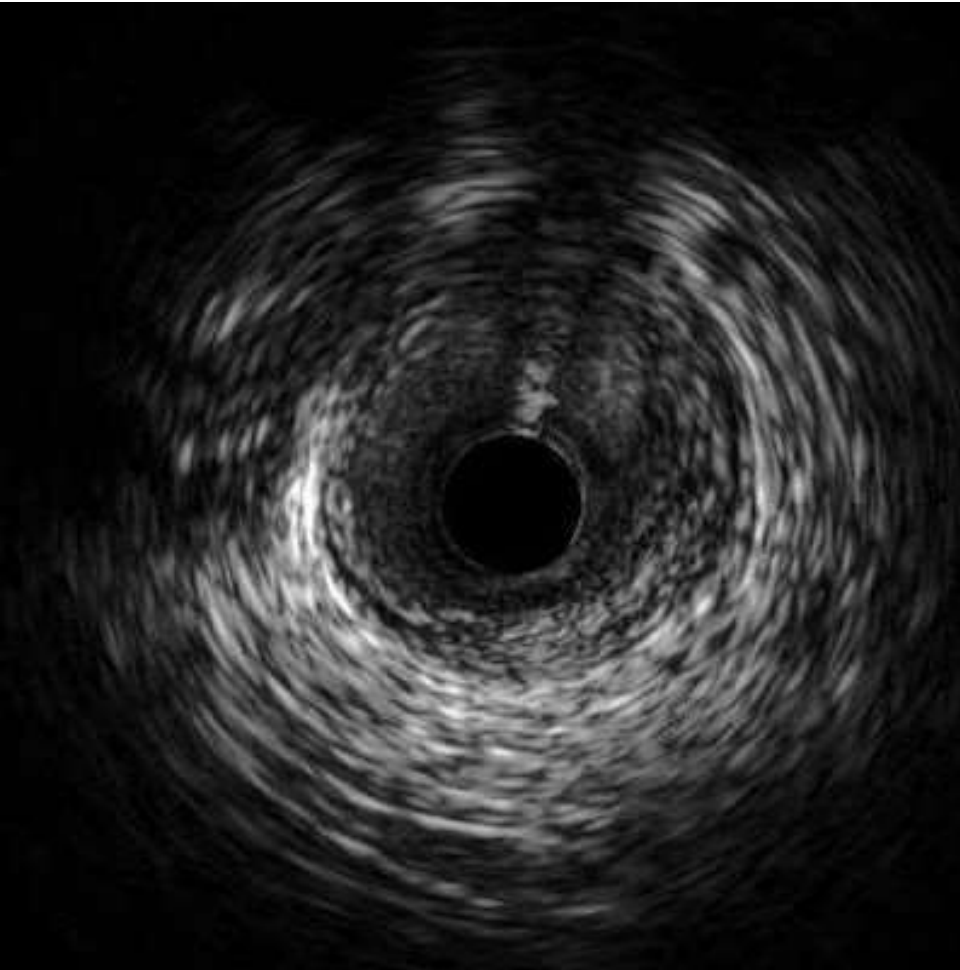
- 8 Fr. EBU 4 guide
- IVUS (Opticross)
- GW (SION blue to diagonal branch)
- MC (Sasuke, a twin lumen MC)

IVUS orientation of the entry

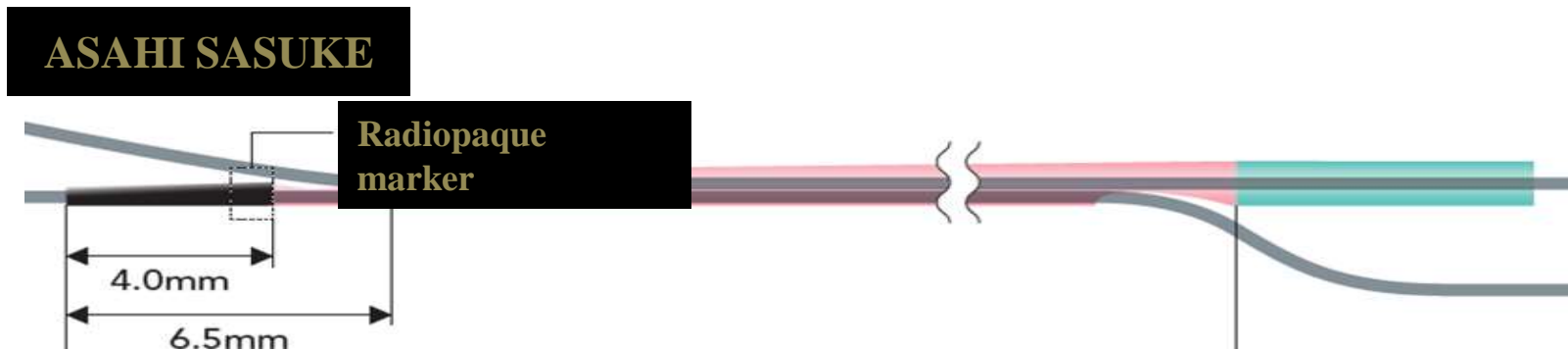




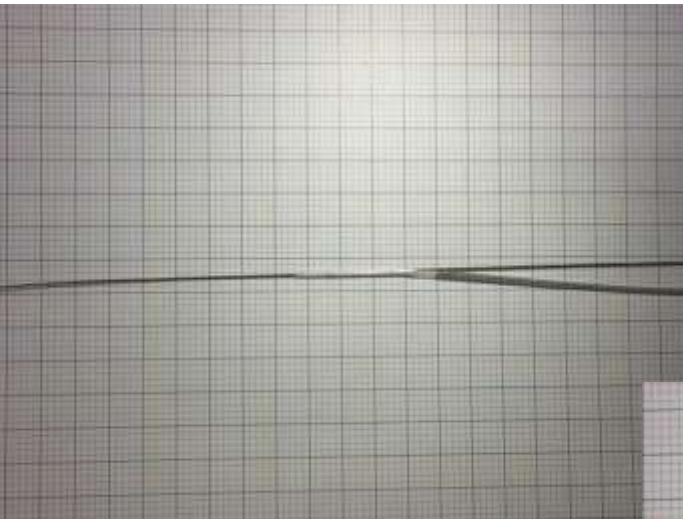
Overlapping IVUS image on angiography



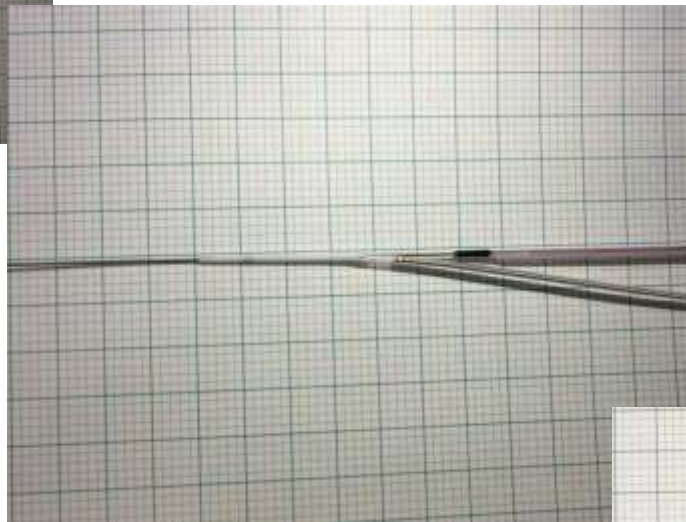
Devices for modified technique



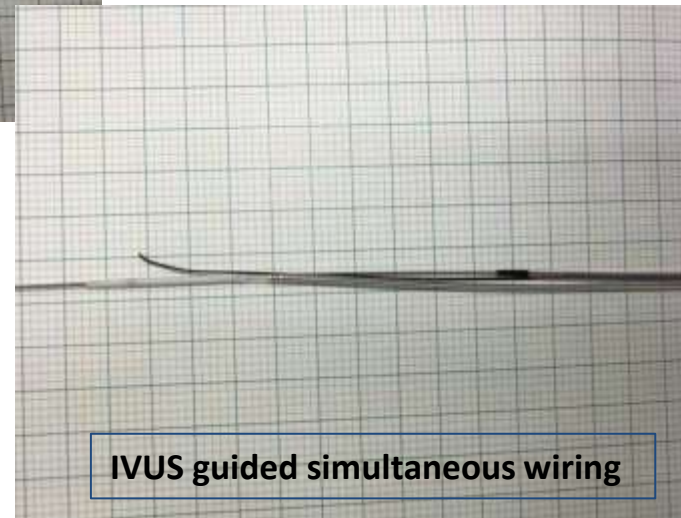
Bench model



IVUS on a diagonal wire

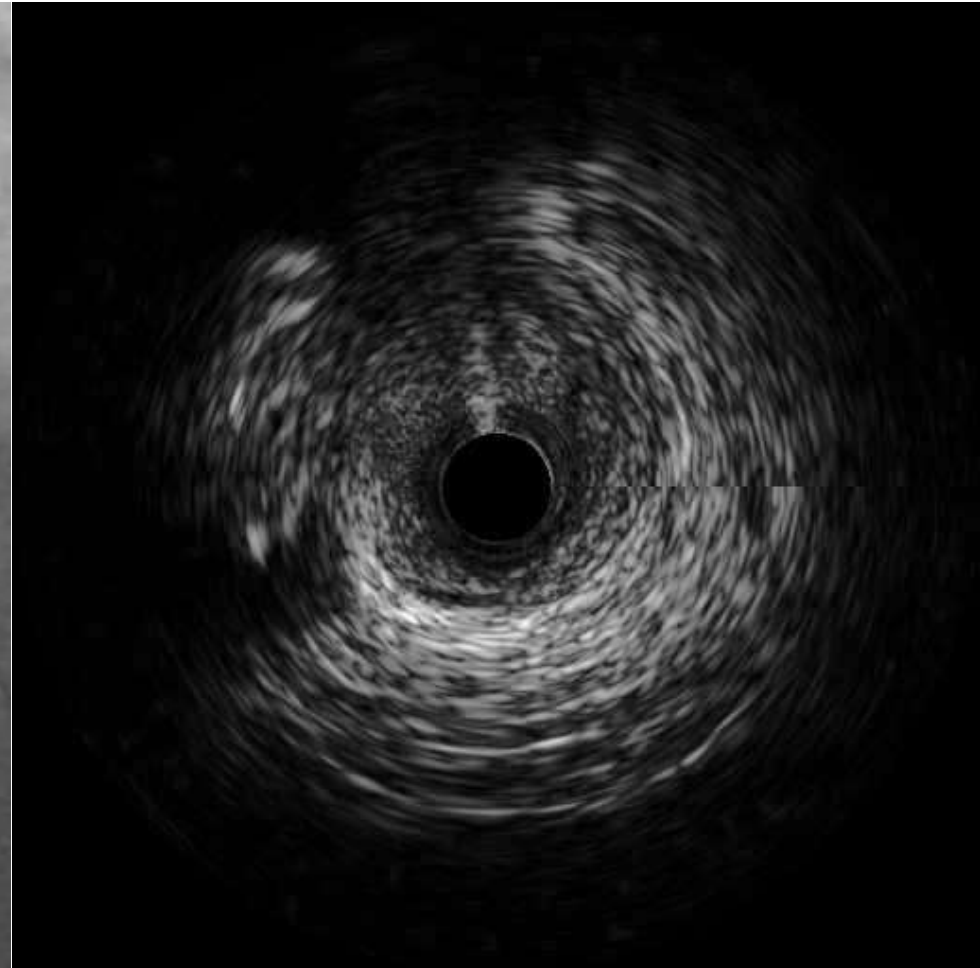
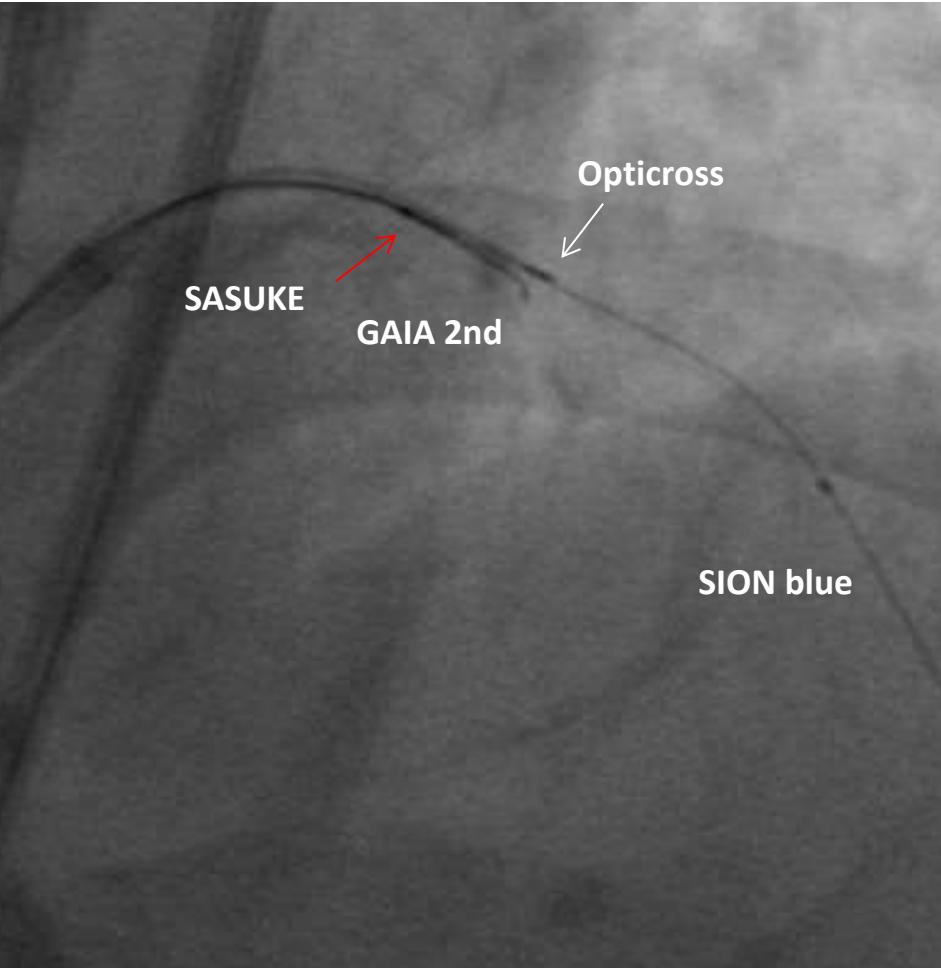


SASUKE on the same wire



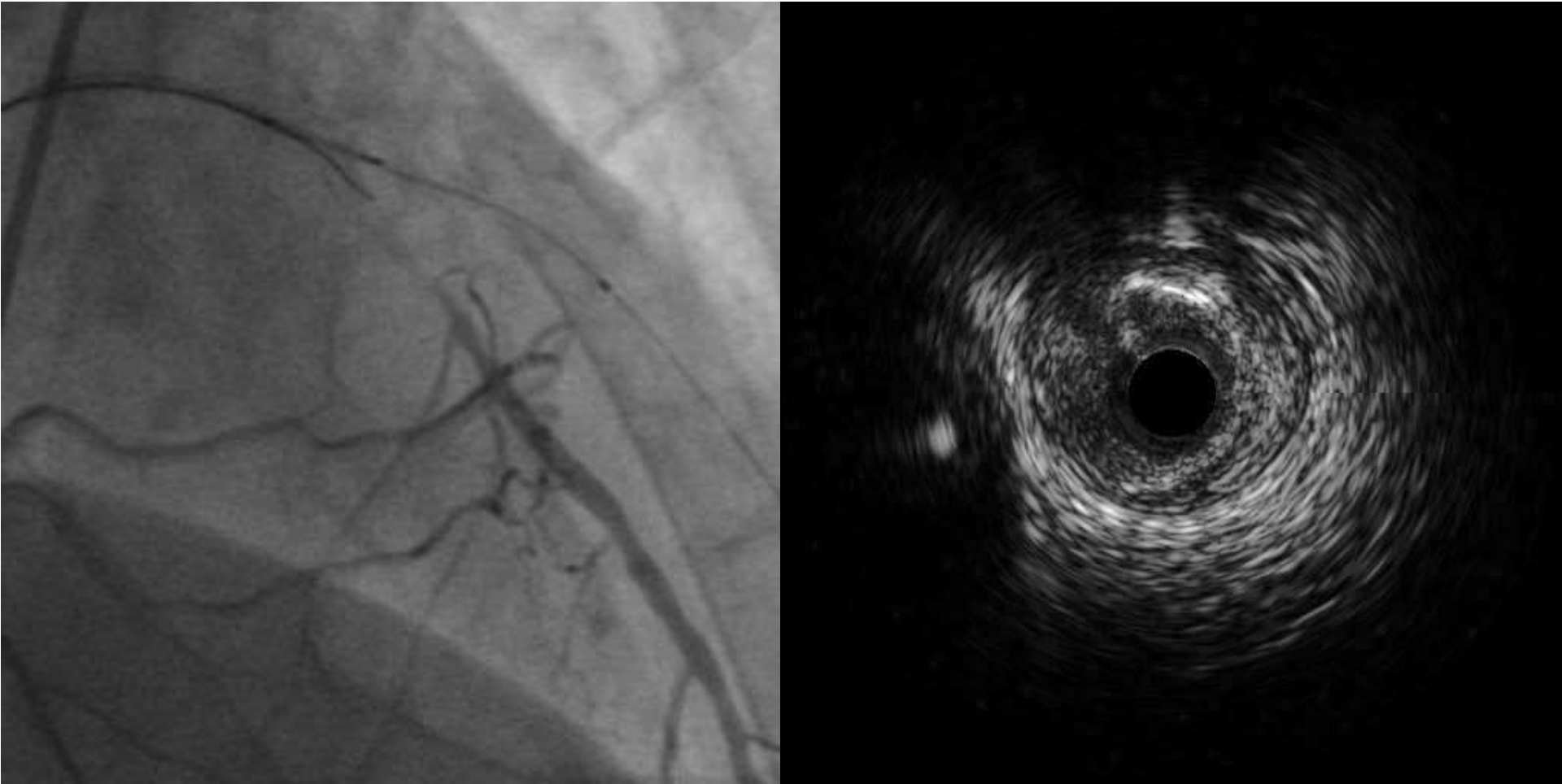
IVUS guided simultaneous wiring

Simultaneous IVUS guided wiring





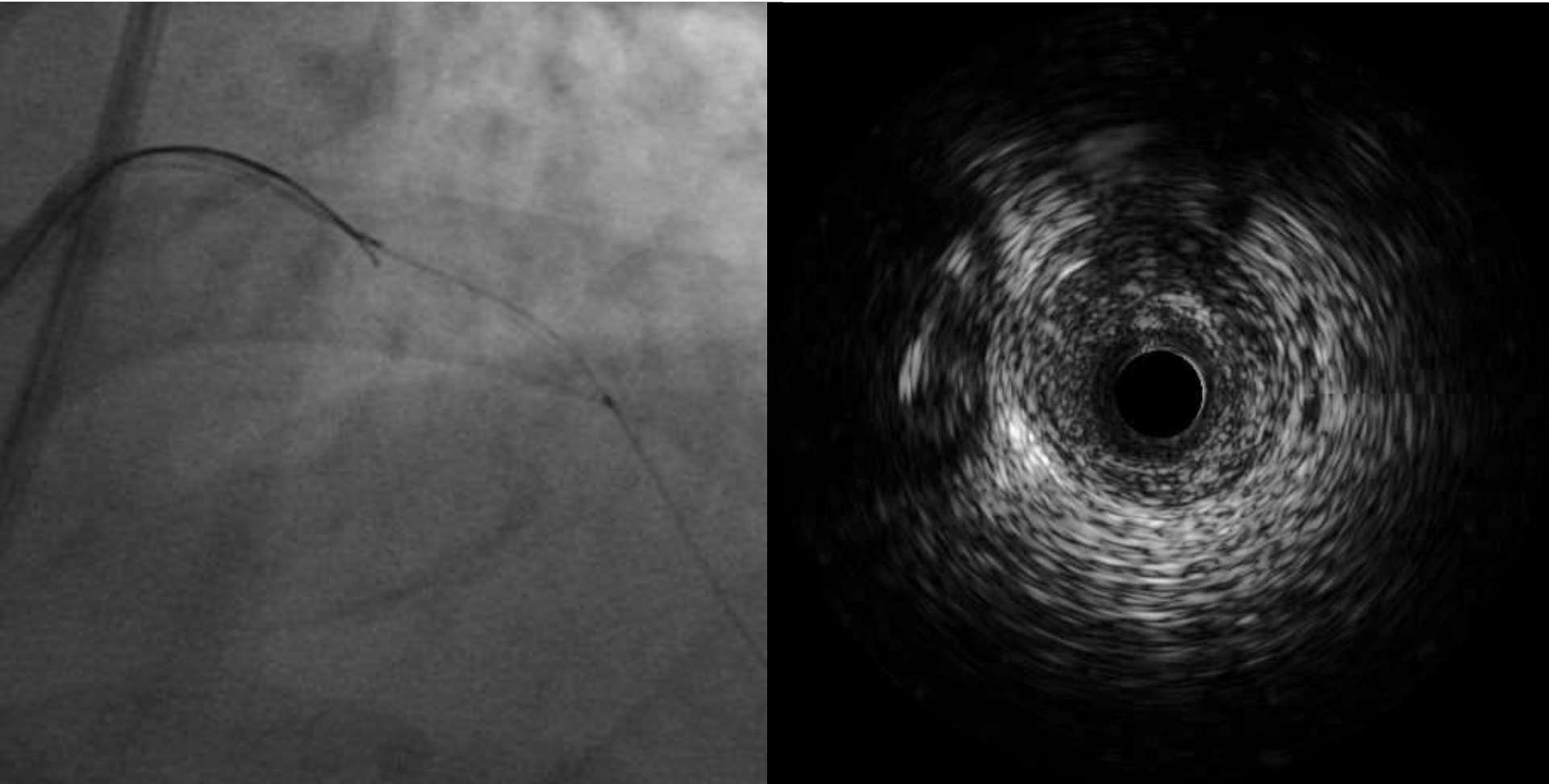
Procedure



Difficulty to advance GAIA 2nd



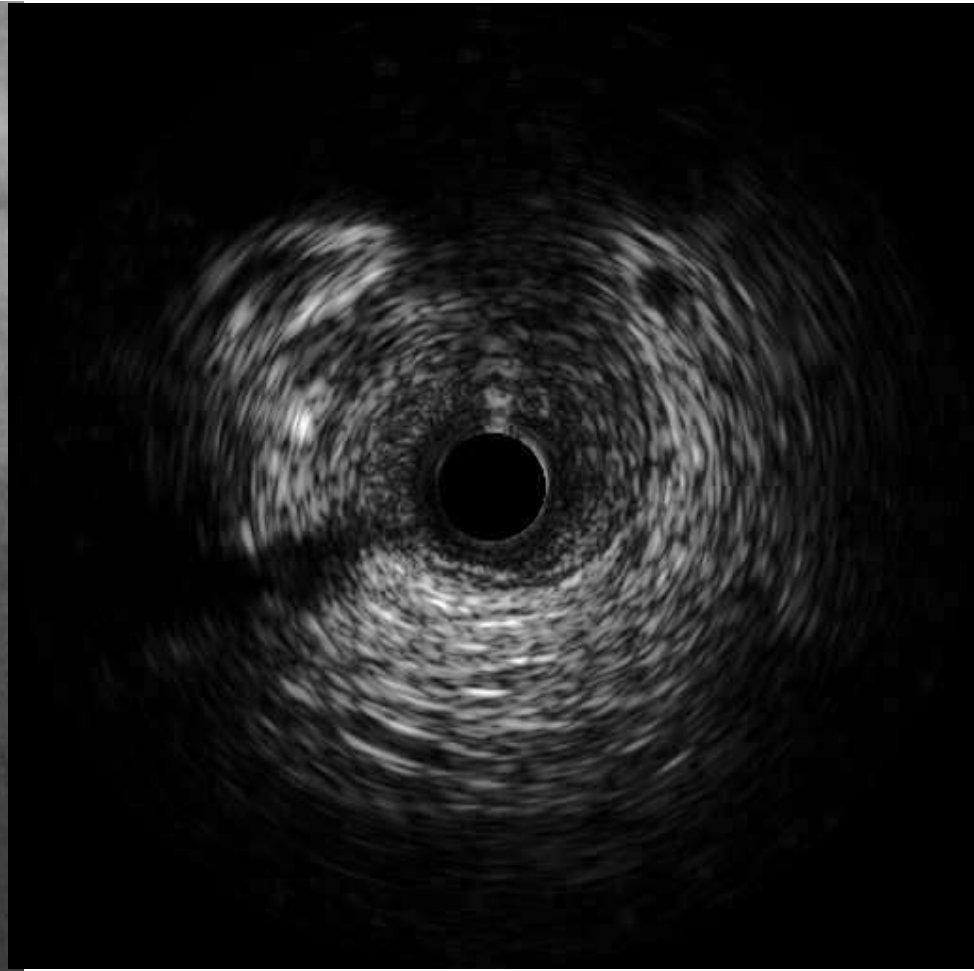
Change MC to Caravel



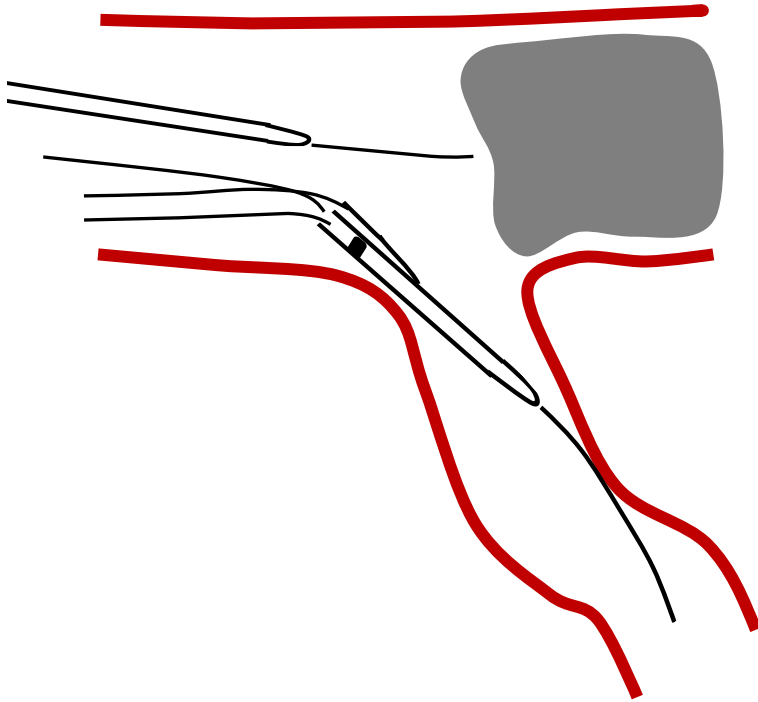
Need to make a large curve on the GW to enter the true lumen



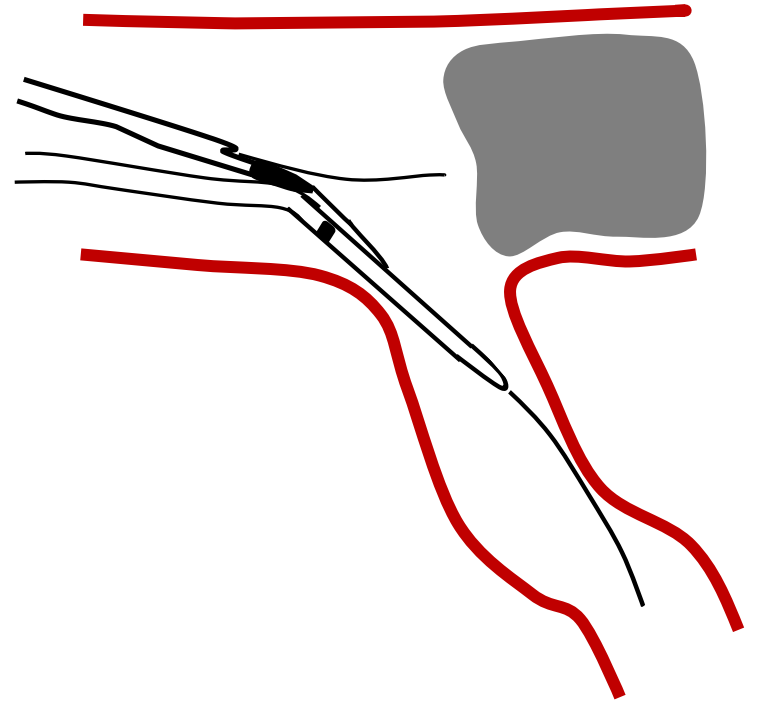
Entry to true lumen



Simultaneous IVUS guided entry



Using micro catheter



Using twin lumen catheter

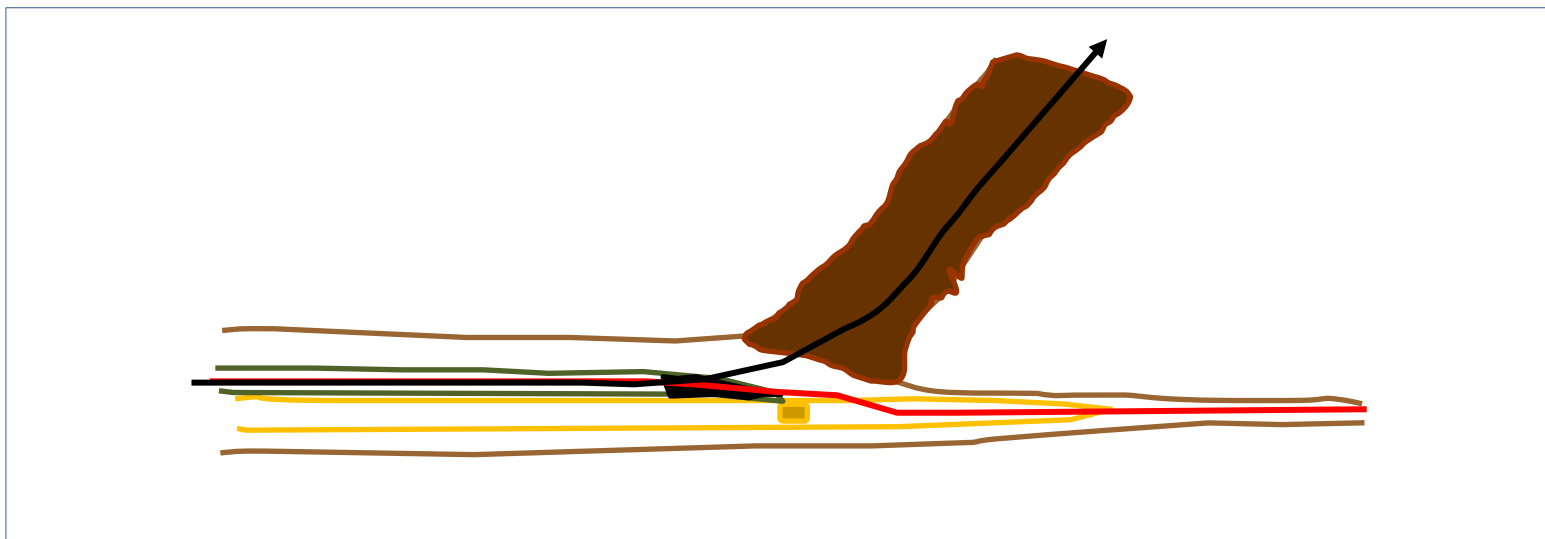


Disadvantages IVUS guided entry

- ❑ IVUS insertion to the small side branch sometimes changes the angle between main and side branch from the original angulation.
- ❑ IVUS itself will be a resistance for a second micro catheter insertion and restricts its position. Therefore, its position will not be ideal for IVUS guided entry.
- ❑ To enter the lumen, a large second curve is sometimes needed in two wire system, which occasionally disturbs dedicated GW manipulation in the CTO.

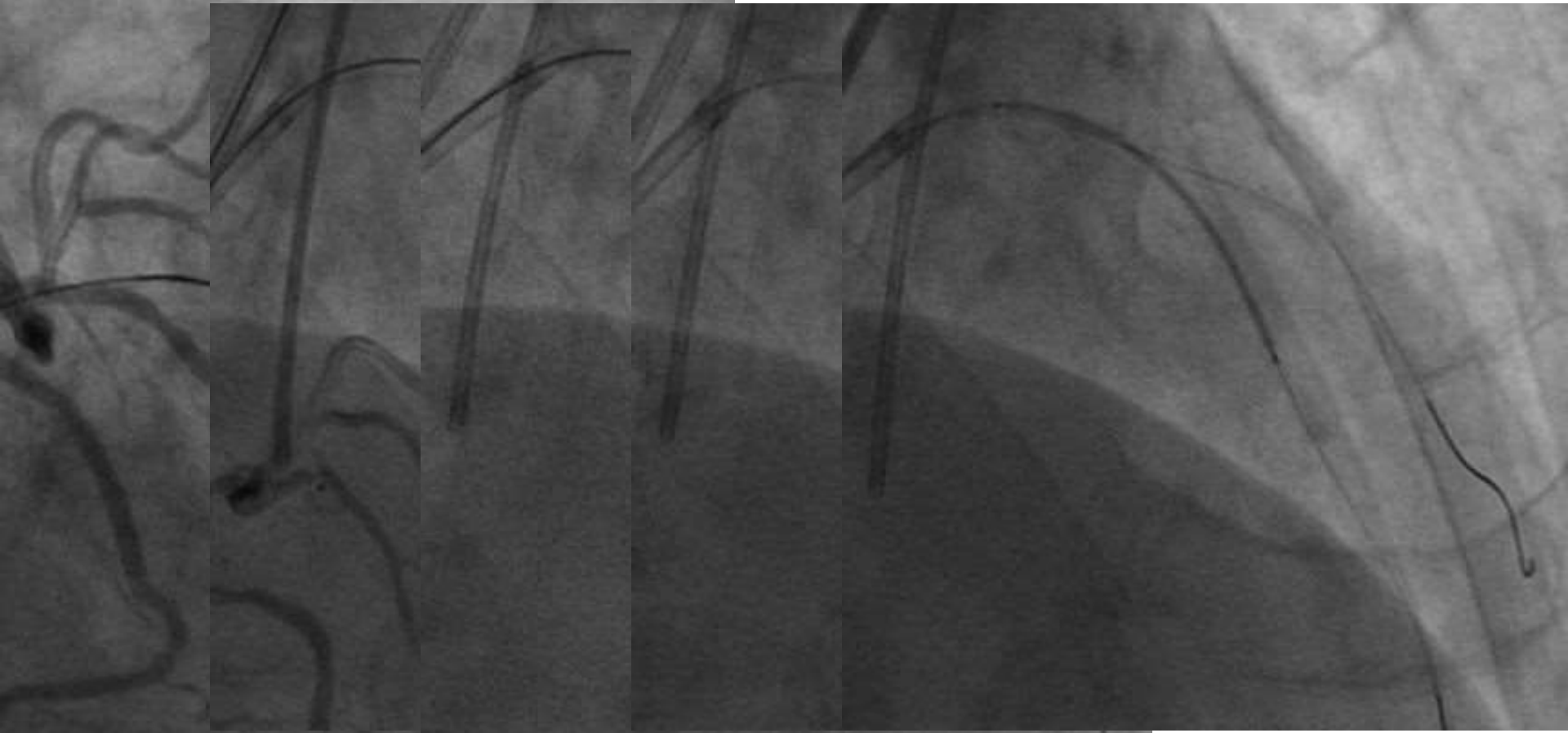
IVUS guided entry

Double wire and IVUS and micro catheter on a single wire



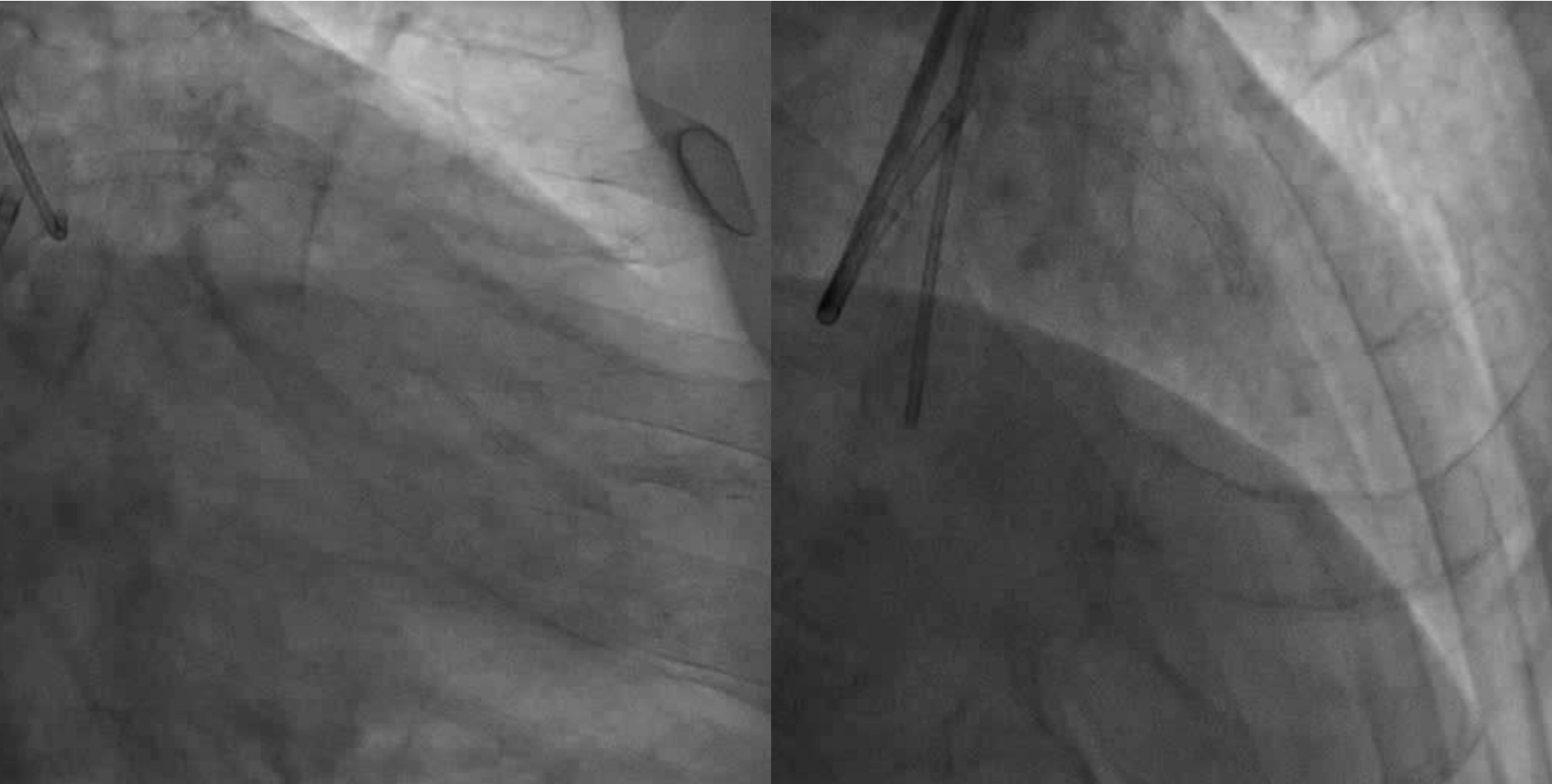


Procedure





Final angiograms





Message

Simultaneous IVUS guided wiring navigates guide wire to the correct direction

Coaxial alignment of IVUS and micro catheter on a single wire provides effective back up force and facilitates IVUS guided wiring

A unique structure of SASUKE micro catheter which has a short segment between its tip and the second exit port can minimize wire movement that contributes effective true lumen entry from the nearest point