

TCTAP2012

Lunch time Activities

How I treat CTO/COMPLEX case

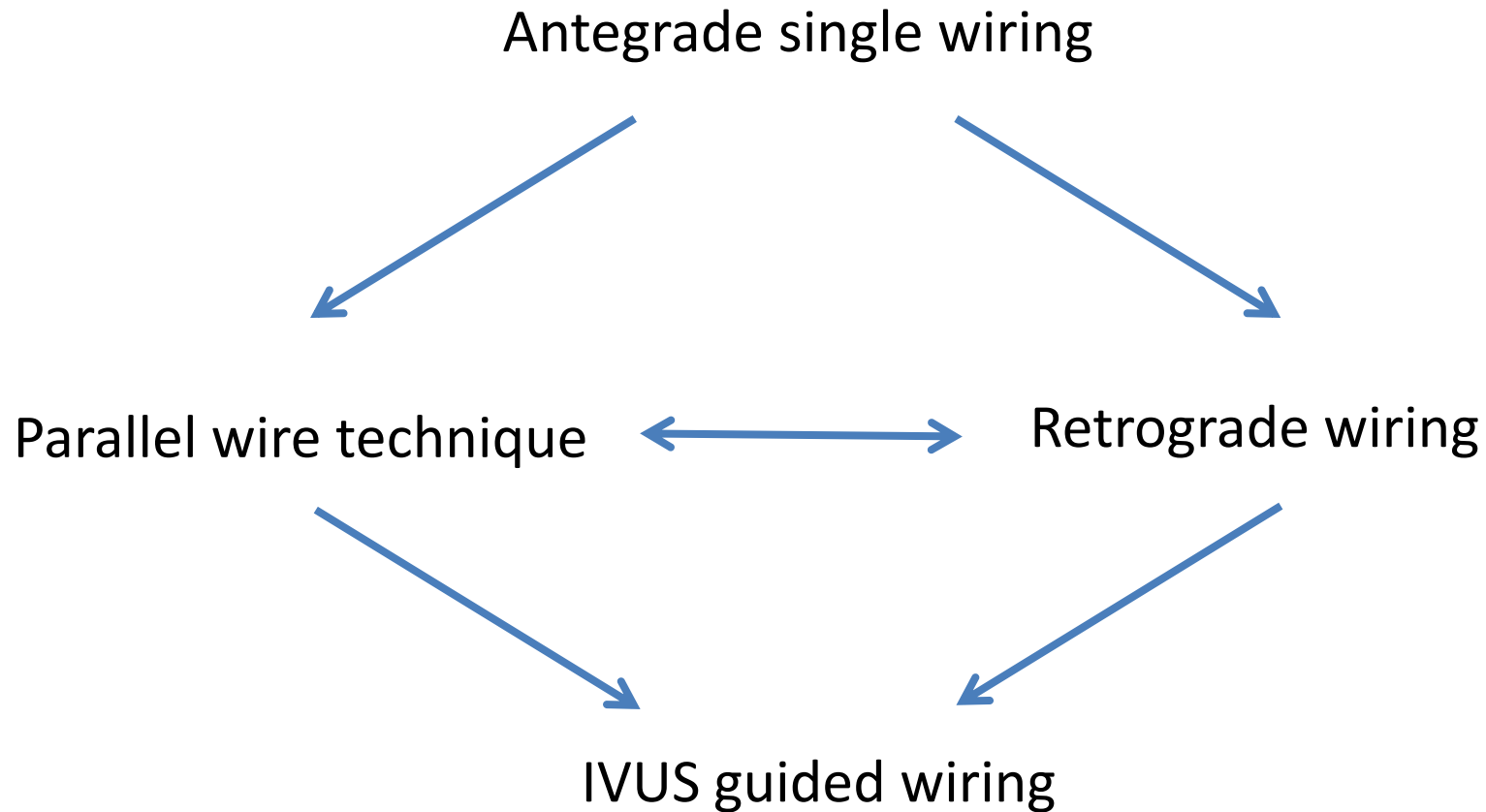
CTO technique

Including Retro and CART/Reverse CART?

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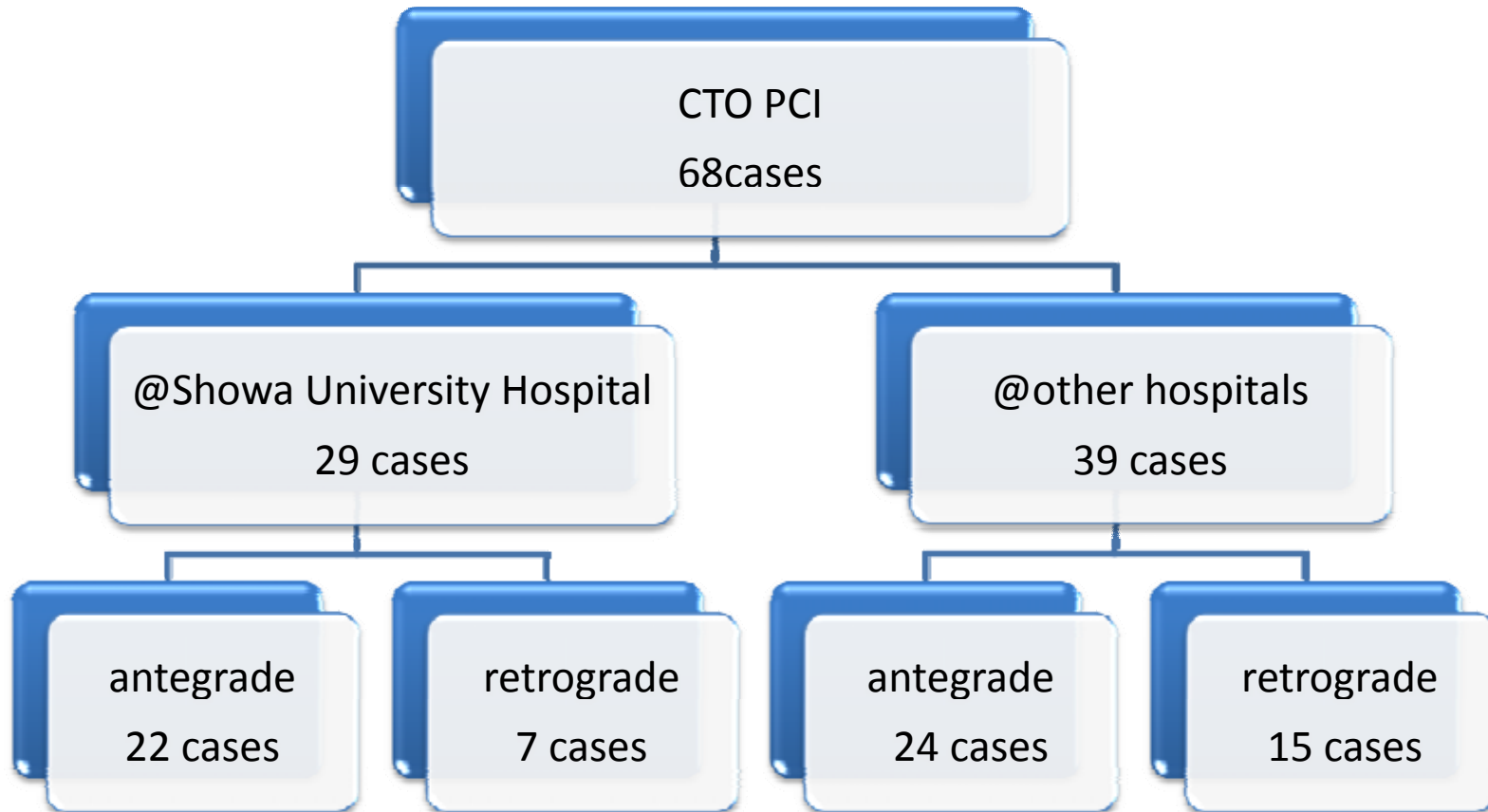
Showa University Hospital, Tokyo, Japan

Strategies for current CTO PCI



In general, parallel wire technique is first as 2nd step. If antegrade anatomy looks difficult for parallel wire technique and good collateral channel for retrograde approach exists, retrograde wiring is first.

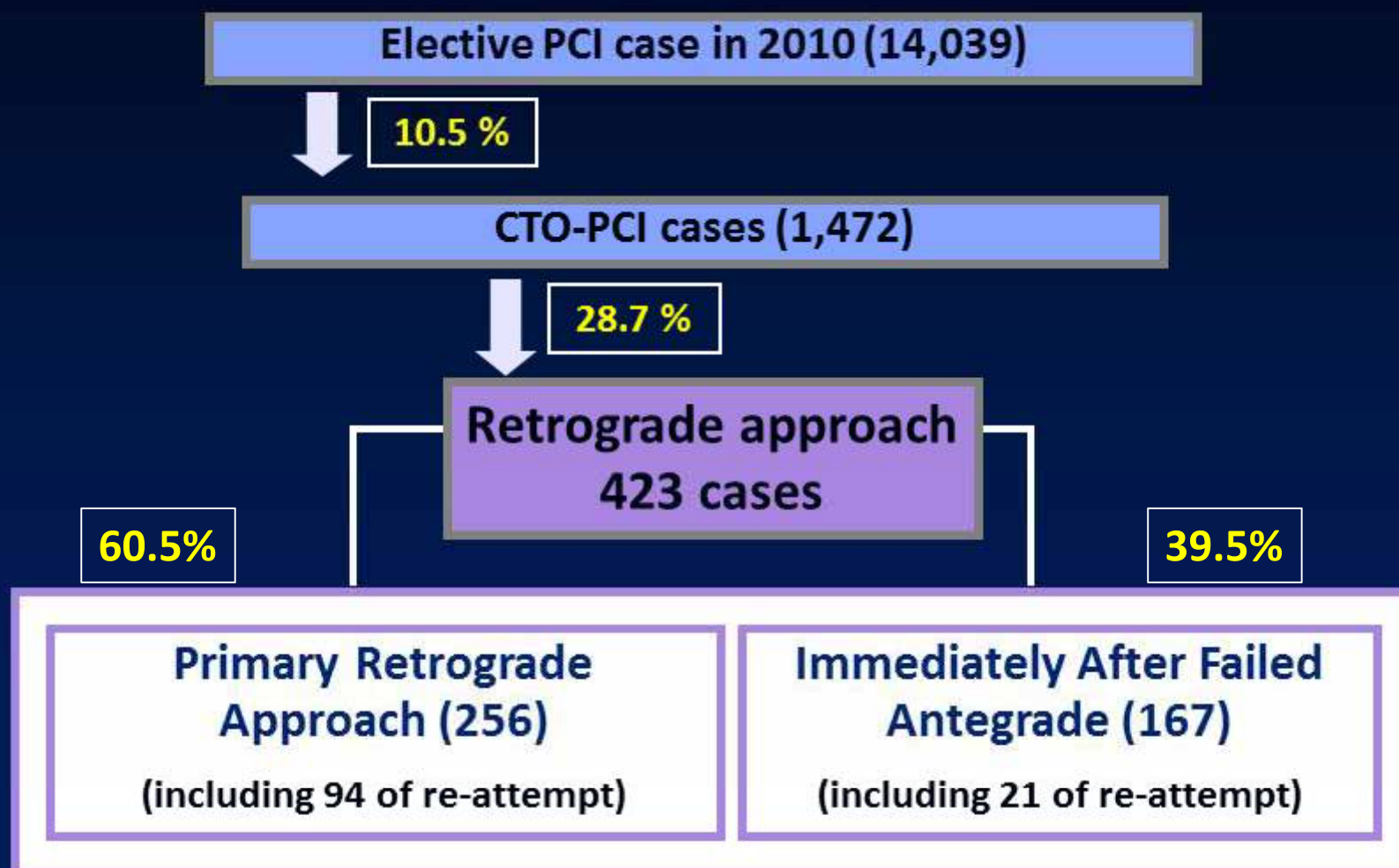
My experience of CTO PCI in 2011



Retrograde CTO PCI=32.3% (22/68)

Registry Data

Jan – December 2010, Registered hospital:24



From Japanese Registry Data of Retrograde Summit

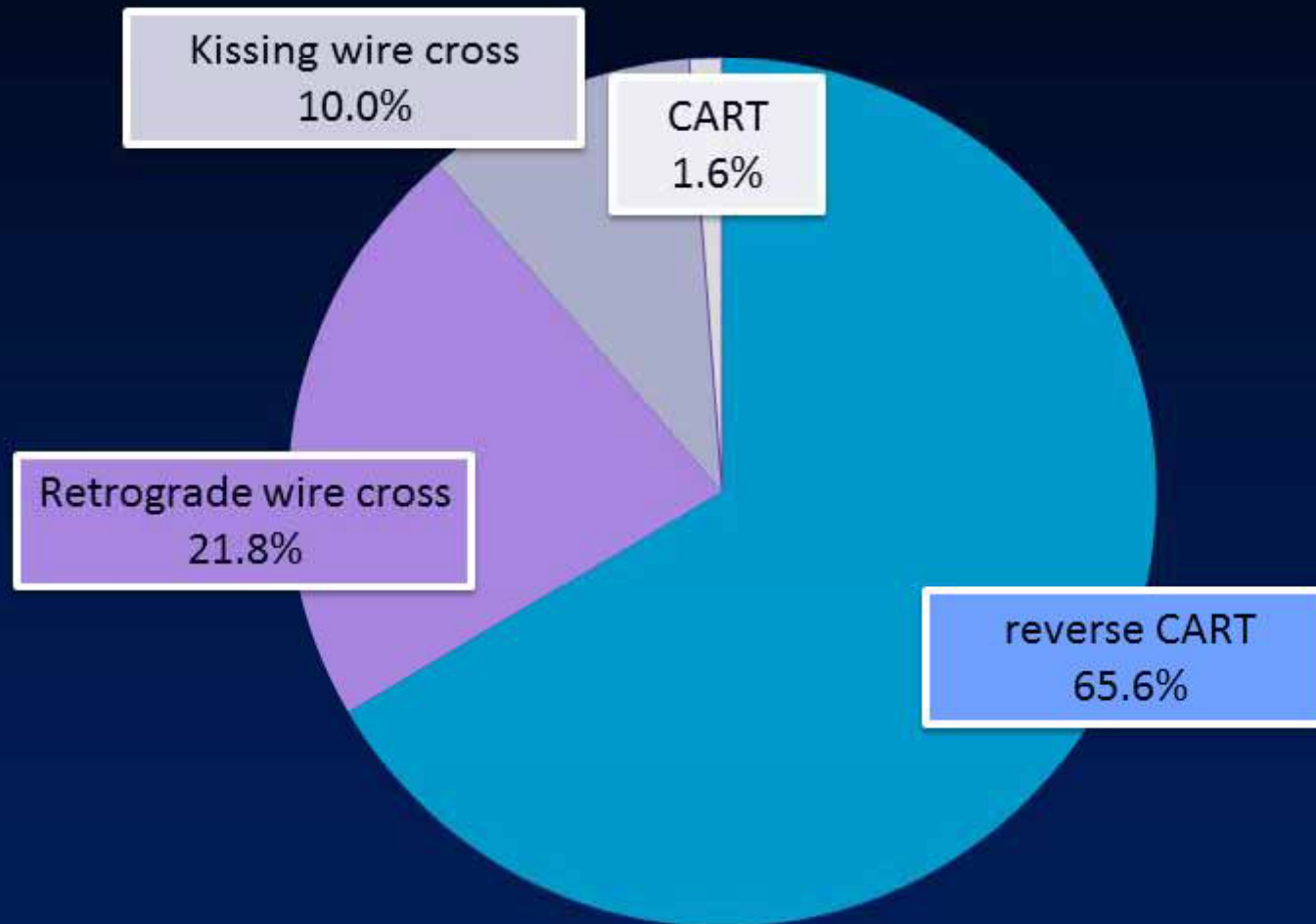
Table 1. Classification of Retrograde Approach

	Wire Cross Direction	
	Antegrade	Retrograde
Dilation of CTO before wire cross		
No	Kissing wire cross	Retrograde wire cross
Yes	CART	Reverse CART

Draft consensus in Retrograde Summit (Tsuchikane, Ochiai, Sumitsuji).
CART = controlled antegrade and retrograde tracking; CTO = chronic total occlusion.

CTO Crossing

Succeeded Strategy in 2010

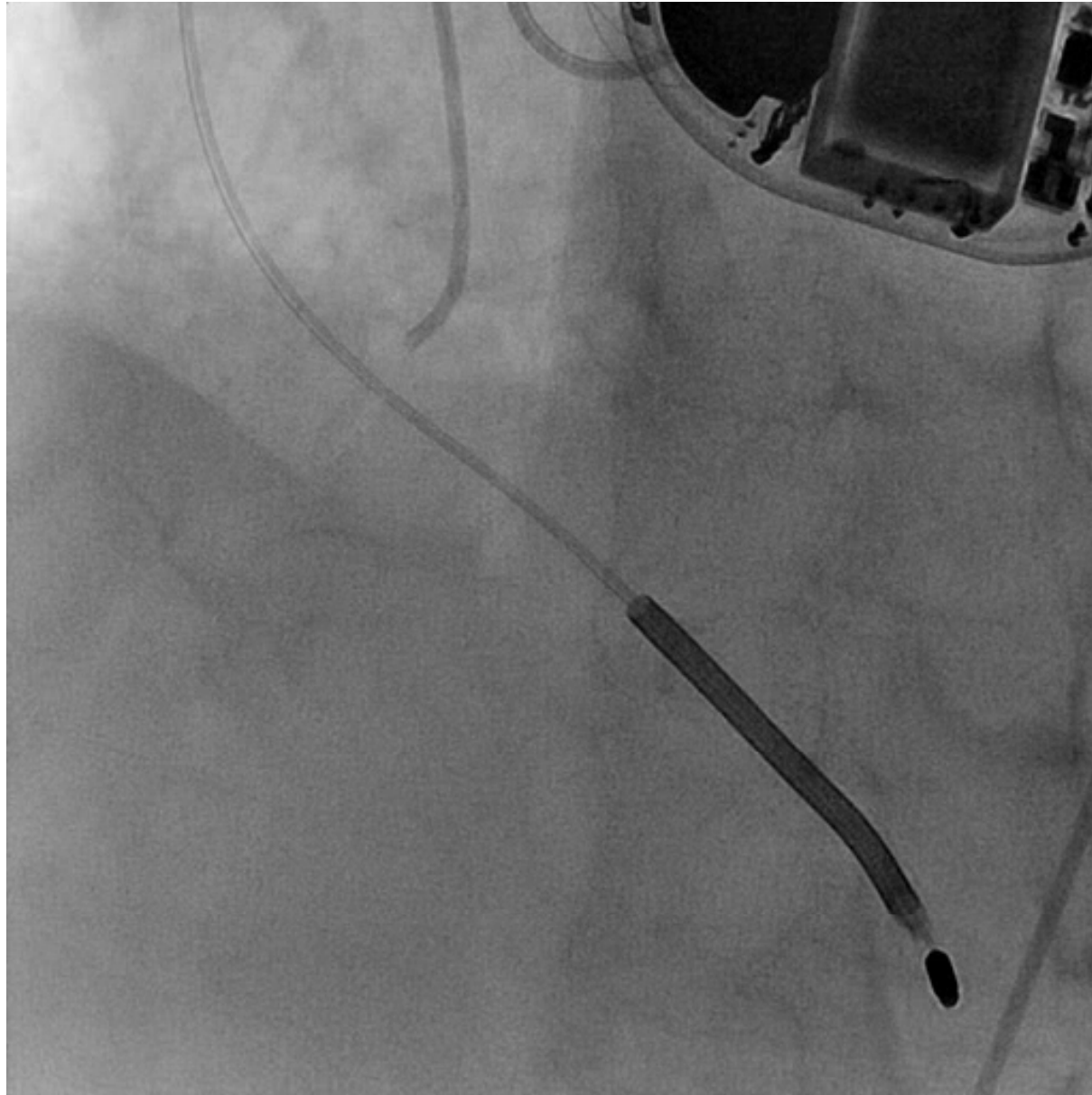


CTO crossing without ballooning was in only 1/3. Ballooning was required in 2/3 and mainly reverse CART was used.

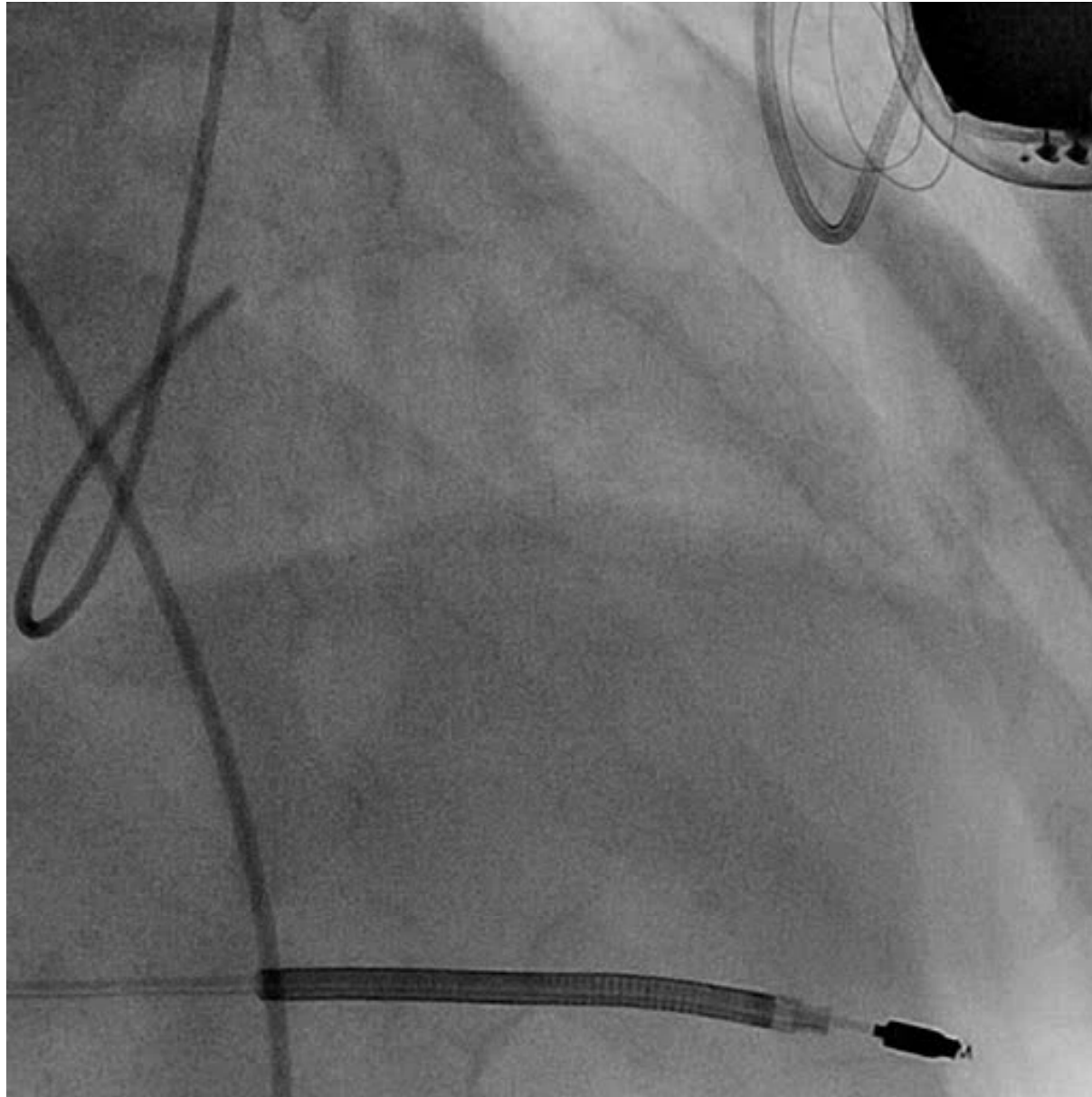
From Japanese Registry Data of Retrograde Summit

Why reverse CART is the main strategy in retrograde CTO PCI?

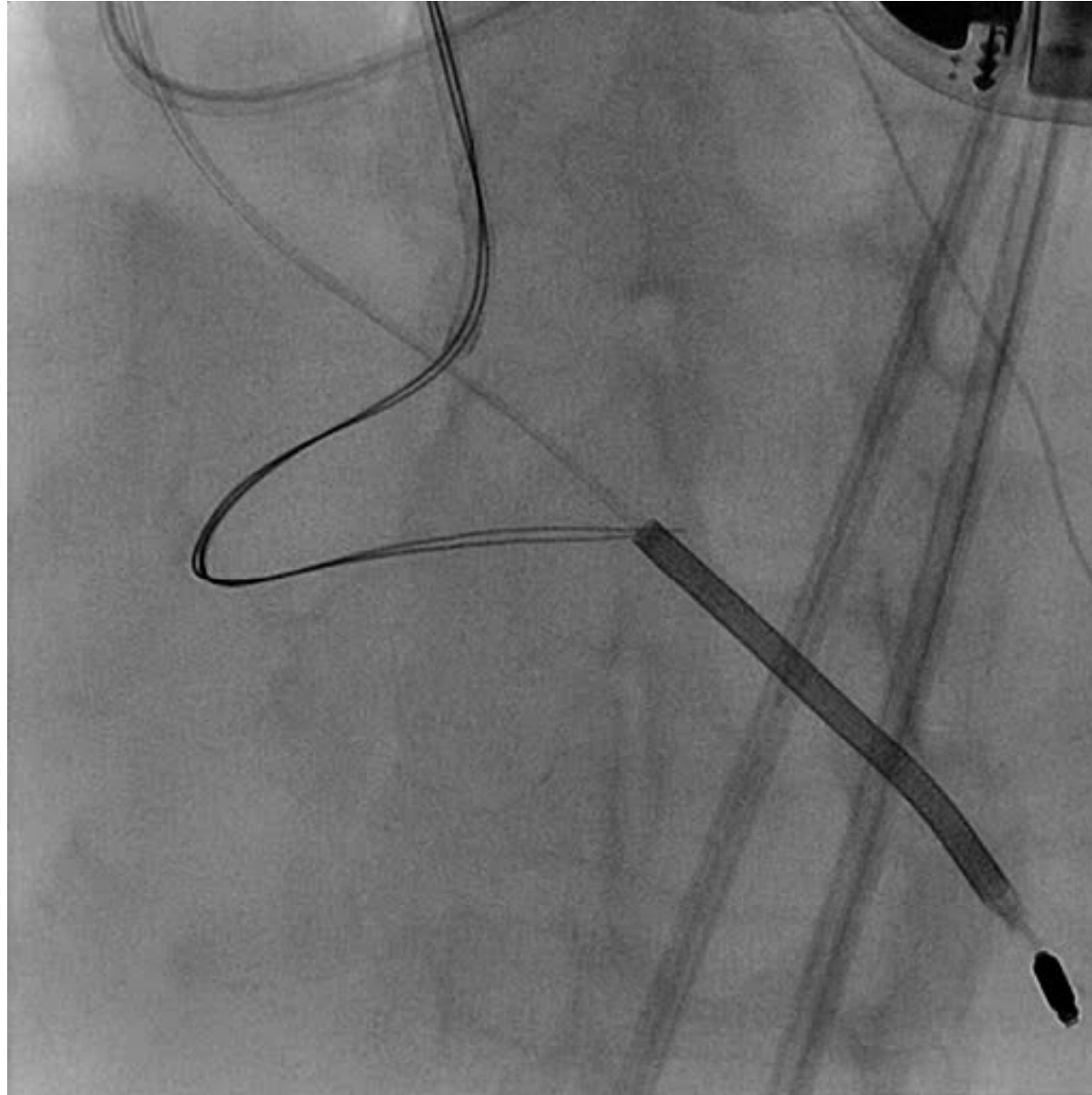
- CART/Reverse CART is the most promising strategy in CTO PCI.
 - If antegrade wire and retrograde wire can overlap each other in CTO, balloon dilation can make a connection between antegrade and retrograde route surely.
- Reverse CART has less limitation compared with CART technique
 - No need of dilation of collateral channel
 - Balloon is not necessary to pass through collateral channel
 - No limitation of balloon size
 - Balloon is inserted from antegrade side.
 - IVUS guidance
 - IVUS information is very useful to understand GW position in CTO and to determine the proper balloon size for reverse CART.



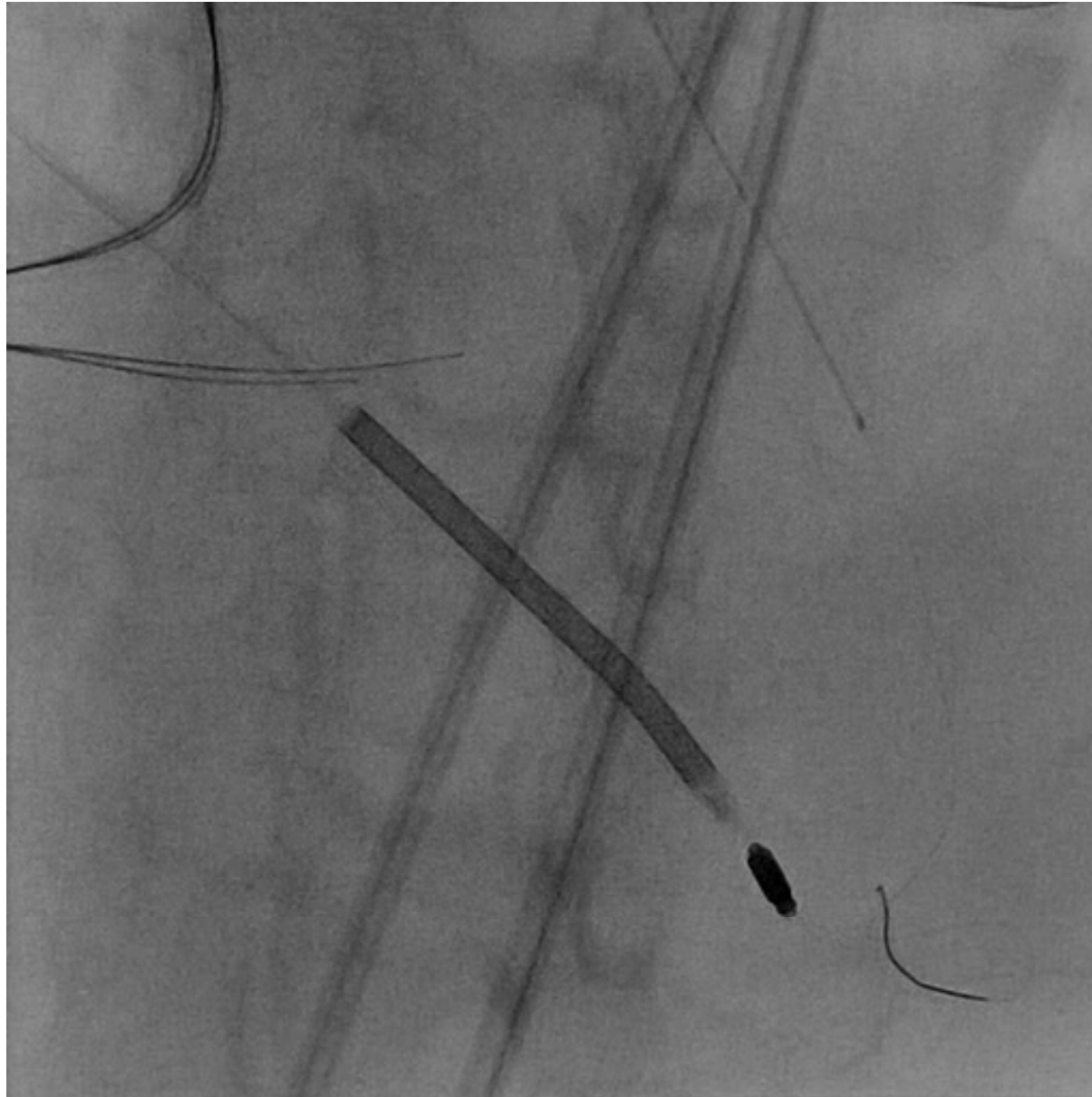
This was a RCA CTO case



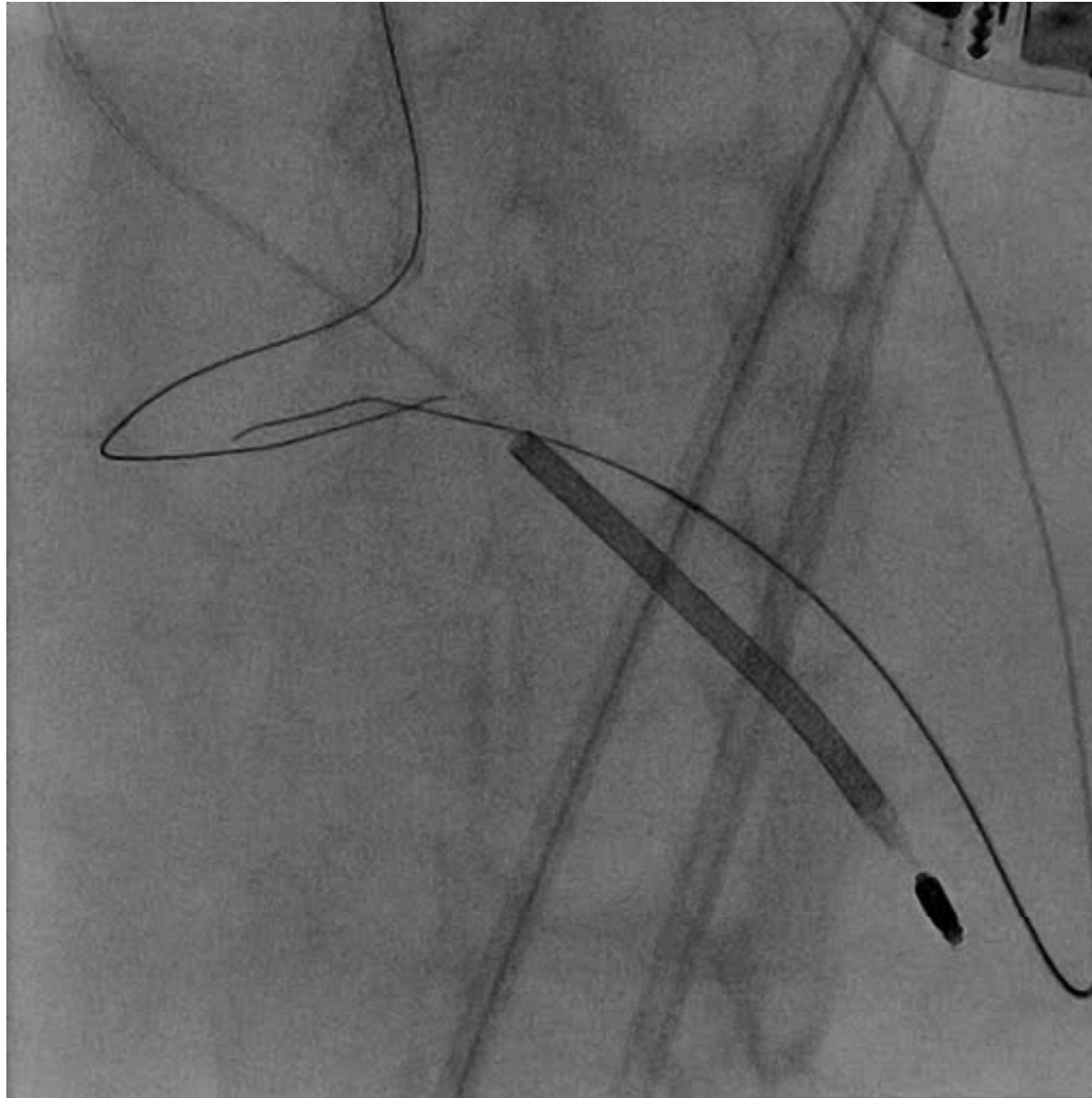
LAD gave good collateral flow to RCA through apical channel



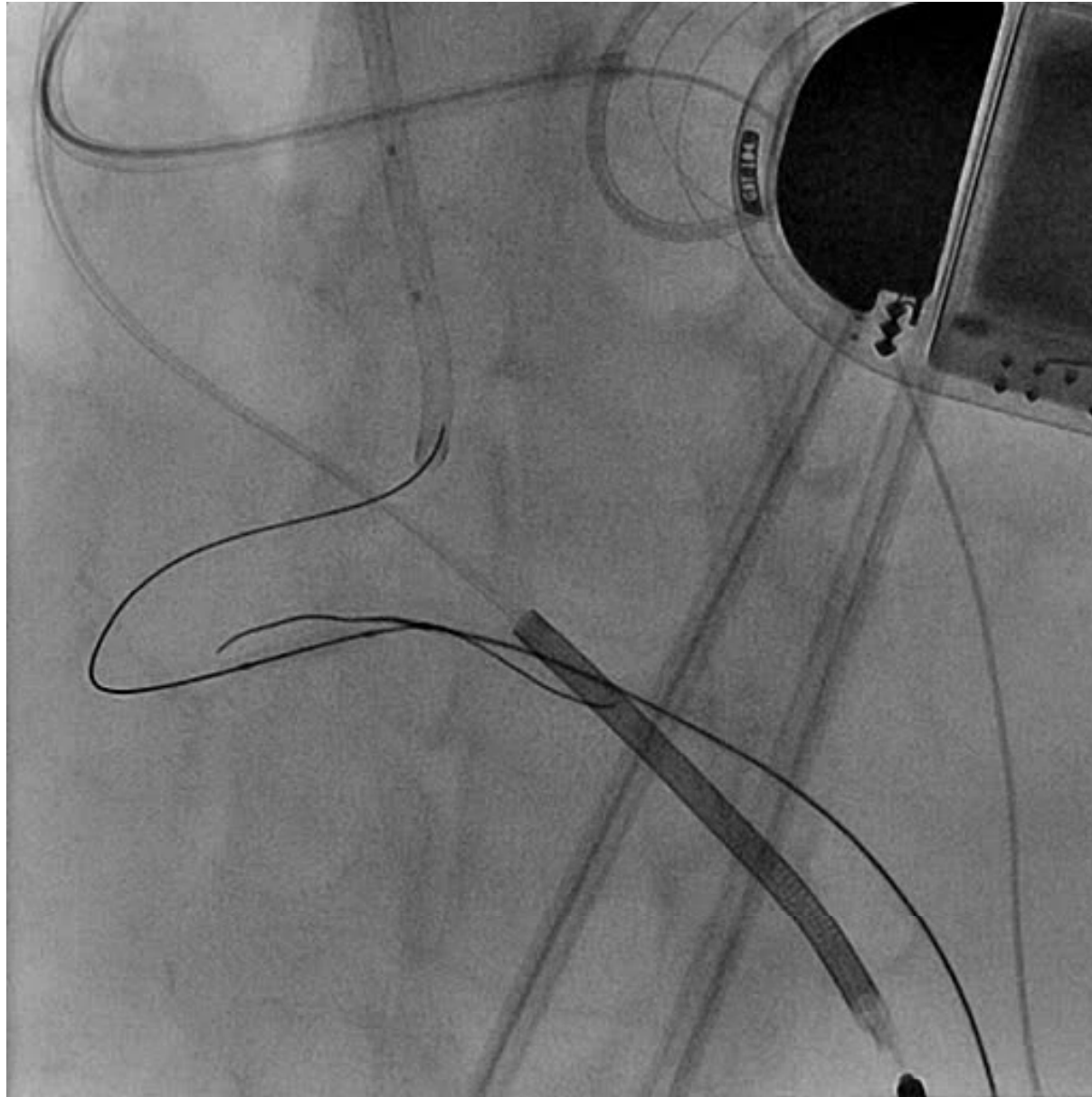
PCI was started with antegarde approach but GW could not pass CTO in spite of use of parallel wire technique



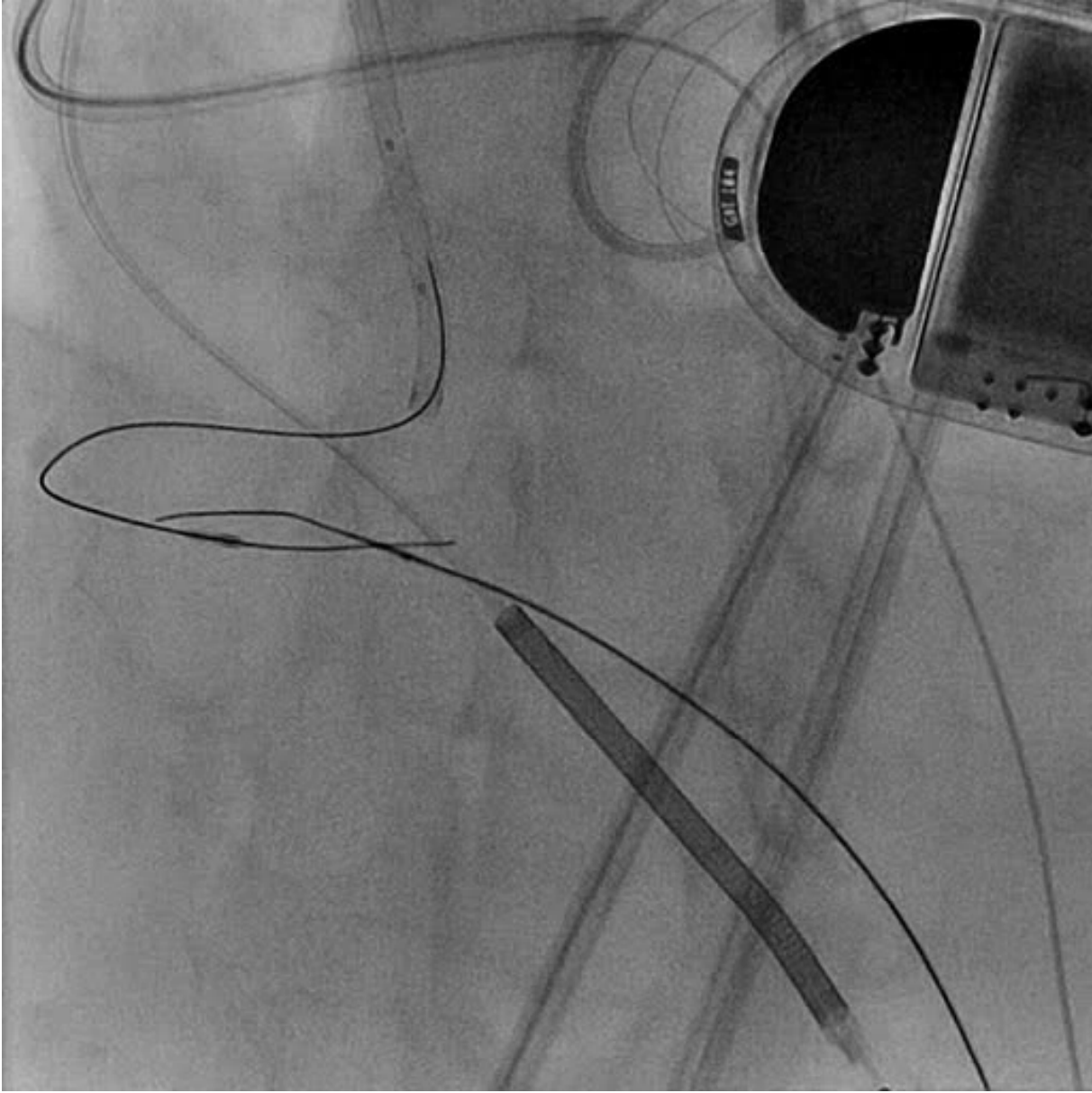
Strategy exchanged to retrograde approach. Fielder FC could pass through collateral channel.

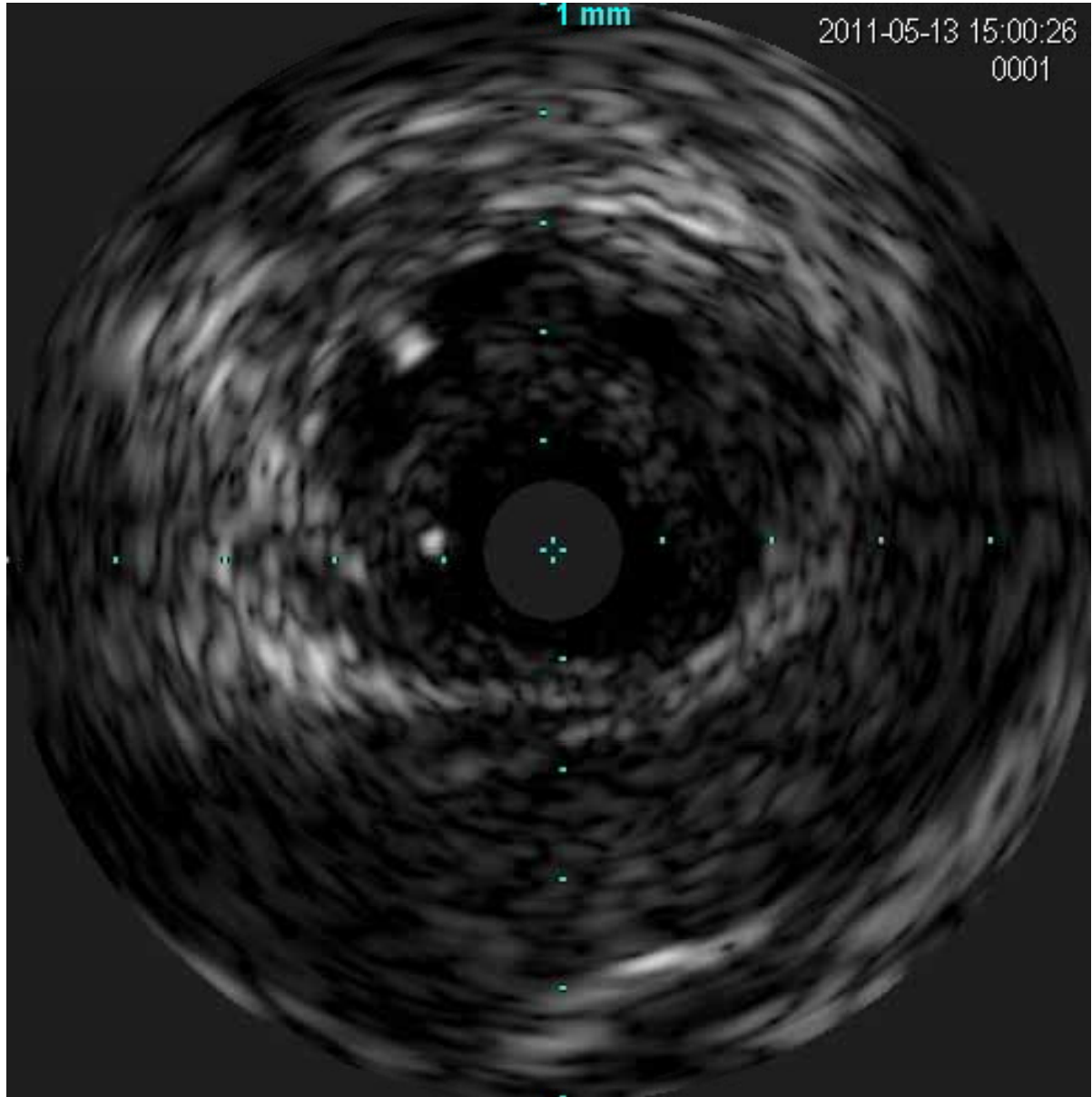


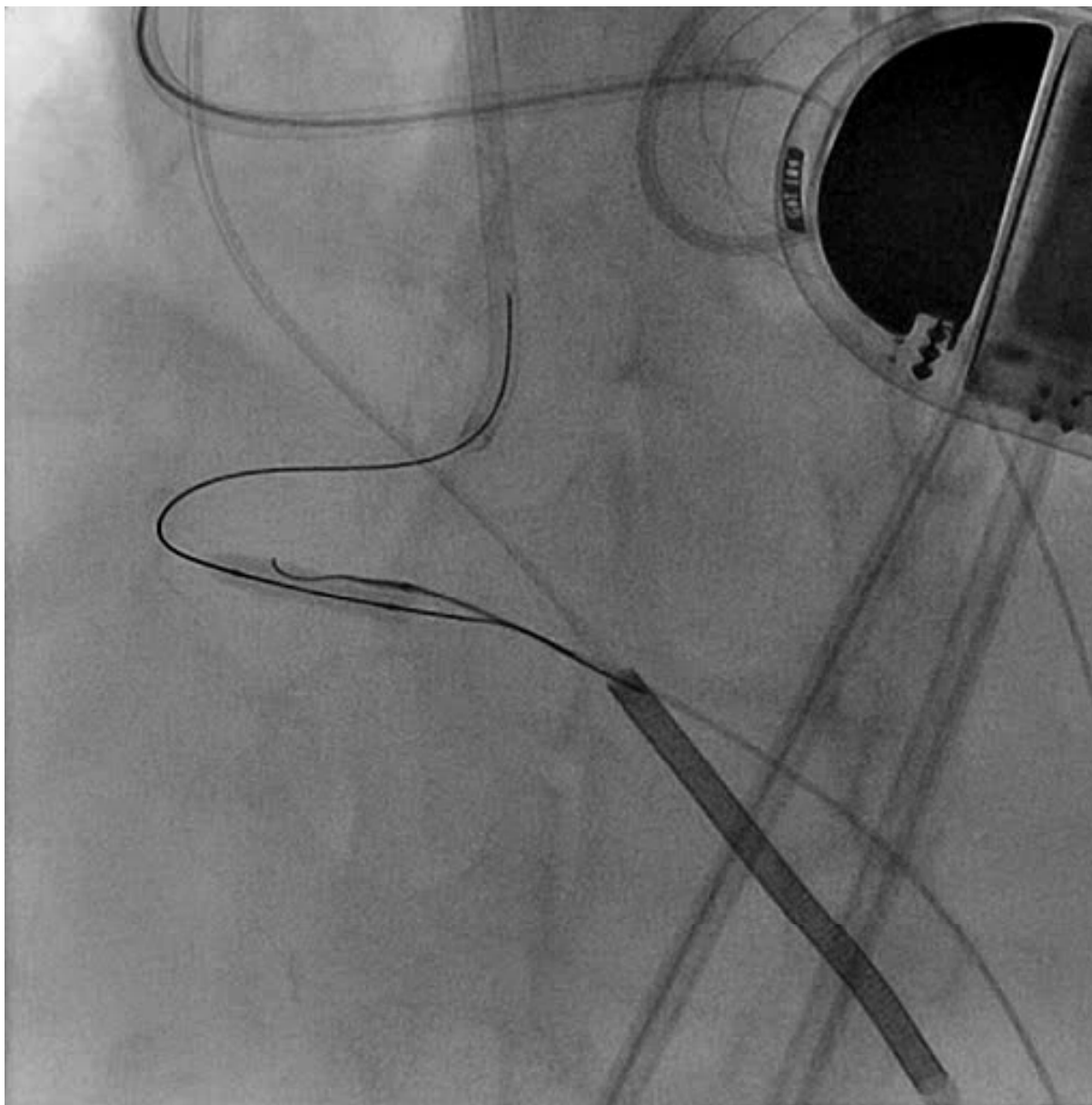
Fielder FC could not be advanced into CTO. UltimateBros3 could be advanced into CTO and overlap with antegrade wire.



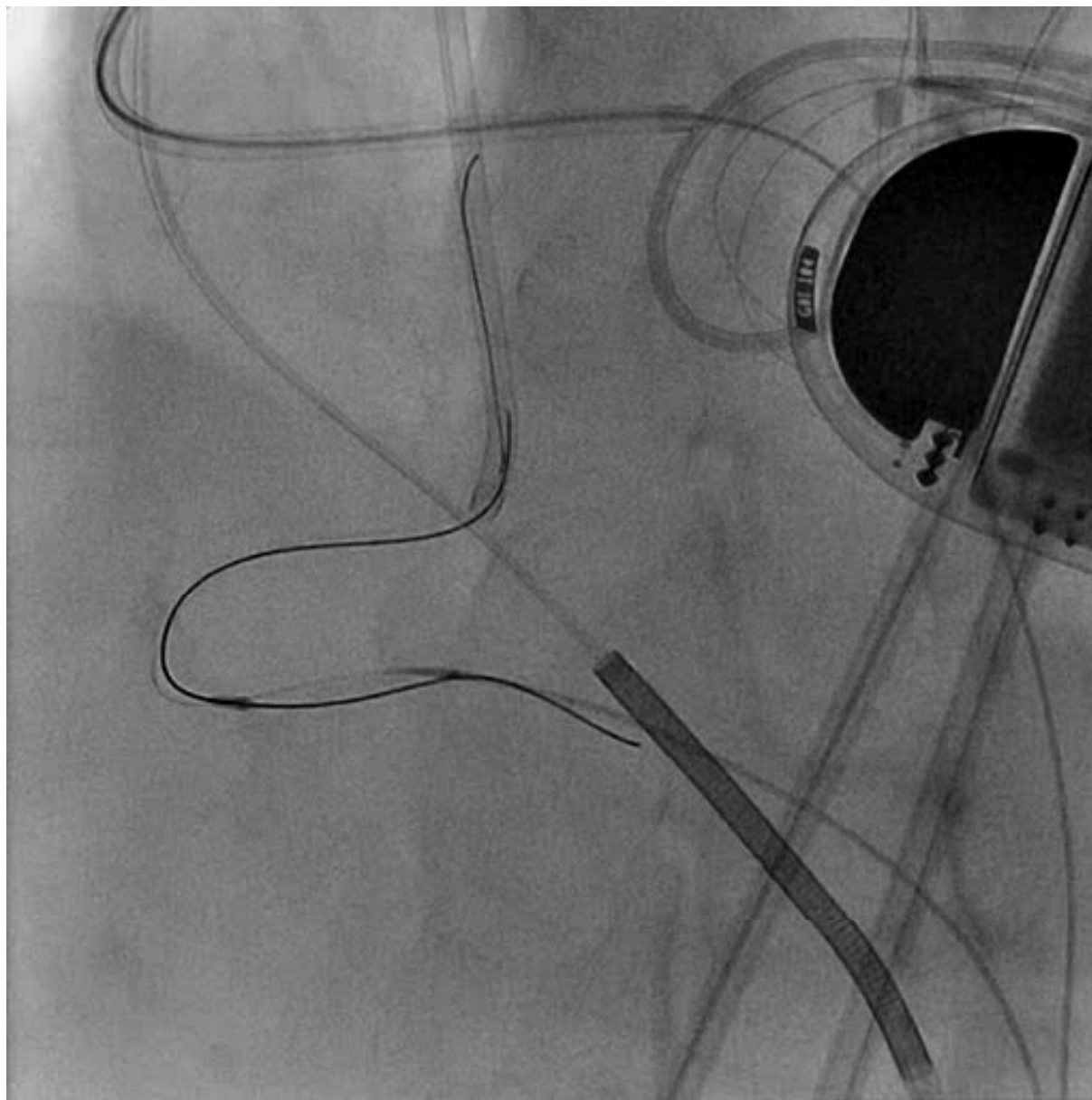
Dilation with 2.0mm balloon was performed. This ballooning was preparation for IVUS.



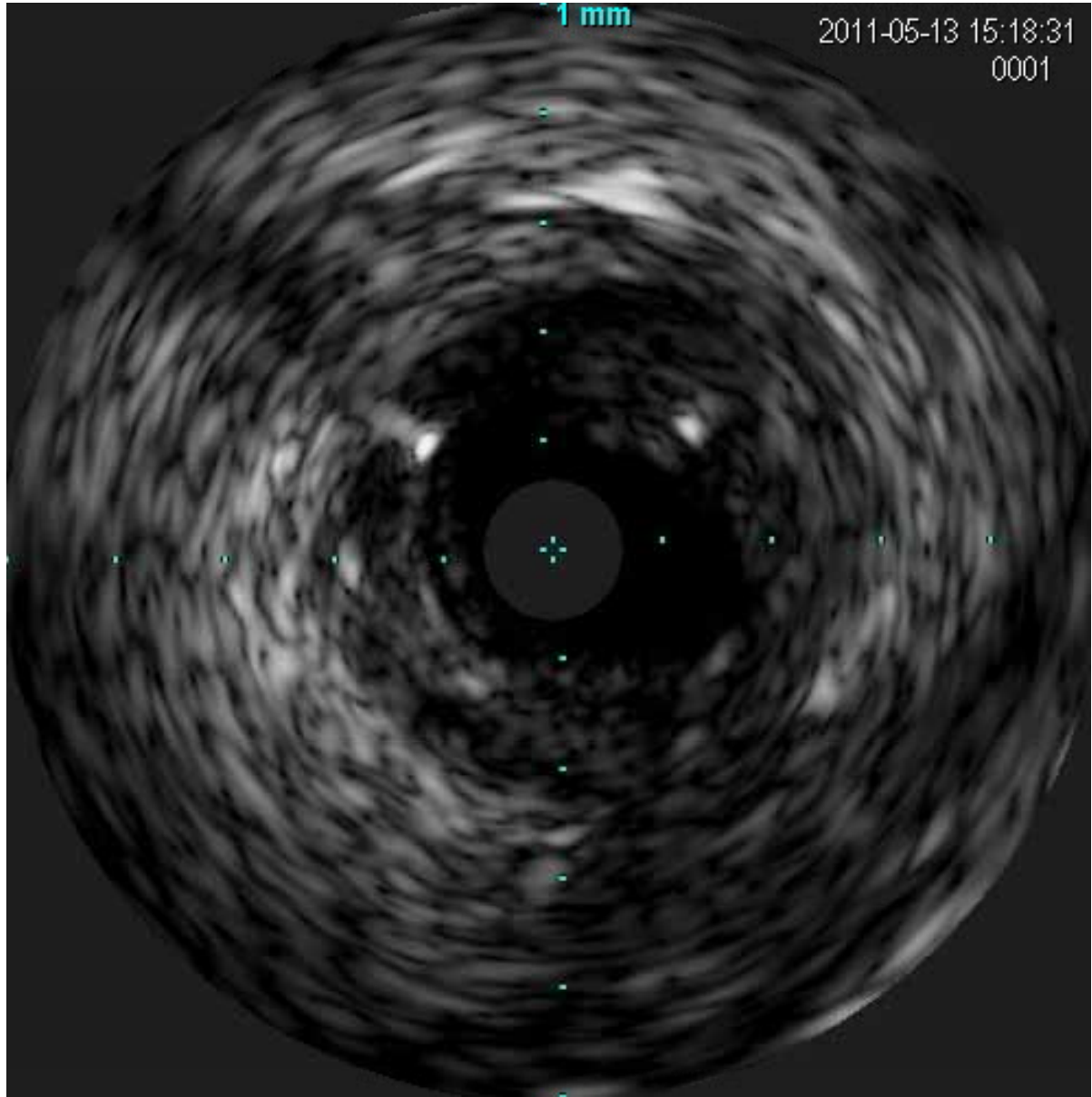


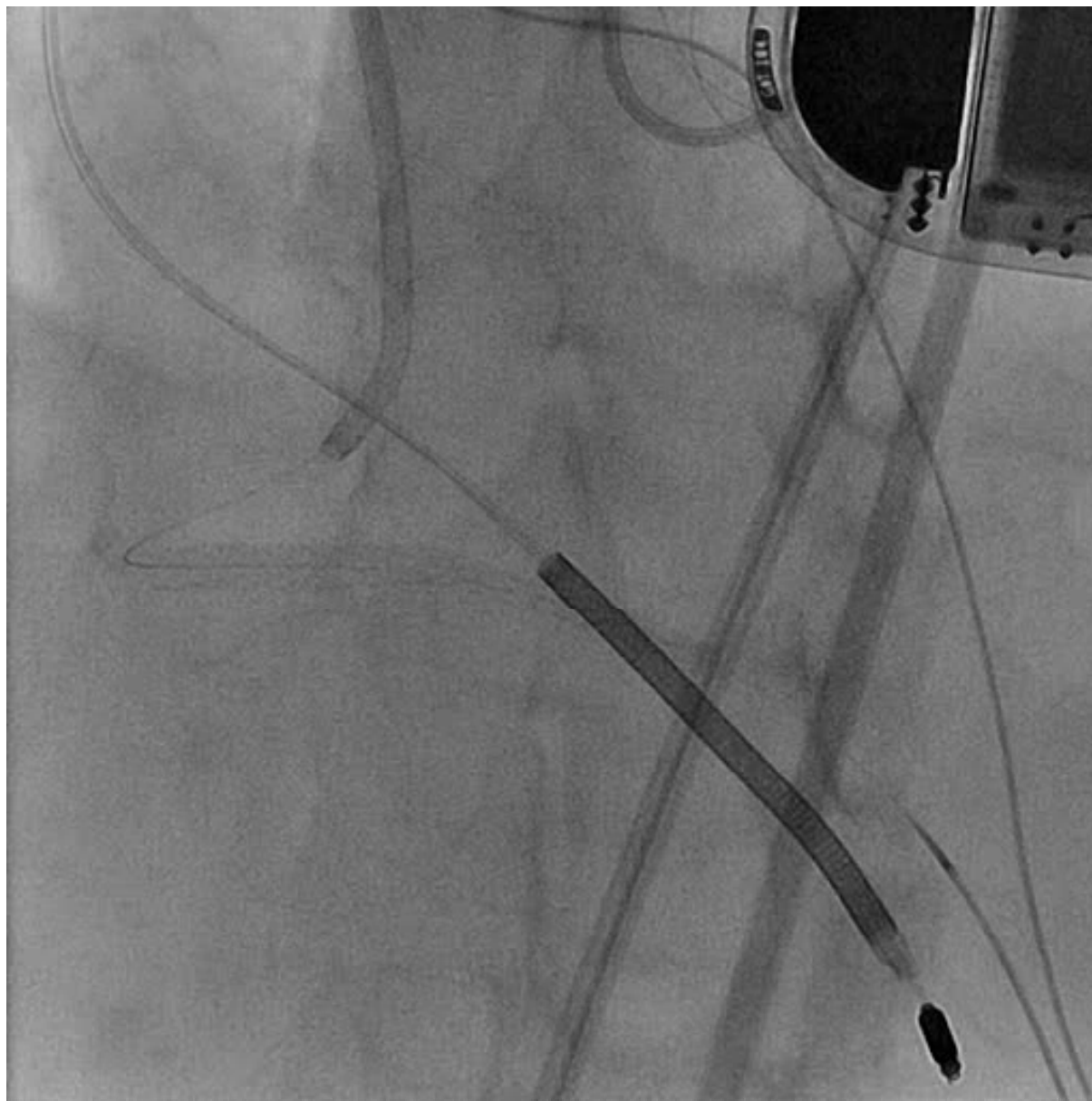


After IVUS, Corsair was advanced and retrograde wire exchanged to Fielder FC. After that, dilation with 3.0mm balloon was performed based on IVUS findings.



After dilation with 3.0mm balloon, Fielder FC could pass CTO easily.

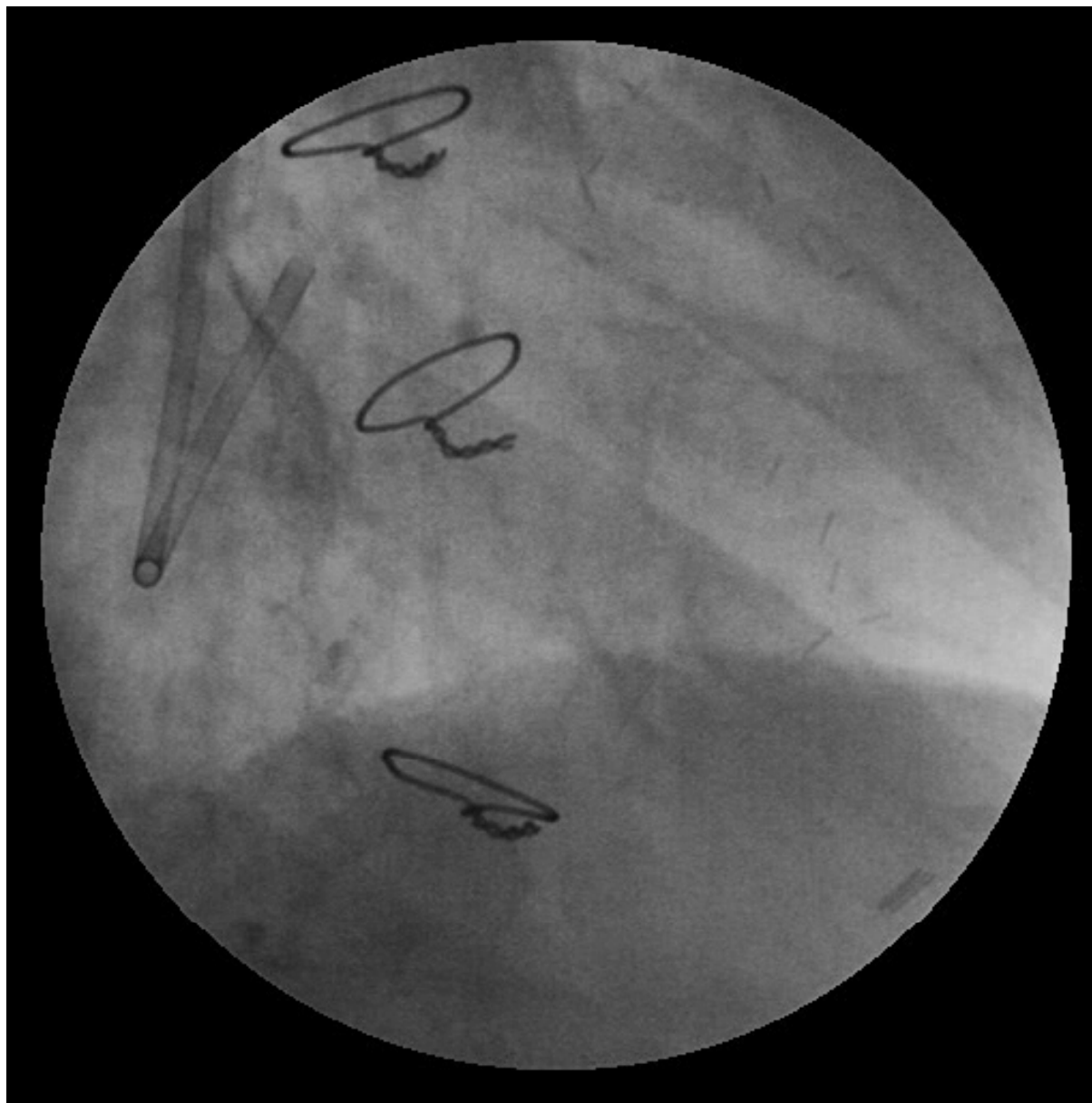




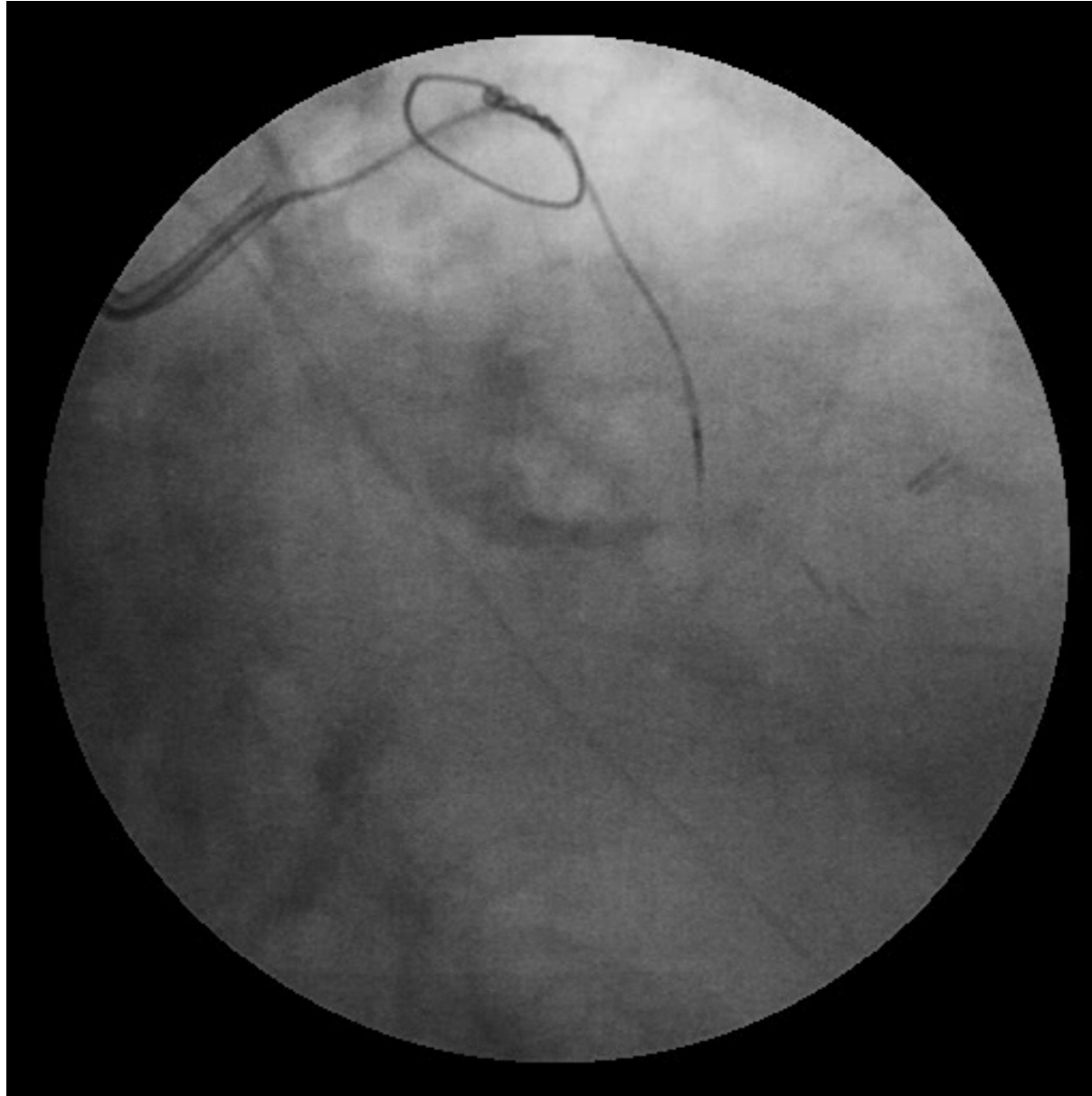
After successful wiring, stenting was performed. Final CAG showed good results.



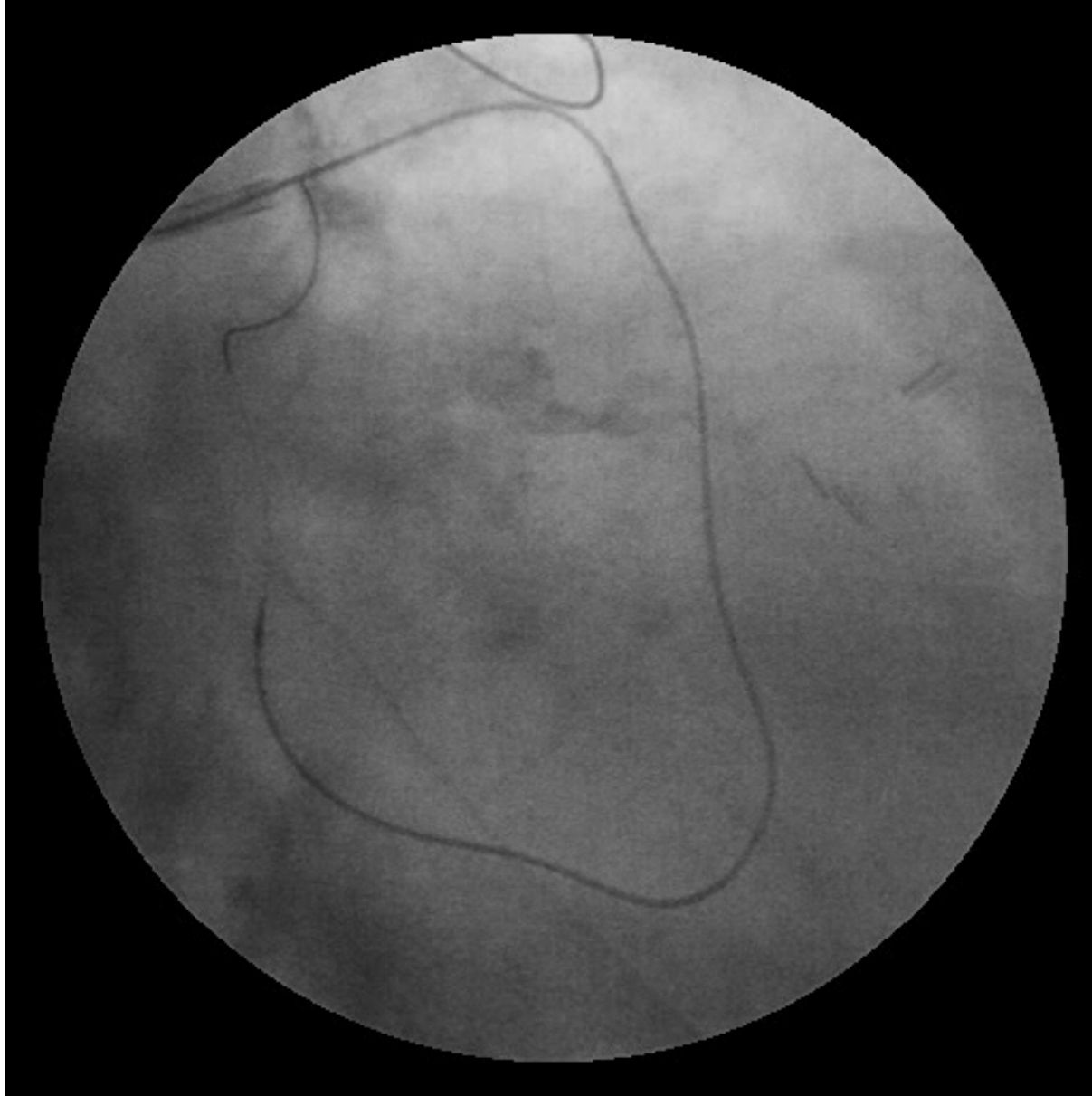
This target lesion was RCA CTO. Antegrade approach was failed at once by local doctor.



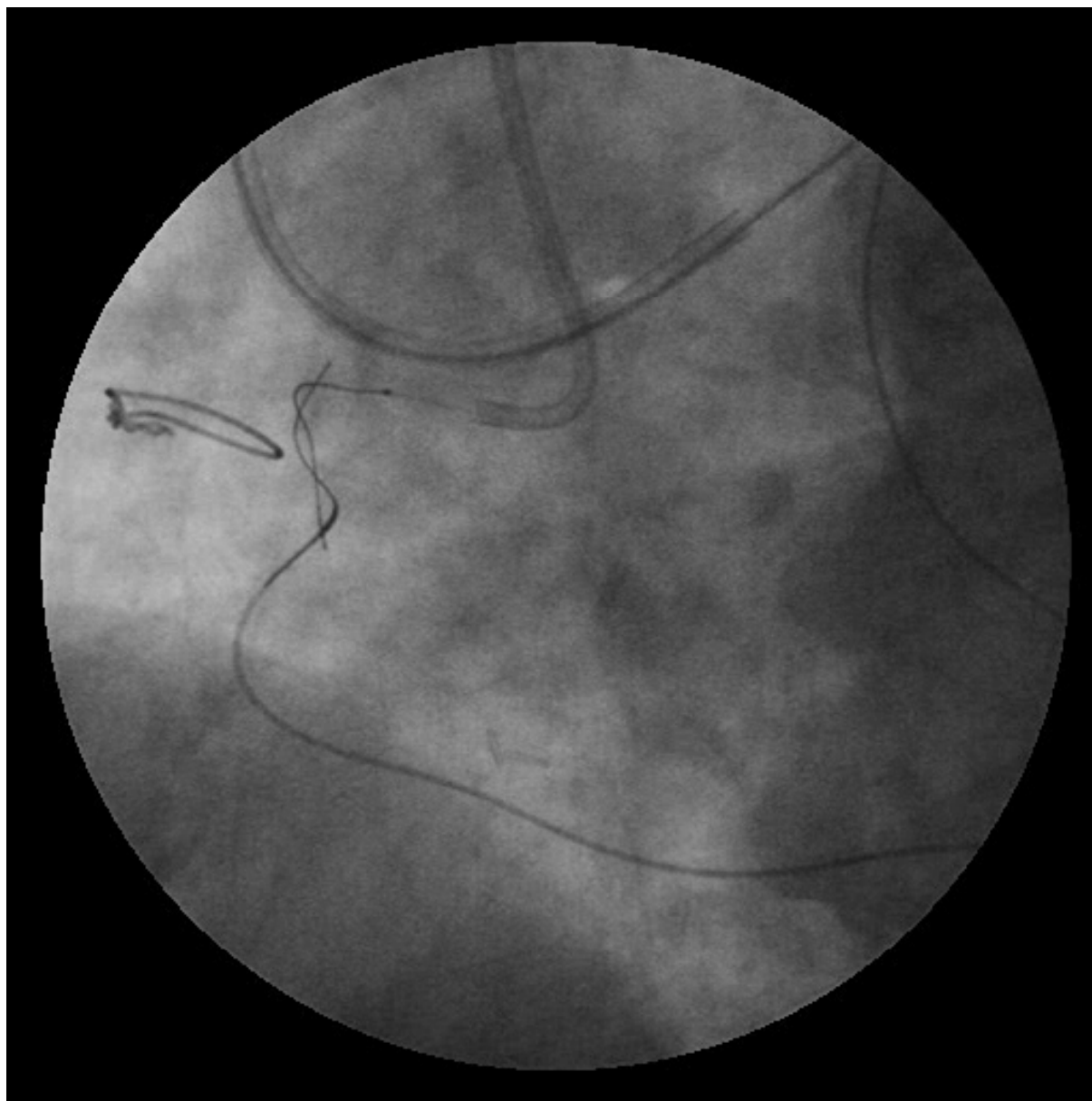
Therefore 2nd PCI was started with retrograde approach.



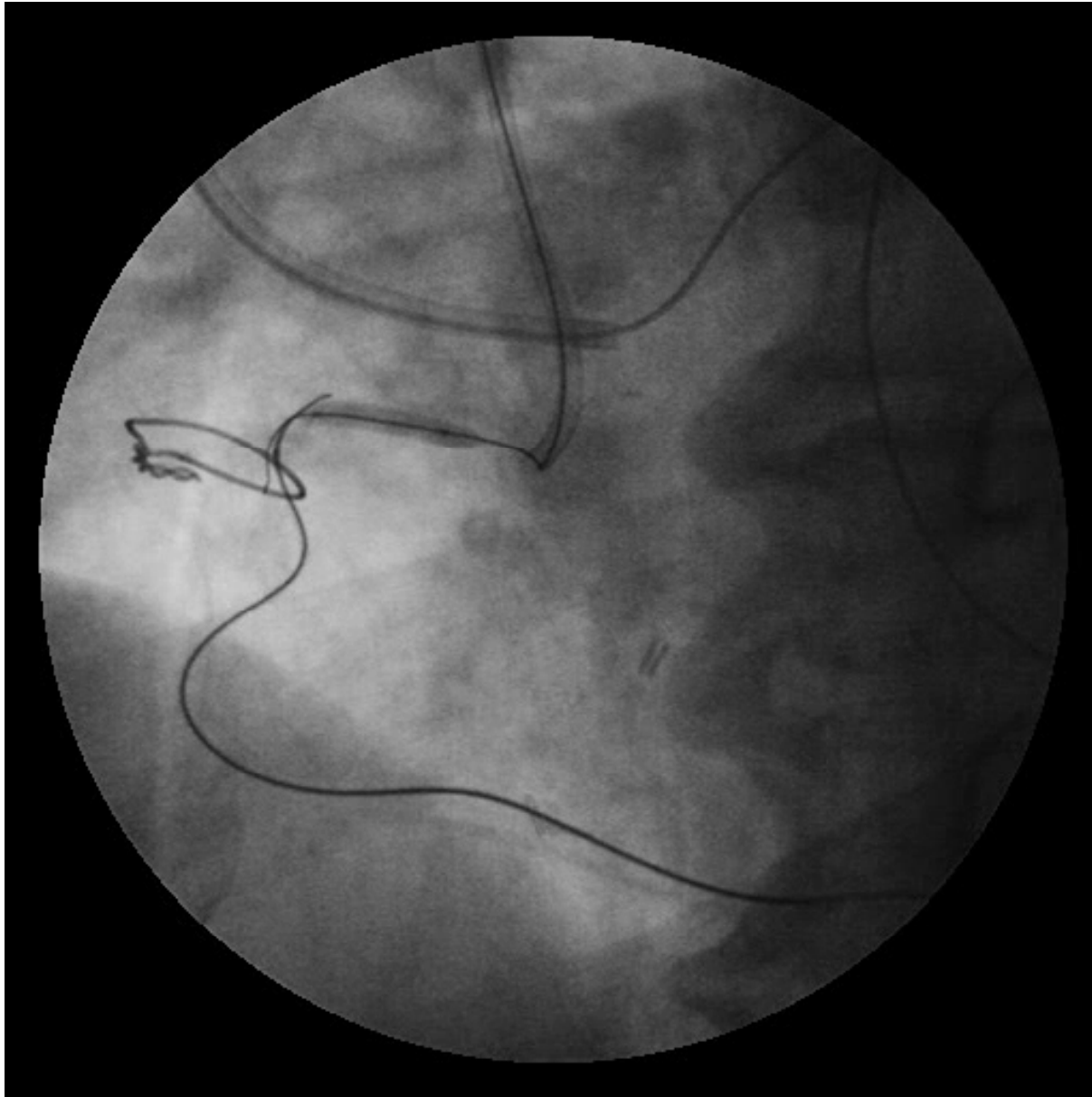
Tip injection showed tiny septal channels. Tip injection with micro catheter in collateral channel can provide good information to understand anatomy of collateral channels. Therefore tip injection must be done before retrograde wiring.



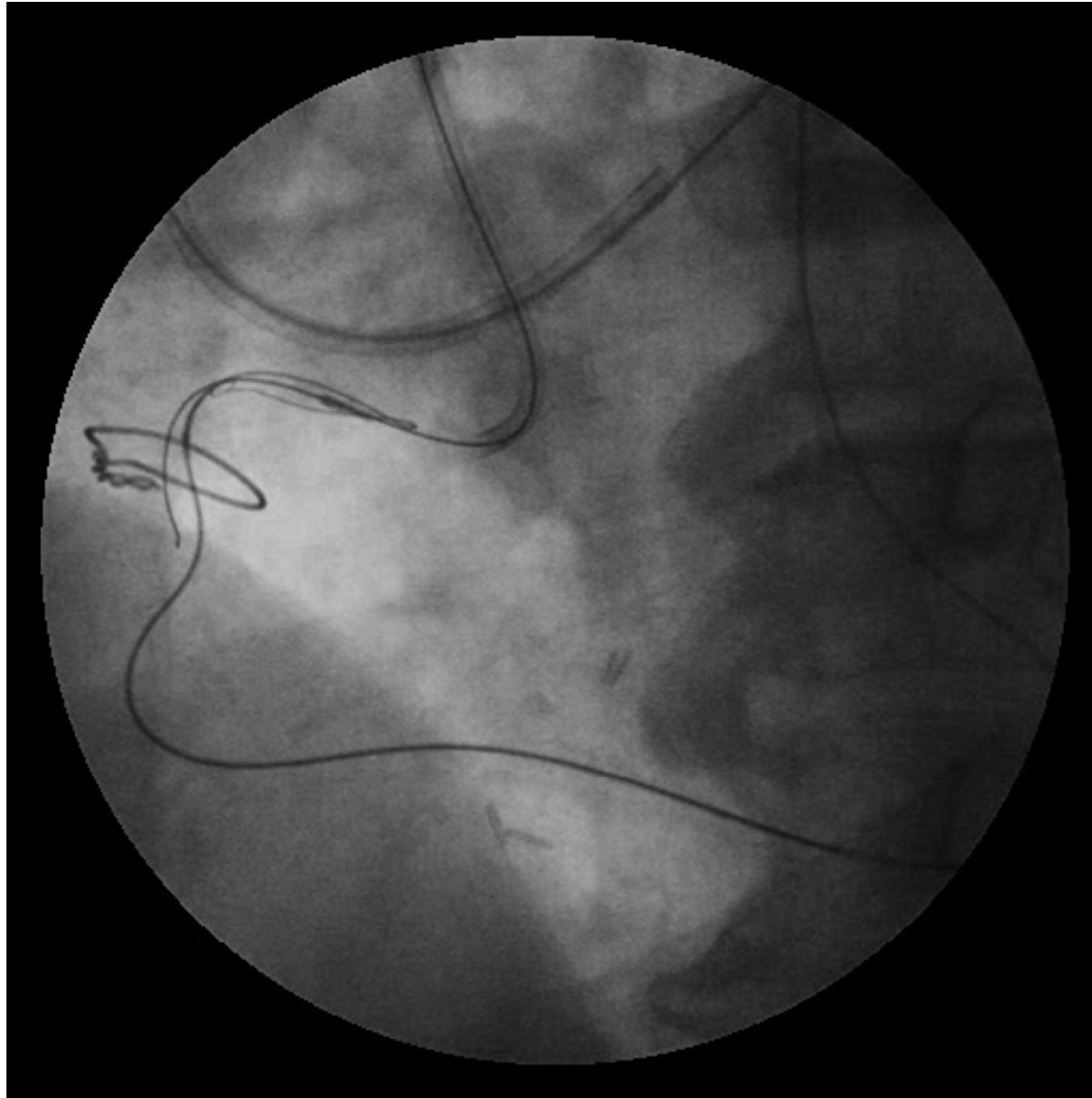
Sion and Corsair could pass through this septal channel.



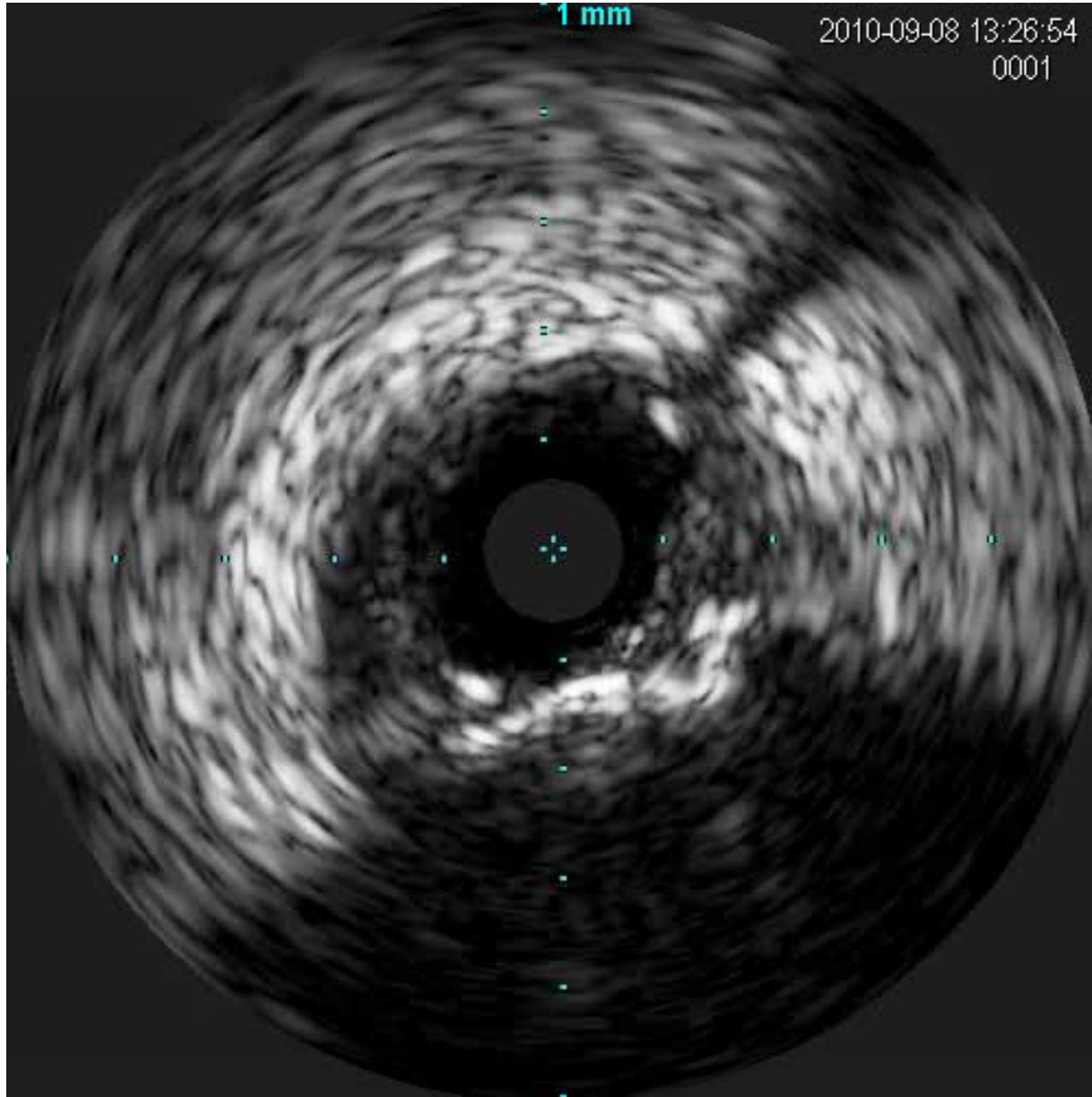
Retrograde wire could not be advanced into more proximal site because of calcified lesion. Stiffer wire was very risky because retrograde wire could not be controlled.

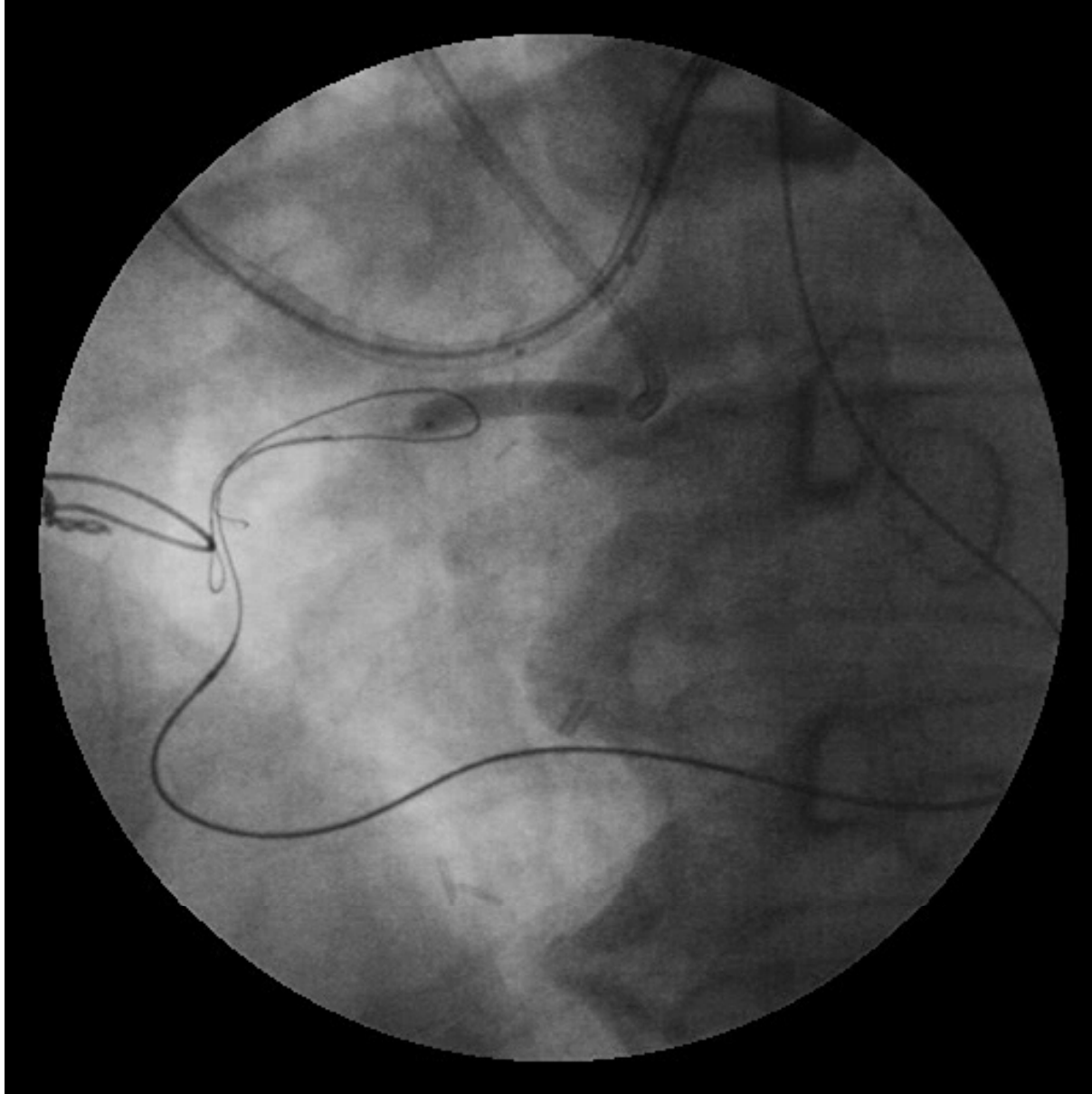


Reverse CART could not work at this point.

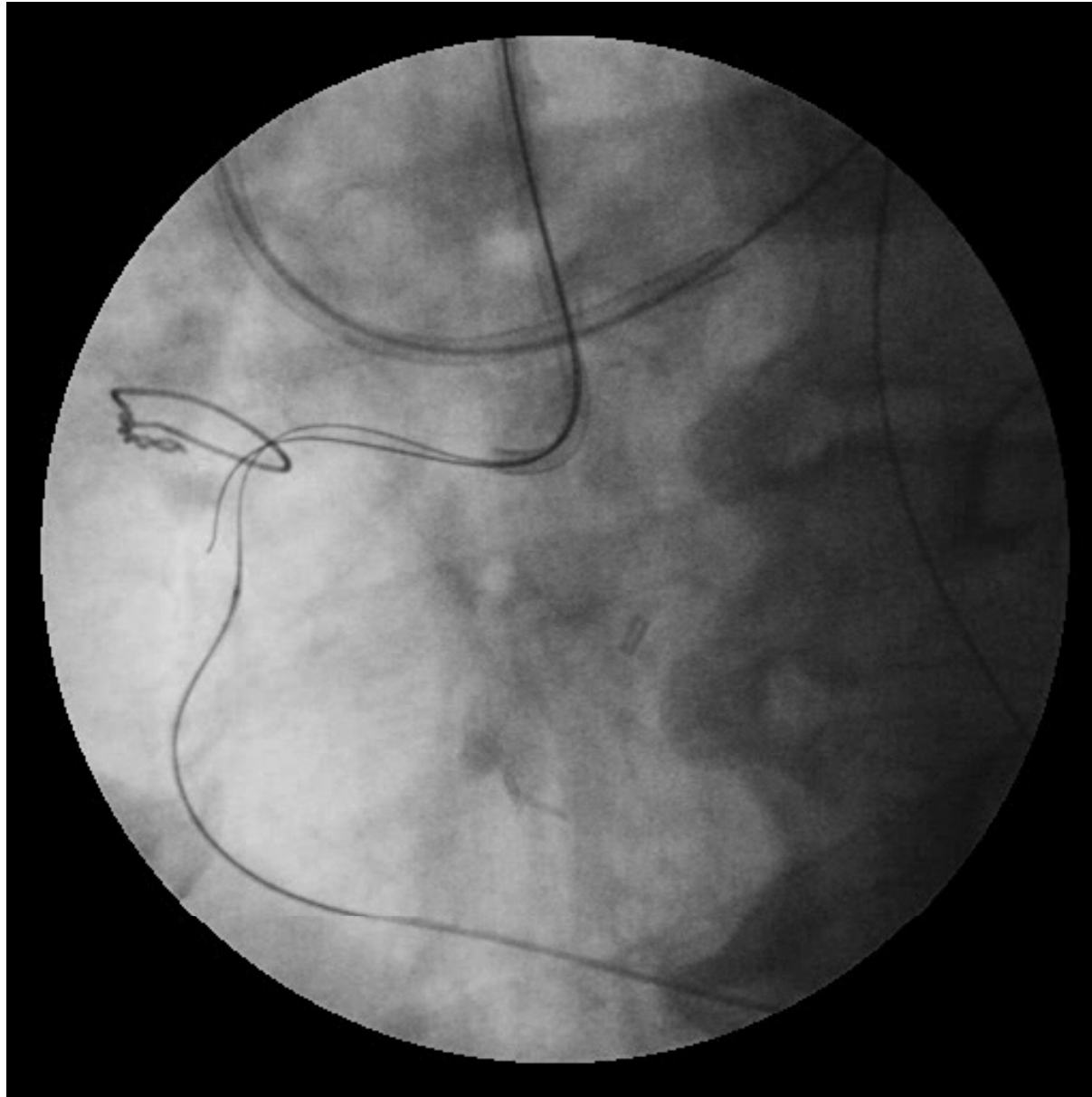


To advance retrograde wire, knuckle wire using Fielder FC was used. Knuckle wire could be advanced into the proximal part.

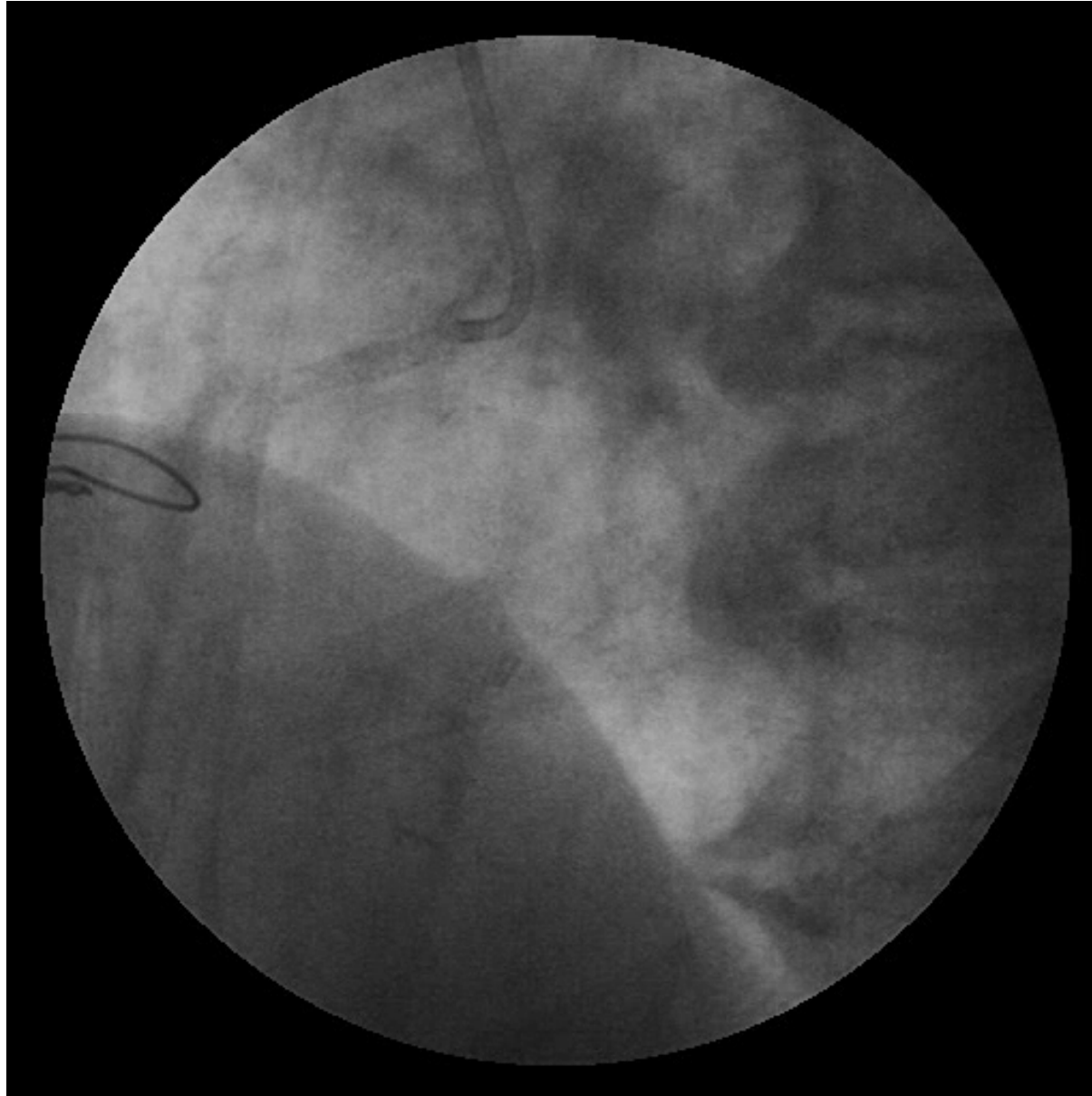




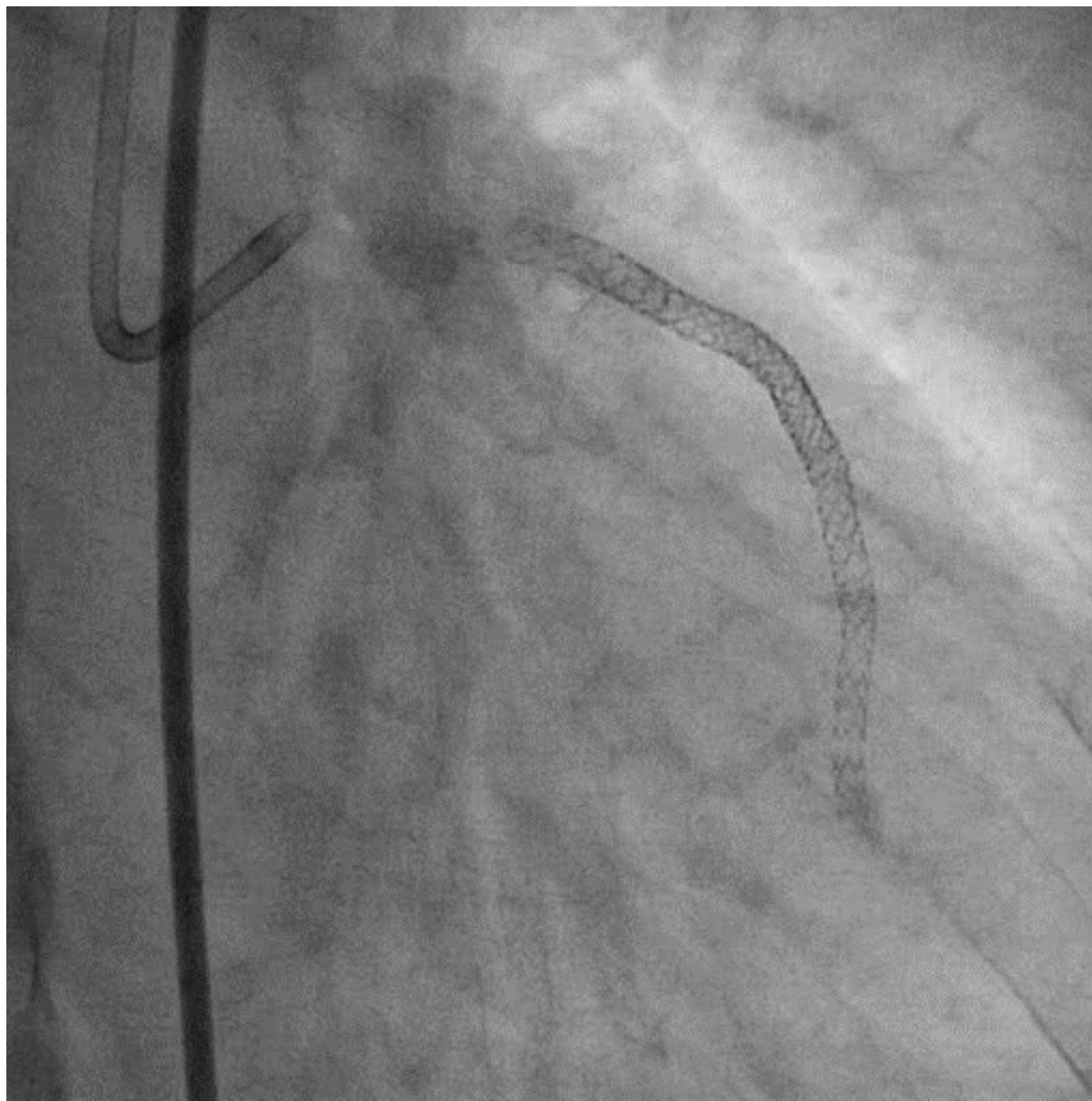
Reverse CART could work at this point.



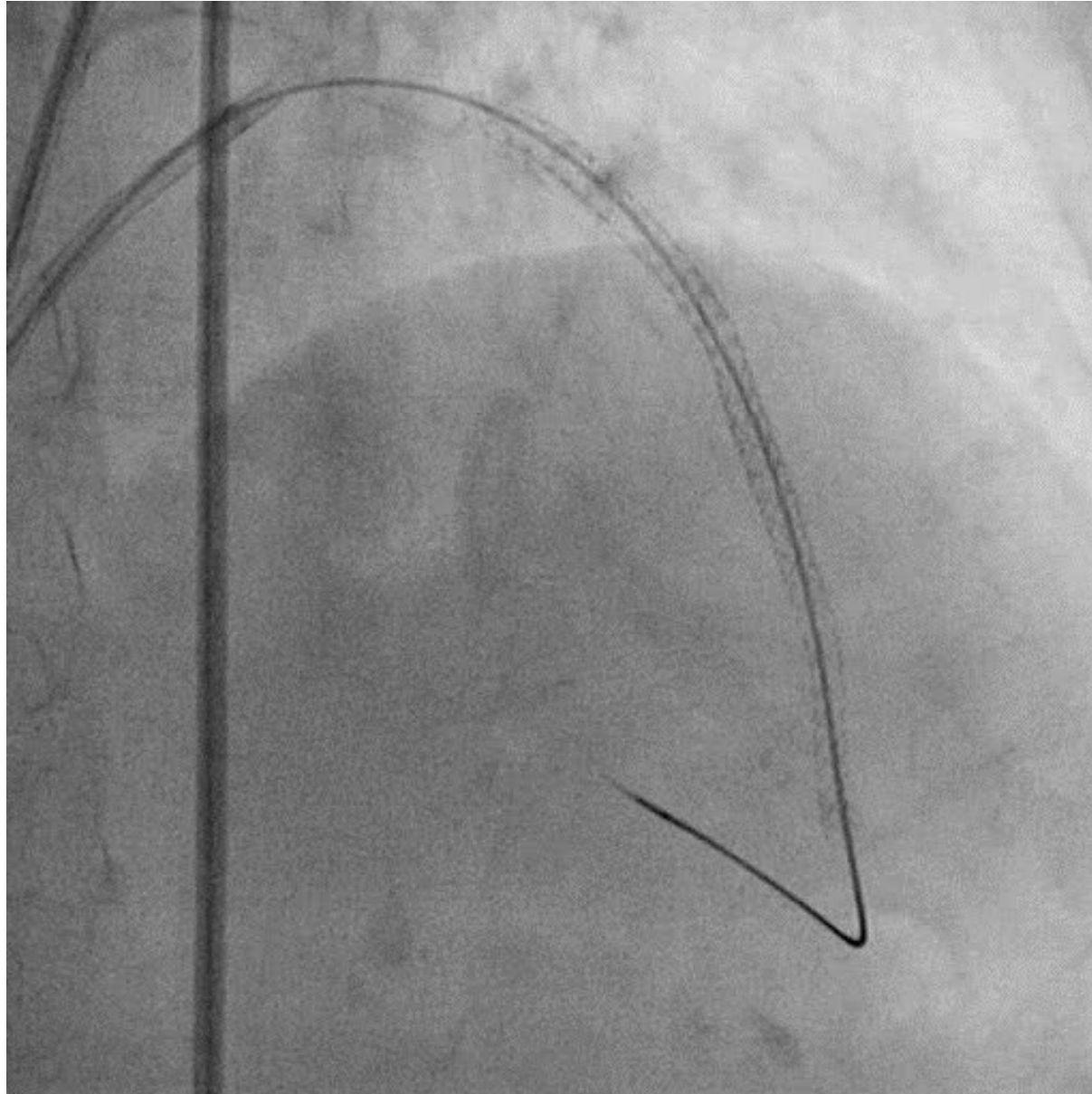
After Reverse CART, GW could be advanced into the guiding catheter of counter side.



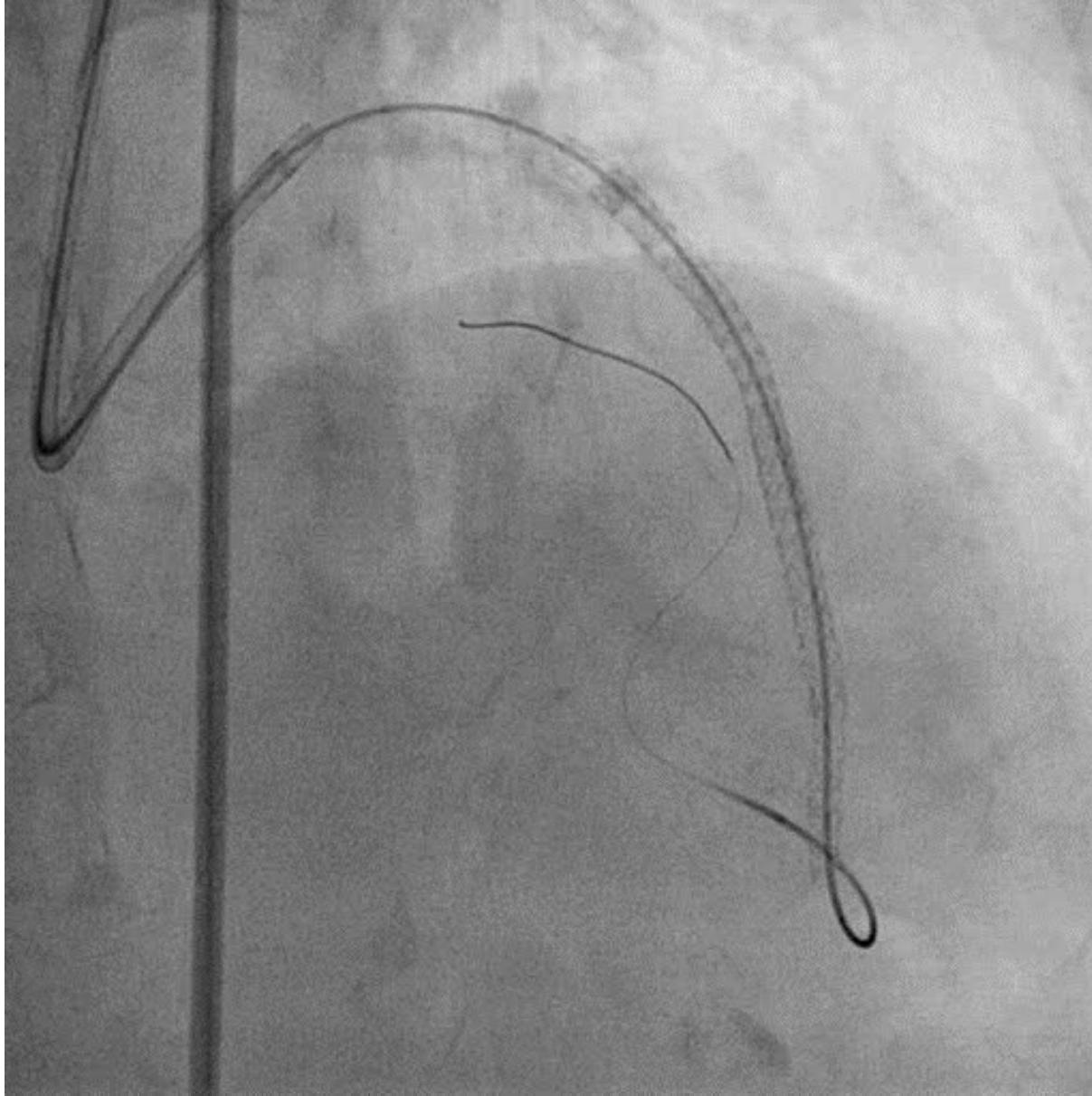
Final CAG showed good recanalization. When retrograde wiring can not be controlled and not be advanced, knuckle wiring with plastic jacket floppy wire is effective.



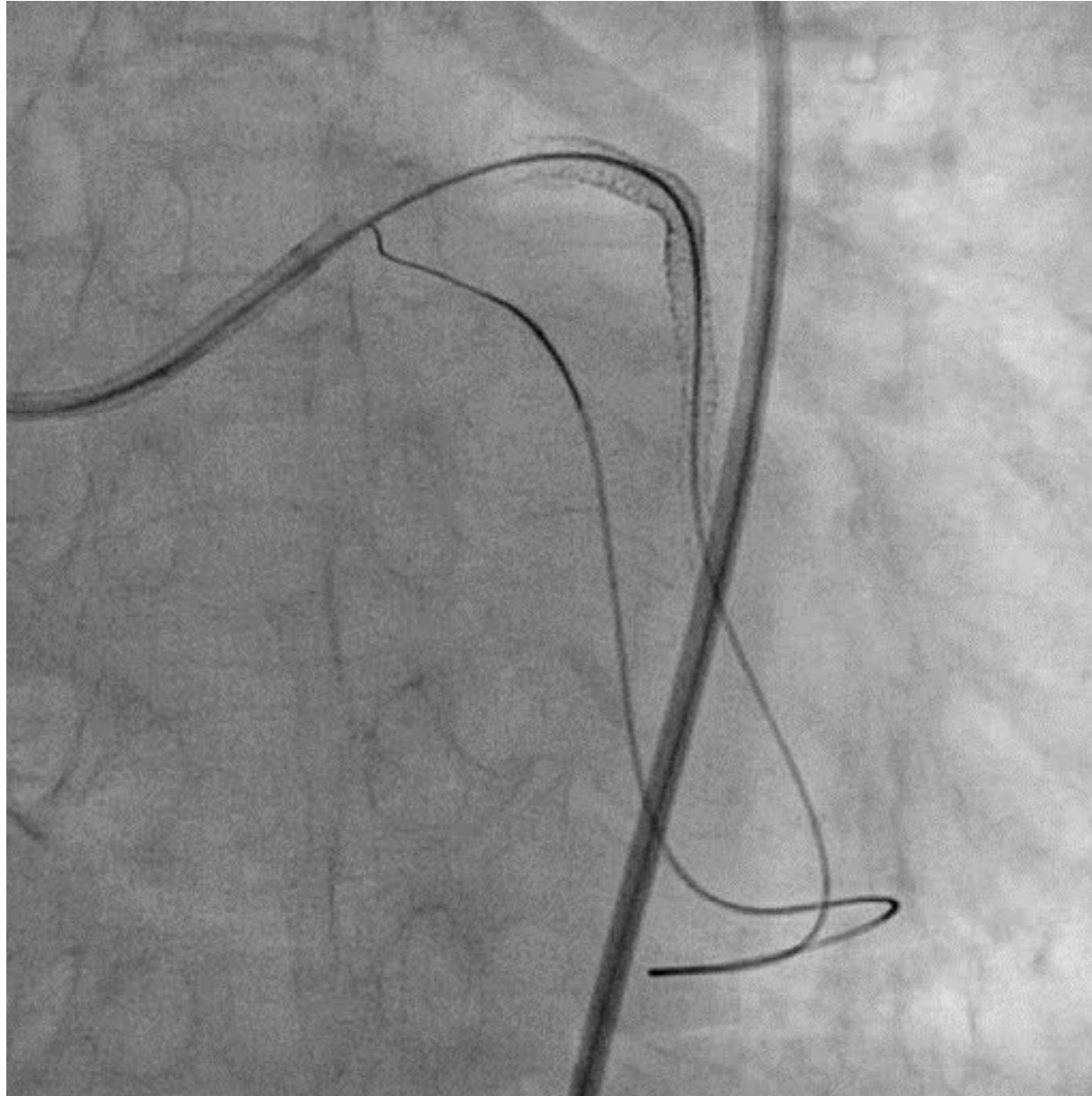
Target lesion of this patient was LCx CTO. PCI from antegrade side was attempted twice by local Dr. but failed because of angle of LCx.



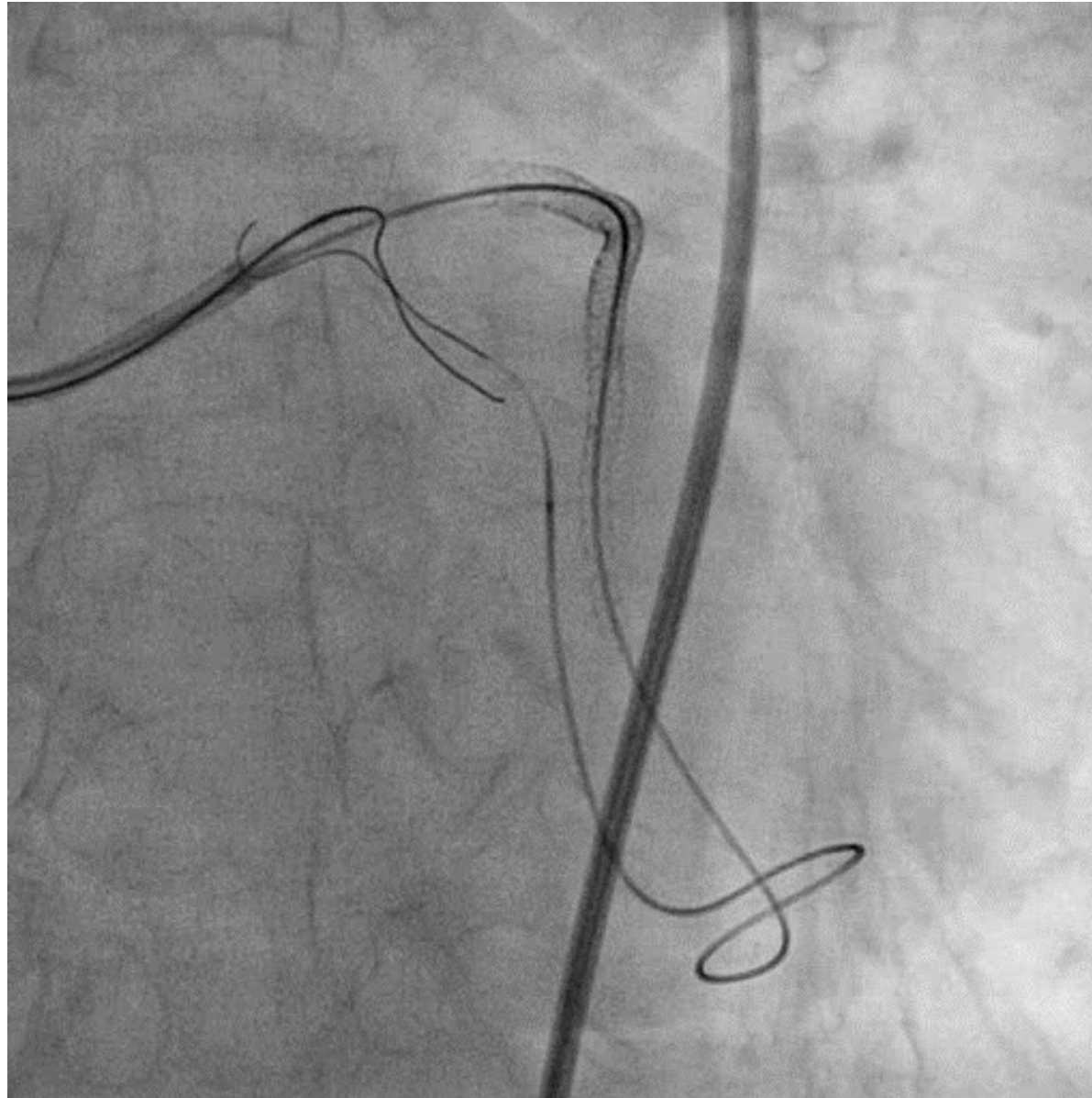
Therefore at this time, PCI was started with retrograde approach from the beginning.



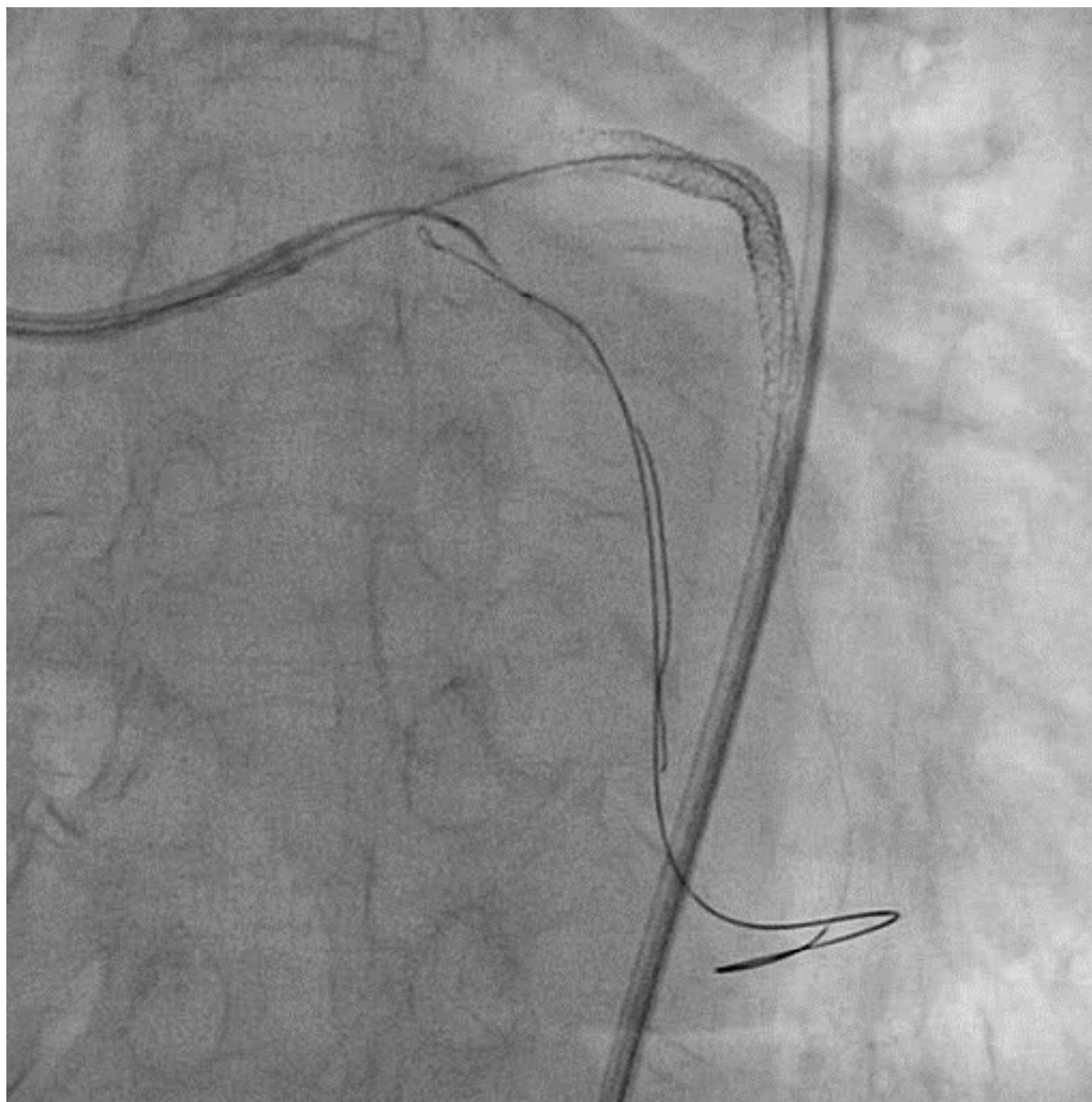
Fielder FC supported by Corsair could pass epicardial collateral channel.



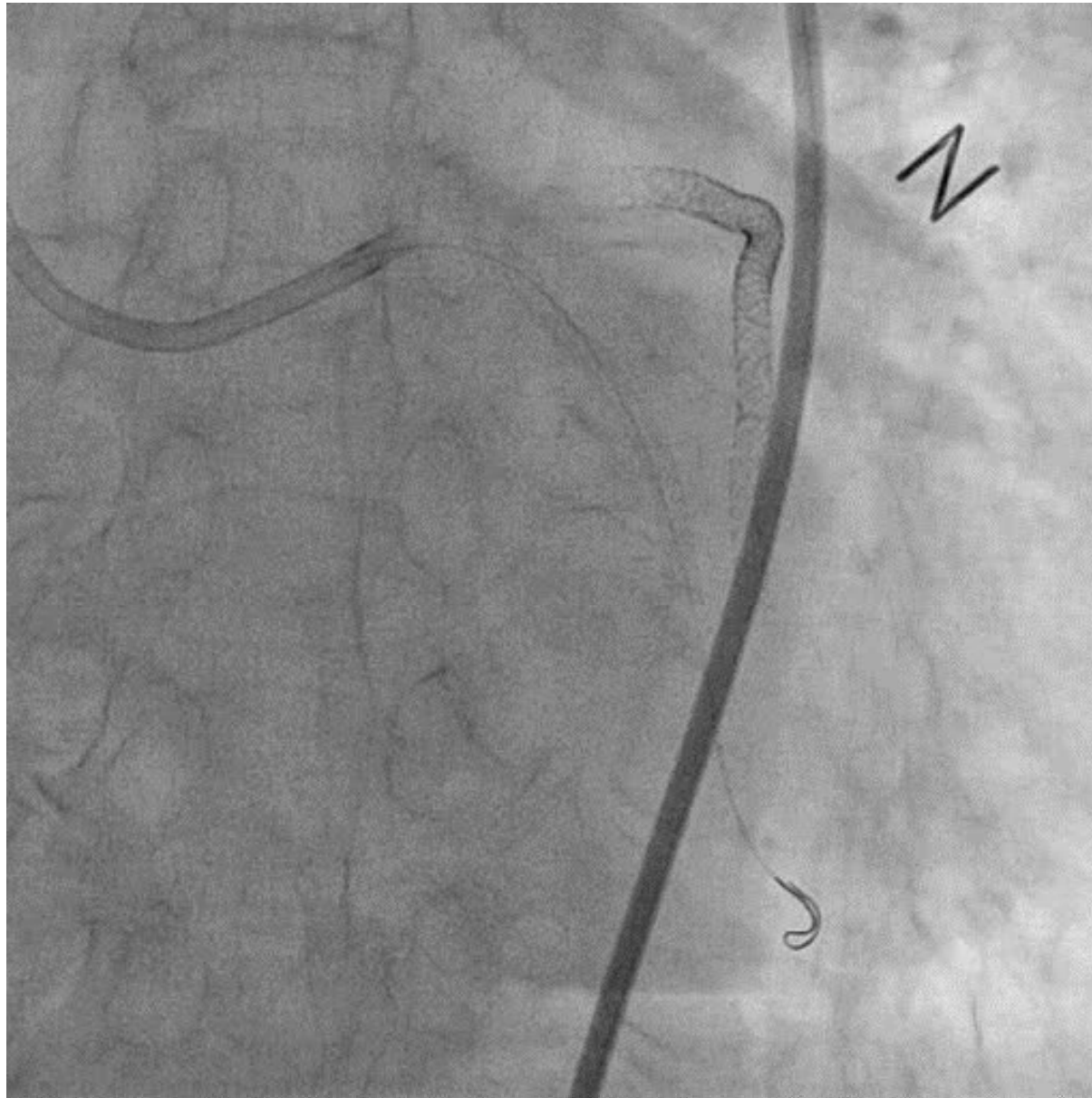
Retrograde wire cross could not be achieved.



Antegrade wire and retrograde wire could overlap but antegrade GW could not be advanced into LCx more deeply. If reverse CART was performed at this position, there was a risk of making a dissection around LMT. Therefore Reverse CART could not be performed.



After that, CART using 1.25mm RyujinOTW was performed. Of course 1.25mm balloon was too small, but this was max. size to able to pass this epicardial channel. After CART, antegrade wire could be advanced into distal LCx



After successful wiring, stenting was performed. Final CAG showed good results. In such situation, CART is better than reverse CART.

Summary

- retrograde CTO PCI was performed in about 30% of CTO-PCI.
- In CTO crossing, CTO crossing without ballooning was in only 1/3. Ballooning was required in 2/3 and mainly reverse CART was used because reverse CART has less limitation compared with CART.
- When retrograde wiring can not be controlled and not be advanced, knuckle wiring with plastic jacket floppy wire is effective.
- CART is still effective strategy in the lesion around LMT to avoid a dissection of LMT.
- Tip injection with micro catheter in collateral channel can provide good information to understand anatomy of collateral channels. Therefore tip injection must be done before retrograde wiring.