Current Trend for Antegrade Wire Escalation

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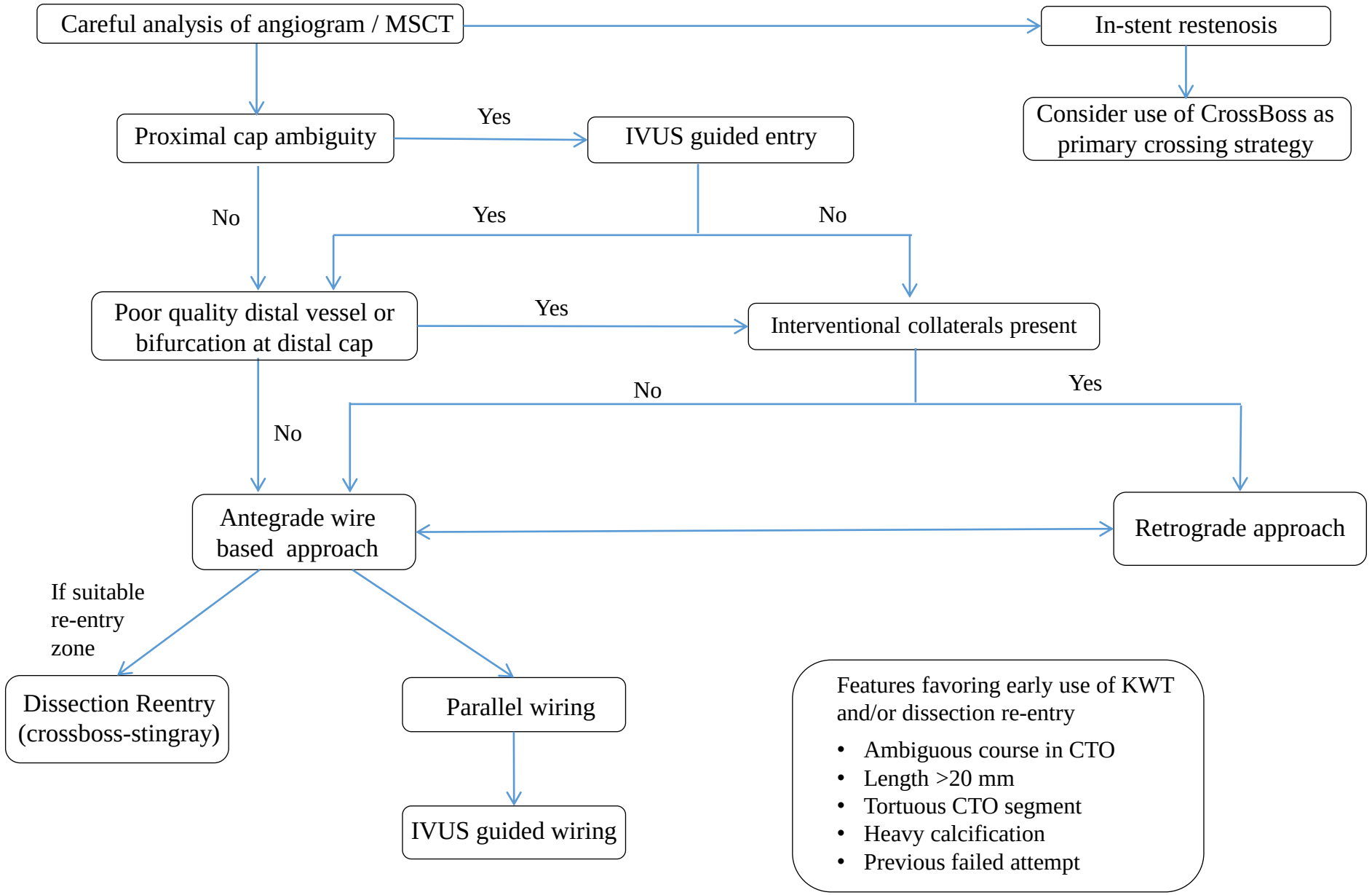
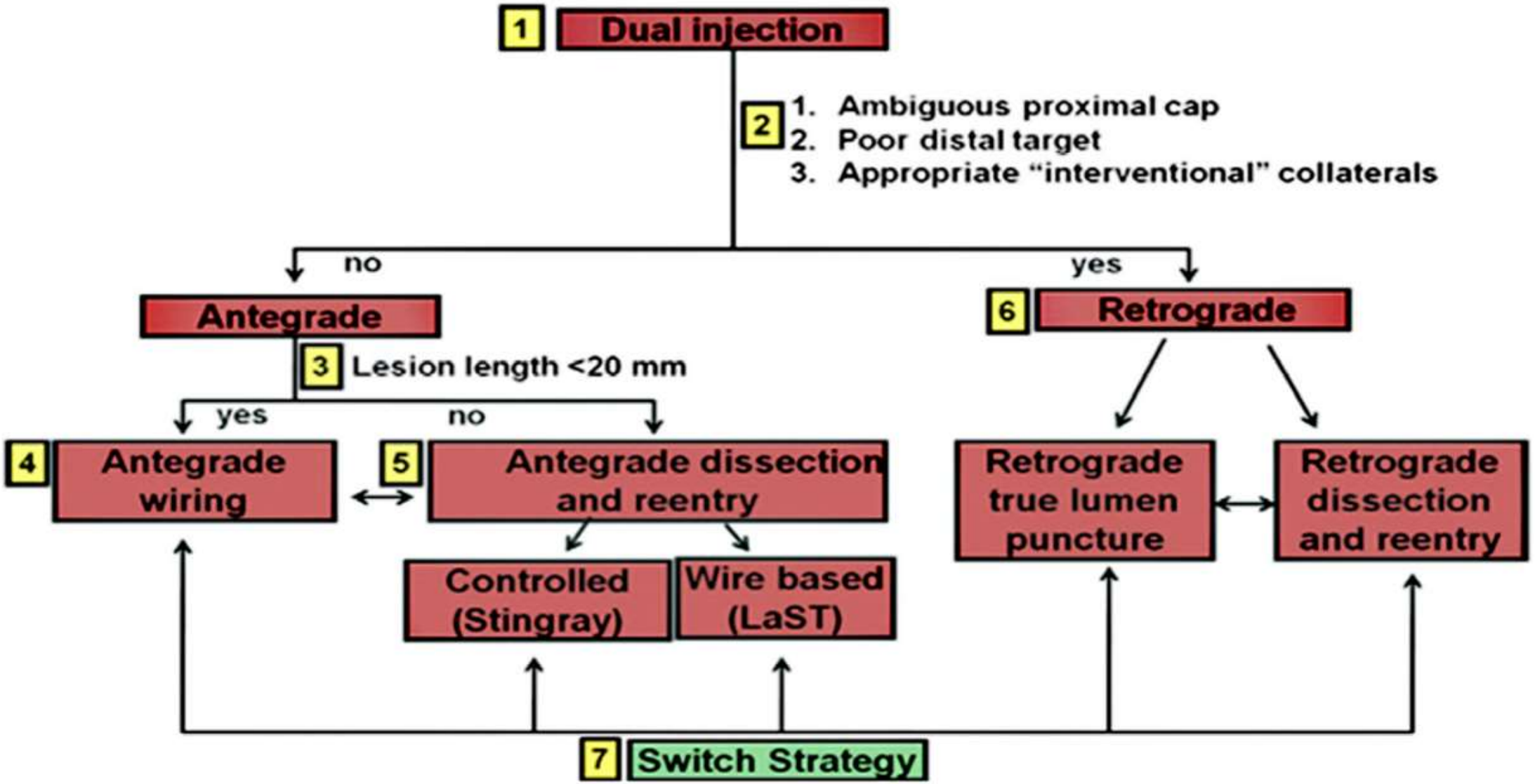

Careful analysis of angiogram / MSCT
In-stent restenosis
Consider use of CrossBoss as primary crossing strategy
Proximal cap ambiguity
Yes
IVUS guided entry
No
Yes
No
Poor quality distal vessel or bifurcation at distal cap
Yes
Interventional collaterals present
No
Yes
No
Antegrade wire based approach
Retrograde approach
If suitable re-entry zone
Dissection Reentry (crossboss-stingray)
Parallel wiring
IVUS guided wiring
Features favoring early use of KWT and/or dissection re-entry
• Ambiguous course in CTO
• Length >20 mm
• Tortuous CTO segment
• Heavy calcification
• Previous failed attempt
Consider stopping if >3 hours, 3.7 x eGFR ml contrast, Air Kerma > 5 Gy unless procedure well advanced

Hybrid Strategy



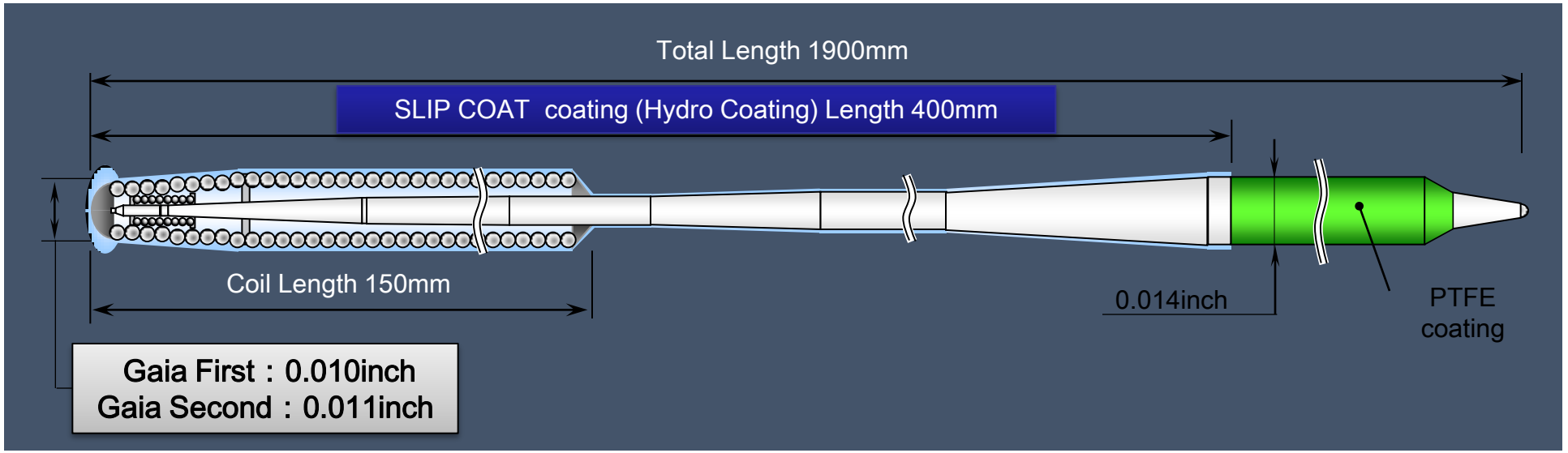
CTO guidewires

- Fielder XT
- Fielder XT-A
- Fielder XT-R
- Ultimatebros
- Miracle 3
- Miracle 6
- Miracle 12
- Confianza Pro
- Confianza Pro 12
- Confianza Pro 8-20
- Gaia 1st
- Gaia 2nd
- Gaia 3rd
- Progress 40
- Progress 80
- Progress 120
- Progress 140T
- Progress 200T
- PILOT 50
- PILOT 150
- PILOT 200
- SION
- SION black
- SION bleu

CTO Guide wire characteristics

	Tip profile	Tip load	Dual core	Coating	Torque	penetration
Miracle Wire brothers 3G,6G,9G,12G	.014	3-12	N	non	excellent	fair
Tapered floppy wires Fielder XT(R,A)	.009-.010	0.6-1.0	Y/N	polymer	fair	poor
Confianza Pro 9,12, 8-20	0.08-.009	9-20	N	slip	poor	excellent
Gaia 1st ,2nd,3rd	.010-.011	1.5-4.5	Y	slip	excellent	Good /excellent

Gaia series



Line-up options allow the operator to choose the appropriate wire for a variety of situations

Gaia First	Diameter : 0.010 - 0.014” **Tip load : 1.5gf**
Gaia Second	Diameter : 0.011 - 0.014” **Tip load : 3.5gf**
Gaia Third	Diameter : 0.011 - 0.014” **Tip load : 4.5gf**

Standard　Antegrade Wire Escalation

First choice guidewires
Tapered floppy guidewires /Fielder　XT(A,R）

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Next step guide wire selection

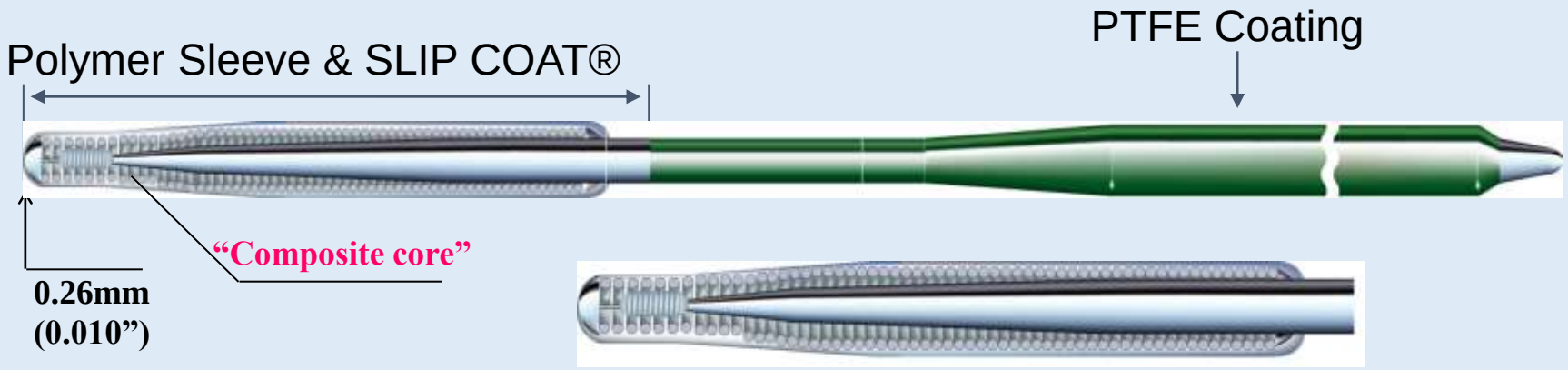
・Gaia series

↓

Final option

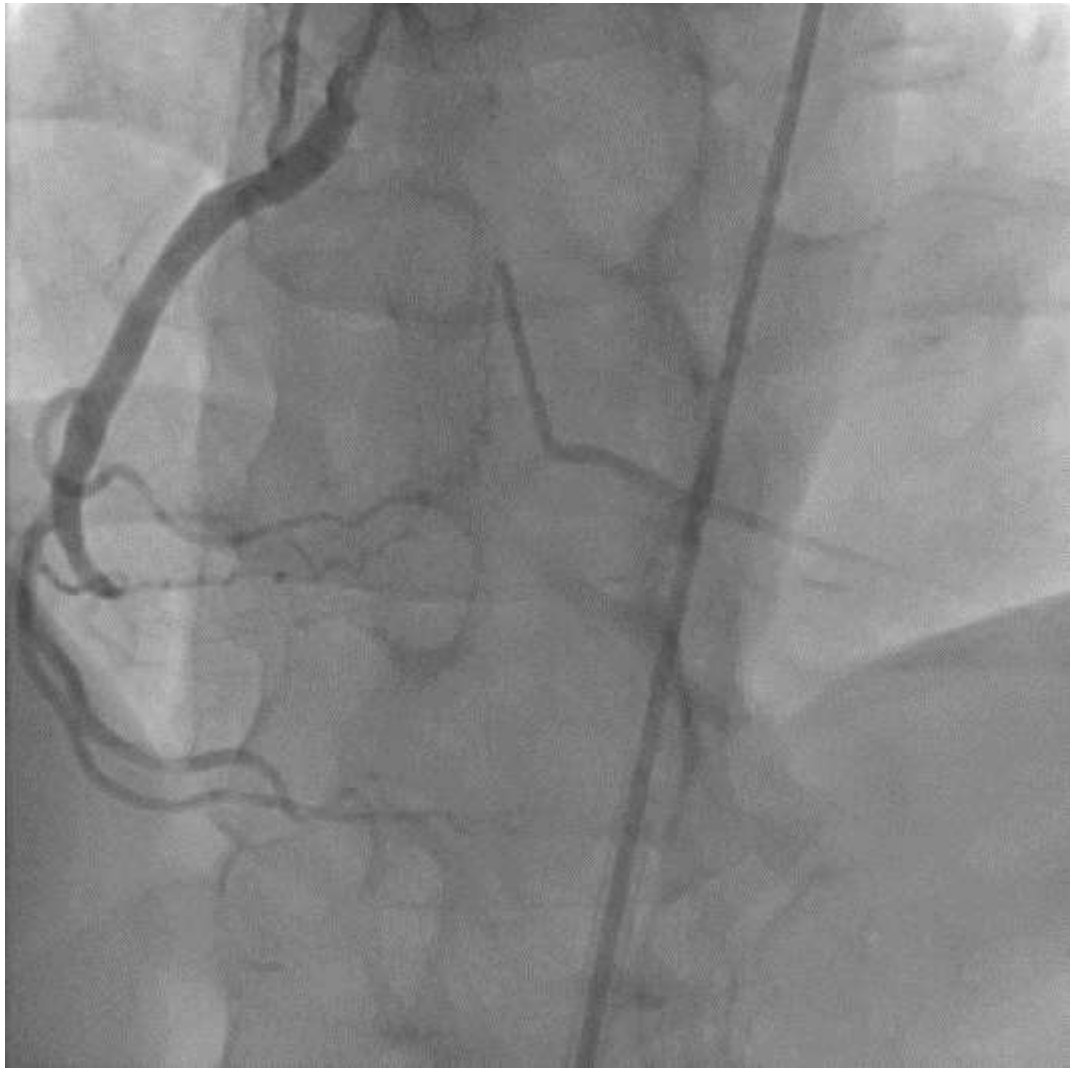
・Confianza family

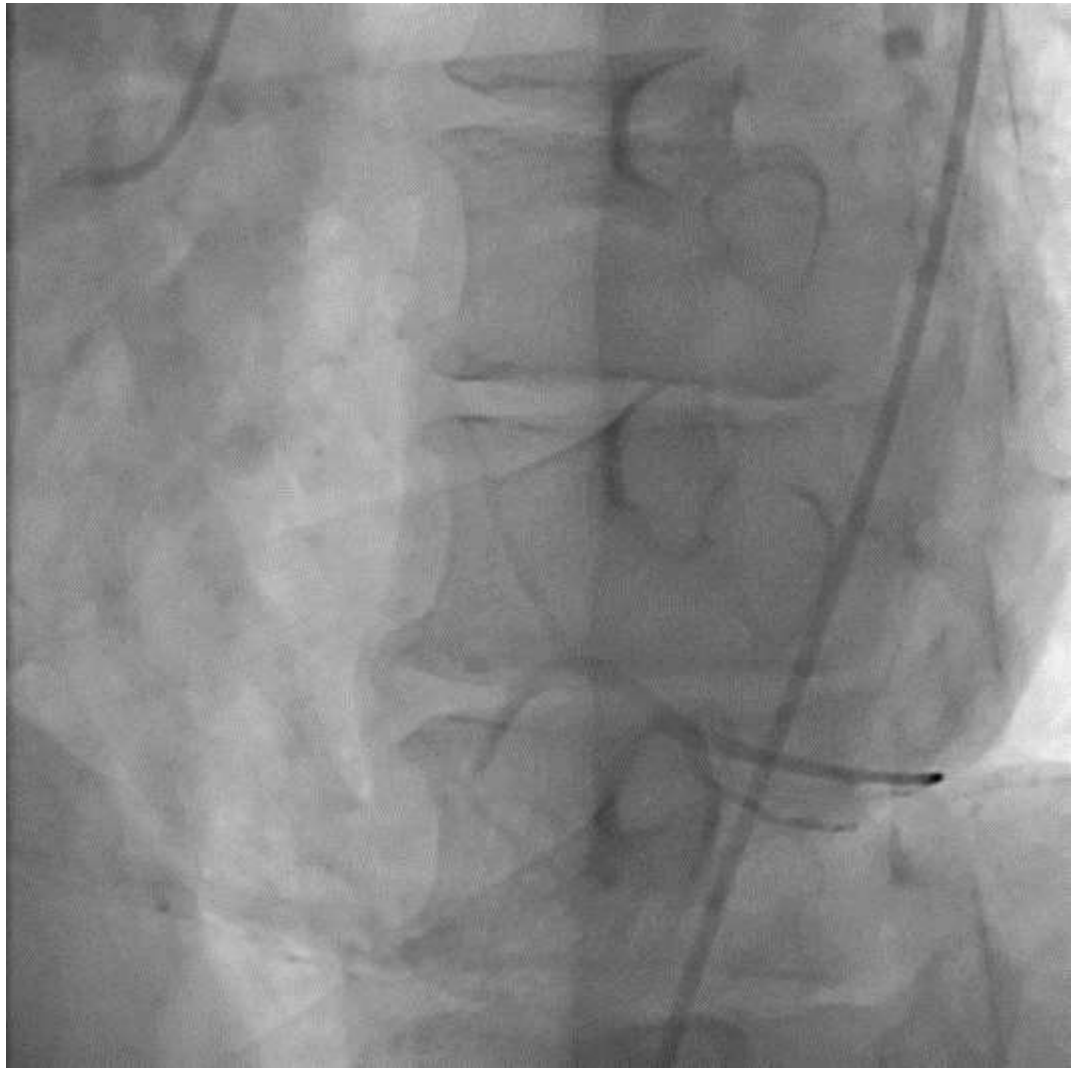
Fielder XTA



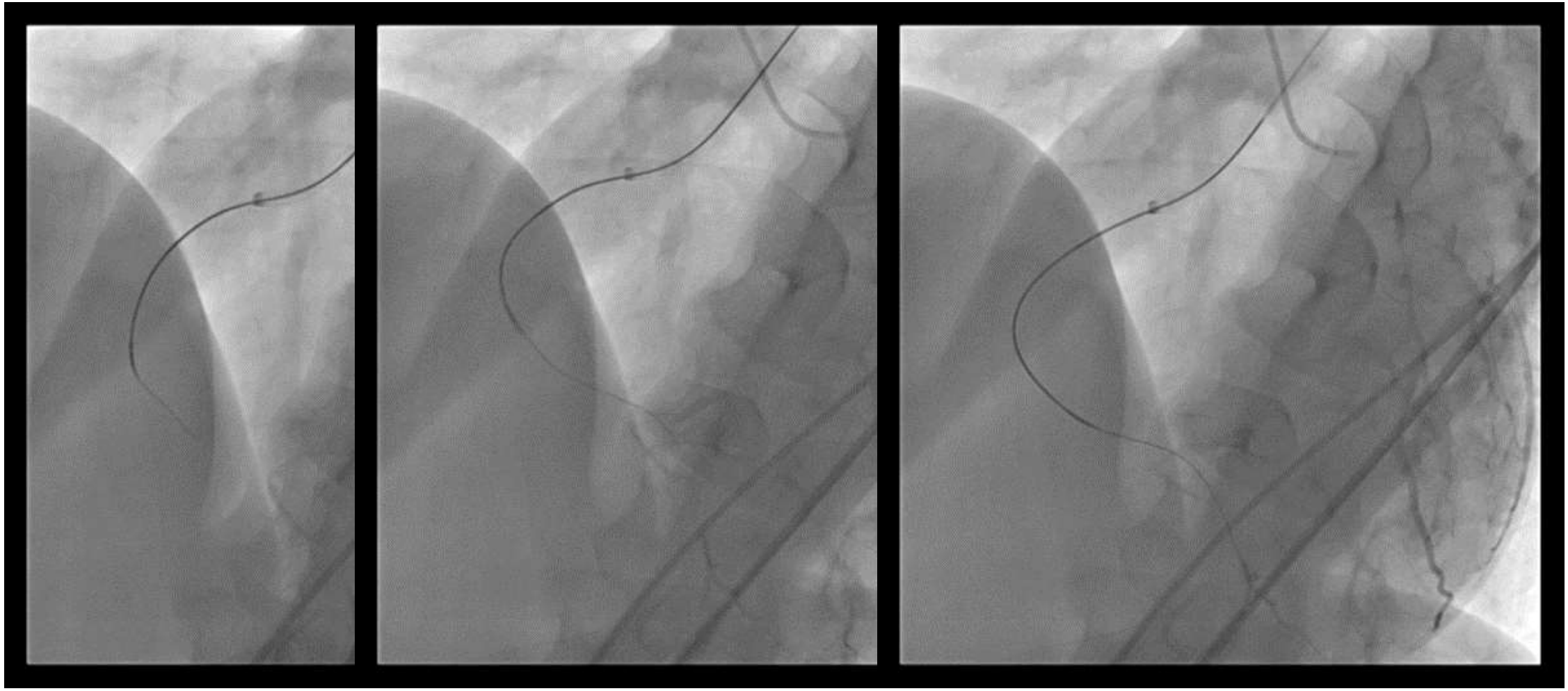
- Tip Load 1.0g
- Radiopacity 16cm
- Coil 16cm
- Diameter 0.014inch
- Tip Diameter 0.010inch
- Length 190cm

Denovo RCA distal CTO with bridge collateral
lesion length >20mm/ bifurcated distal poor target

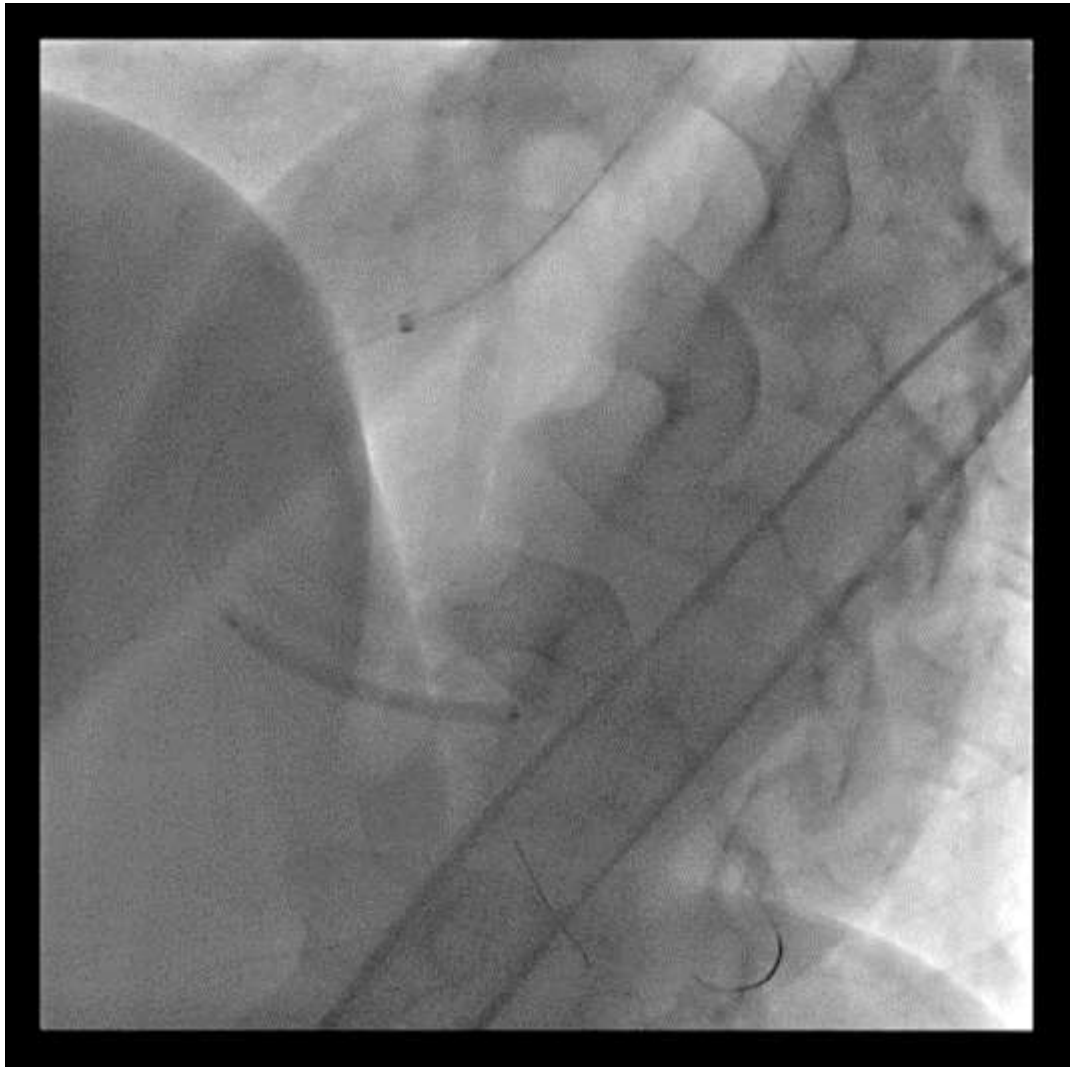


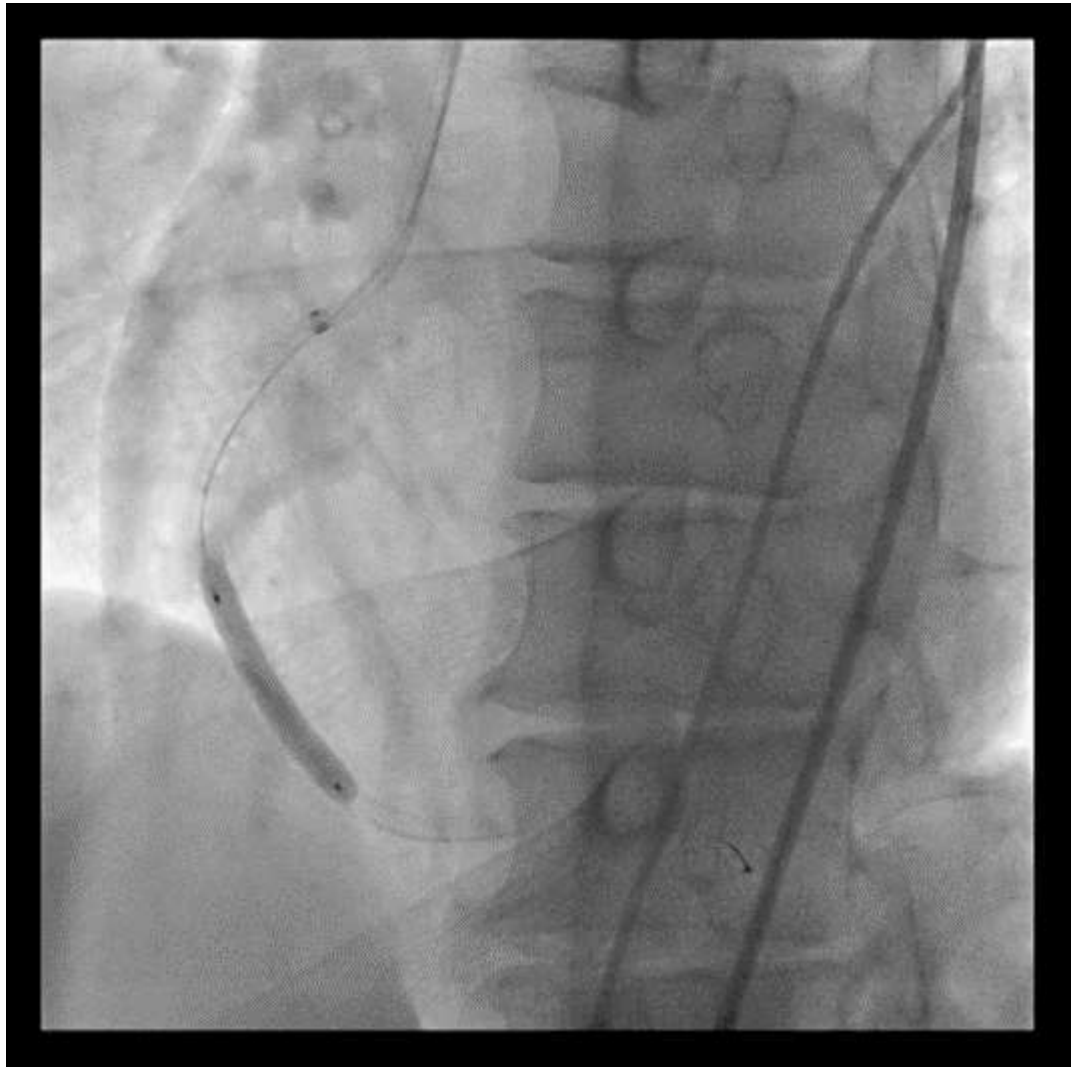


Antegrade wiring : XTA combination with Corsair

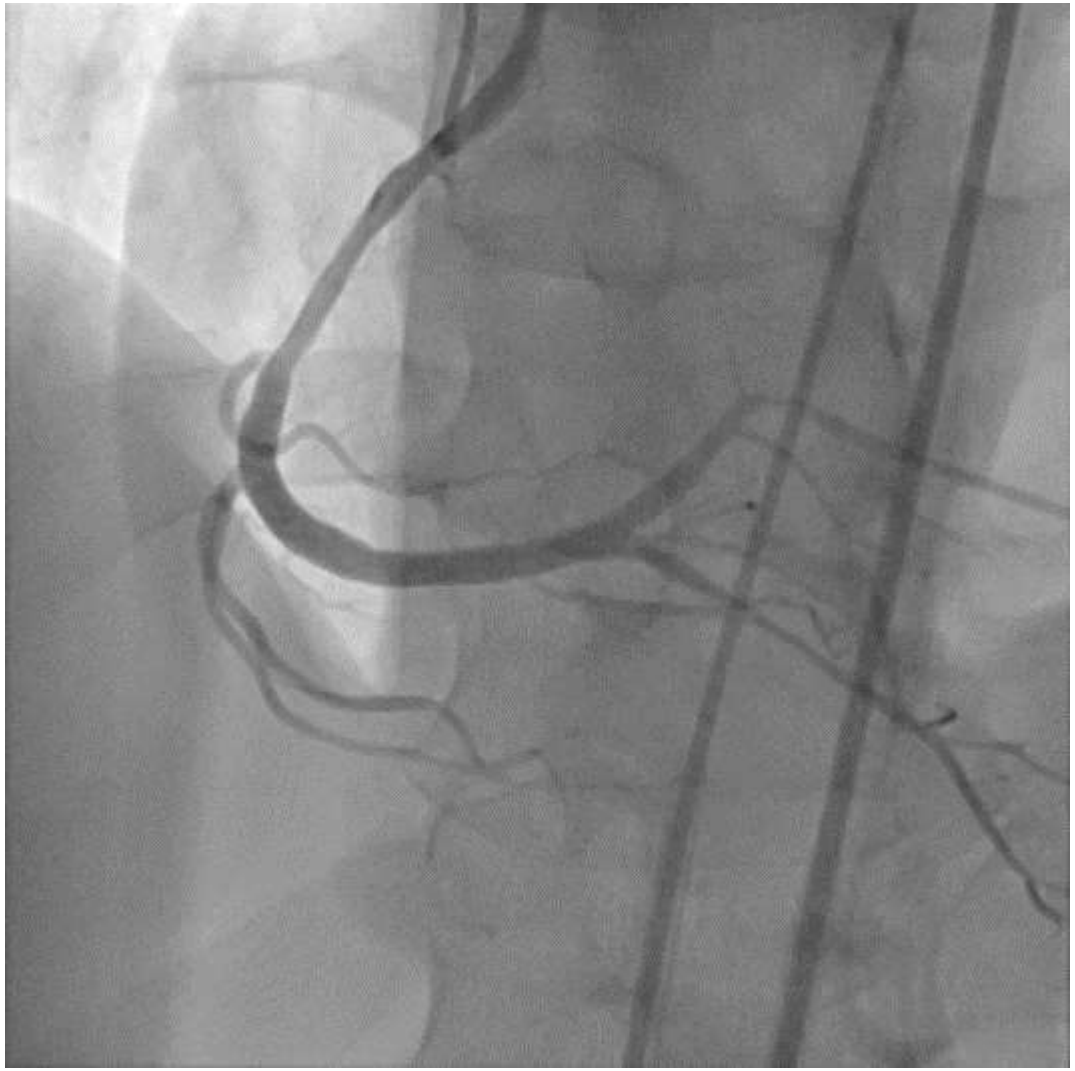


EES implantation

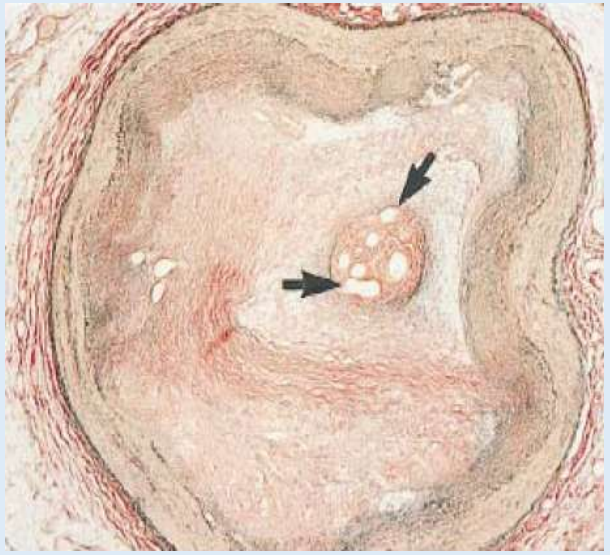




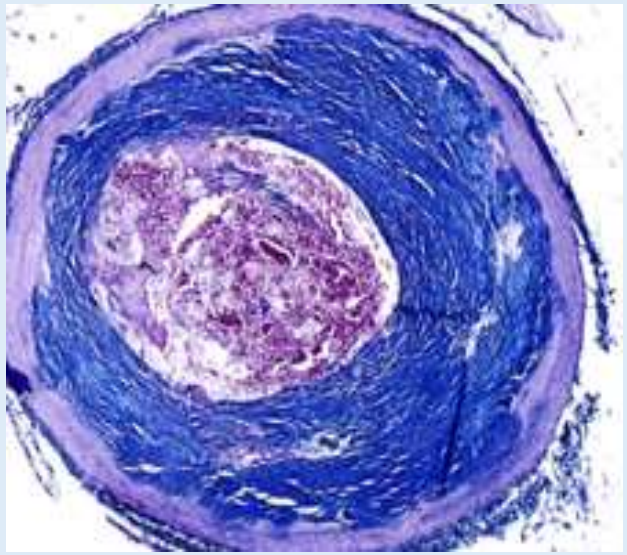
Final angiogram



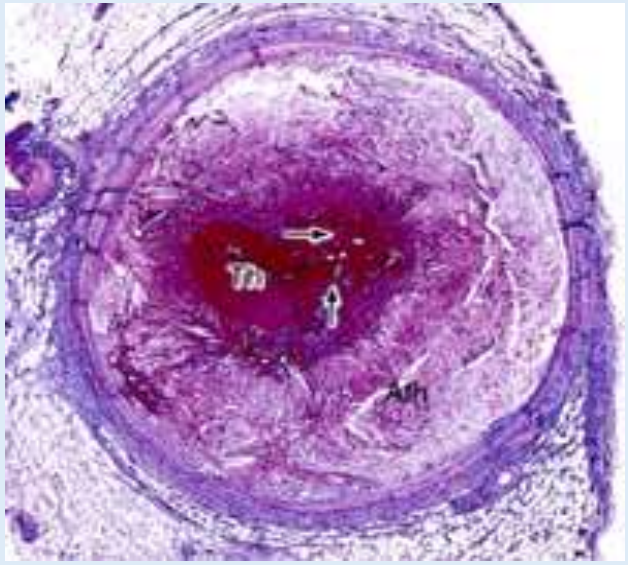
Histopathology of CTO lesions



Micro channels

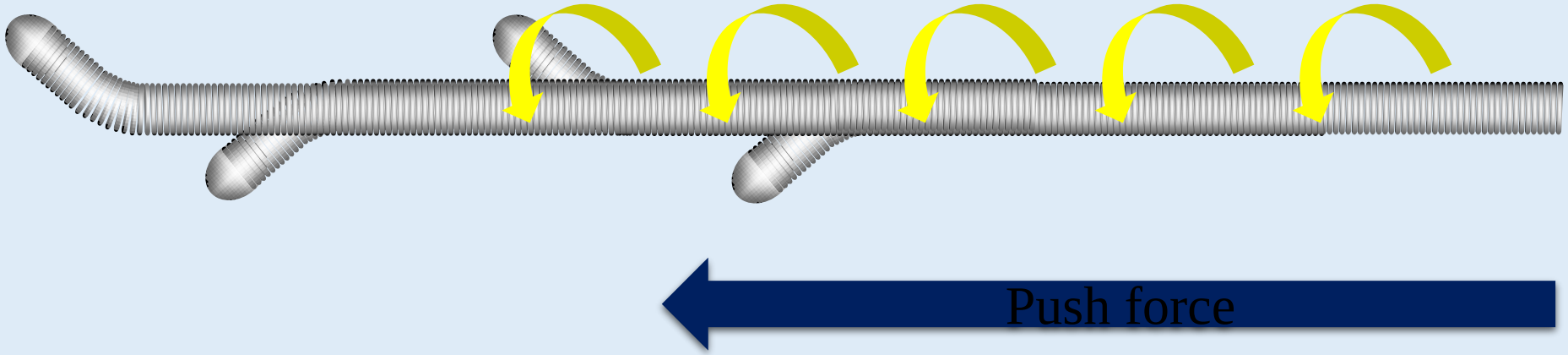


non- fibrous tissue



thrombus

Passive wire control

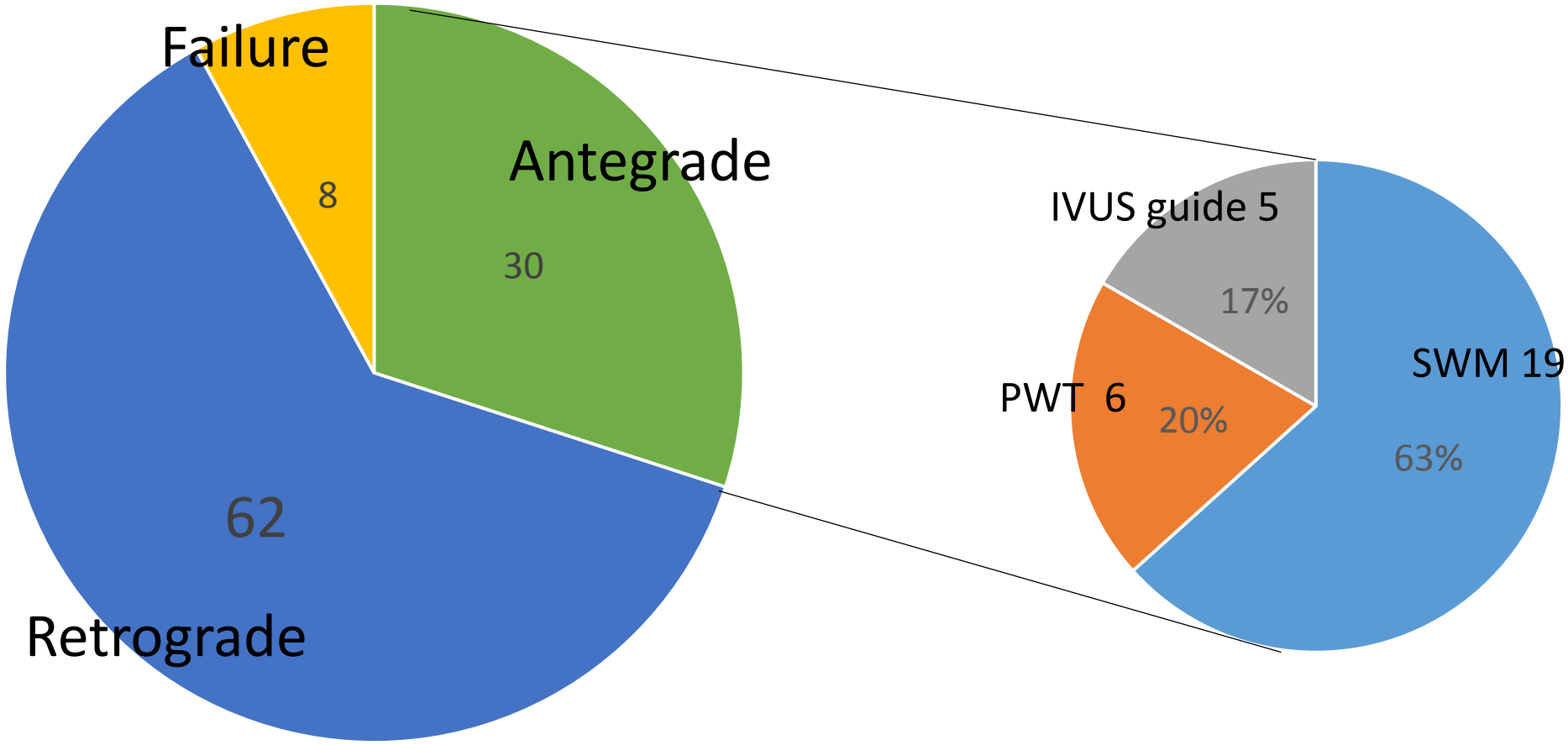


Driving force ＝
Push force＋Resistance inhibition by rotation

Passive wire control is not actually controlling the direction

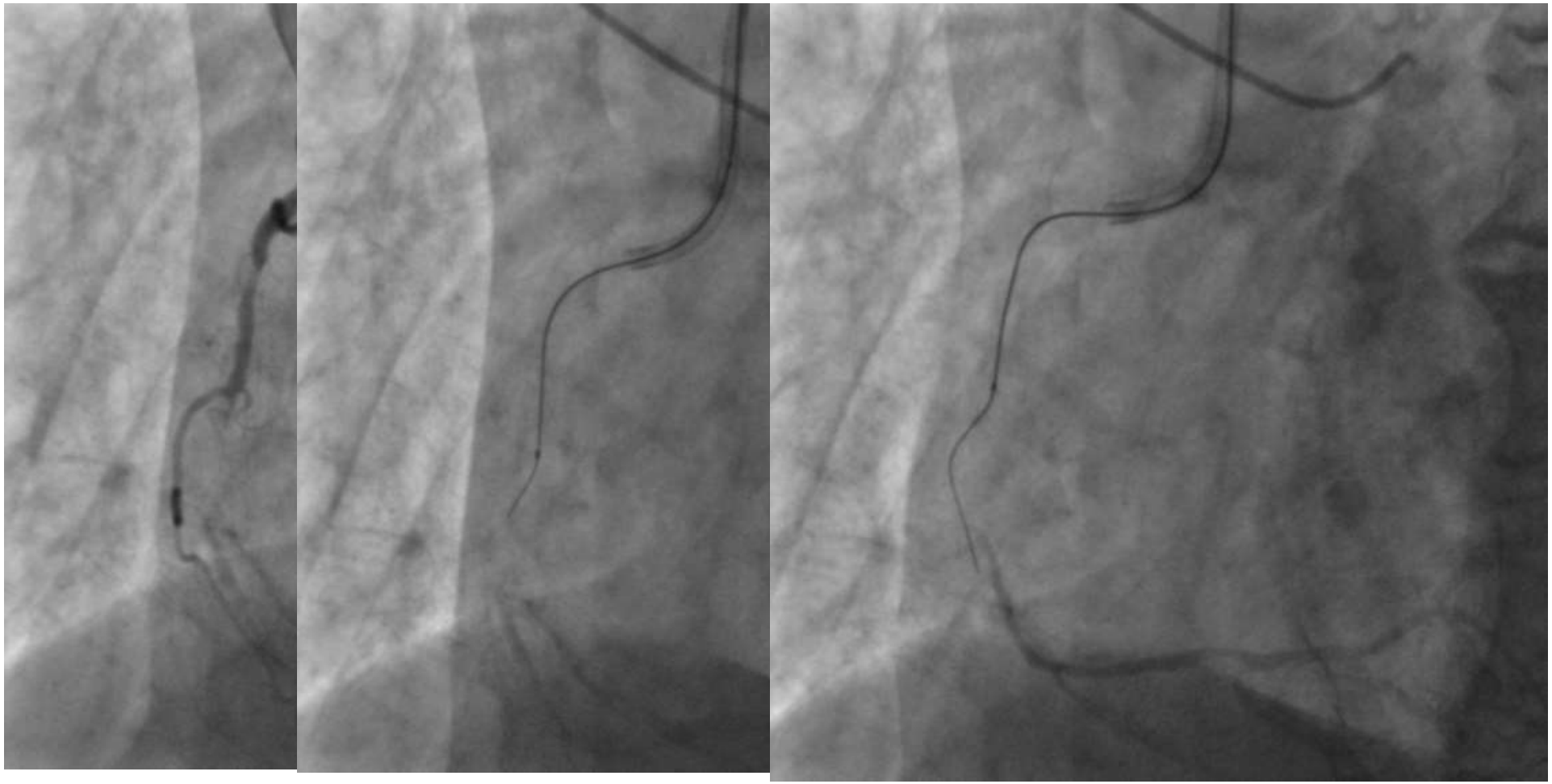
Personal CTO Wiring strategy in recent 100 cases

(Average JCTO score 2.4)



RCA mid CTO case

Guide Wire: Fielder XT-A



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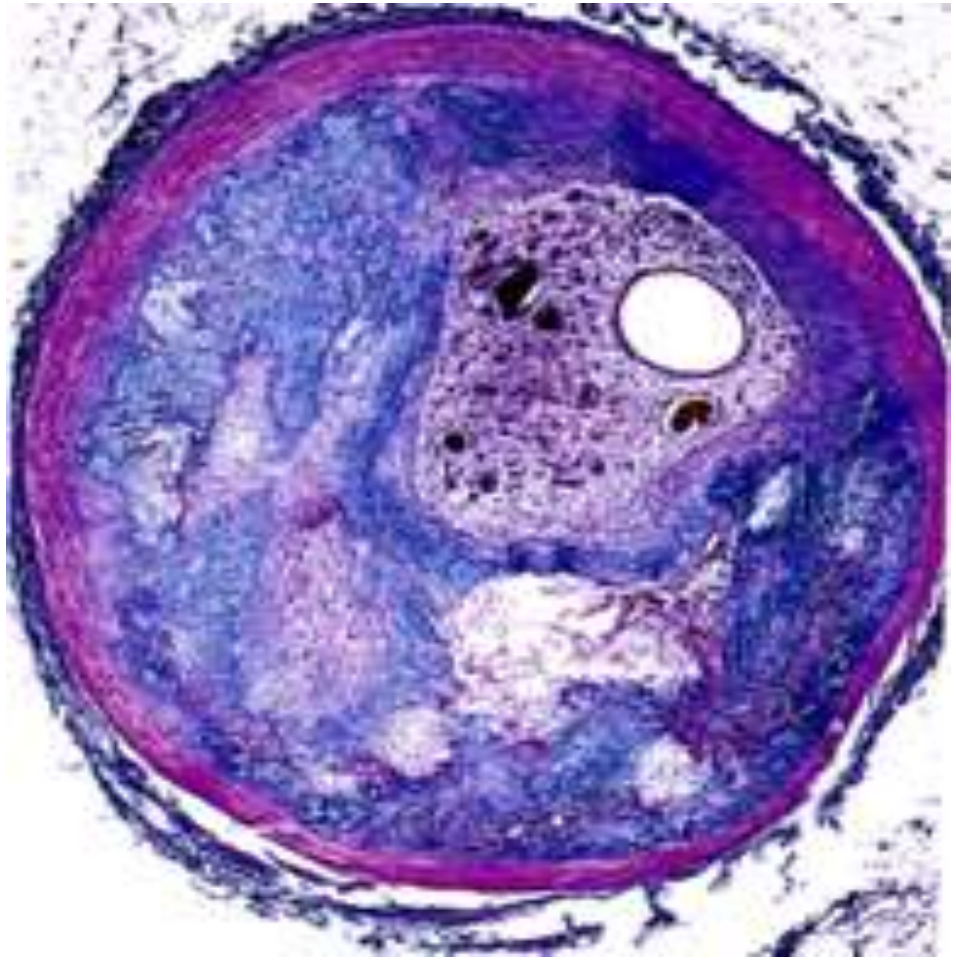

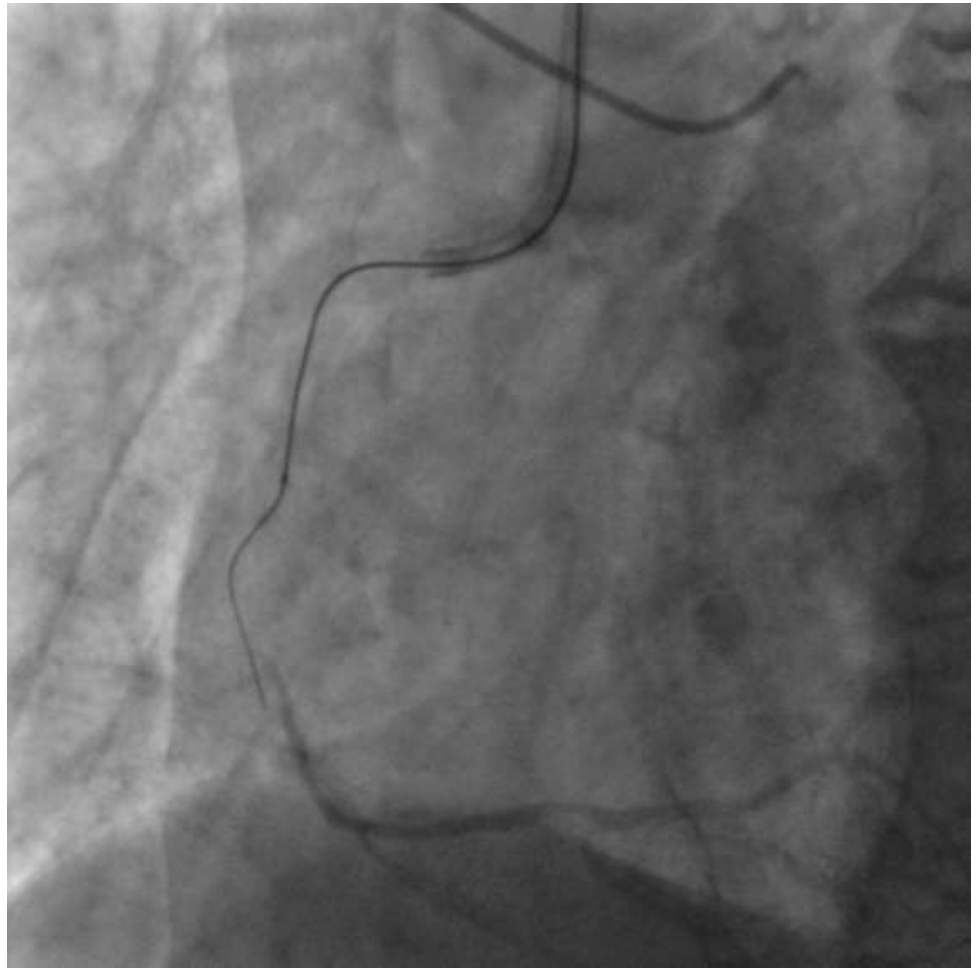

Limitations in floppy tapered polymer wires

Poor penetration force

Poor torque control

- delayed initial torque response (viscoelastic body)
- weak torque response in hard plaque

Undetectable resistance at wire tip

The basic control of chronic occlusion wire

passive wire control ⟺ active wire control

(loose tissue tracking)

- Torque
- Penetration force
- Coating (hydrophilic coating, polymer jacket)
- Tapered tip

Standard　Antegrade Wire Escalation

First choice guidewires
Tapered floppy guidewires /Fielder　XT(A,R）

↓

Next step guide wire selection
・Gaia series

↓

Final option
・Confianza family

RCA proximal CTO and distal double CTO

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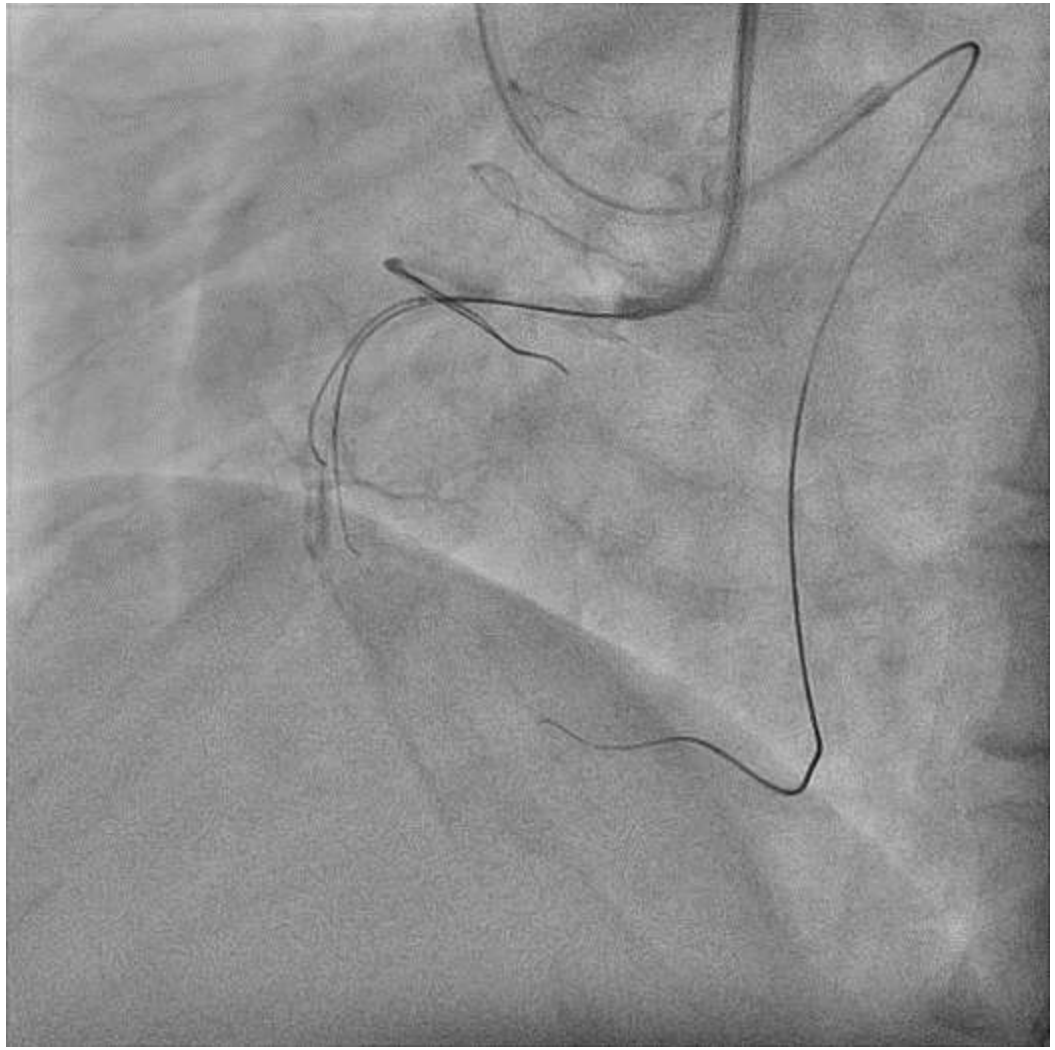
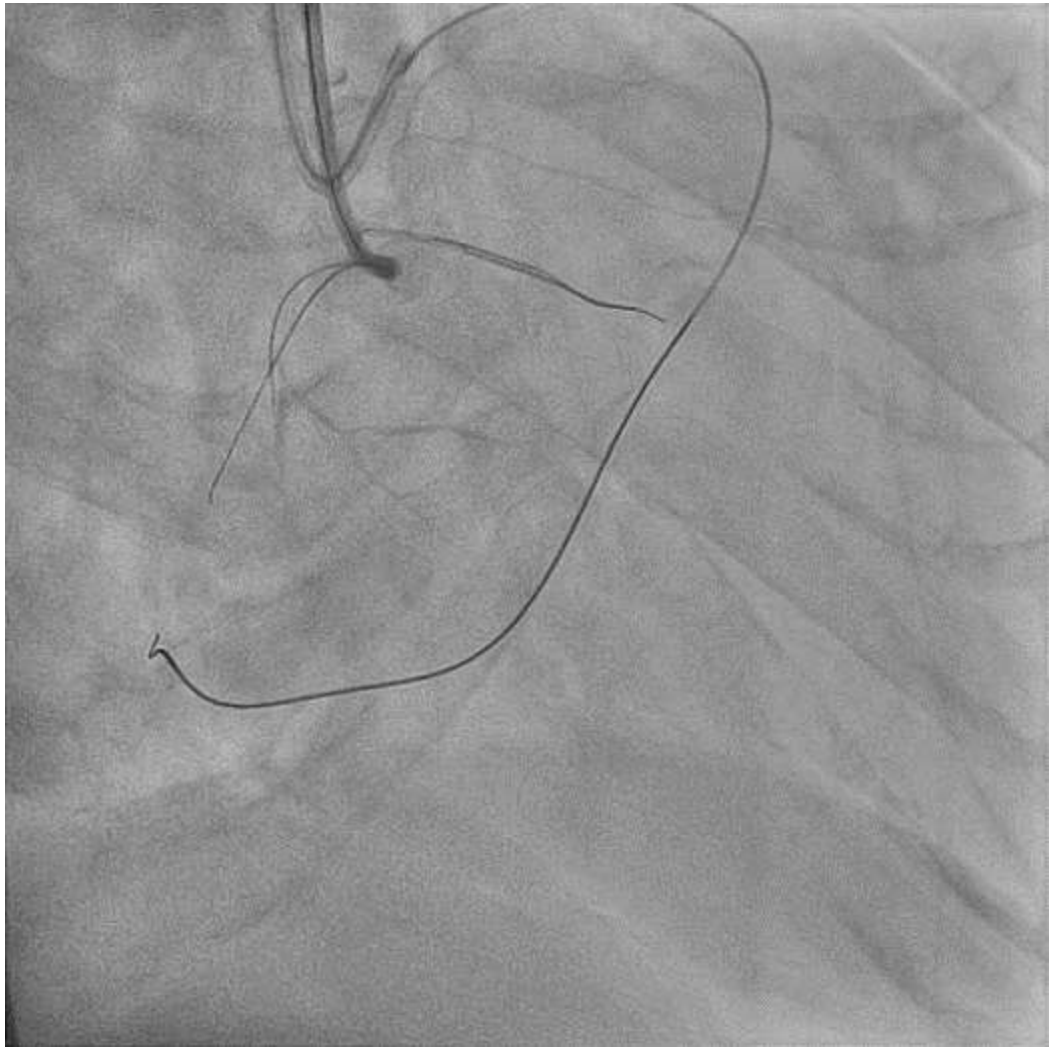
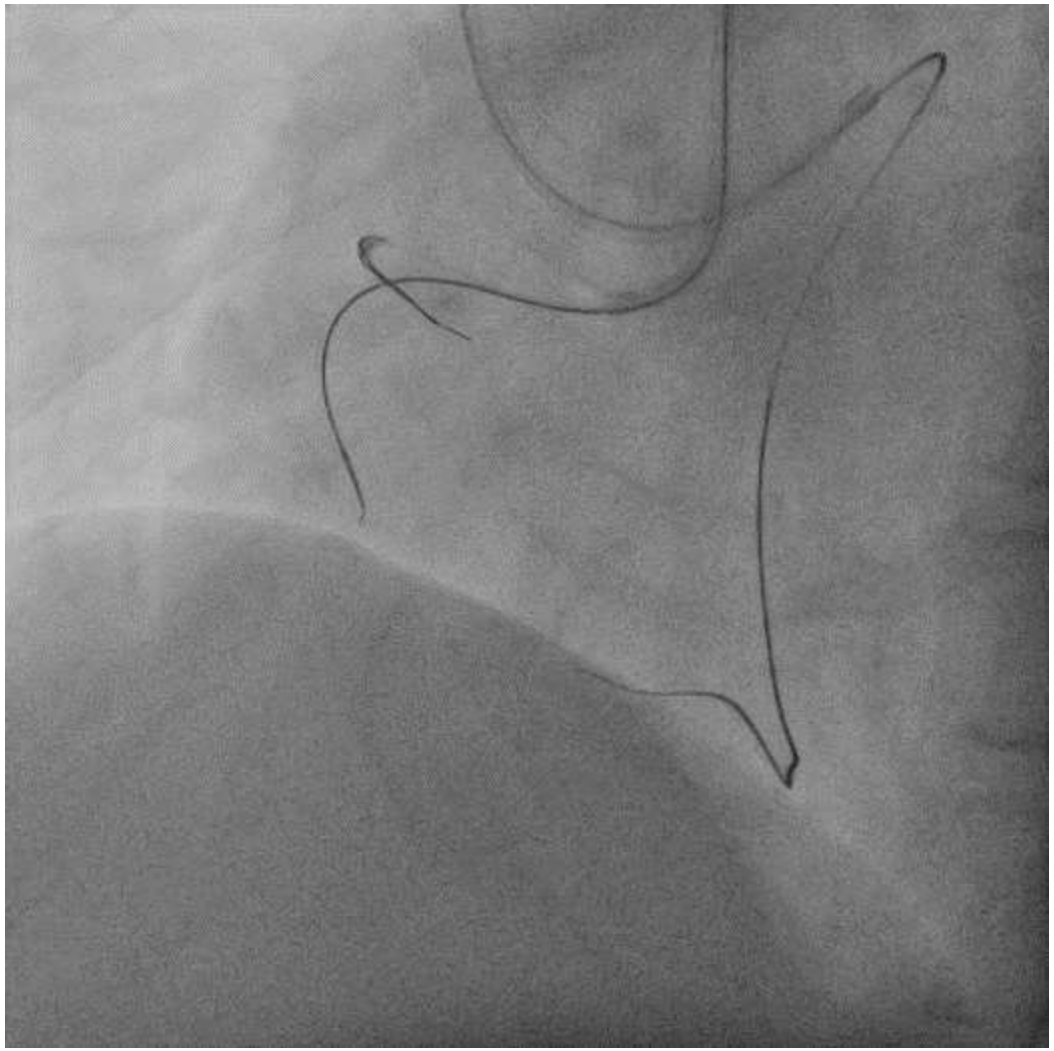
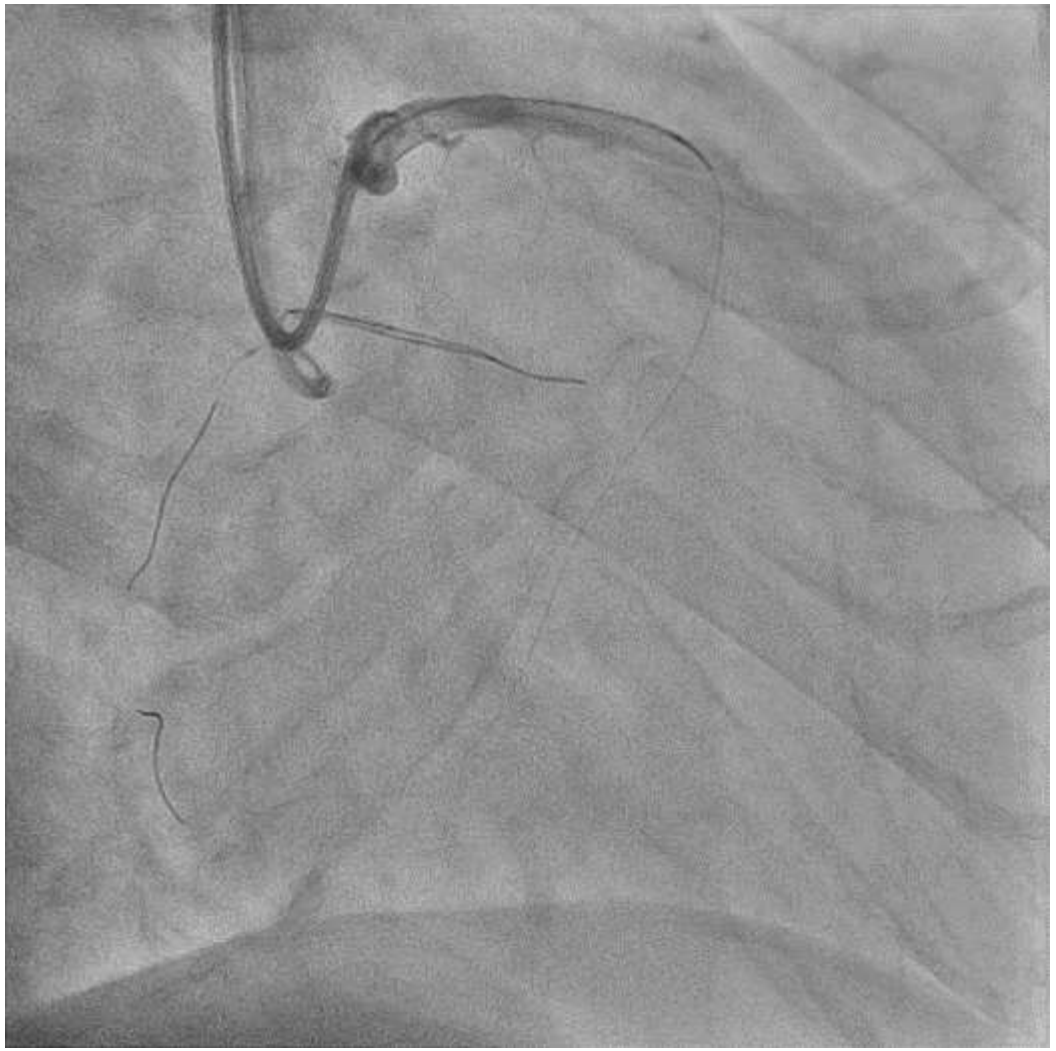


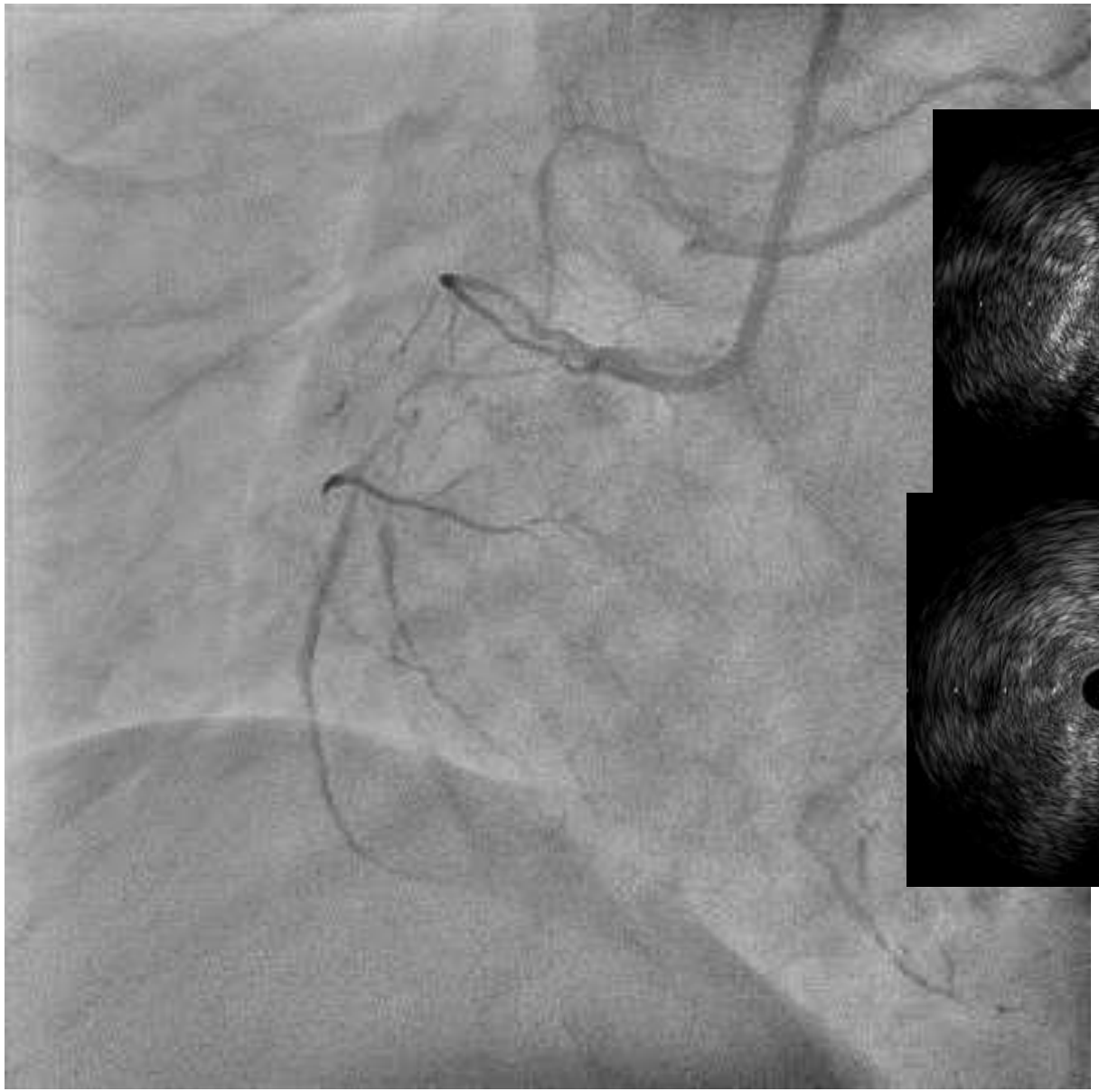


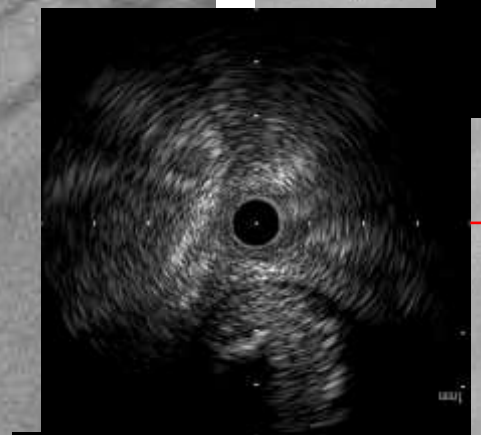
RCA proximal CTO and distal double CTO

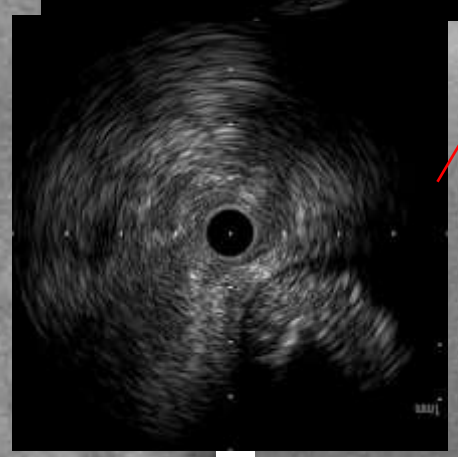


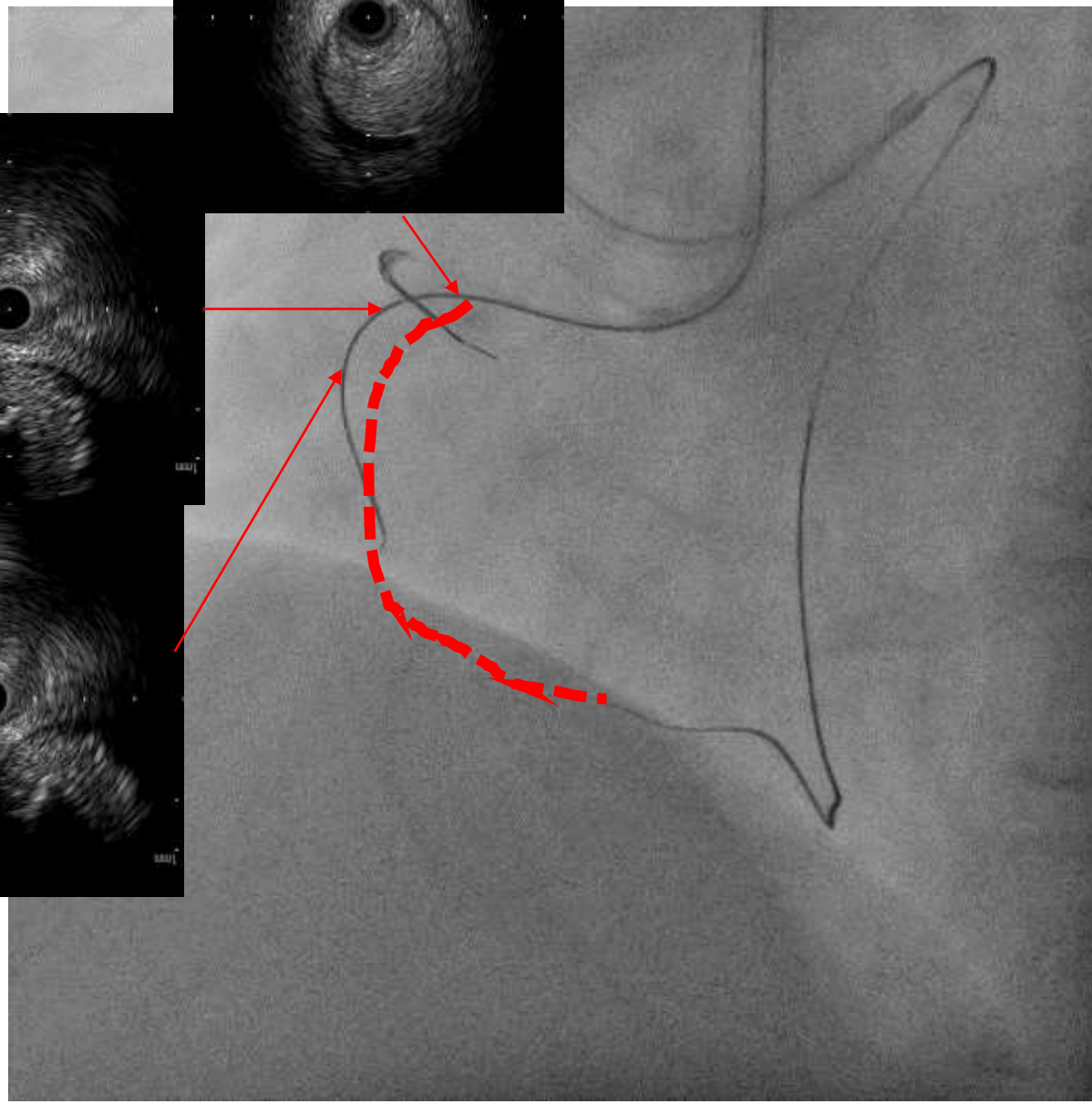


RCA proximal CTO and dist TO









Never use “Gaia series” if you miss CTO way

Personal Antegrade Wire Escalation

Tapered floppy guidewires /Fielder XT(A,R)

<20mm and minimum bend(<60°)

Gaia series(2nd , 3rd)

>20mm or acute bend(>60°)

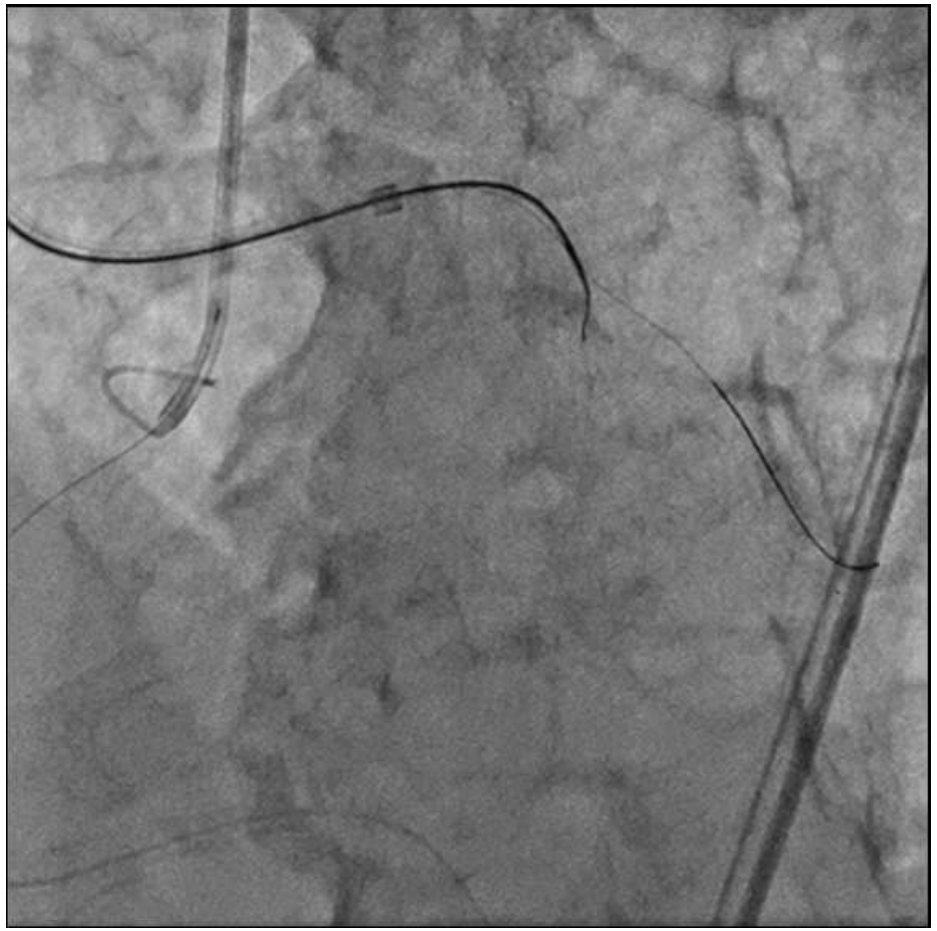
Miracle families(UB3, 6G, 12G)

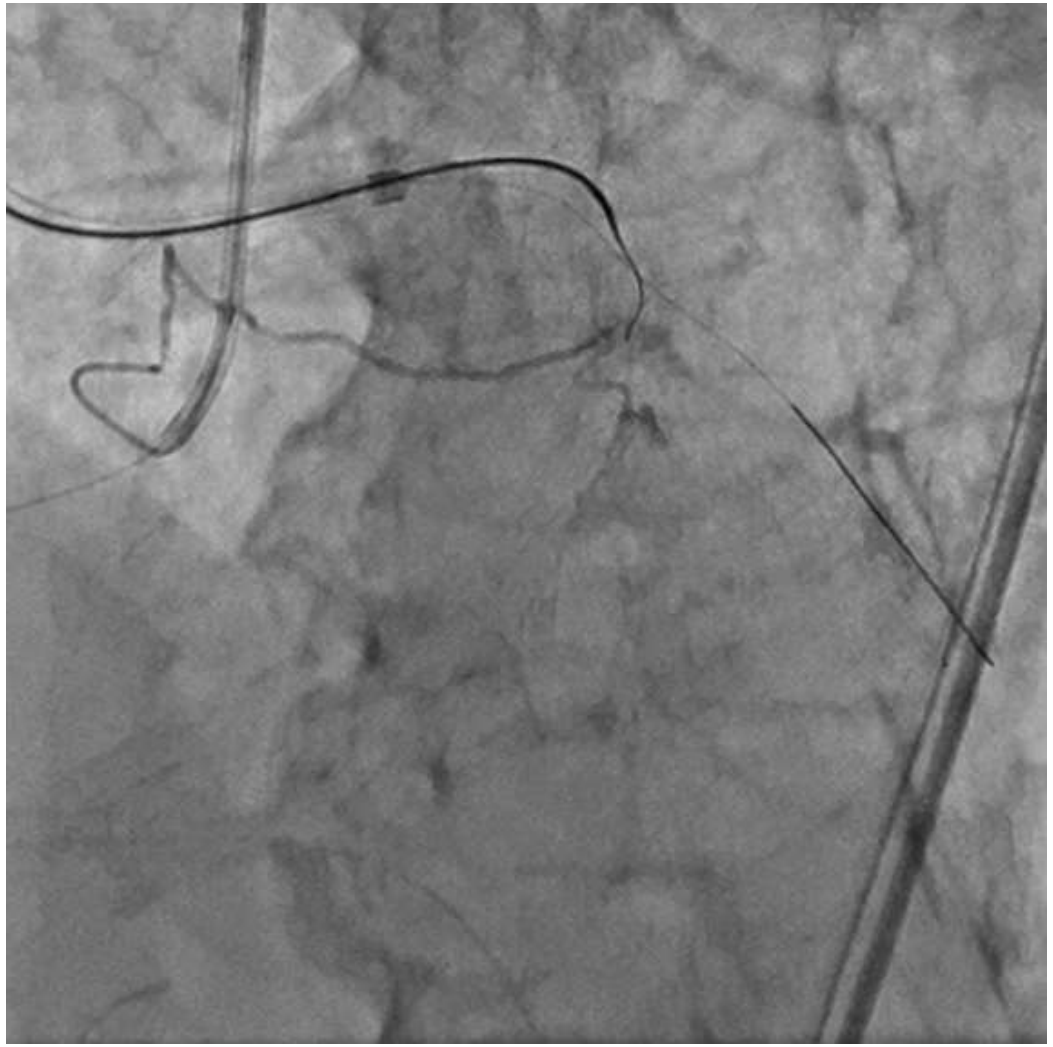
Non stump bifurcated LAD CTO

IVUS guided/Crusade supported penetration

Gaia 3rd→Confianza Pro9G

Procedure Sequence





What is next?

Procedure Sequence

Personal Antegrade Wire Escalation

Tapered floppy guidewires /Fielder XT(A,R)

<20mm and minimum bend(<60°)

>20mm or acute bend(>60°)

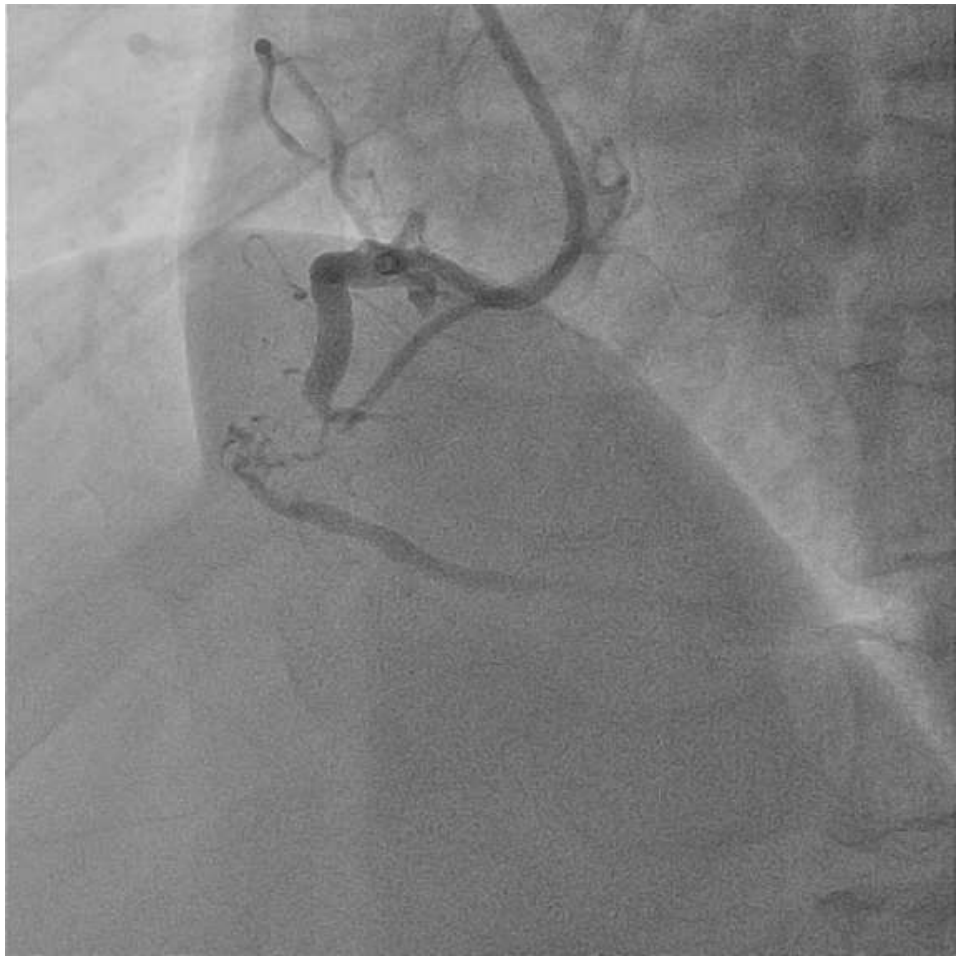
Gaia series(2nd , 3rd)

Miracle families(UB3, 6G, 12G)

Cacified or fibrous CTO
With max. back up

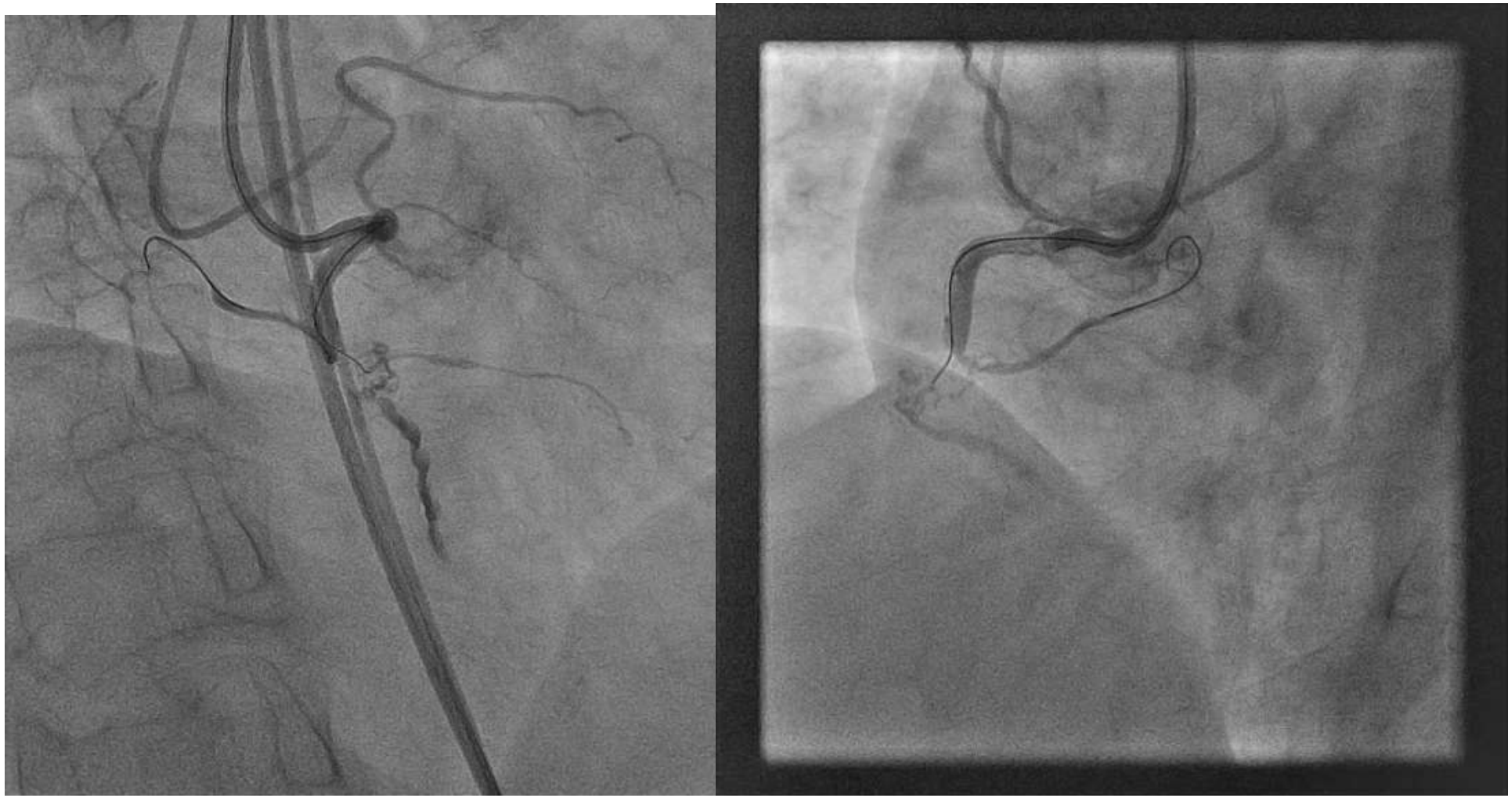
Conquest(Confianza) Pro families (9G, 12G, 8-20)

RCA mid CTO case(second attempt)



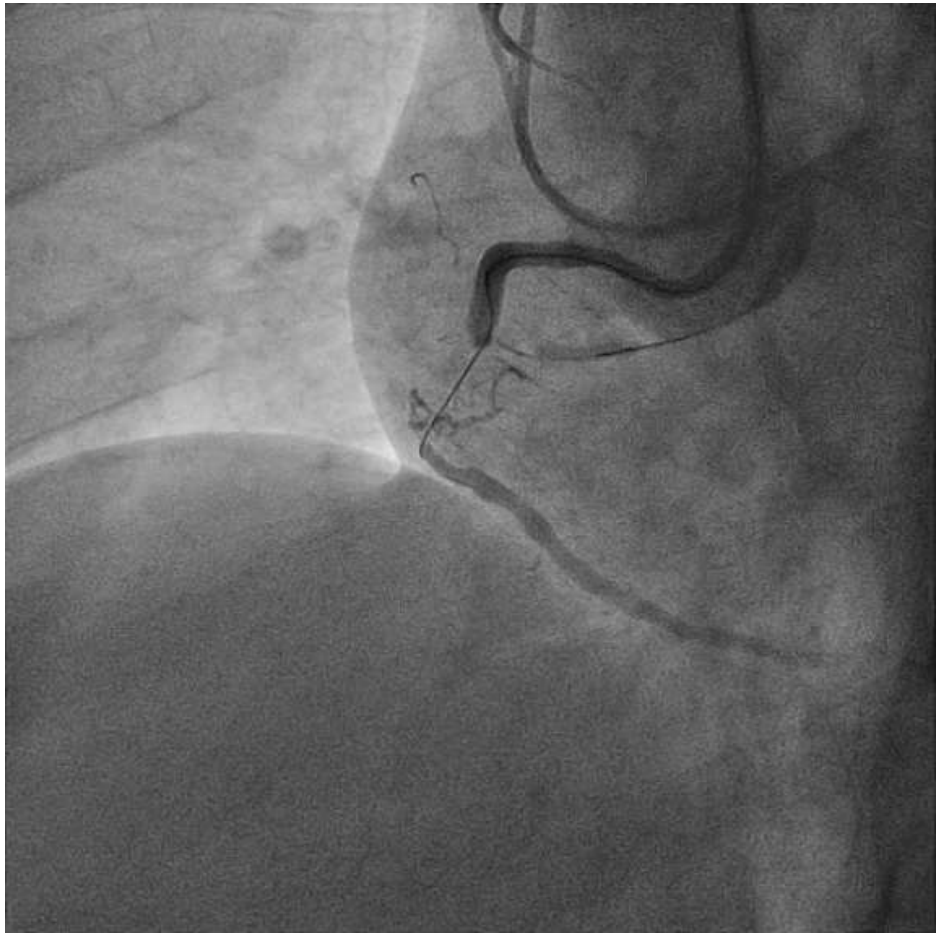
RCA mid CTO case(second attempt)

Penetration of proximal fibrous cap by conquest pro 12G escalated from Gaia series

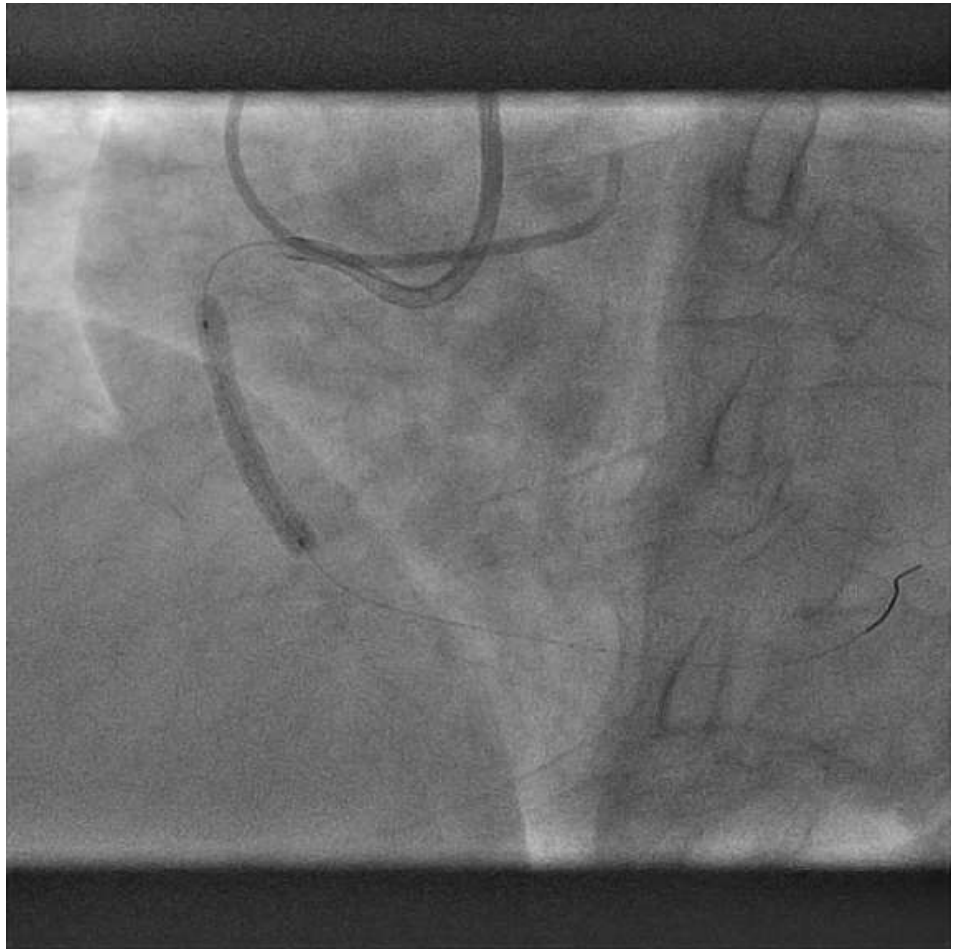


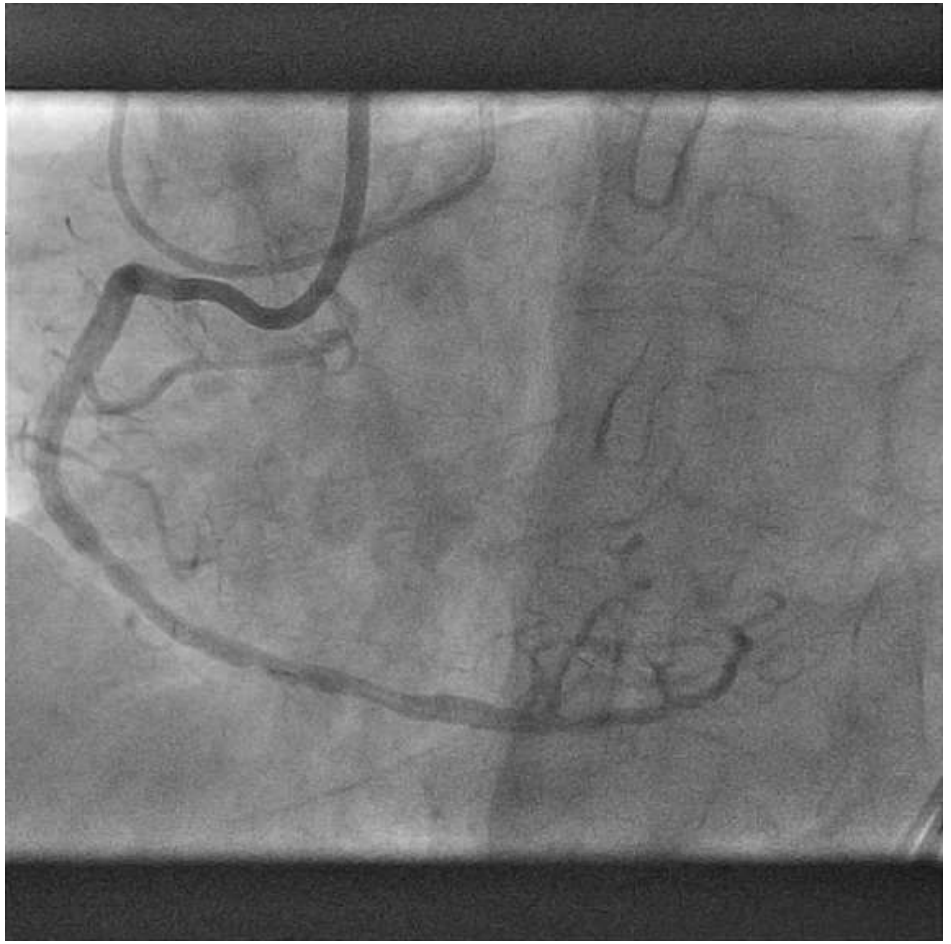
RCA mid CTO case(second attempt)

Step down of CTO wire from Conquest 12G to Gaia 2nd



Procedure Sequence





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Thank you for your attention