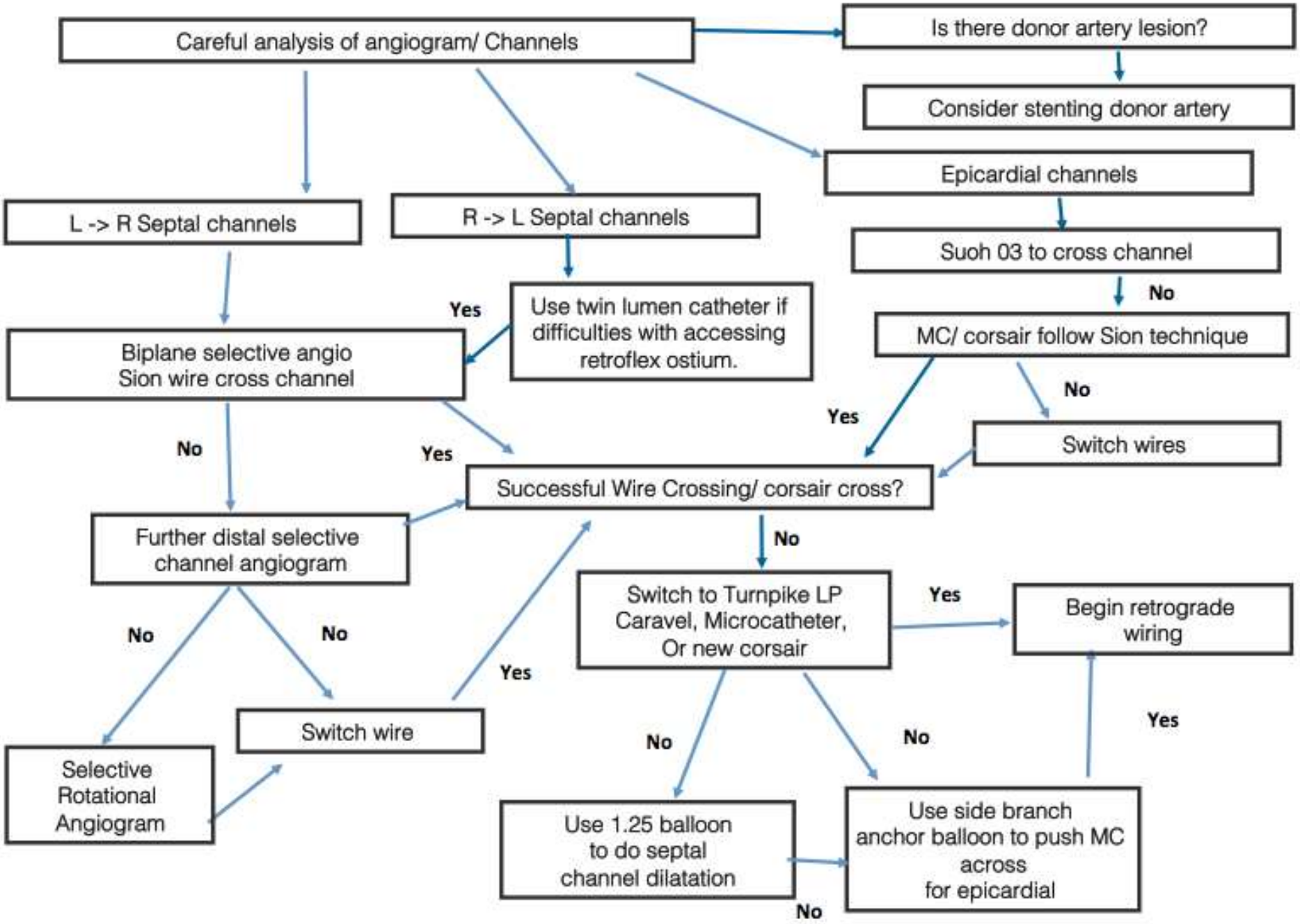
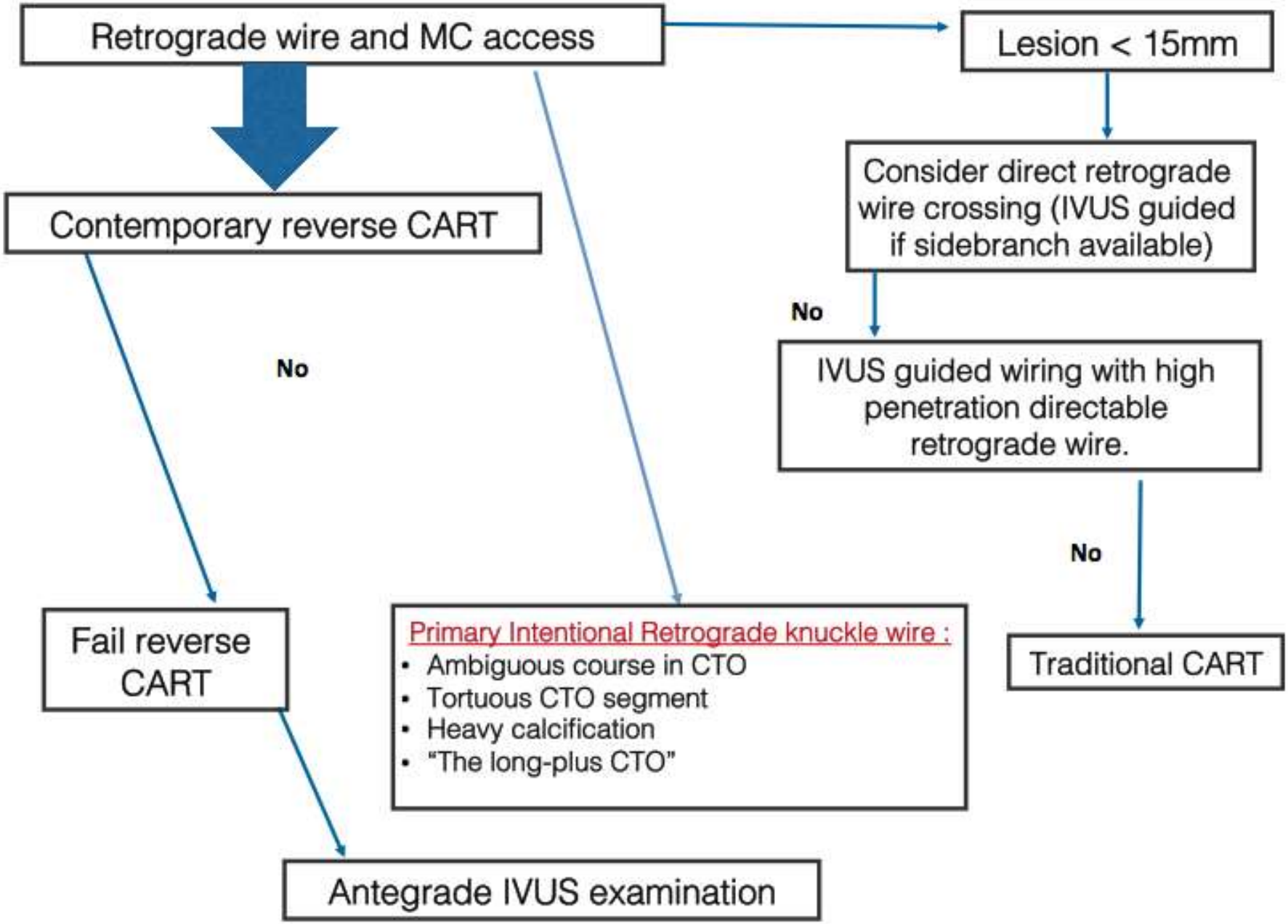
Perspective for retrograde approach from APCTO Algorithm.

Dr Eugene B Wu.
Director APCTO club
Founding Director HKSTENT.
Director Cardiovascular Interventional Centre
Prince of Wales Hospital,
Chinese University Hong Kong.


Careful analysis of angiogram/ Channels
Is there donor artery lesion?
Consider stenting donor artery
Epicardial channels
Suoh 03 to cross channel
No
MC/ corsair follow Sion technique
No
Switch wires
Yes
L -> R Septal channels
R -> L Septal channels
Yes
Use twin lumen catheter if difficulties with accessing retroflex ostium.
Biplane selective angio
Sion wire cross channel
No
Yes
Successful Wire Crossing/ corsair cross?
No
Further distal selective channel angiogram
No
No
Switch to Turnpike LP Caravel, Microcatheter, Or new corsair
Yes
Begin retrograde wiring
Yes
Switch wire
Yes
Selective Rotational Angiogram
No
No
Yes
Use 1.25 balloon to do septal channel dilatation
Use side branch anchor balloon to push MC across for epicardial
No

Key points in channel crossing.

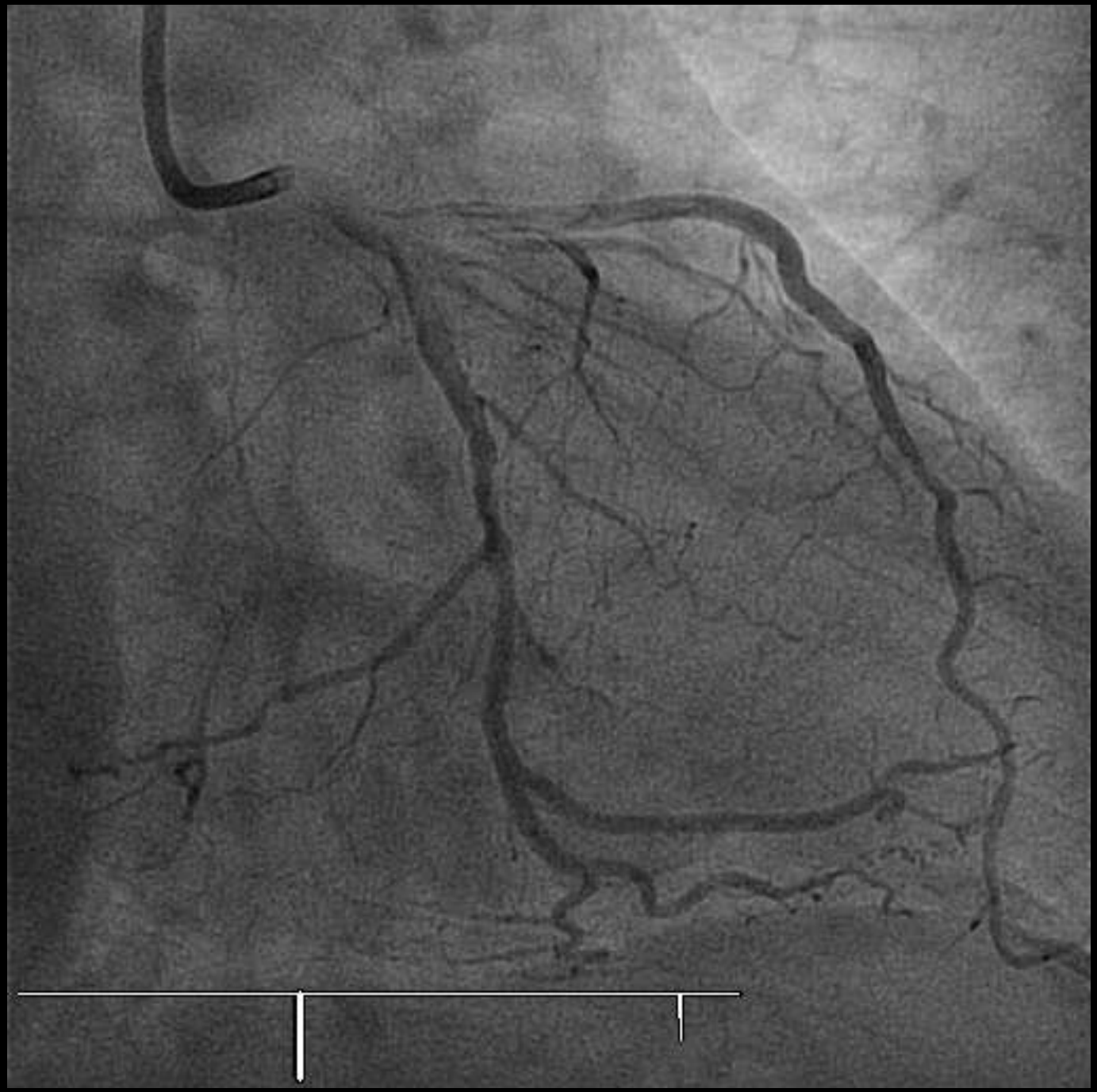
- Stenting intermediate lesions in the donor artery.
- Selective collateral channel angiograms in L->R septals.
- Switching wires for collateral channel wiring when fail to wire.
- Switching microcatheters if failed to cross before trying ballooning (for septals).

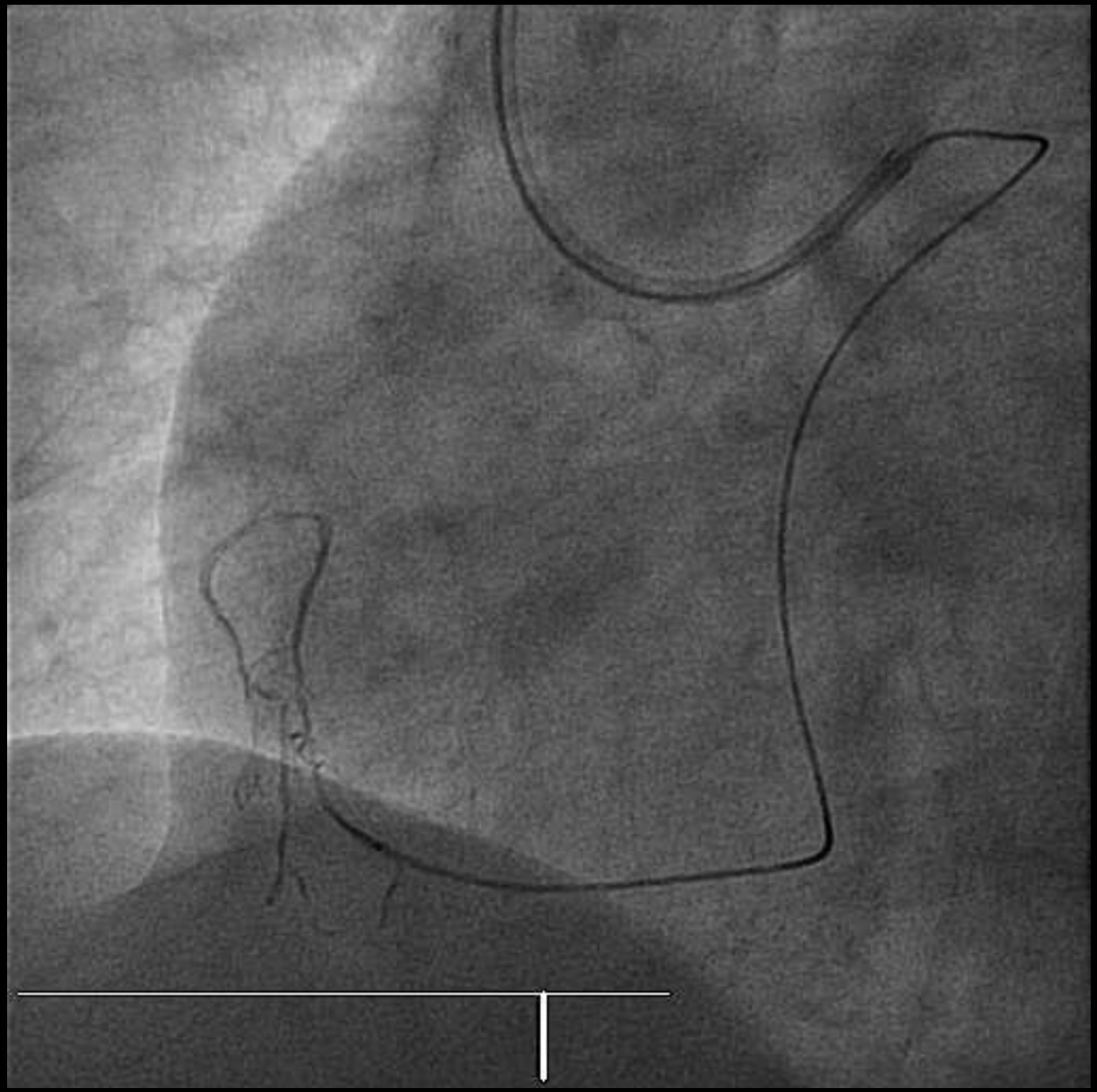

Retrograde wire and MC access
Lesion < 15mm
Consider direct retrograde wire crossing (IVUS guided if sidebranch available)
No
IVUS guided wiring with high penetration directable retrograde wire.
No
Traditional CART
Contemporary reverse CART
No
Fail reverse CART
Primary Intentional Retrograde knuckle wire :
• Ambiguous course in CTO
• Tortuous CTO segment
• Heavy calcification
• "The long-plus CTO"
Antegrade IVUS examination

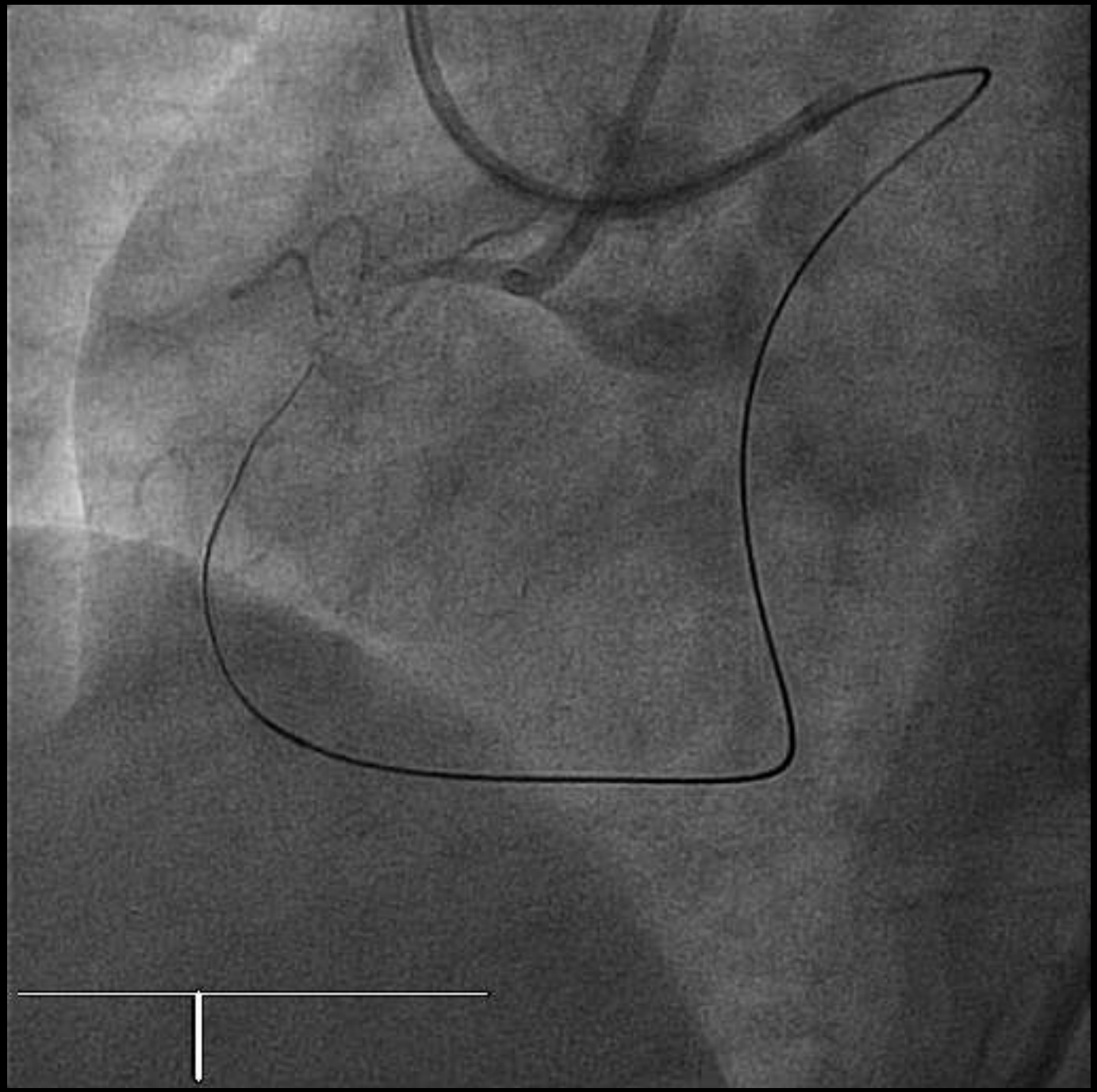
Key points for CTO crossing.

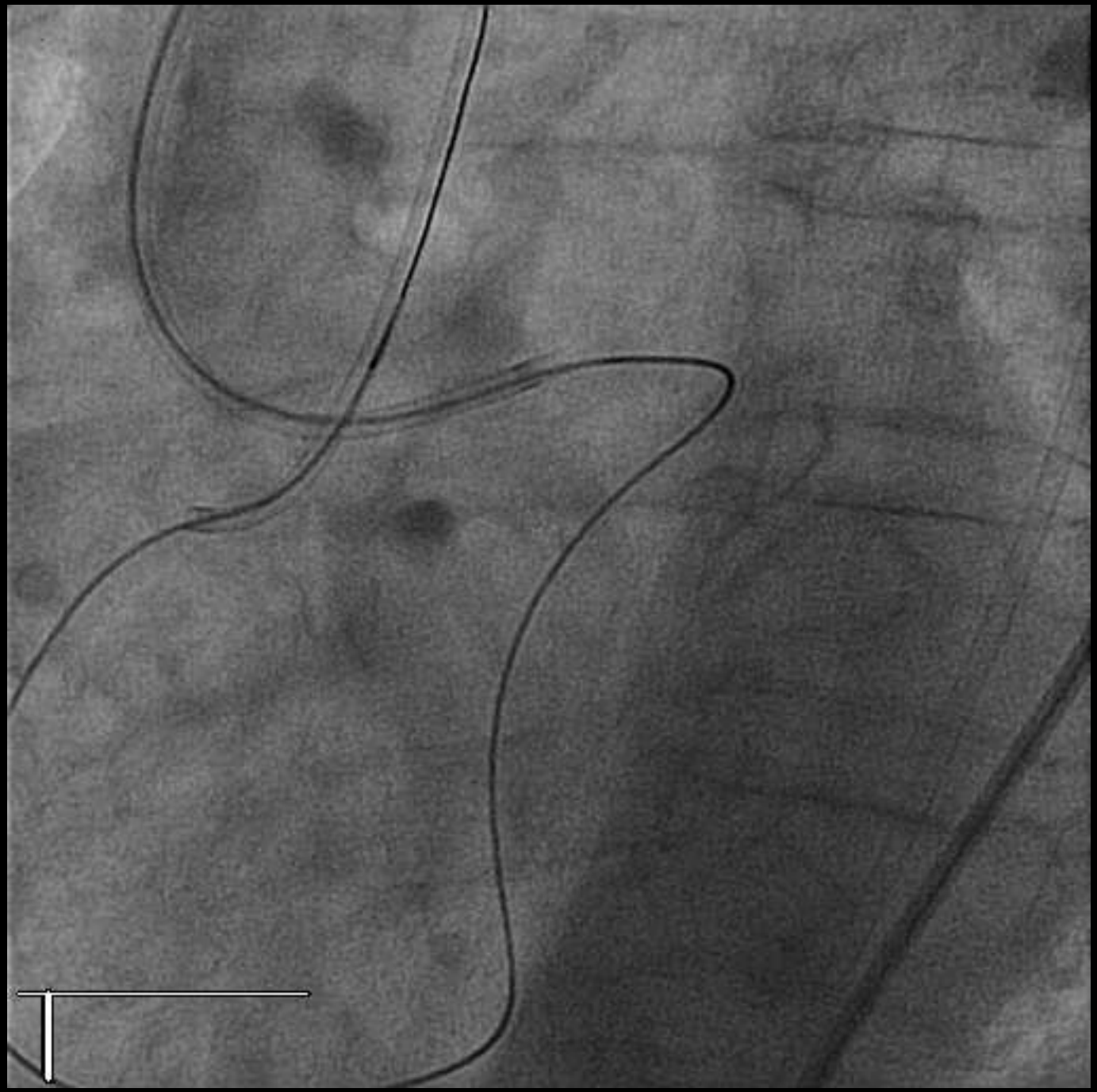
- Single retrograde wire crossing for short CTO.
- The algorithm tells us what to do when failed retrograde single wire in short CTO.
- Intentional subinitimal tracking for “long plus” CTOs.
- Contemporary reverse CART for most CTOs.
- End Balloon Wiring (EBW) concept.

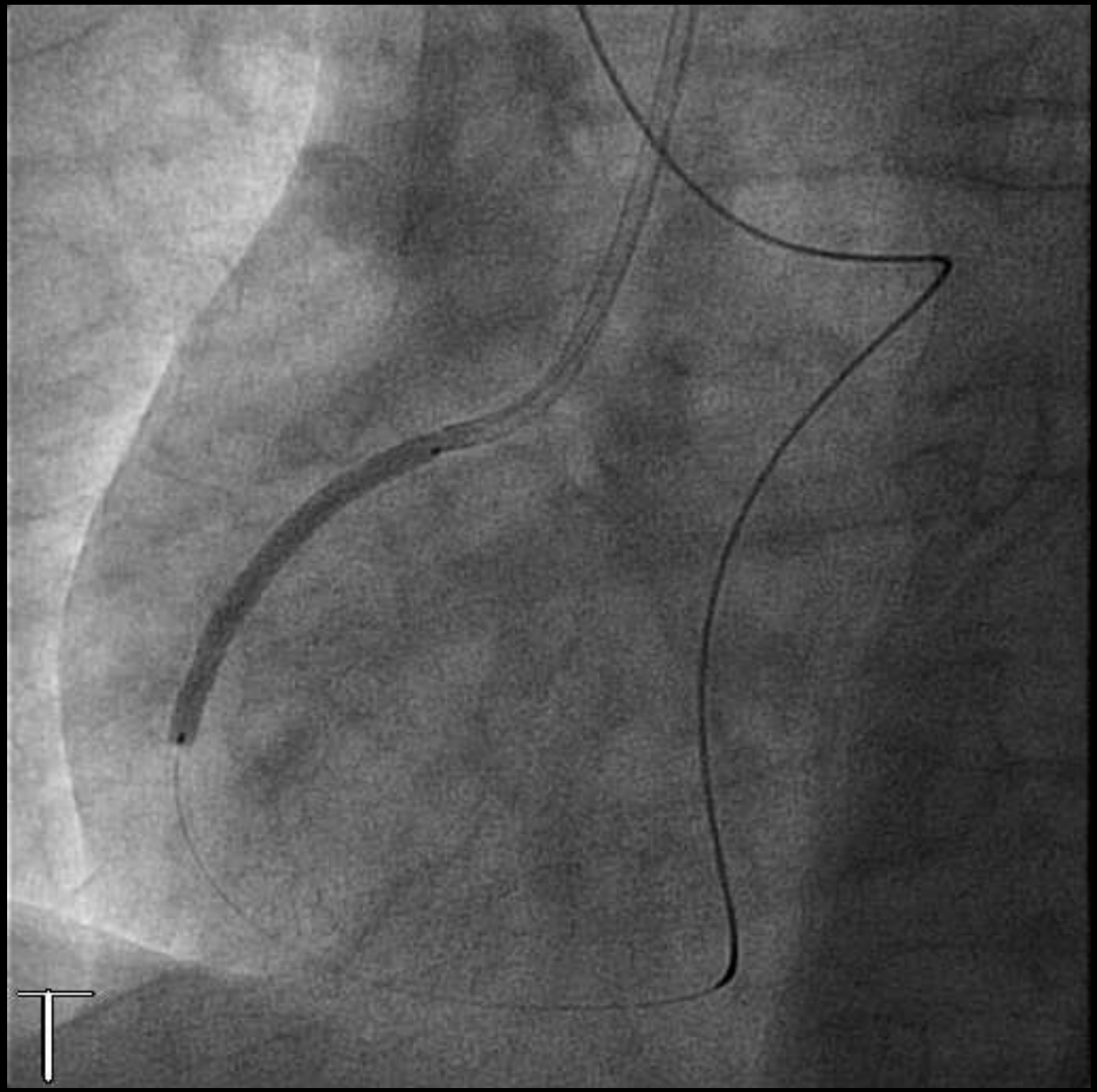
Short CTO

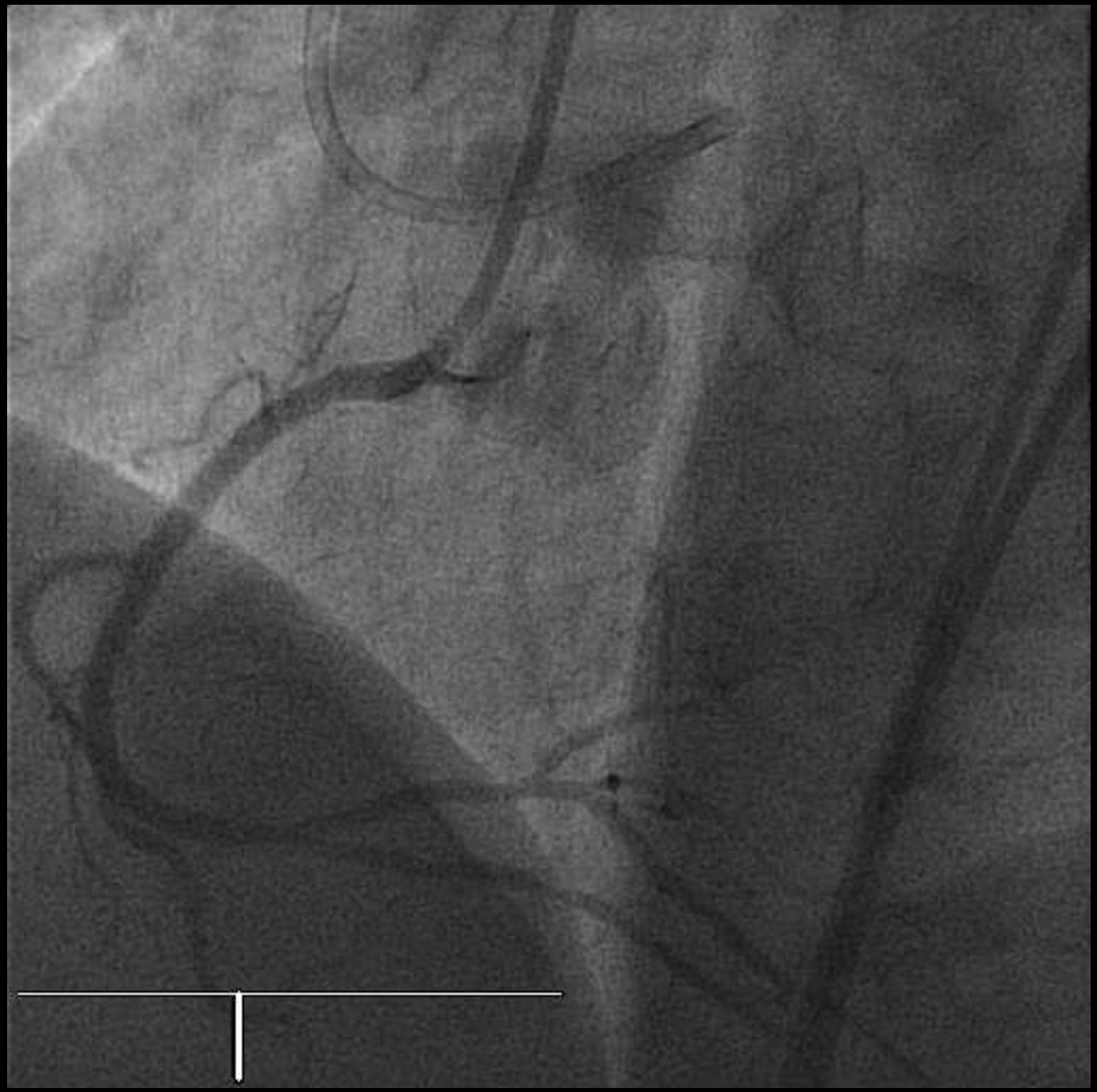






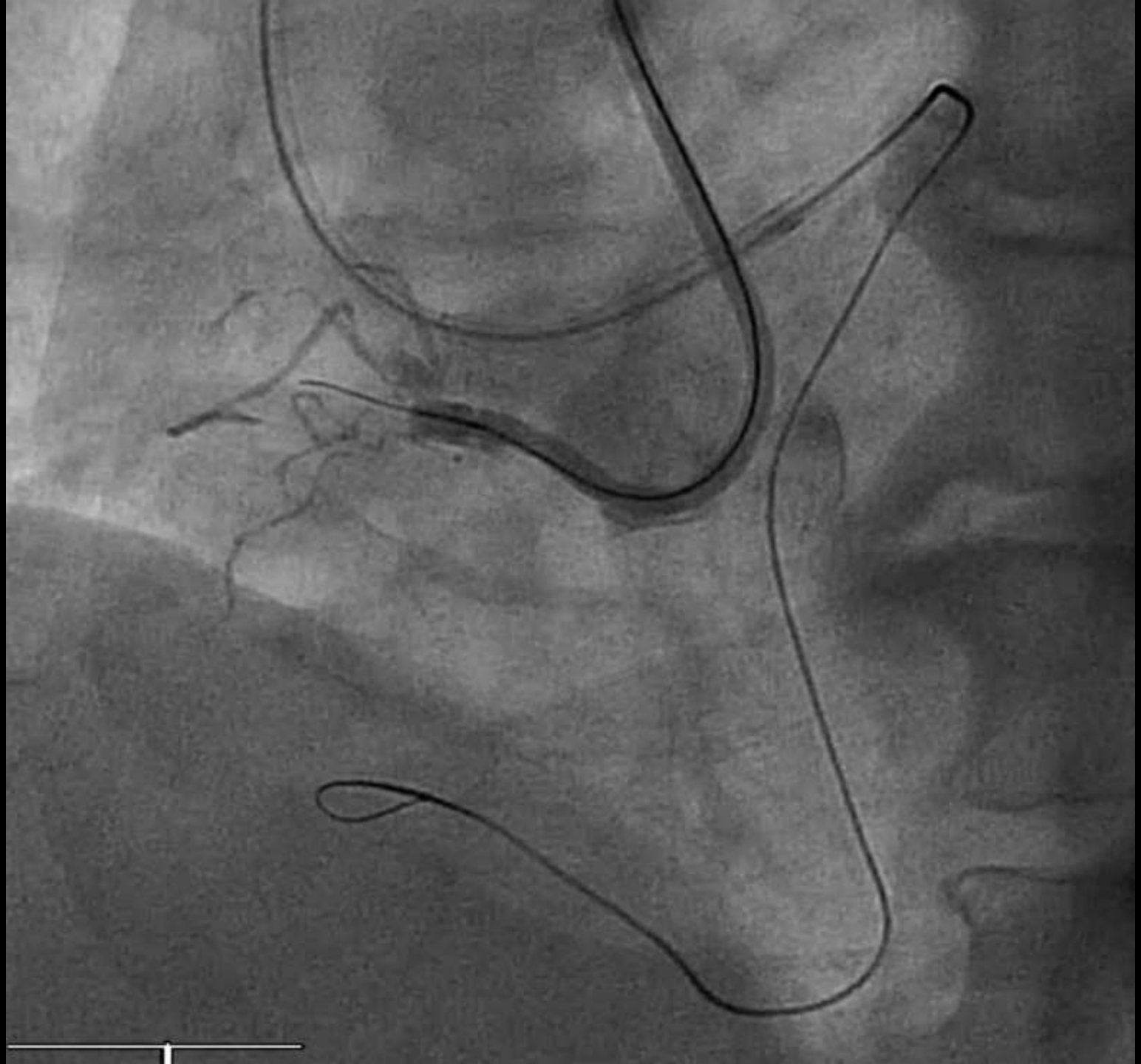


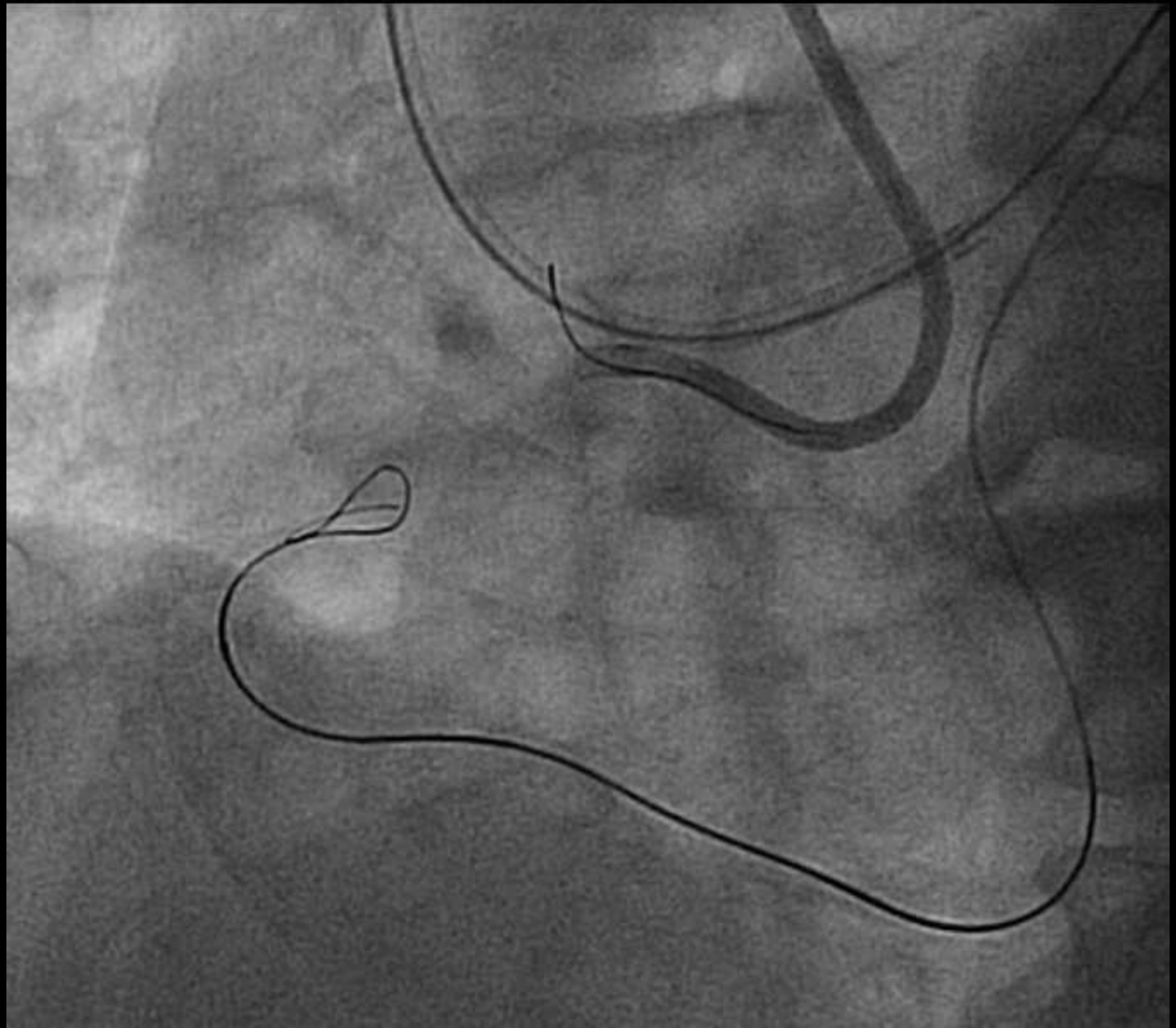


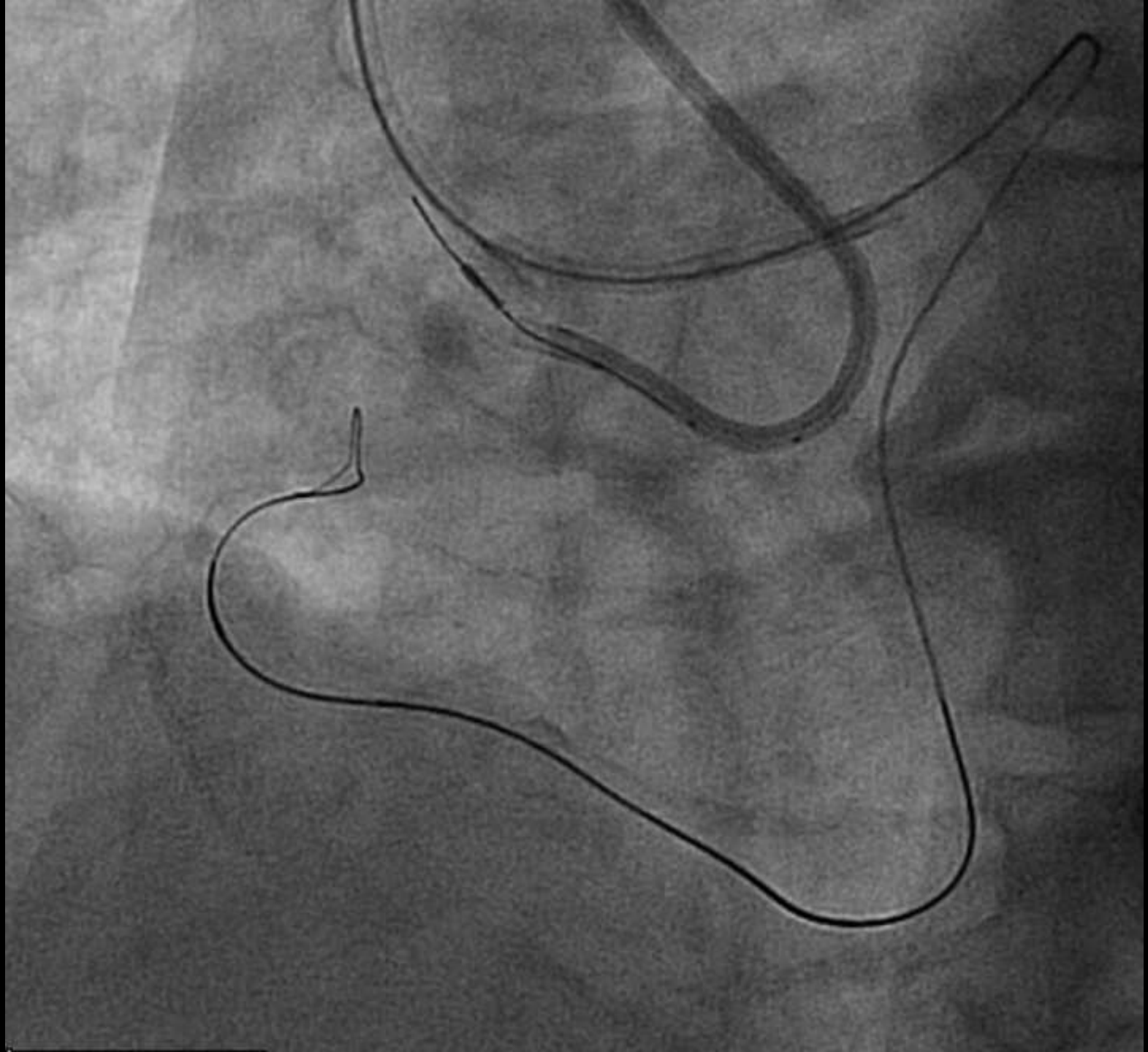


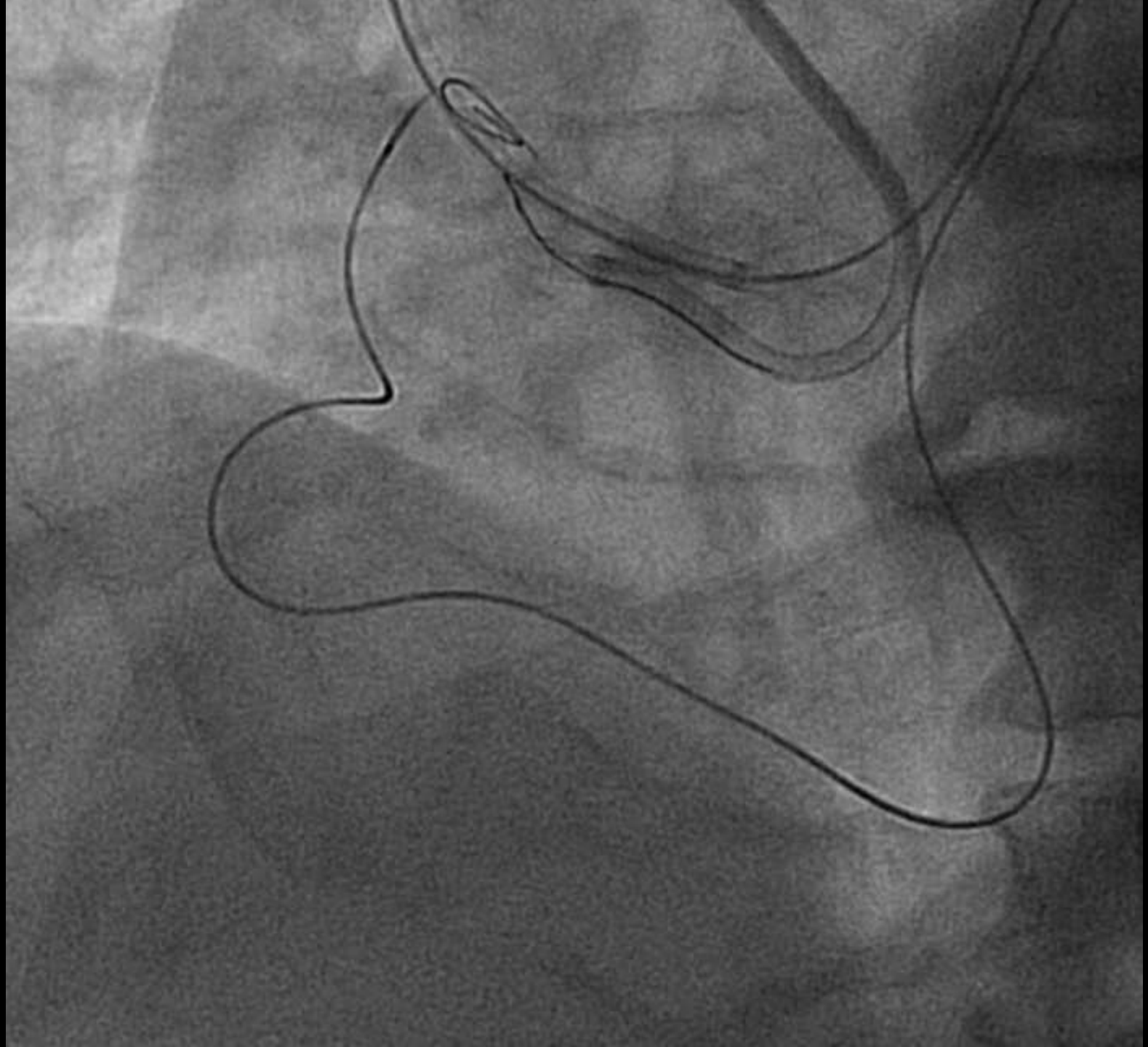
“Long-plus” CTO

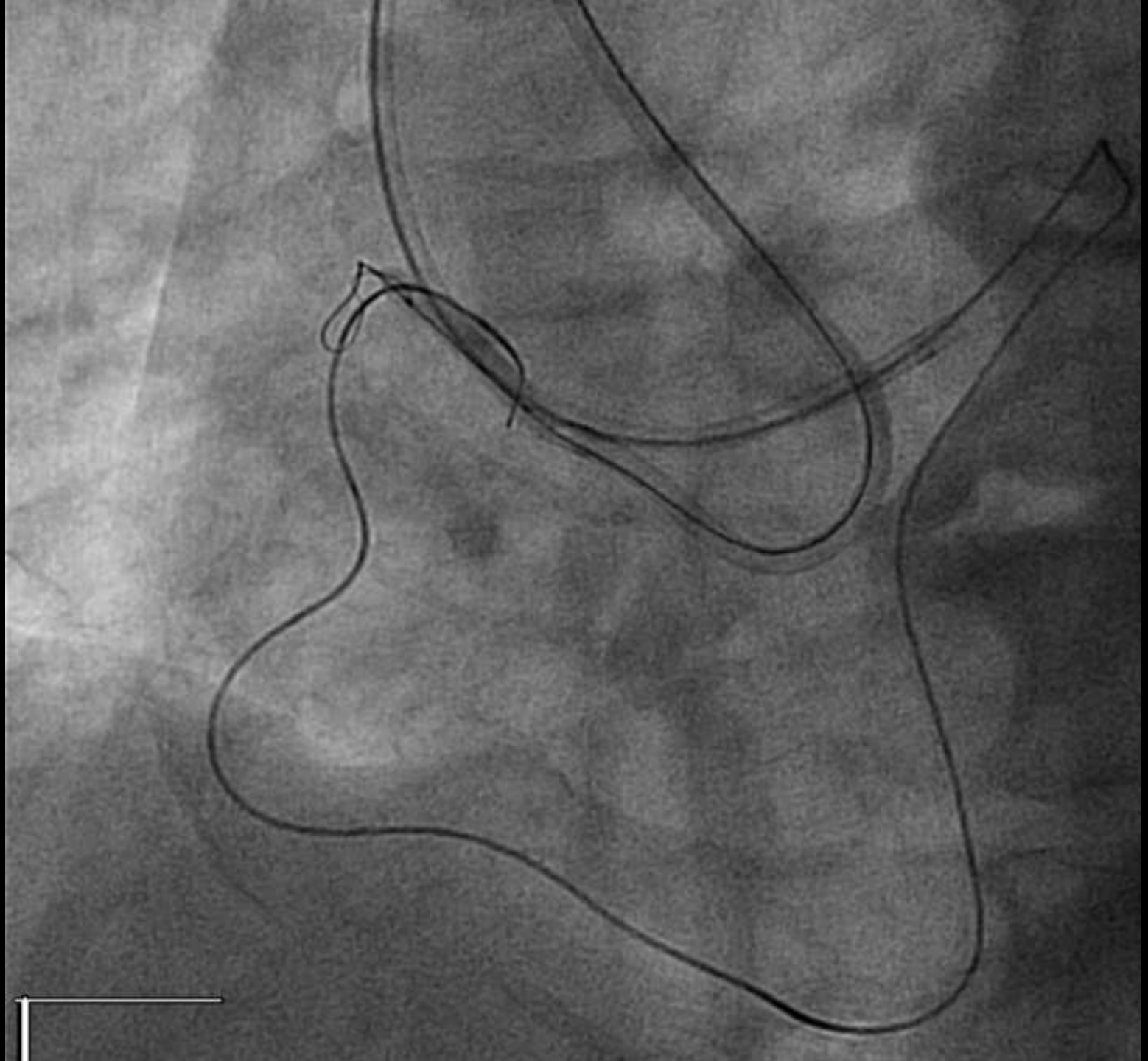
- Long = greater than 20 mm.
- Plus = Tortuous, Ambiguous, Calcified.
- Long alone – does not necessarily mean wire failure, but “long-plus” very likely does.









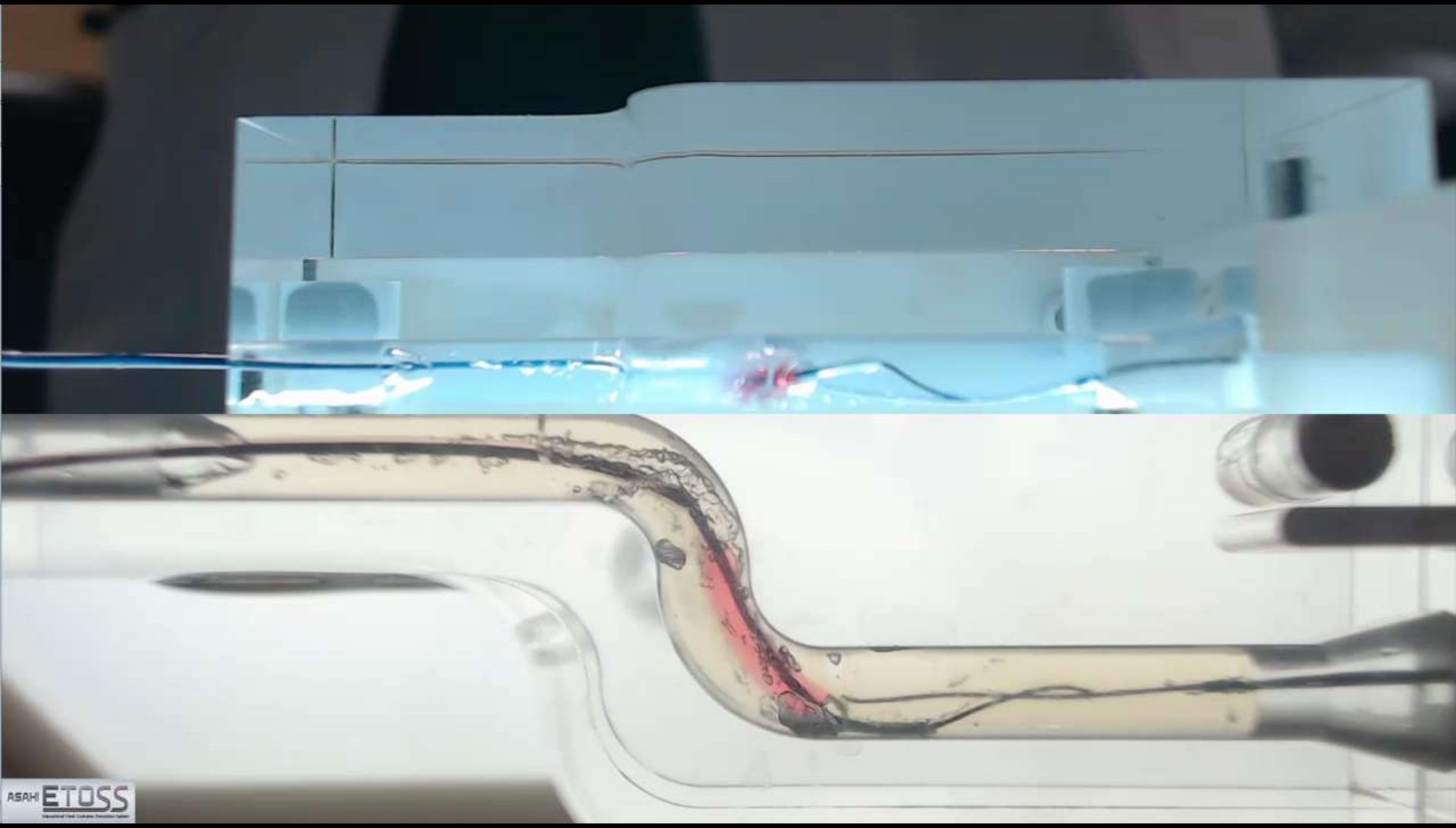


Contemporary Reverse CART – EBW style.

- Contemporary reverse CART represents a change of philosophy
  - In Traditional reverse CART the solution to failed reverse CART is to increase the antegrade target space with bigger balloons (and ultimately with stent reverse CART)
  - In contemporary reverse CART the solution to failed reverse CART is to increase retrograde wire control to allow wiring into the antegrade space.

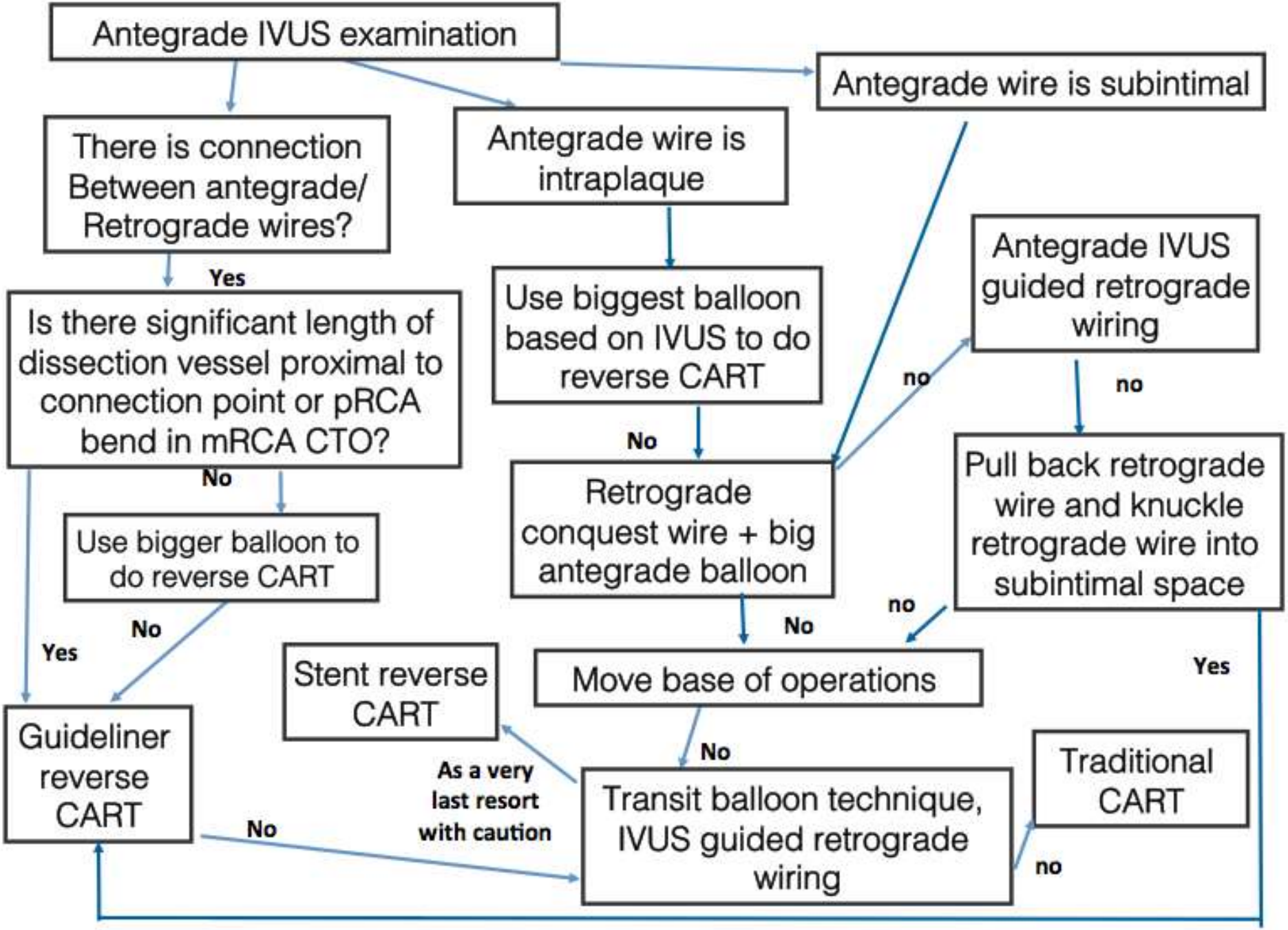
Secret to wire control

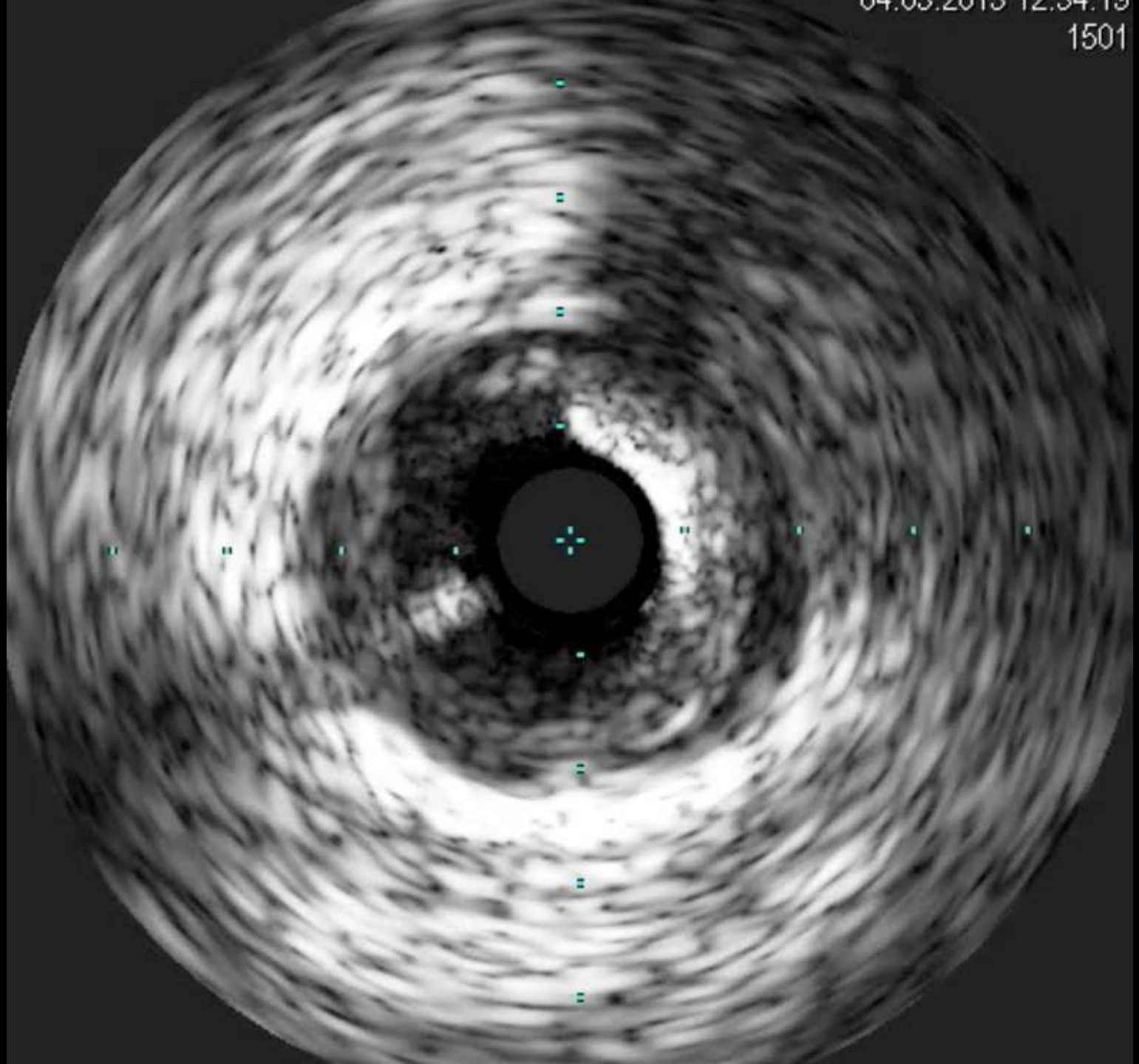
- 1. Back up force – corsair should be drilled into CTO.
- 2. Virgin Territory – minimal retrograde wiring should be done to not expand the retrograde wire space.
  - Antegrade preparation first.
  - Set up wiring in straight segment.
  - End balloon wiring (EBW).

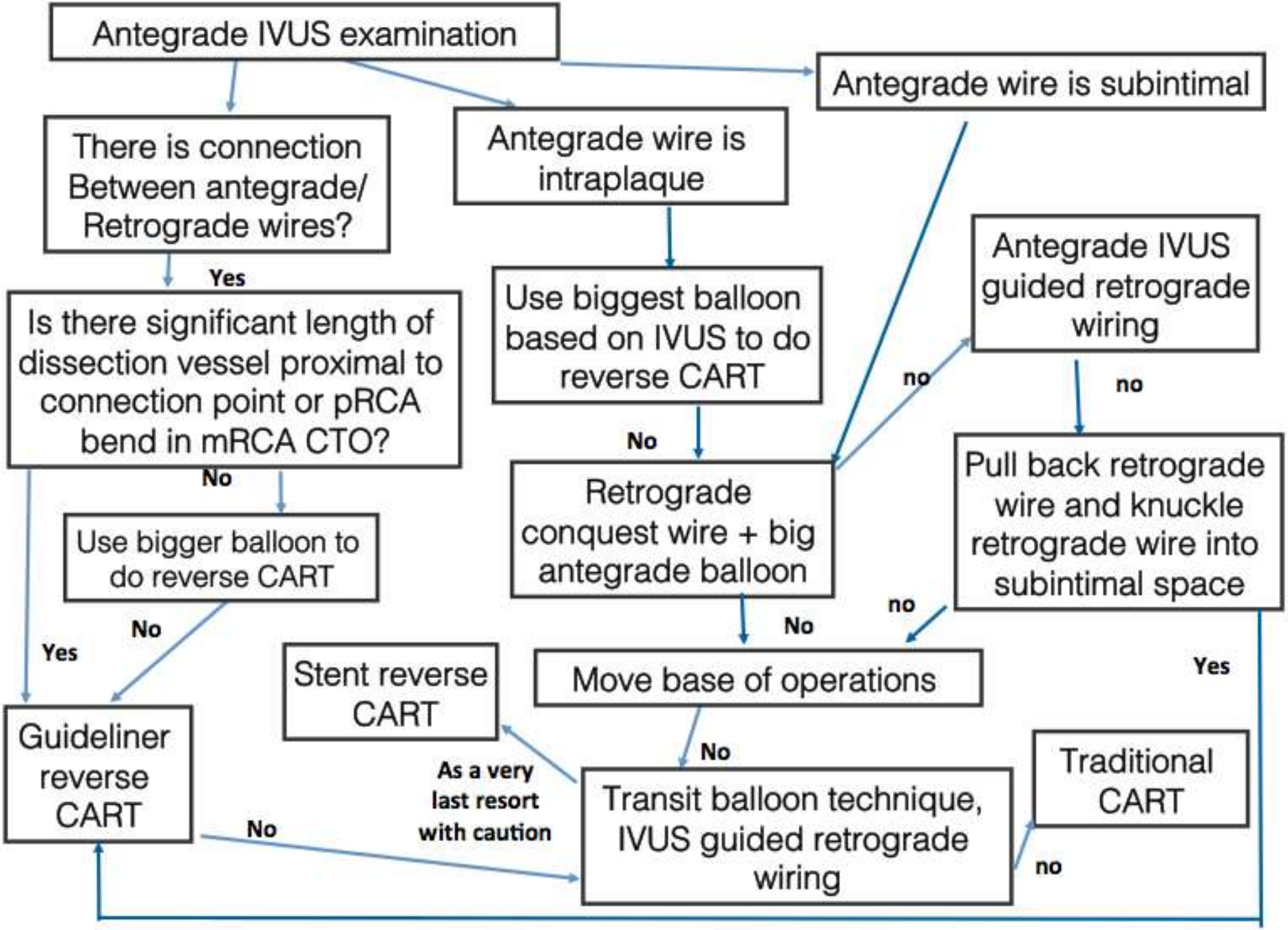

ASAHI ETOSS

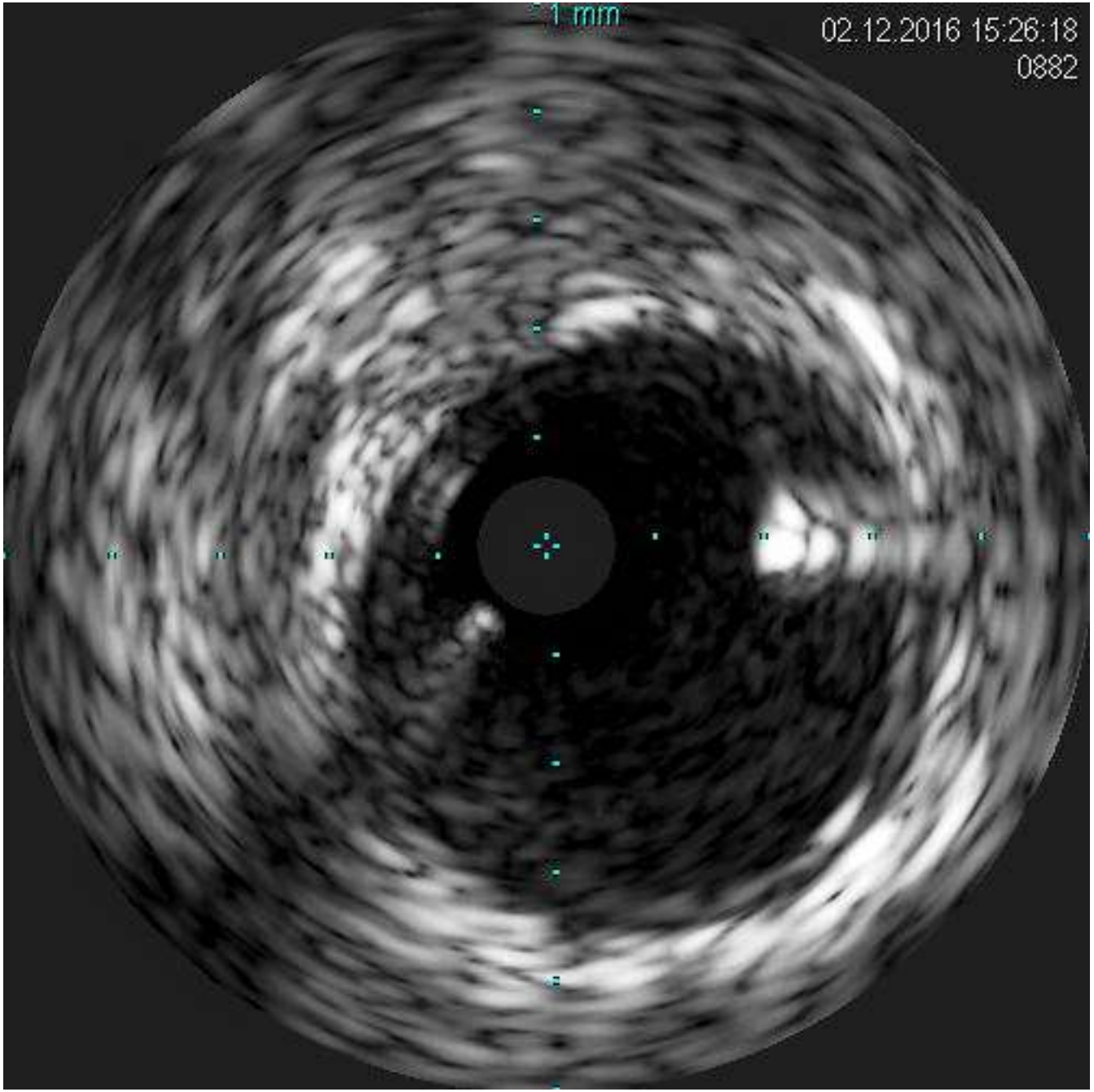
Key points – for failed reverse CART.

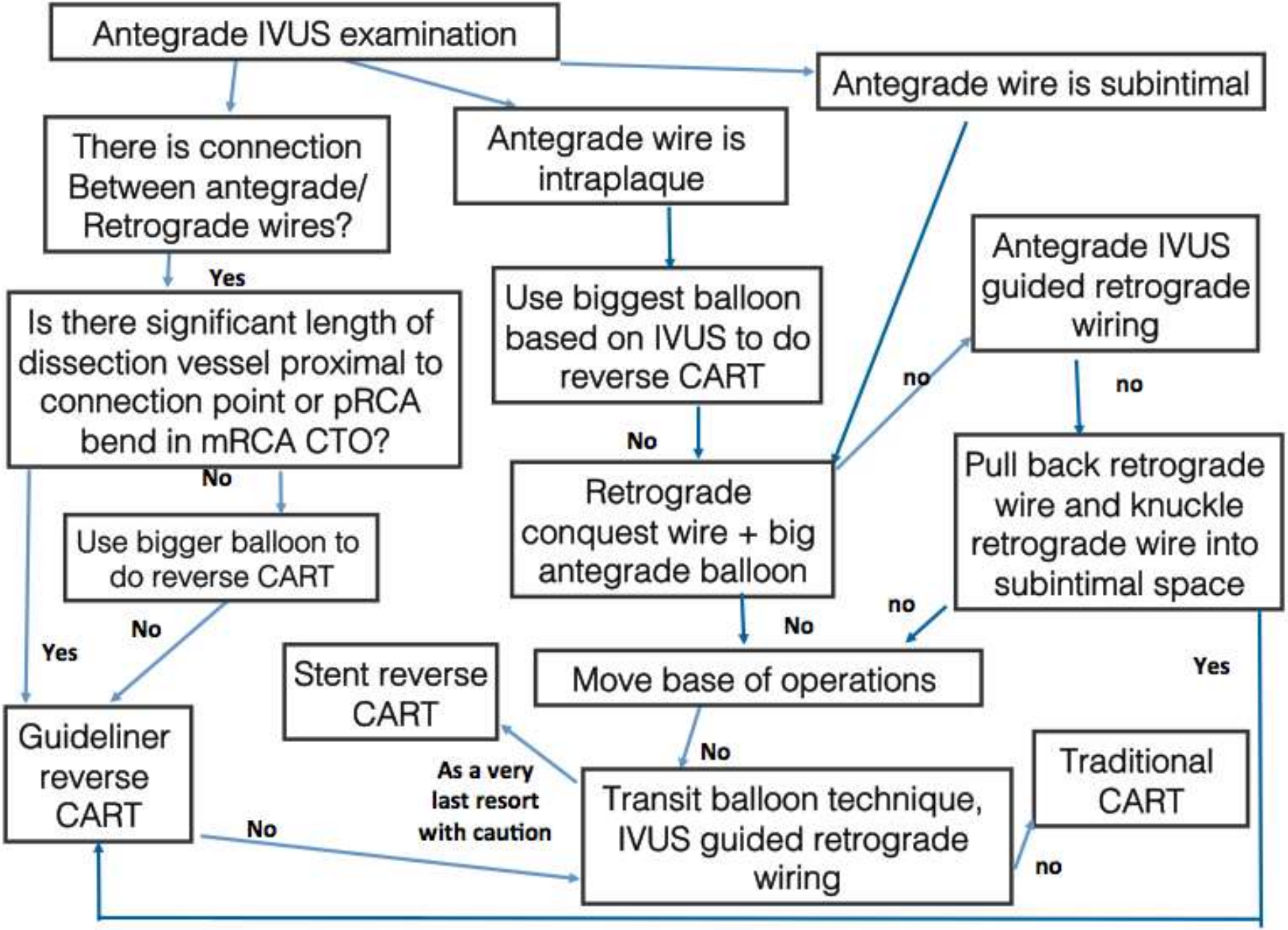
- IVUS examination and guide to next steps.

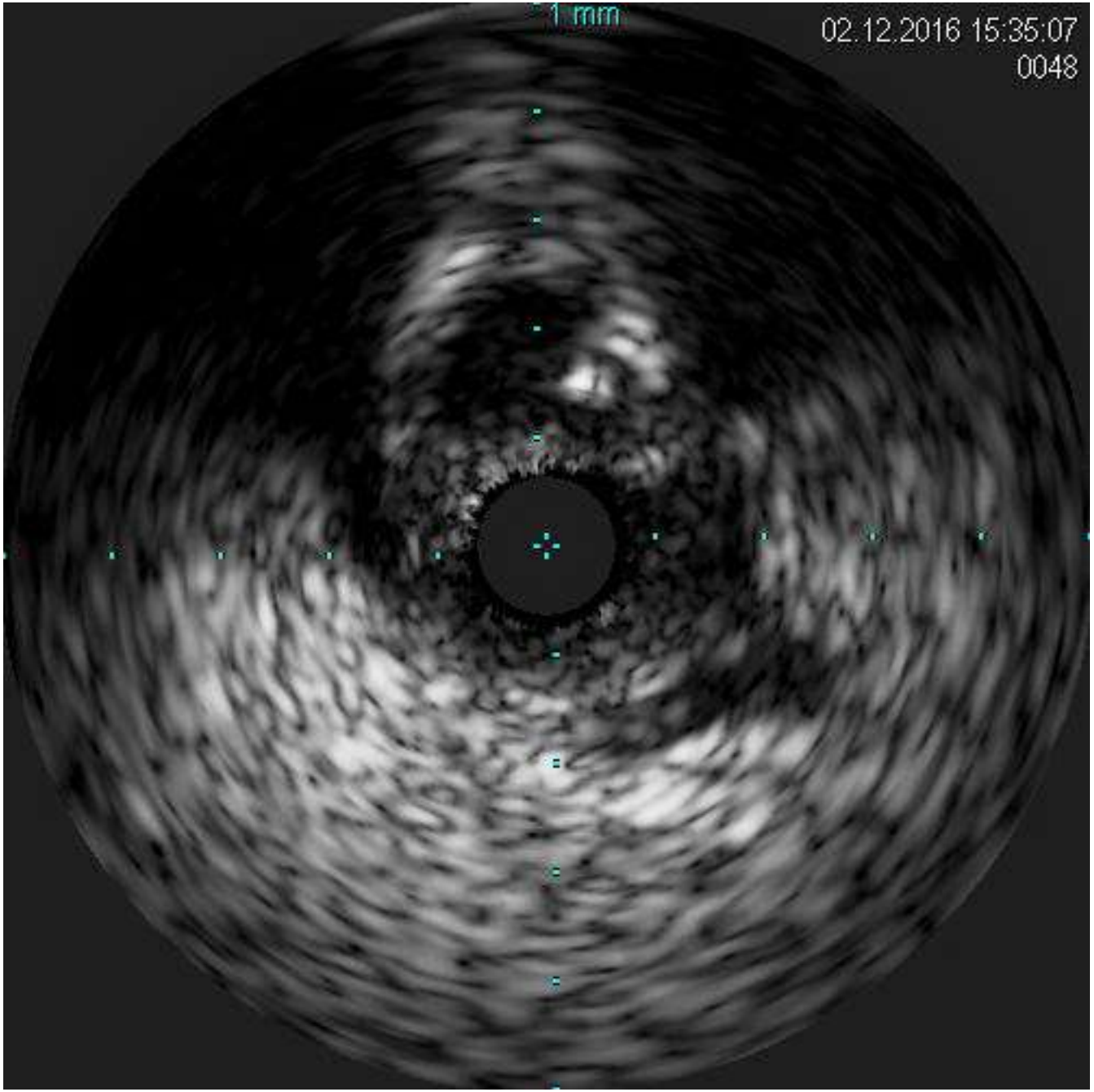

Antegrade IVUS examination
Antegrade wire is subintimal
There is connection Between antegrade/ Retrograde wires?
Antegrade wire is intraplaque
Yes
Is there significant length of dissection vessel proximal to connection point or pRCA bend in mRCA CTO?
Use biggest balloon based on IVUS to do reverse CART
Antegrade IVUS guided retrograde wiring
no
no
No
No
Use bigger balloon to do reverse CART
Retrograde conquest wire + big antegrade balloon
Pull back retrograde wire and knuckle retrograde wire into subintimal space
No
no
Yes
Yes
Stent reverse CART
Move base of operations
Guideliner reverse CART
No
As a very last resort with caution
Traditional CART
Transit balloon technique, IVUS guided retrograde wiring
No
no

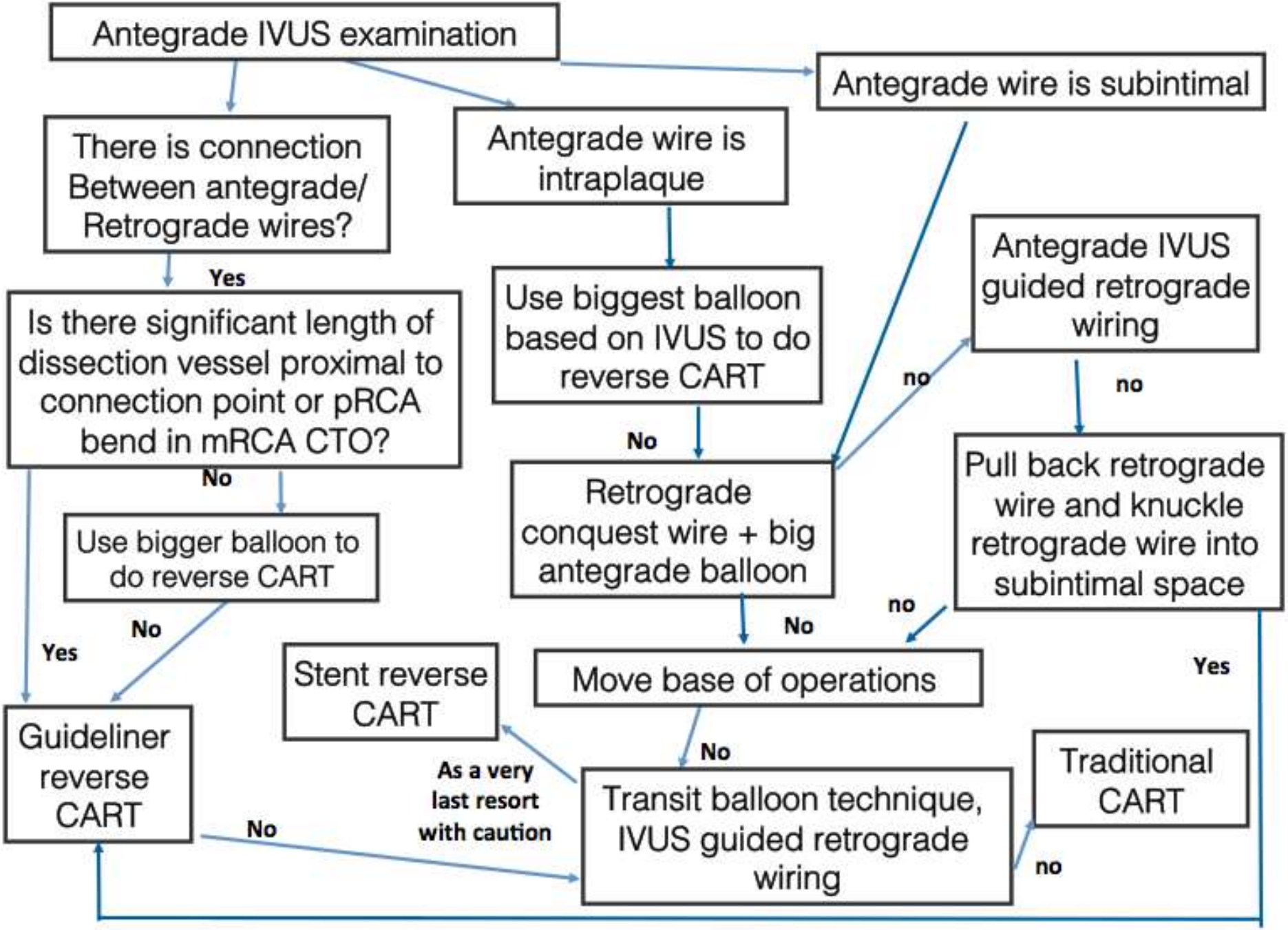

1501

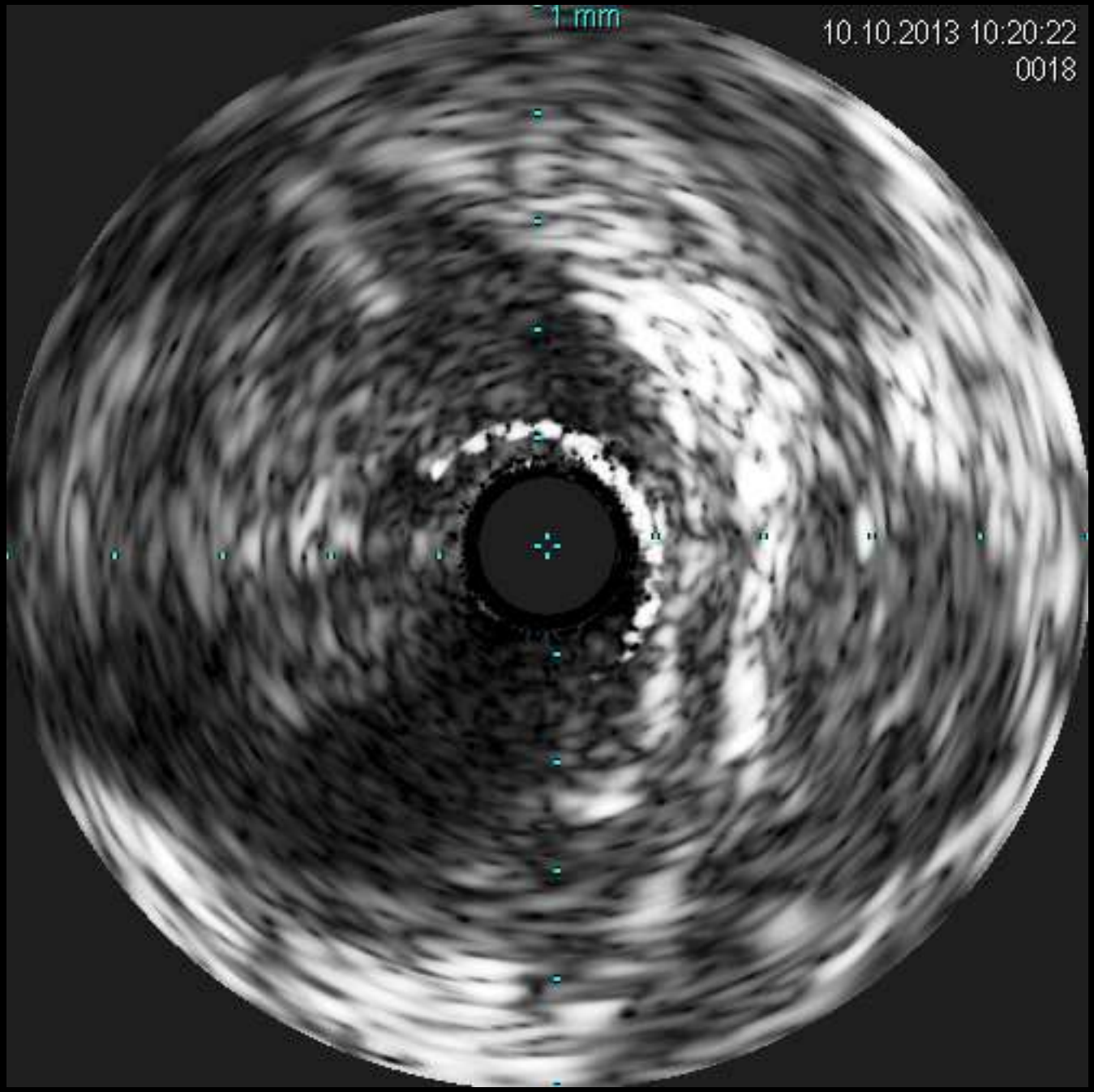

Antegrade IVUS examination
Antegrade wire is subintimal
There is connection Between antegrade/ Retrograde wires?
Antegrade wire is intraplaque
Yes
Is there significant length of dissection vessel proximal to connection point or pRCA bend in mRCA CTO?
Use biggest balloon based on IVUS to do reverse CART
Antegrade IVUS guided retrograde wiring
no
no
No
No
Use bigger balloon to do reverse CART
Retrograde conquest wire + big antegrade balloon
Pull back retrograde wire and knuckle retrograde wire into subintimal space
No
no
Yes
Yes
Stent reverse CART
Move base of operations
Guideliner reverse CART
No
As a very last resort with caution
Traditional CART
Transit balloon technique, IVUS guided retrograde wiring
No
no

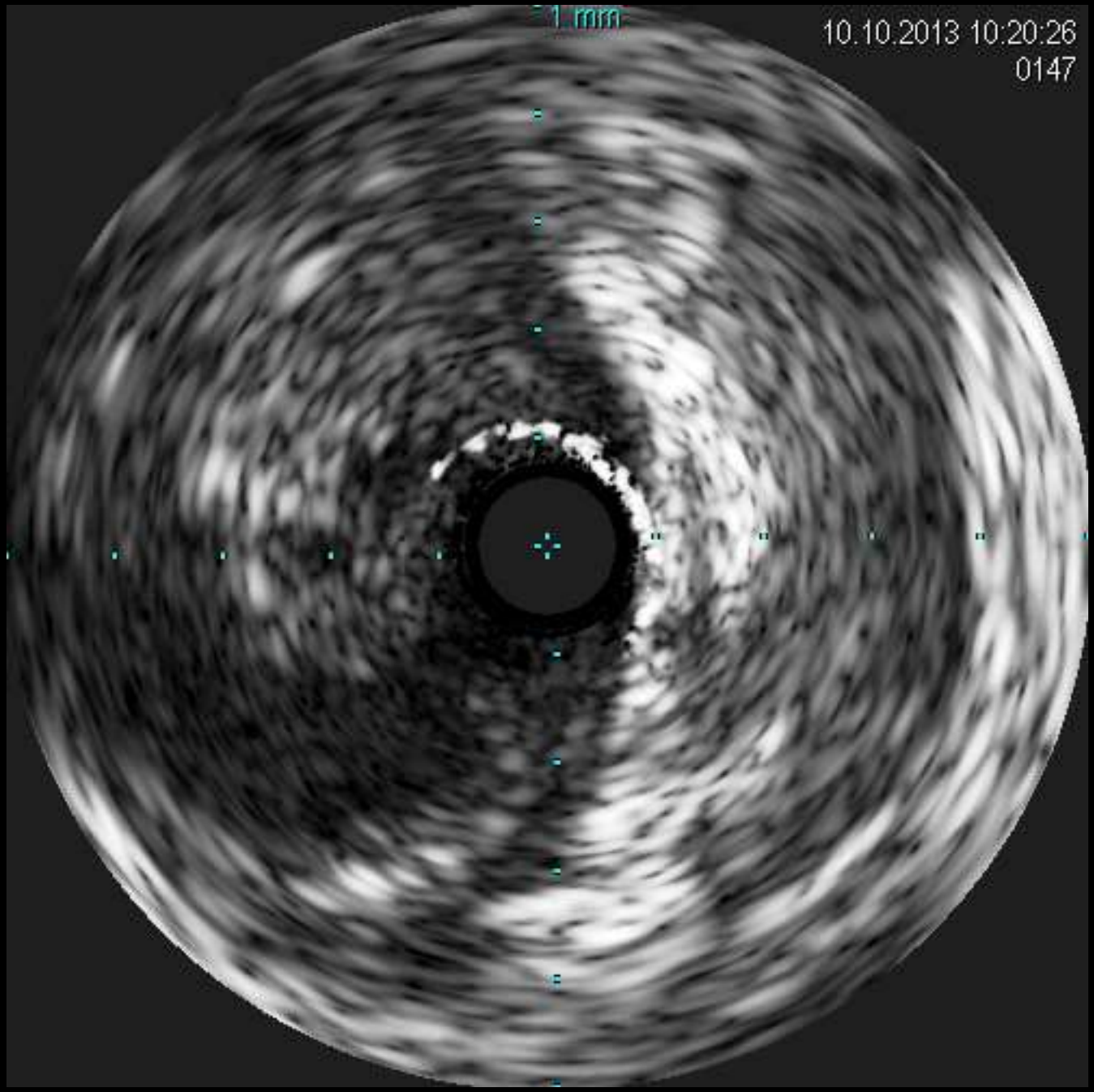

1 mm
02.12.2016 15:26:18
0882


Antegrade IVUS examination
Antegrade wire is subintimal
There is connection Between antegrade/ Retrograde wires?
Antegrade wire is intraplaque
Yes
Is there significant length of dissection vessel proximal to connection point or pRCA bend in mRCA CTO?
Use biggest balloon based on IVUS to do reverse CART
Antegrade IVUS guided retrograde wiring
no
no
No
No
Use bigger balloon to do reverse CART
Retrograde conquest wire + big antegrade balloon
Pull back retrograde wire and knuckle retrograde wire into subintimal space
No
no
Yes
Yes
Stent reverse CART
Move base of operations
Guideliner reverse CART
No
As a very last resort with caution
Traditional CART
Transit balloon technique, IVUS guided retrograde wiring
No
no


1 mm
02.12.2016 15:35:07
0048


Antegrade IVUS examination
Antegrade wire is subintimal
There is connection Between antegrade/ Retrograde wires?
Antegrade wire is intraplaque
Yes
Is there significant length of dissection vessel proximal to connection point or pRCA bend in mRCA CTO?
Use biggest balloon based on IVUS to do reverse CART
Antegrade IVUS guided retrograde wiring
no
no
No
No
Use bigger balloon to do reverse CART
Retrograde conquest wire + big antegrade balloon
Pull back retrograde wire and knuckle retrograde wire into subintimal space
No
no
Yes
Yes
Stent reverse CART
Move base of operations
Guideliner reverse CART
No
As a very last resort with caution
Traditional CART
Transit balloon technique, IVUS guided retrograde wiring
No
no


1 mm
10.10.2013 10:20:22
0018


1 mm
10.10.2013 10:20:26
0147

Antegrade Balloon Transit of Retrograde Wire to Bail Out Dissected Left Main (full title below)

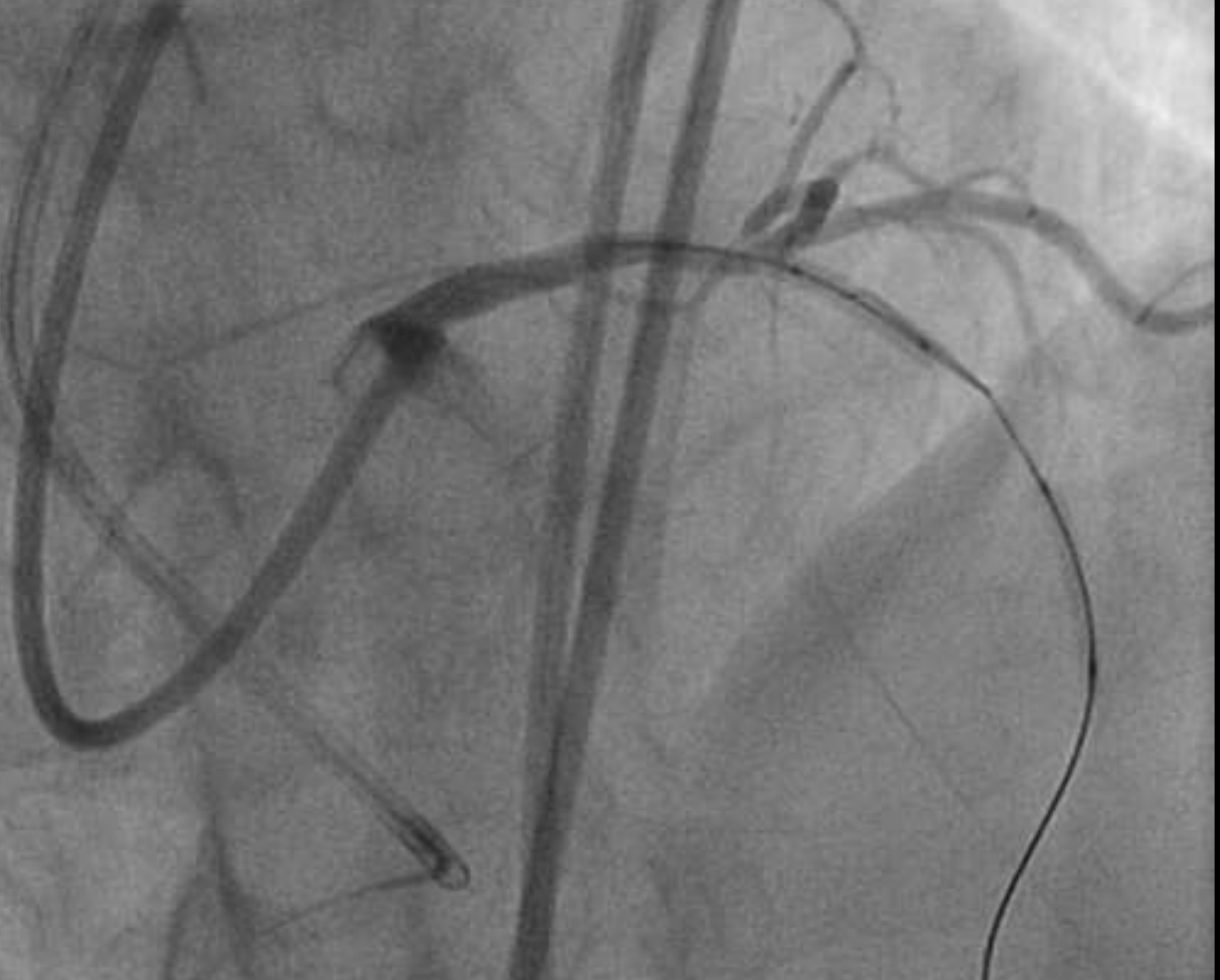
Wednesday, 06/10/09 | 10009 reads

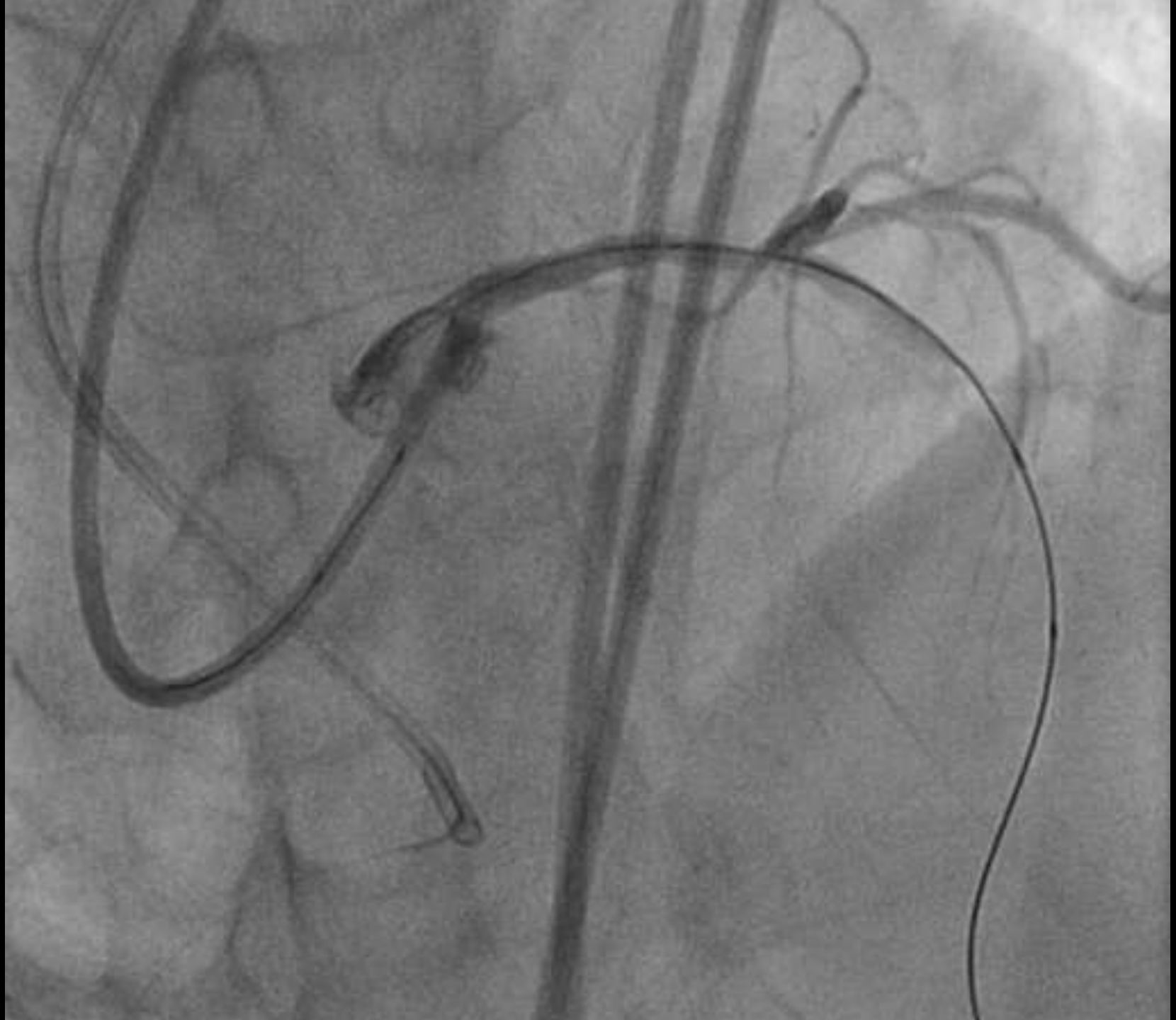
Author(s): Eugene B. Wu, MRCP, MD, Wilson W. Chan, FRCP, Cheuk-Man Yu, MD

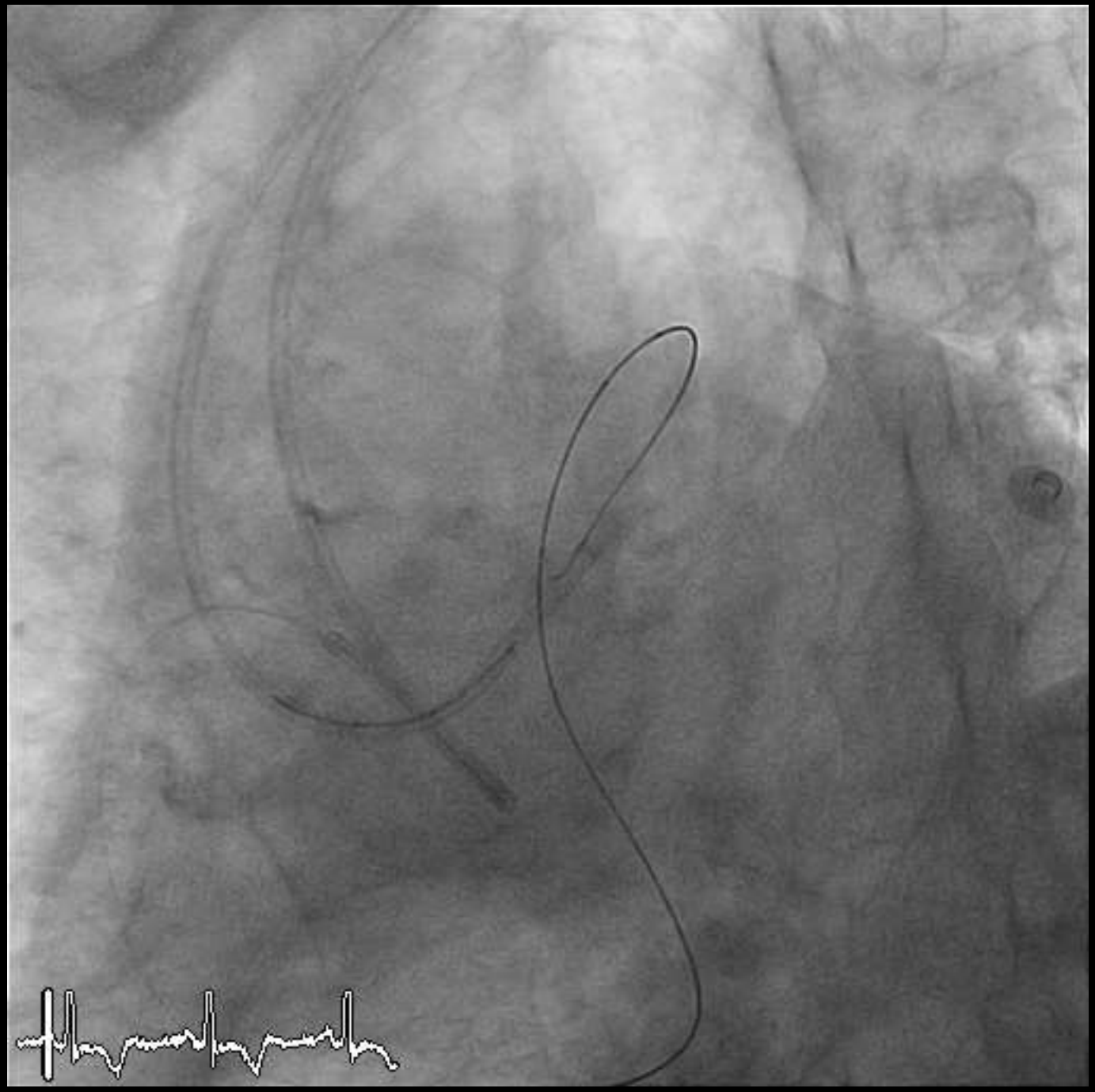
Issue Number:
Volume 21 - Issue 6 - June, 2009

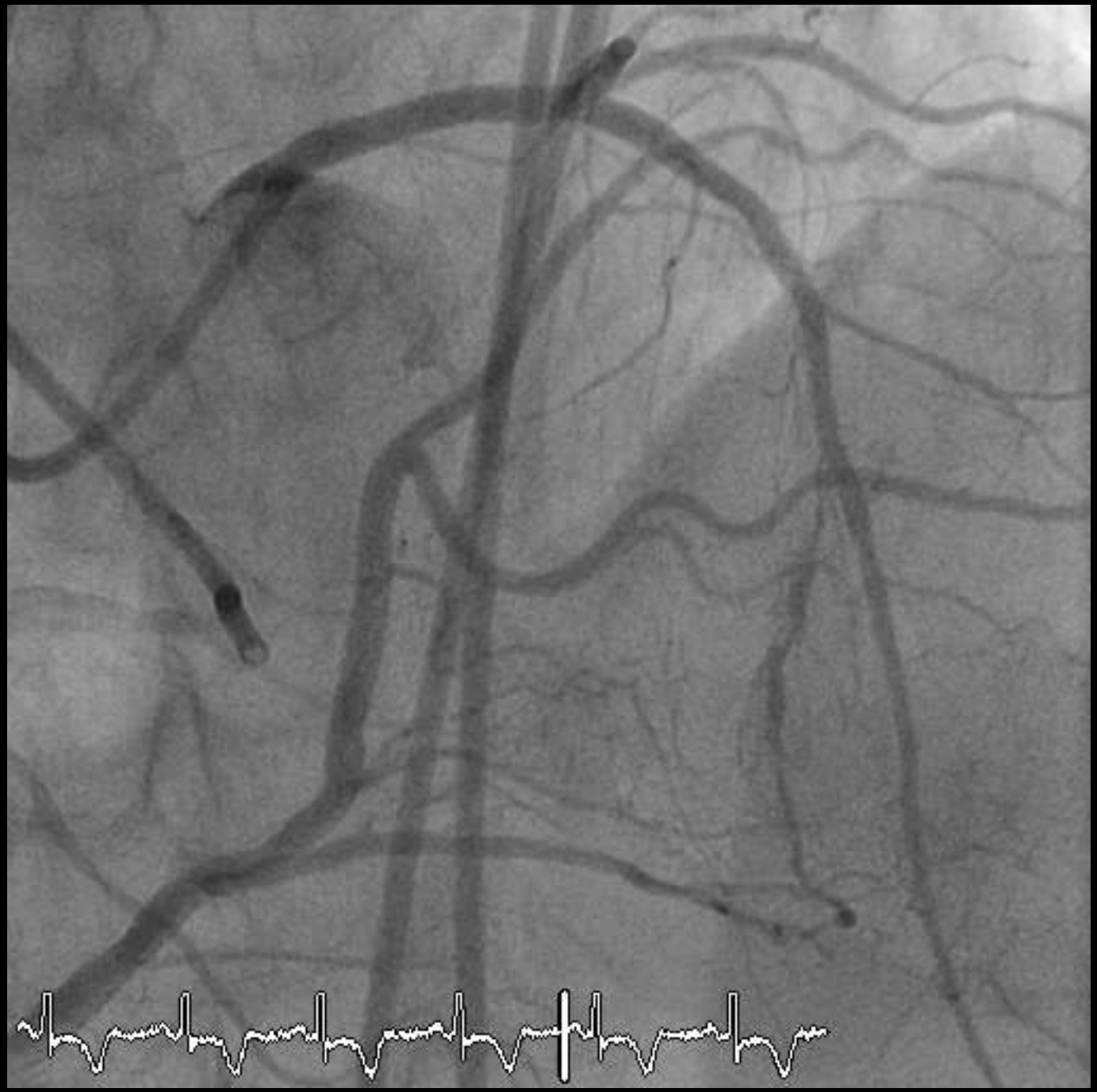
Antegrade Balloon Transit of Retrograde Wire to Bail Out Dissected Left Main during Retrograde Chronic Total Occlusion Intervention — A Variant of the Reverse CART Technique

ABSTRACT: Left main dissection is usually caused by catheter manipulation during diagnostic angiography and occasionally during angioplasty. It is a dangerous complication due to the potential risk of left main territory ischemia. We report a novel iatrogenic cause of left main dissection from a retrograde wire during ostial left anterior descending artery chronic total occlusion retrograde angioplasty. We also report the use of the antegrade balloon as a transit chamber for the retrograde wire after a successful reverse CART technique in order to prevent further left main dissection. This technique is applicable to other retrograde approaches for chronic total occlusion cases where proximal artery dissection is undesirable.









Thank you.