



*Learning from complex CTO cases
CCT @ TCTAP 2018, Sat, April 28 3:15 -3:30 PM*

Learning from complex CTO cases

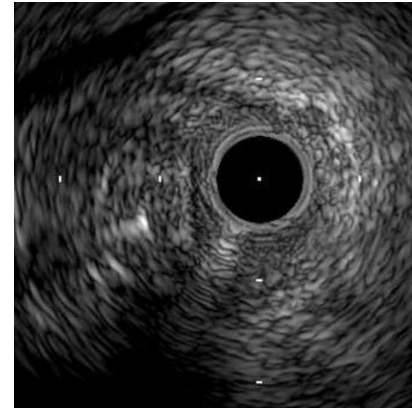
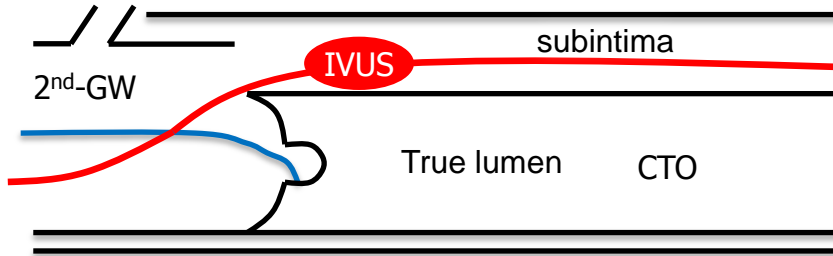
LAD CTO lesions treated with IVUS guided re-wiring

Cardiovascular Center, Sakurabashi Watanabe Hospital

Atsunori Okamura

IVUS-guided re-wiring in the antegrade approach

IVUS observation from the subintimal space.

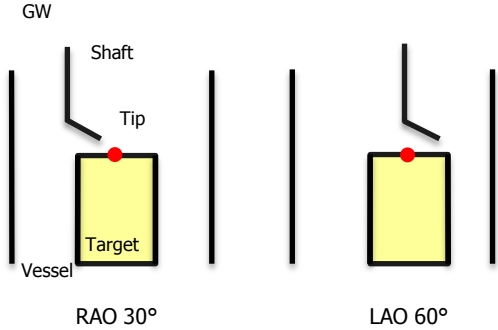


Spec. of commercial IVUSs in Japan

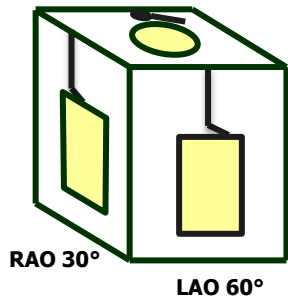
Spec. of IVUS	Boston OptiCross	Volcano Revolution	Volcano Eagle eye	Terumo AltaView	Terumo Navifocus WR
Frequency	40MHz	45MHz	20MHz	40-60MHz	40MHz
Profile at imaging window	2.6Fr	3.2Fr	3.5Fr	2.6Fr	2.5Fr
Distance from tip to transducer	20mm	28mm	Short tip 10.5/2mm	22mm	Short tip 9mm
Pull back system	+	+	-	+	-

3D wiring under radiographic guidance and IVUS-guidance

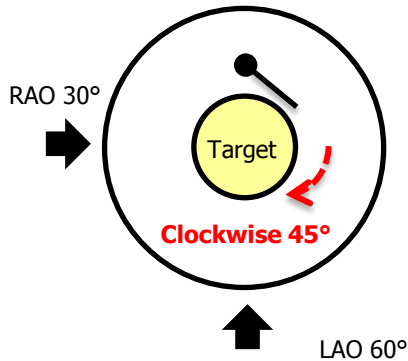
Angiographic guided 3D wiring for CTO target (exit, central part of CTO body etc.)



Mental construction of 3D image



IVUS like Cross-sectional image

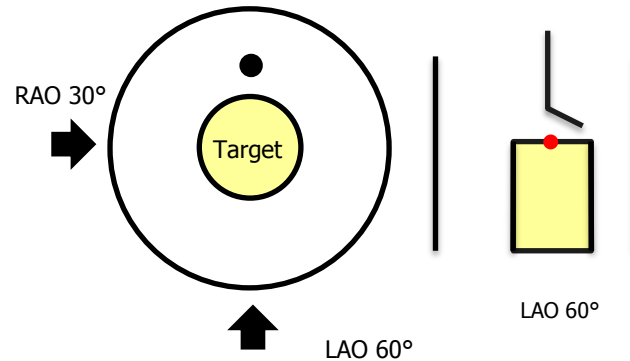


IVUS-guided 3D re-wiring for the true lumen

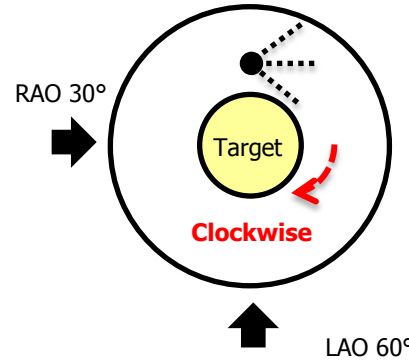
IVUS with pull back system (-)

One angiographic image and IVUS image.

IVUS image



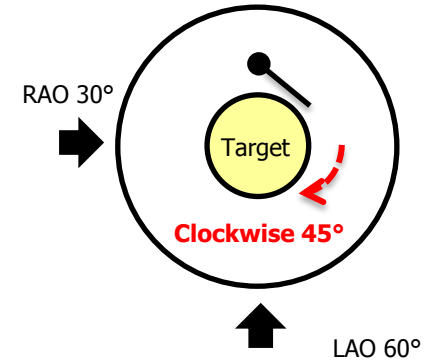
Mental construction of 3D image



IVUS with pull back system (+)

Only IVUS image

IVUS image



**Terumo
Alta View IVUS**

Conquest-12g
Under Corsair

CTO
lesion
2% agar

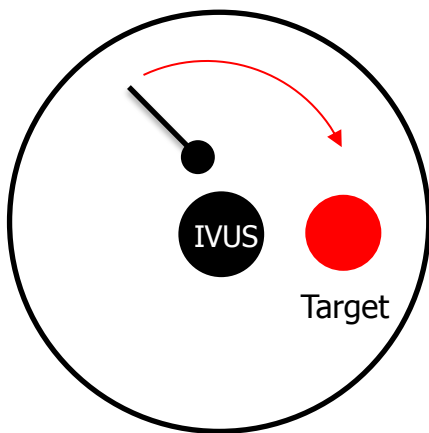
●
Target



●
Target

**Real time 3D image only from IVUS by detecting
tip and shaft of GW**

IVUS image



CASE

Patient: Female 60's y.o.

Diagnosis: OMI, EA, ASO, CLI

Target lesions: LAD proximal-mid CTO, 1st-diagonal CTO

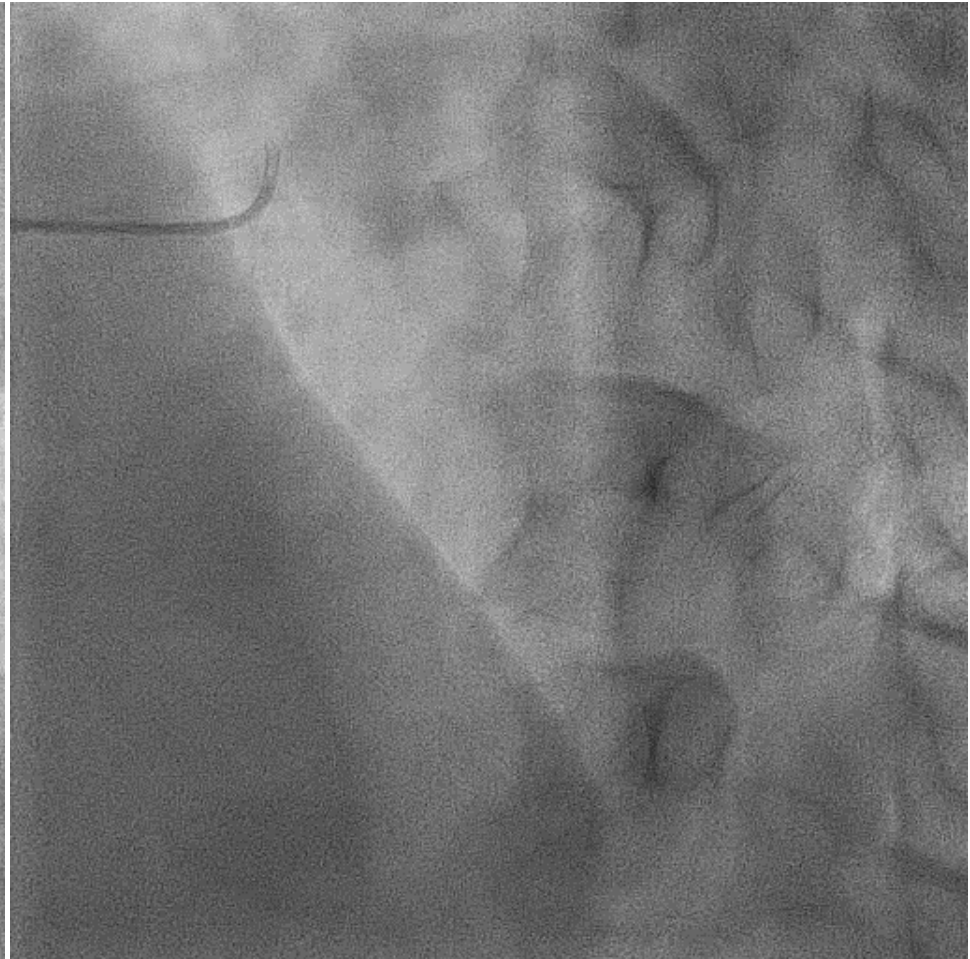
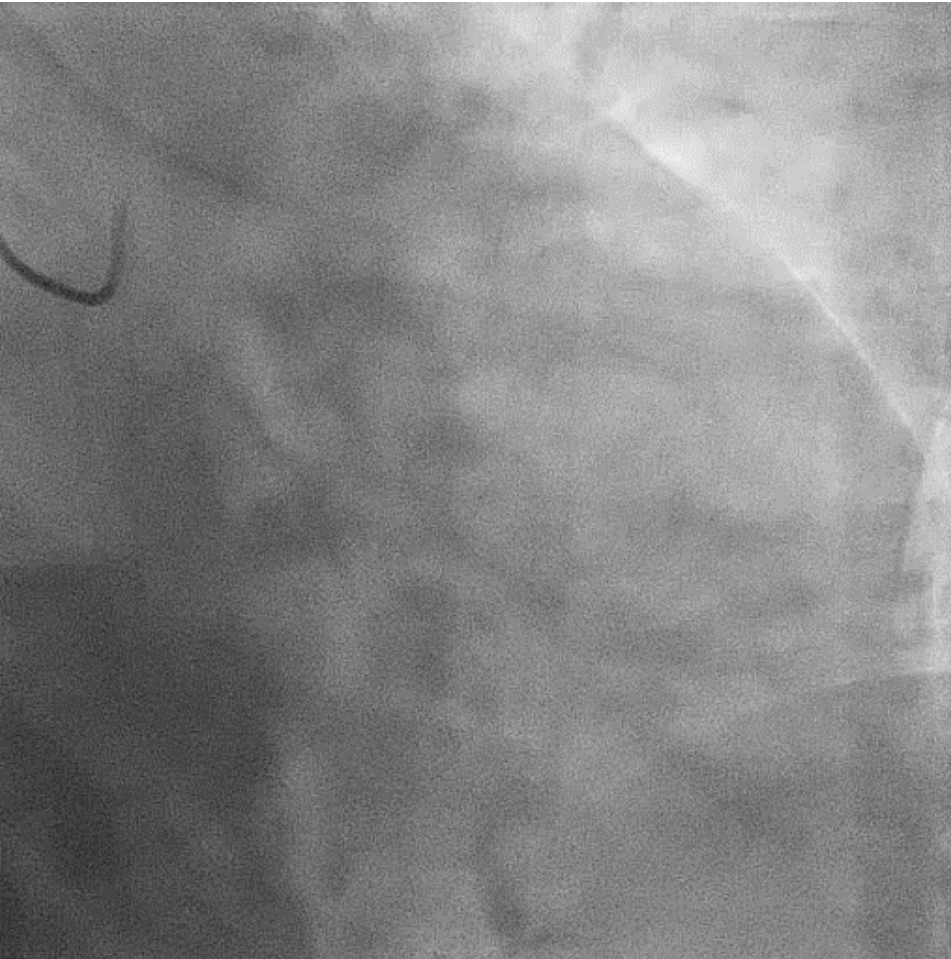
Coronary risk factor: HBP, DM

LVEF: 51%

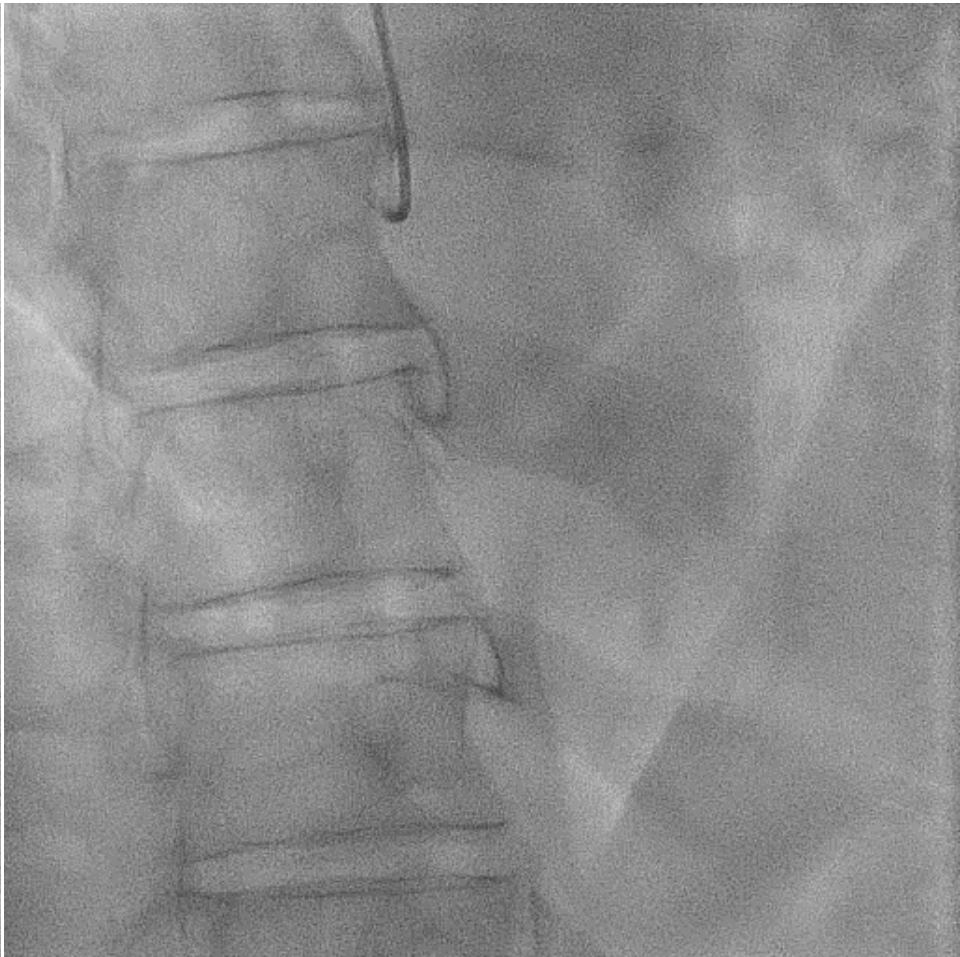
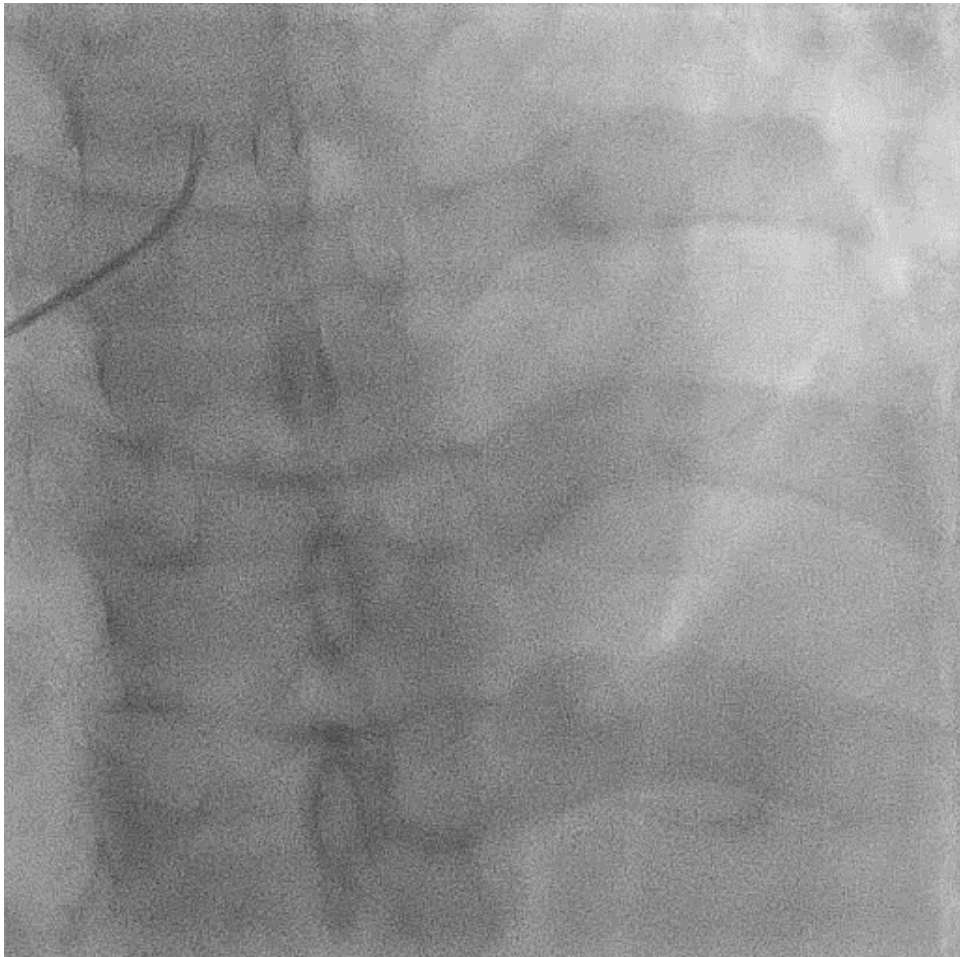
eGFR: 50.9 ml/dl/1.73 m²

Pre-PCI CAG in Nov. 2017

LAD proximal-mid & 1st-diagonal CTO



LAD proximal-mid & 1st-diagonal CTO



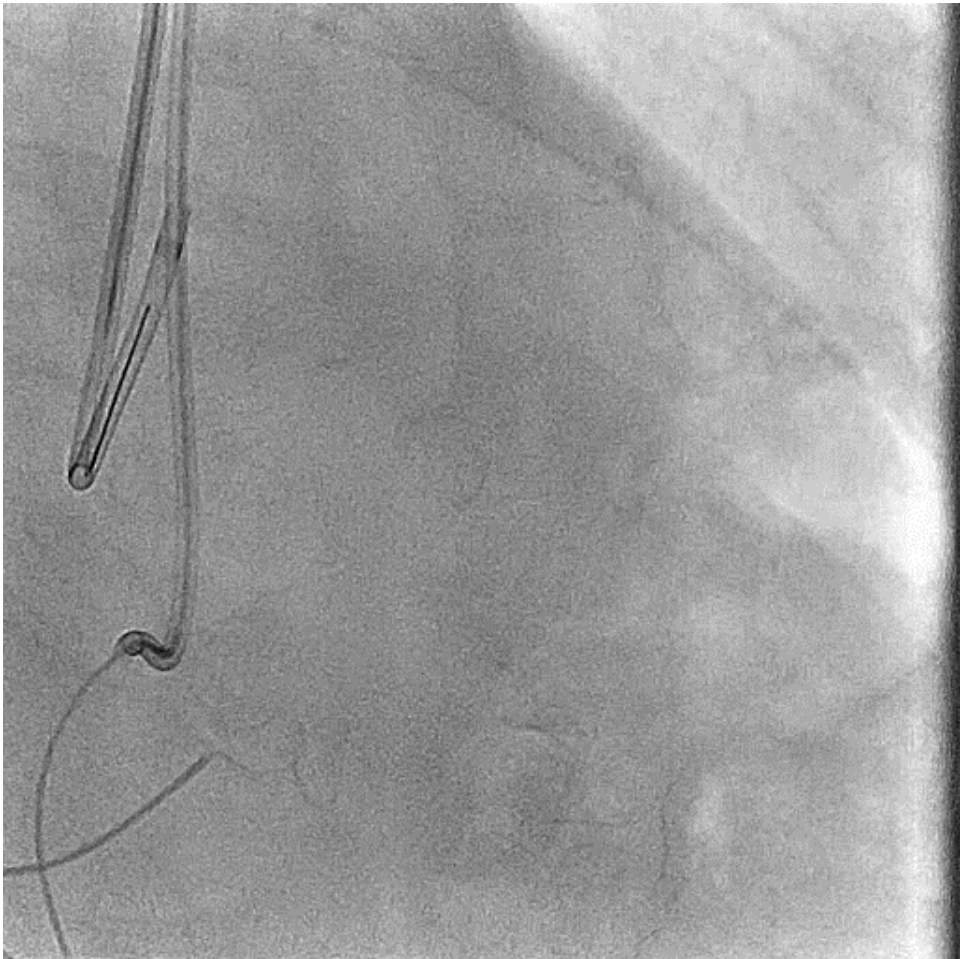
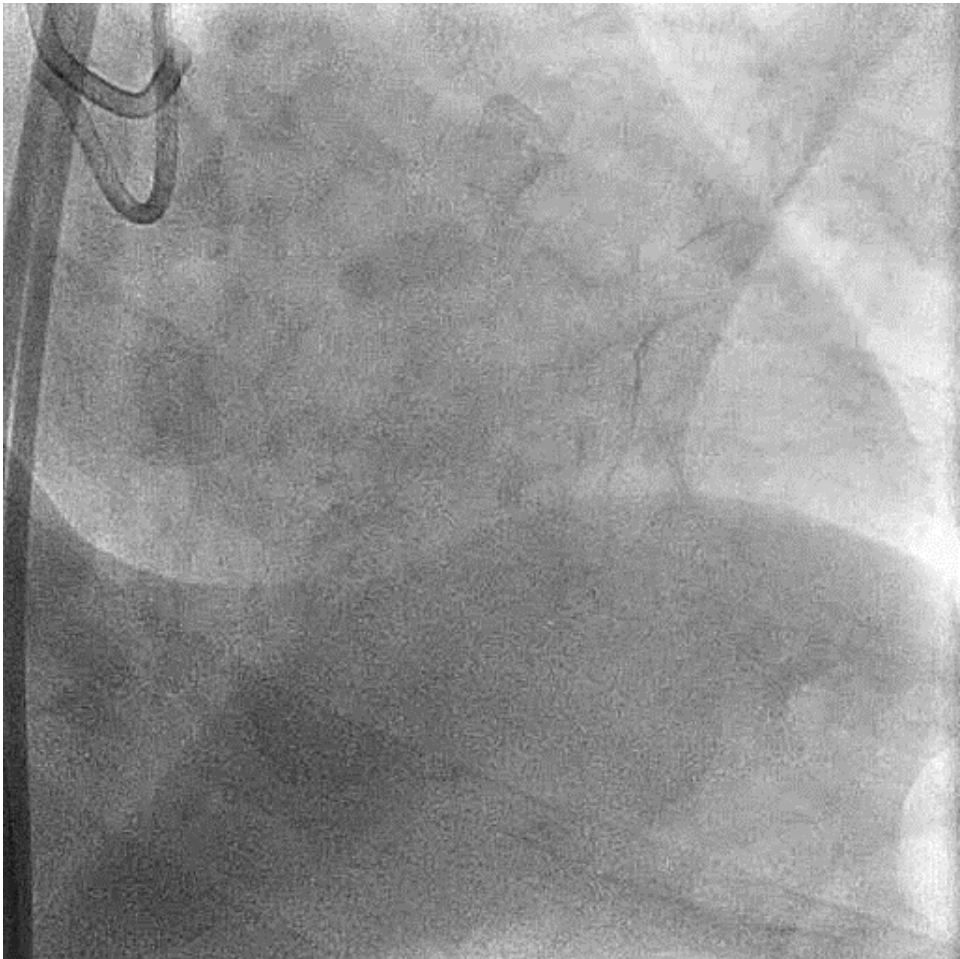
PCI in Feb. 2018

Bilateral femoral approach

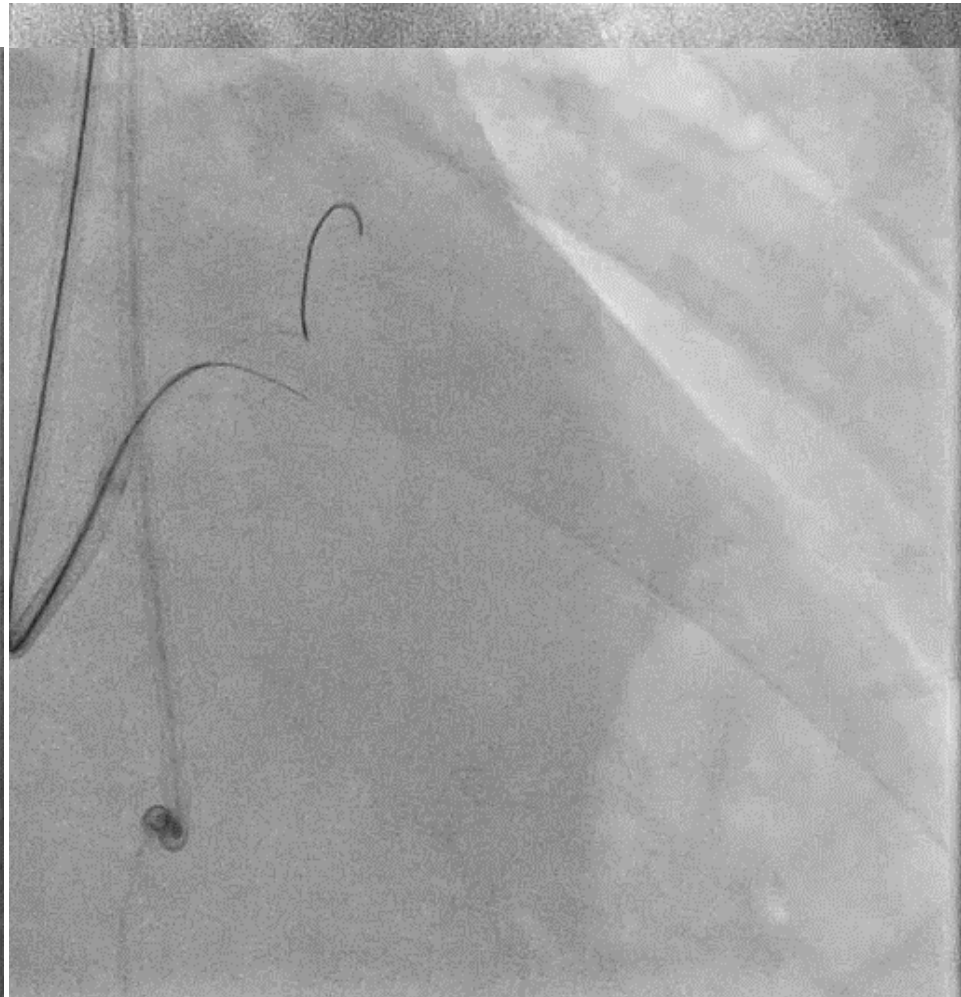
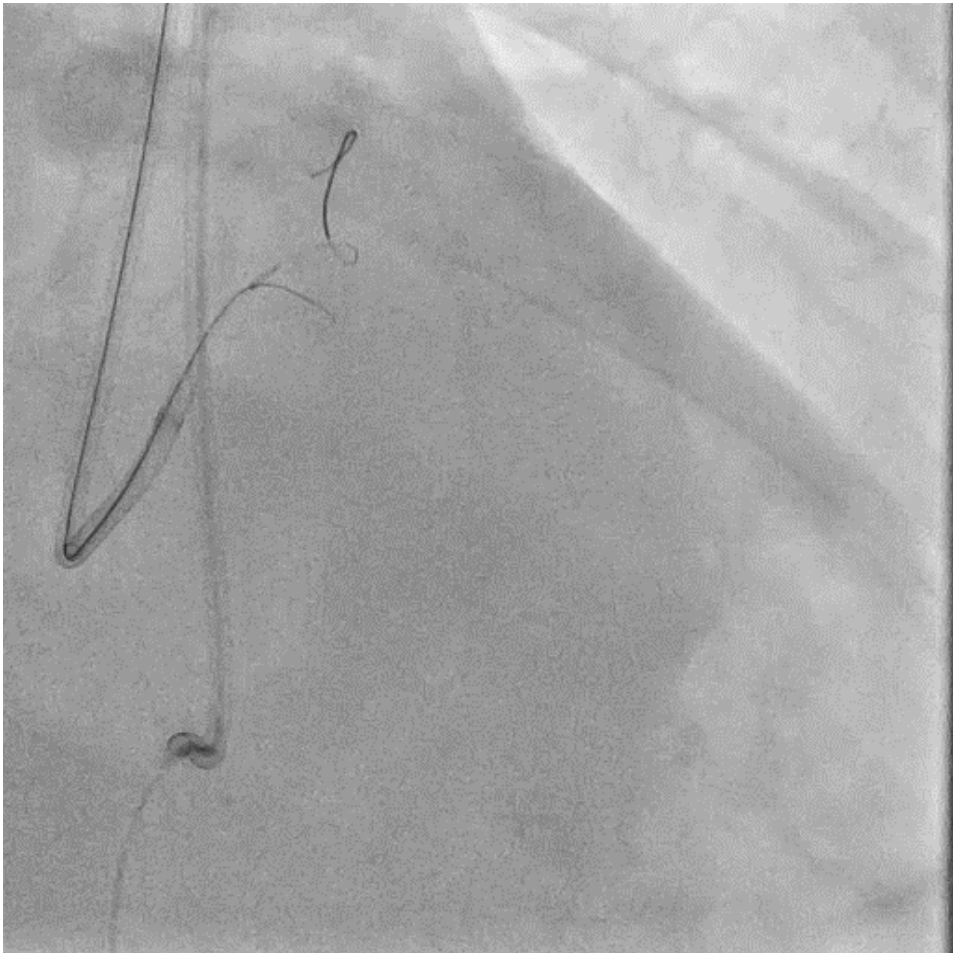
Antegrade GC: SL4 SH 8F

Retrograde GC: AL075 SH 7F

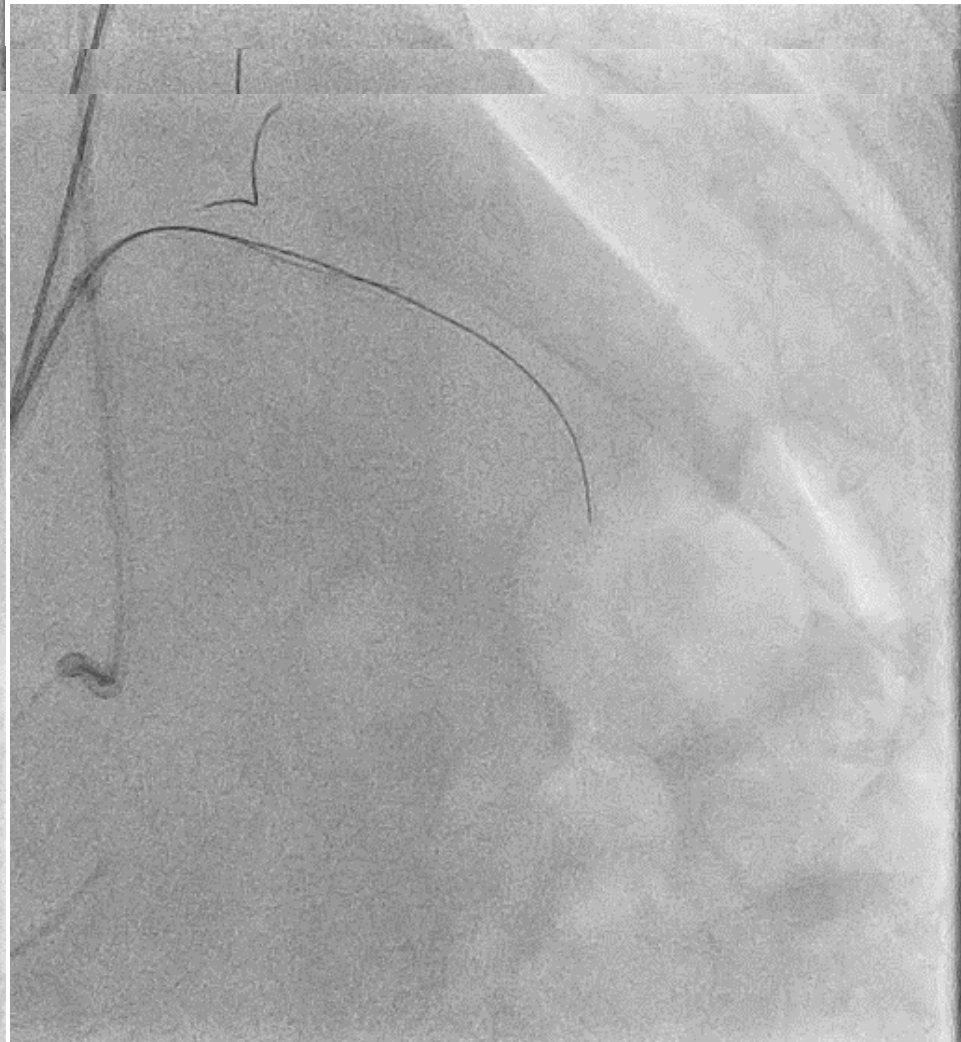
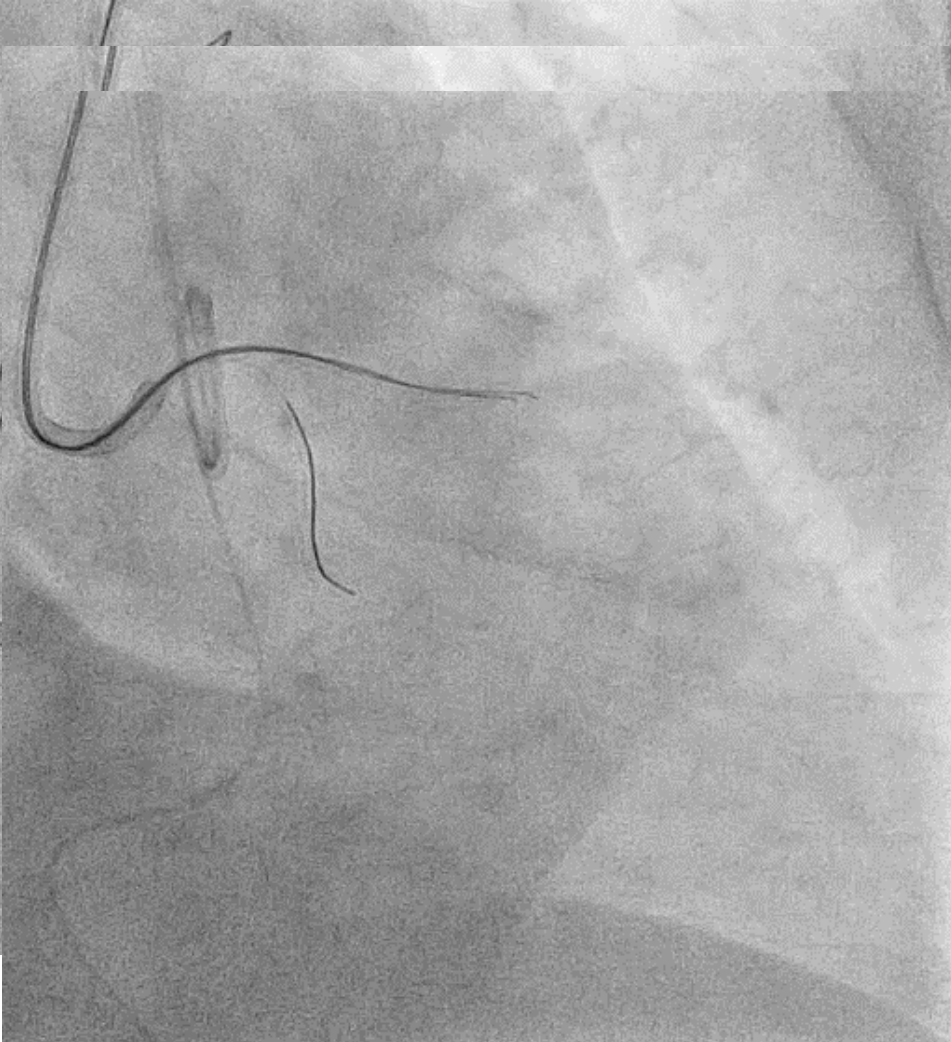
Tip injection from Progreat Ω 2.8F (Terumo)



Under Sasuke (double chamber catheter), Conquet-9g could be penetrated the CTO entrance and Corsair was advanced to the CTO lesion.



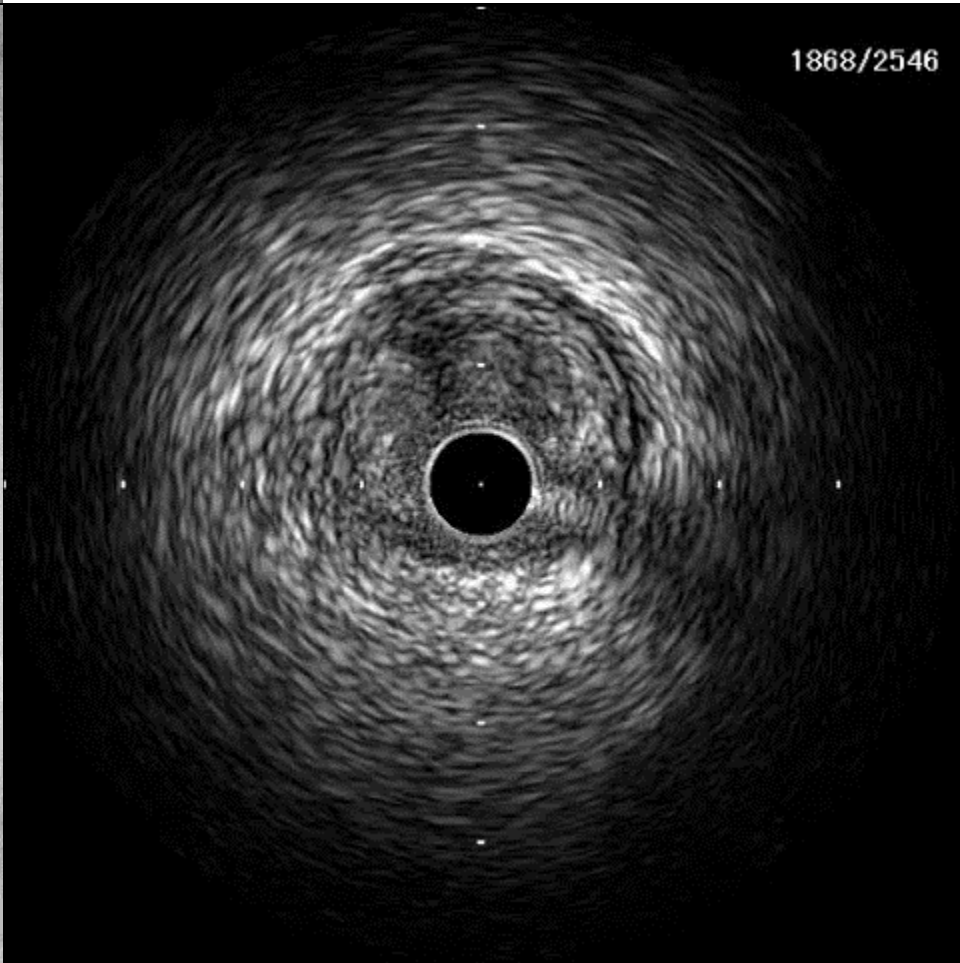
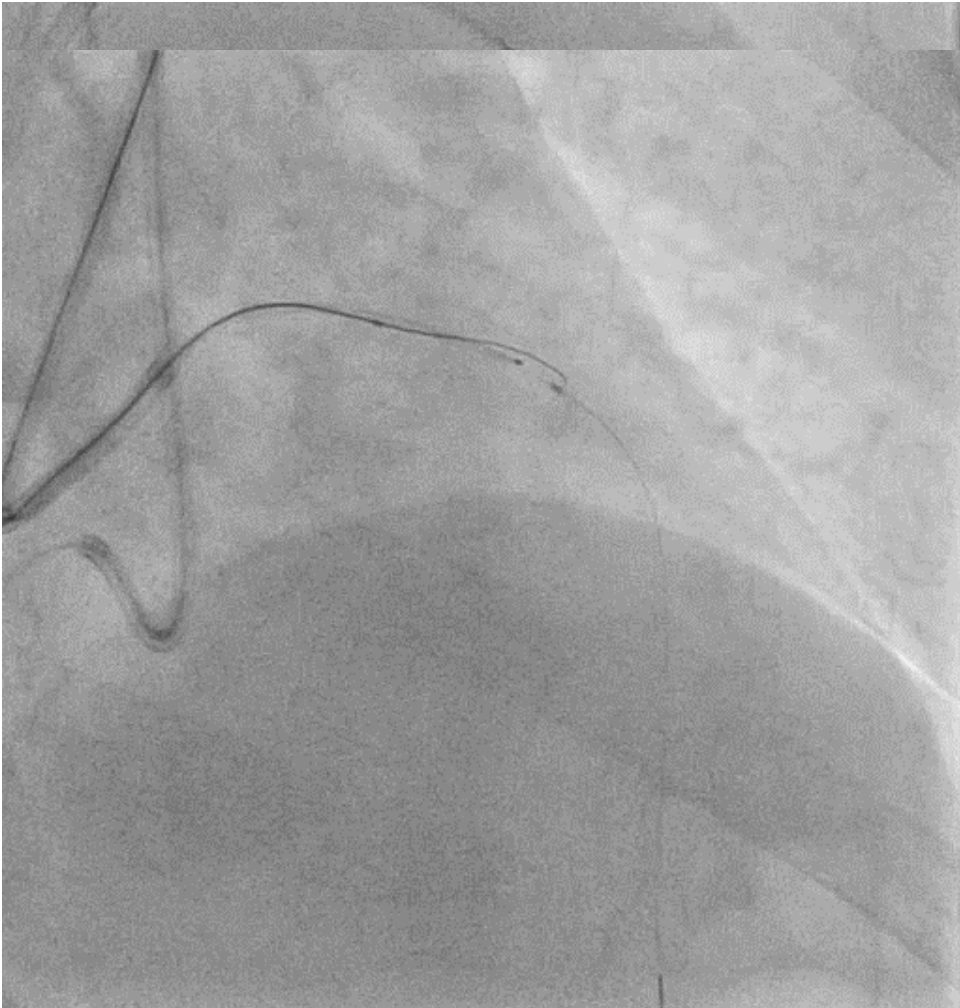
After the failure of the passage of the 1st-GW, the 2nd-GW (Conquest-12g) might be passed through the CTO exit by using parallel wire technique.



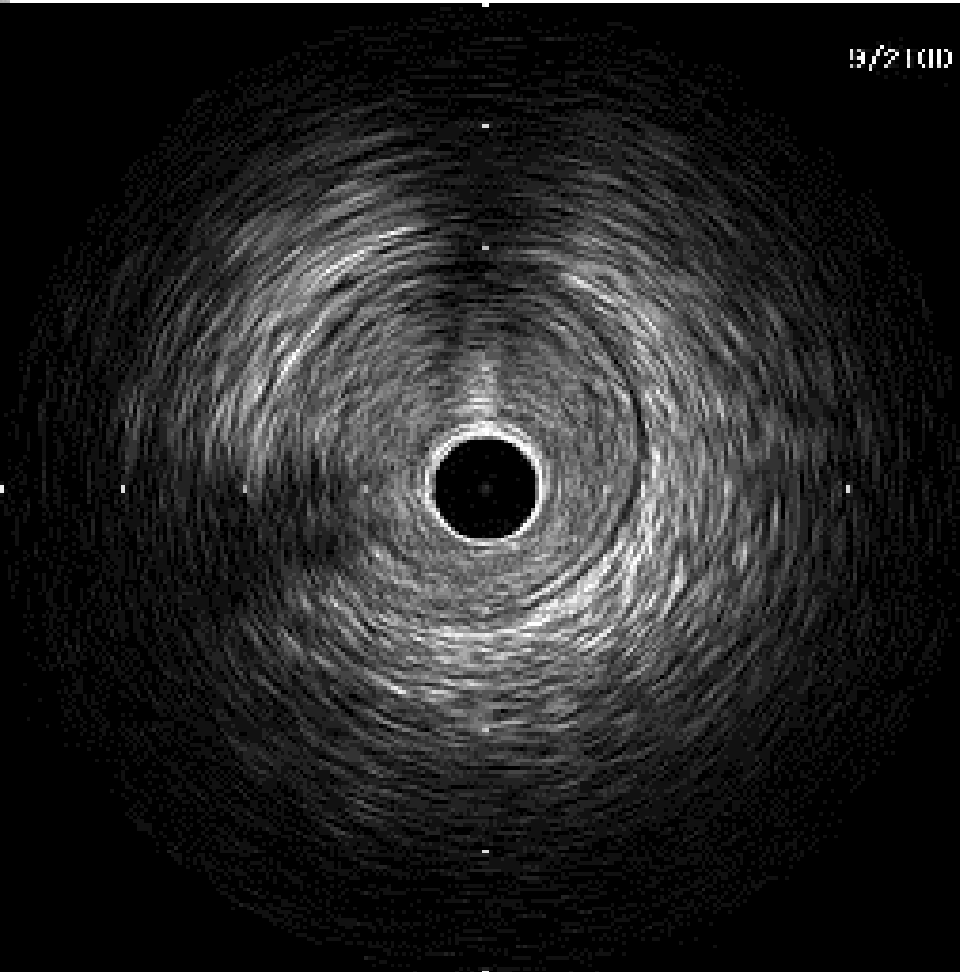
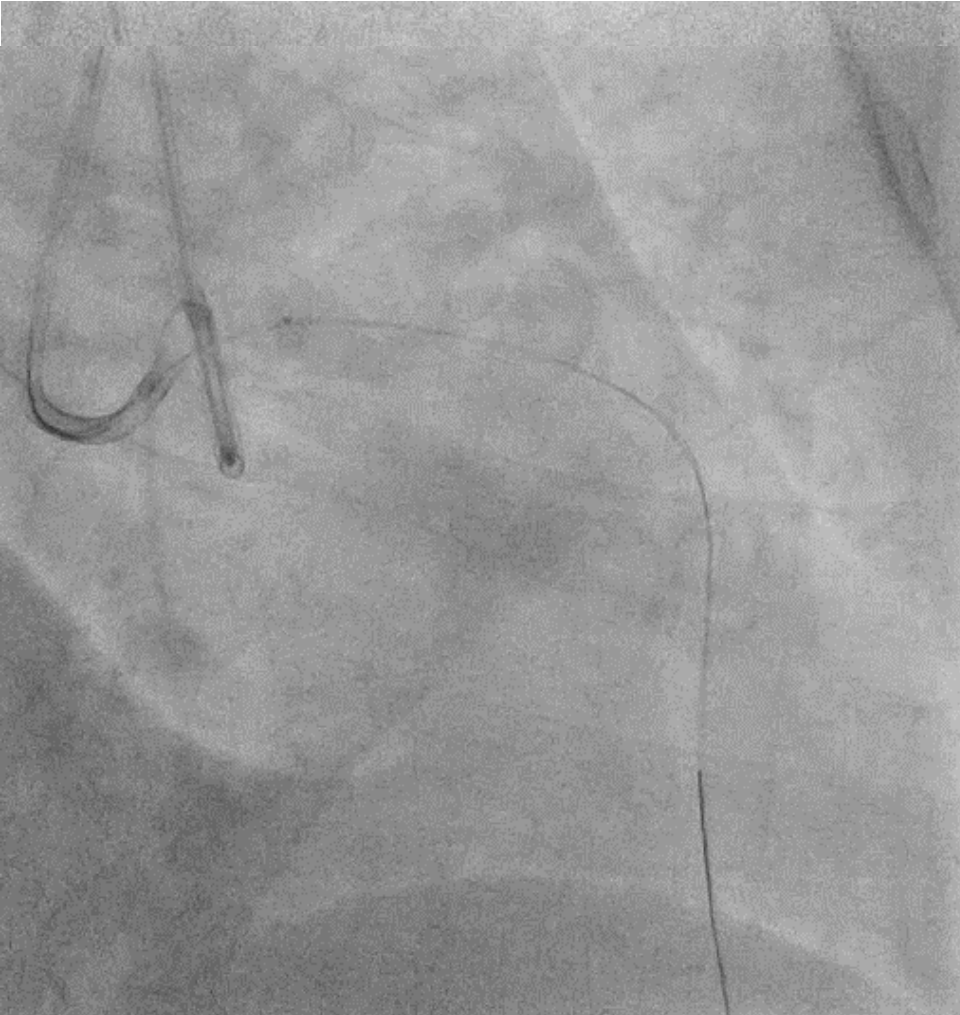
Navifocus WR IVUS showed that the GW was advanced inside the intimal plaque 2cm from the exit and then entered into the vessel lumen.

Navifocus WR IVUS (Short tip without pull back system) guided re-wiring navigated the another Conquest-12g into the lumen from the exit.

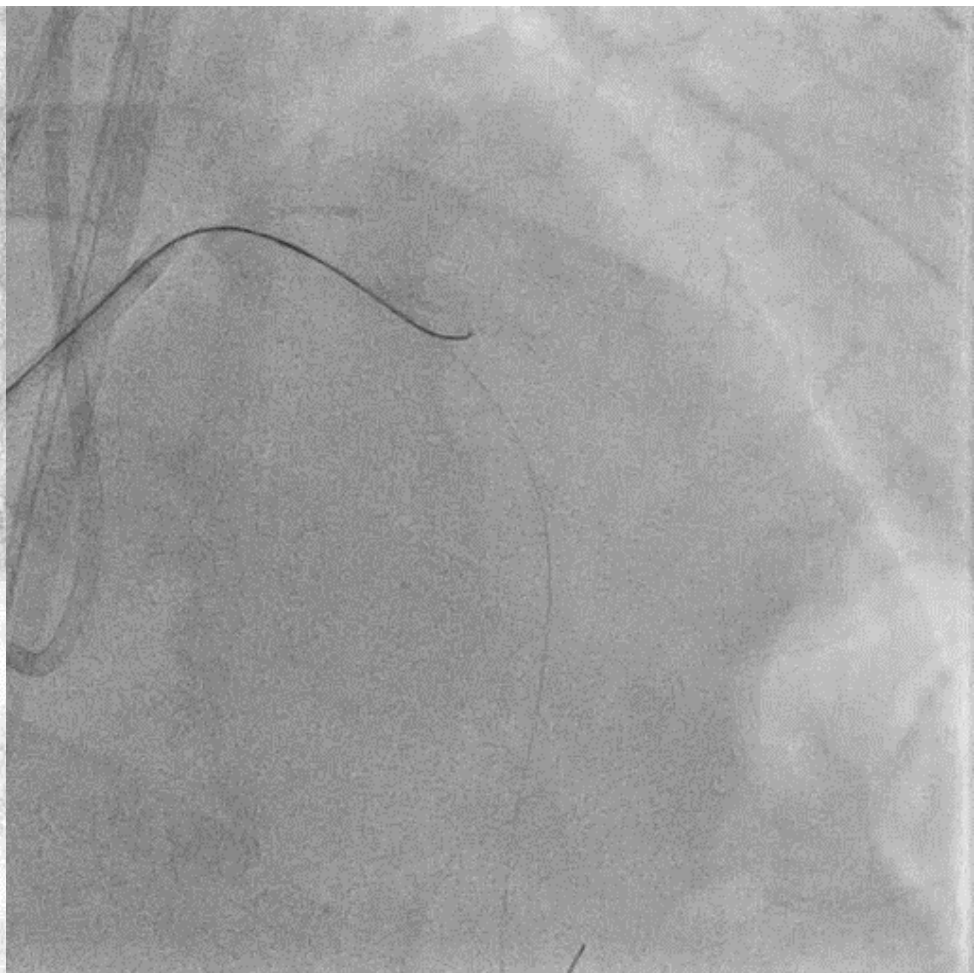
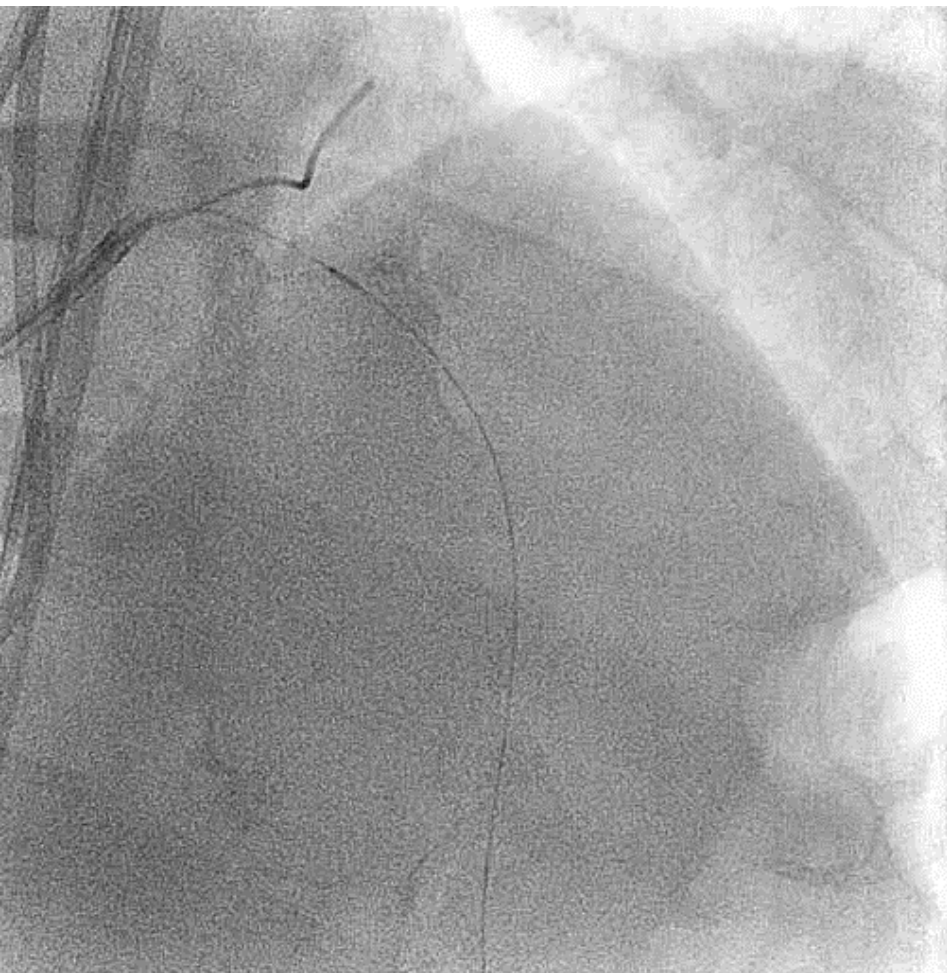
3D image from the IVUS image and one angiographic image



Because of the coating damage of Navifocus WR IVUS (Short tip without pull back system), AltaView IVUS (Long tip with pull back system) was used to check the passage route of the GW.

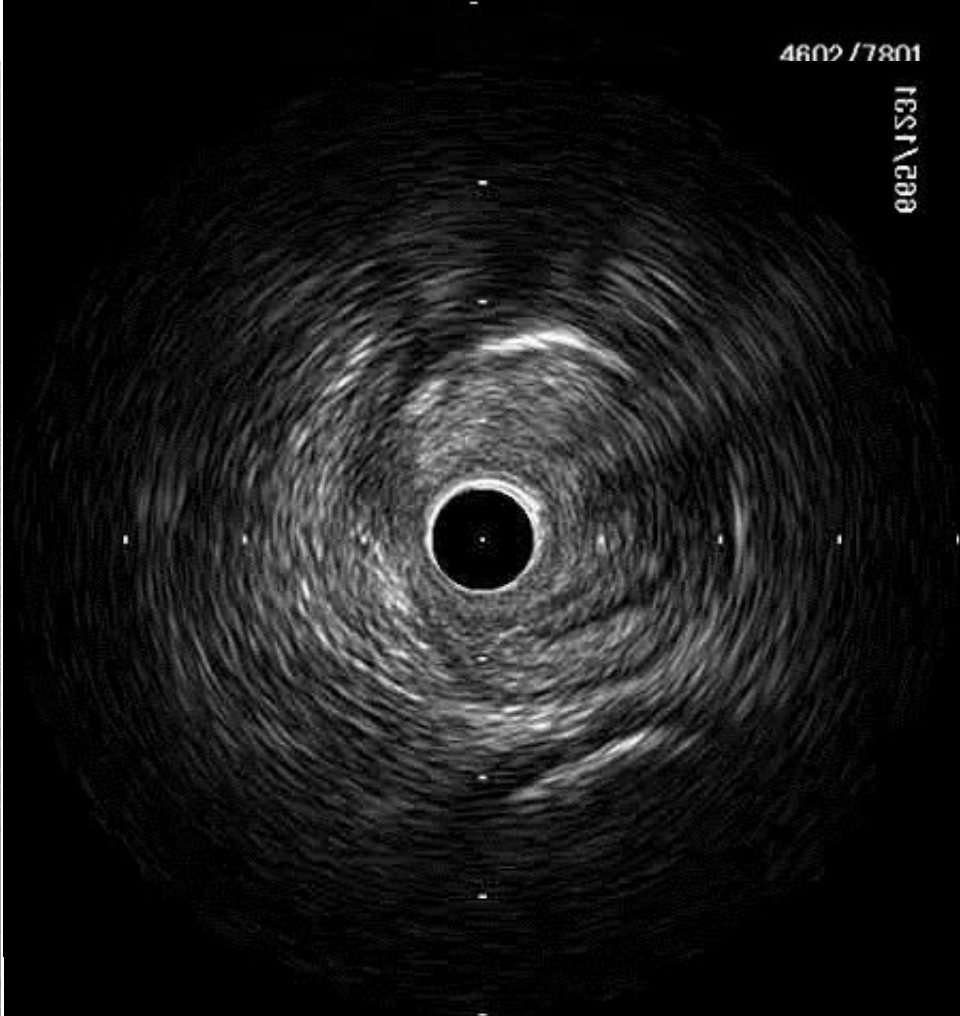


Under the Sasuke, XT-R wire could not be advanced into another CTO lesion of the diagonal branch.

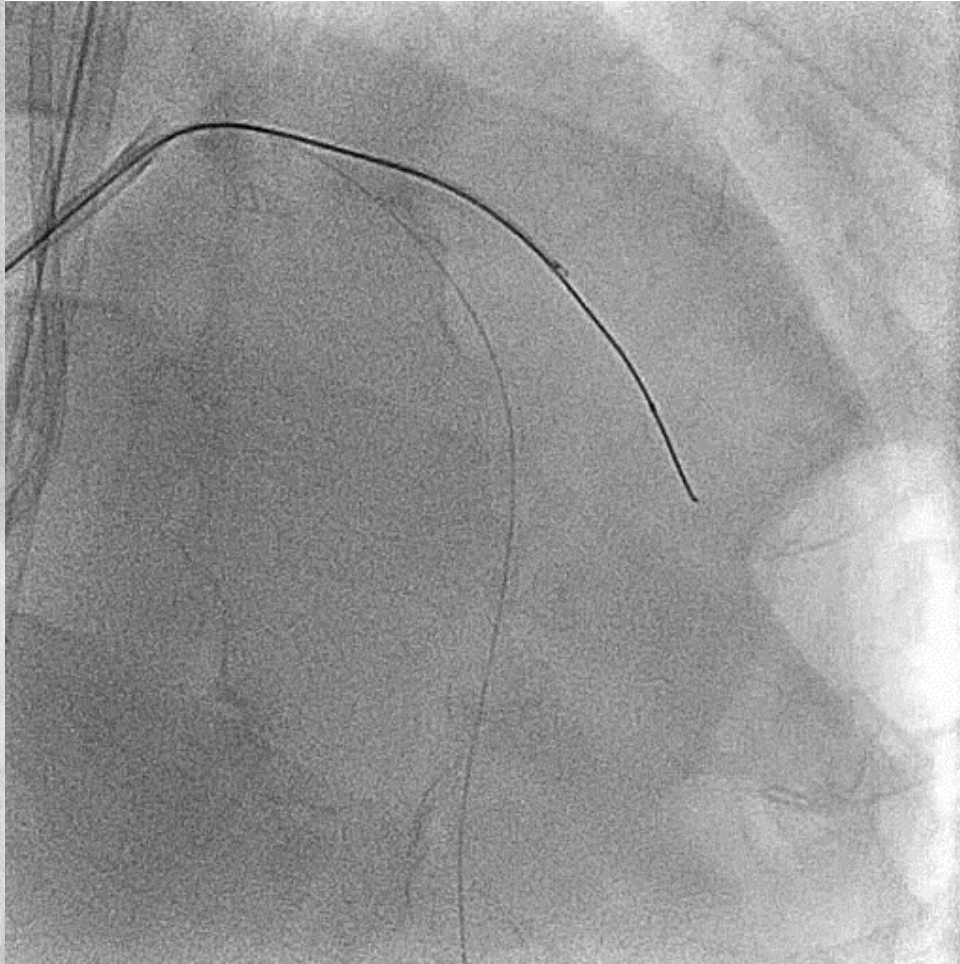
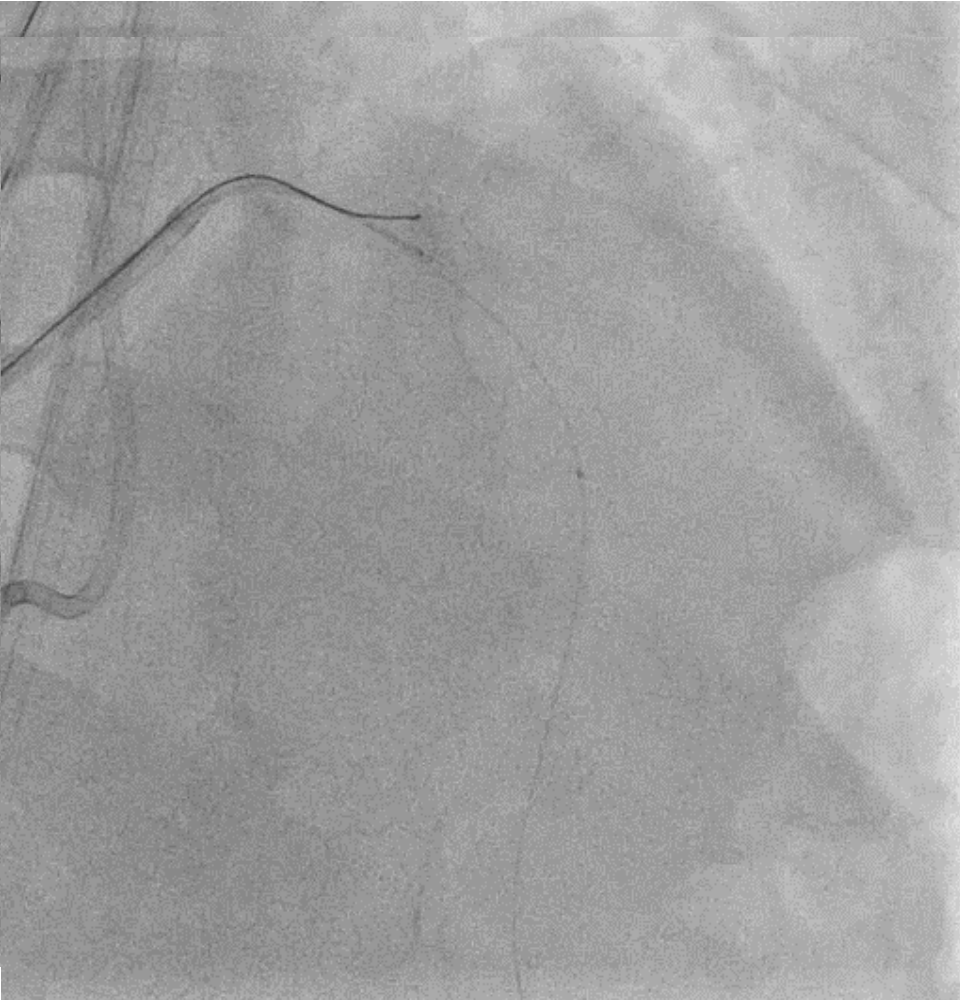


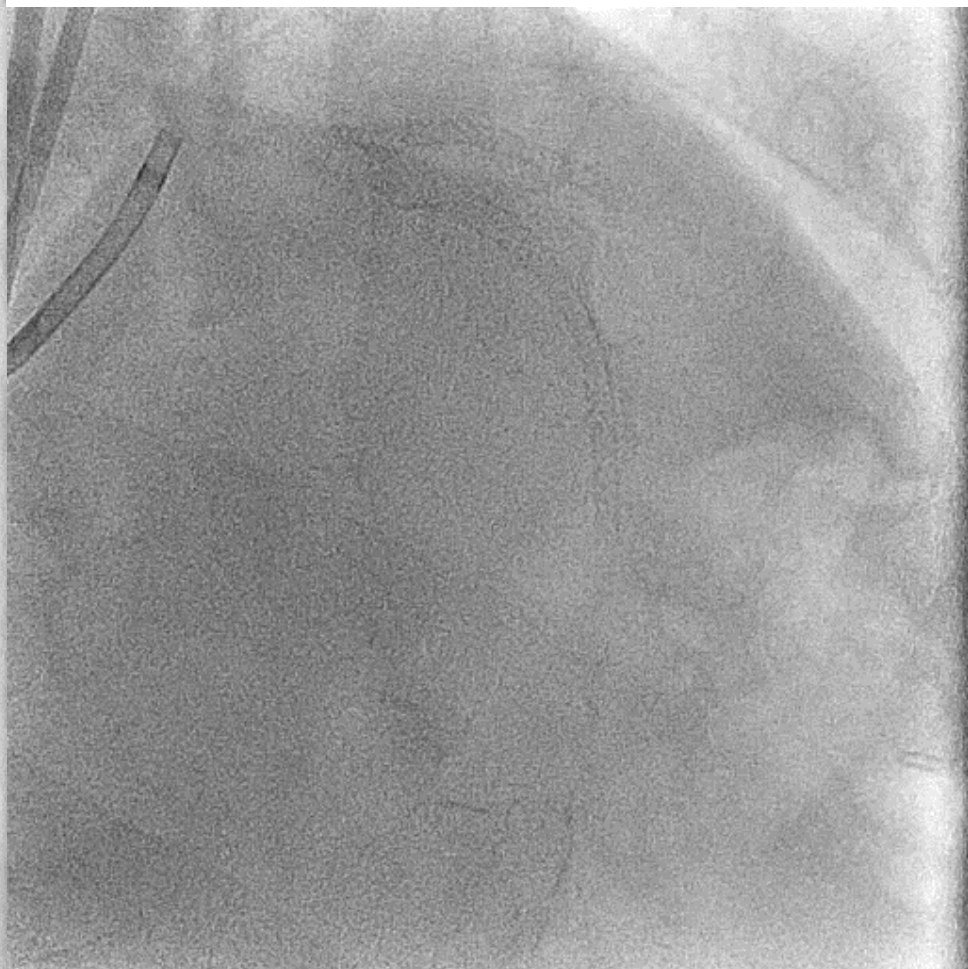
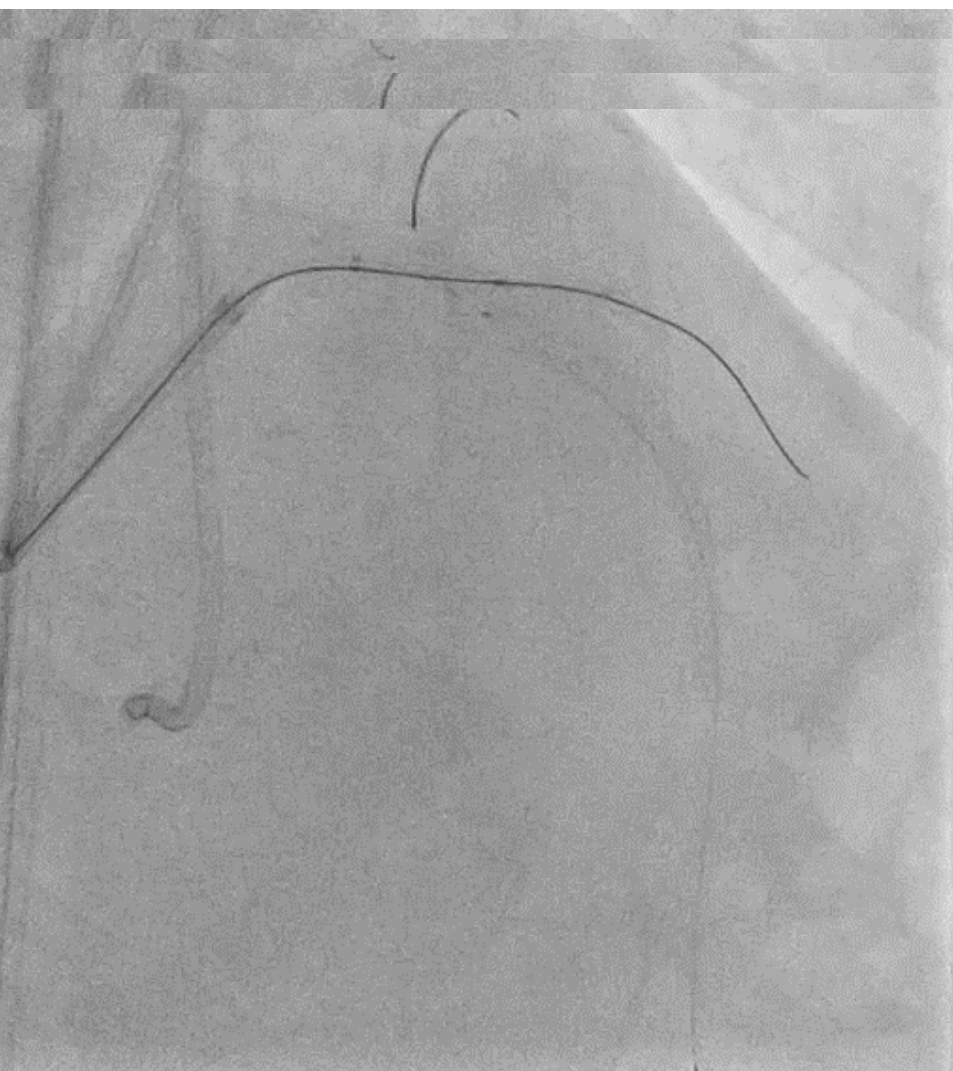
AltaView IVUS (Long tip with pull back system) guided wiring navigated the Conquest-12g into entrance of the CTO of the diagonal.

3D image only from IVUS by detecting tip and shaft of GW .



The Conquet-12g was changed into a soft wire.





Take home message

During the wiring in the CTO lesion, the real-time detection of the GW tip and shaft by the IVUS pull back system shows the 3D image directly, which leads to facilitate the 3D wiring.

The short tip IVUS with pull back system (which dose not exist) will facilitate the IVUS guided-3D wiring.