

Retorgrade approach

Tips, Tricks, and Trouble shooting in CTO PCI

Toyohashi Heart Center

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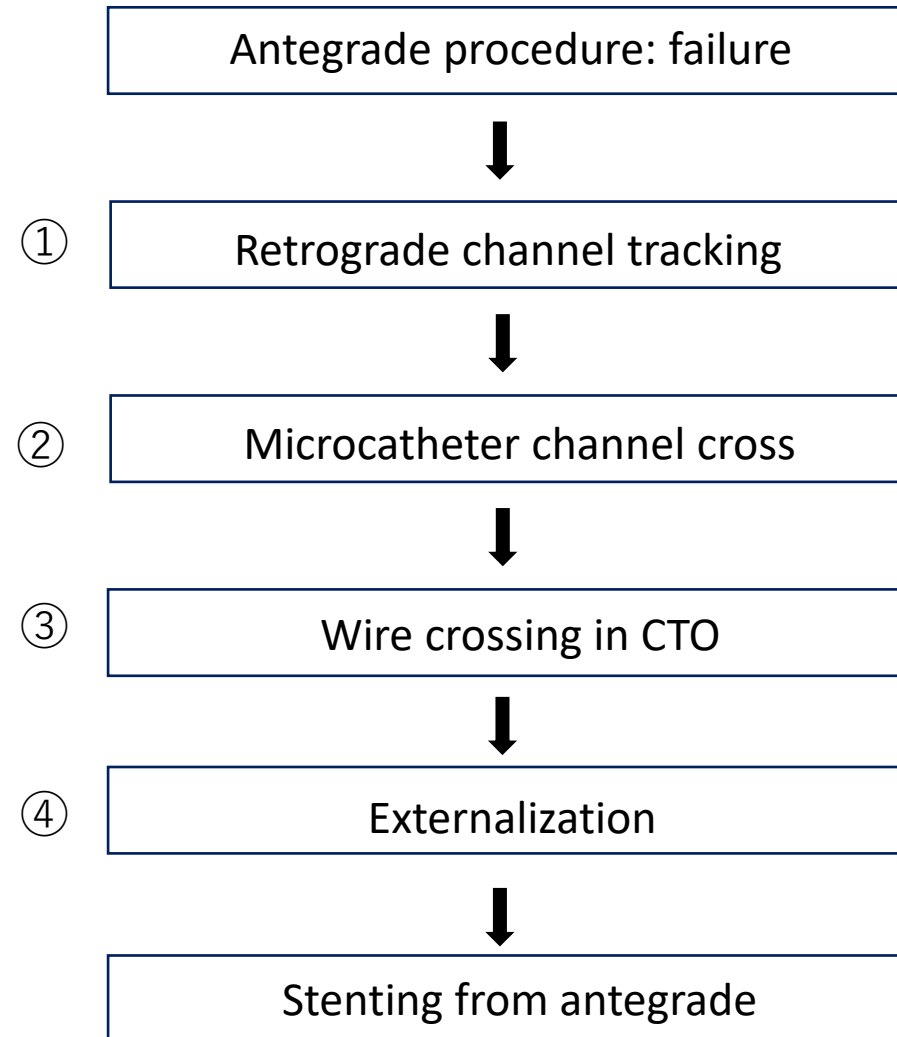
TCTAP2023

COI Disclosure

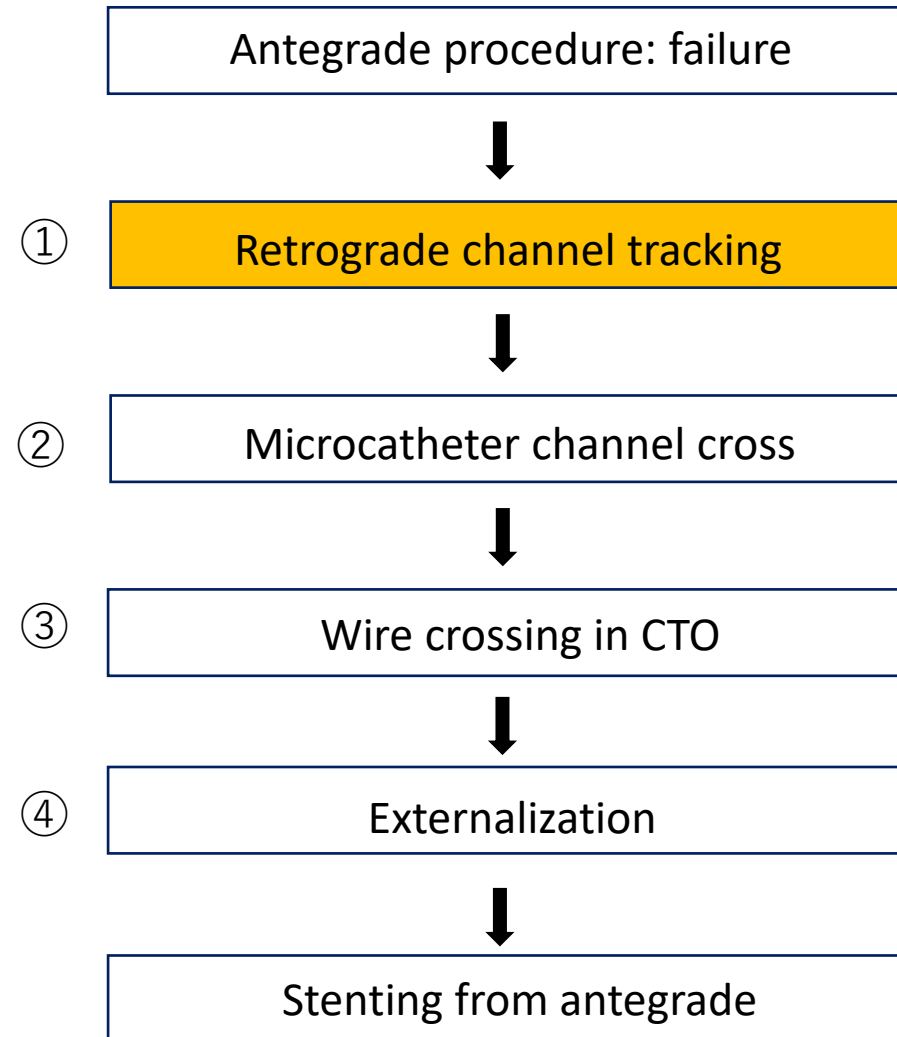
Name of Presenter: Maoto Habara

The presenter has no financial conflicts of interest to disclose concerning the presentation.

The usual strategy in retrograde procedure



The usual strategy in retrograde procedure

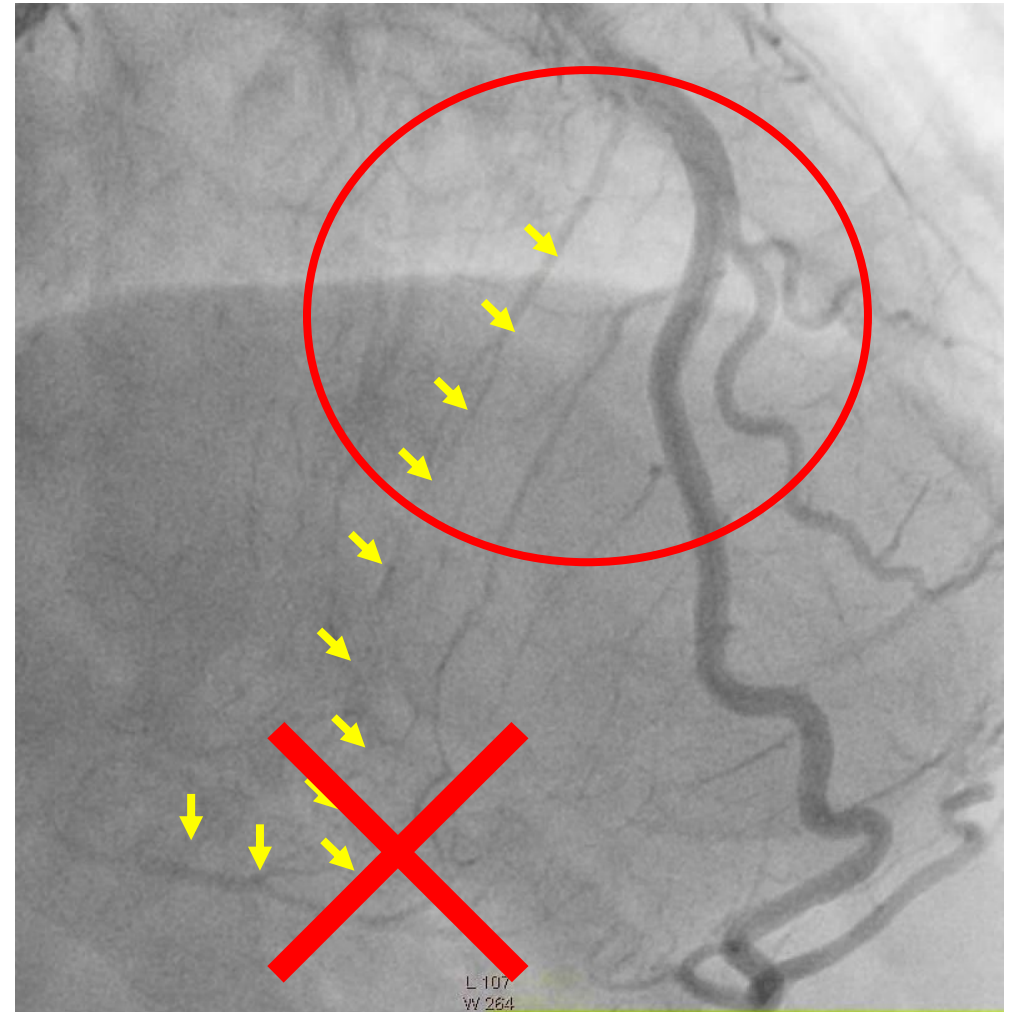
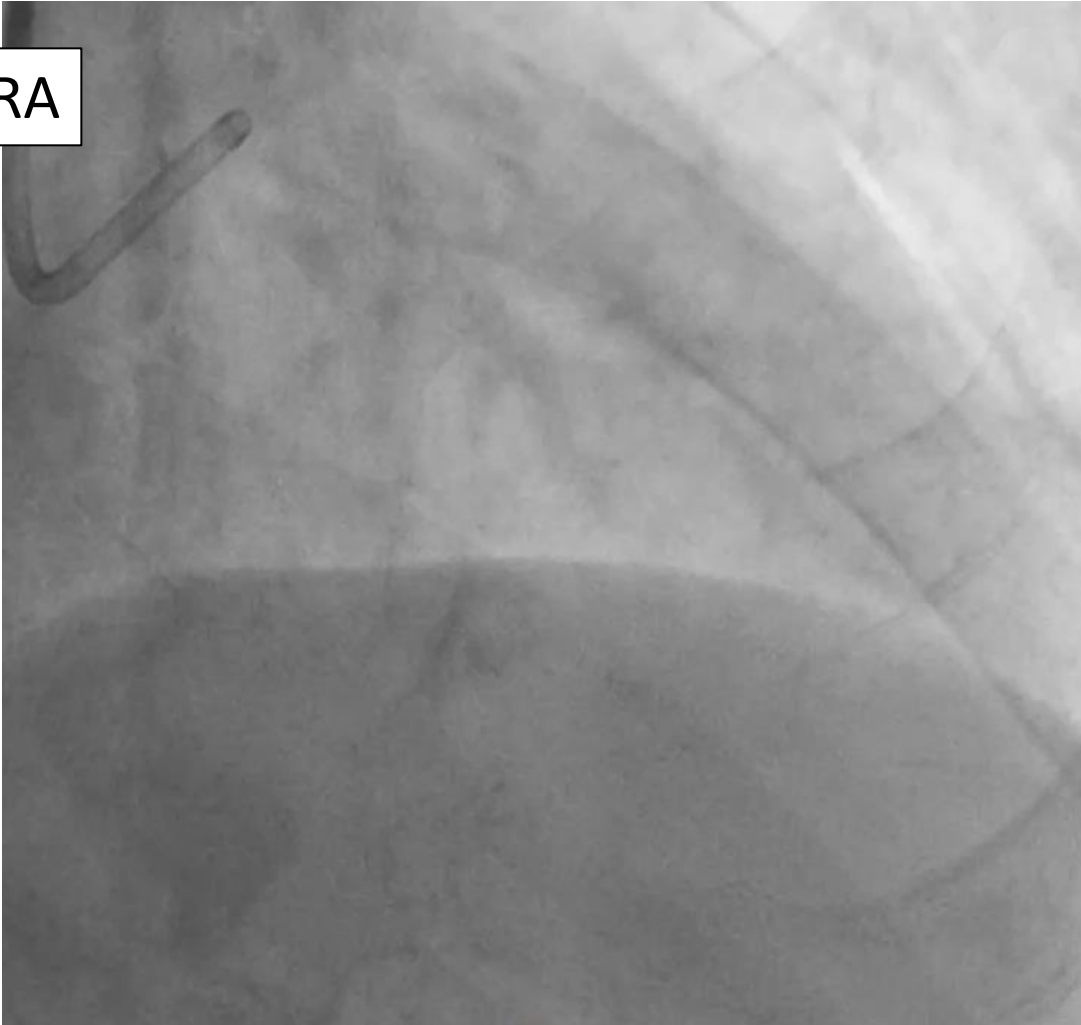


① Retrograde channel tracking

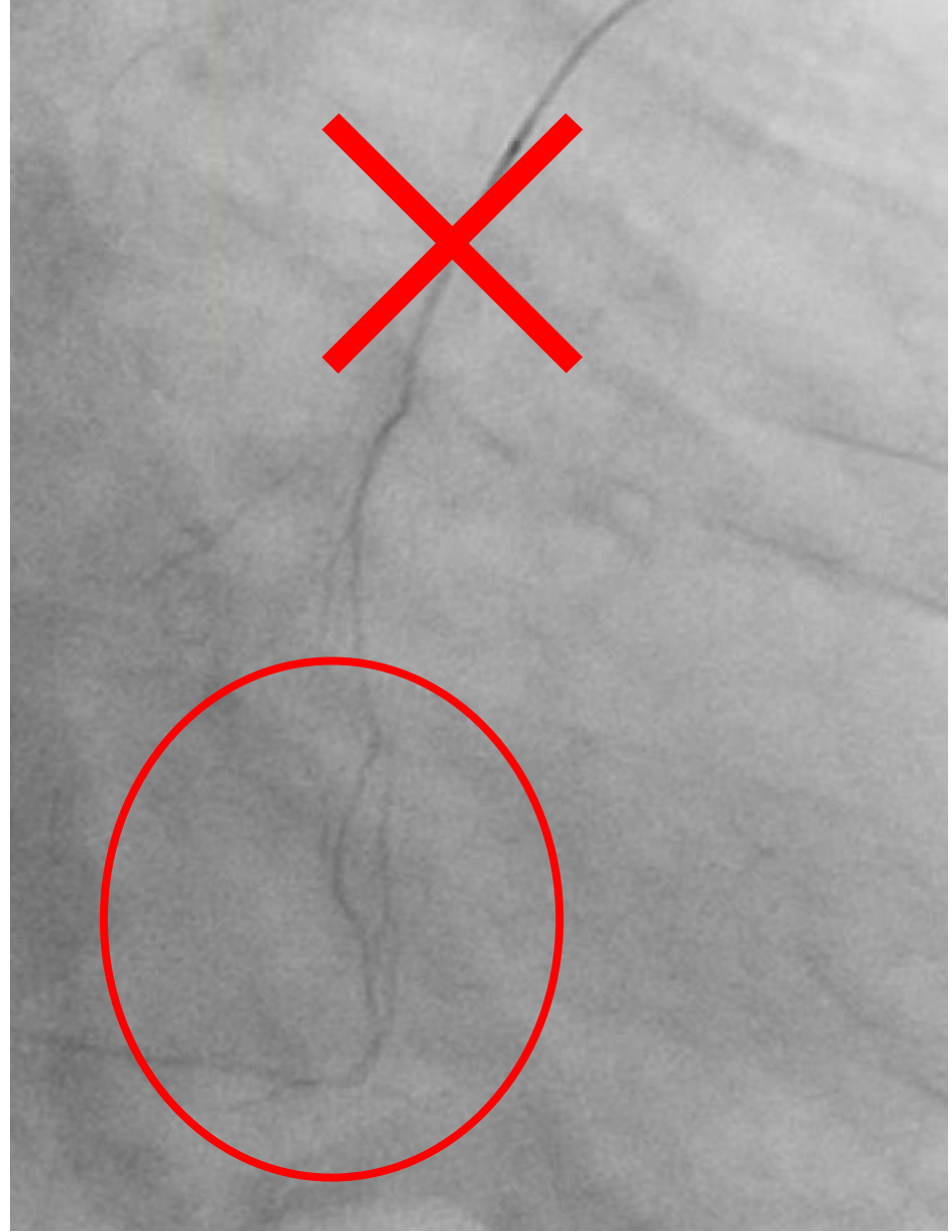
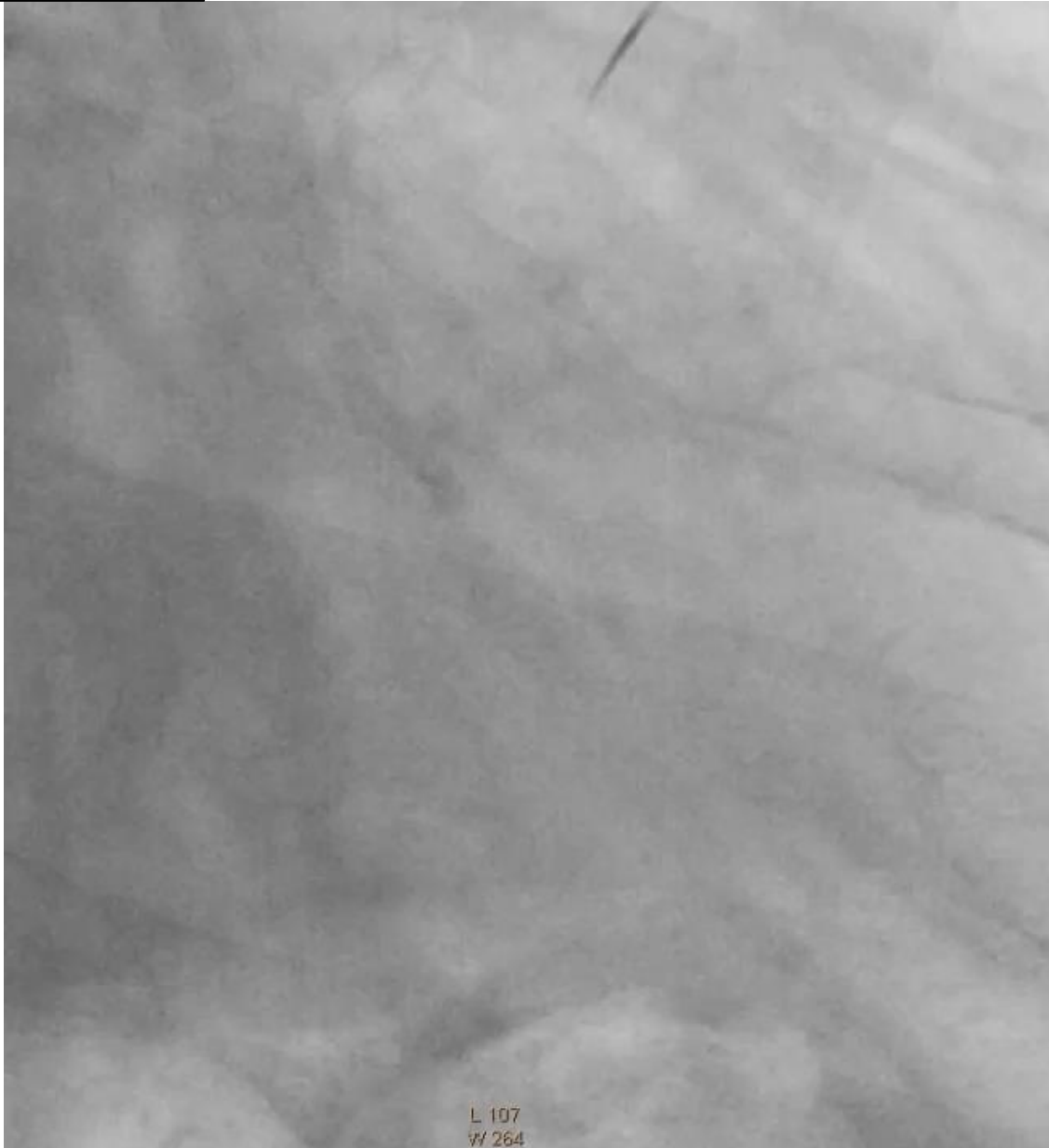
Case1: RCA CTO

Identify the most appropriate retrograde route: Select appropriate angiographic view angle

RAO-CRA



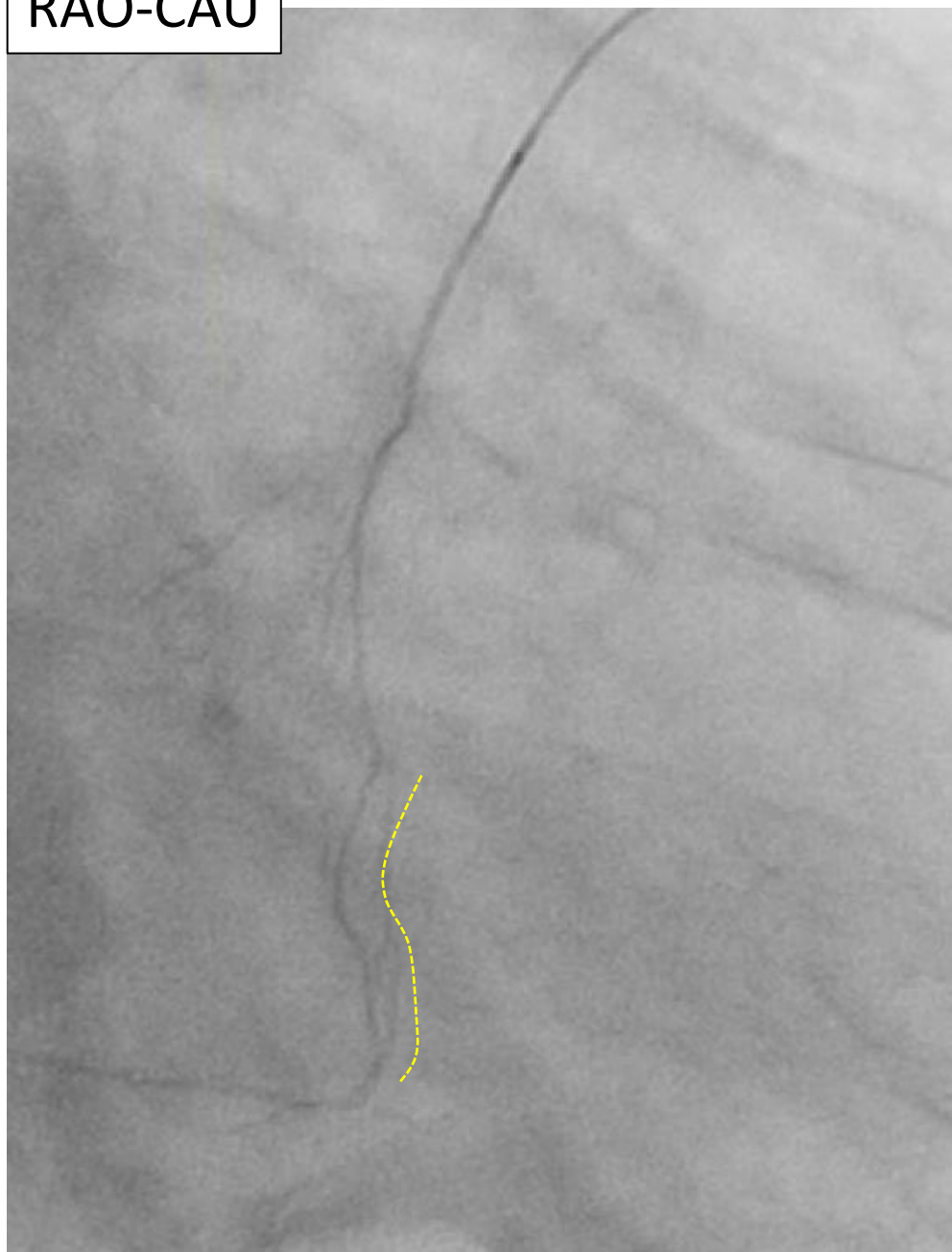
RAO-CAU



RAO-CRA

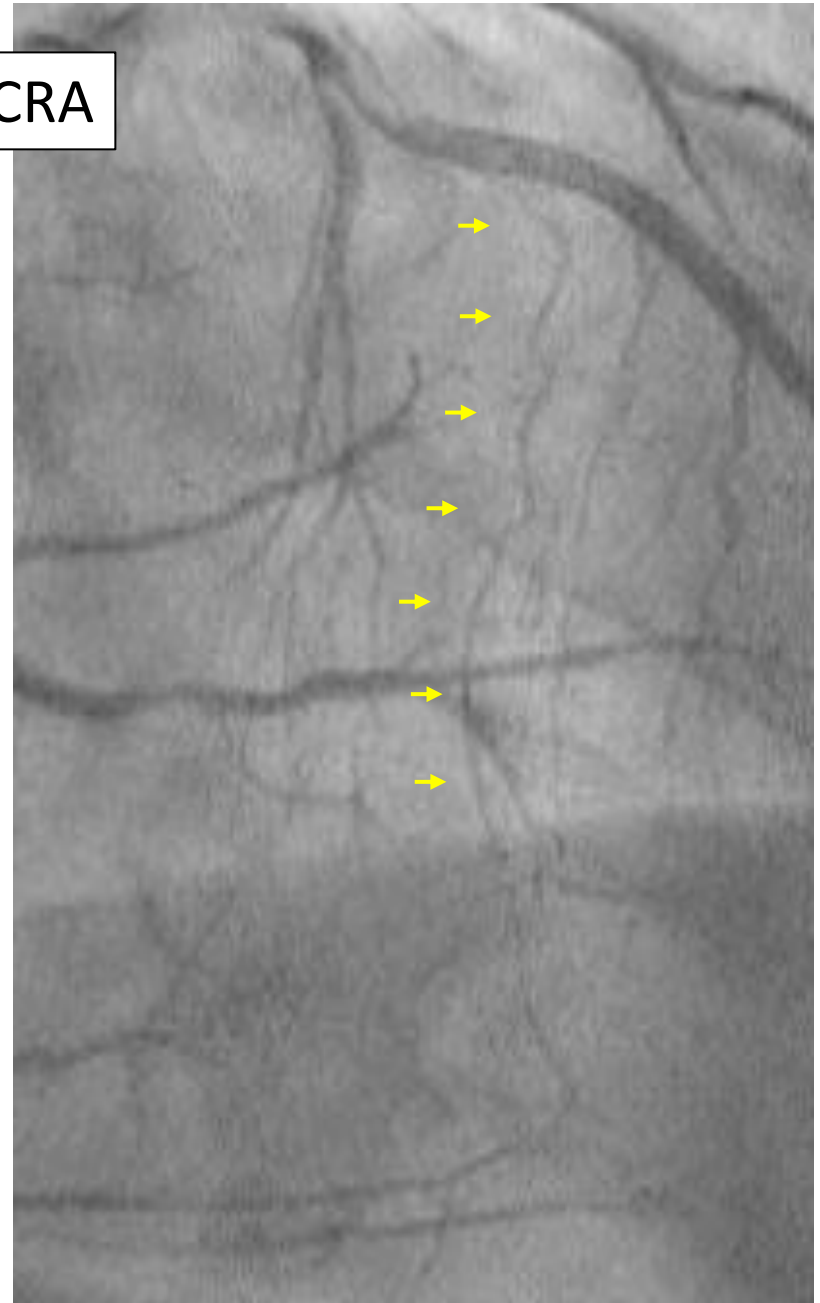


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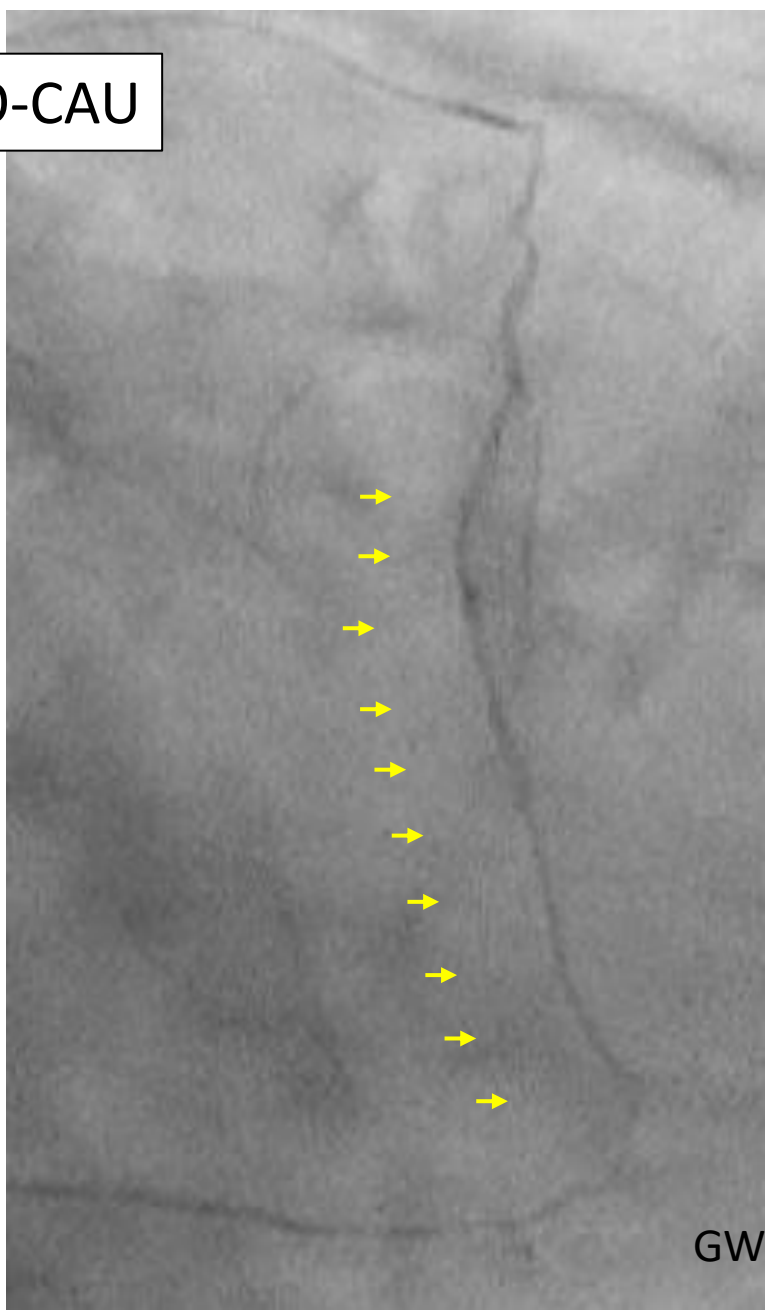


Case2: RCA CTO

RAO-CRA

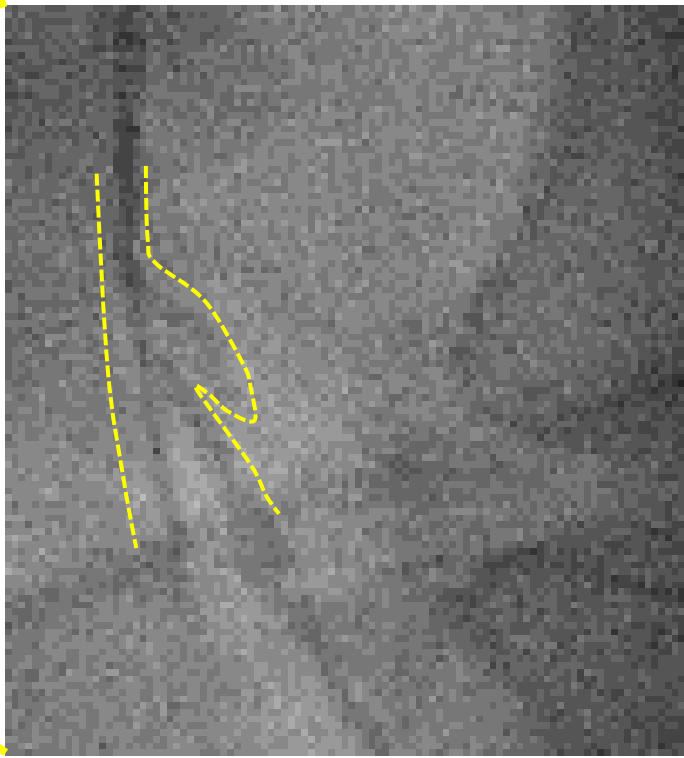
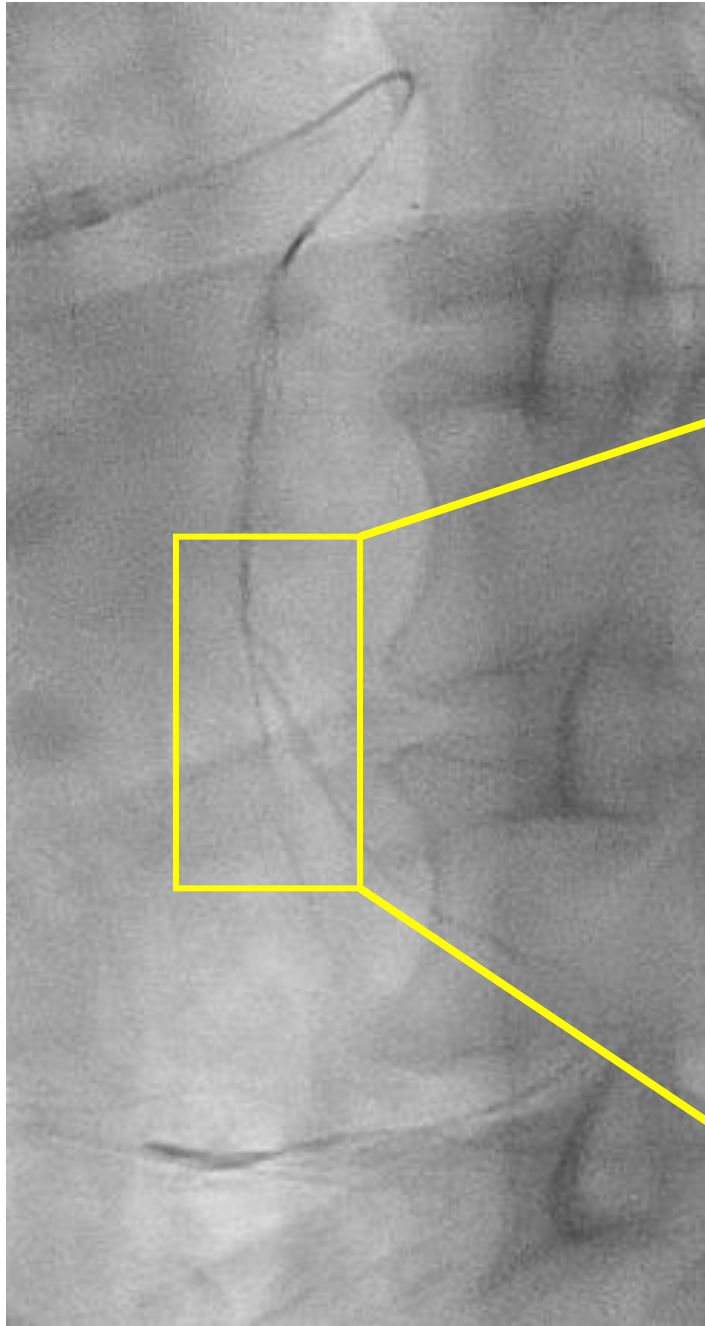
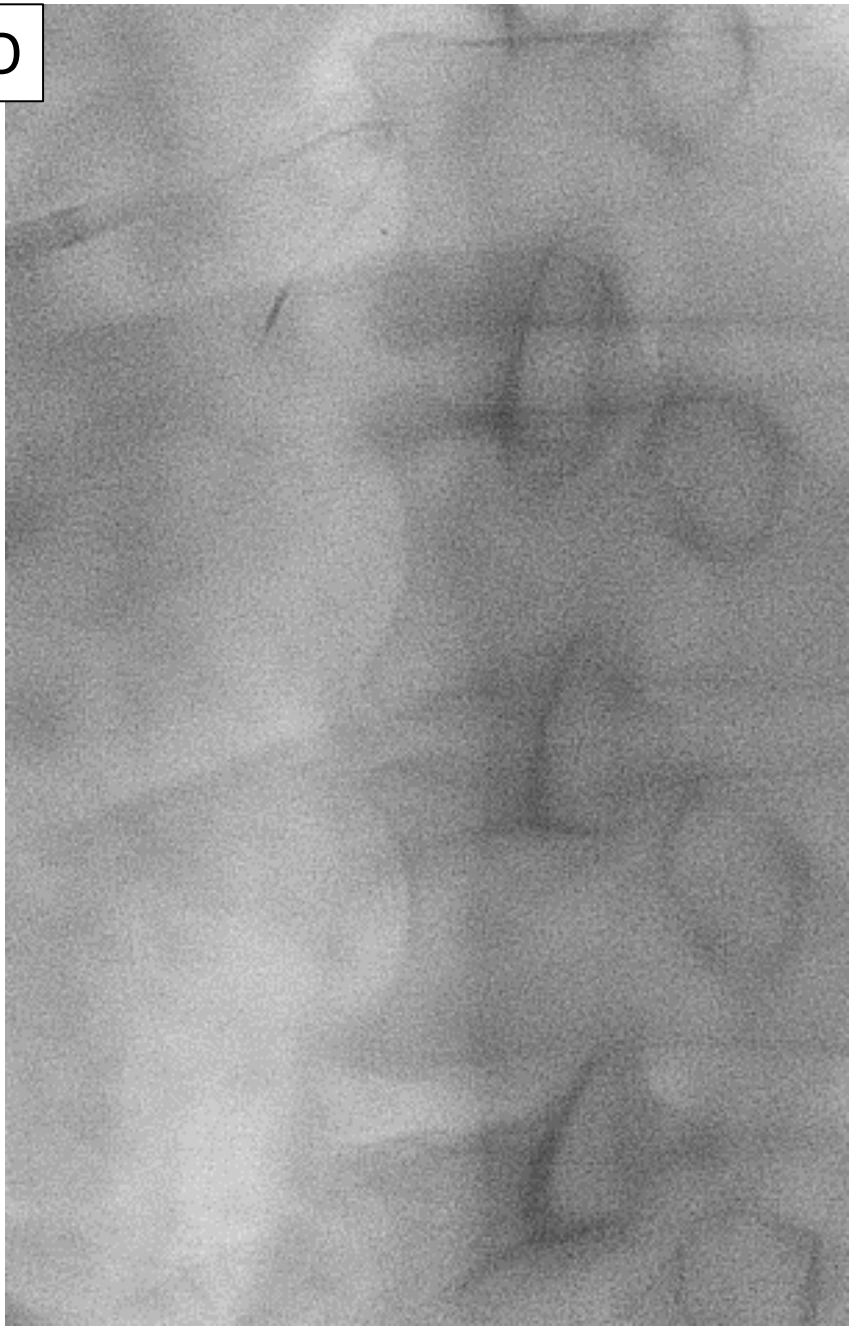


RAO-CAU



GW could not cross easily

LAO

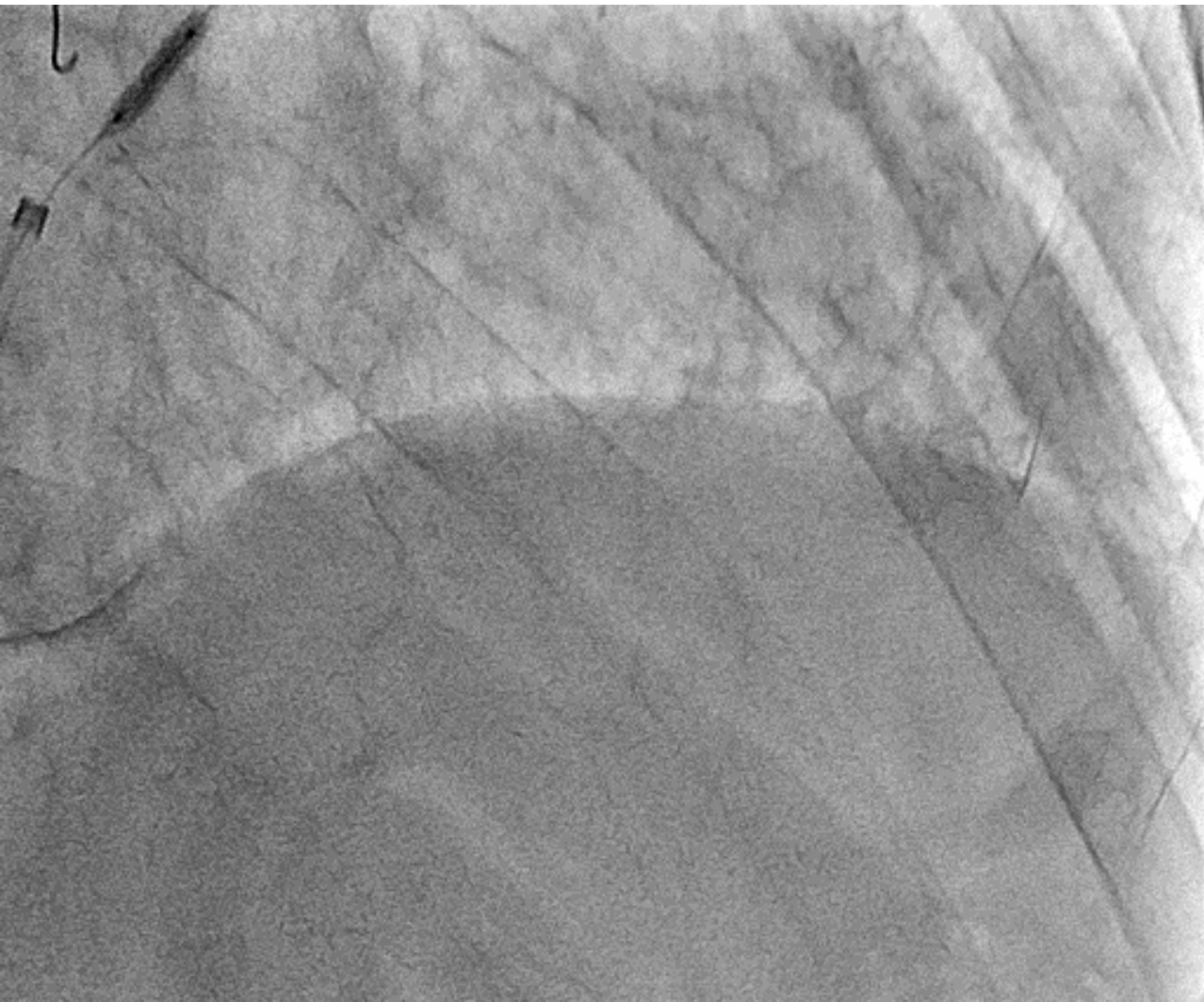


Failure to cross

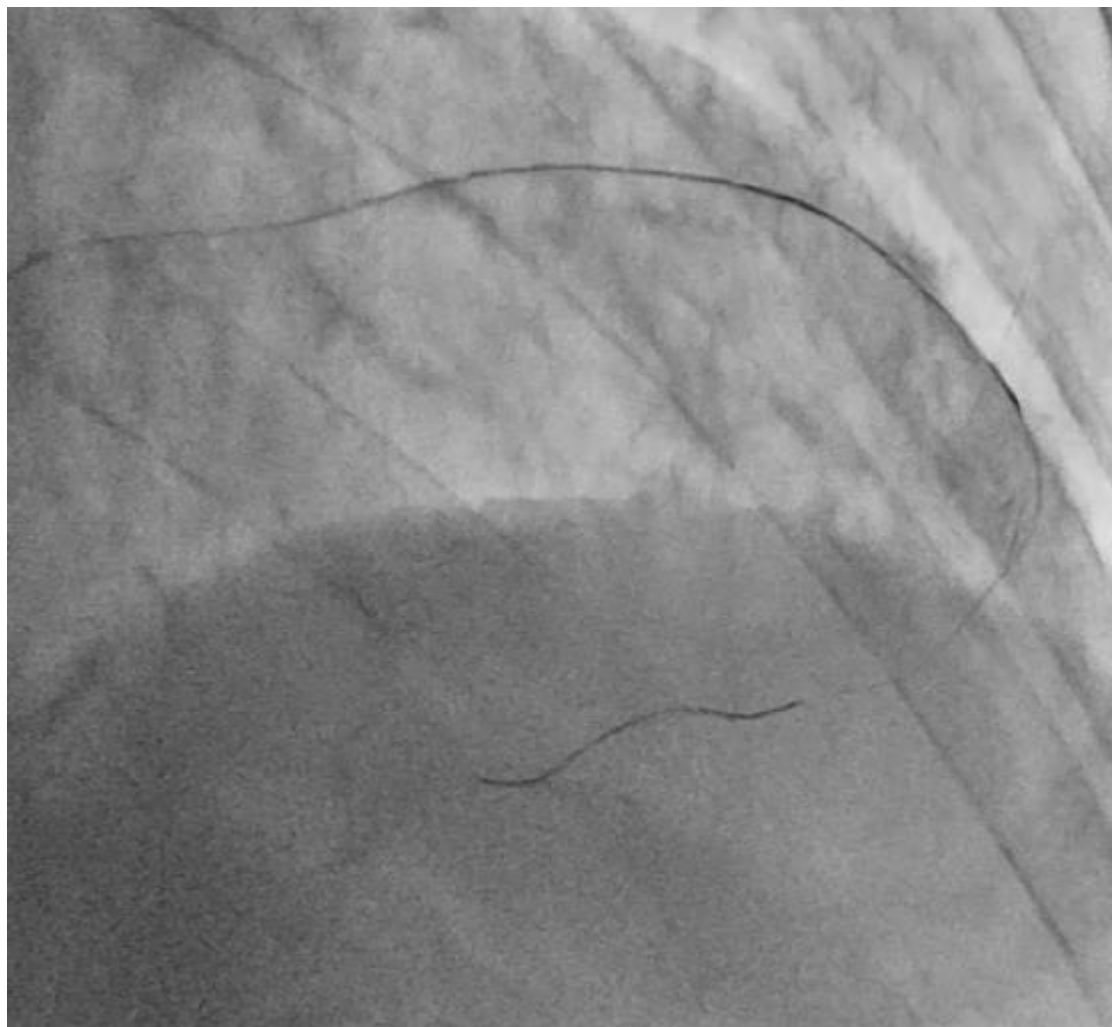
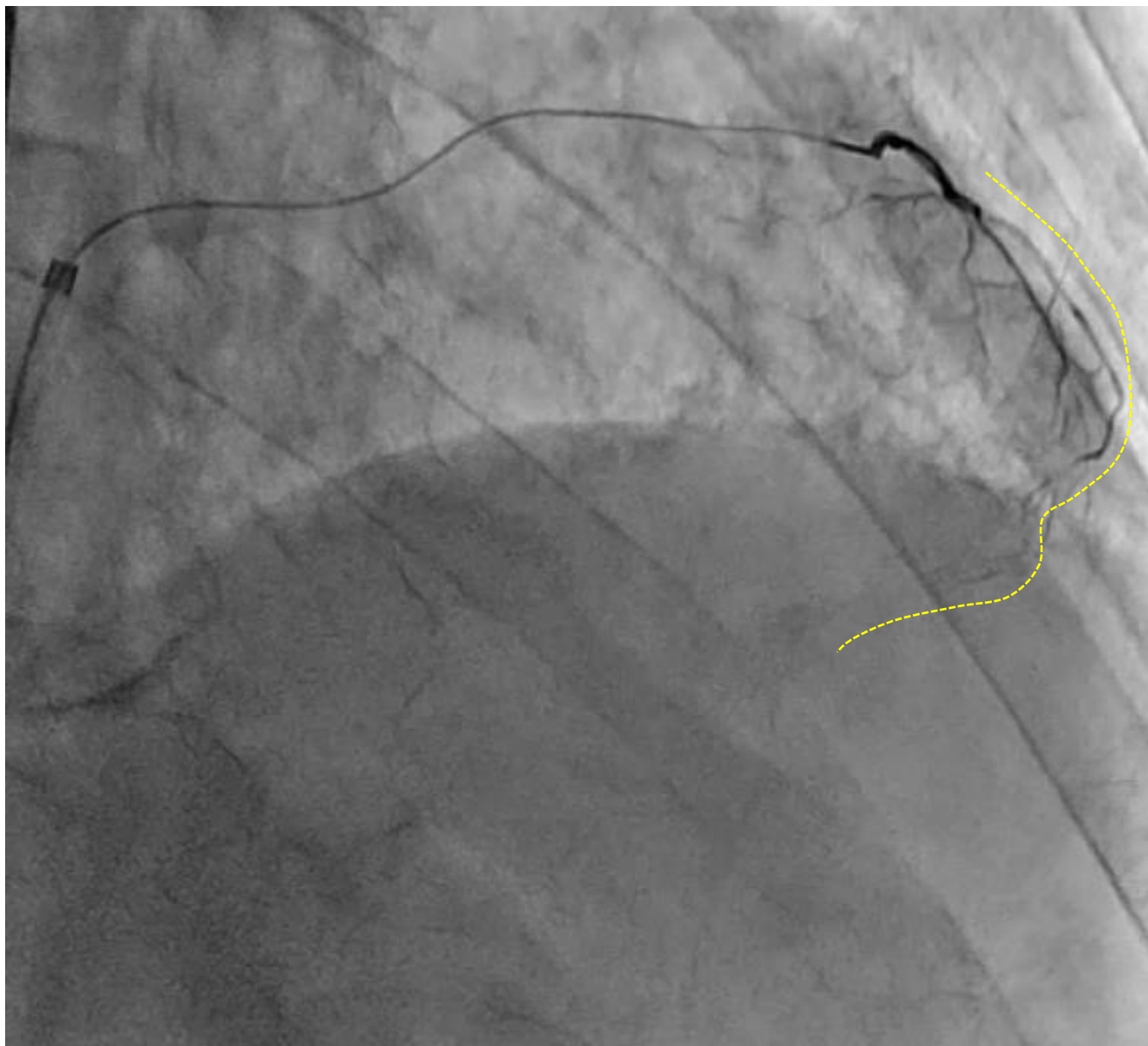
Case3: RCA CTO



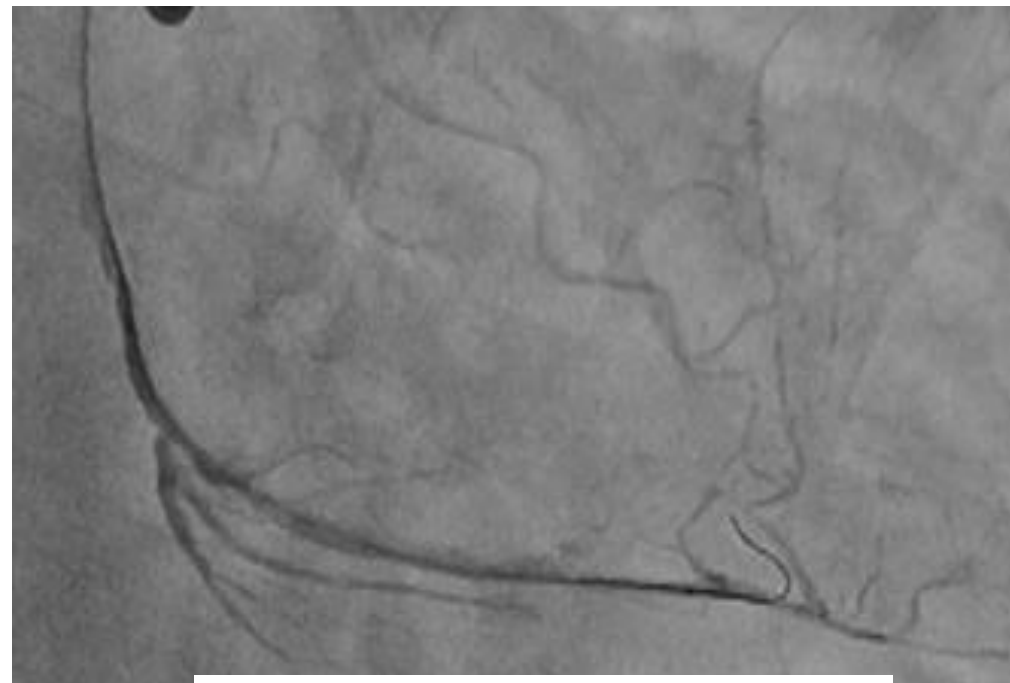
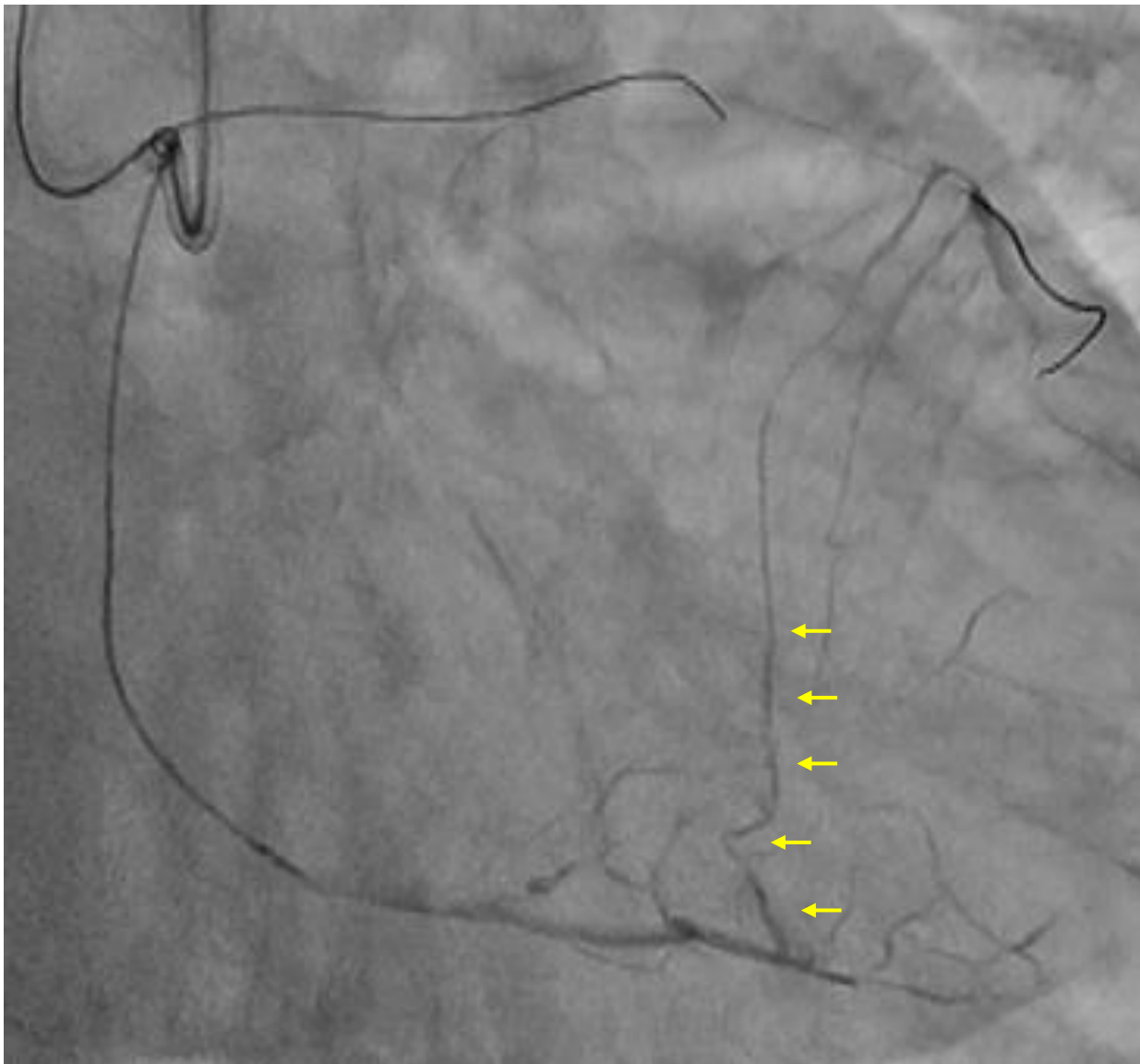




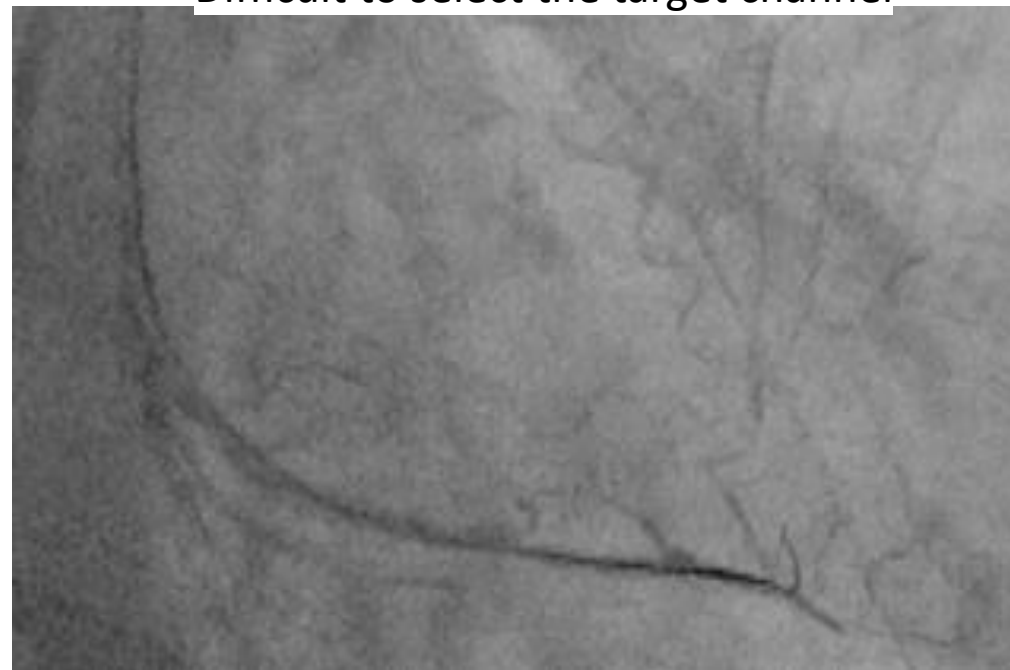
Balloon screen technique@ LCX os

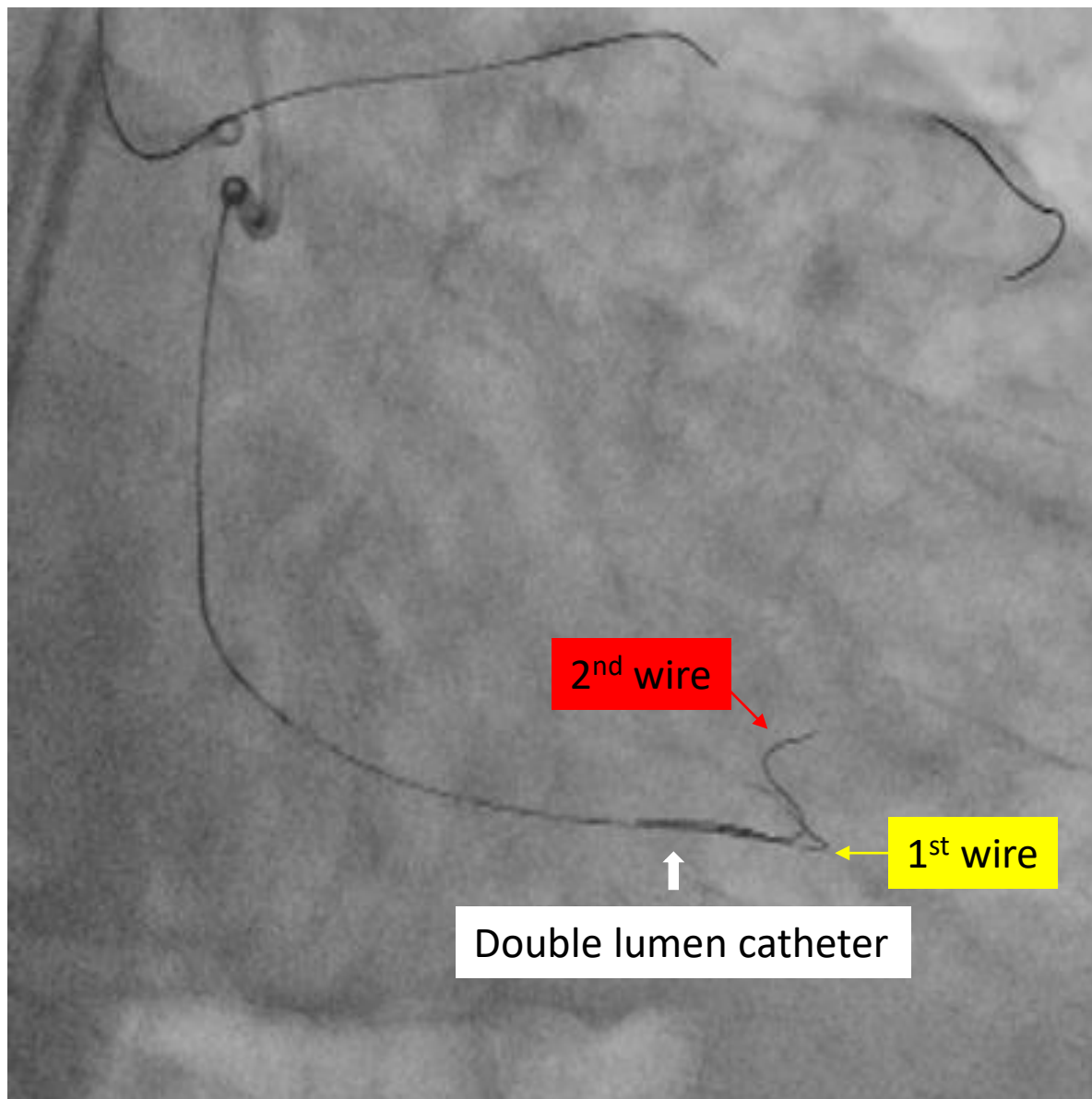


Case4: LAD CTO



Difficult to select the target channel

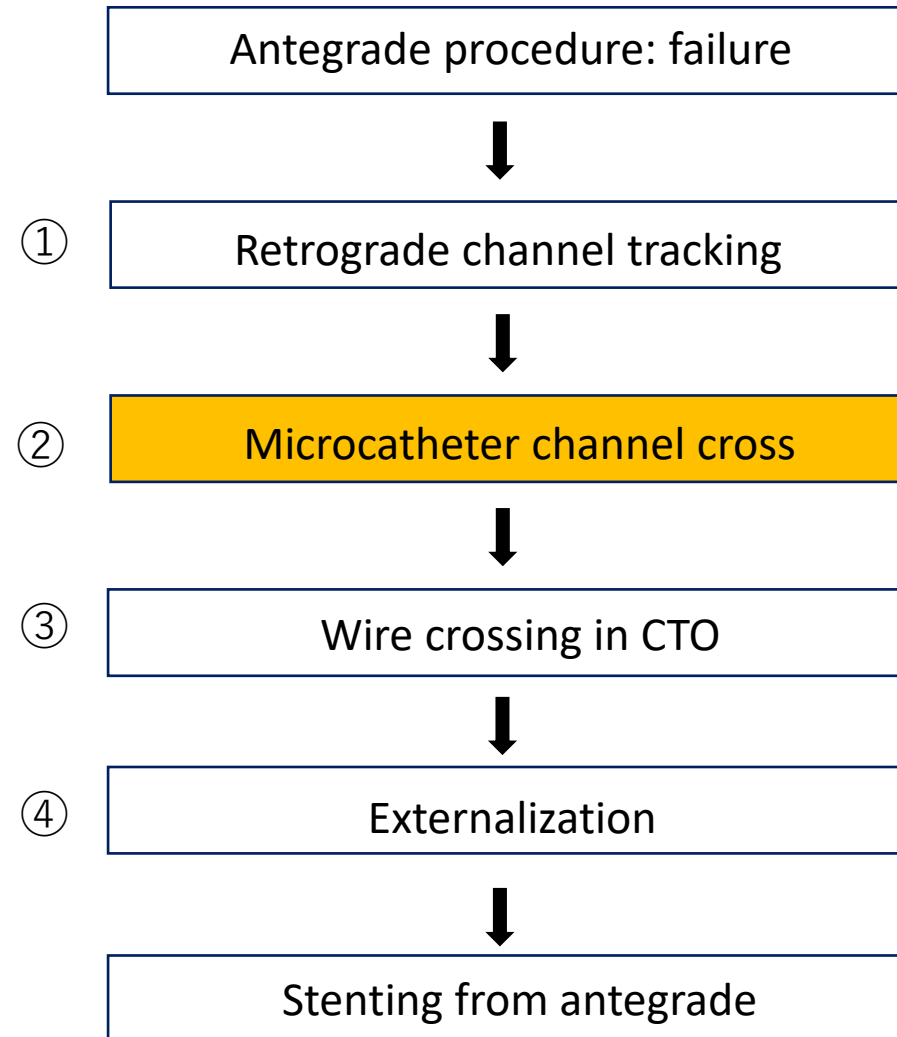




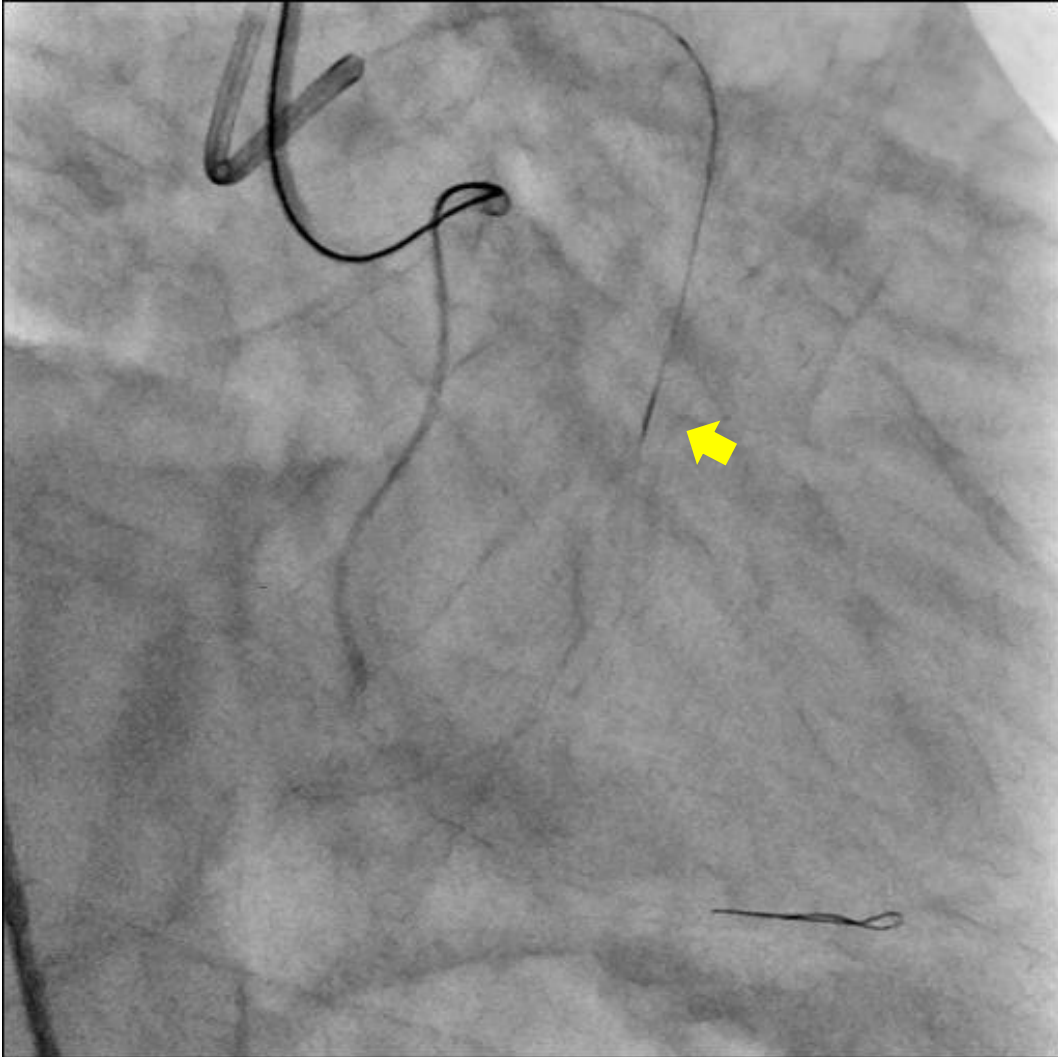
① Retrograde channel tracking

- 1: To select the appropriate channel, the appropriate **angiographic view is important**
- 2: When there is no appropriate channel, **the balloon screen technique** is one of the useful methods.
- 3: When the selection of the target channel is difficult, **a double-lumen catheter is helpful.**

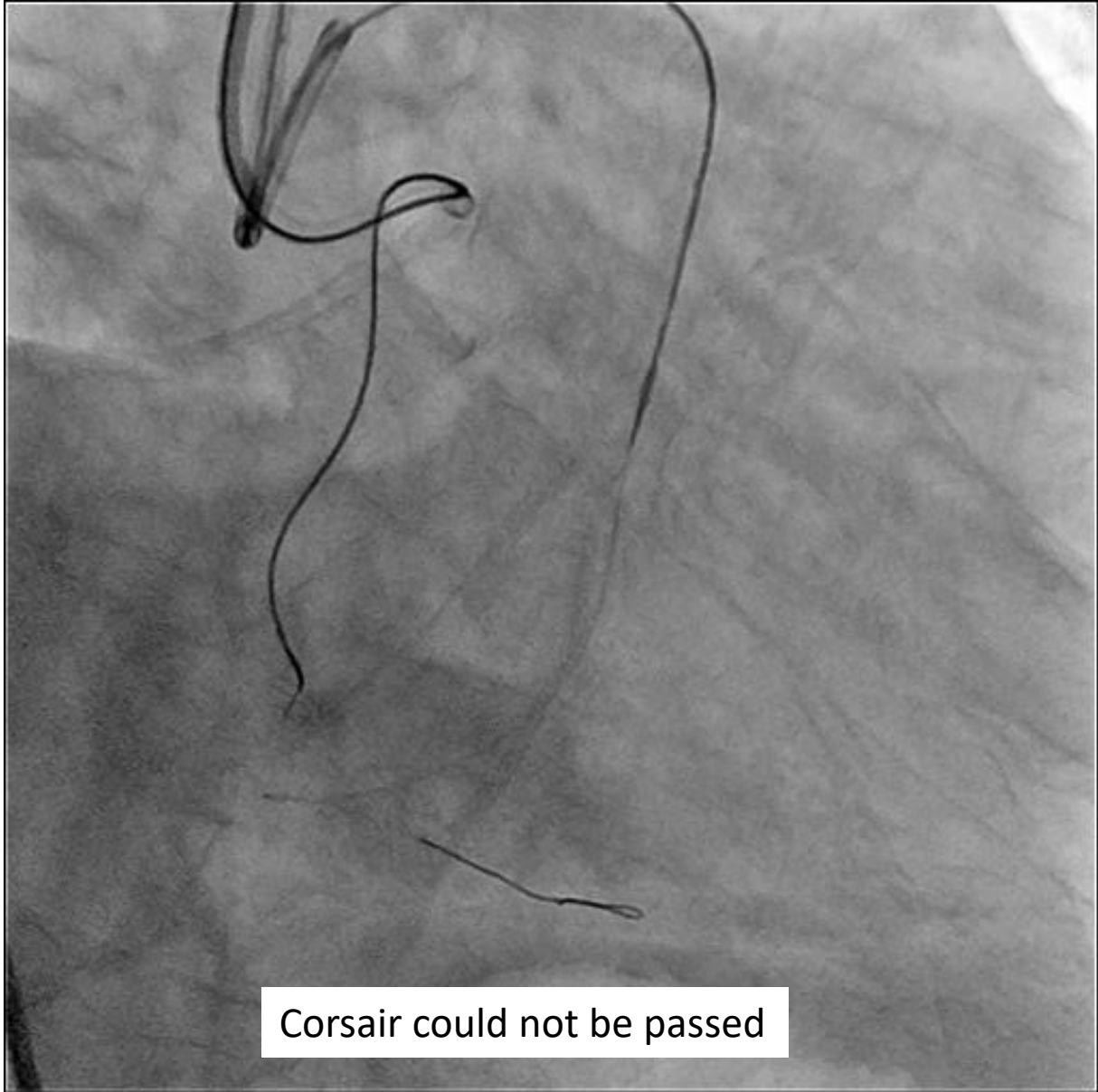
The usual strategy in retrograde procedure



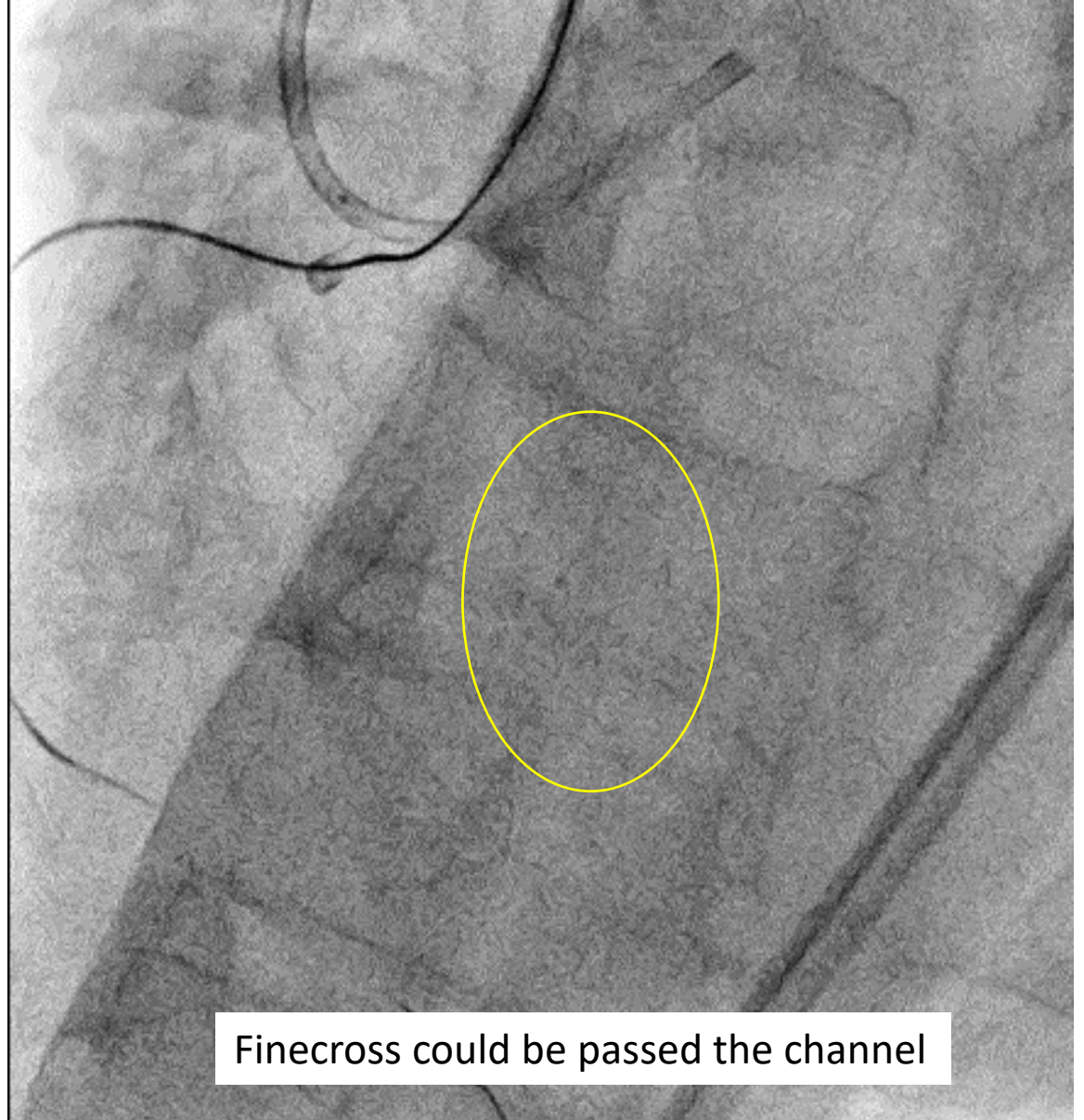
② Microcatheter channel cross



The retrograde wire could be passed into distal RCA, but the micro catheter (Caravel) could not pass the channel.

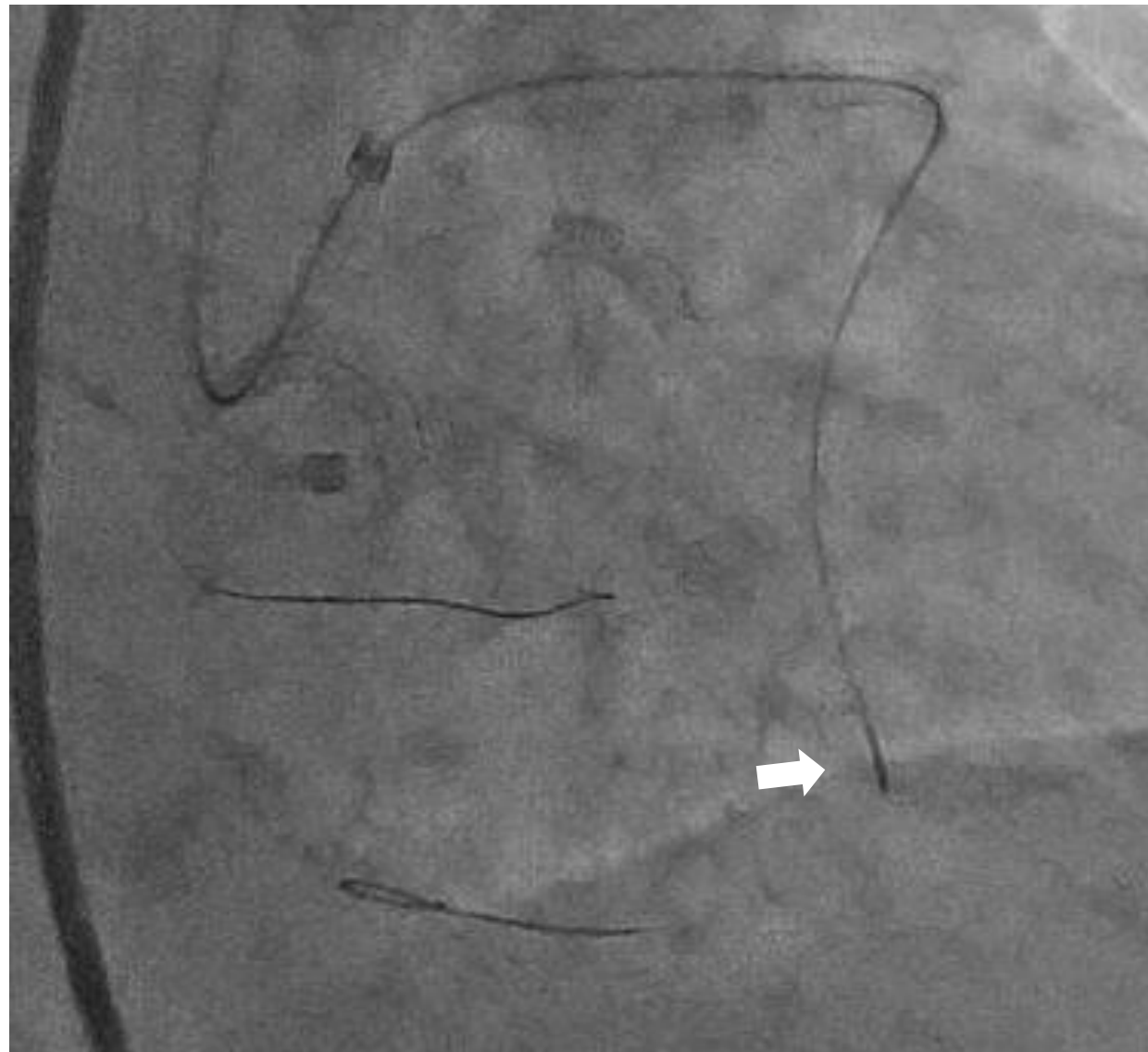
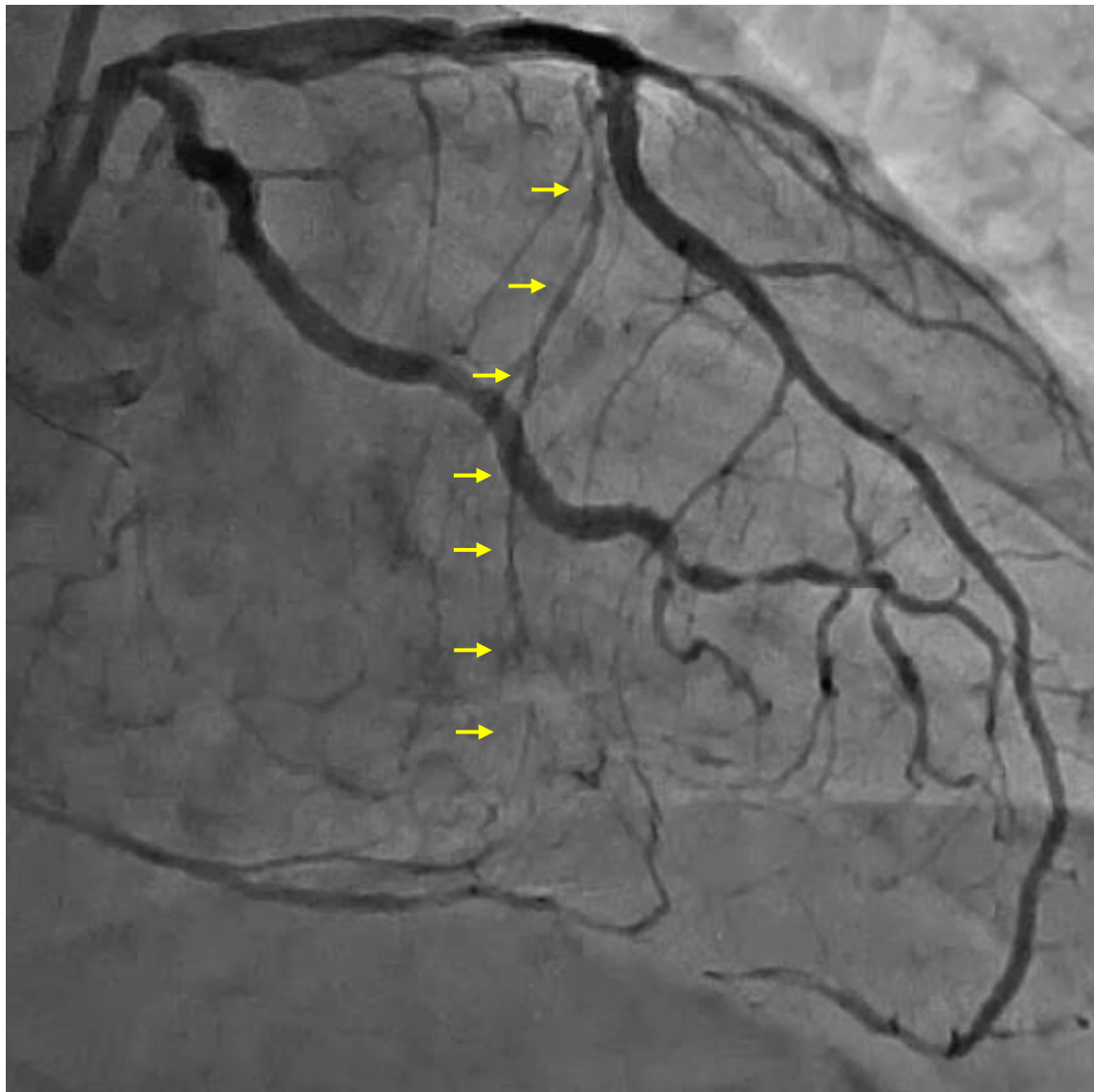


Corsair could not be passed

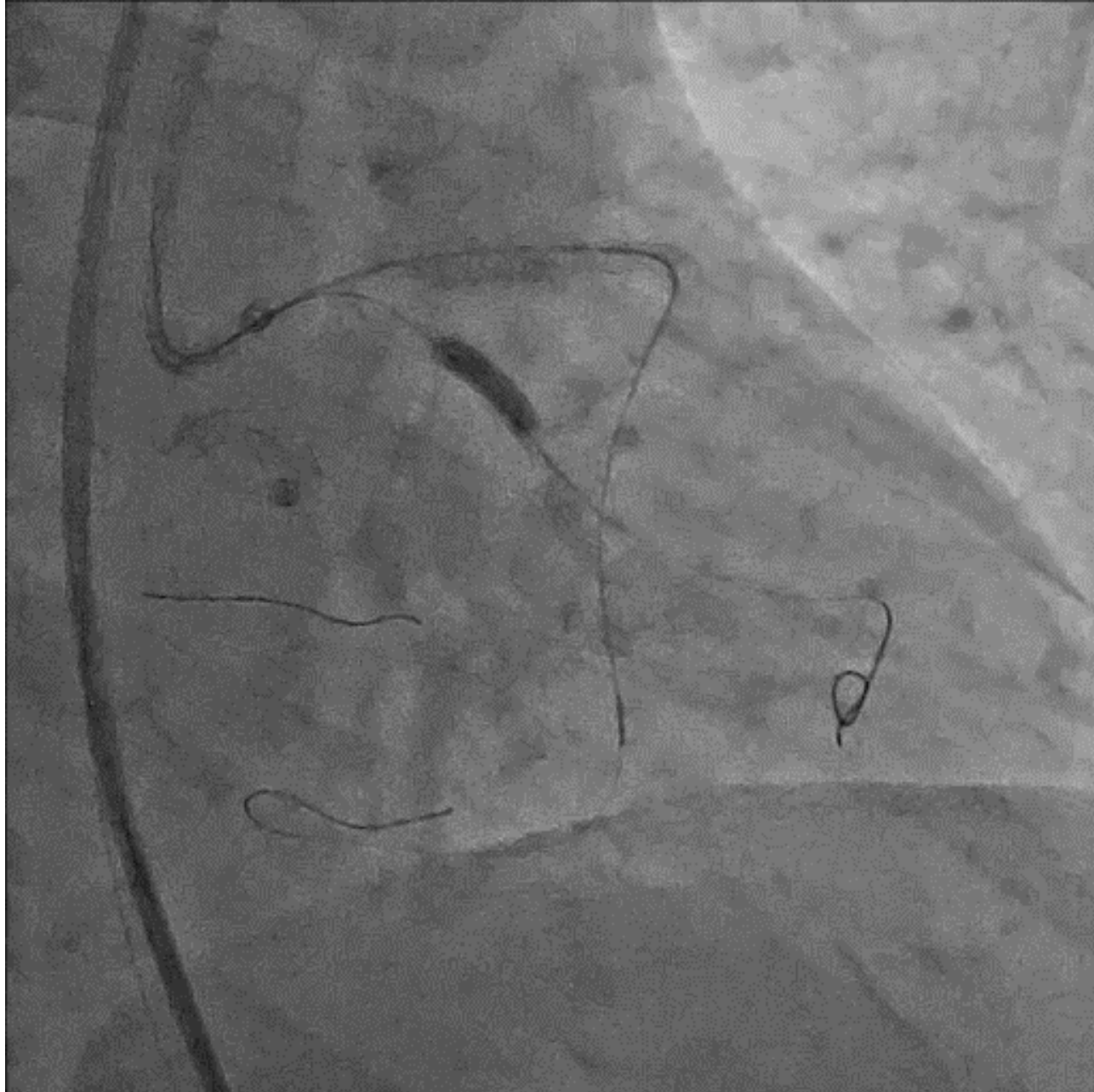


Finexcross could be passed the channel

Case: RCA CTO

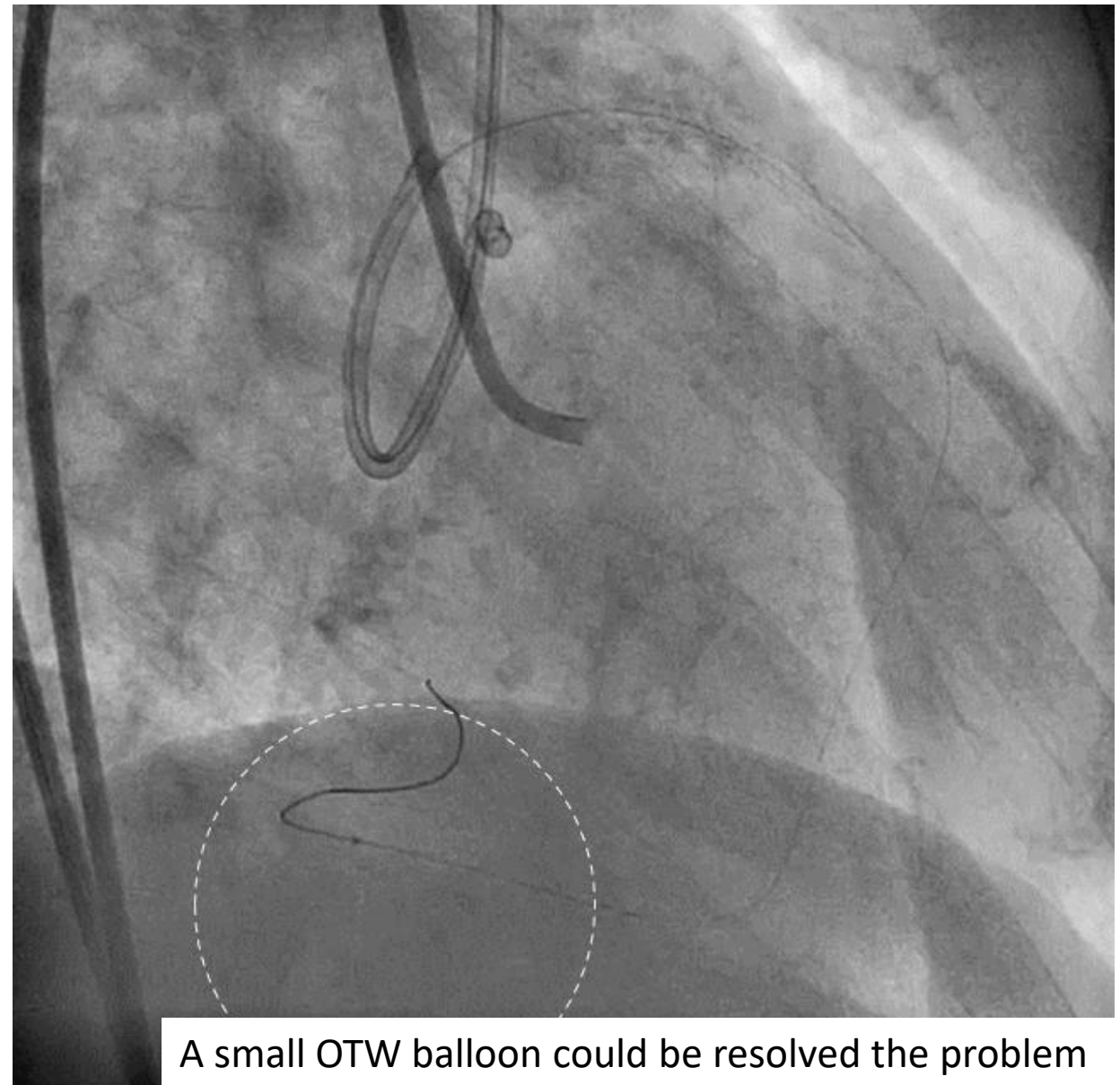
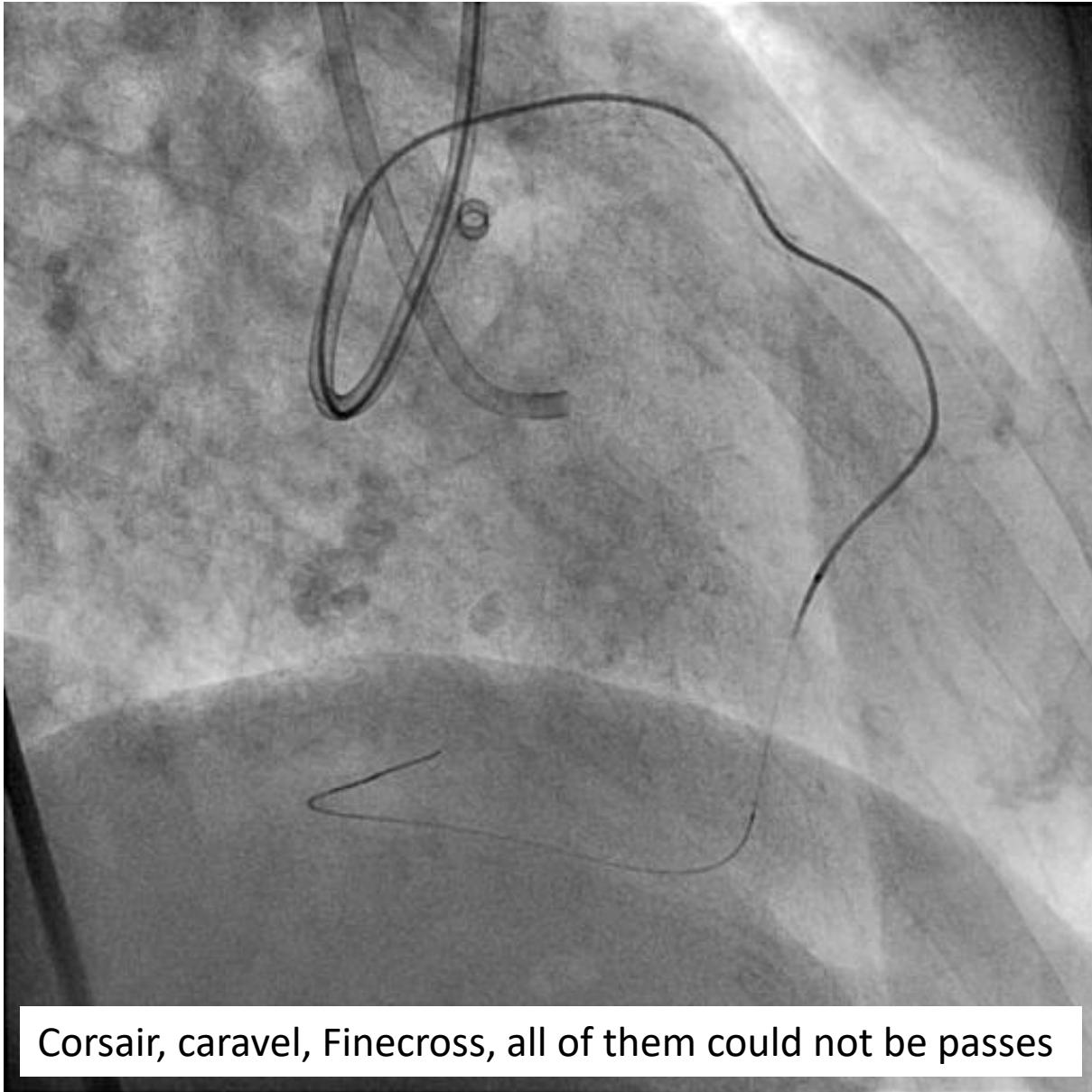


the micro catheter (Caravel) could not pass the channel

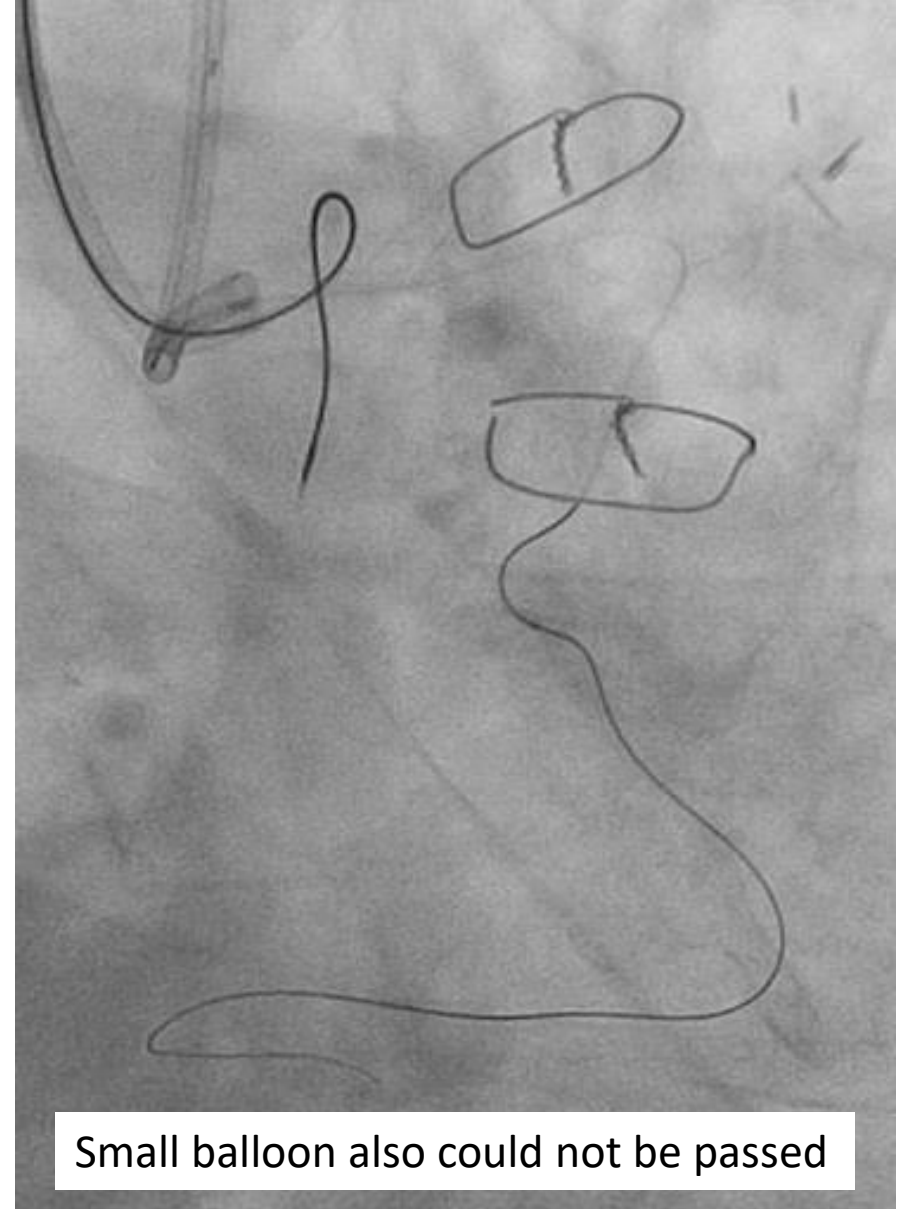
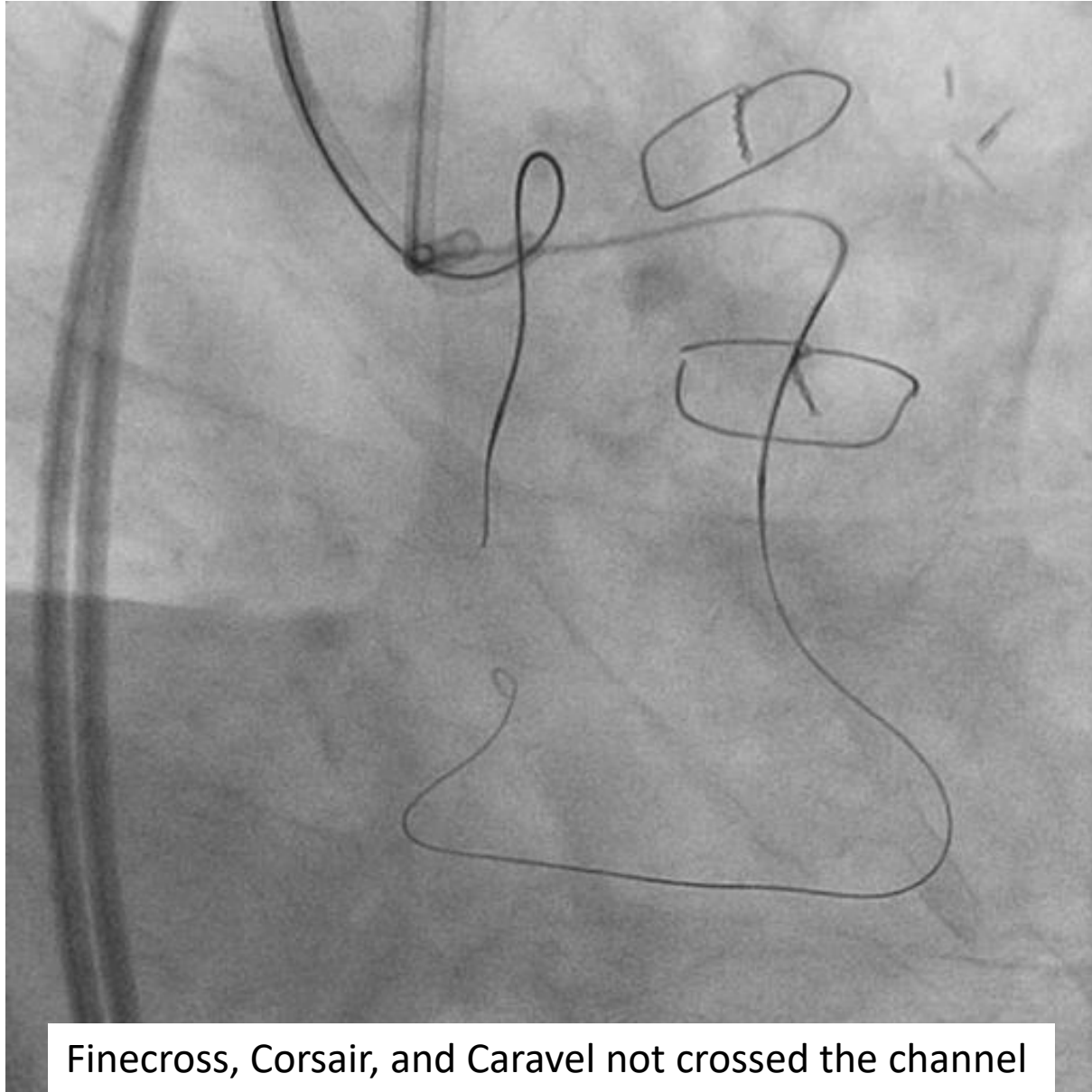


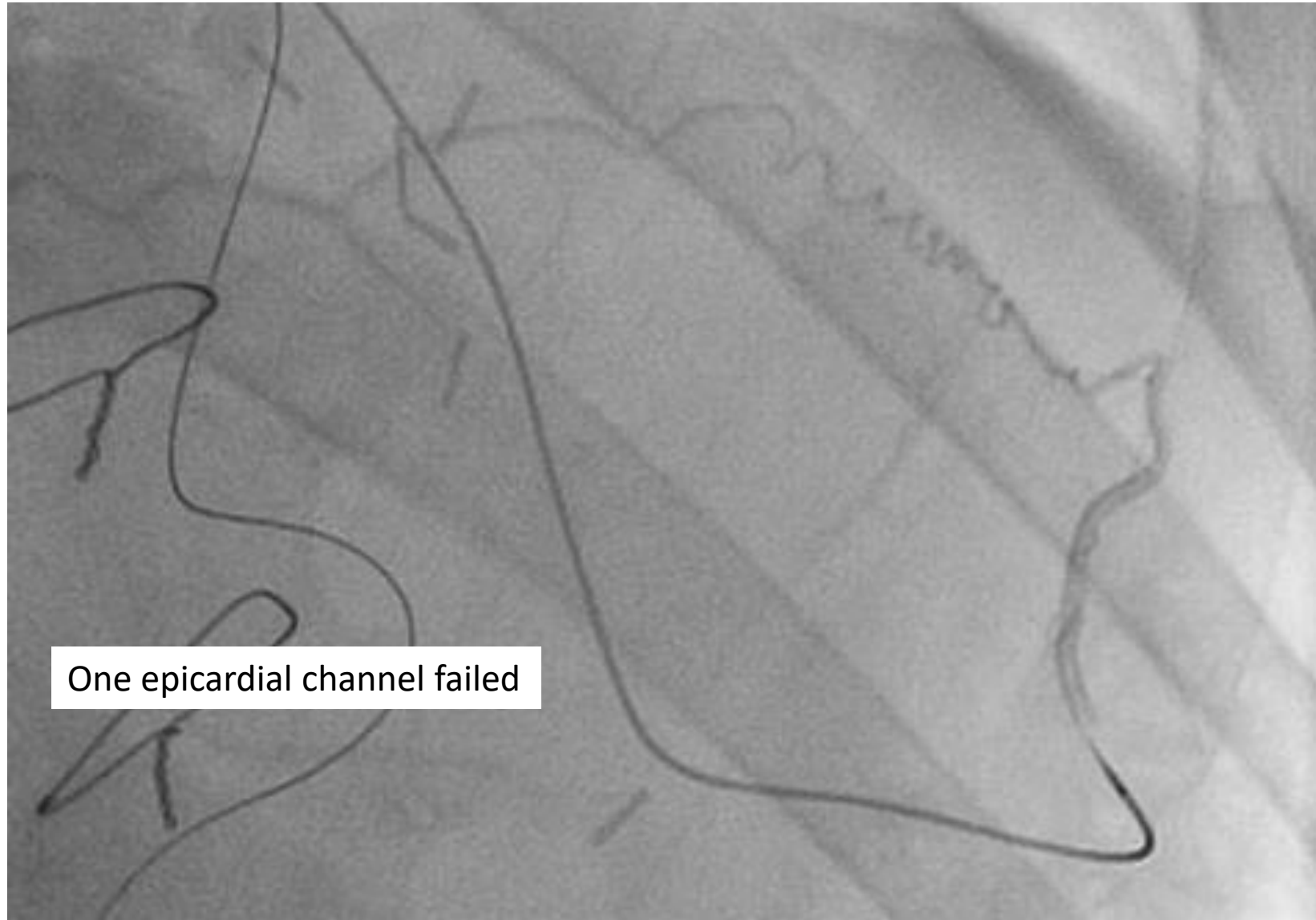
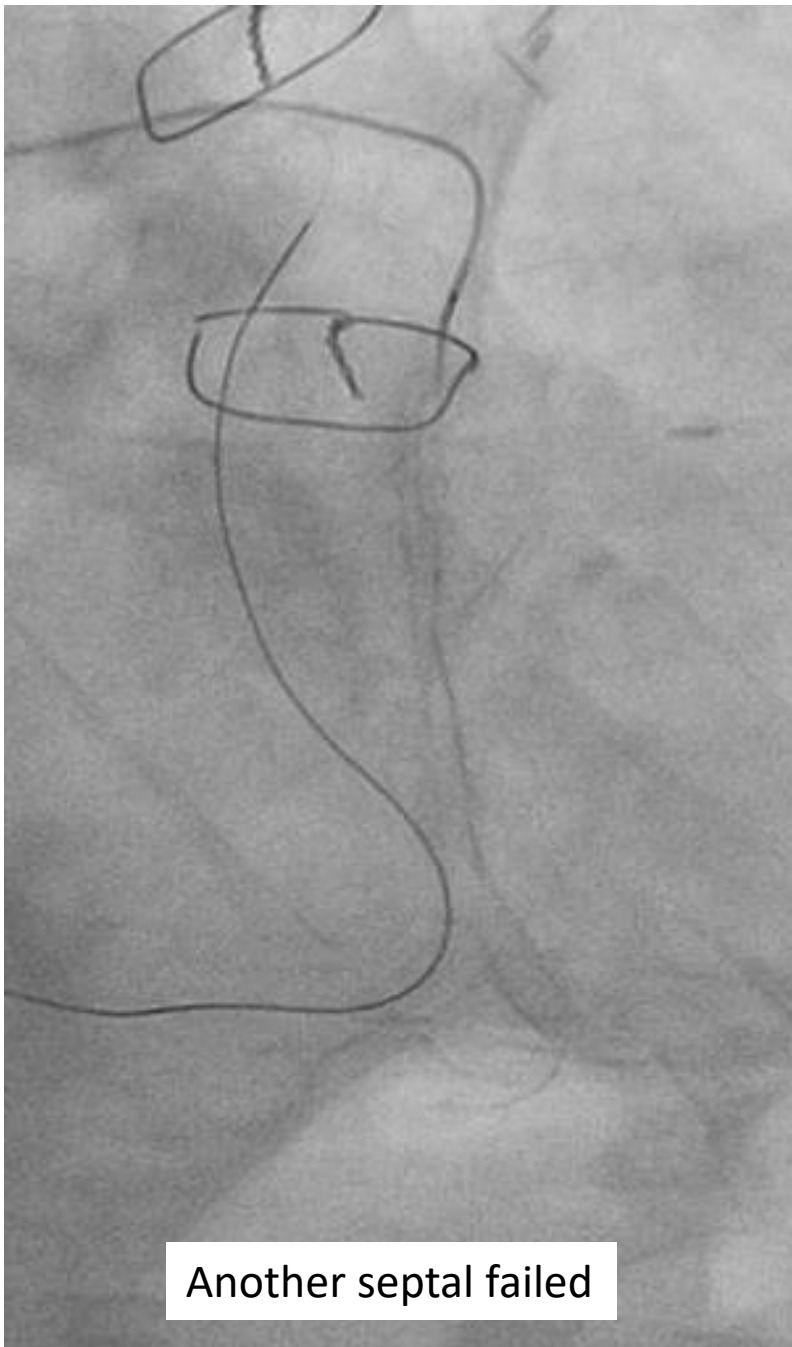
The anchor balloon technique resolved the problem

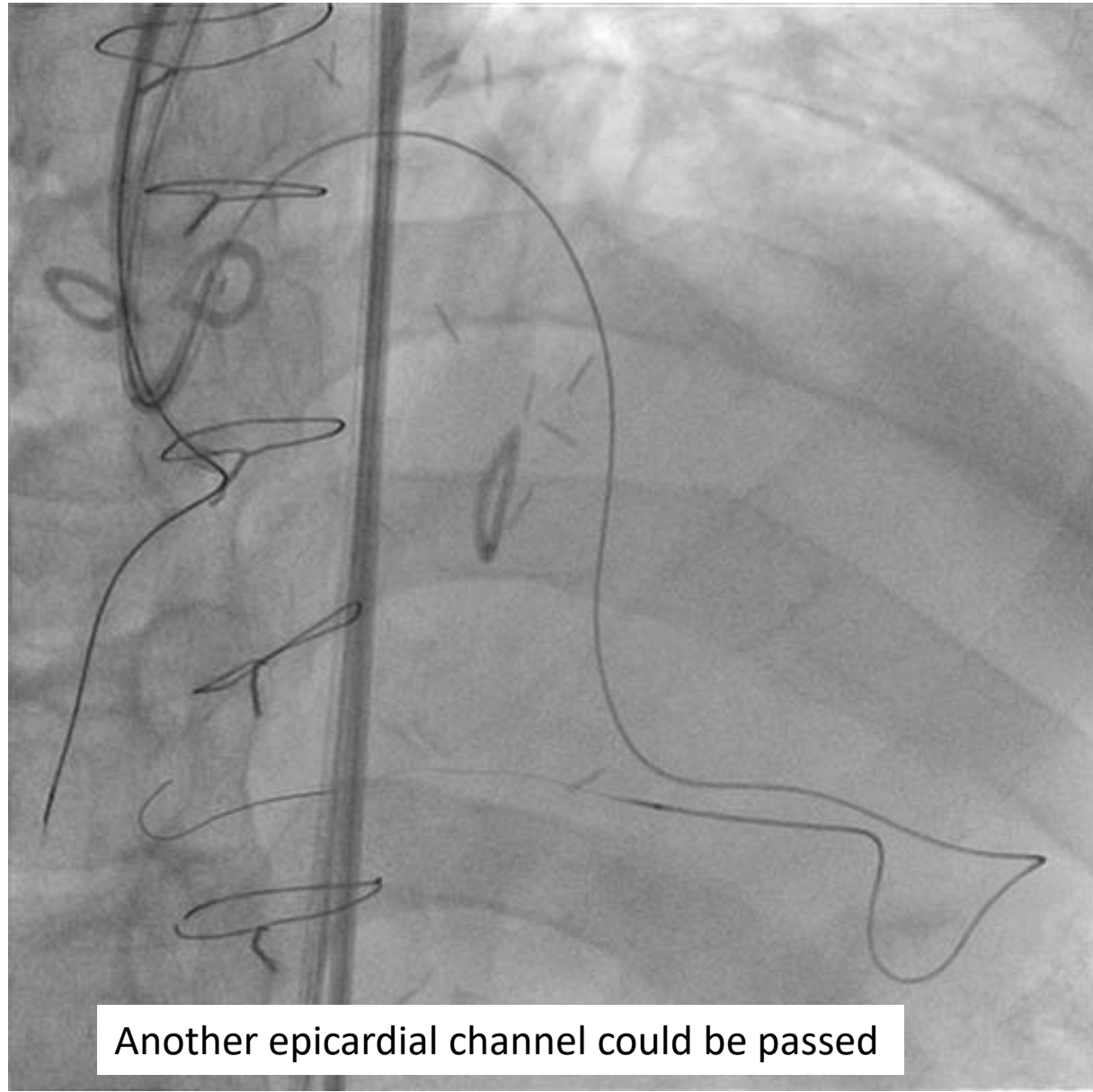
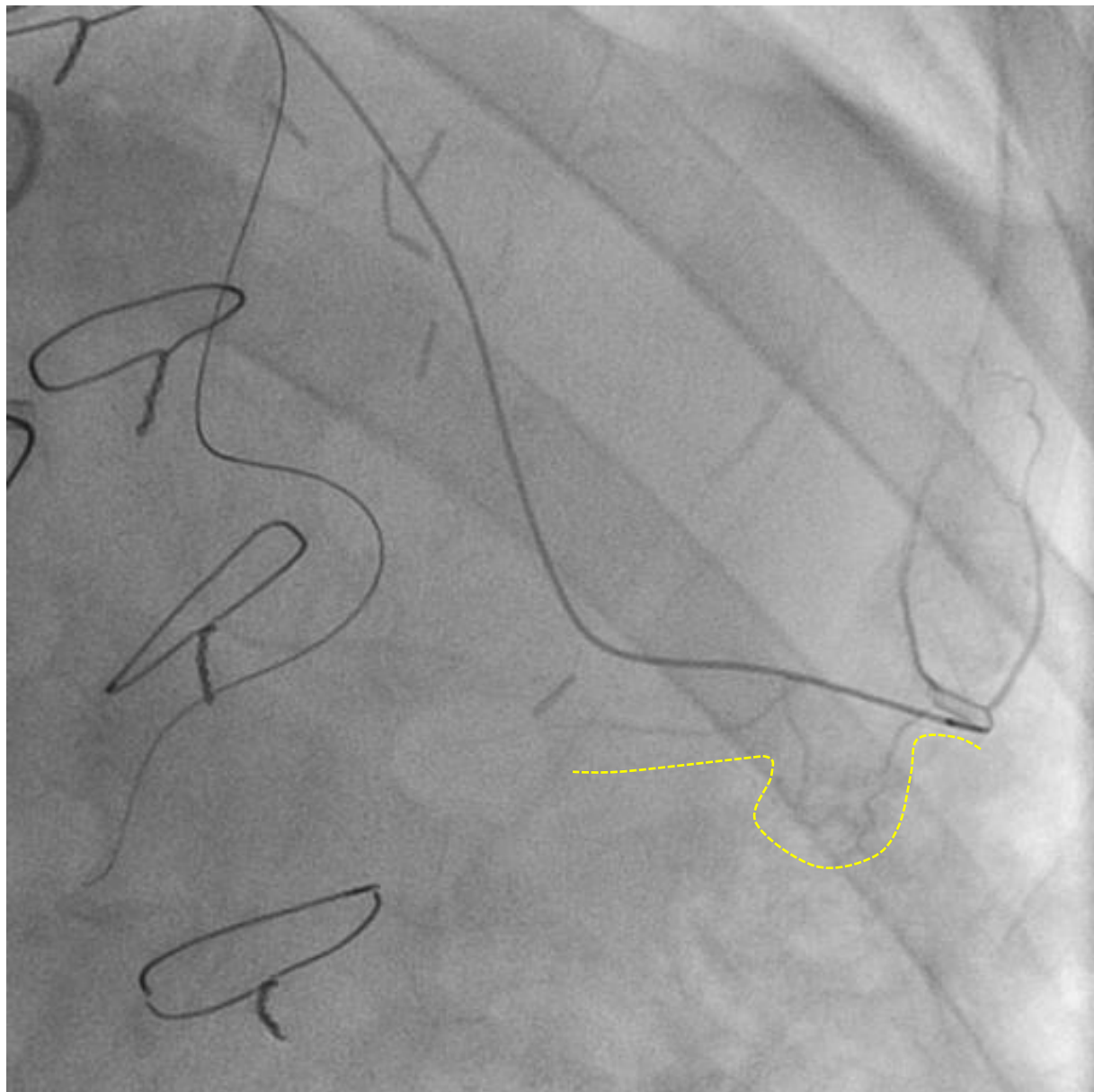
Case: RCA CTO



Case: RCA CTO

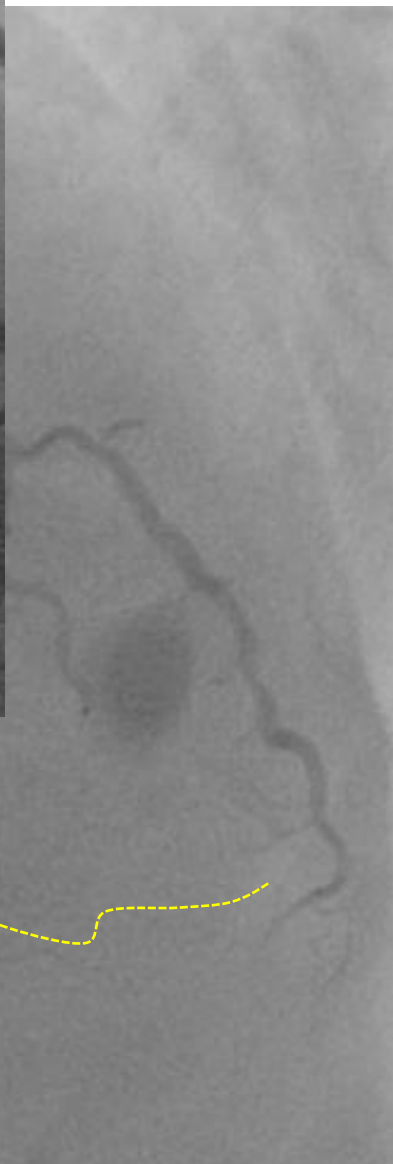




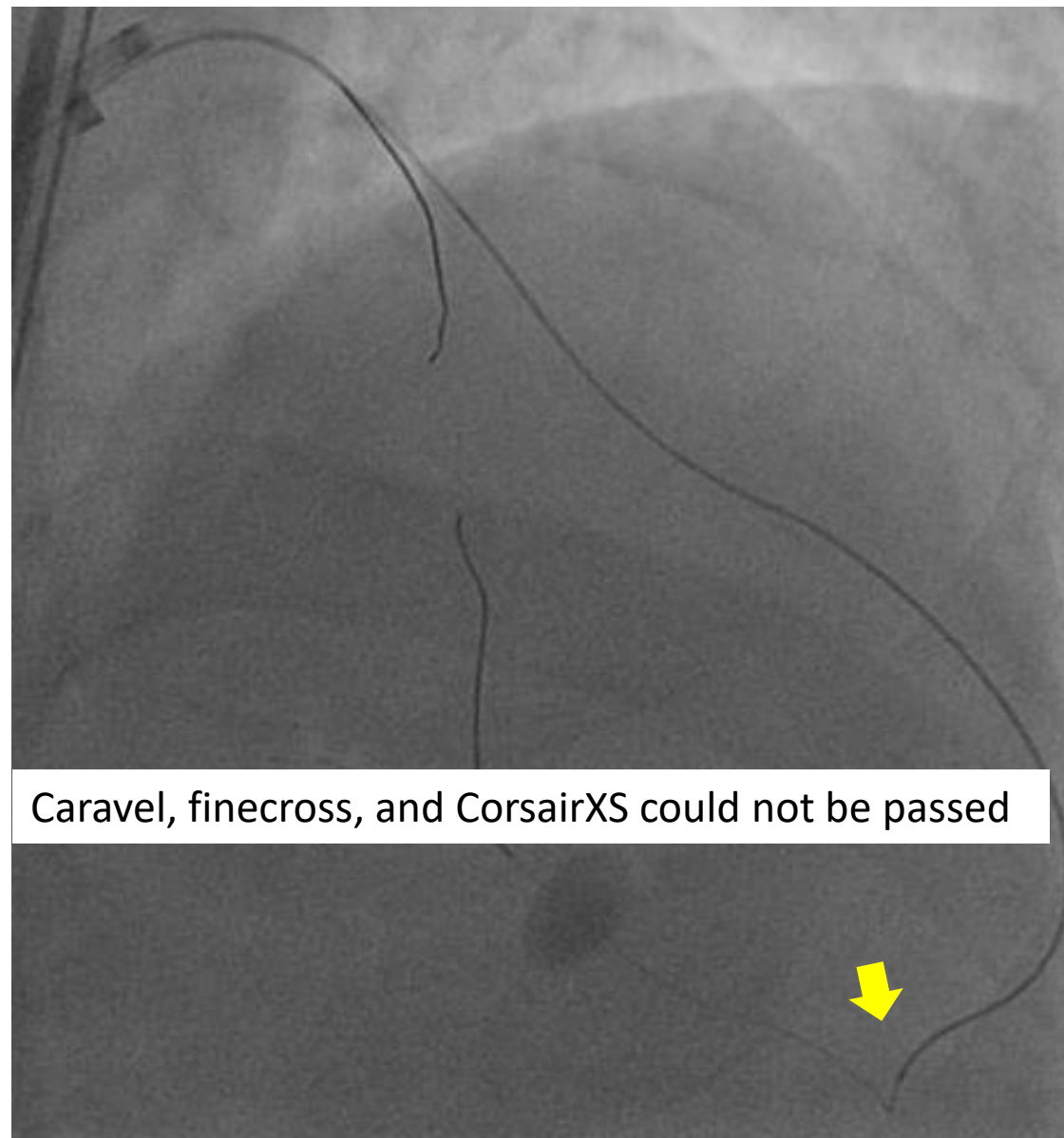


Another epicardial channel could be passed

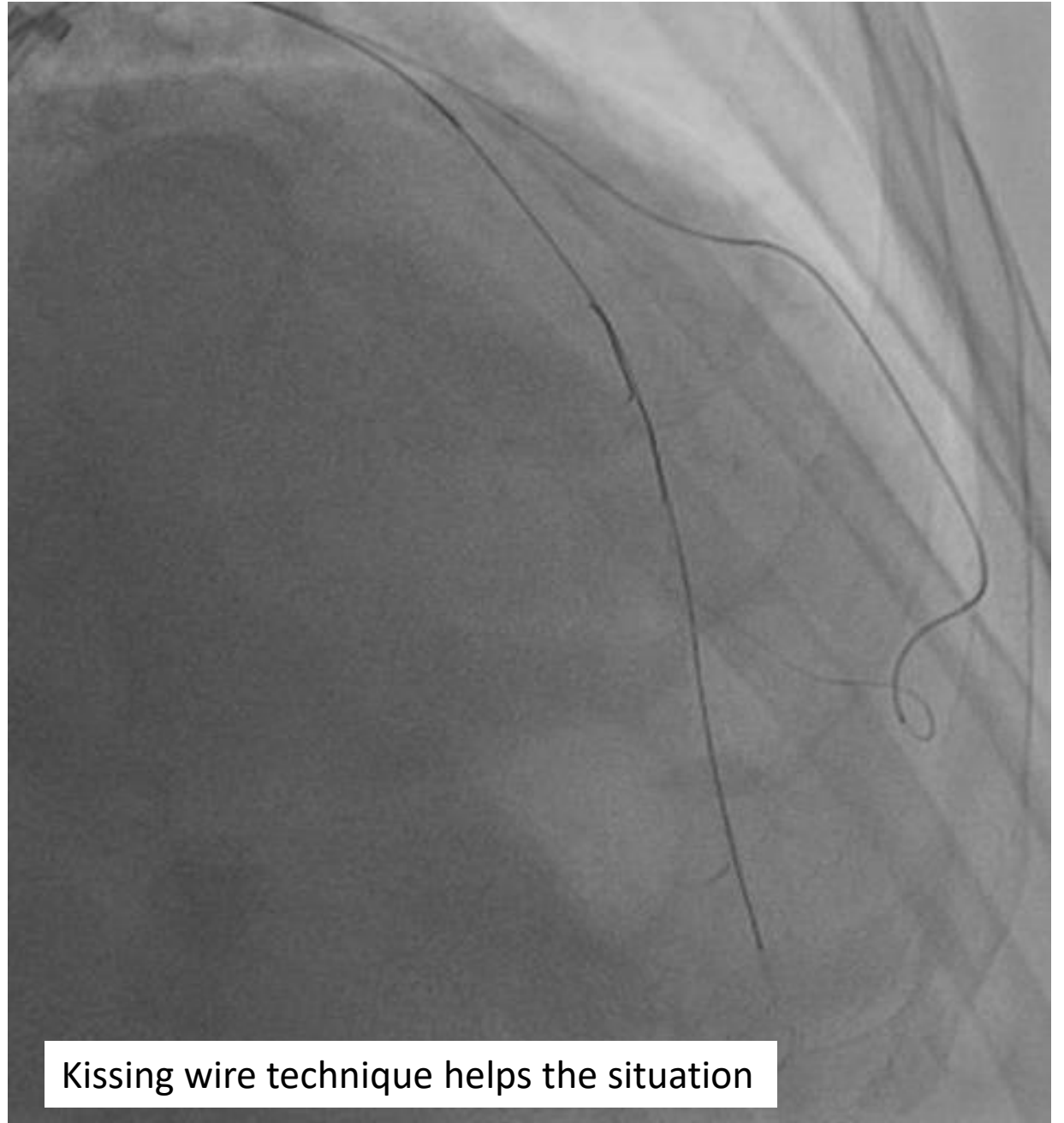
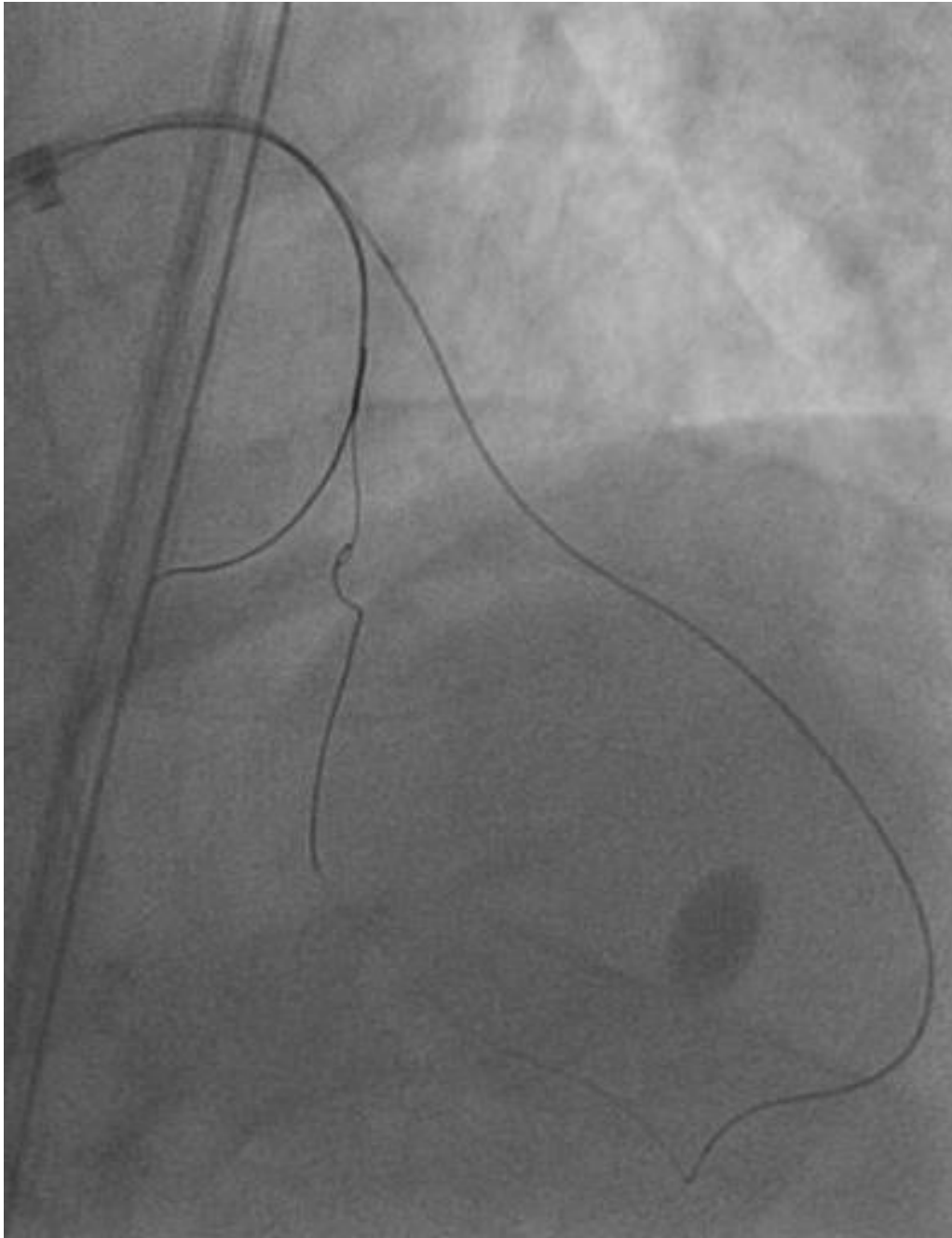
Case: LAD CTO



Diagonal to LAD



Caravel, fincross, and CorsairXS could not be passed



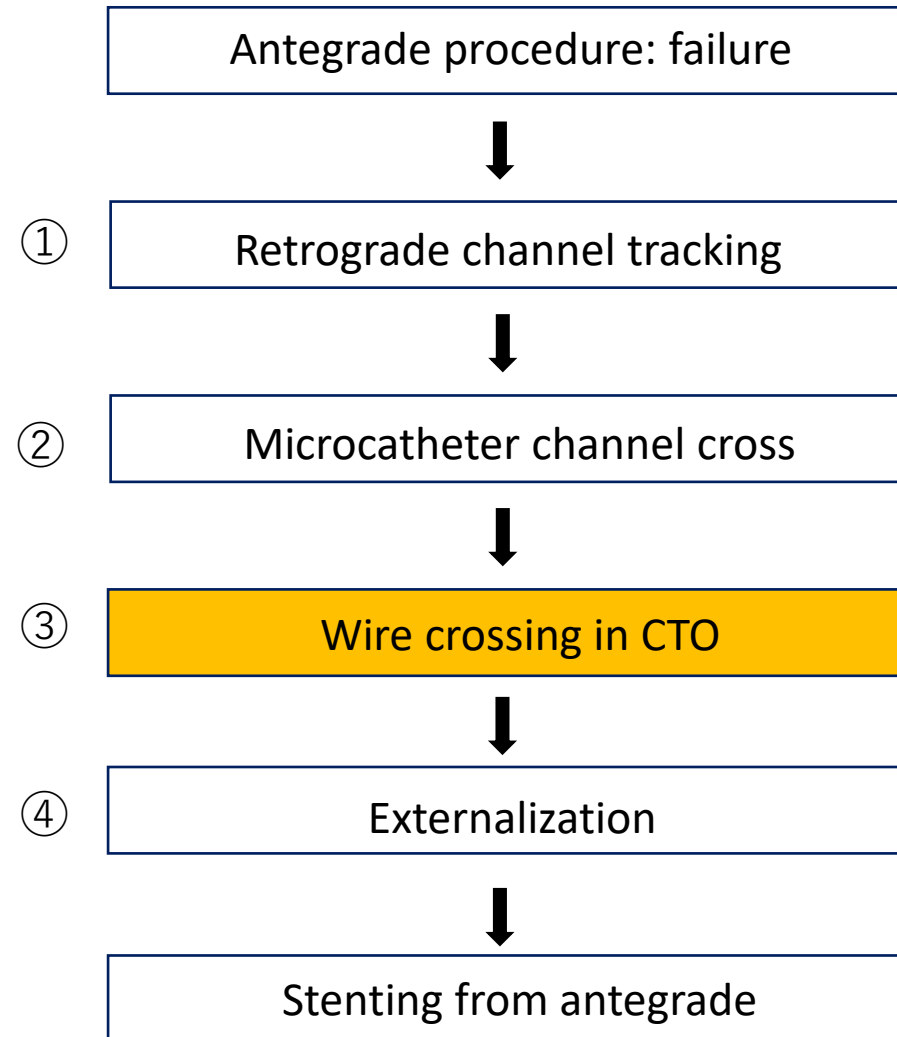
Kissing wire technique helps the situation

② Microcatheter channel cross

When the microcatheter could not be passed through the target channel

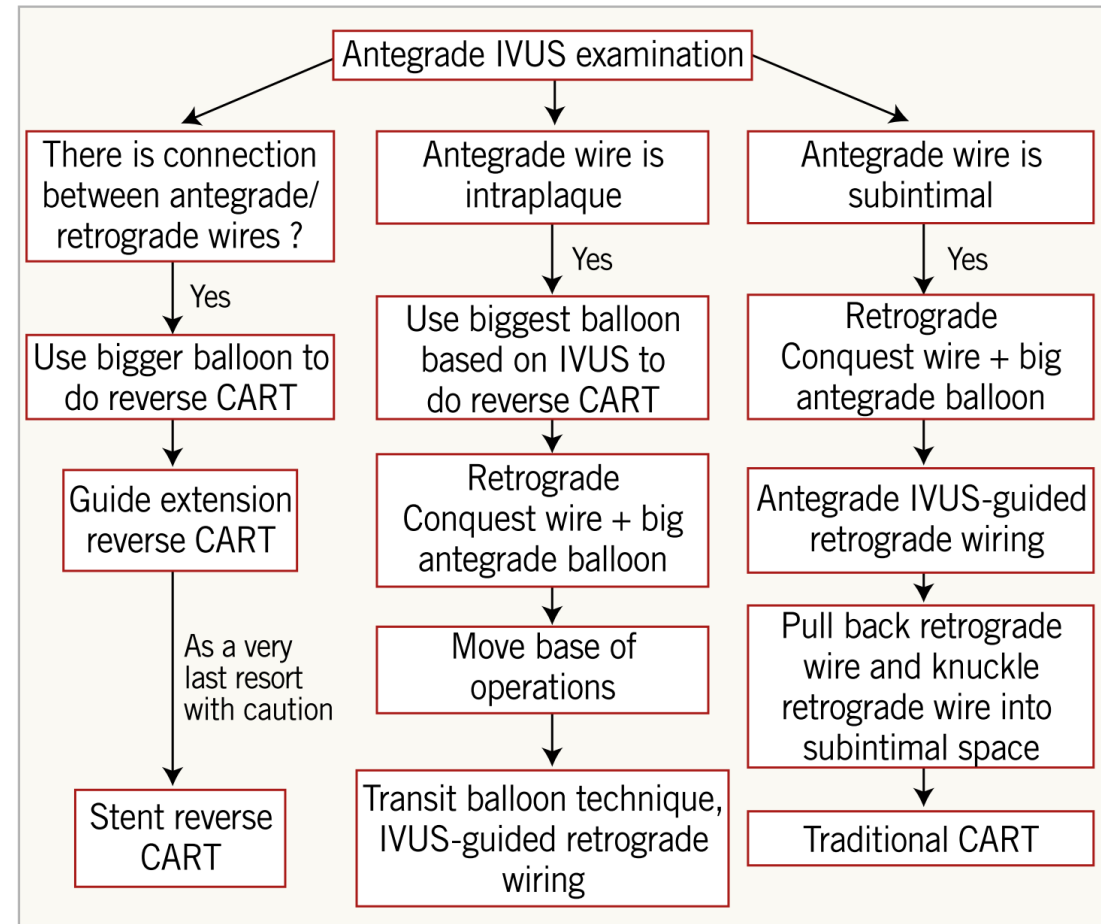
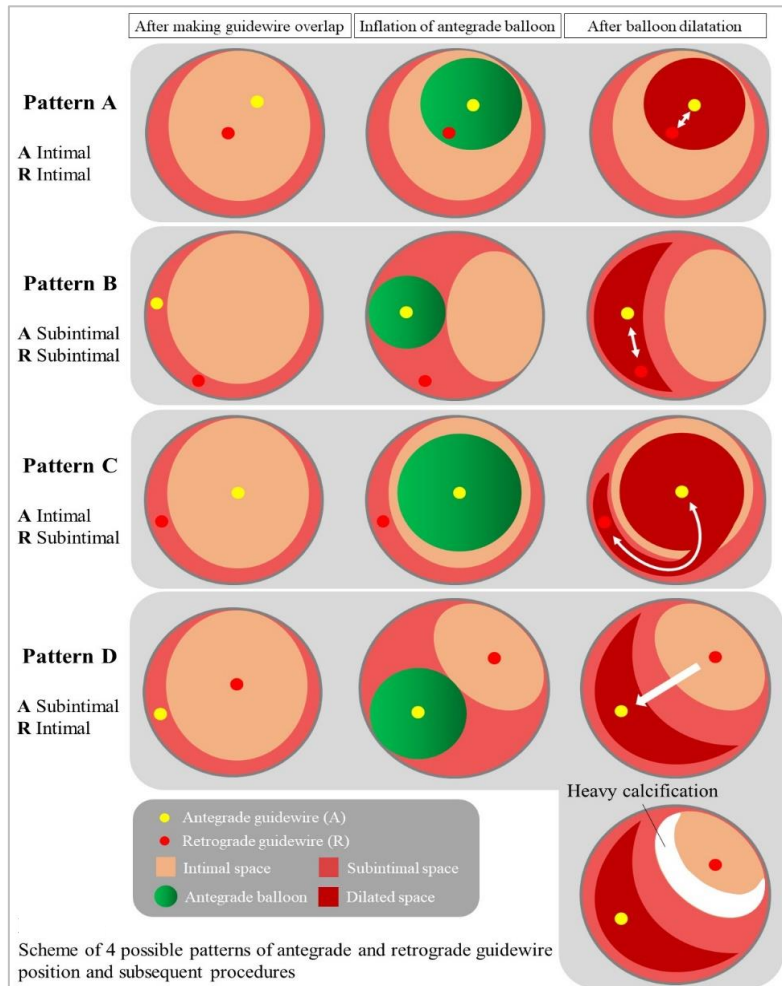
- 1: Change the **kinds of microcatheter**.
- 2: Make a strong backup force (ex. **Anchor balloon technique**)
- 3: Use a **small balloon and dilatation** the channel
- 4: **Change the target channel**
- 5: **Kissing wire technique** could help the situation

The usual strategy in retrograde procedure

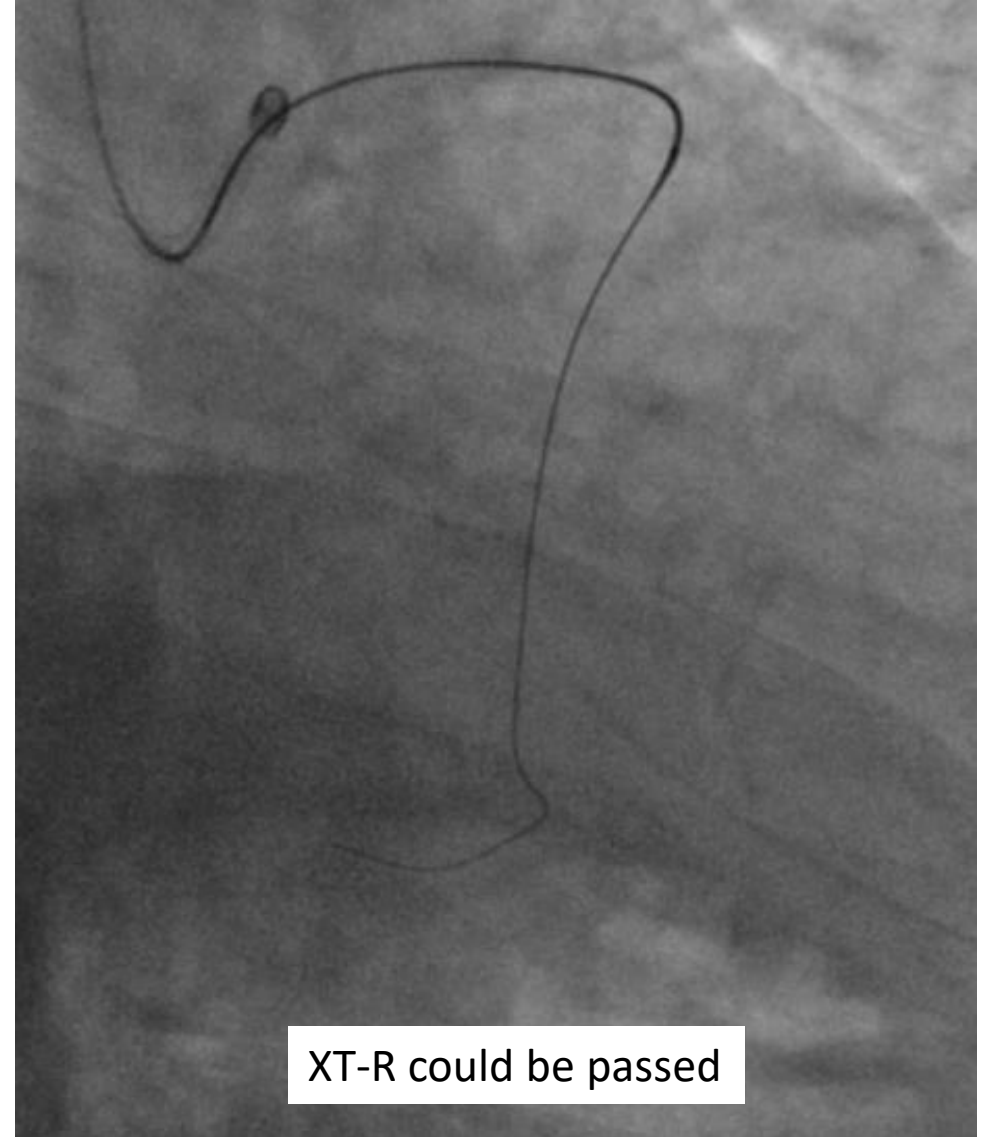
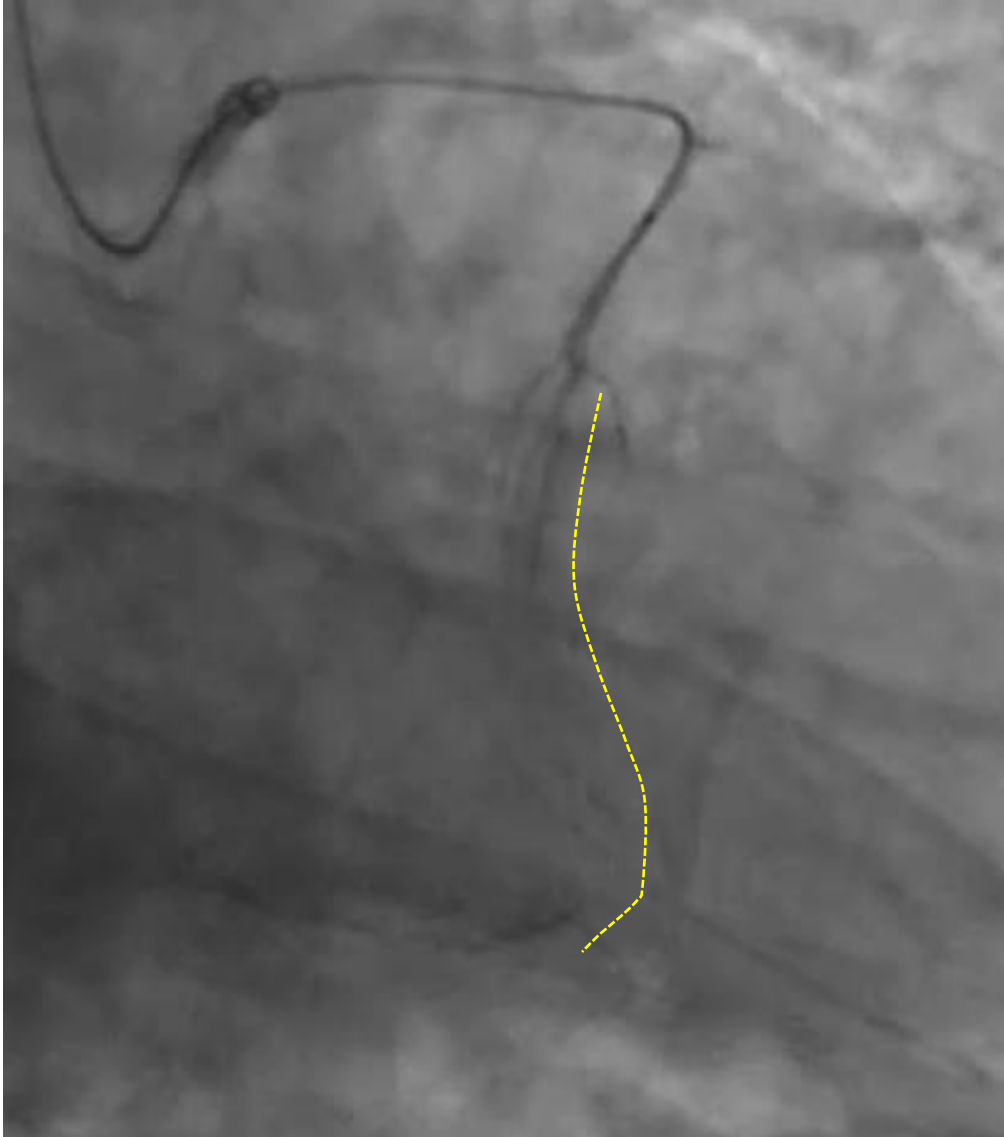


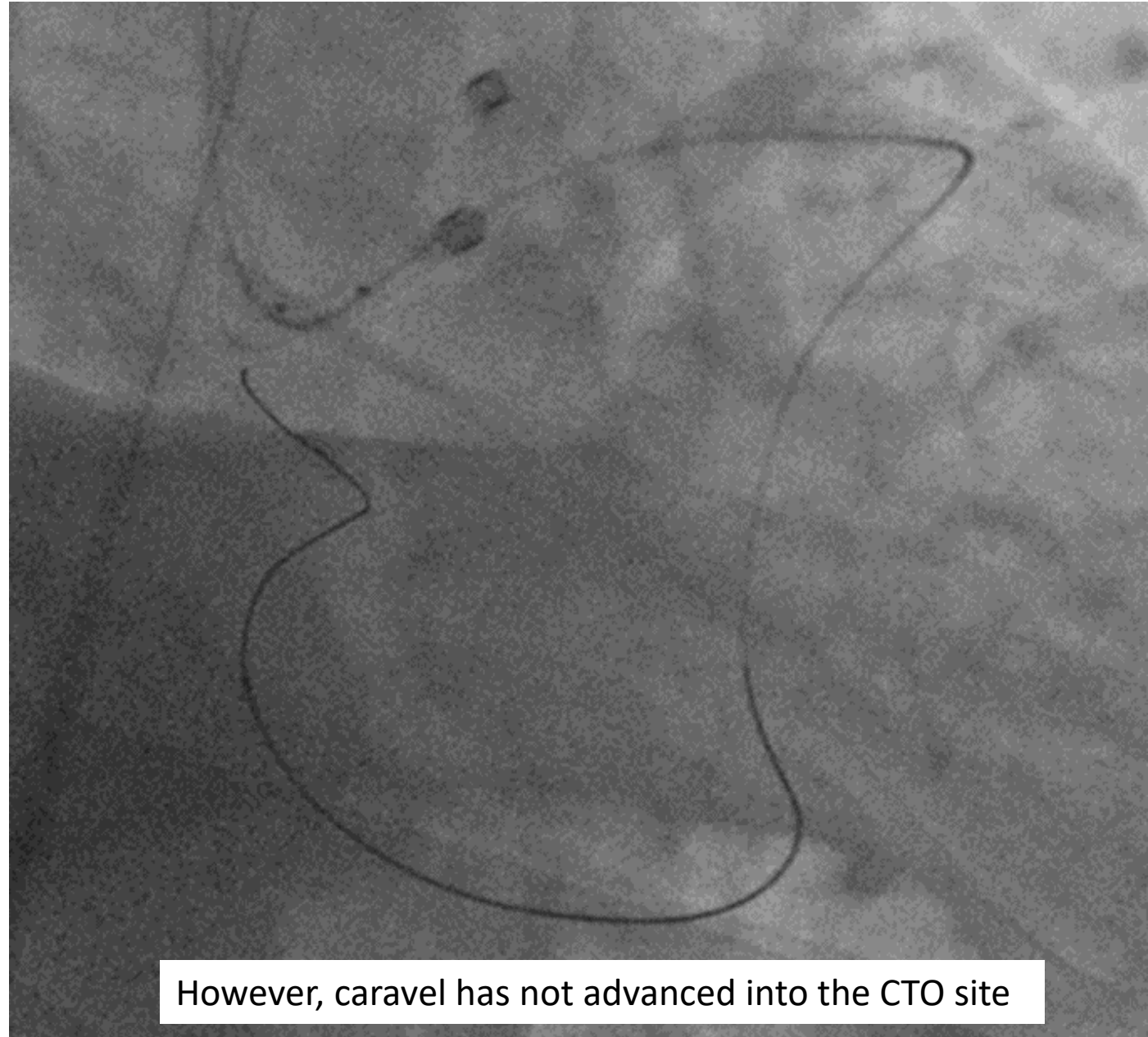
③ Wire crossing in CTO

IVUS-guided reverse CART is useful when both wires could not be located in the same space



Case: RCA CTO



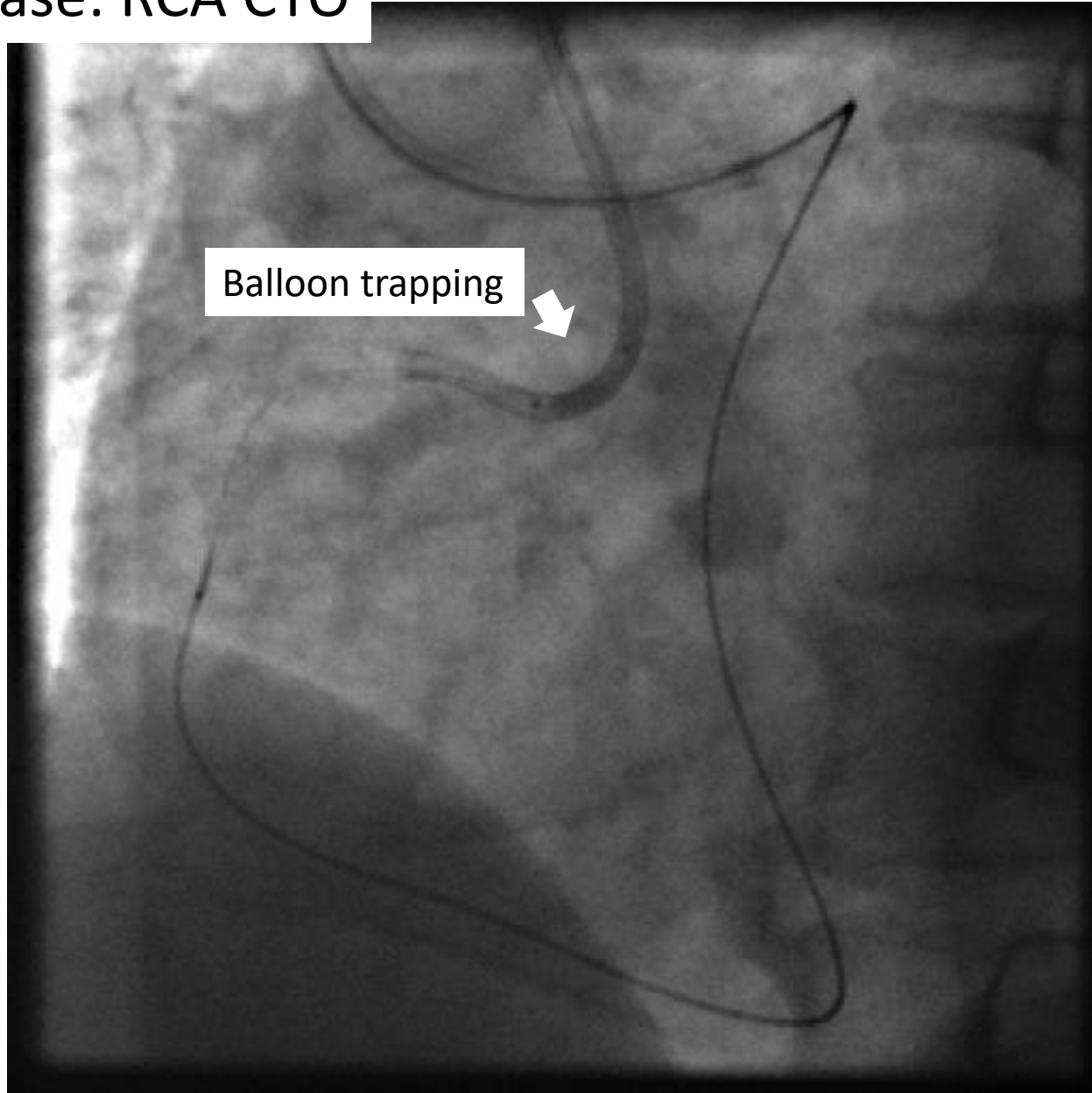


Caution !!!

An anchor balloon was performed and caravel prolapse of the septal channel

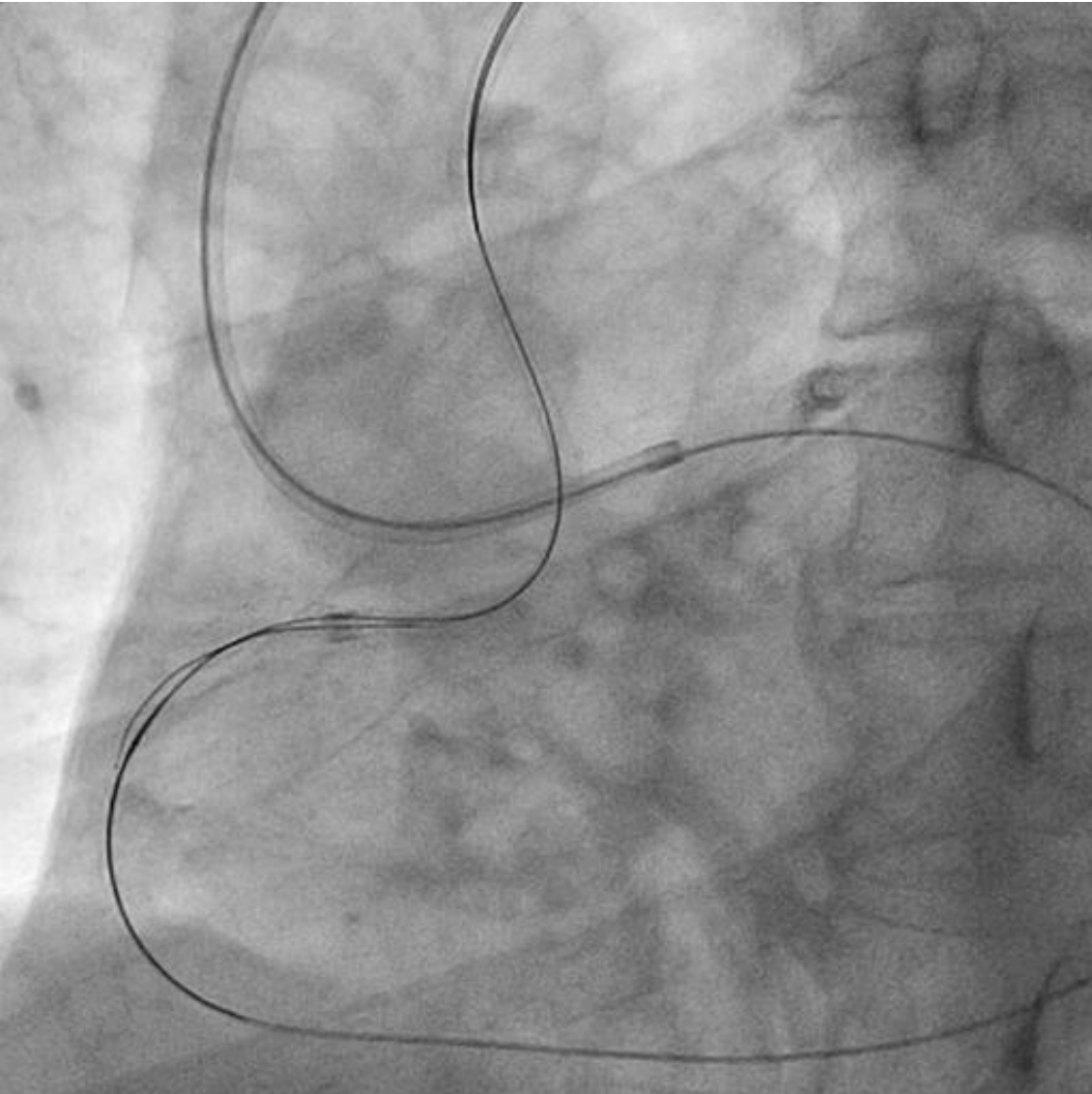
A large septal hematoma appeared and that must be treated with fenestration

Case: RCA CTO



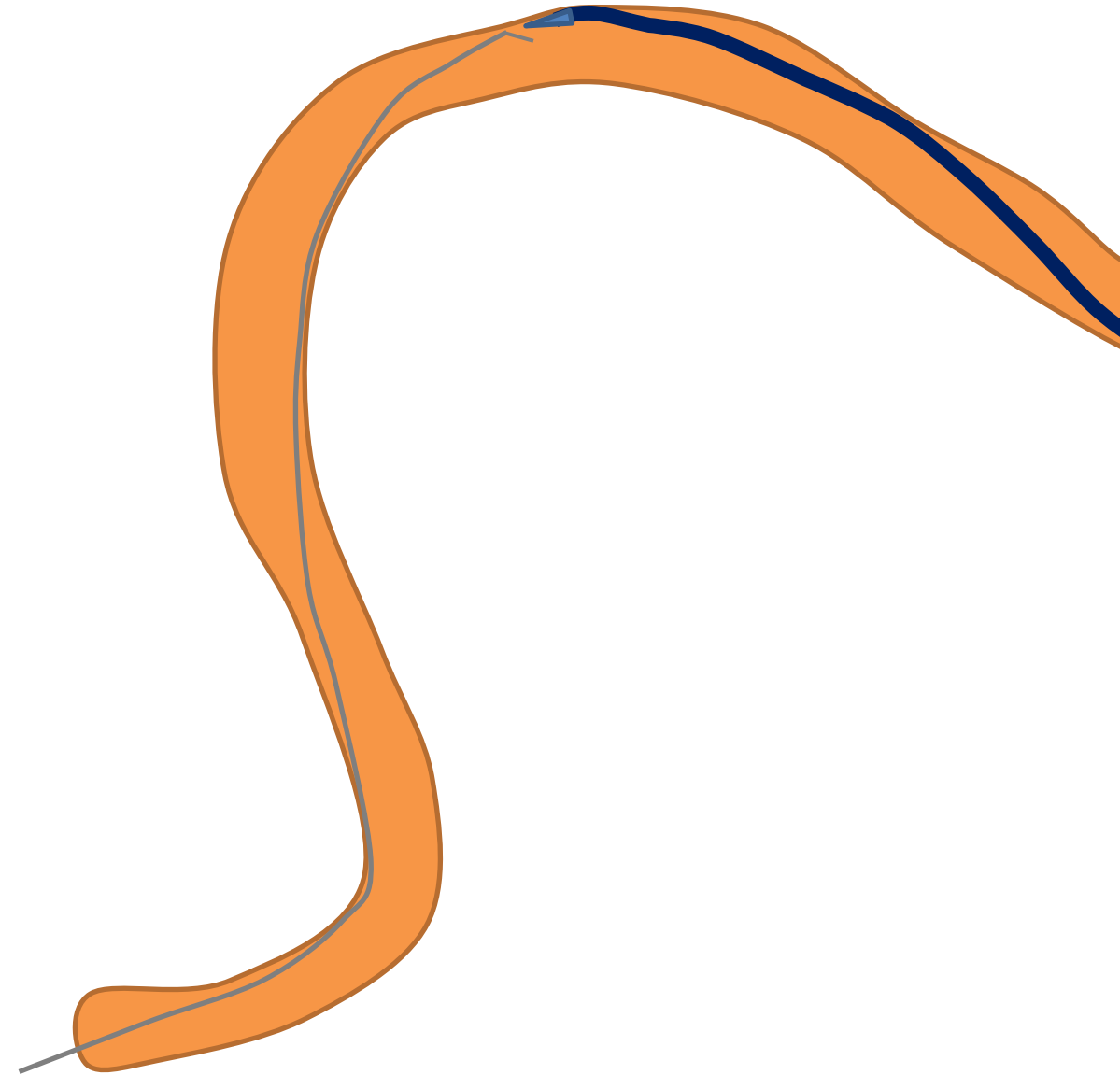
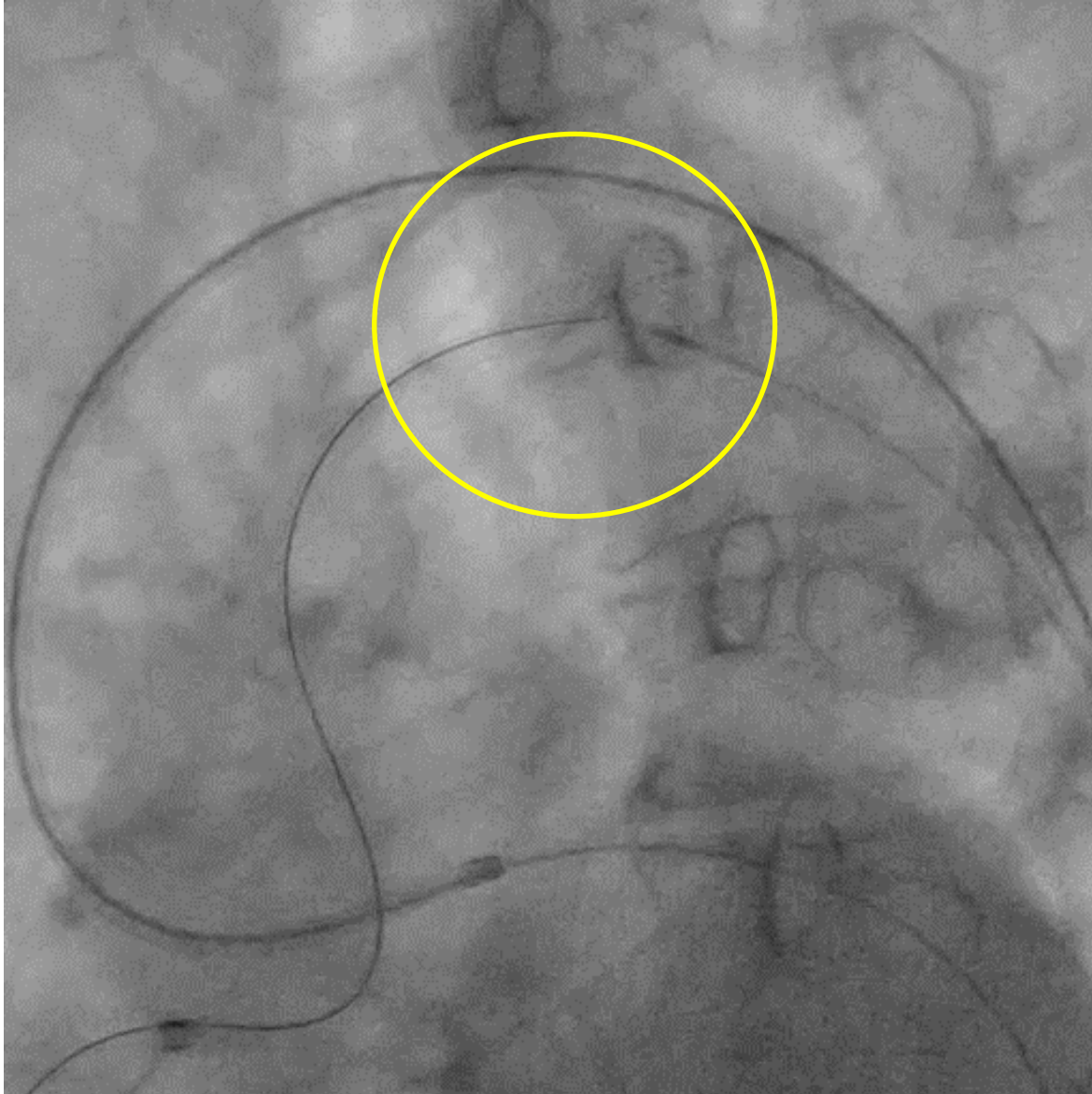
When the microcatheter could not pass through the CTO lesion after the crossing of the Retrograde GW into G.C, Balloon trapping in the antegrade G.C is useful to pass the retrograde microcatheter.

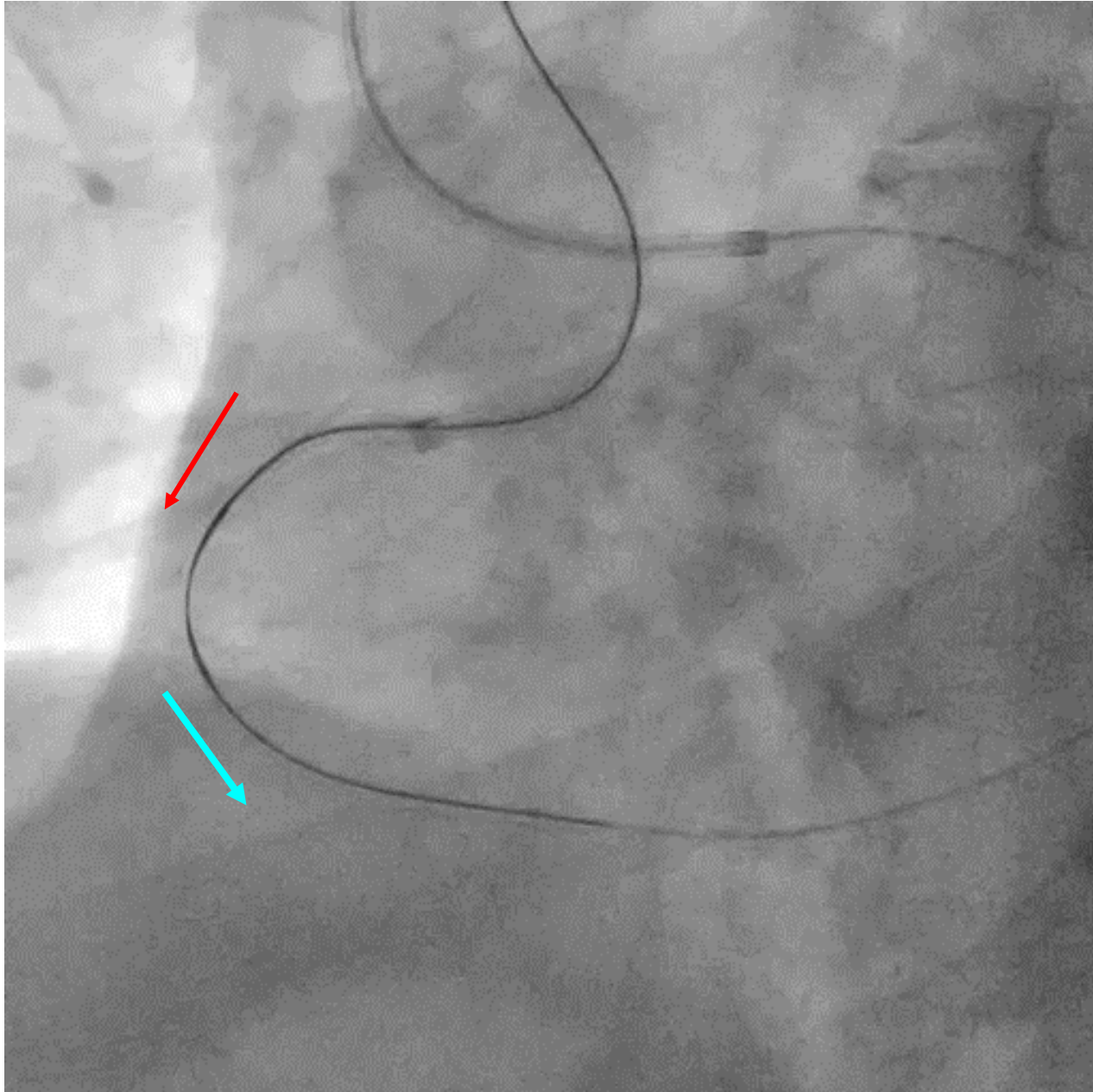
Case: RCA CTO



Retrograde microcatheter failed to pass through CTO lesion even with the Balloon trapping technique

Rendez-Vous technique in G.C



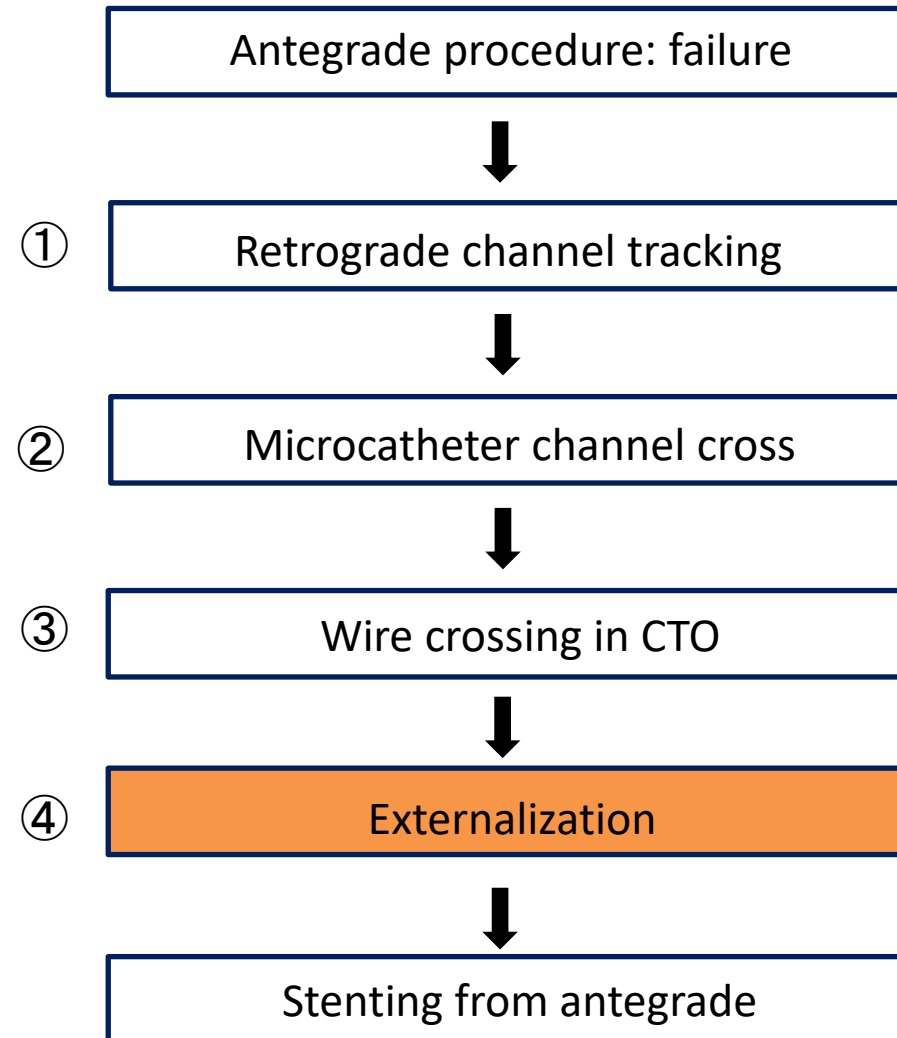


Microcatheter (Corsair) Kissing

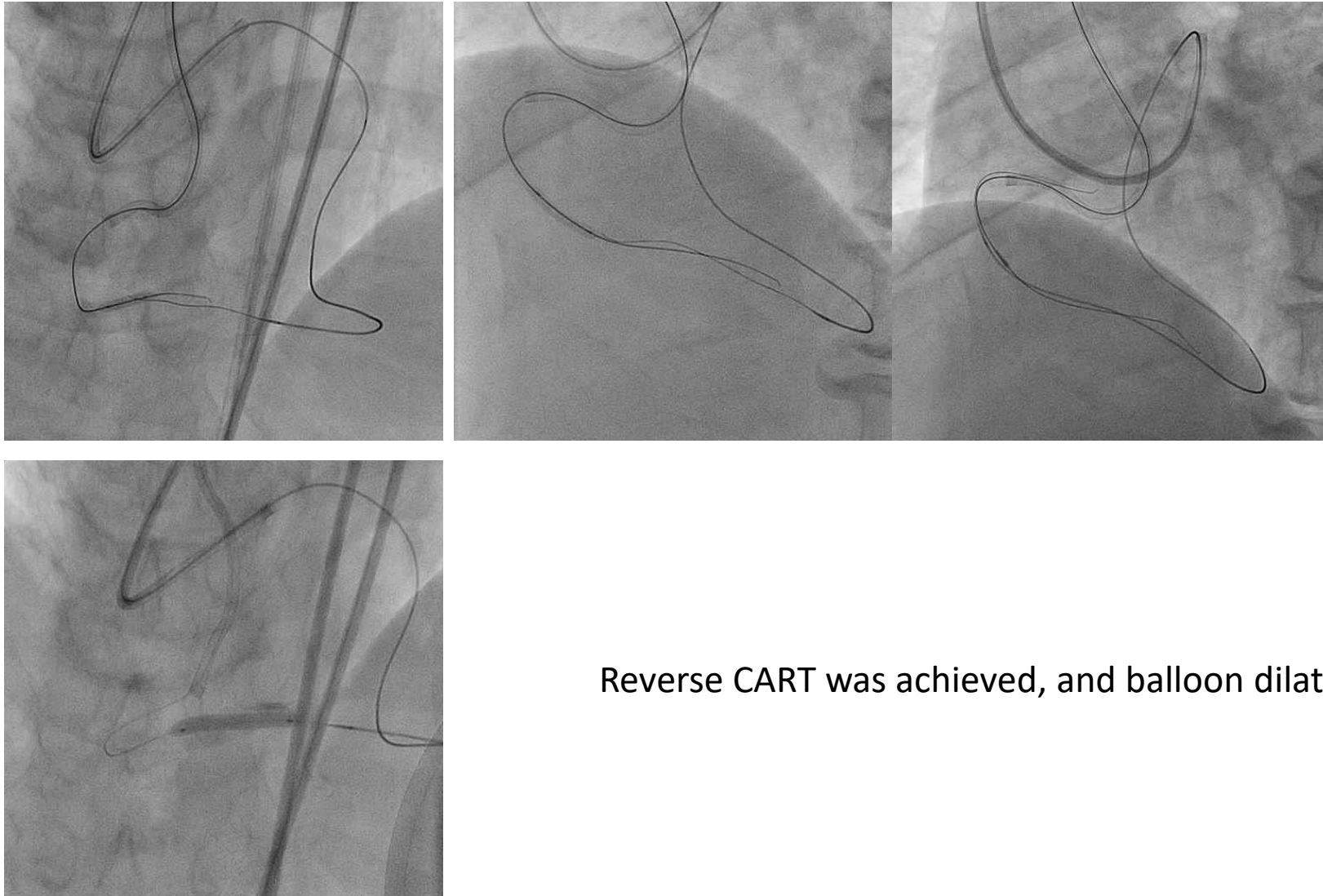
③ Wire crossing in CTO

- 1: When Reverse-CART is not easily achieved, IVUS-guided Reverse CART should be performed immediately
- 2: When retrograde microcatheter could not be passed through the CTO lesion, **Balloon trapping** is useful. However, avoid pushing the retrograde microcatheter too hard, as this can break the channel and sometimes lead to major complications
- 3: In that situation, **Rendez-vous techniques** can help.

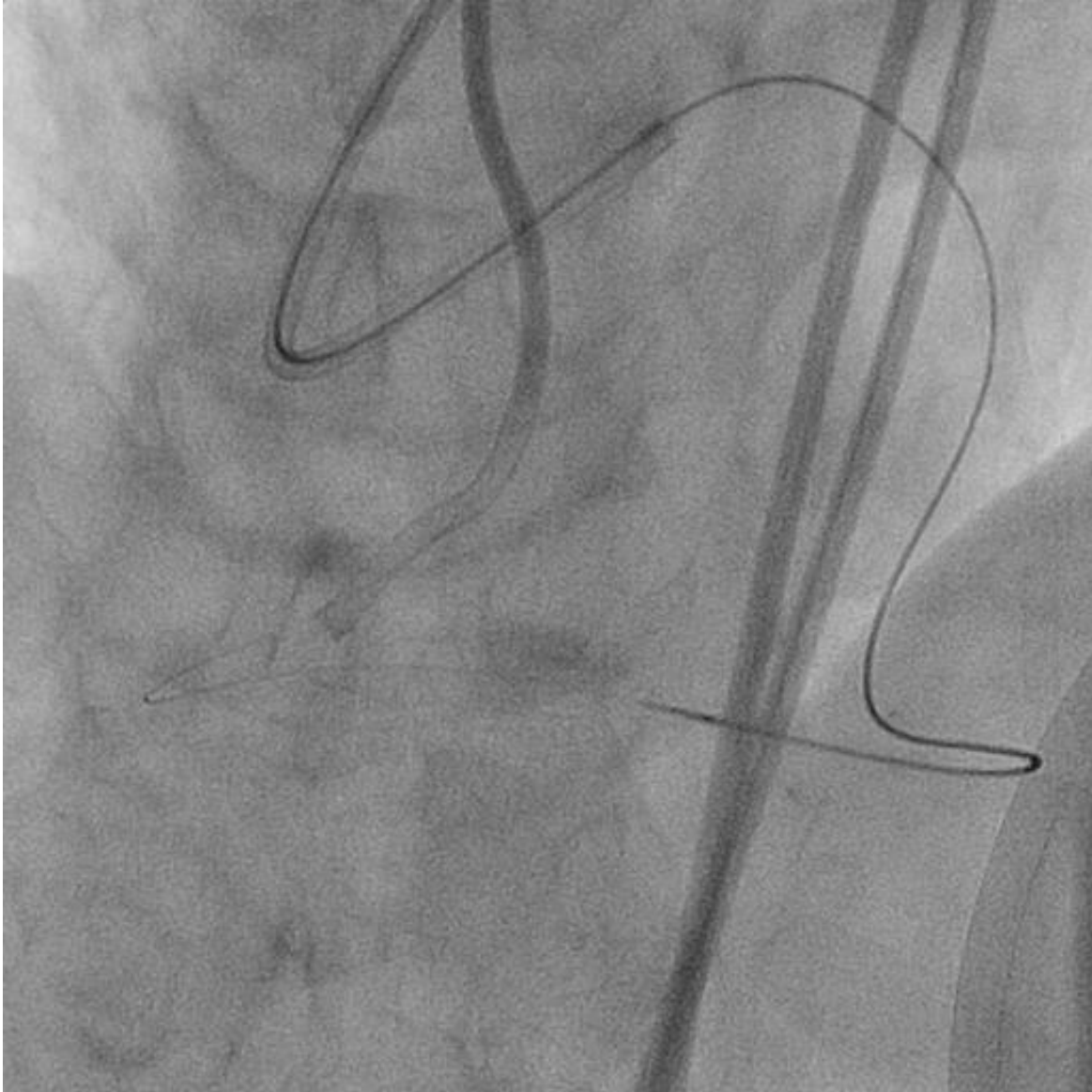
The usual strategy in retrograde procedure



④ Externalization



Reverse CART was achieved, and balloon dilatation was done.



Never perform an antegrade injection after the Reverse CART technique.

Because it makes large dissection and hematoma.

Summary

- ❑ To identify the most appropriate retrograde channel, the selection of the appropriate angiographic view angle is very important.
- ❑ When the microcatheter could not pass the channel or CTO lesion, avoid pushing strongly, use different types of microcatheter, and use various techniques to solve the problems and avoid complications
- ❑ Reverse CART is a technique to form a dissection and pass the wire, and injection of contrast medium from the antegrade should never be performed because it will increase the size of the dissection or hematoma.

Take Home Message

The retrograde approach has its own complications and problems that are not present in the antegrade procedure.

Complications of the donor artery can be critical.

Therefore, we need to know and select safer and optimal methods during the procedure.