My most challenging retrograde CTO in 2017

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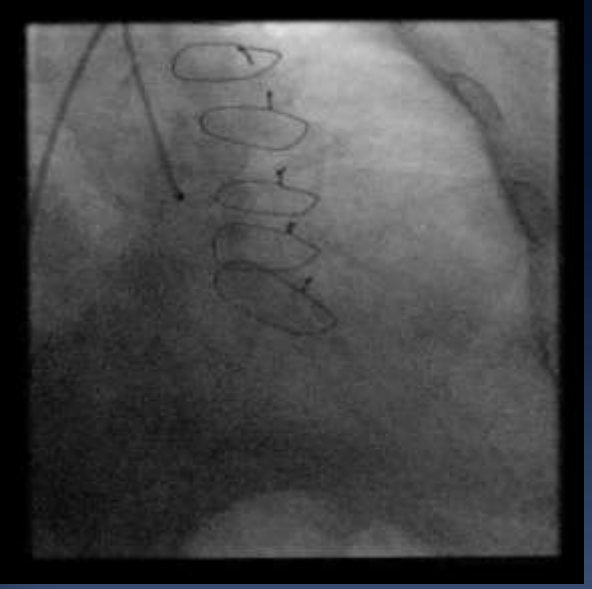
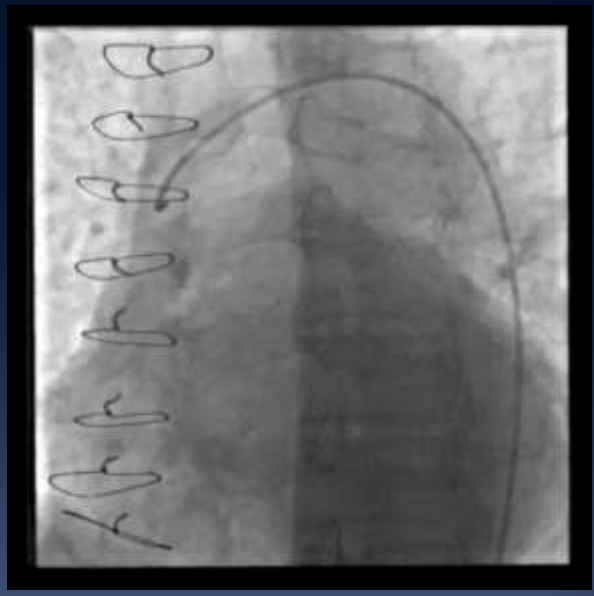
ASSOCIATE CONSULTANT

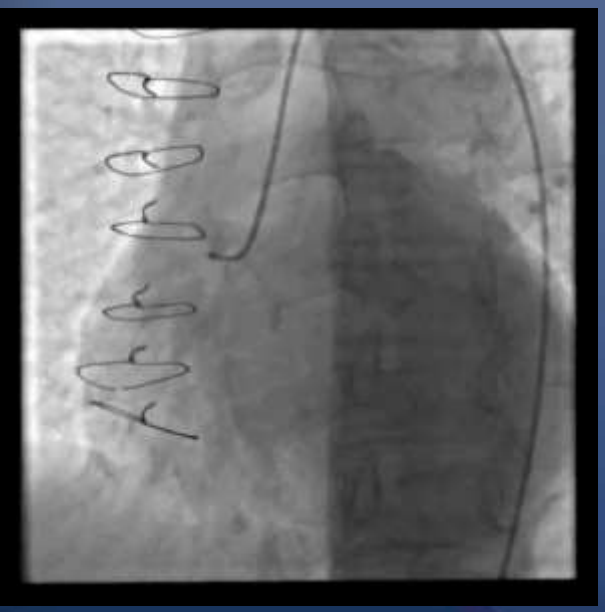
QUEEN ELIZABETH HOSPITAL

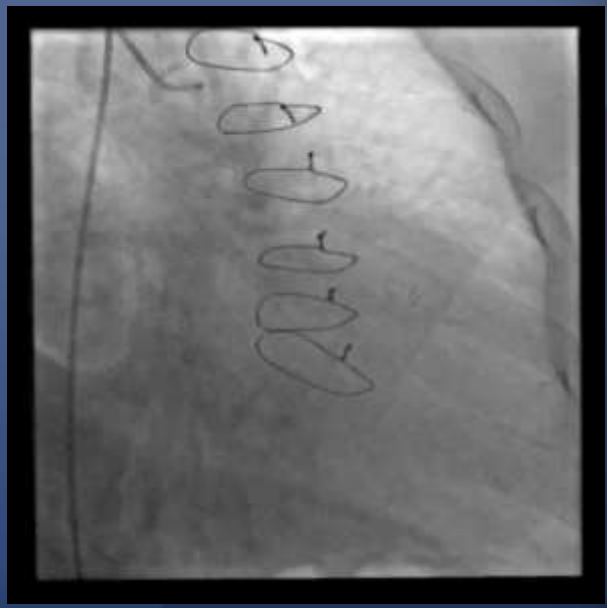




52/m
Smoker, hyperlipidemia
IHD with TVD s/p CABG 2006
Default FU since 09,

Admit 2017 for NSTEMI
Echo showed EF 25-30%,
multiple RWMA, no sig MR



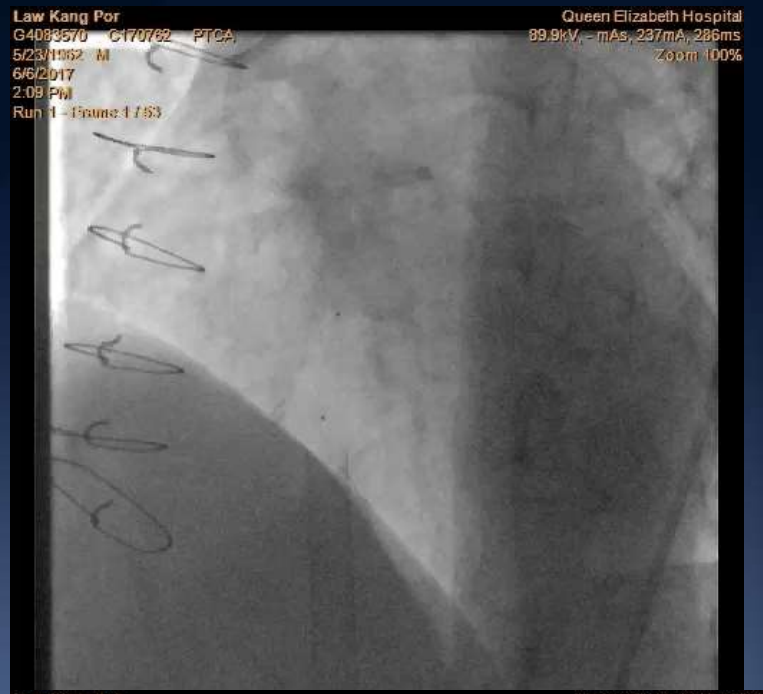


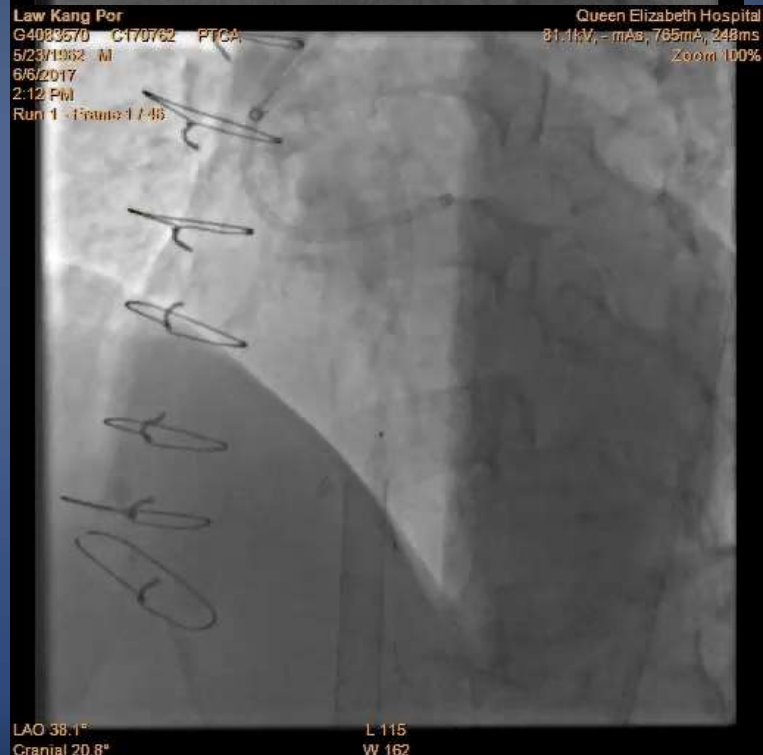
- CMRI show viable myocardium in all 3 territories
- CTS-> not a redo candidate

- High risk PCI was planned
- PCI to SVG-LAD (single surviving conduit), +/- LCx Cto trial under hemodynamic support
- Stage PCI to RCA

PCI to SVG-LAD

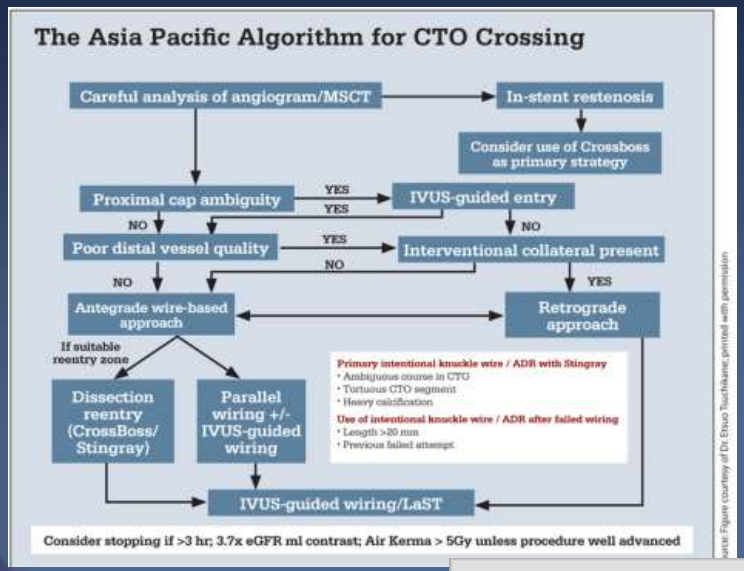
- RRA slender 7Fr EBU 3.5 guide to LMN
- RFA 7Fr JR4 guide to SVG-LAD
- LFA for VA ecmo supported
  - Graft intervention, very high risk of no reflow
  - Single surviving vessel
  - Retrograde to both LCX and PDA
- Distal protection device for Graft intervention
- Direct stenting with Self expanding DES Stentys

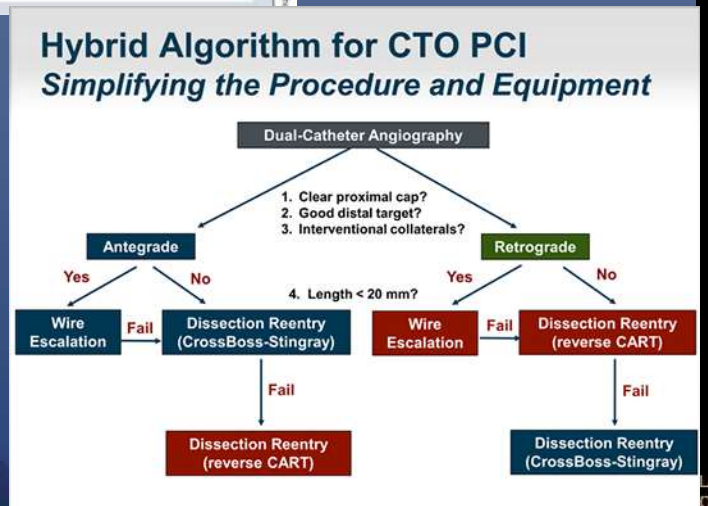


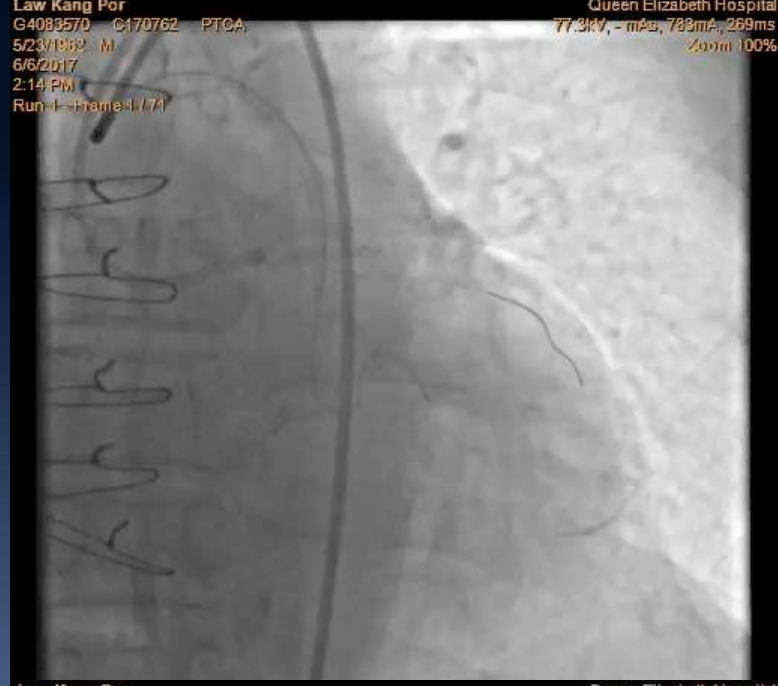


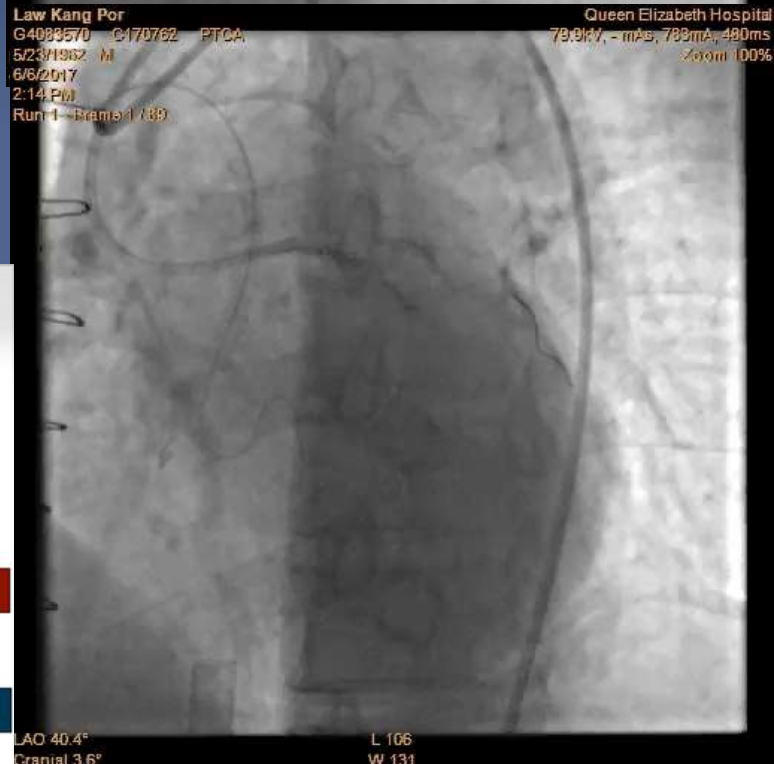
PCI to LCX

JCTO score 3
No stump
Long
Calcification

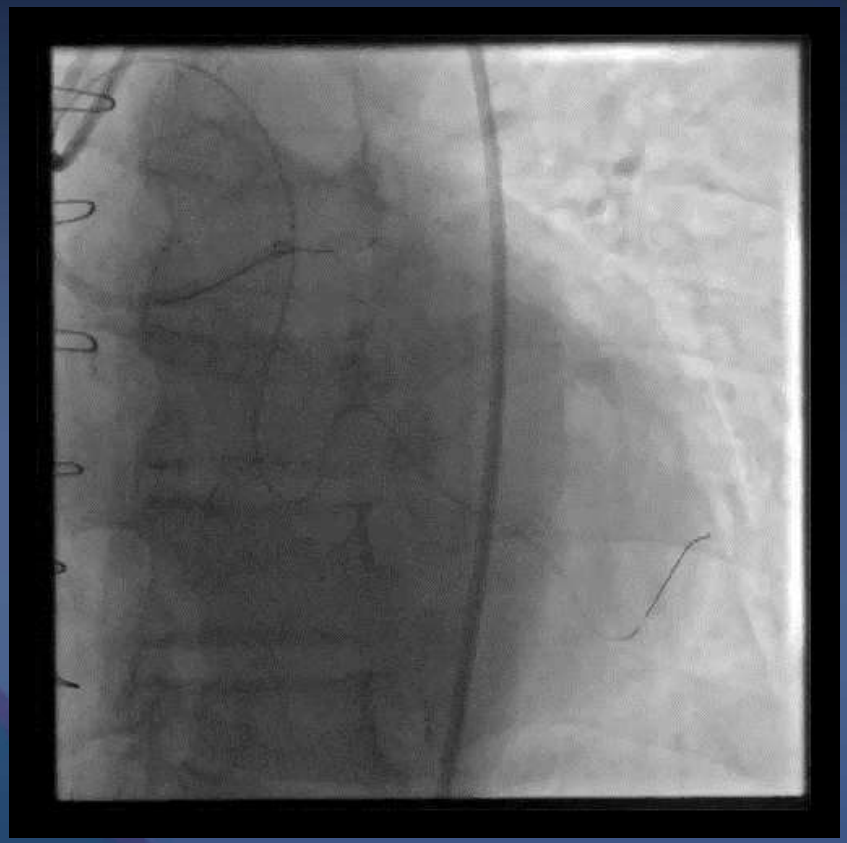


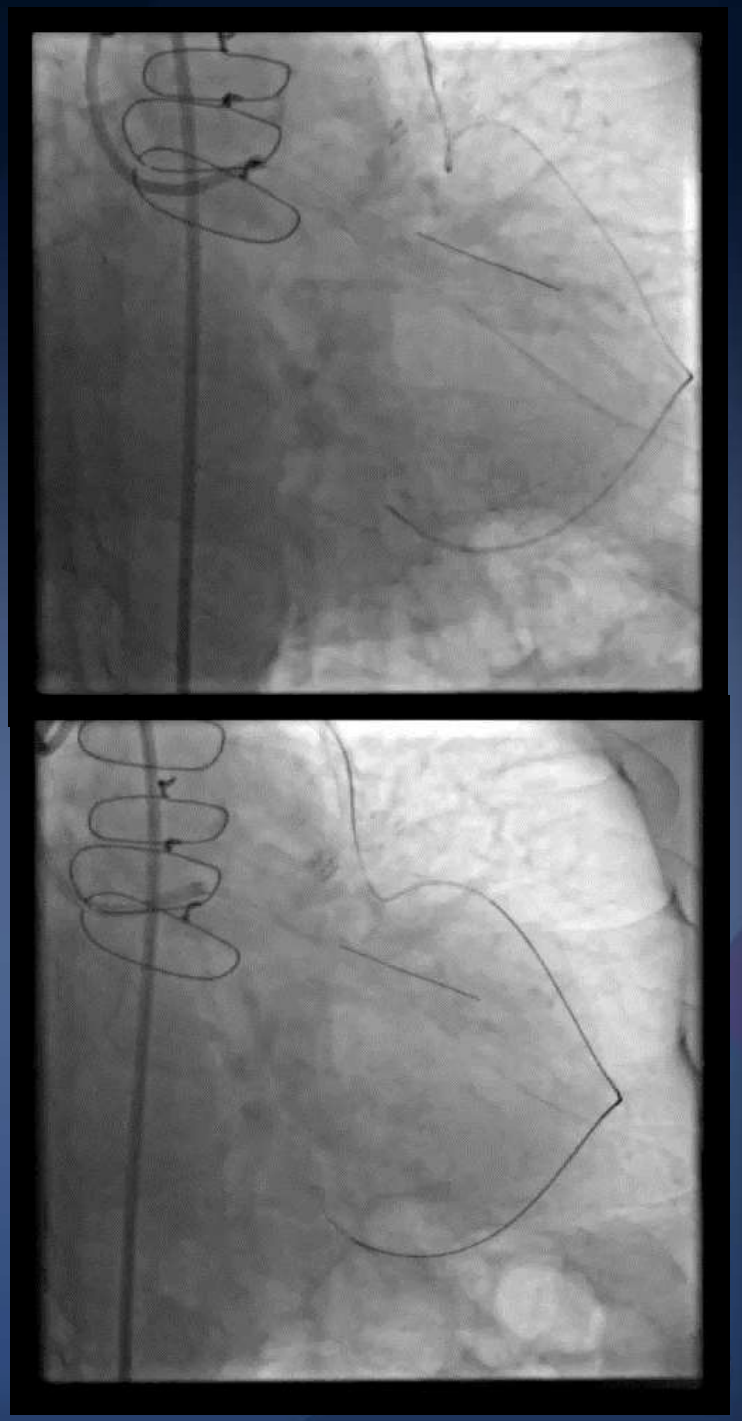




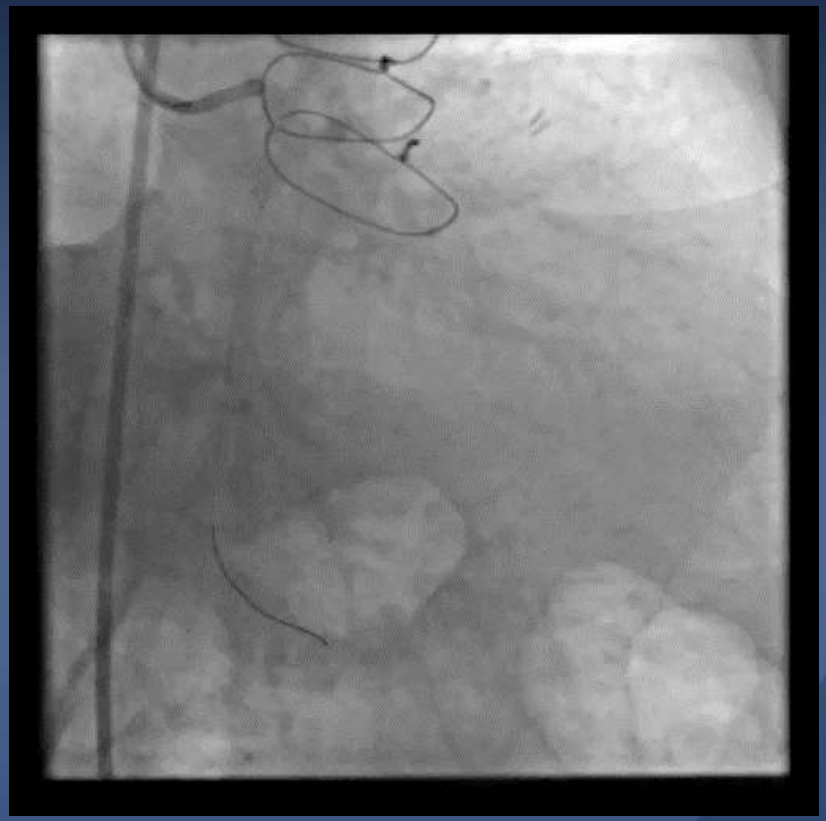


PCI to LCX





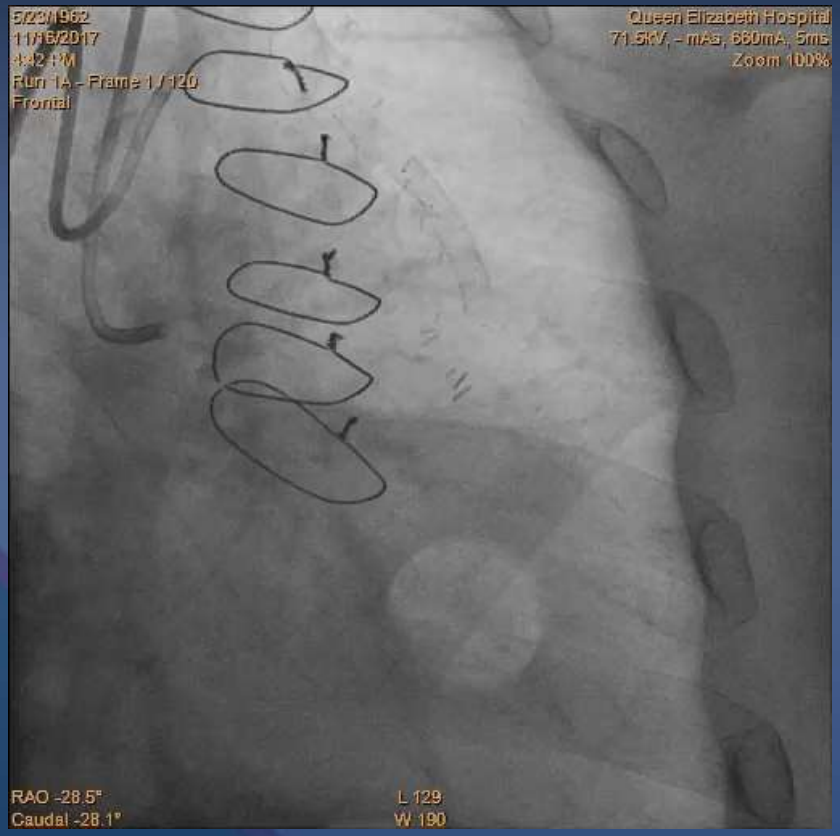
- Trial of LCX CTO failed
  - Not use 90cm short guiding despite 150 cm long caravel was used
  - JR guide no support

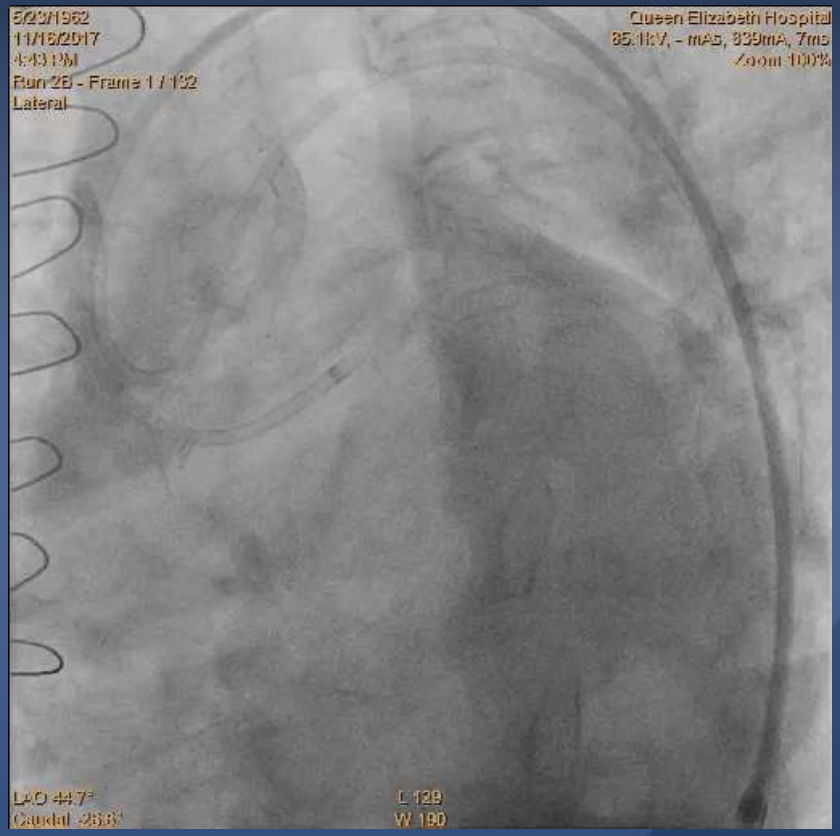


Retry LCX CTO

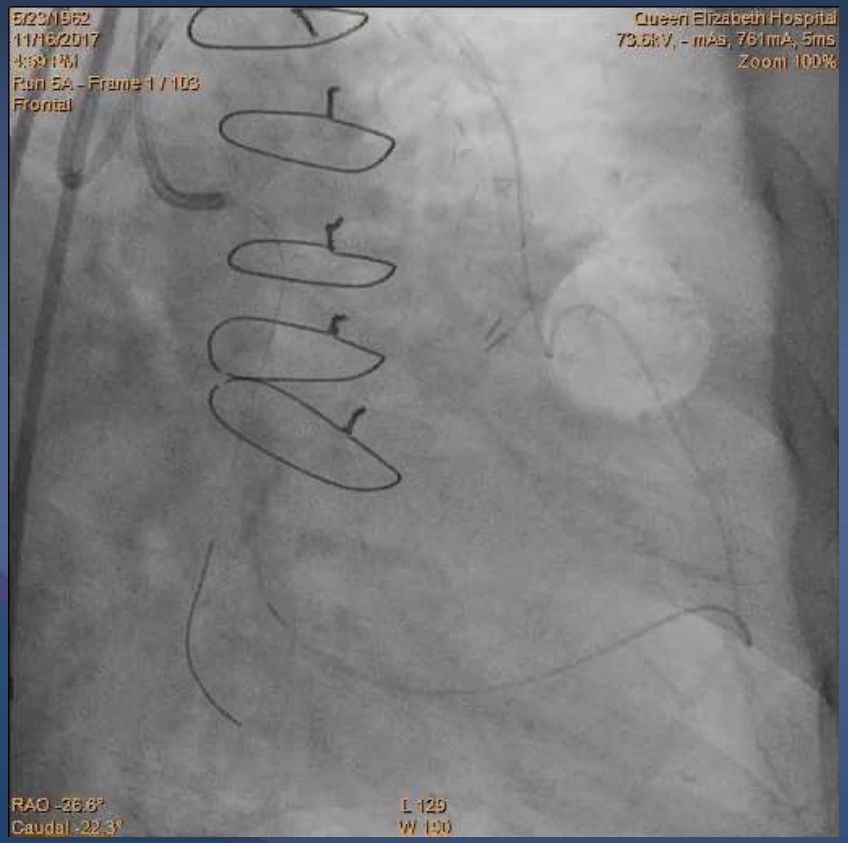
Bil femoral approach

AL1 90cm, EBU 3.5

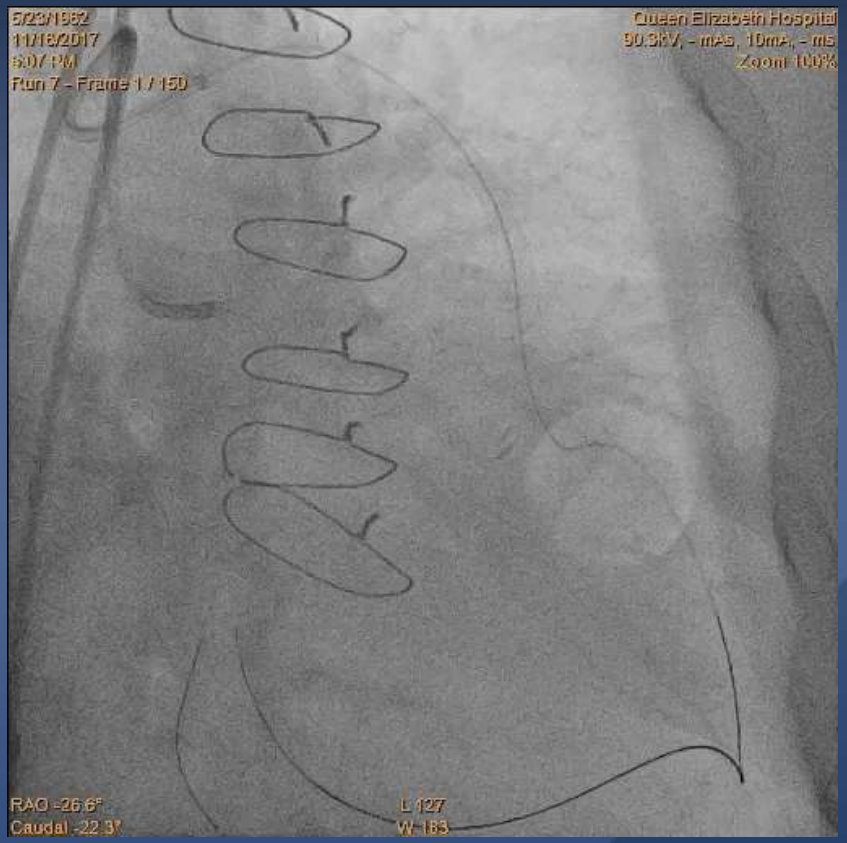




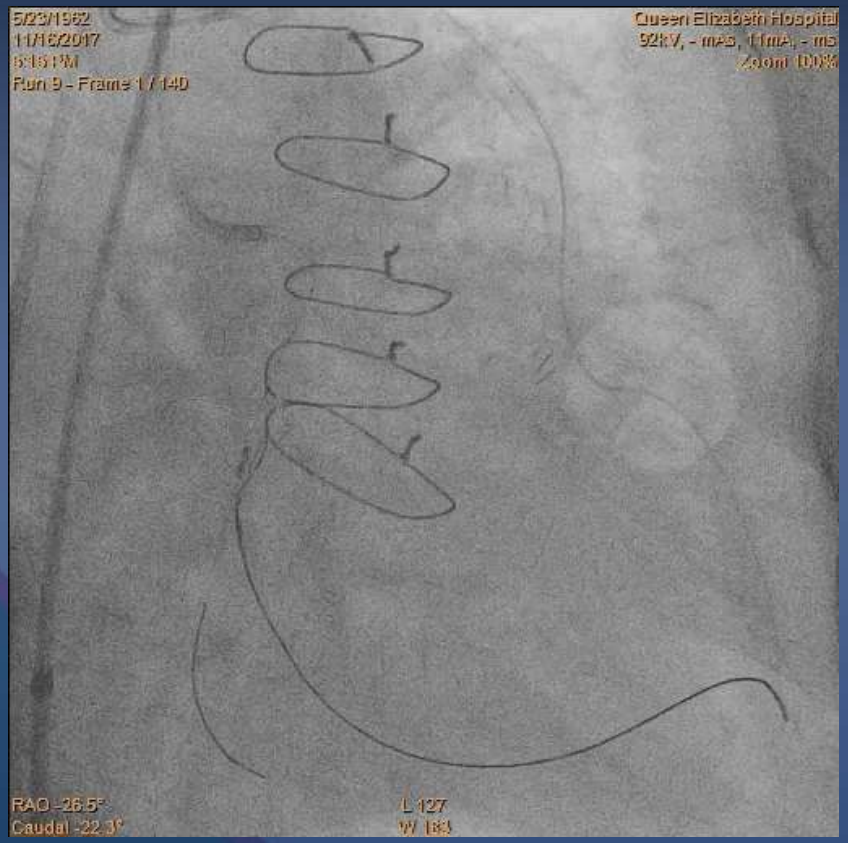
Same position where we failed



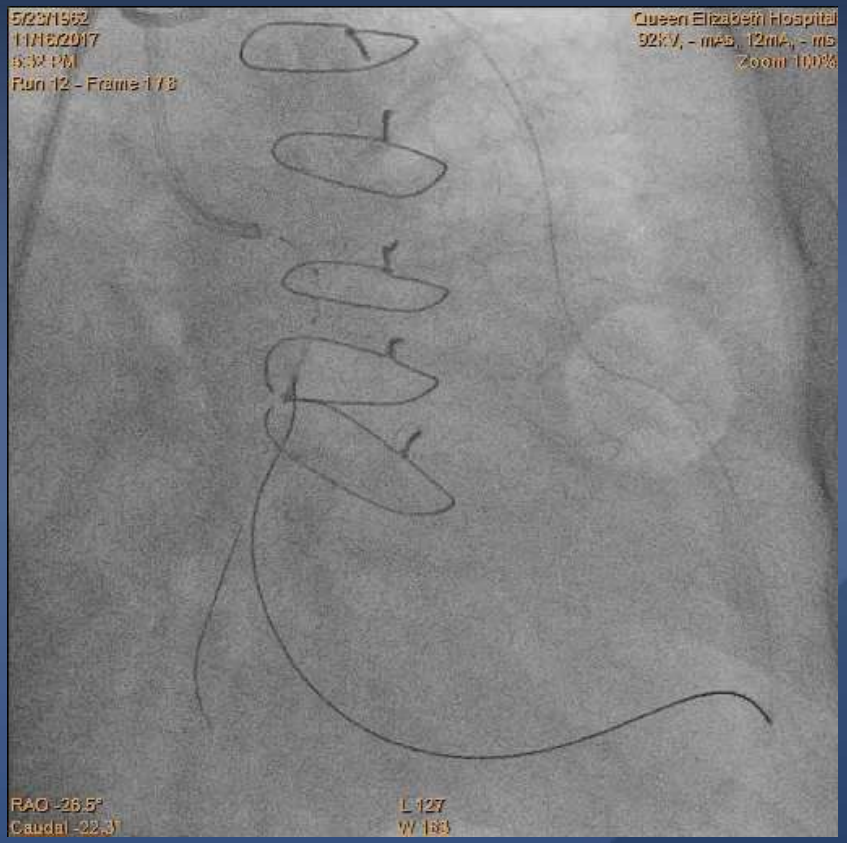
Retrograde XT-A then Gaia 2nd



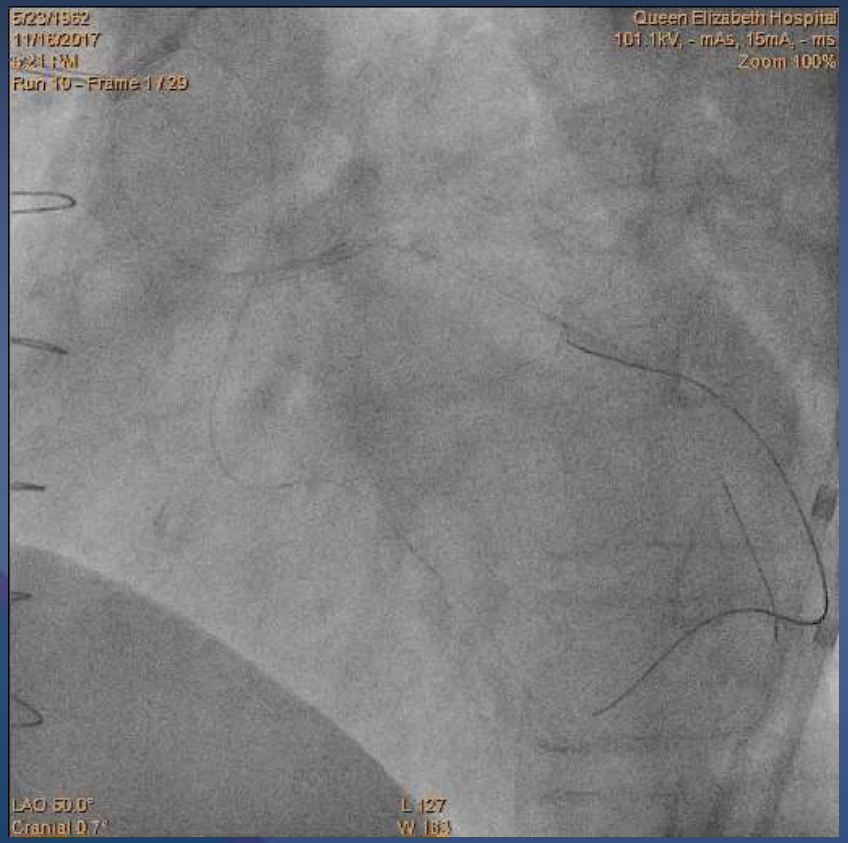
Retrograde knuckle with XT

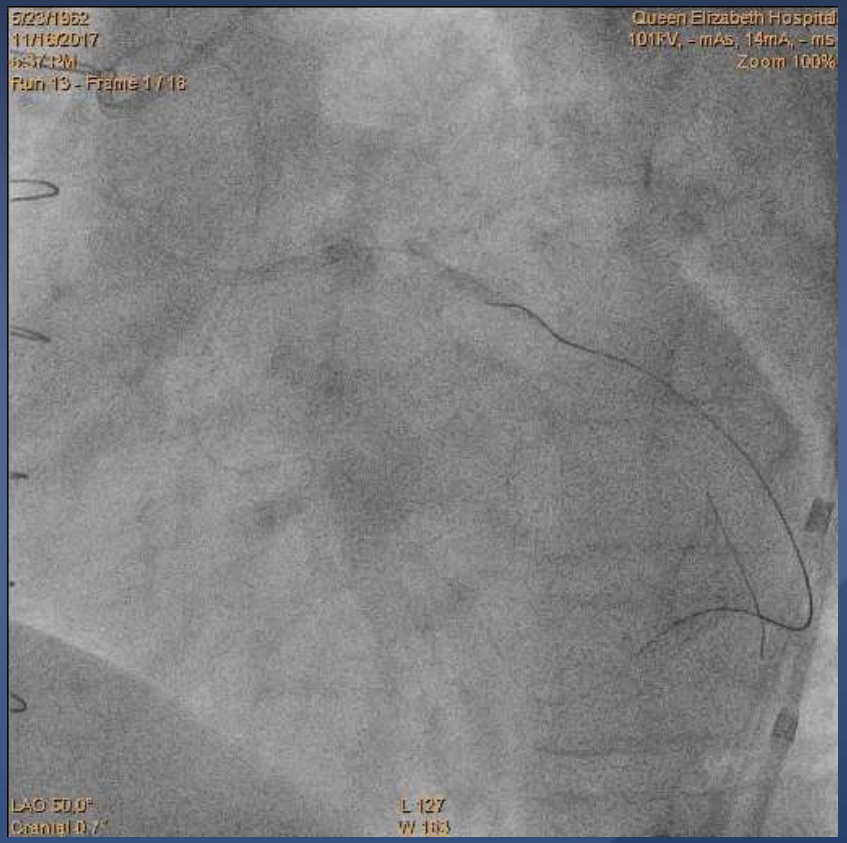


Gaia 2nd in mLCX subintimal plane

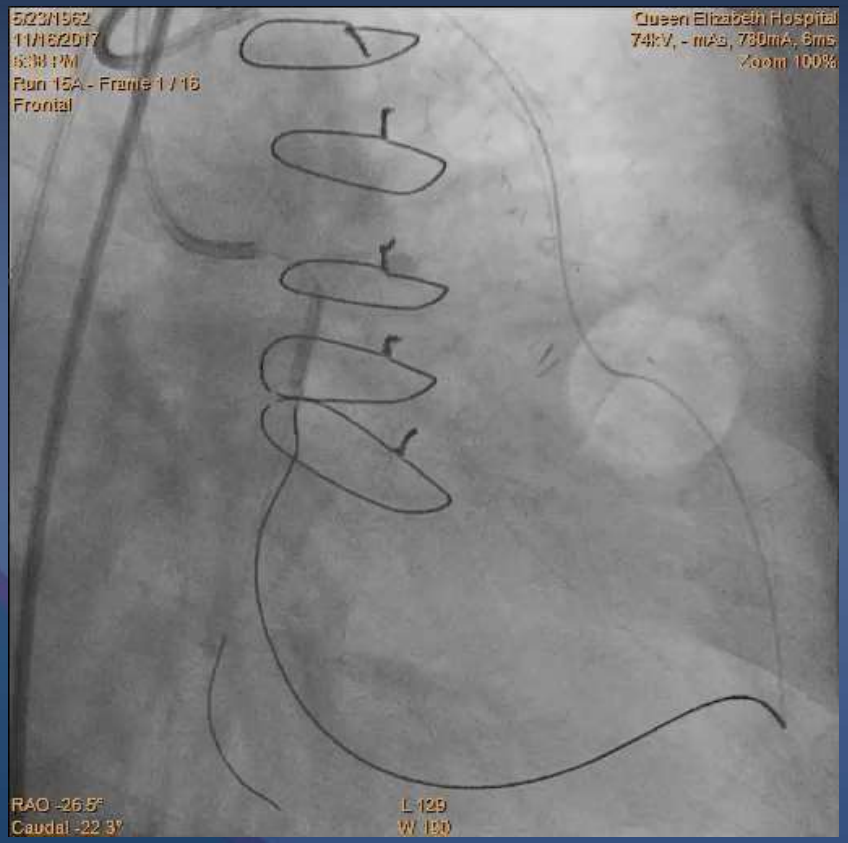


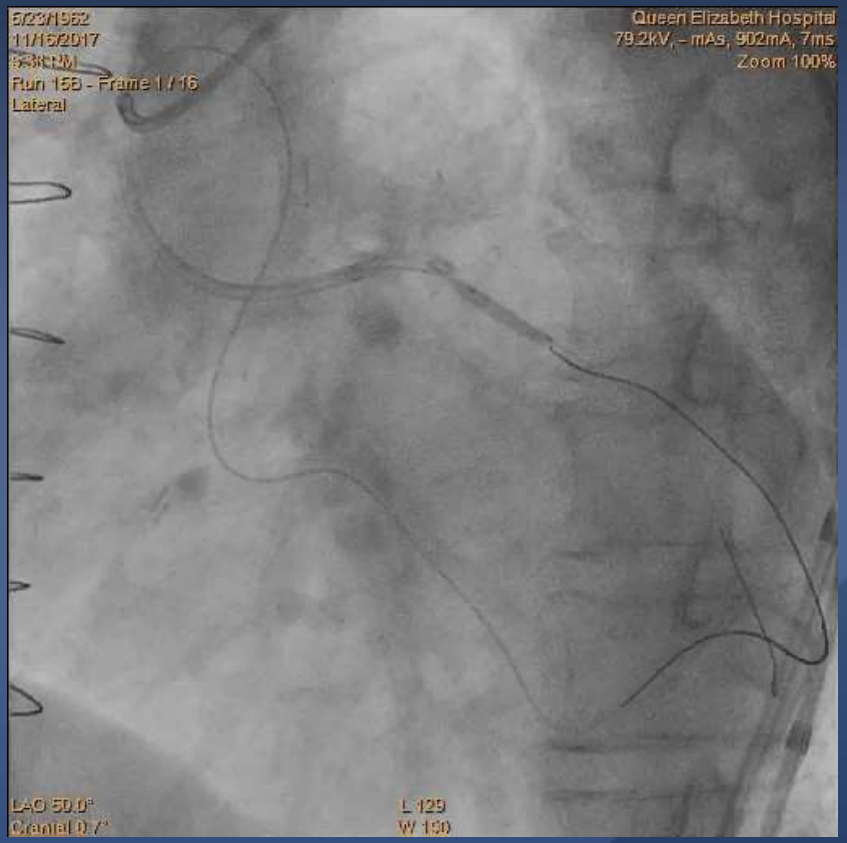
Reverse CART



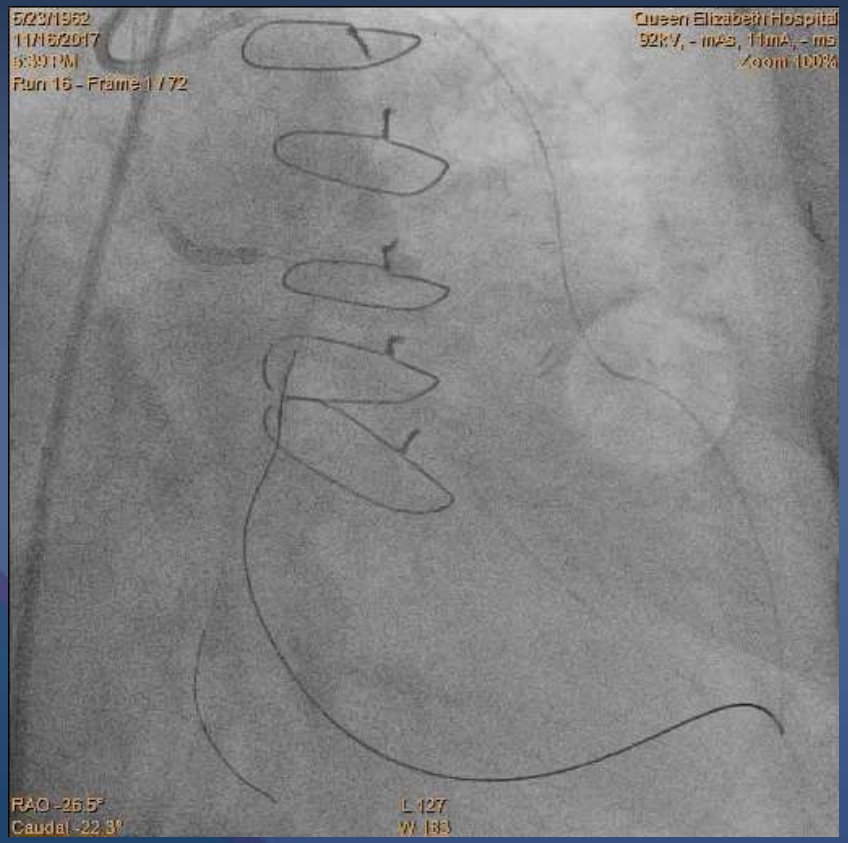


End balloon wiring technique

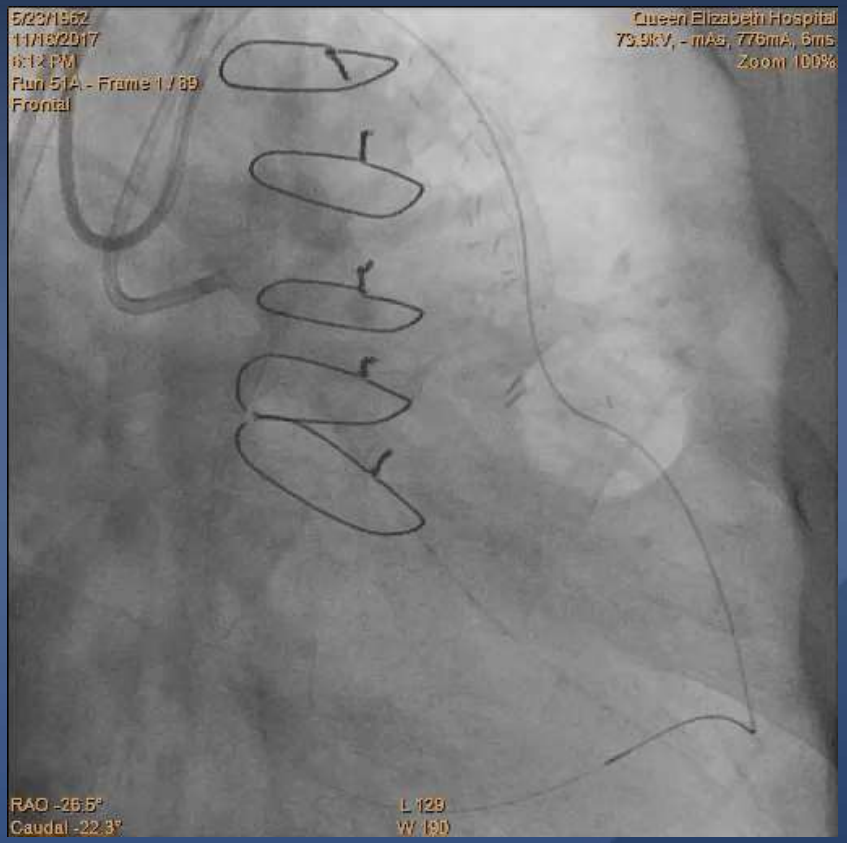




Externization

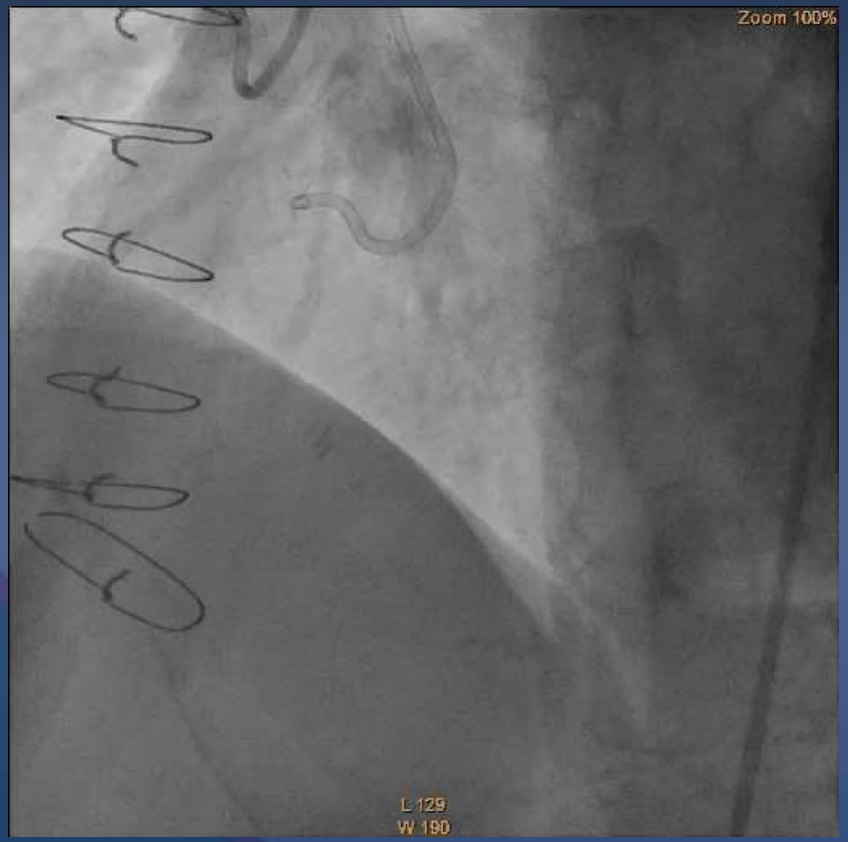


IVUS guided 3 overlapping DES

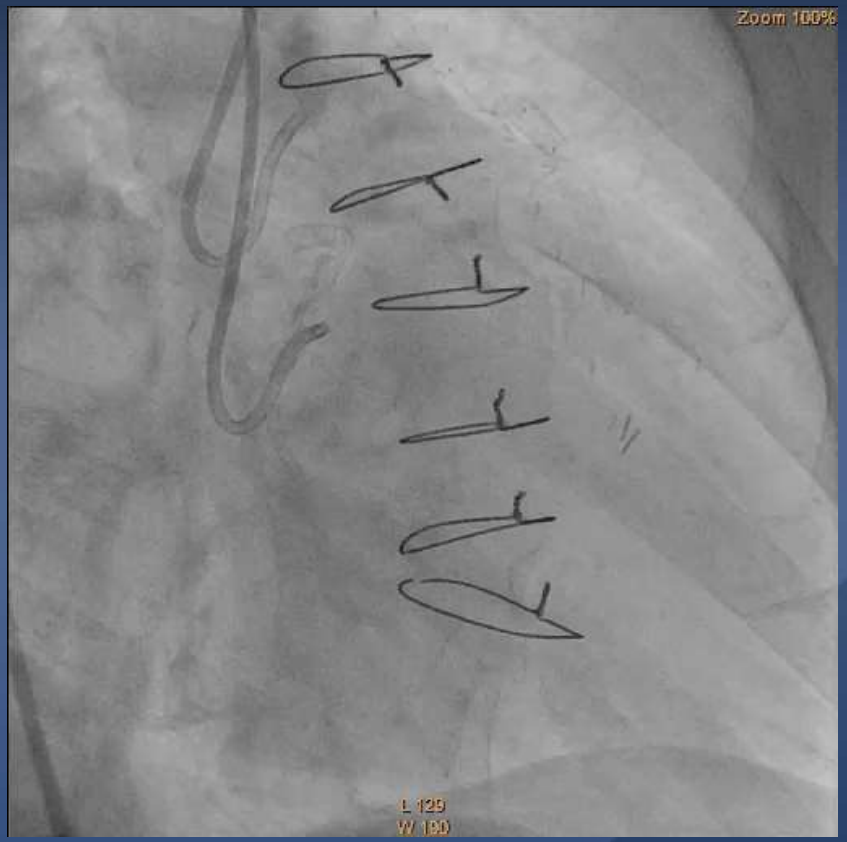


Stage PCI to RCA CTO

RRA slender ,7Fr AL1 SH to RCA



RFA 7F AL1 90cm to SVG

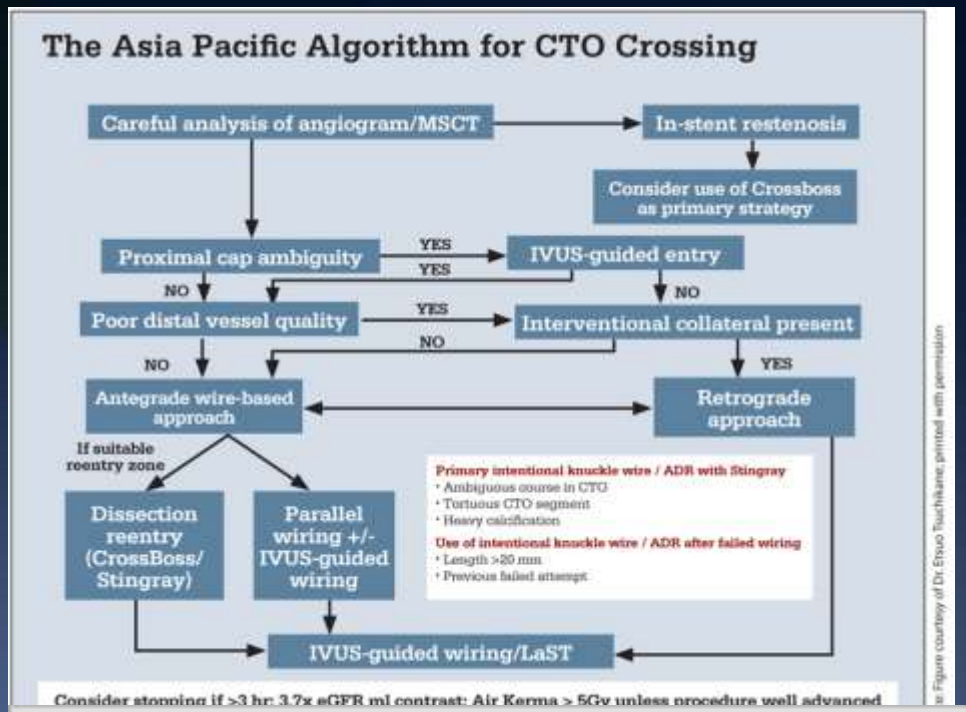


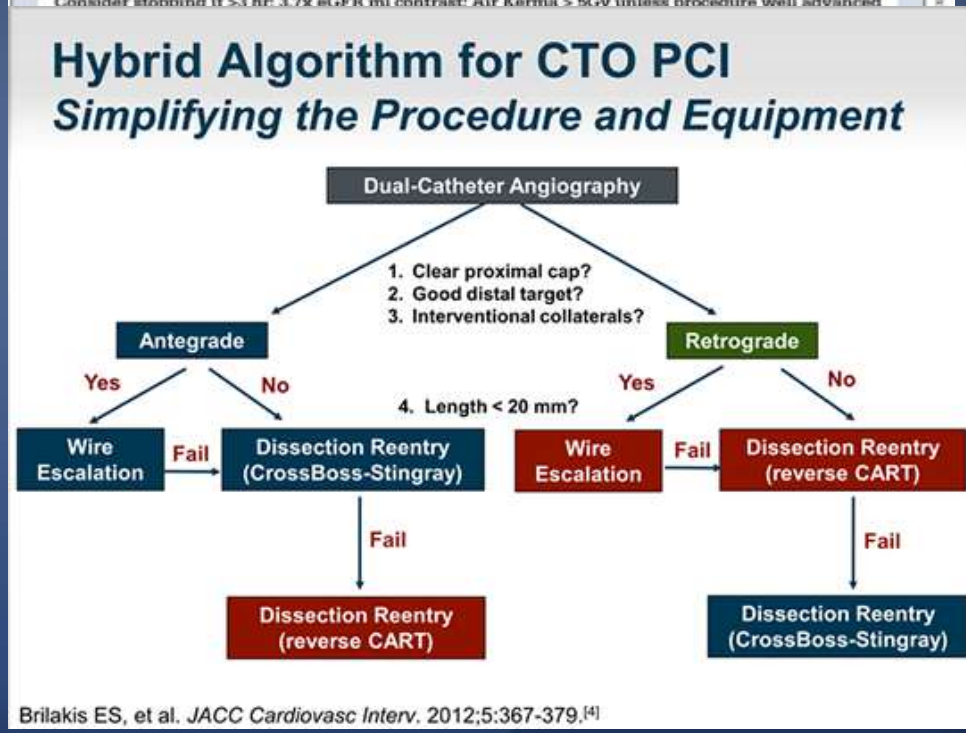
RCA CTO

- J CTO score 3
- Long
- Calcification
- Bend

- Interventional collateral+
- Stump+/−
- Distal cap end at bifurcati on

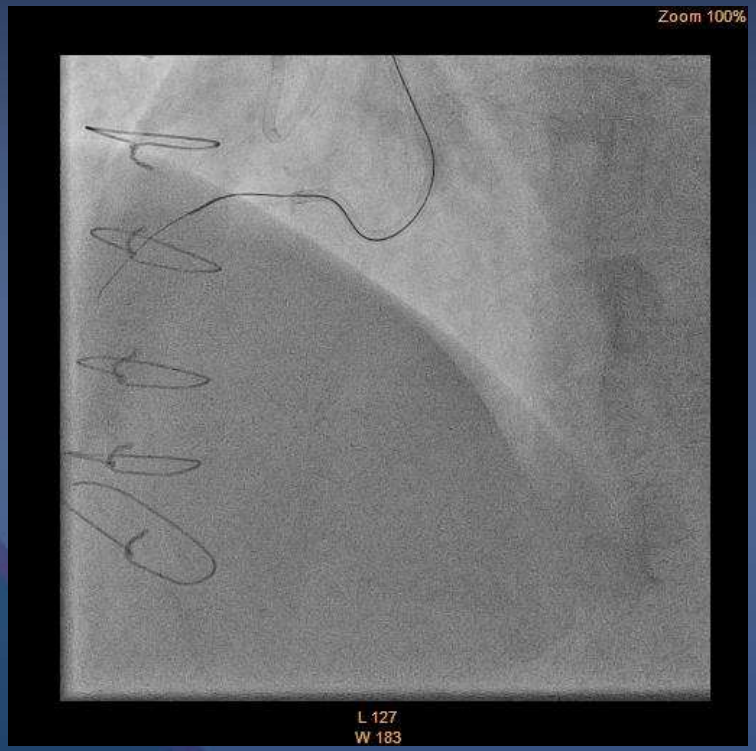
- Strategy
  - AWE
  - Retrograde

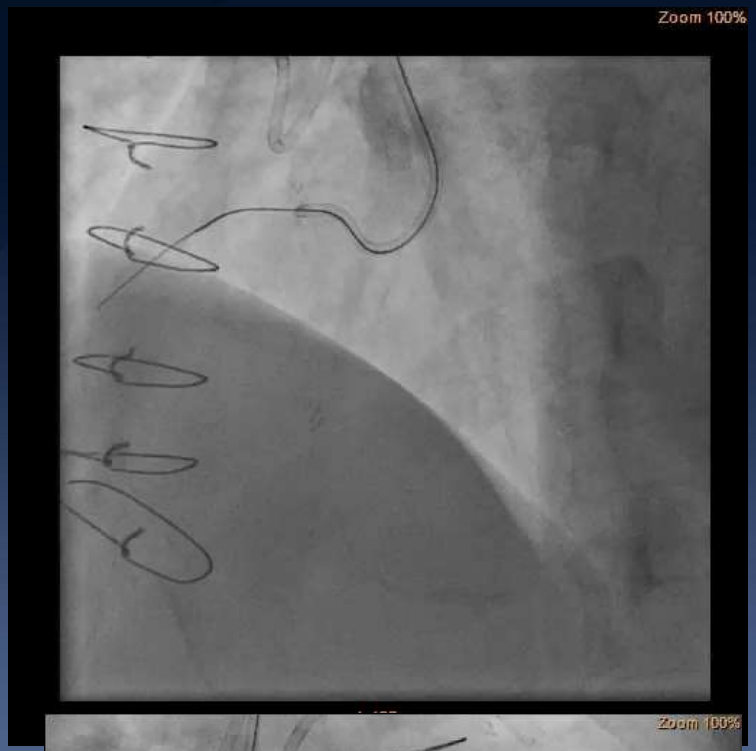


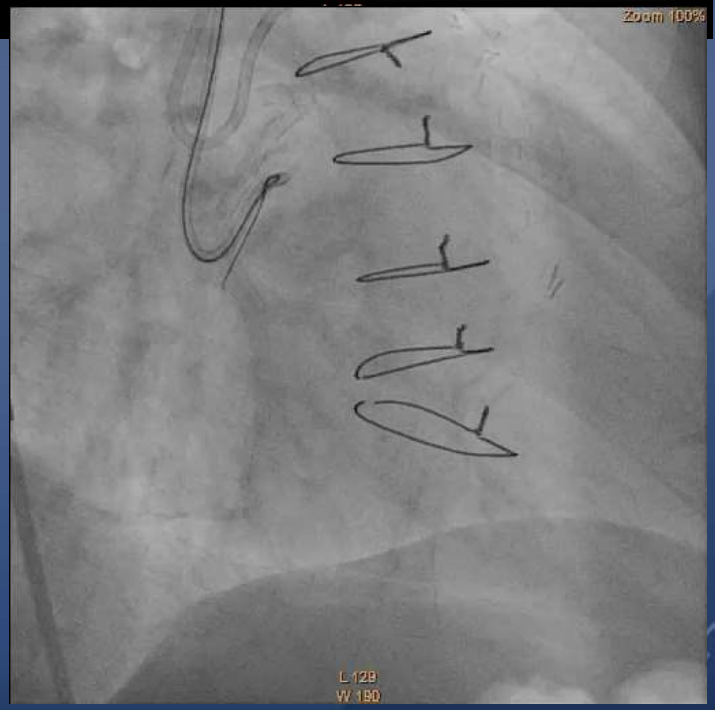


Brilakis ES, et al. *JACC Cardiovasc Interv*. 2012;5:367-379.[4]

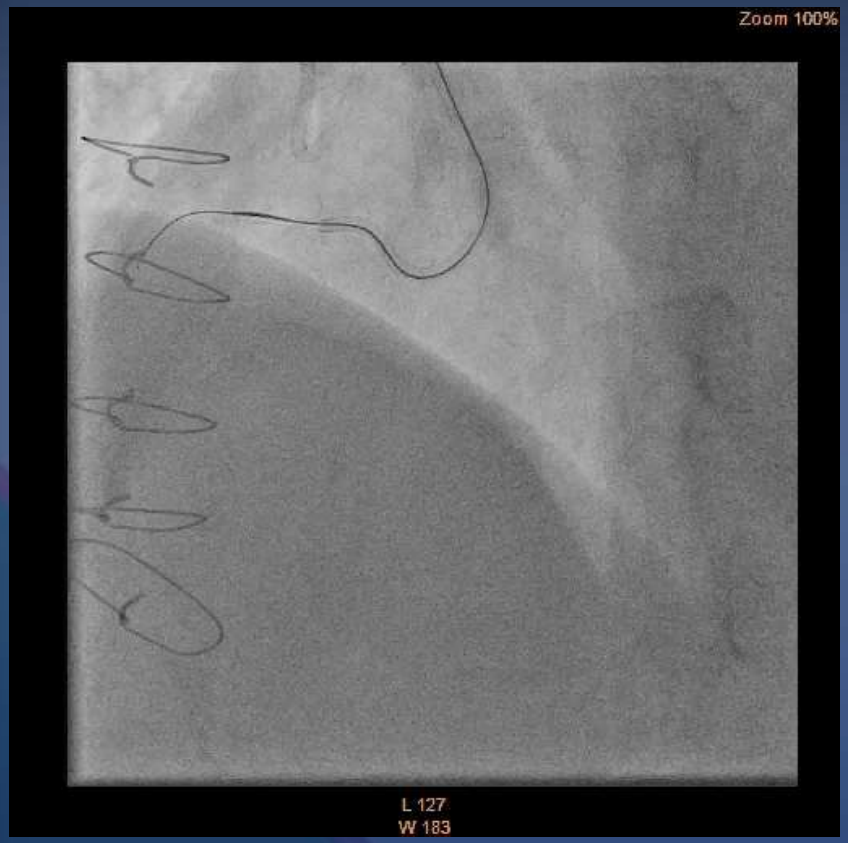
Antegrade Turnpike LP
XT-A

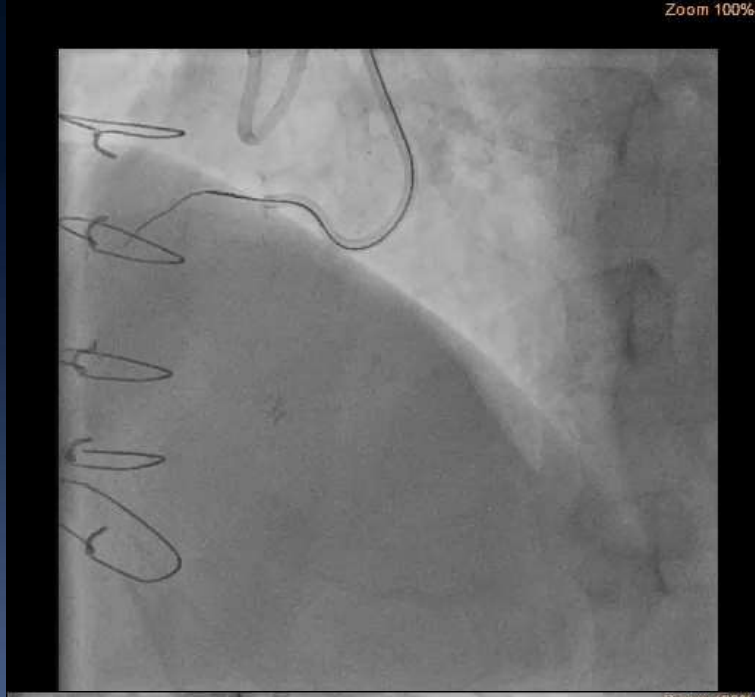


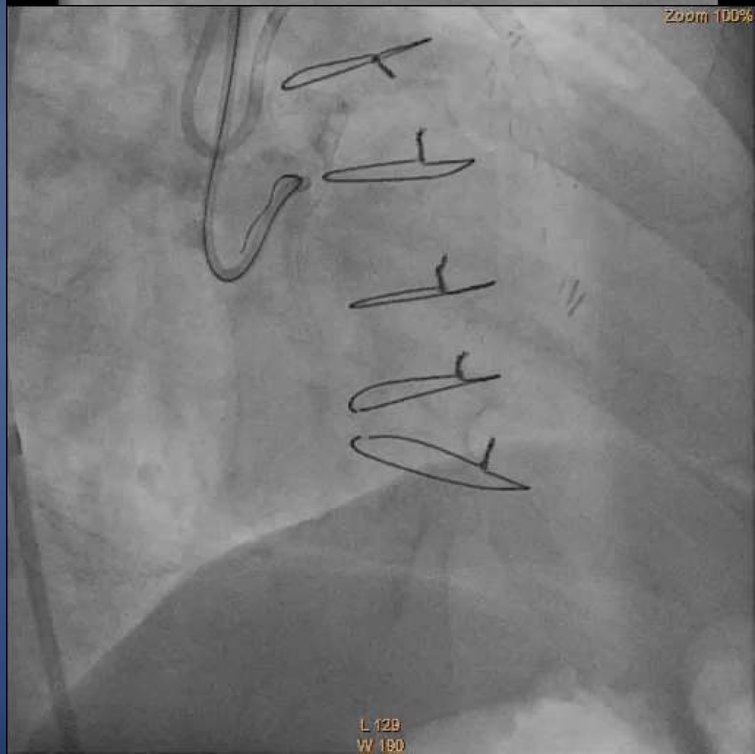




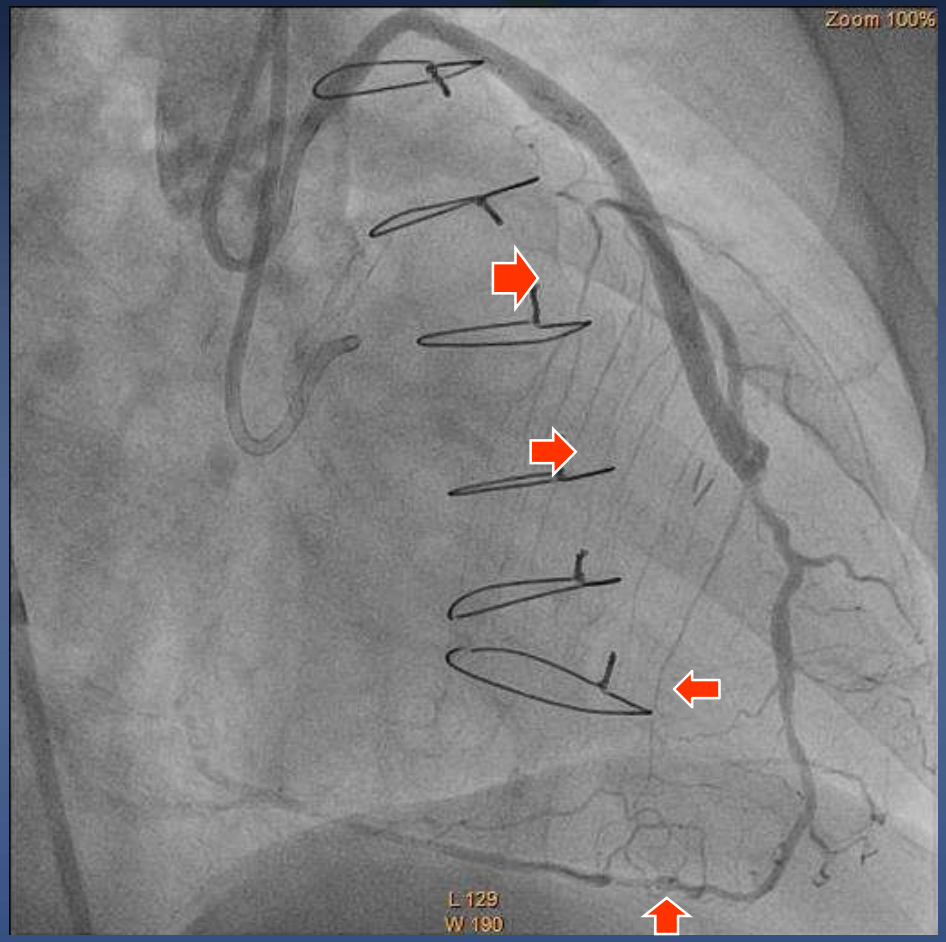
Step up to Gaia 3rd



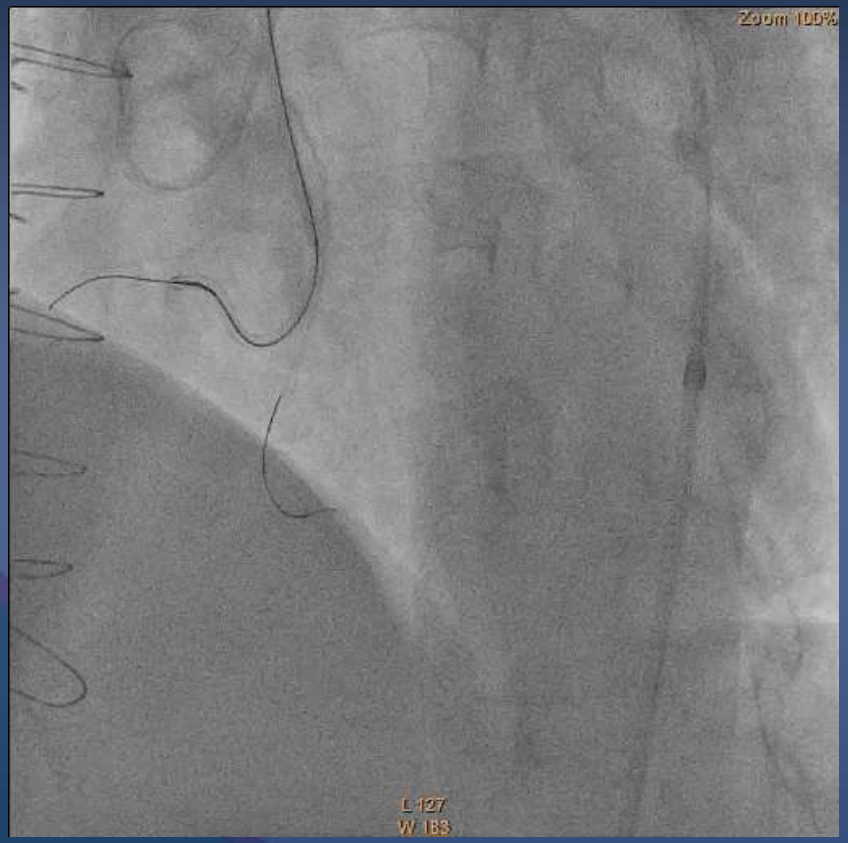




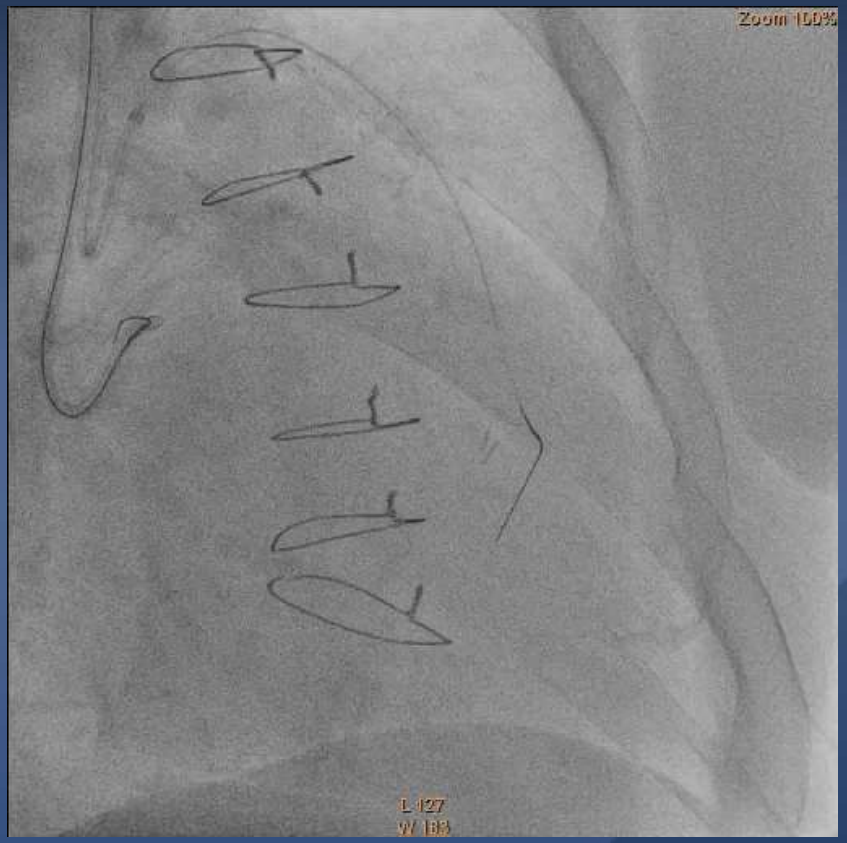
Possible retrograde channel



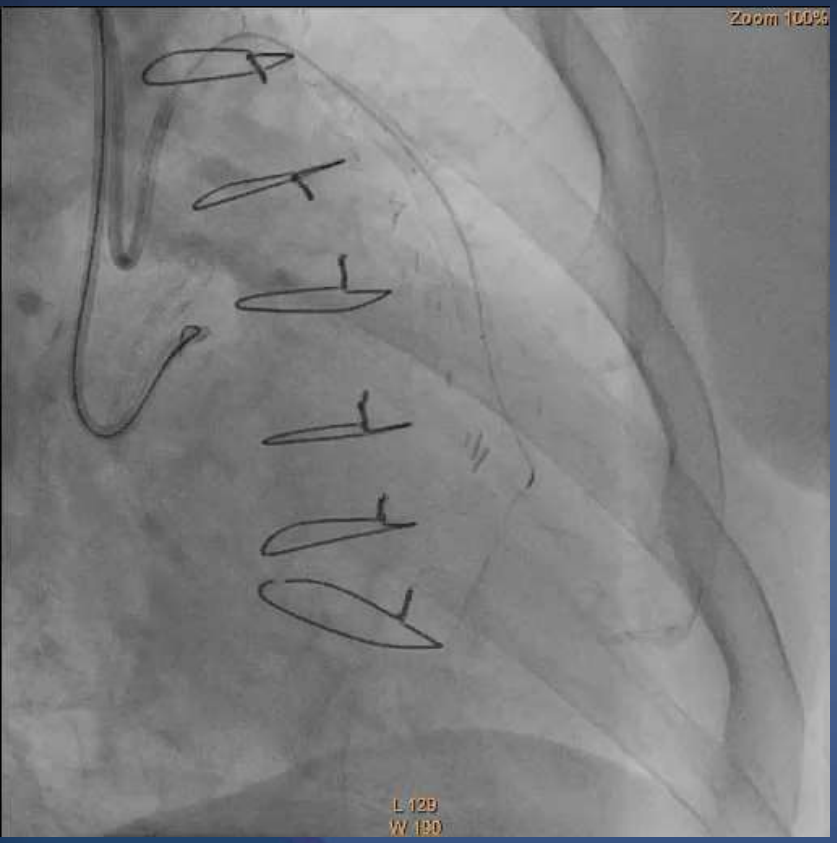
Runthrough GW



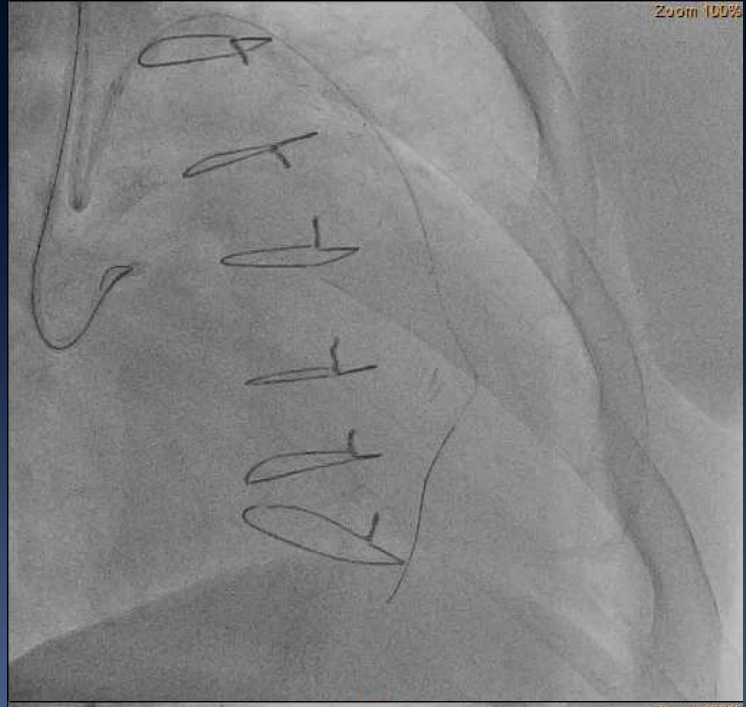
Angulated septal origin

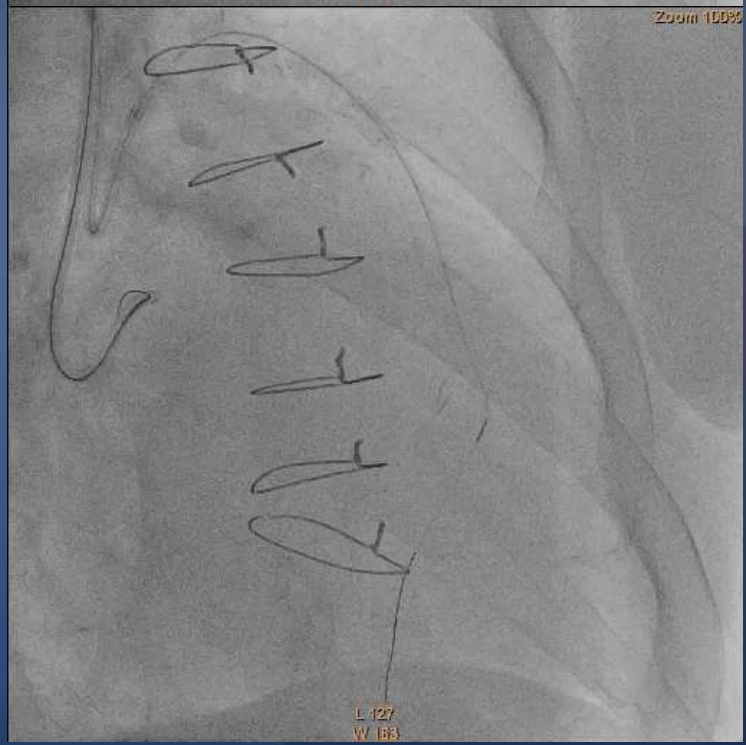


Tip injection

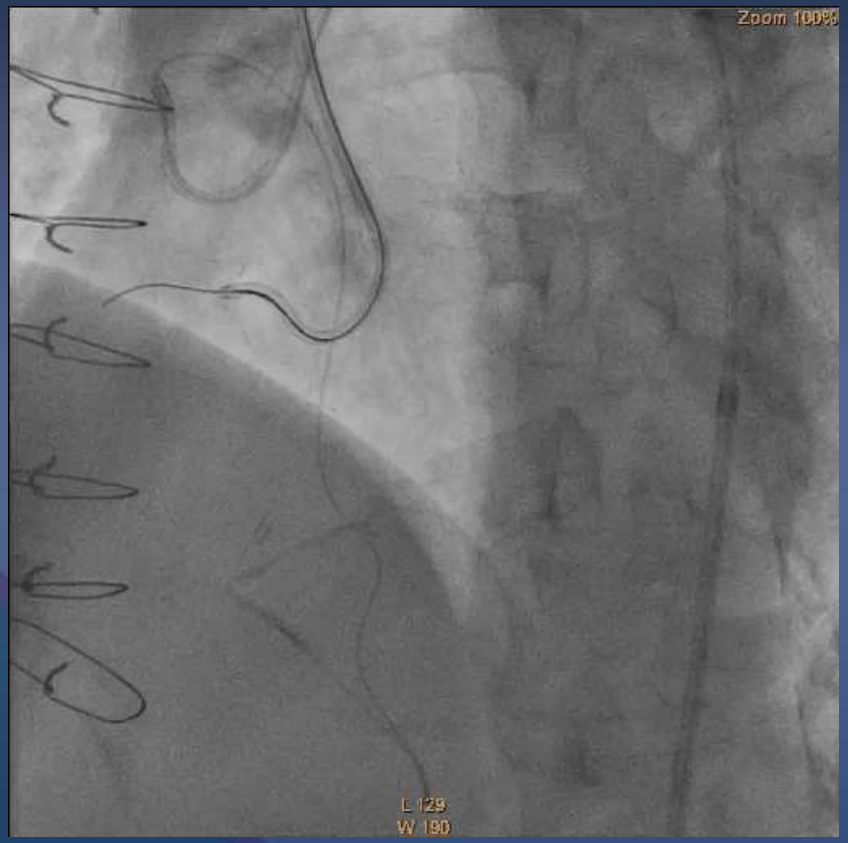


Sion GW

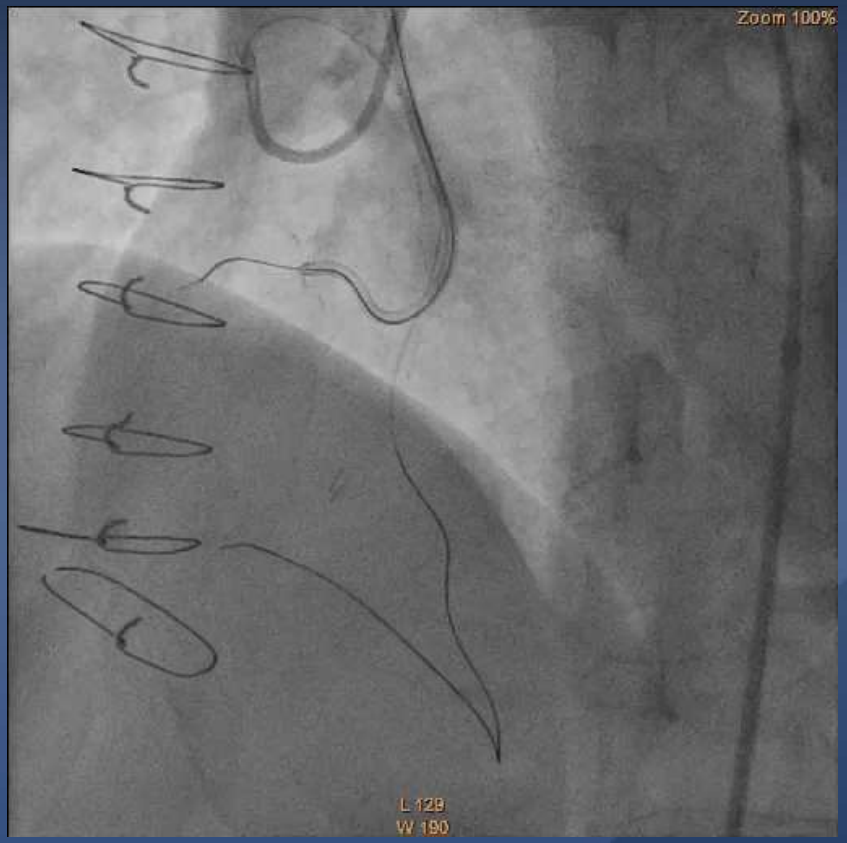




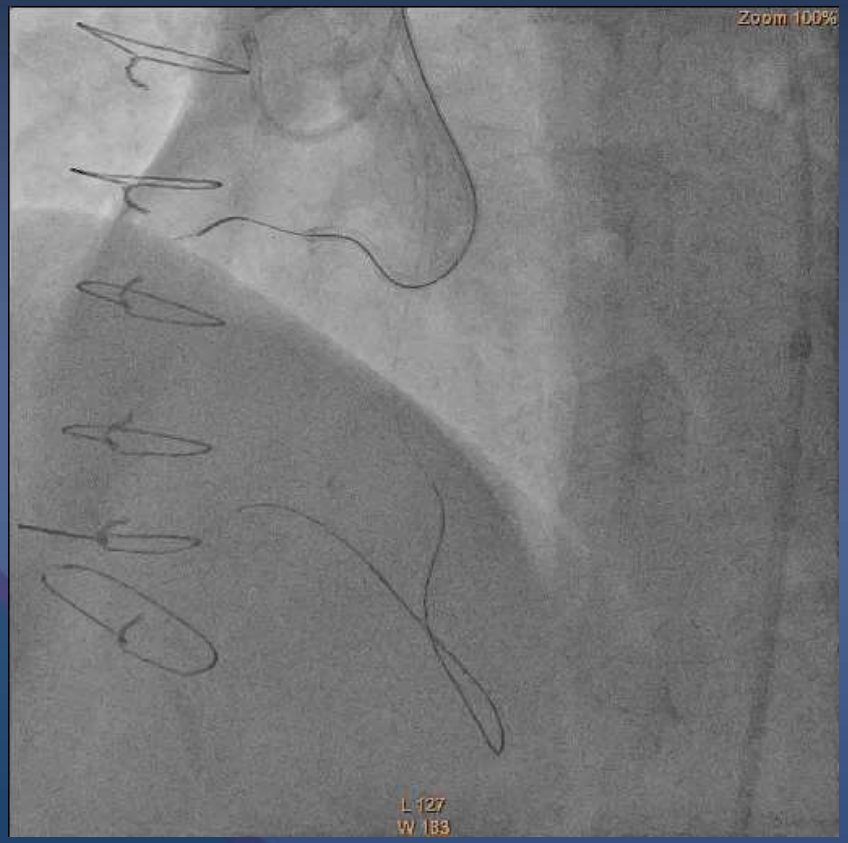
Try XT-A , fail to enter distal cap



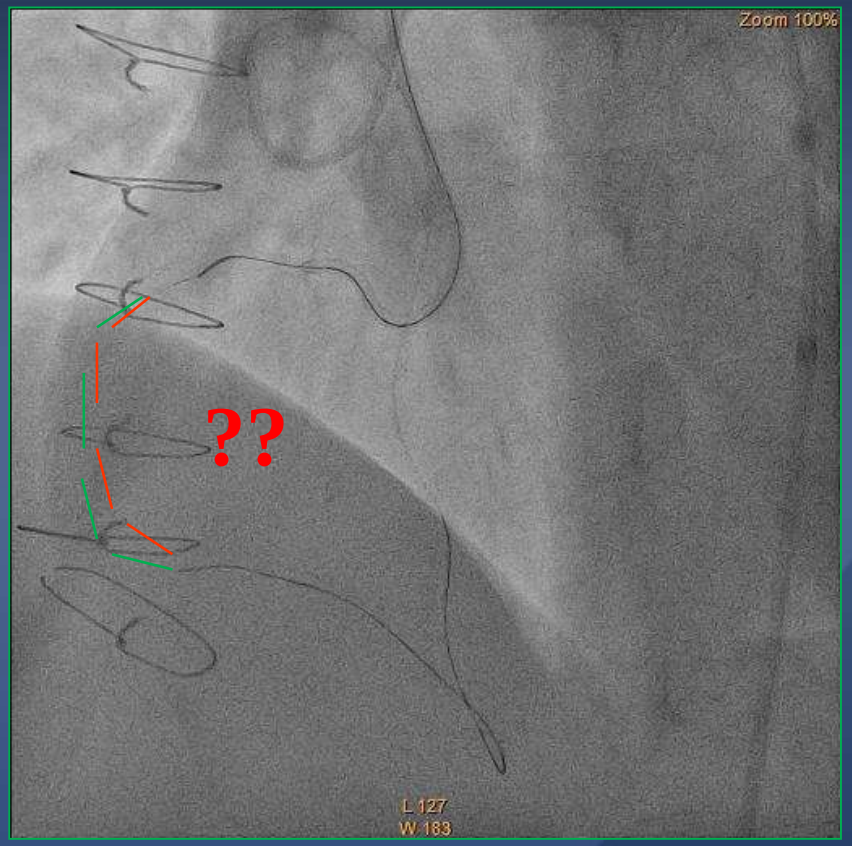
STEP up to Gaia 3rd and able to puncture into cTO



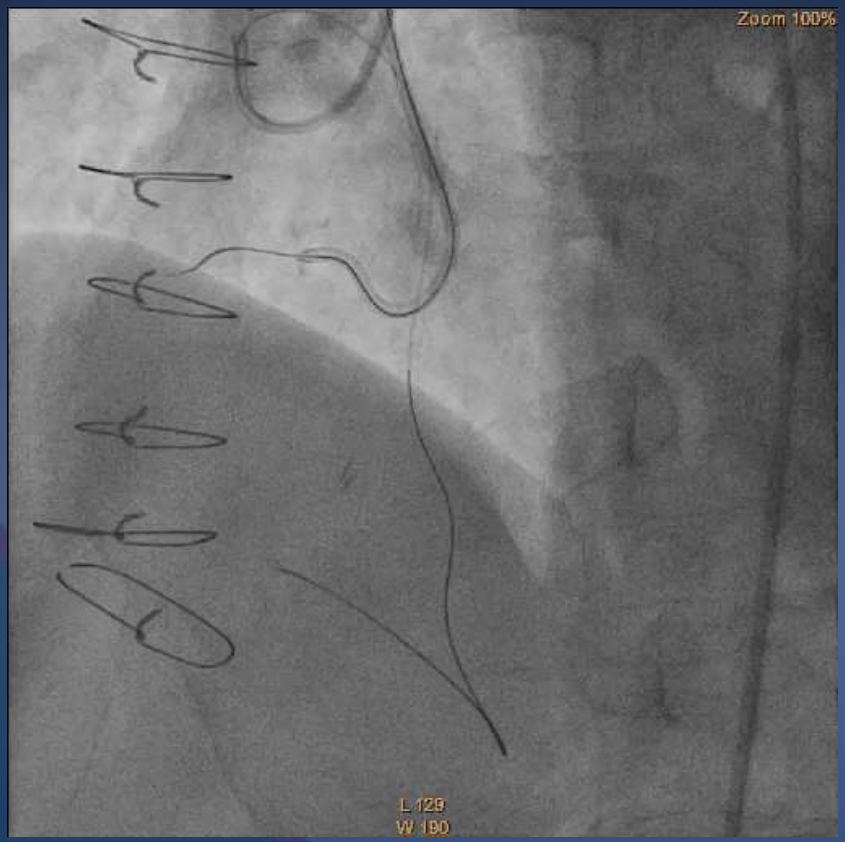
Further advancement difficult

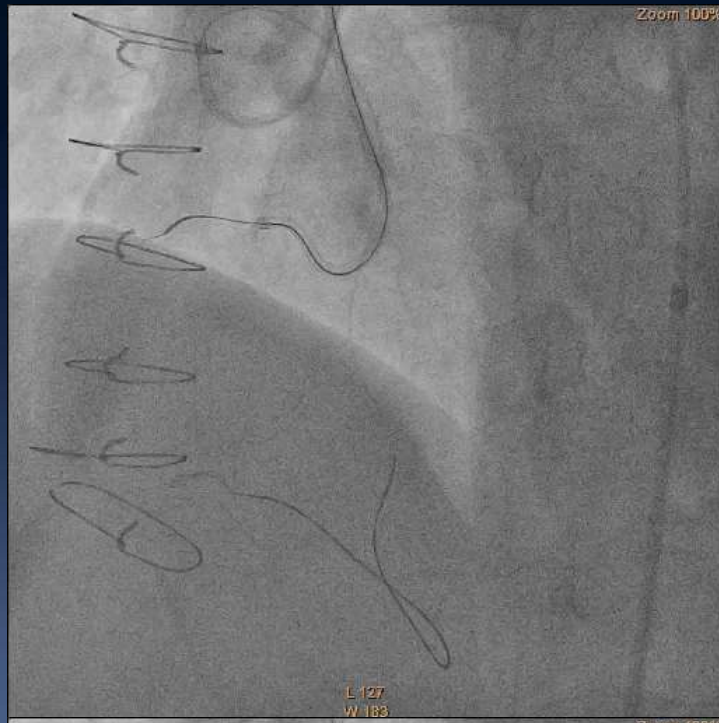


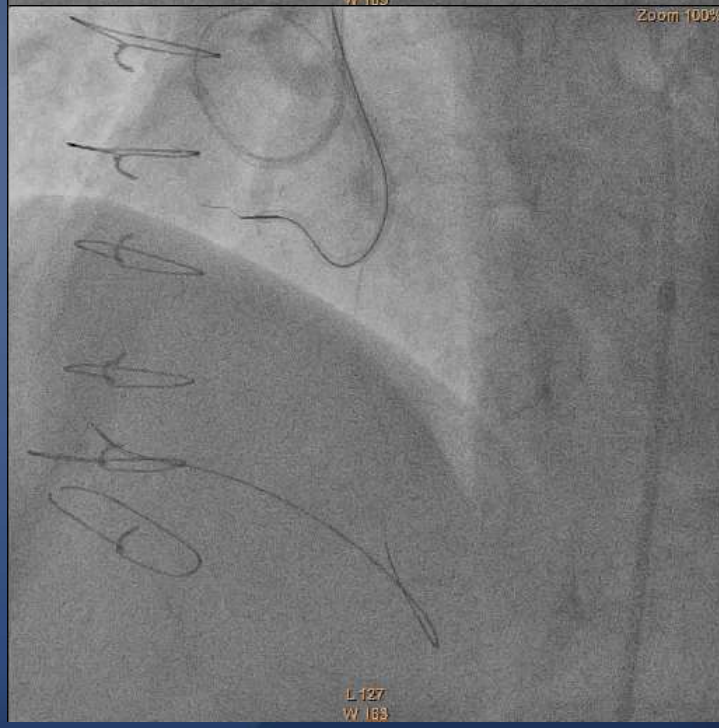
Vessel course?



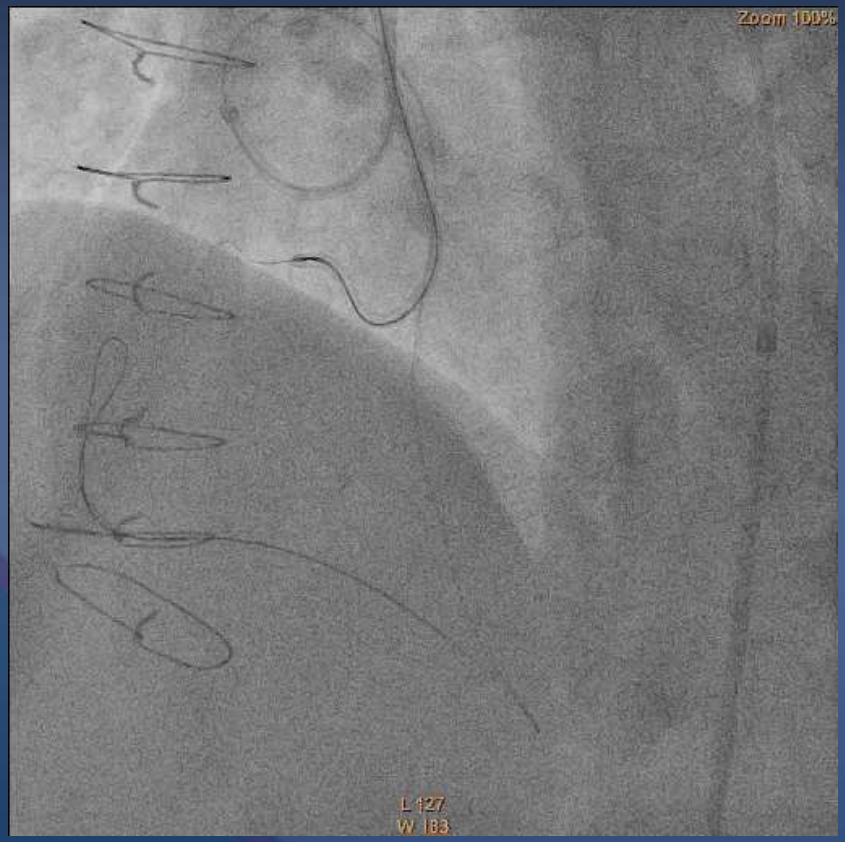
XT knuckle

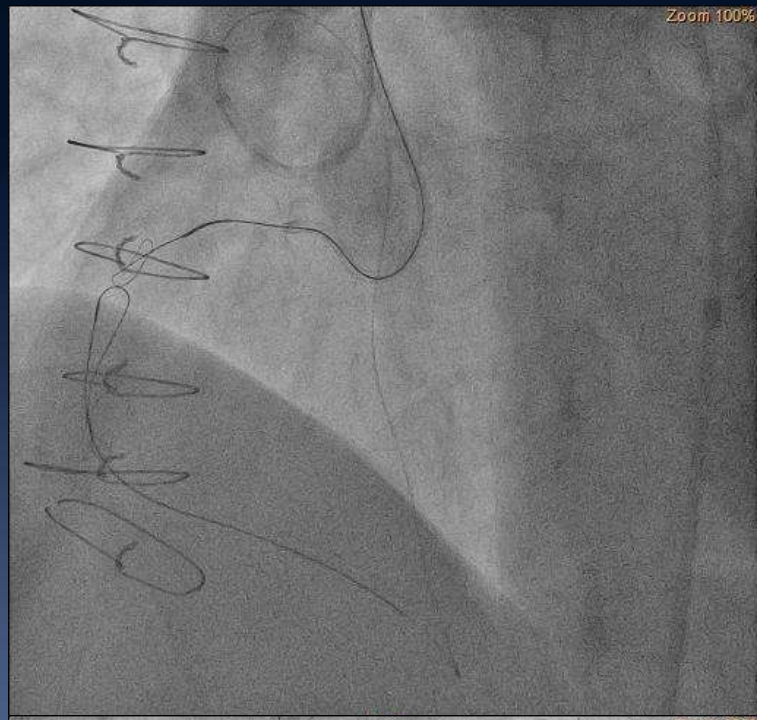


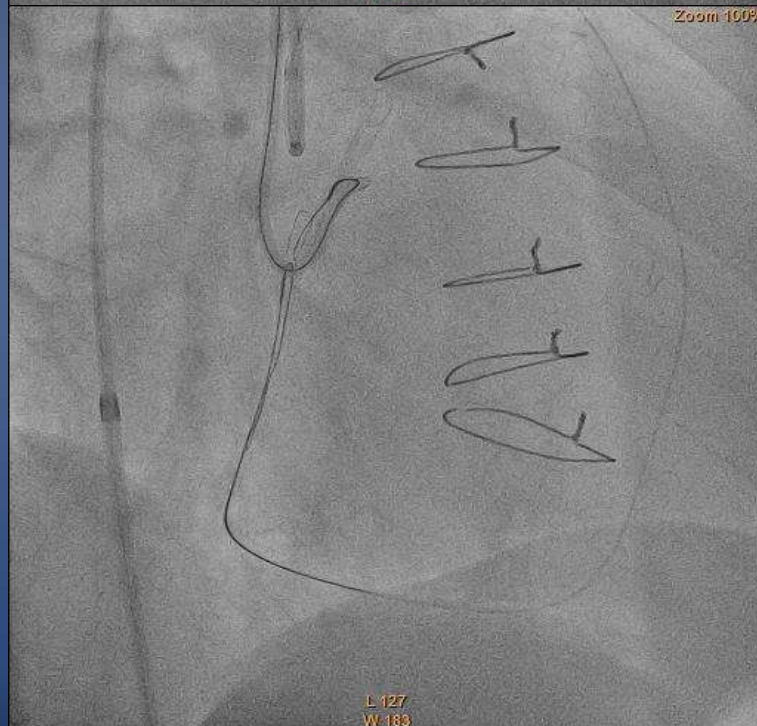




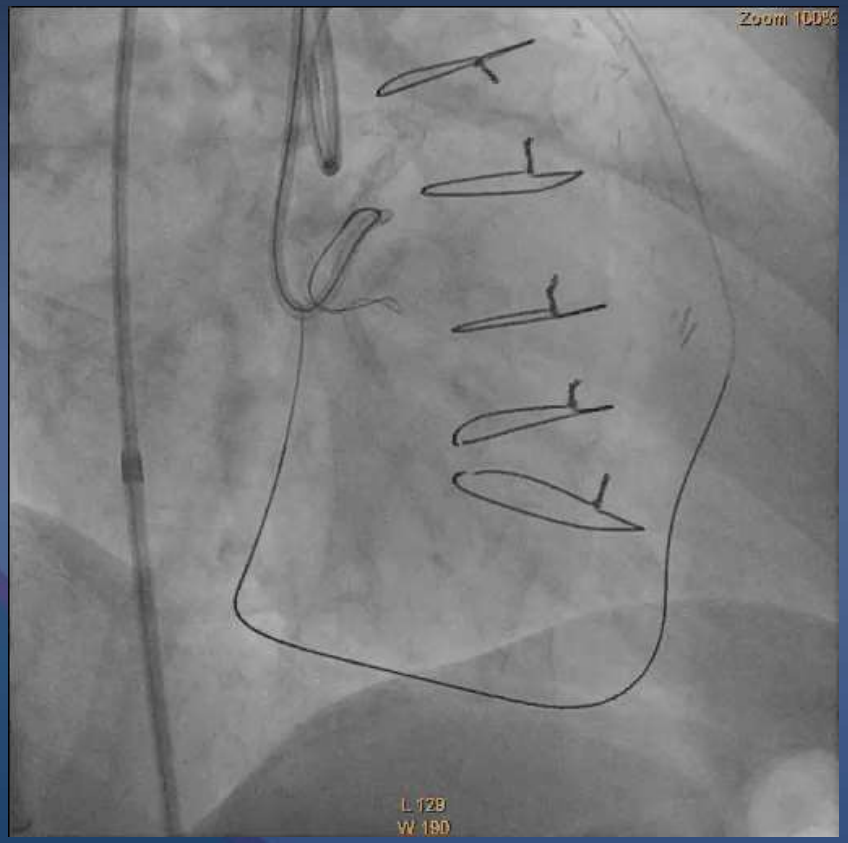
Antegrade knuckle with XT

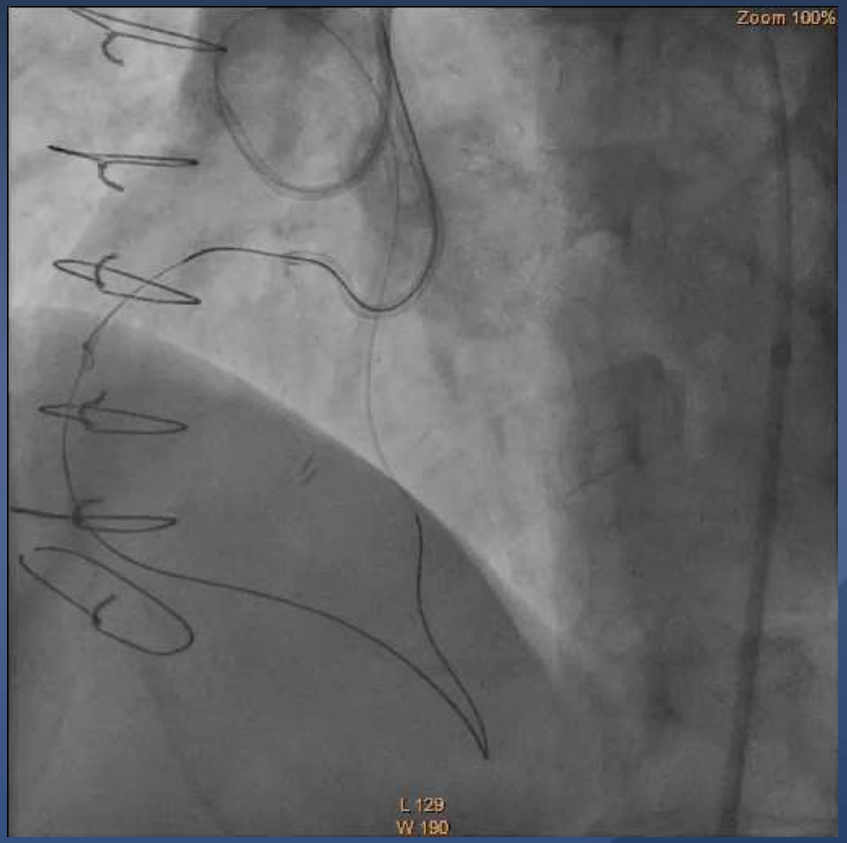




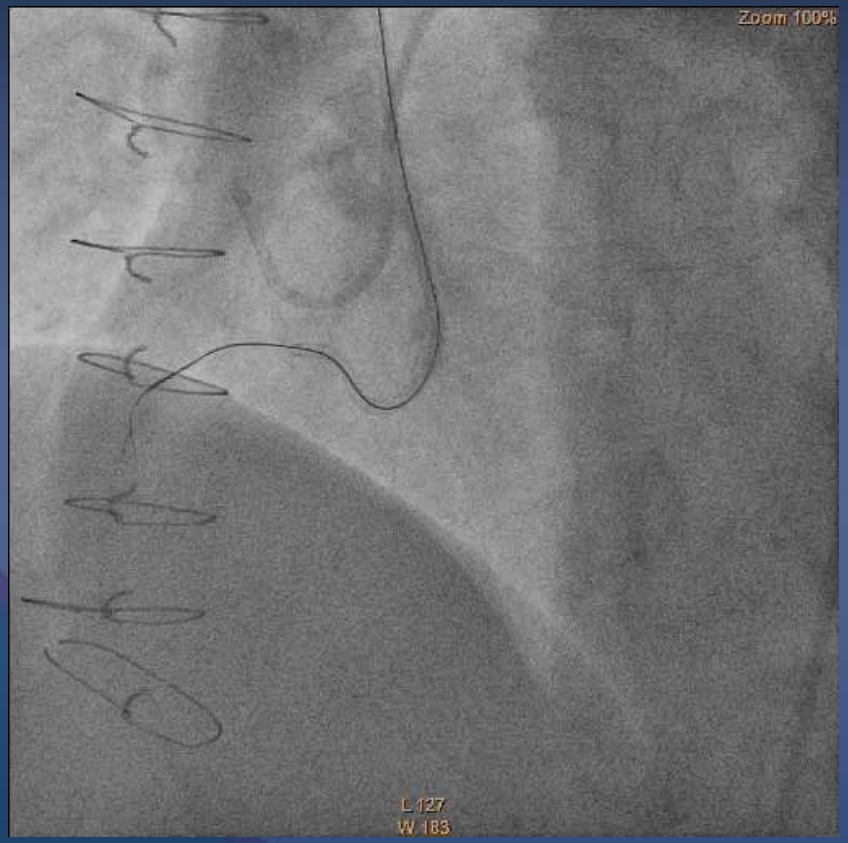


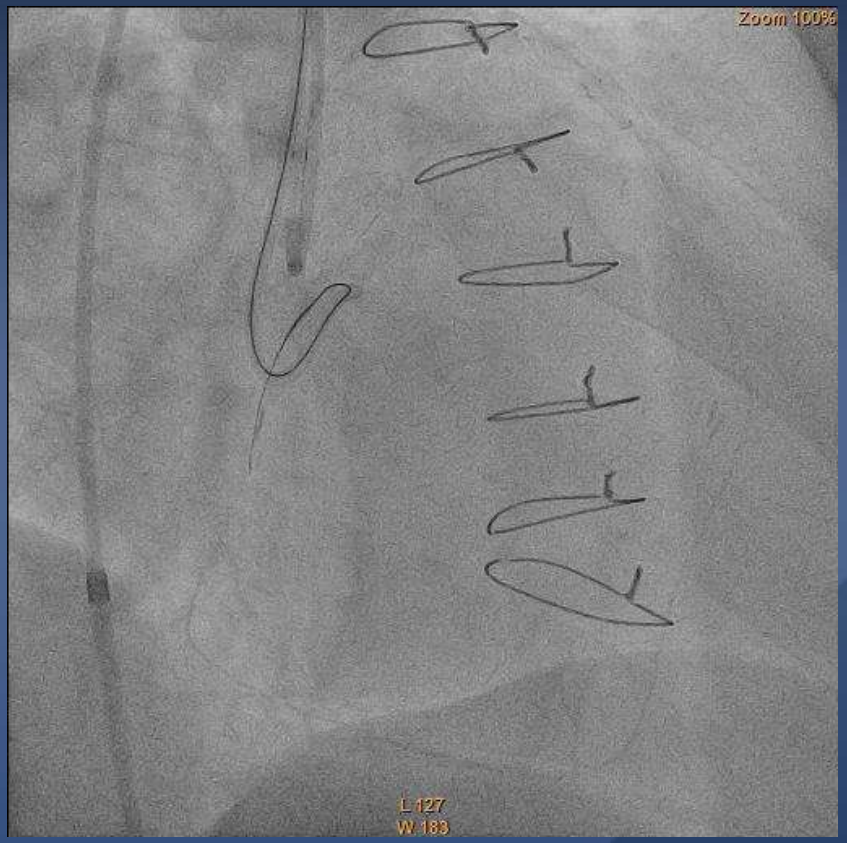
Retrograde Conquest pro 9



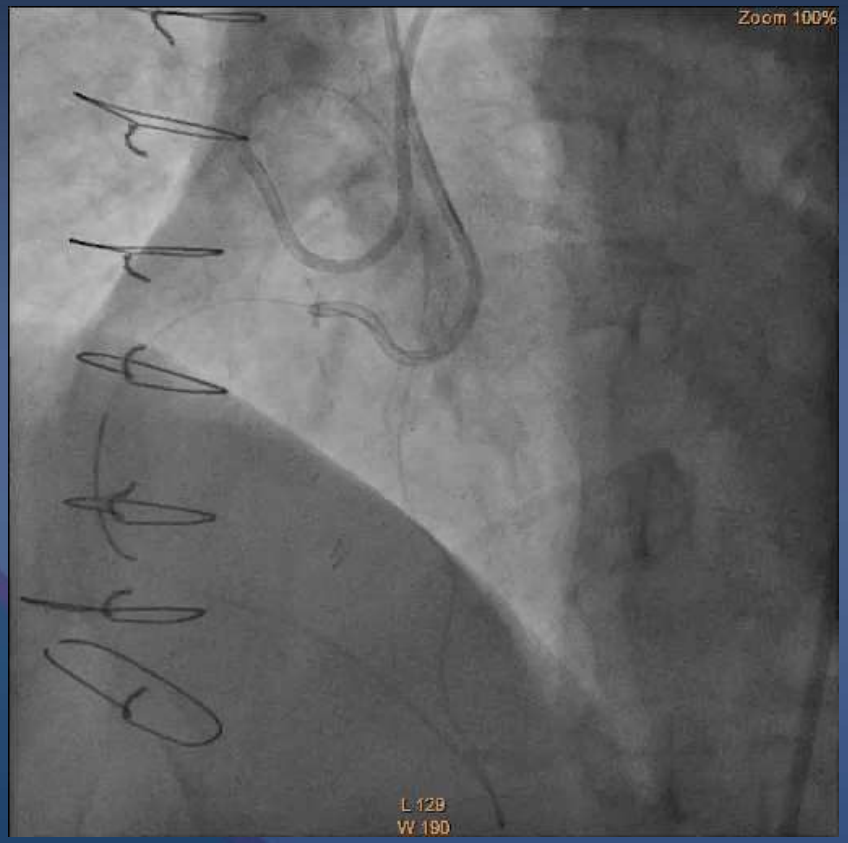


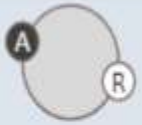
Antegrade Conquest pro 9





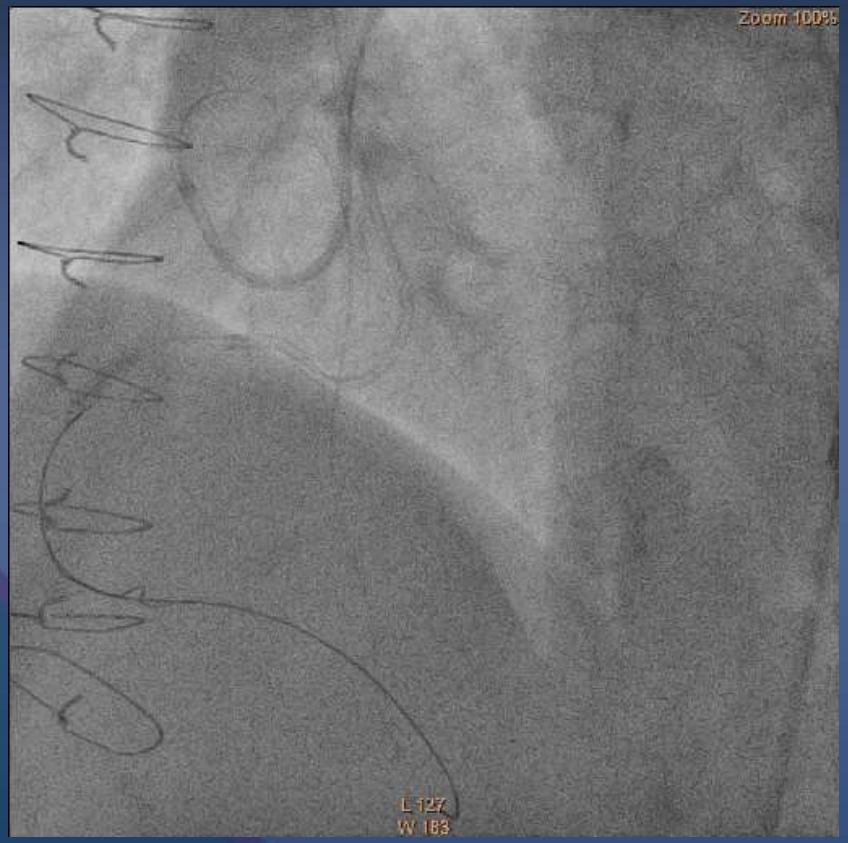
Antegrade Runthrough GW into subintimal plane

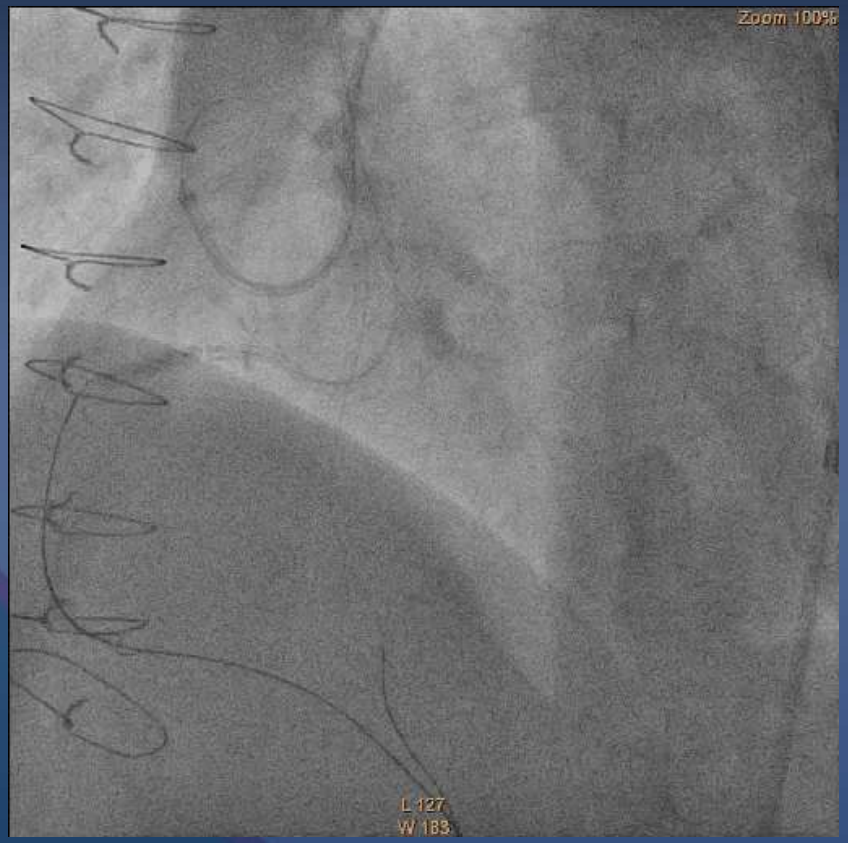


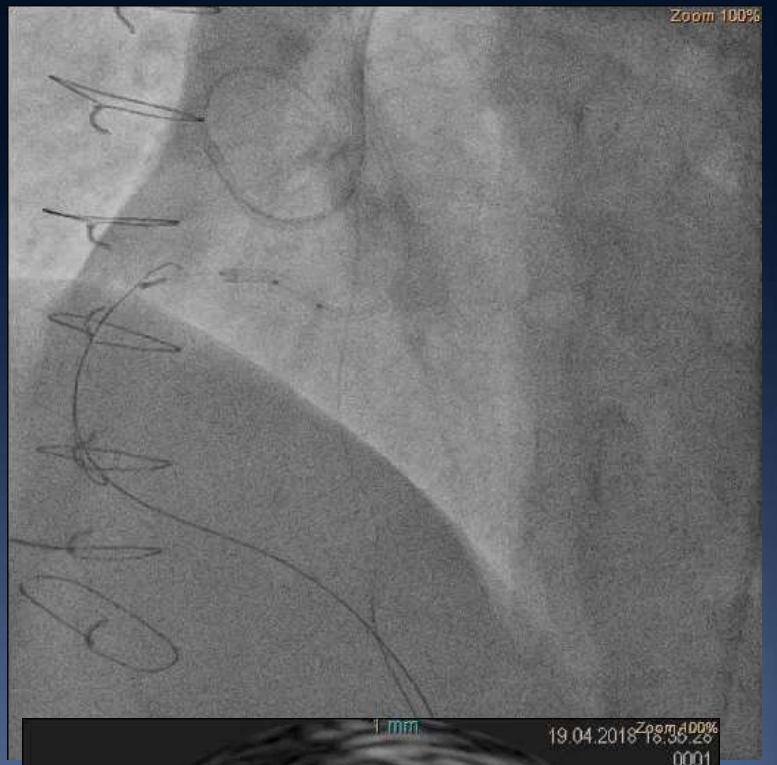
		Antegrade wire	
		Intimal **Plaque**	**Subintima**
Retrograde wire	Intimal **Plaque**	 Antegrade ballooning and Retrograde wiring	 Retrograde wiring and More proximal connection
	Subintima	 Antegrade ballooning or More distal connection	 Antegrade ballooning

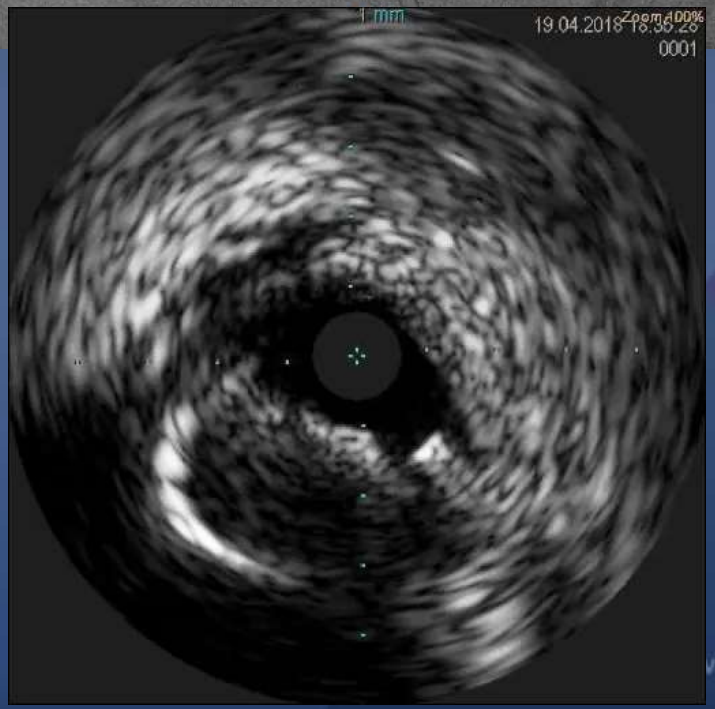
Courtesy by Prof Satoru Sumitsuji

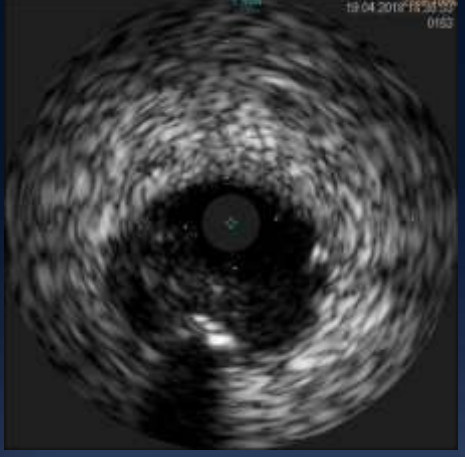
Reverse CART with 3.0 mm ball oon, retrograde Conquest pro 9

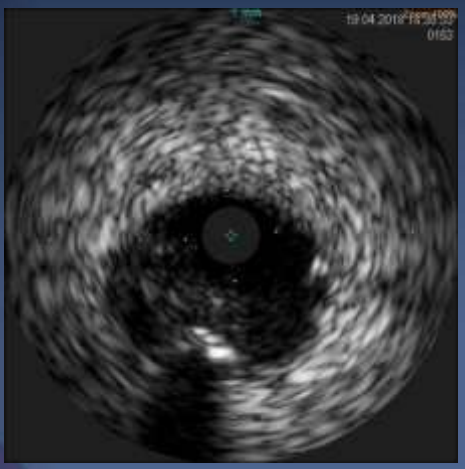


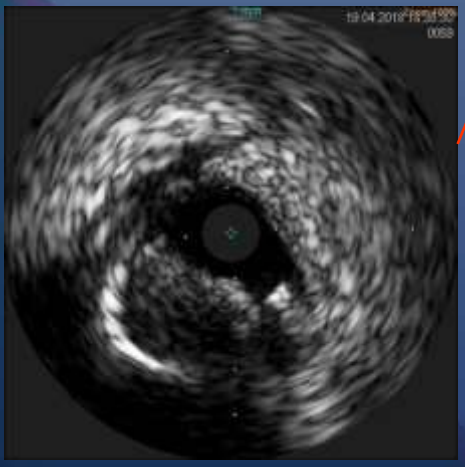

Zoom 100%
L 127
W 183

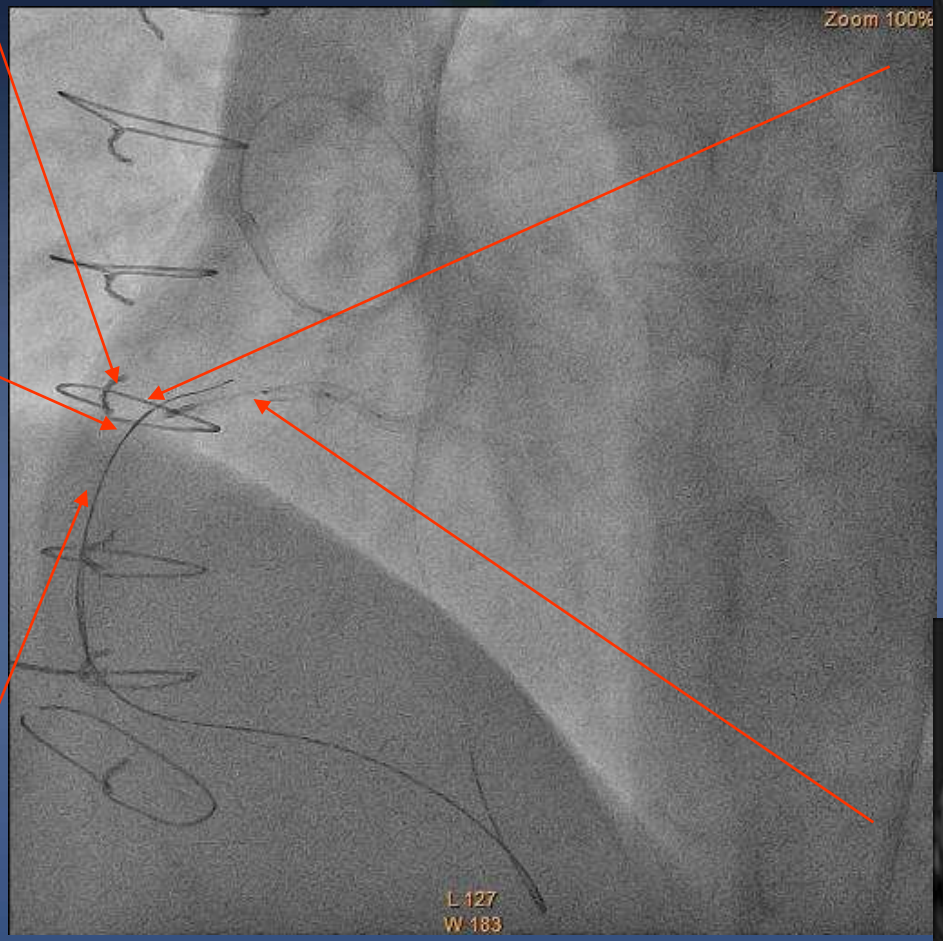

Zoom 100%

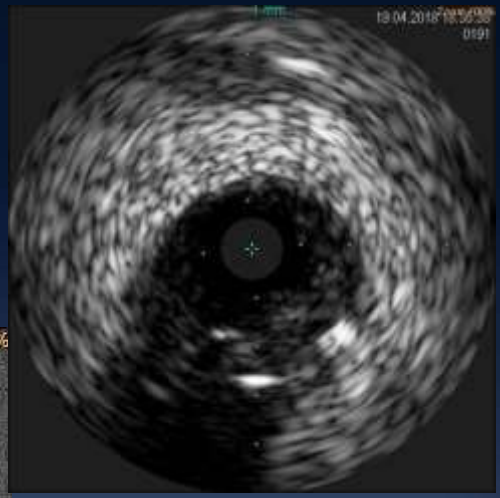

1 mm
19.04.2018 16:36:26
0001
Zoom 100%

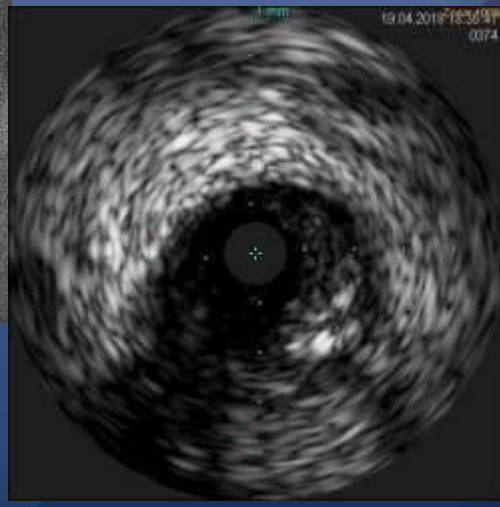




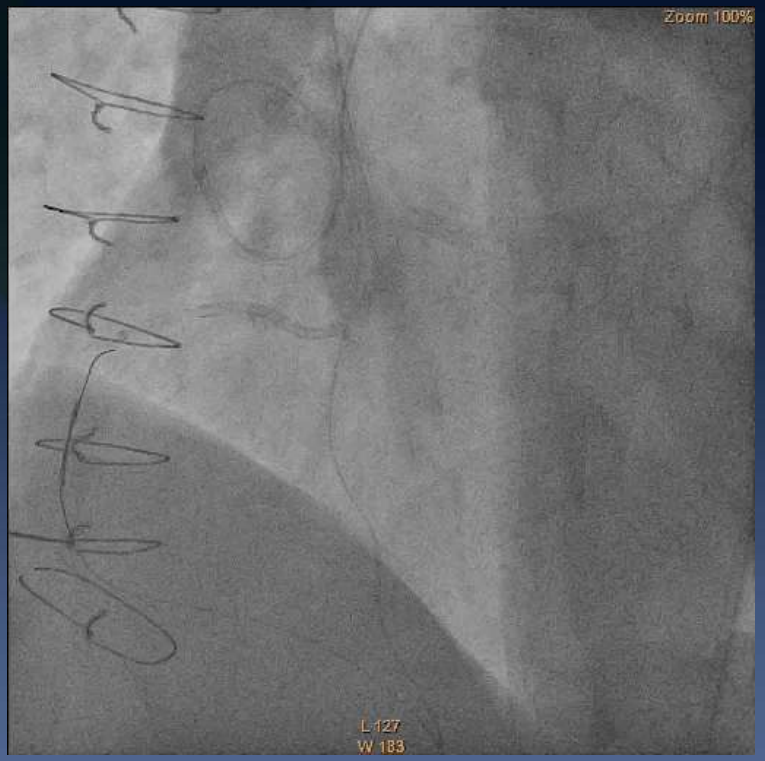


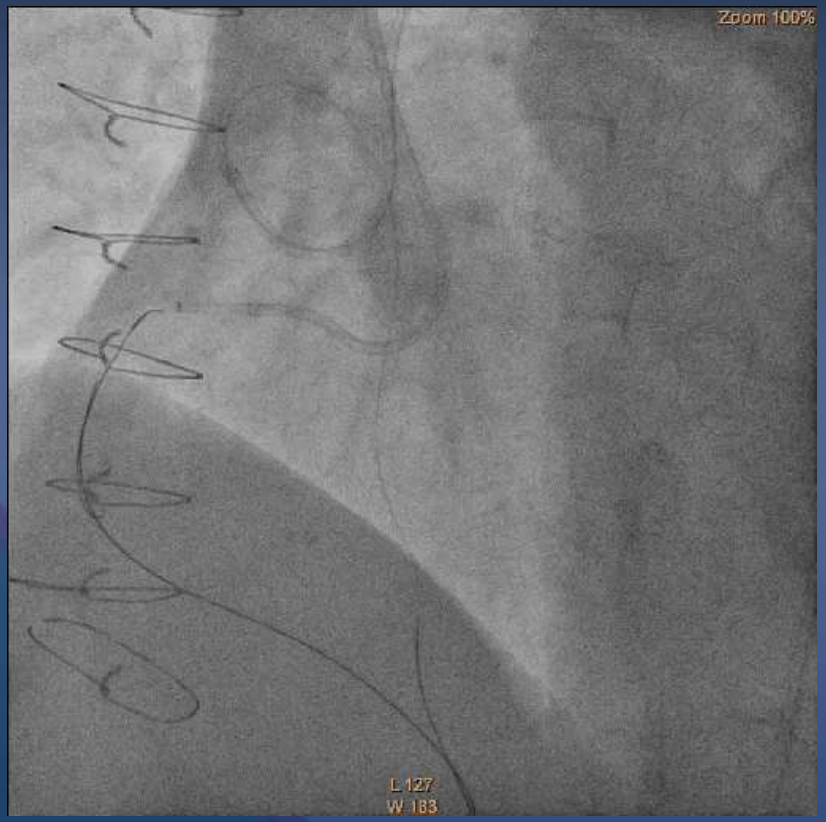

Zoom 100%
L 127
W 183

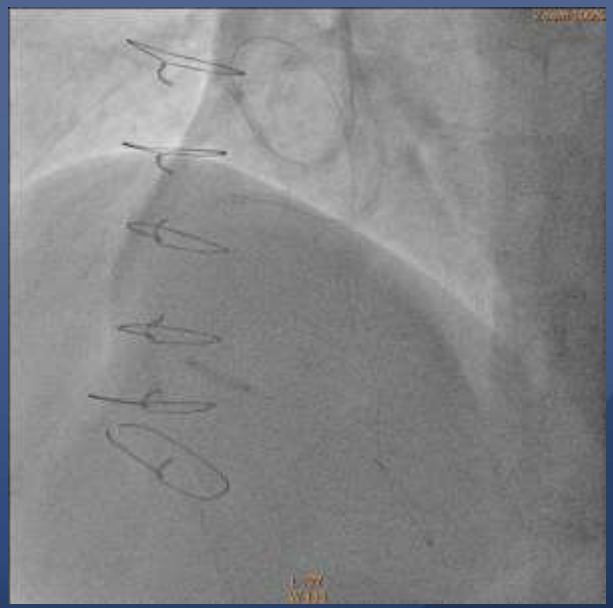


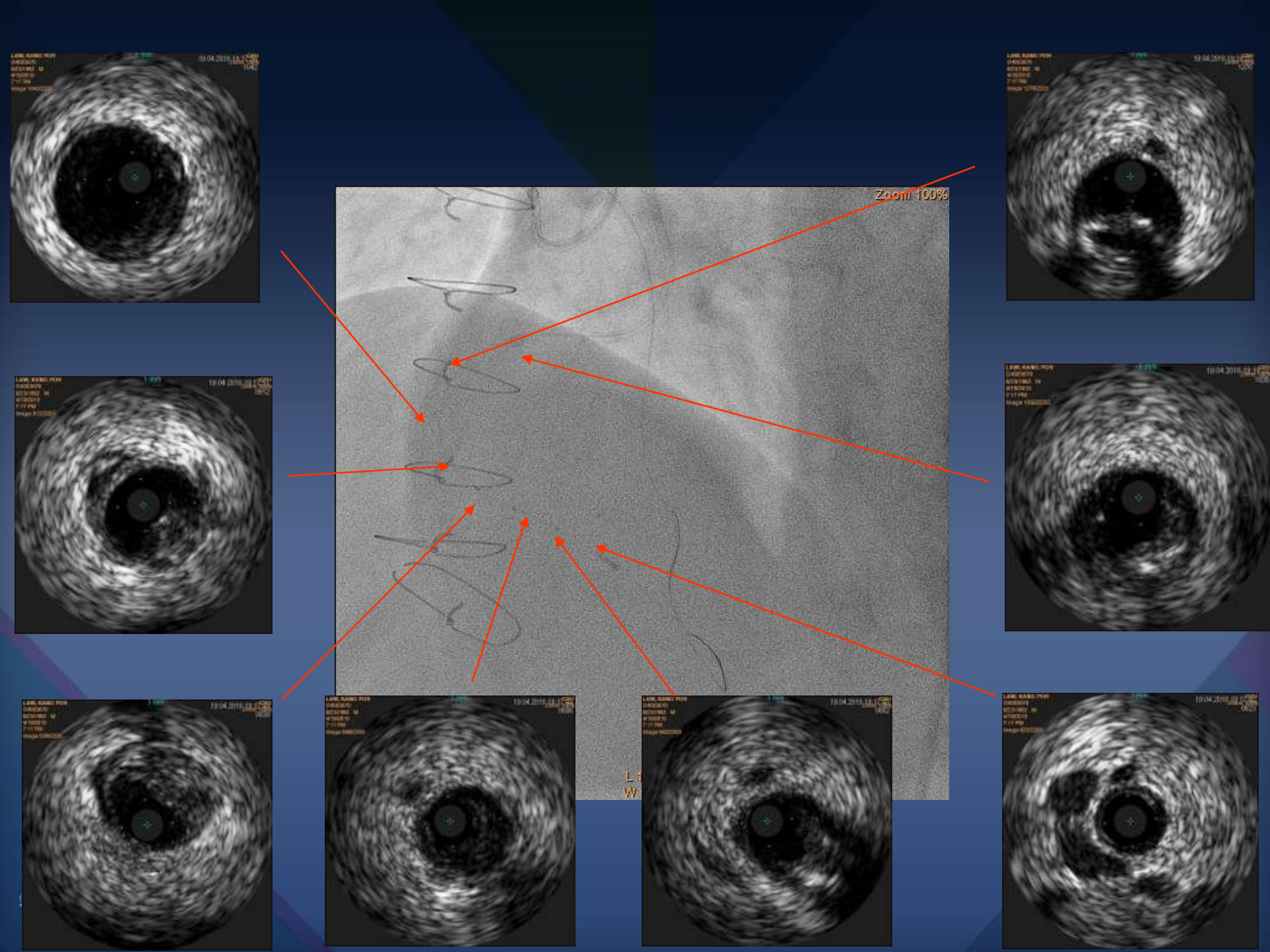


Guideliner Reverse CART
Retrograde runthrough GW



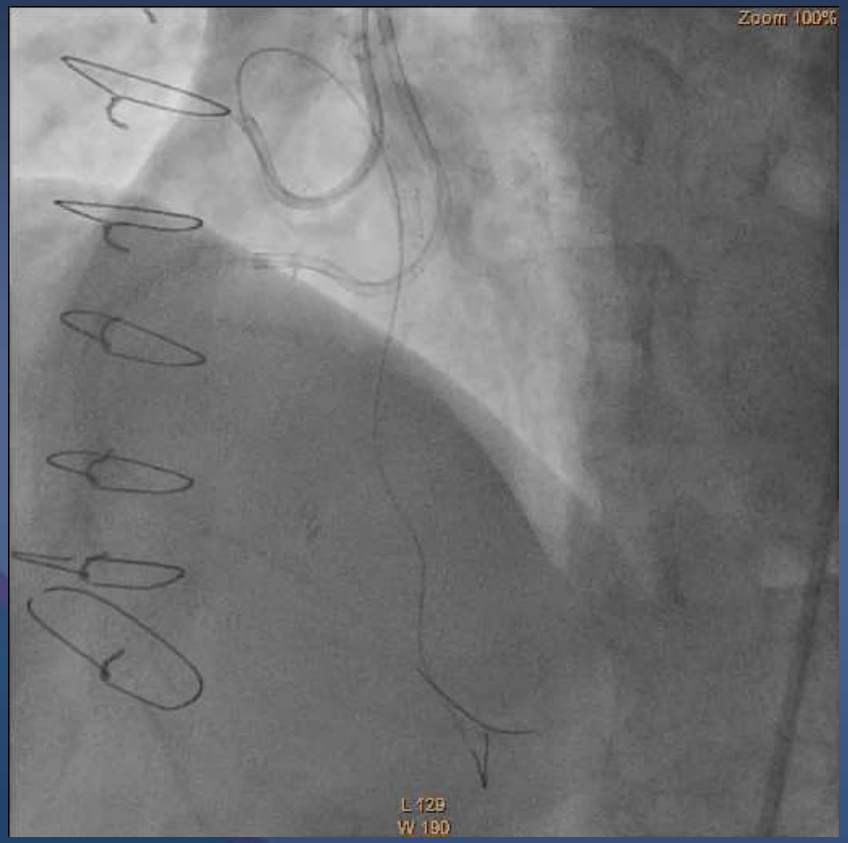


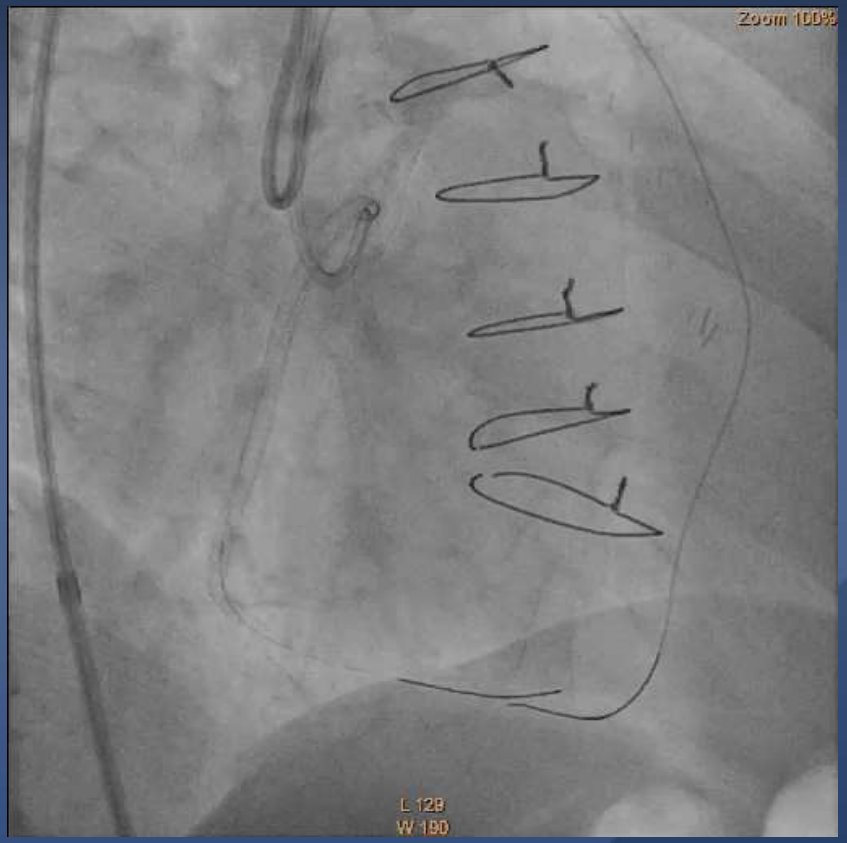



Zoom 100%

Overlapping Long DES

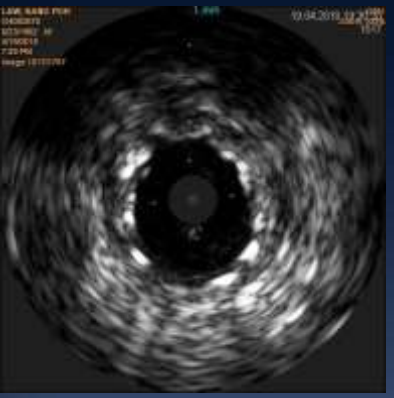
2.5x38. 3.5 x38. 4.0 x48



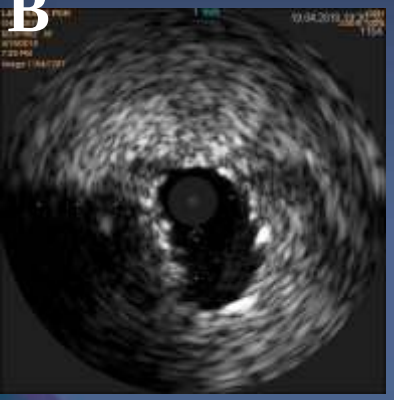


Predilation

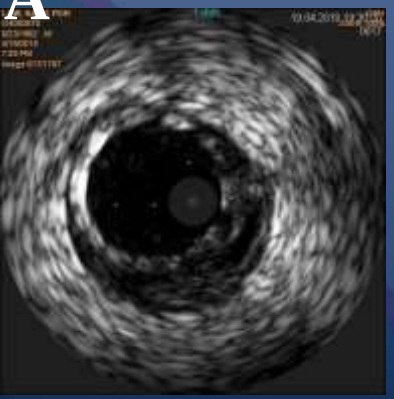
C



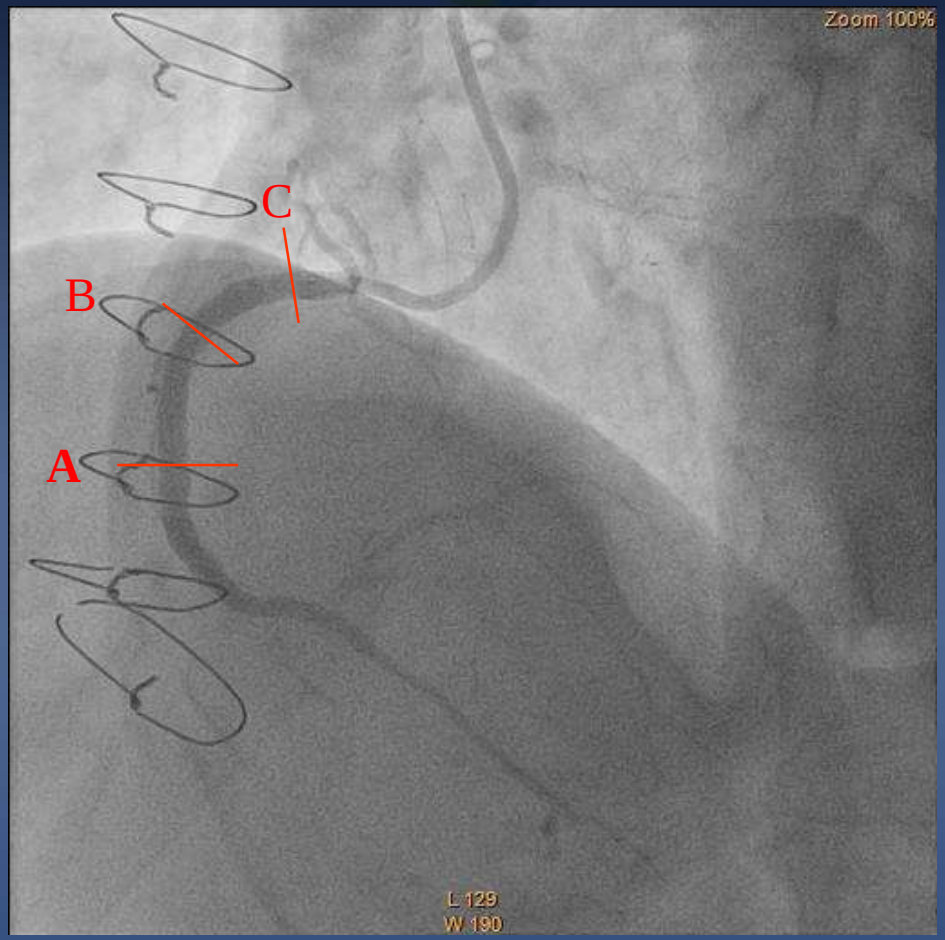
B



A

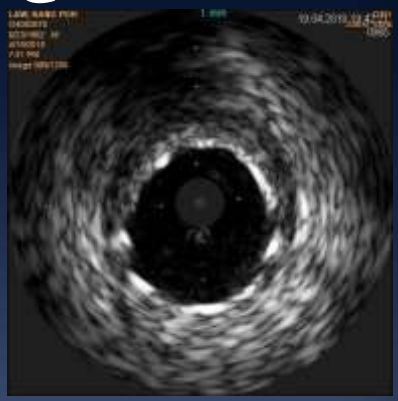


4.0 then 4.5 postdilaton

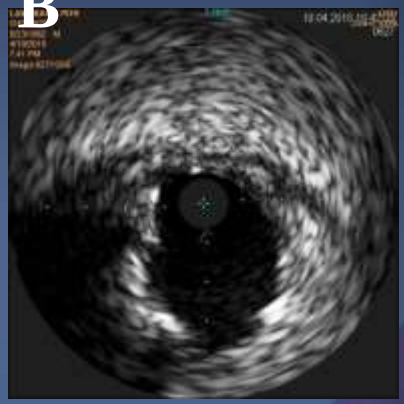


postdilation

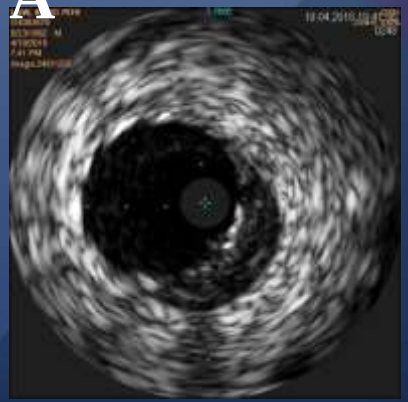
C

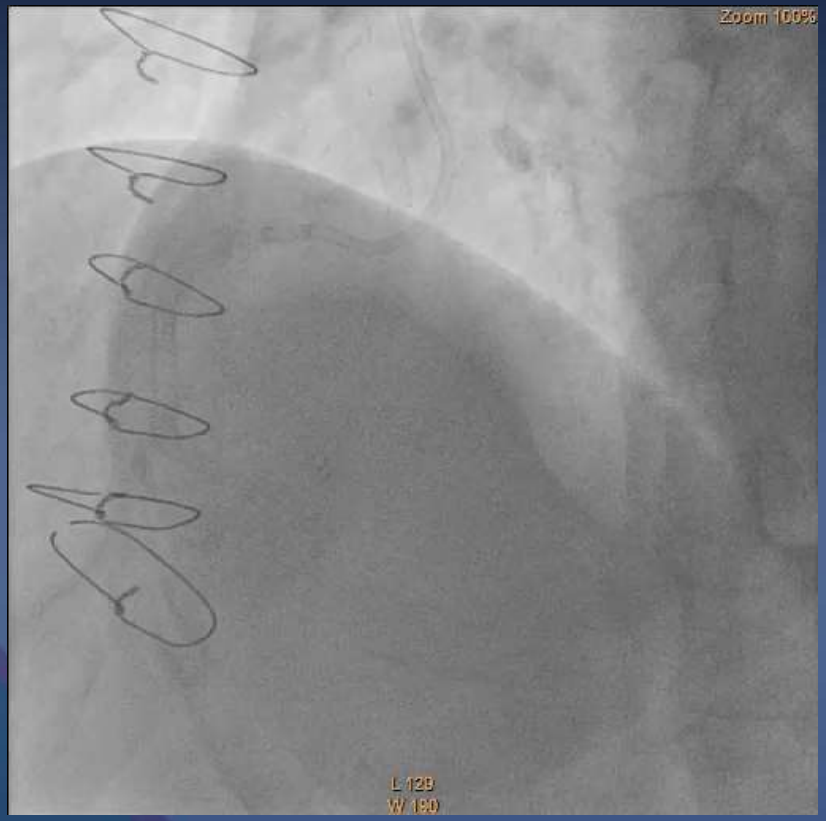


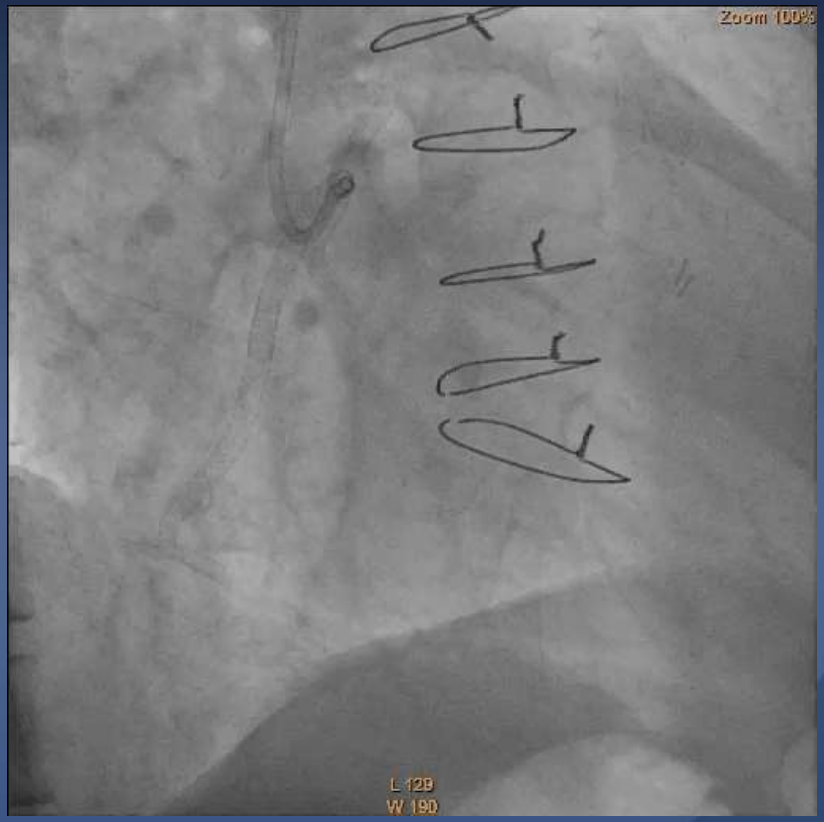
B



A







3hr procedure
200ml contrast
Radiation 3.8Gy

Conclusion

- Usefulness of knuckle wire technique in long tortuous CTO
- Various strategy to overcome unsuccessful reverse CART
- Importance of IVUS for problem solving
- Usefulness of Guideliner to assist successful retrograde wiring