RCA CTO case difficult to keep side branch open after rCART

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Case : 60's Male

Clinical Course :

2018/10 Exertional dyspnea appeared
2018/11 Pointed out an silent inferior wall OMI and CHF
2018/11 TTE : Hypokinesis at inferior wall, EF = 44%
2018/12 CAG : #1 100% CTO, #6 50%, #7 90%, #9 99%
#14 100% CTO
2019/01 PCI : #6 EES 3.5*33mm, #7 EES 2.75*23mm
#9 DCB 2.0*20mm
We performed RCA CTO PCI this time.

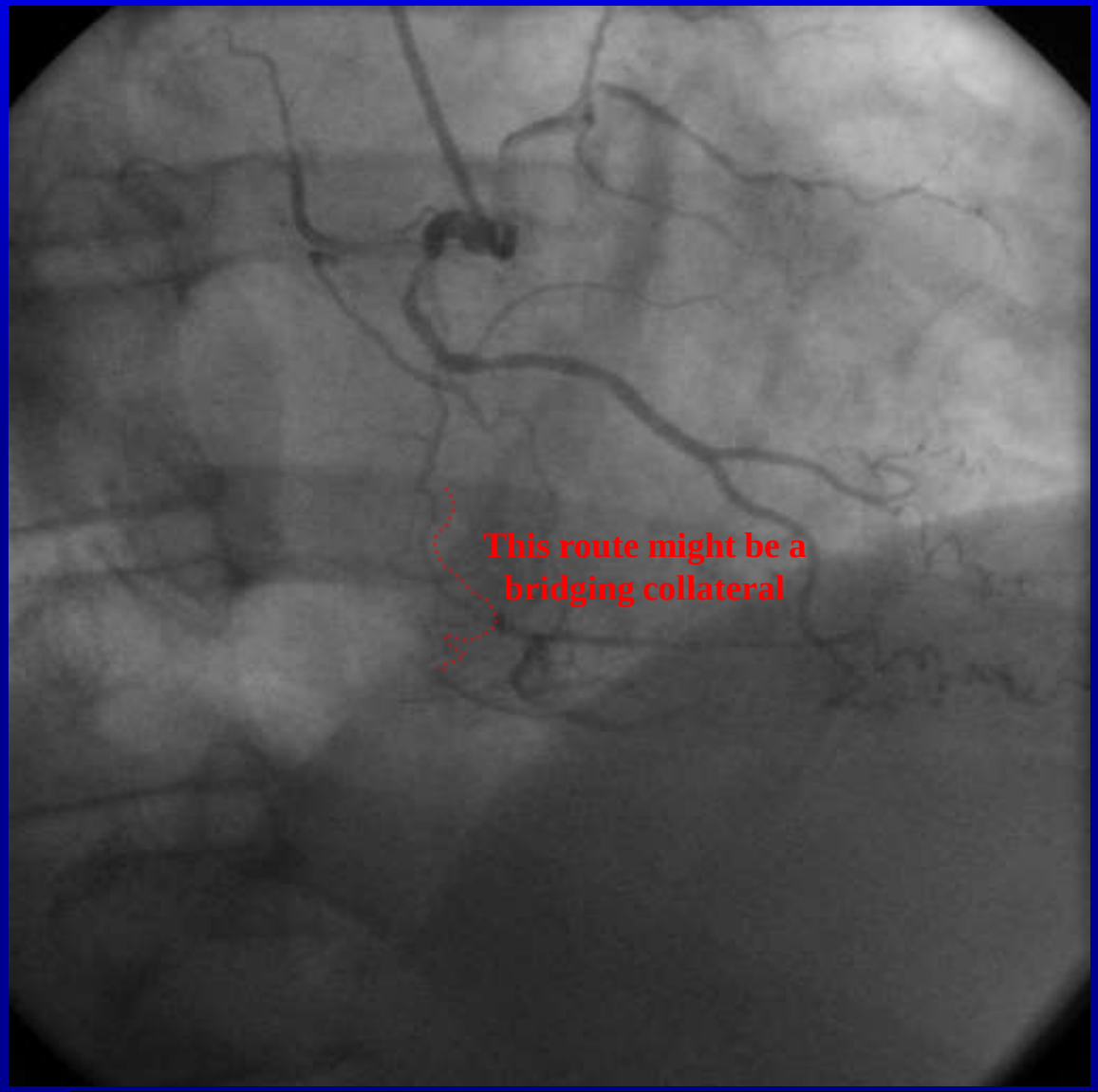
Coronary Risk Factor

Former smoker, Hypertension, Diabetes, Dyslipidemia

Renal Function

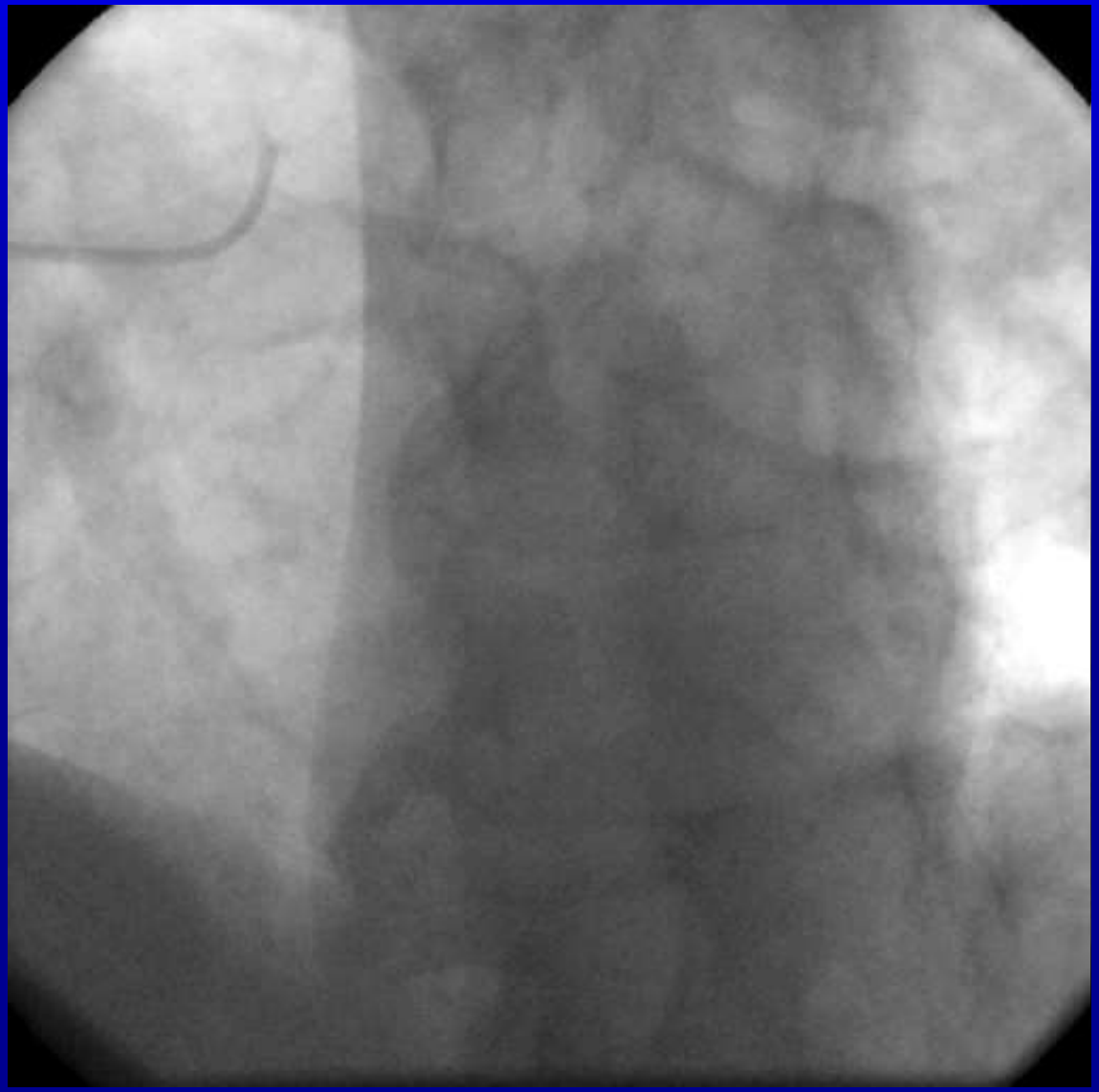
Cre 0.74, eGFR 81

RCAG



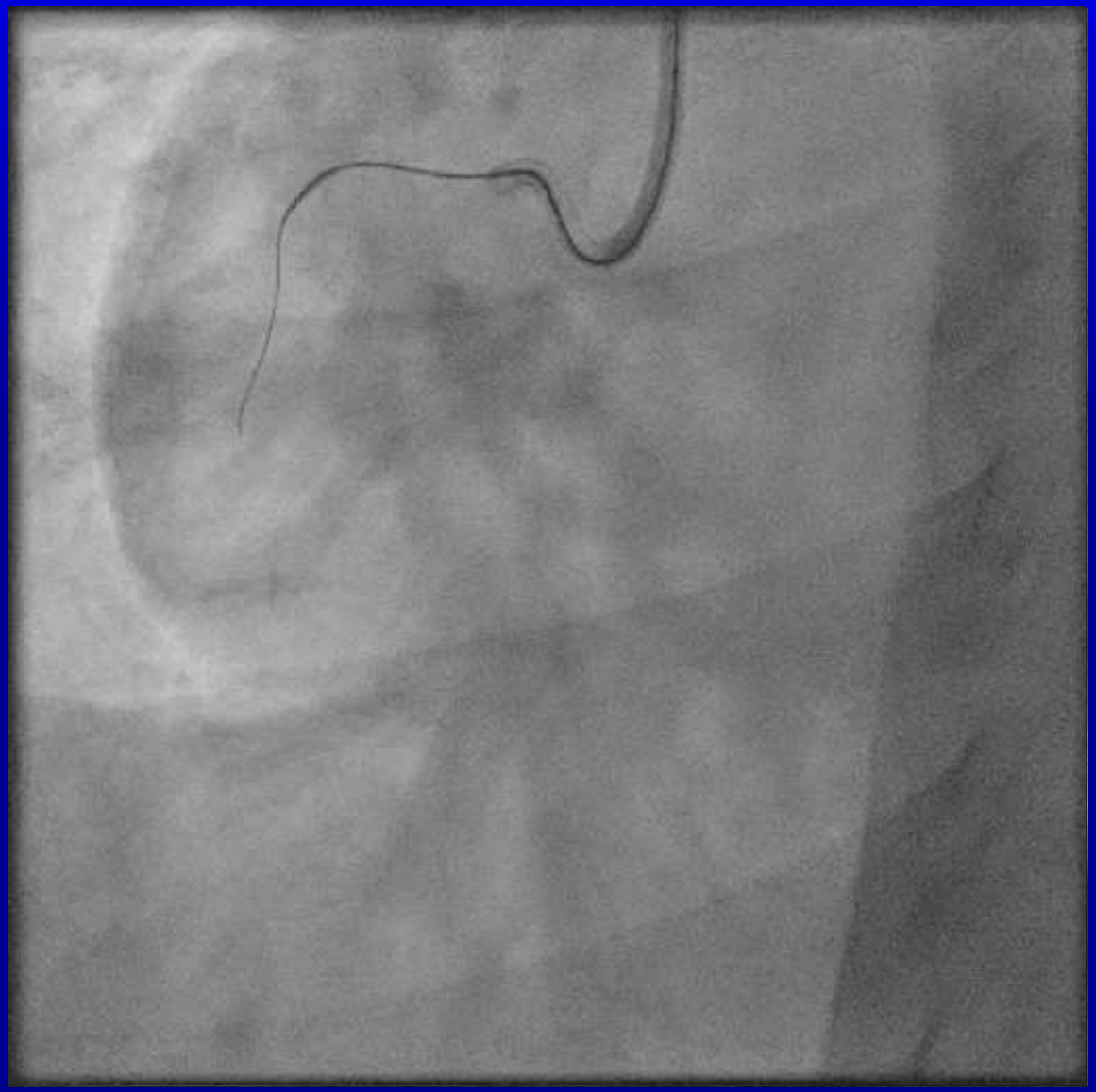
- ✓ RCA was totally occluded at Seg1.
- ✓ There existed some micro-channels (recanalized channel) at Seg2.

LCAG



- ✓ **Seg14 was totally occluded.**
- ✓ **LAD had moderate to severe stenosis.**
- ✓ **LAD was treated prior to RCA CTO PCI.**

PCI



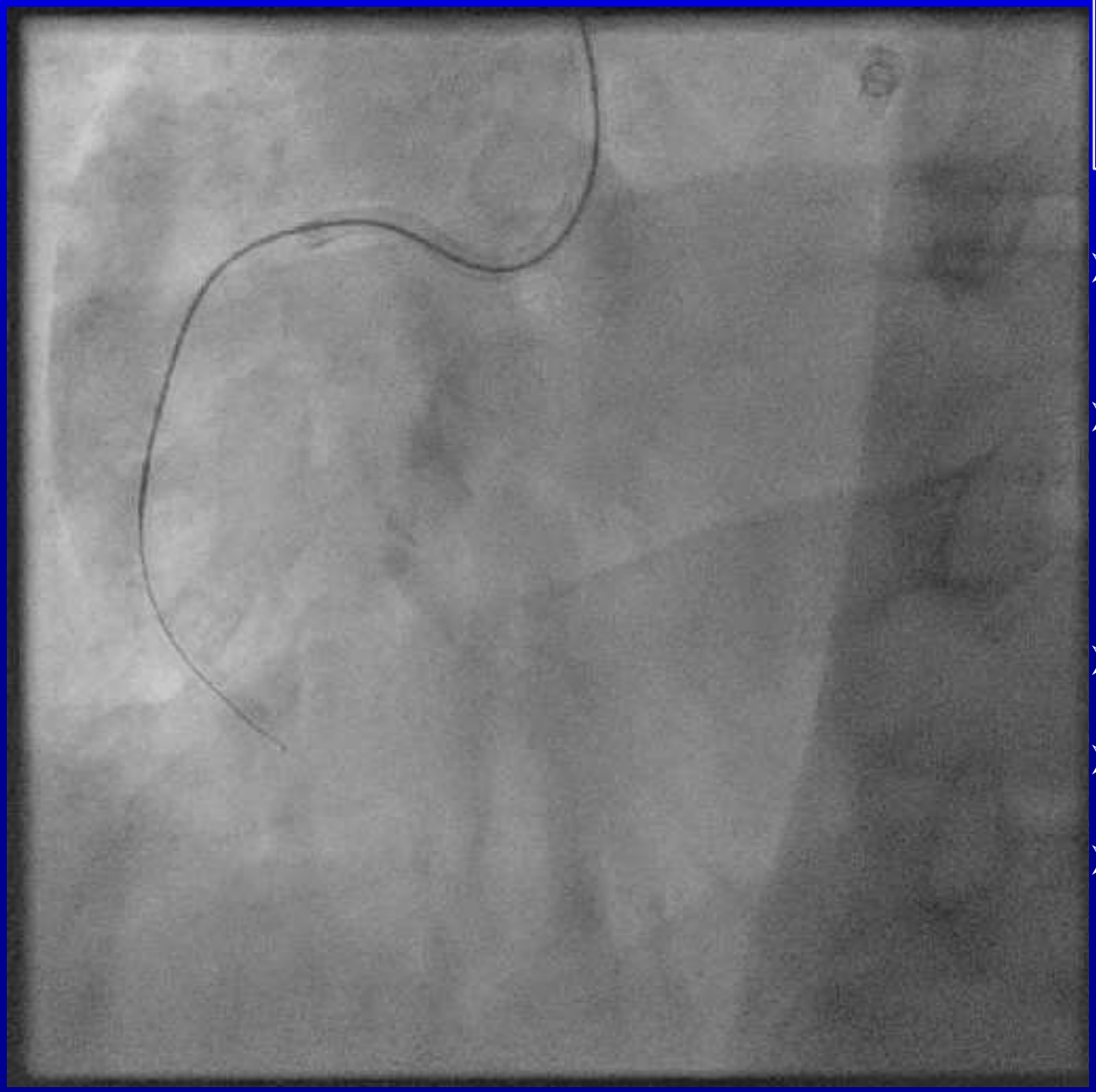
System

Bil Femoral approach
8Fr britetip AL1 with SHs
6Fr Launcher EBU4 with SHs

Procedure steps

- **By a bilateral injection, CTO distal end was still unclear and would be just proximal to Seg4 bifurcation.**
- **We started antegrade wiring using XT-R with a support of CorsairPro.**
- **XT-R could easily cross into a target micro-channel.**
- **CorsairPro could not advanced into a micro-channel.**

PCI



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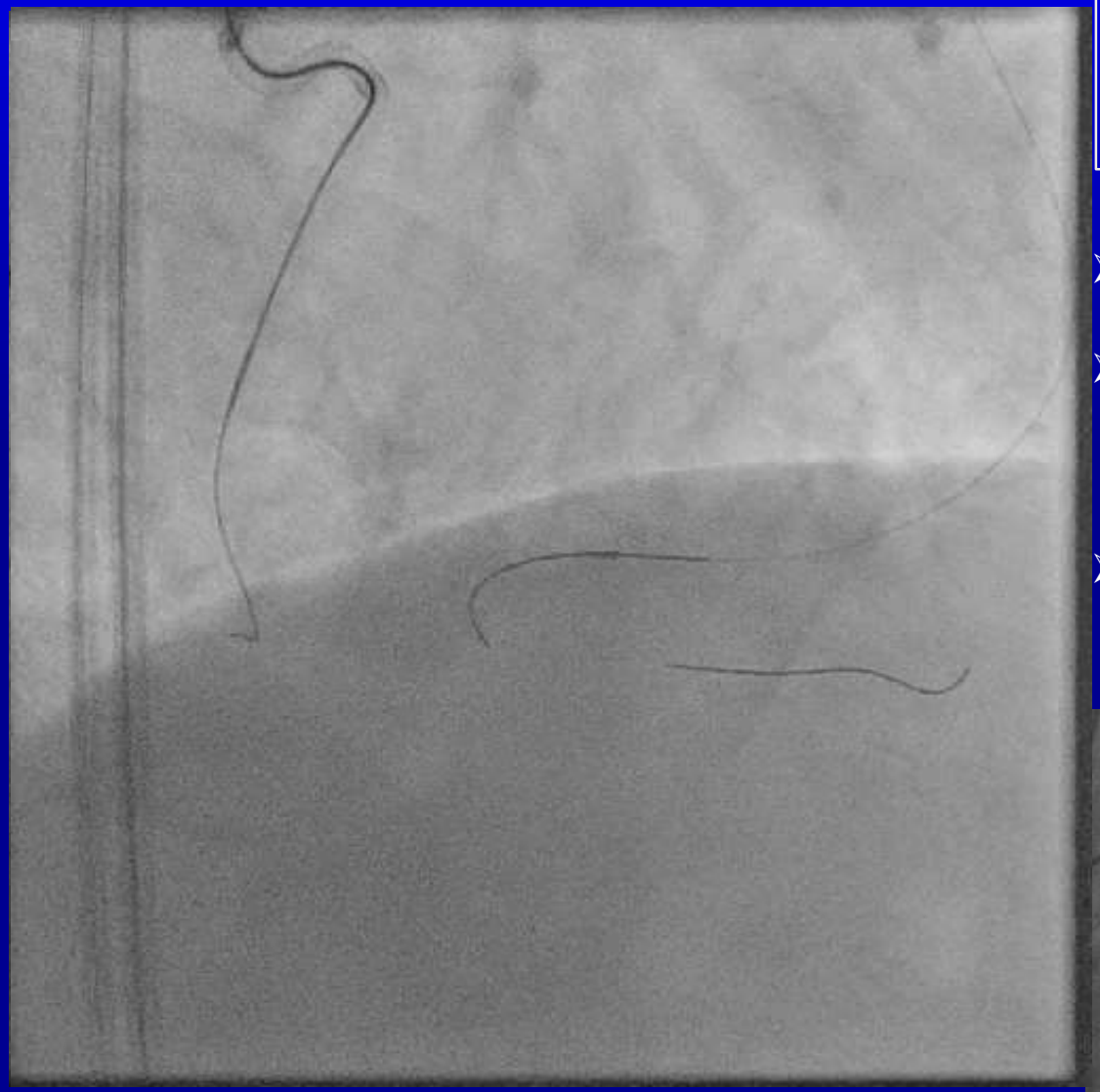
Procedure steps

- **We changed XT-R to Miracle Neo3 which had more support power and tracked same route.**
- **CorsairPro could not advance into CTO lesion by this step, we dilated this route with small sized balloon catheter.**

[COR7 1.0*6mm, IkazuchiZero1.5*10mm]

- **Then we tried to advance Miracle Neo3 but failed.**
- **We stepped up a wire to Gaia Next1 and advanced it to Seg3.**
- **Because this CTO lesion had CTO distal end ambiguity with bifurcation, we moved to retrograde approach.**

PCI



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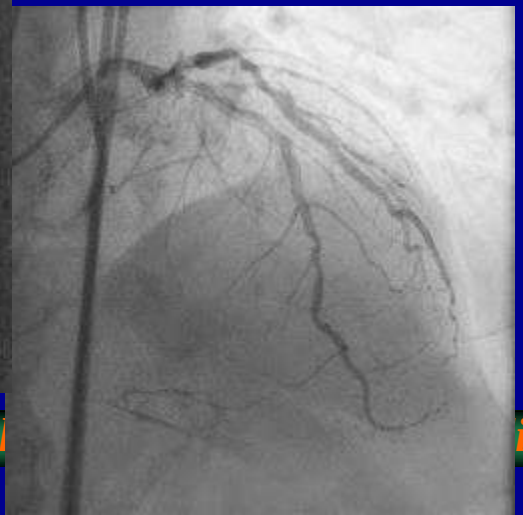
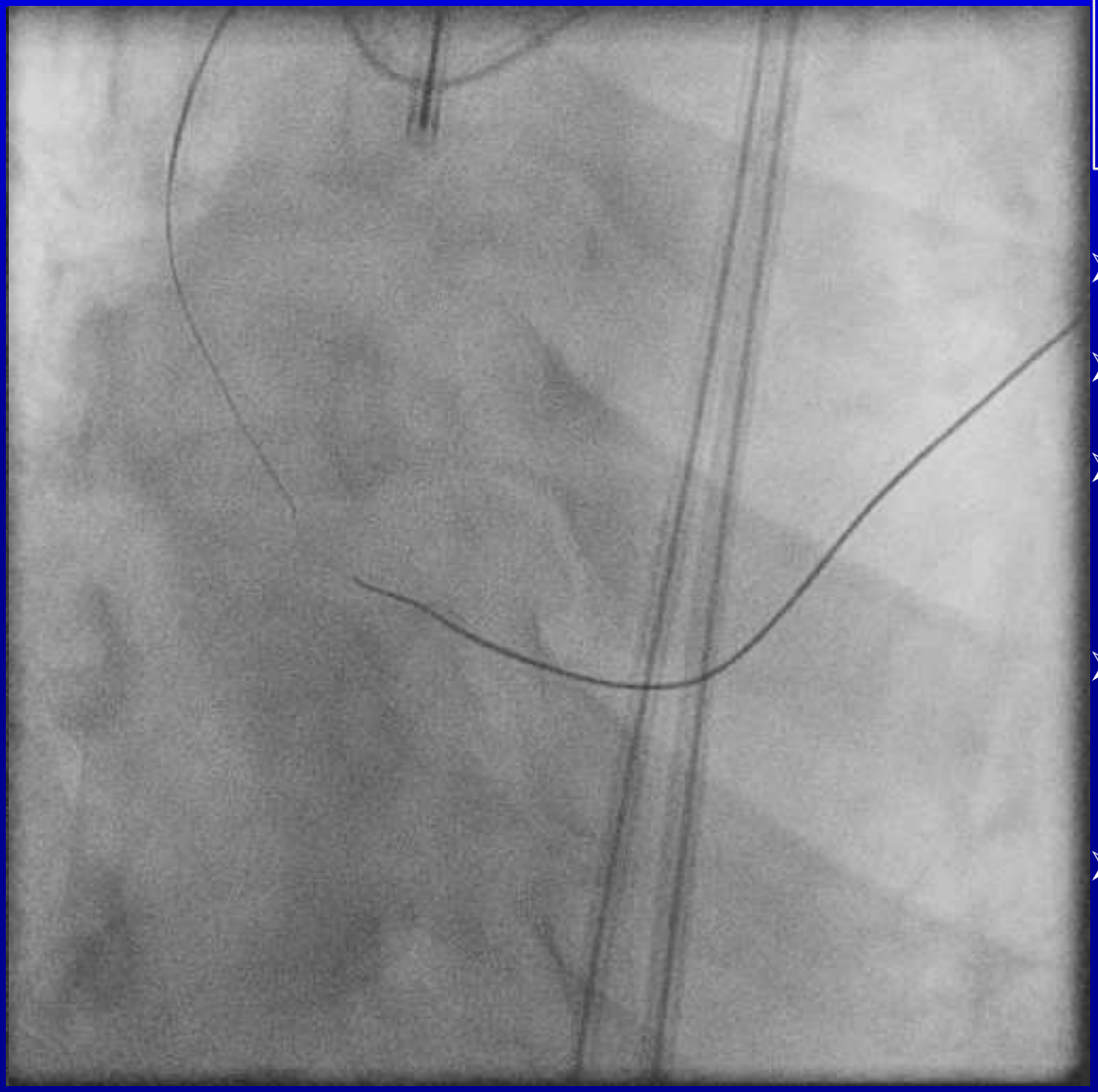
Procedure steps

- **We selected distal septal channel for retrograde access route.**
- **Although Sion blue supported with Corsair Pro easily cross to Seg4PD, we could not control the wire direction at the merging section.**
- **We inserted DLC to the septal channel and succeeded to cross a second wire to an intended direction**



PCI



System

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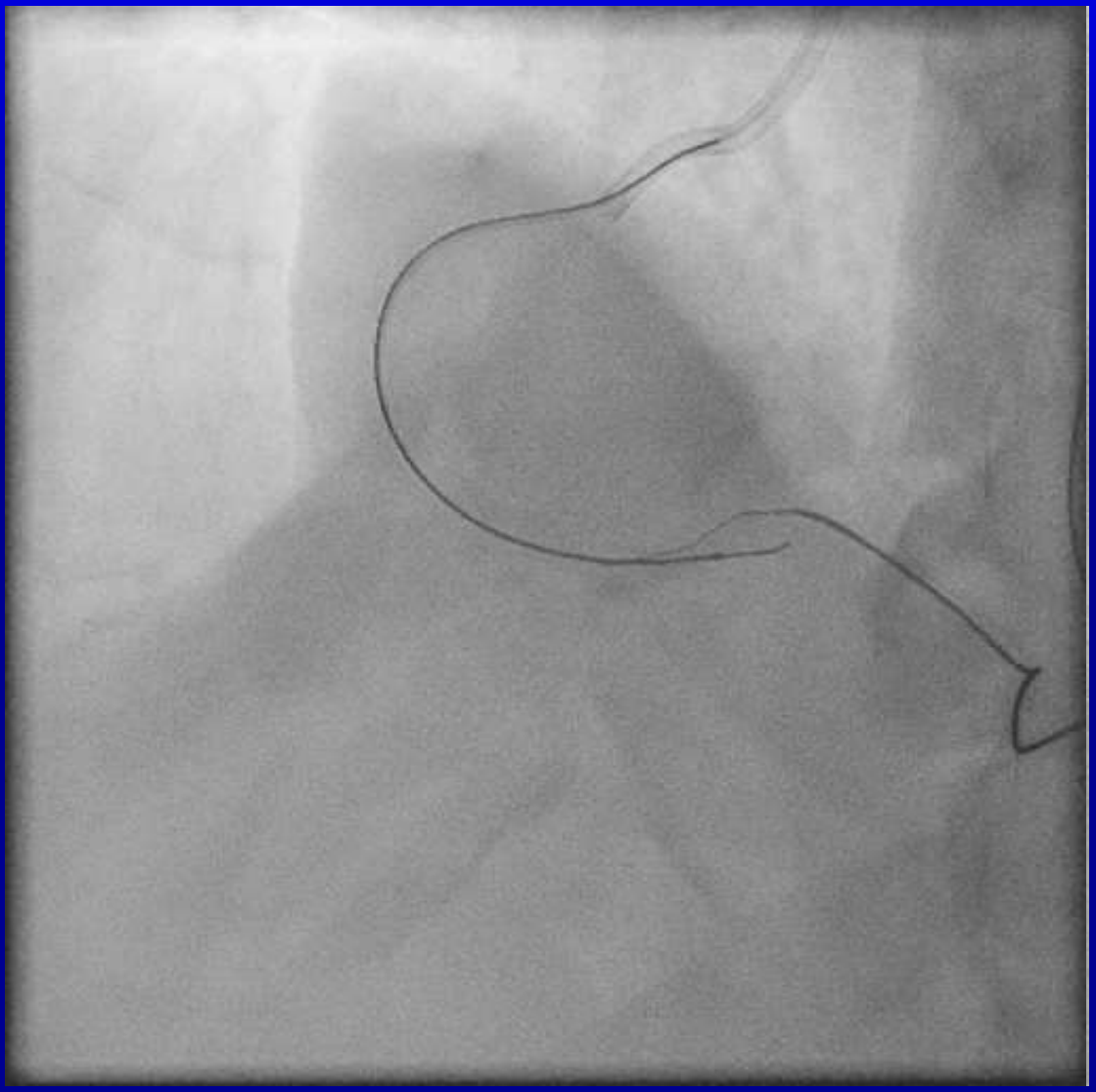
Procedure steps

- **We checked a morphology of CTO distal end by tip injection.**
- **XT-R could easily enter into CTO lesion.**
- **After advancing retrograde CorsairPro as far as possible, we exchanged a retrograde wire to UB3.**
- **Althogh we tried to advance retrograde UB3 as far as possible, it could not be advanced from this point.**
- **Retrograde Corsair could not enter into CTO lesion, we planned to perform rCART near by UB3 tip.**

PCI



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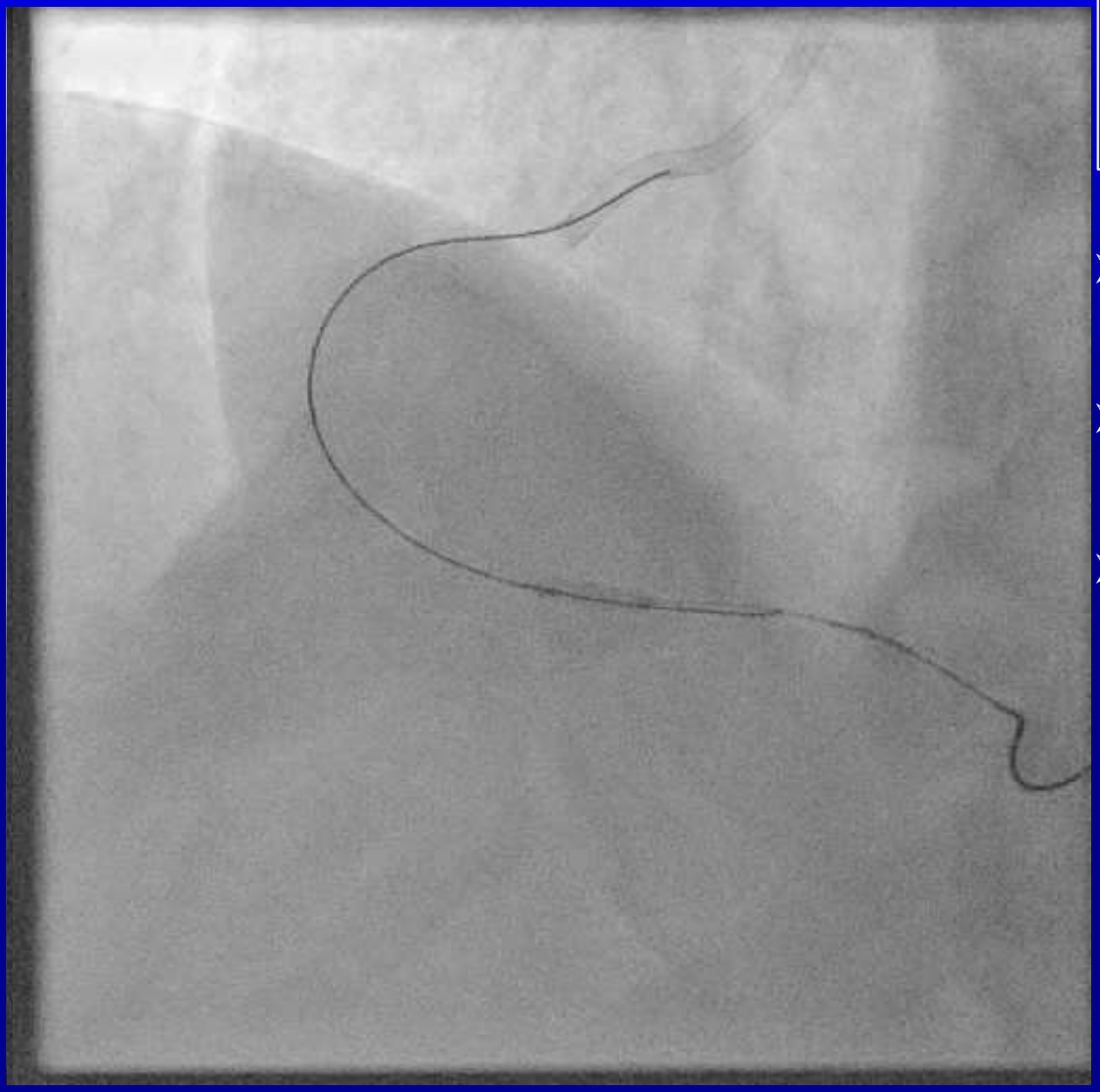
Procedure steps

- **We tried to dilate CTO lesion antegradely by a small sized balloon catheter but failed.**
- **We chose to cross more supportive second wire (Miracle12g) next to Gaia Next1 to cross the balloon.**
- **We succeeded to dilate CTO lesion by this method.**
- **We changed a retrograde wire to Gaia Next2 for directed rCART.**
- **We could not negotiate a retrograde Gaia Next2 to an antegradely inserted balloon catheter.**
- **Then we checked the IVUS.**

PCI



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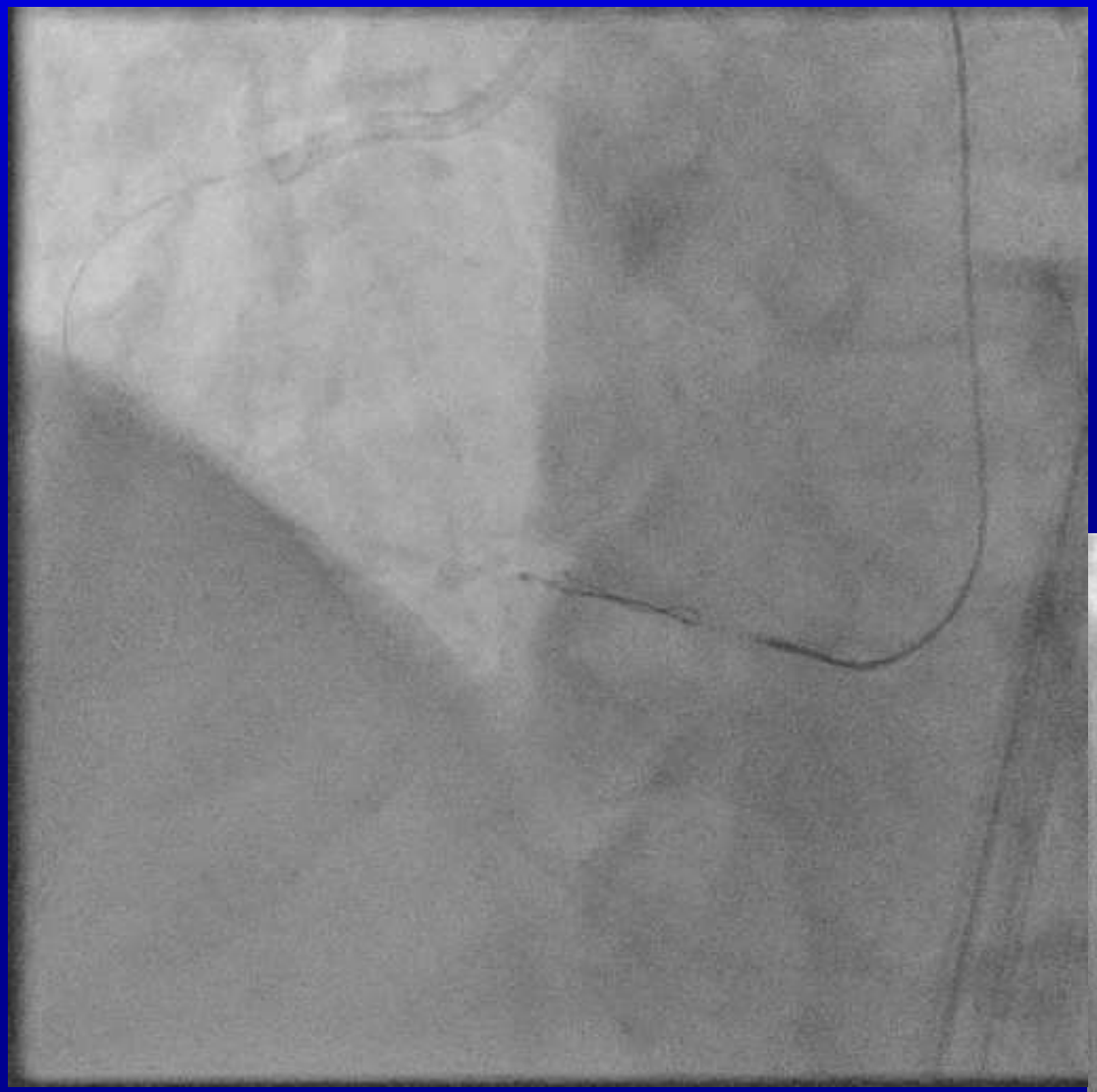
Procedure steps

- **Retrograde guide wire existed outside the media. It looked like outside the vessel.**
- **Although there existed a risk of bleeding, we changed an entry point of retrograde guide wire.**
- **Then retrograde guide wire crossed by a rCART.**

PCI



System

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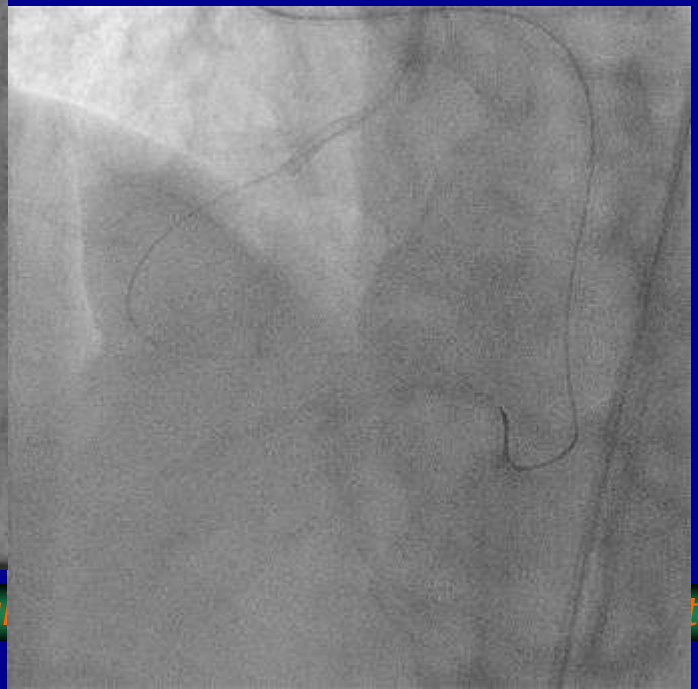
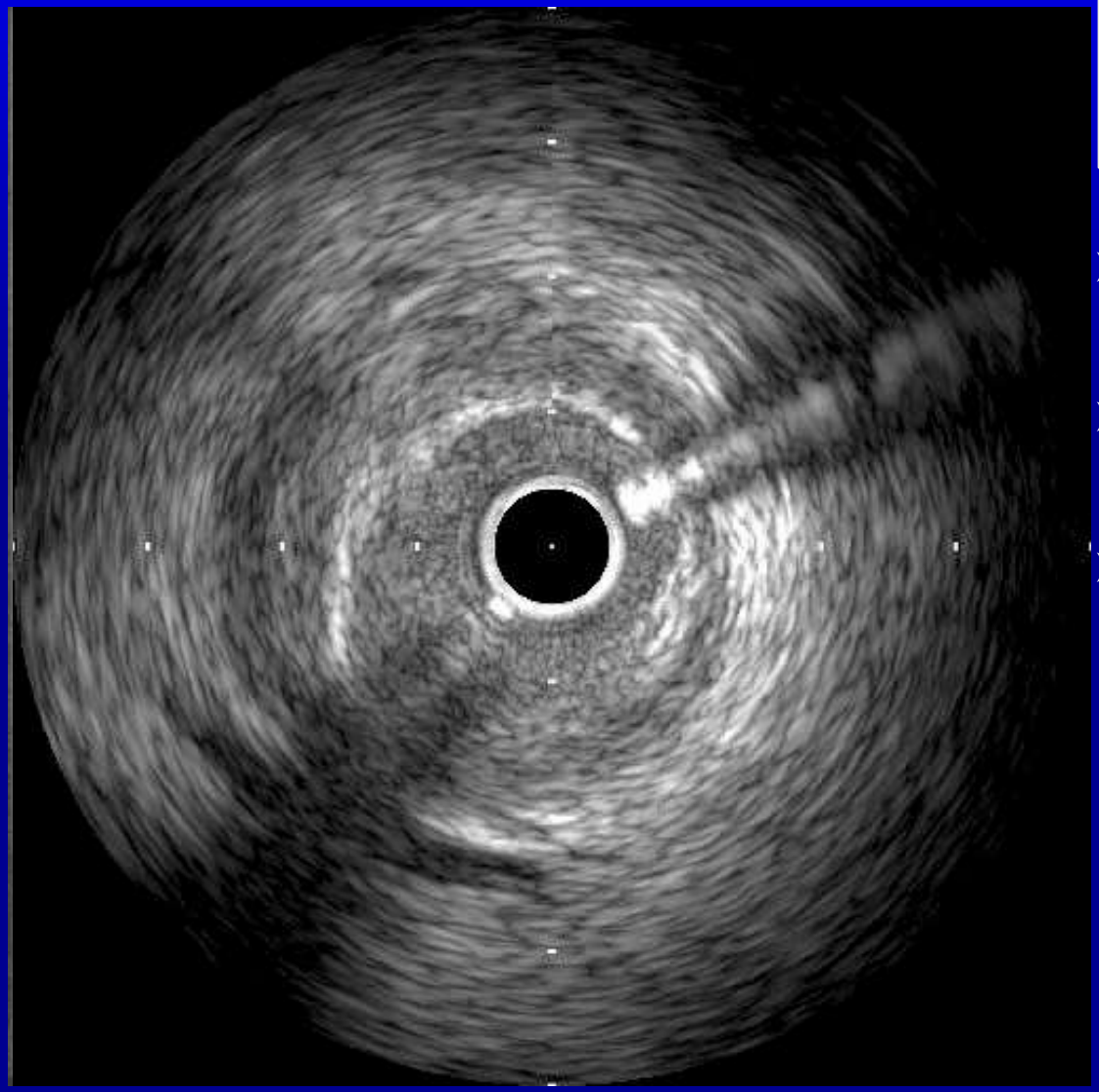
Procedure steps

- **After wire externalization, we checked the IVUS.**
- **We tried to cross a guide wire to Seg4PL with reverse wire technique, but failed.**



PCI



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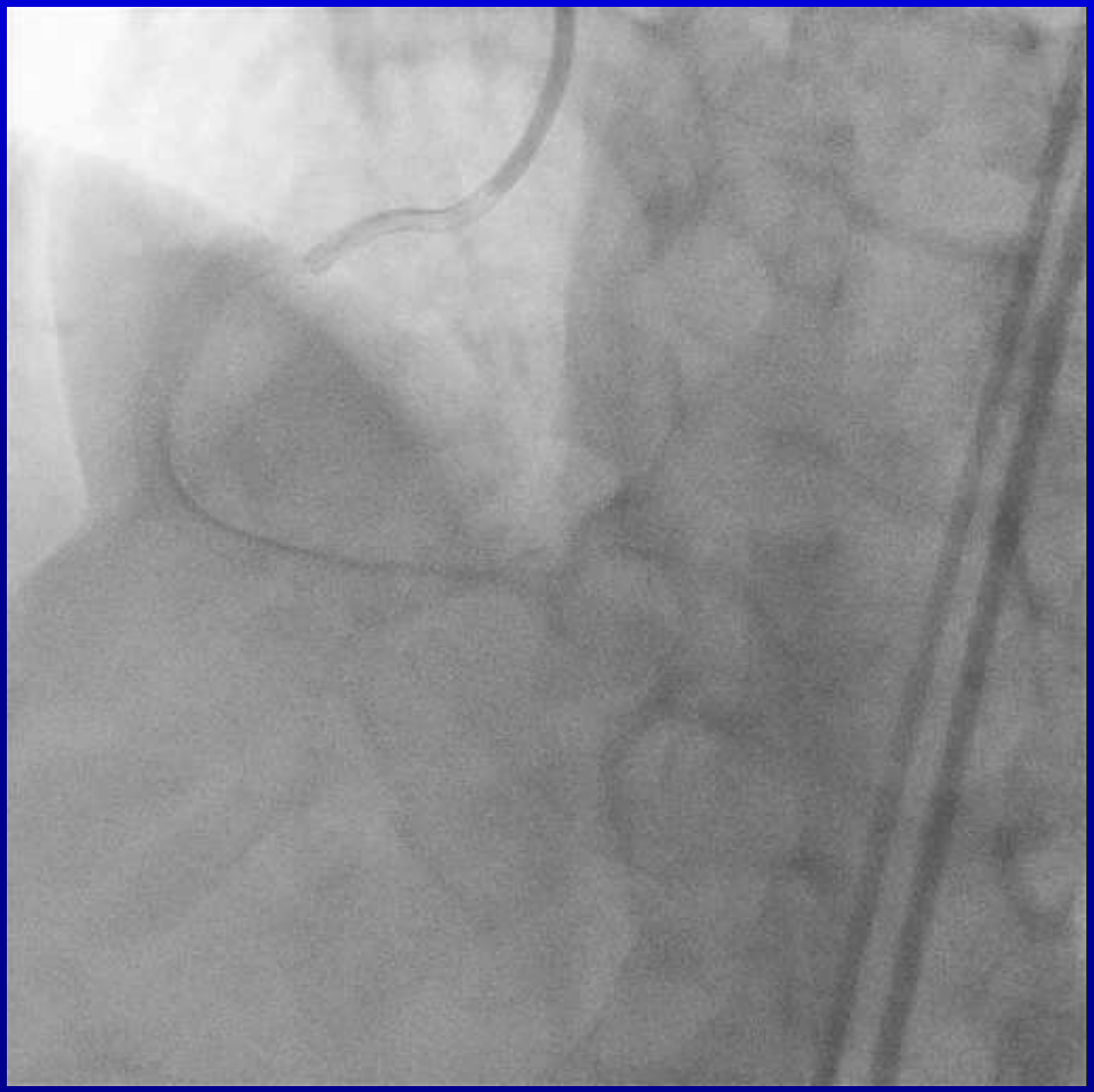
Procedure steps

- **We inserted a soft wire to Seg4PL retrogradely and checked the IVUS .**
- **Then added KBT with antegradely inserted and retrogradely inserted balloon catheters.**
- **After KBT, we checked the IVUS again.**

PCI



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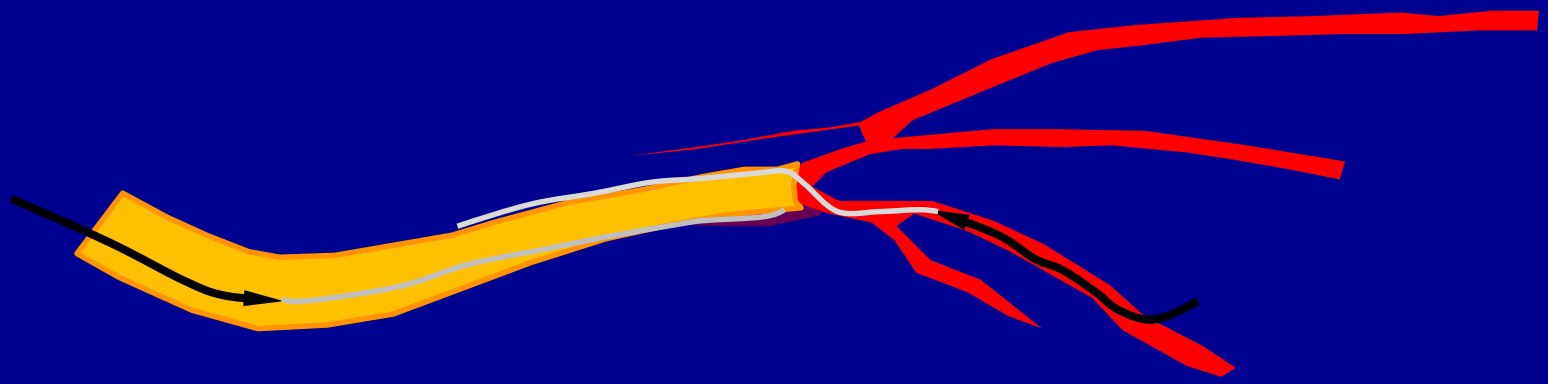
Procedure steps

- **We tried reverse wire technique again and could insert the antegrade wire deeper.**
- **We tried to exchange DLC to tube catheter (Mogul thinner) to advance an antegradely inserted wire deeper but failed.**
- **We gave up to cross a guide wire to Seg4PL antegradely.**
- **KBT with antegradely inserted scoring balloon (LacrosseNSEα 2.5*9mm) was added.**
- **Deployed U-SES 2.25*38mm**
- **Added R-ZES 4.0*38mm and 3.5*38mm.**
- **Fortunately, Seg4PL was preserved and bleeding was controlled.**

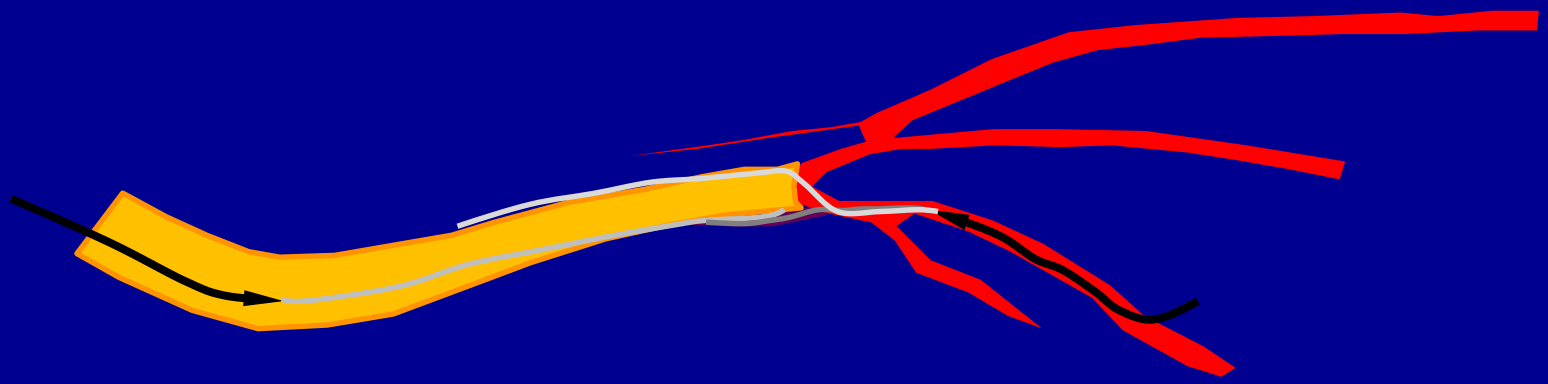
Summary and Conclusion

- ✓ A position of retrograde guide wire was not favorable to establish rCART.



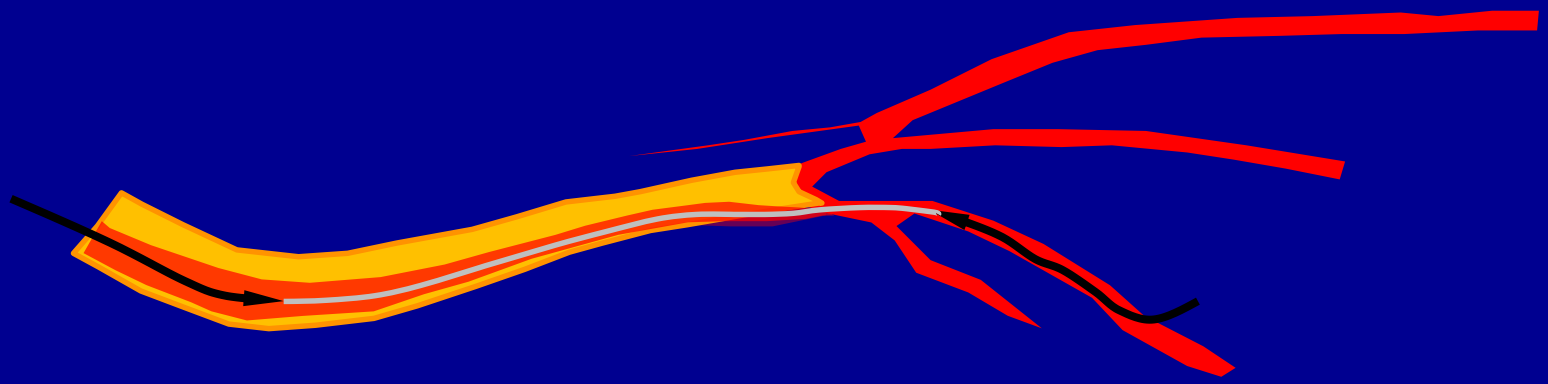
Summary and Conclusion

- ✓ A position of retrograde guide wire was not favorable to establish rCART.
- ✓ So, we changed an entry point of retrograde wire and it caused side branch short cut phenomenon.



Summary and Conclusion

- ✓ A position of retrograde guide wire was not favorable to establish rCART.
- ✓ So, we changed an entry point of retrograde wire and it caused side branch short cut phenomenon.
- ✓ To avoid side branch occlusion, we tried to cross antegrade guide wire to Seg4PL with reverse wire technique but failed.



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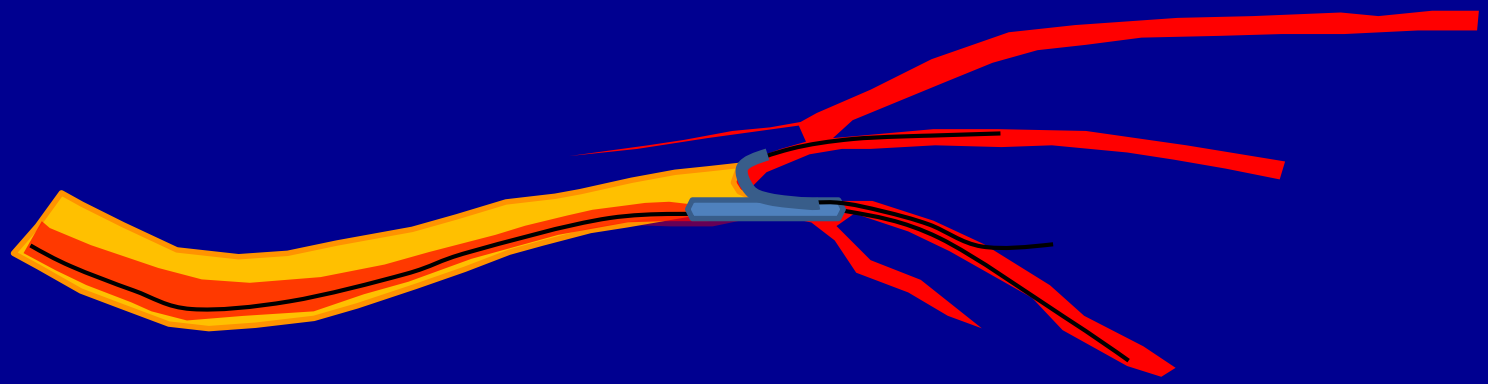
- ✓ **To avoid side branch occlusion, we tried to cross antegrade guide wire to Seg4PL with reverse wire technique but failed.**
- ✓ **Then we performed KBT with antegrade and retrograde balloon catheters to achieve carina modification.**



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- ✓ **So, we changed an entry point of retrograde wire and it caused side branch short cut phenomenon.**
- ✓ **To avoid side branch occlusion, we tried to cross antegrade guide wire to Seg4PL with reverse wire technique but failed.**
- ✓ **Then we performed KBT with antegrade and retrograde balloon catheters to achieve carina modification.**
- ✓ **Enlargement of side branch opening area and lessen a severity of bifurcation axis were obtained by this method.**