



Role of Antegrade Dissection and Reentry (ADR)

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- Nothing to disclose related to this topic

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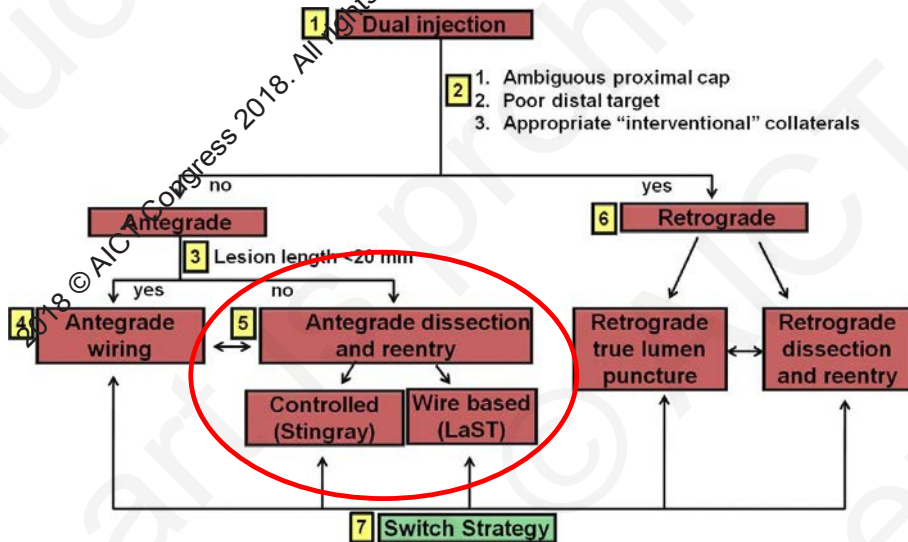
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Algorithm



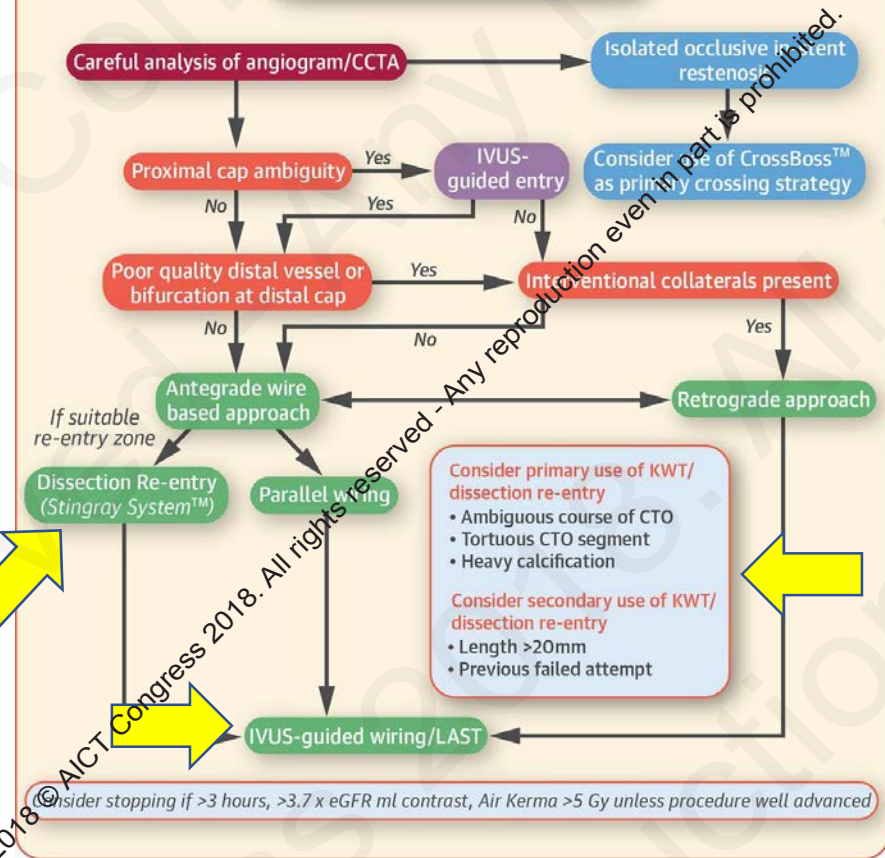
APCTO Club

Hybrid



Emmanouil S. Brilakis et al.
 JGIN 2012;5:367-379

Algorithm for CTO Crossing

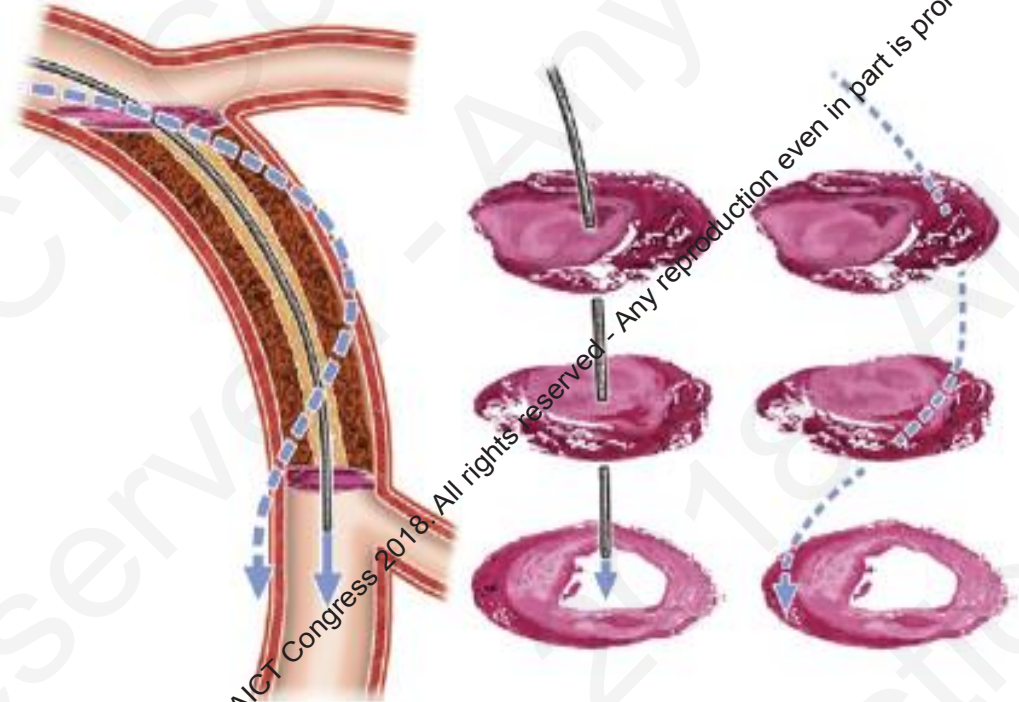


Scott A. Harding et al. JGIN 2017;10:2135-2143

Why is it needed?



- Wire based strategy may leads to subintimal wire position esp.
 - CTO length > 20mm
 - Calcified lesion
 - Torturous bends
 - Previous attempt¹



Adopted from J Am Coll Cardiol Intv 2011;4:941-51

Antegrade Dissection Reentry



- Wire went into sub-intimal during antegrade wire escalation
- Went into dissection plane intentionally
 - Knuckle wire
 - Crossboss
 - Controlled dissection with 1mm hole

Knuckle wire

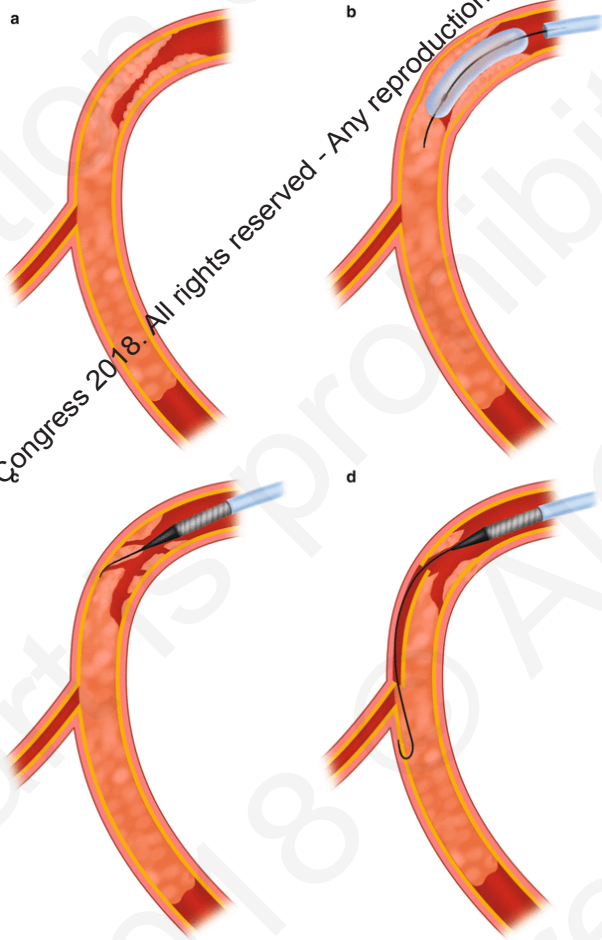


- Negotiates CTO rapidly with a low perforation risk
- Resolves anatomic ambiguity
 - Vessel Course
 - Proximal cap ambiguity/ Impenetrable Cap

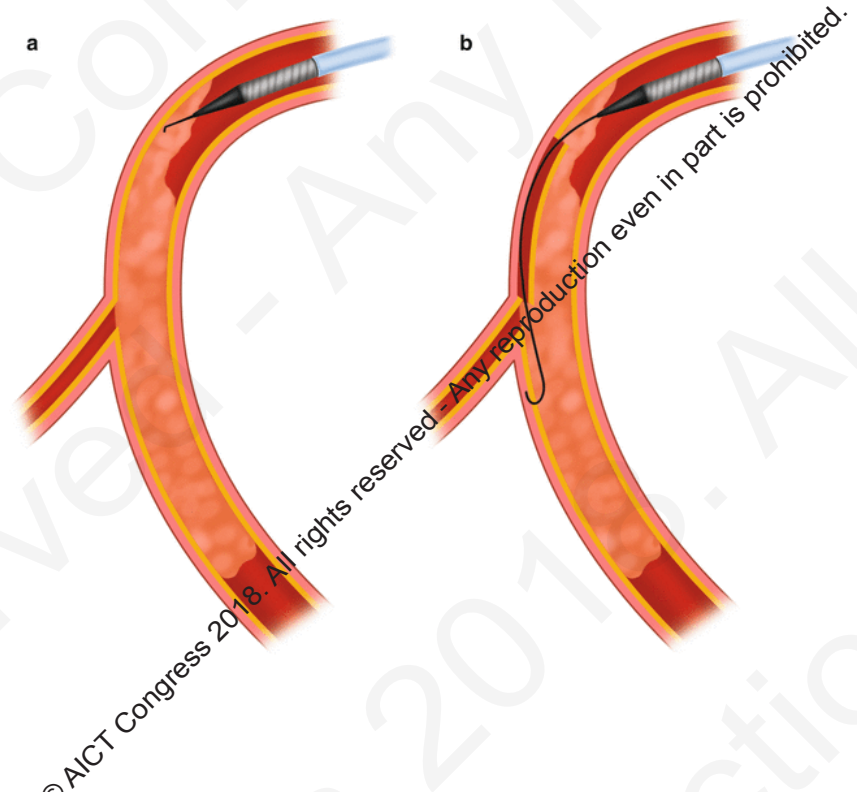
Proximal cap Problem



Balloon assisted Subintimal Entry



Scratch and Go



Antegrade Dissection Reentry



- Wire based
 - Limited Antegrade Subintimal Tracking (LAST)¹
 - STAR², Mini-STAR³
 - Contrast guided STAR (CARLINO)⁴
- Device based
 - IVUS guided
 - Stringray

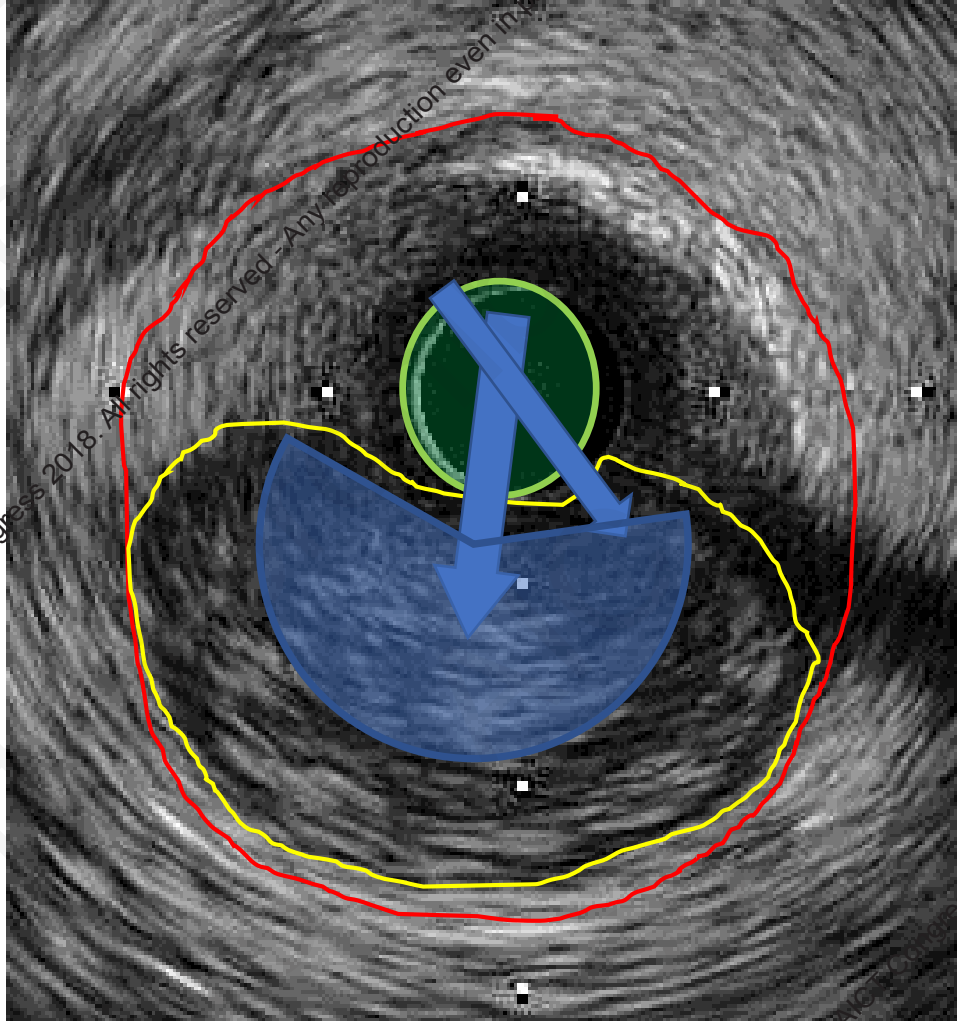
1 Lomdardi AL. J Invasive Cardiol. 2009 Oct;21(10):543.

2 Colombo A. Catheter Cardiovasc Interv. 2005 Apr;64(4):407-11

3 Galassi AR. Catheter Cardiovasc Interv. 2012 Jan 1;79(1):30-40.

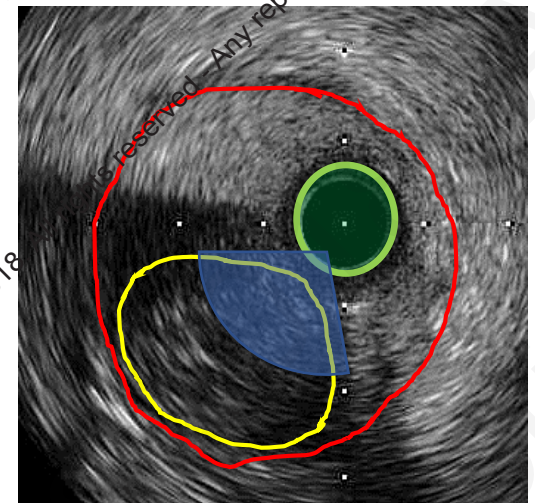
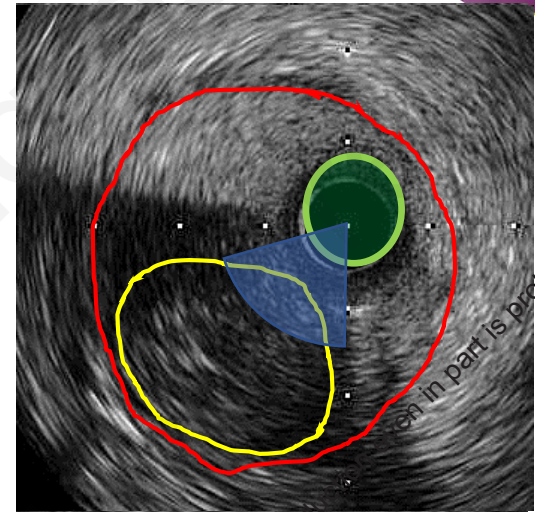
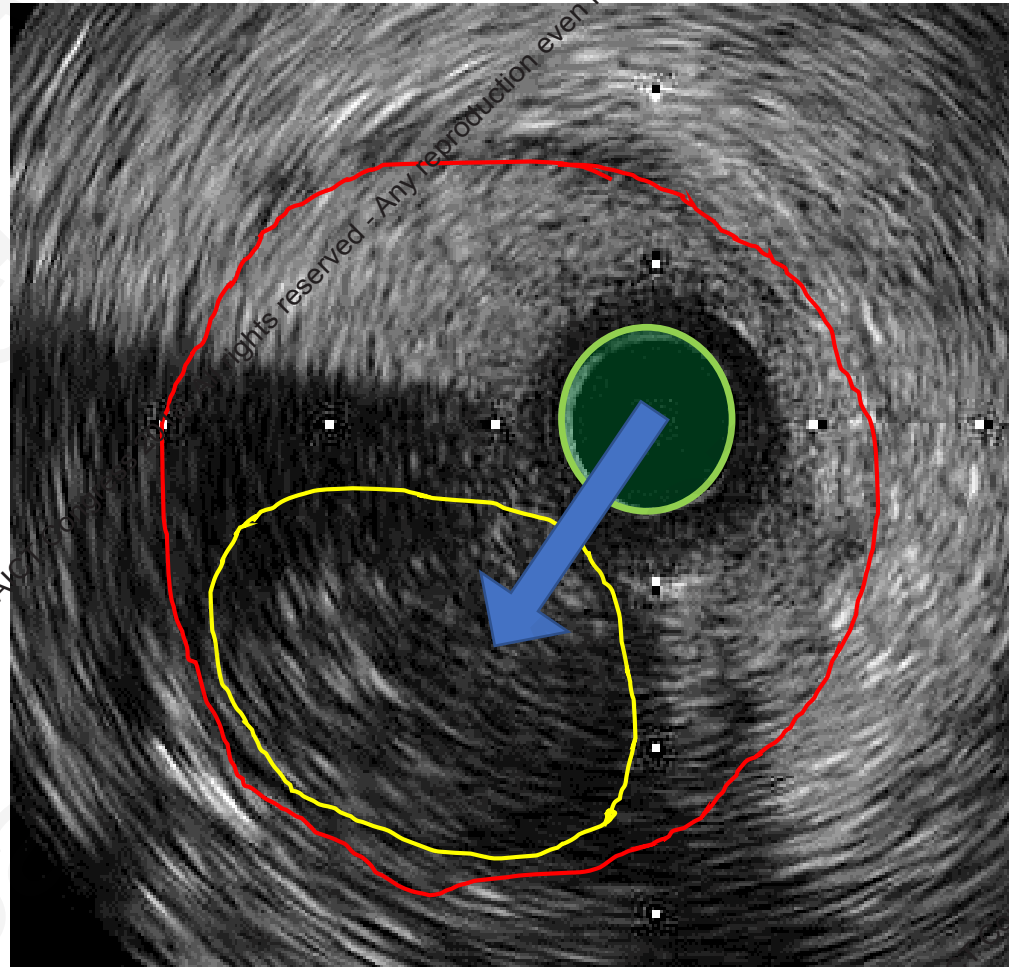
4 Carlino M. Catheter Cardiovasc Interv. 2008 Nov 15;72(6):790-6.

Subadventitial (sub-intimal) wire



- **Parallel wire**
- **Orthogonal views**

Big Sub-adventitial (subintimal) space

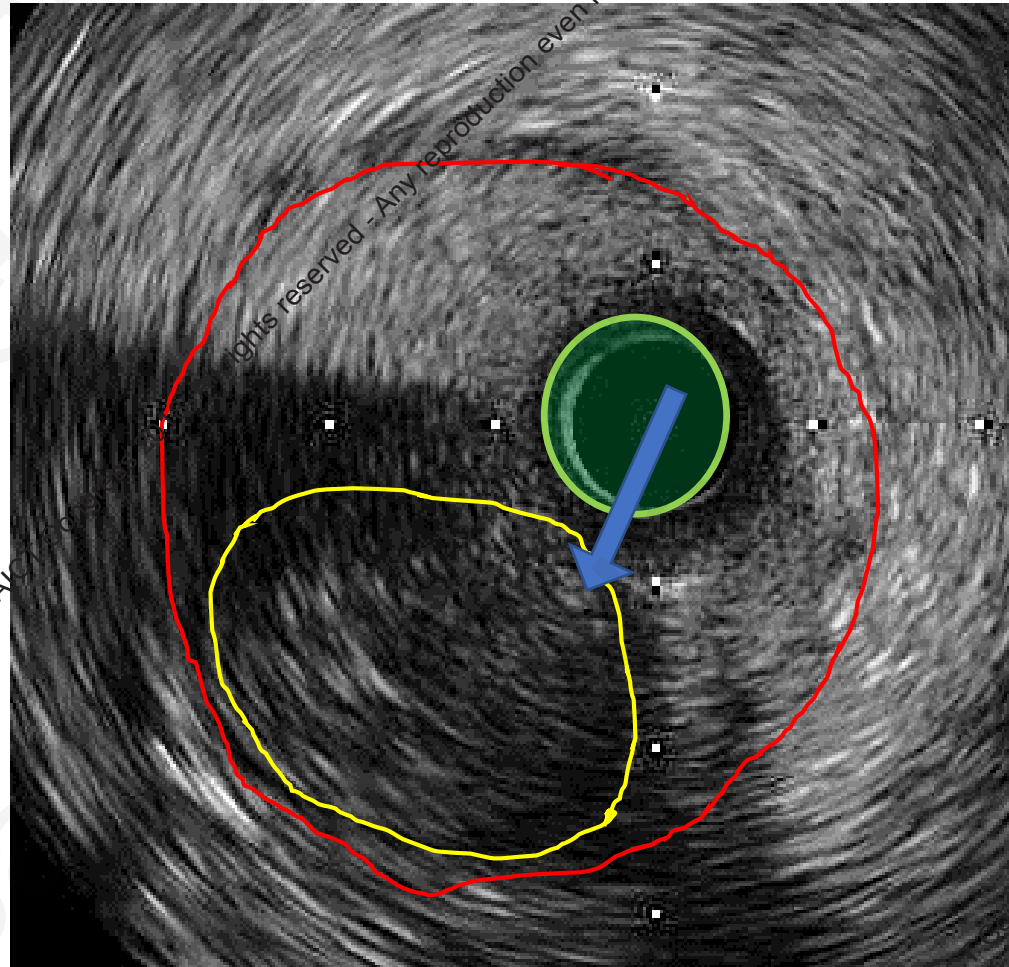


IVUS guide puncture

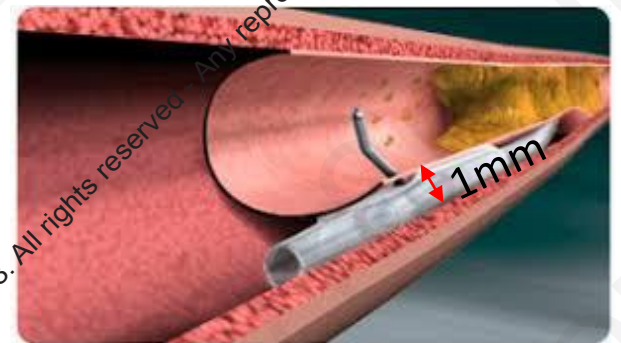
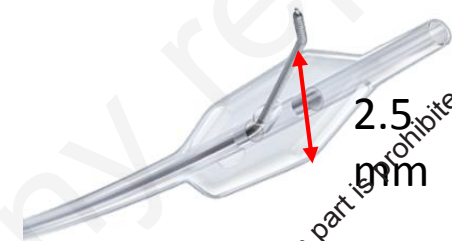
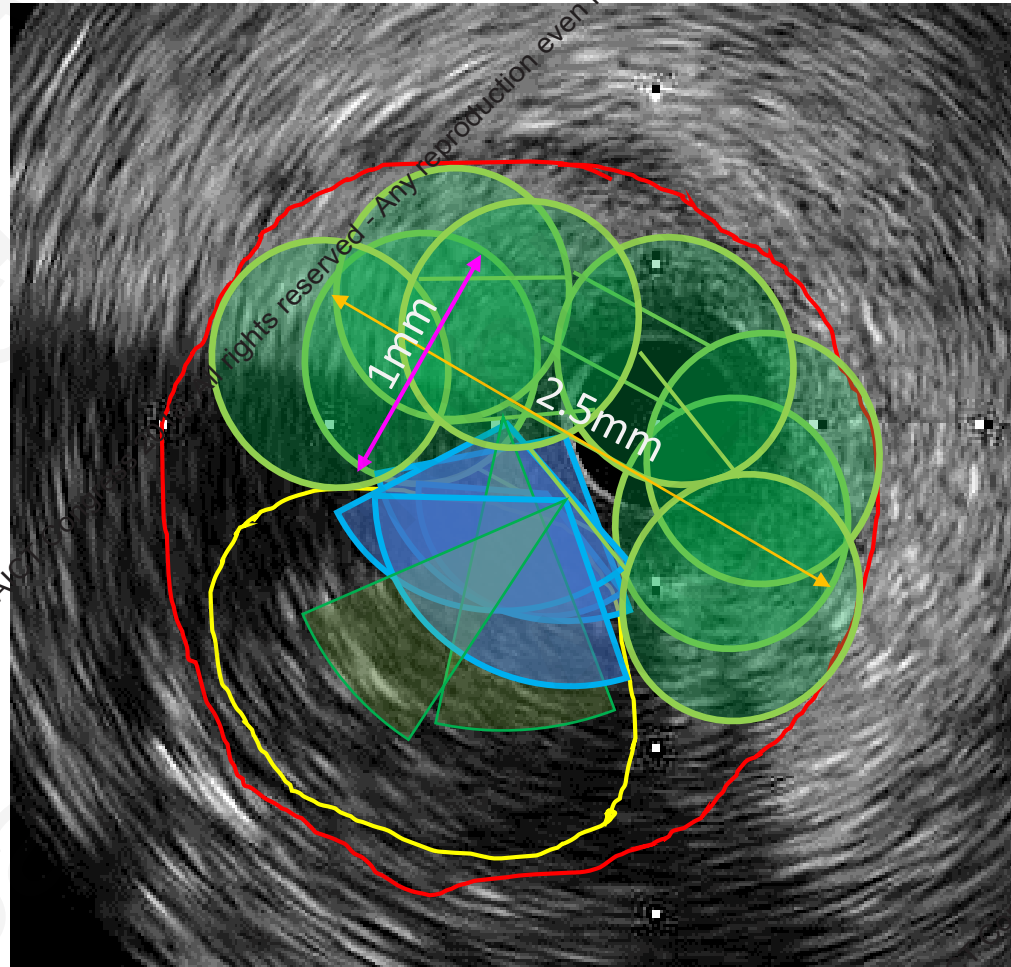


Tip Diameter

- Finecross : 0.6mm
- Caravel : 0.48mm at tip, 0.62 mm at shaft
- Crosair Pro: 0.67 mm



Stingray Catheter



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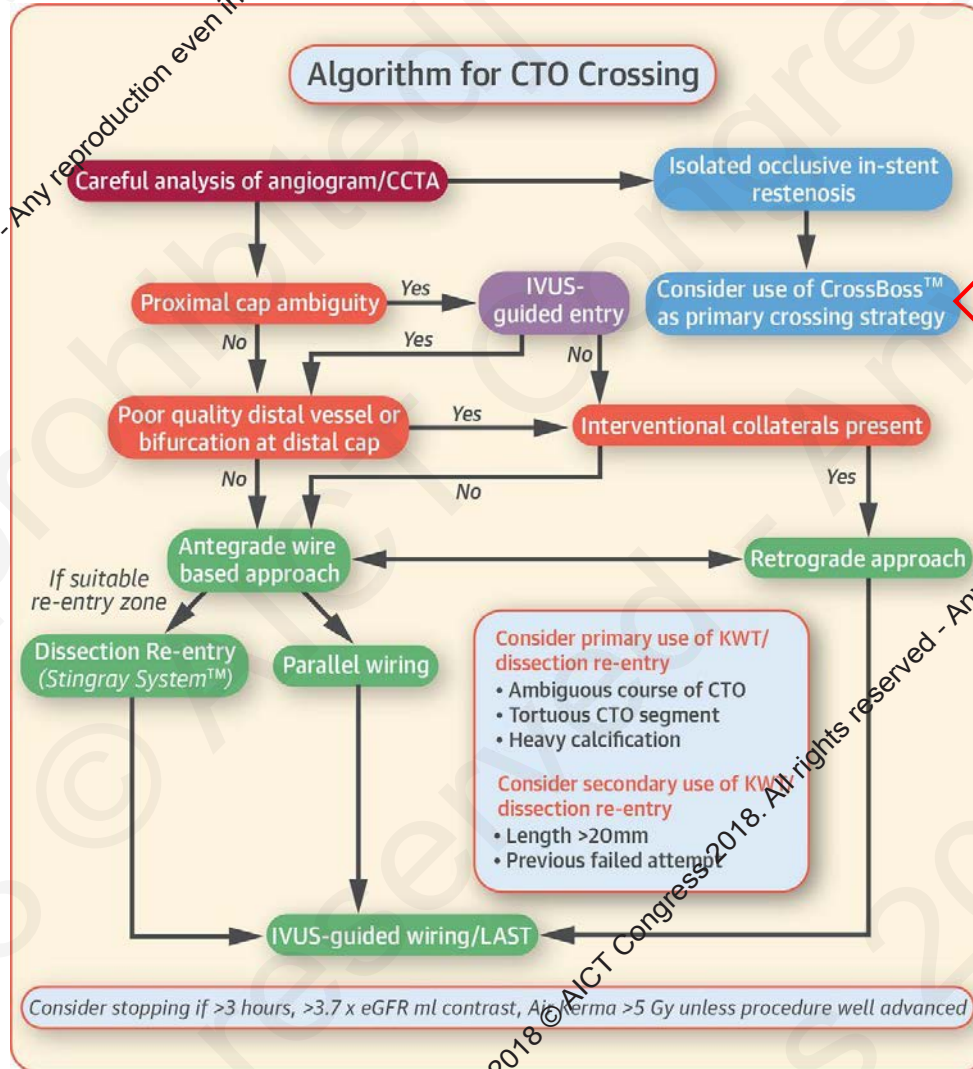


Cases illustration

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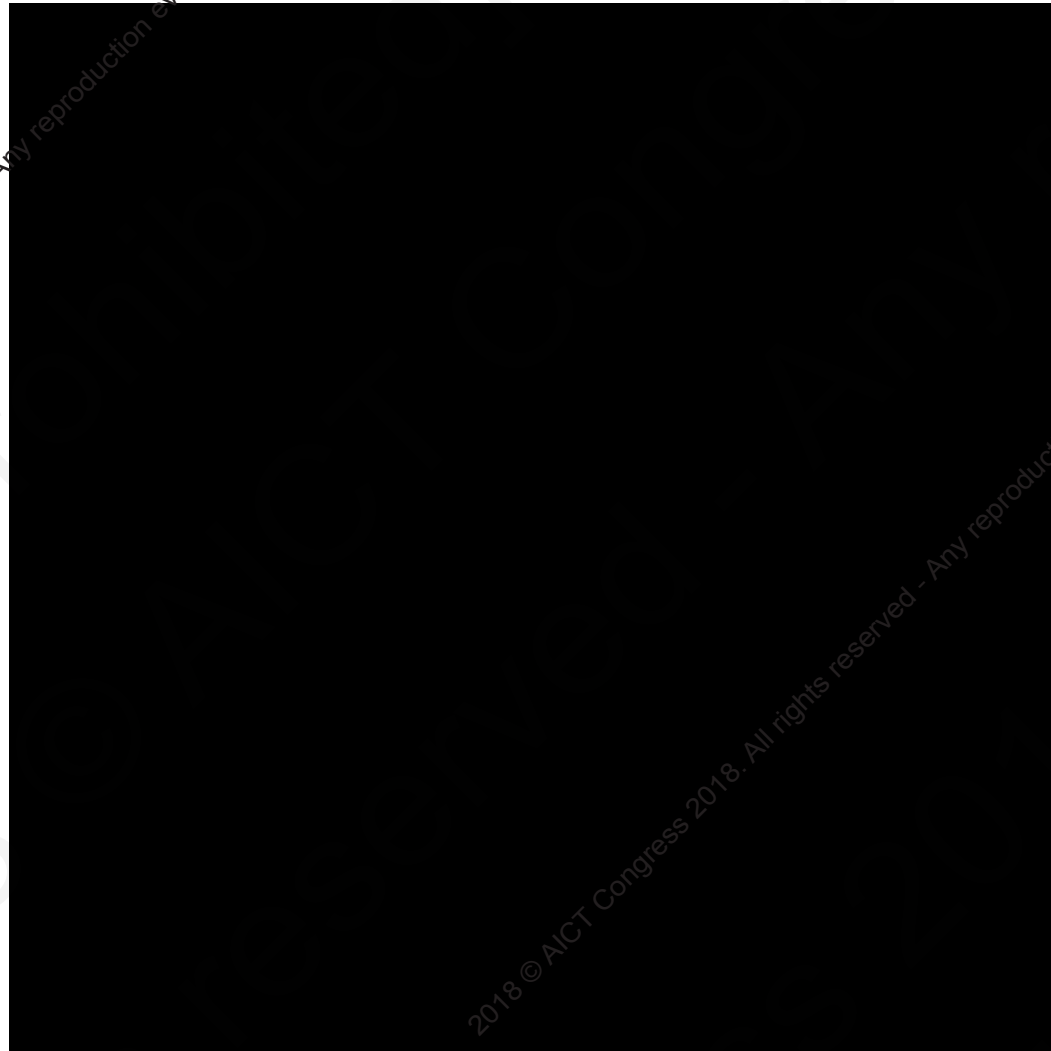
Crossboss



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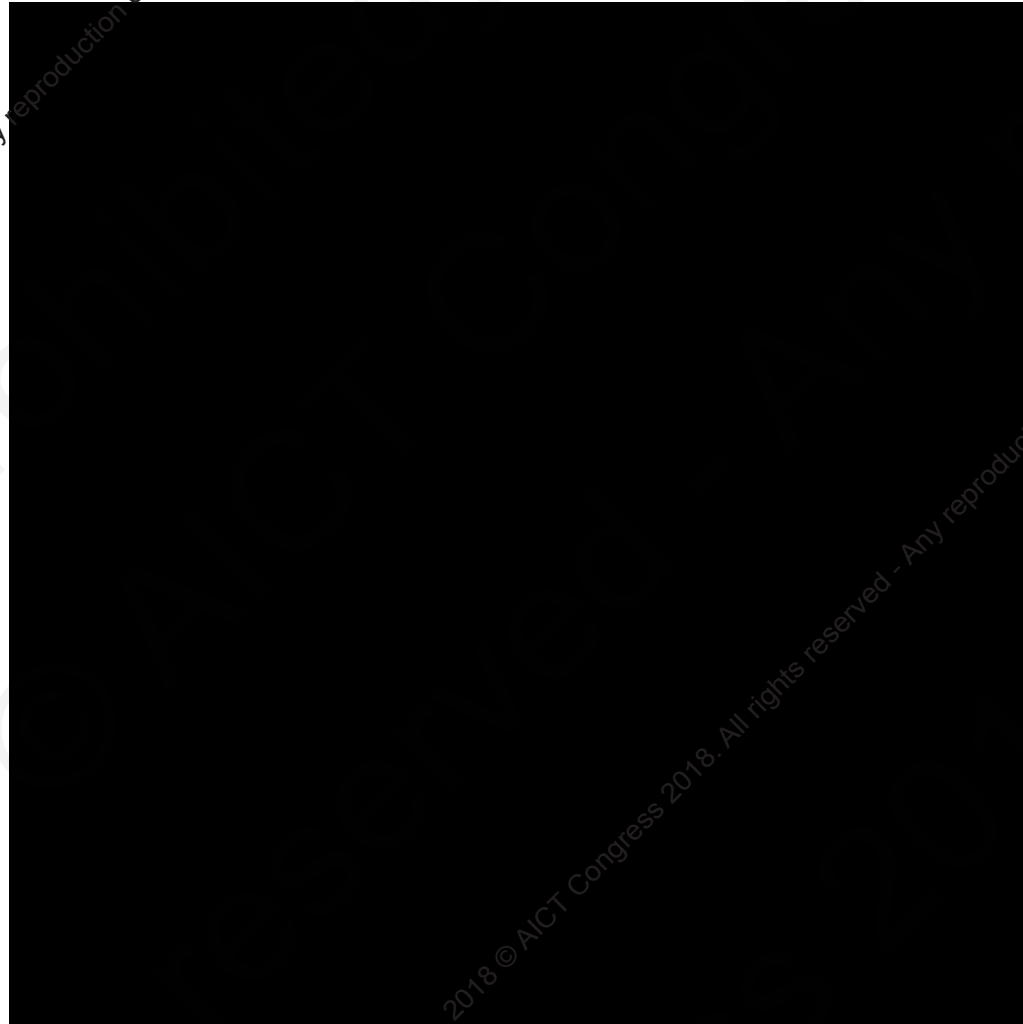
Crossboss in ISR



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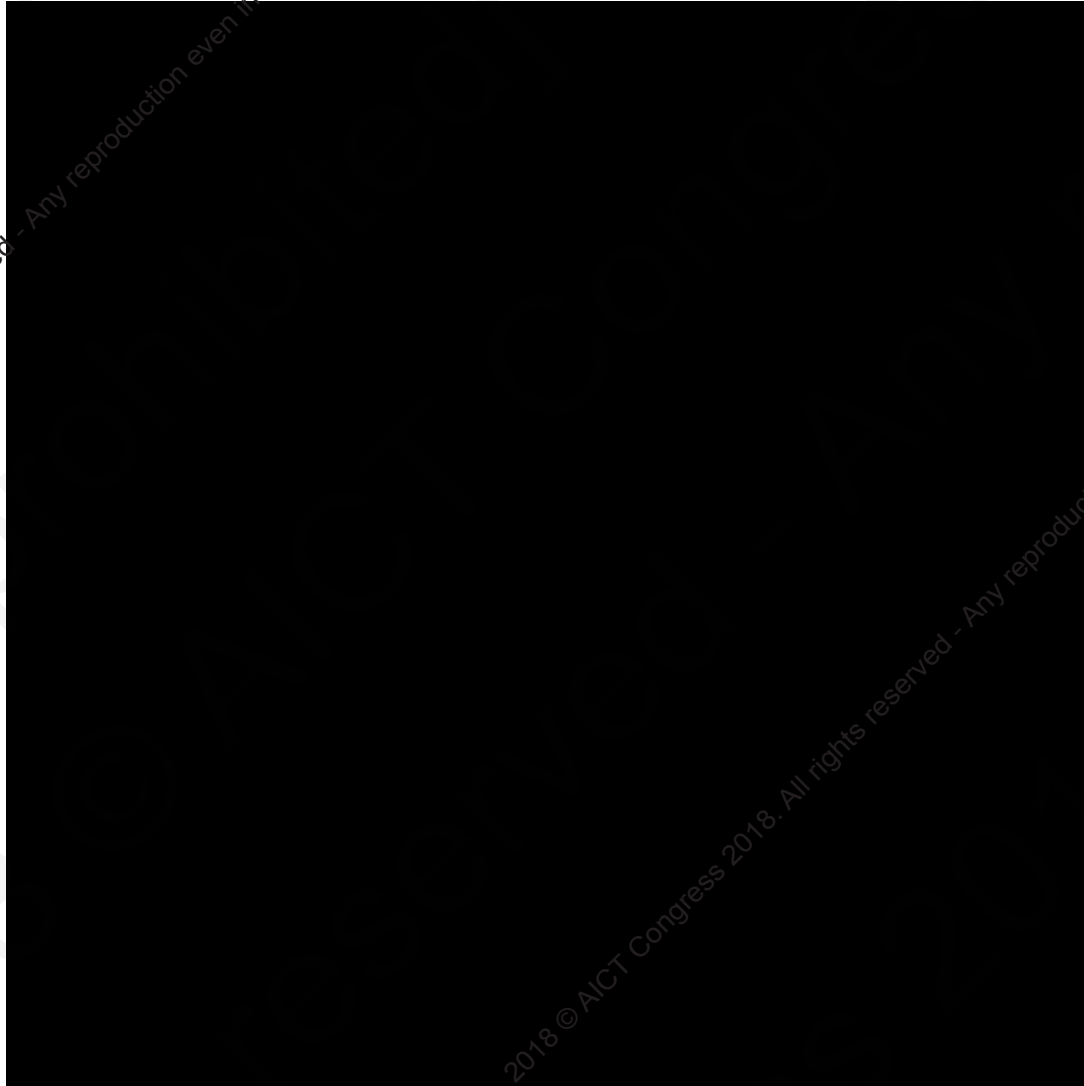
Crossboss loaded with workhorse wire



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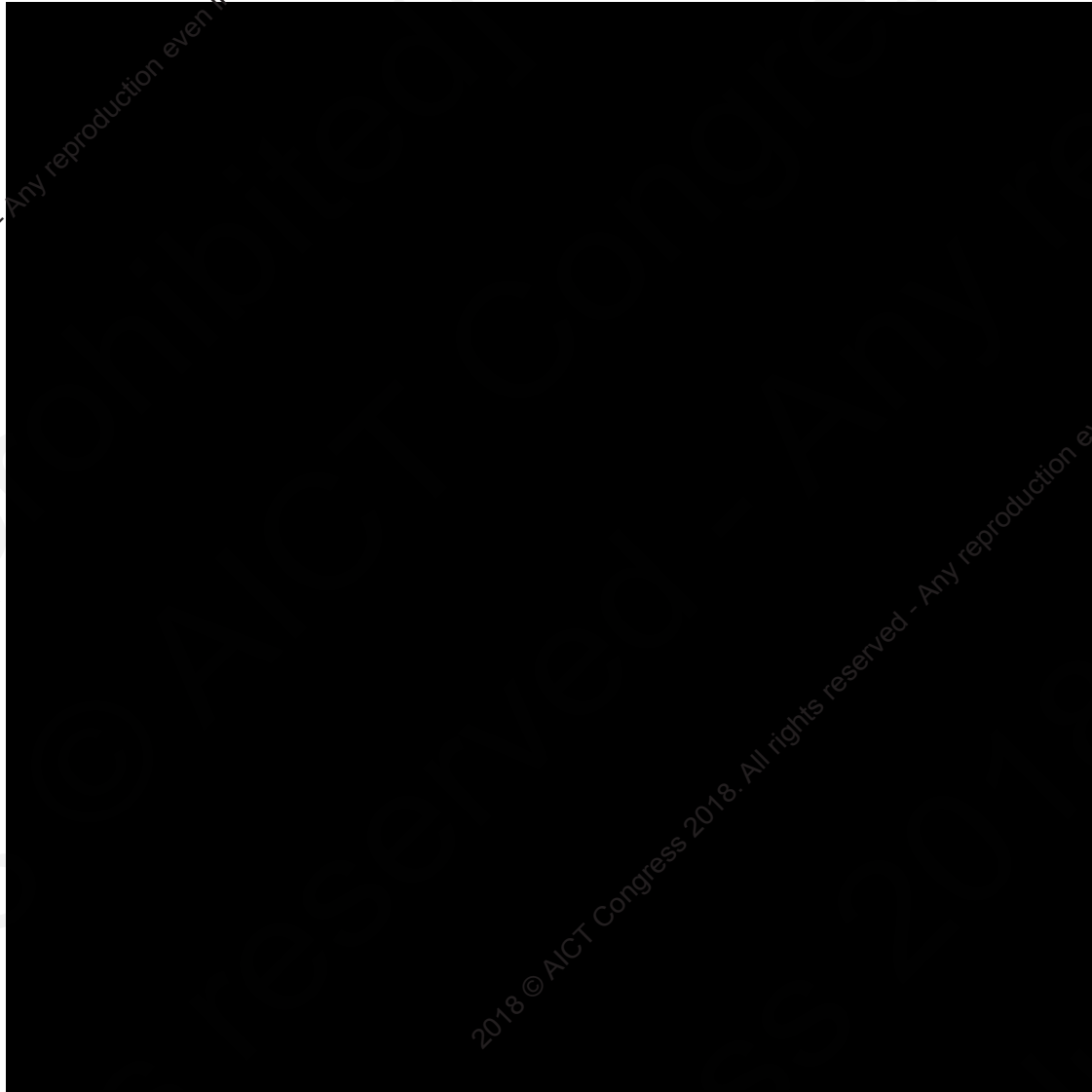
High speed rotation



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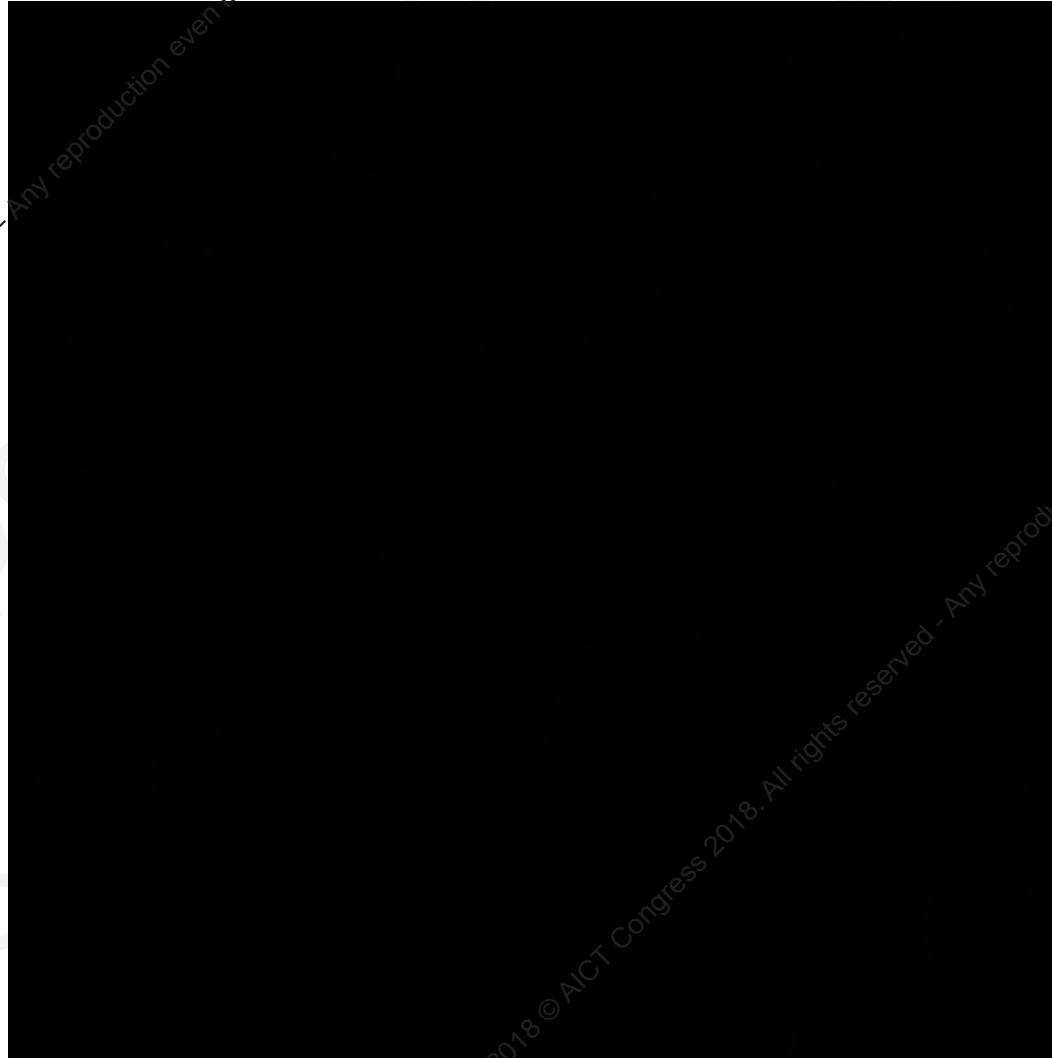
A Jump of Crossboss



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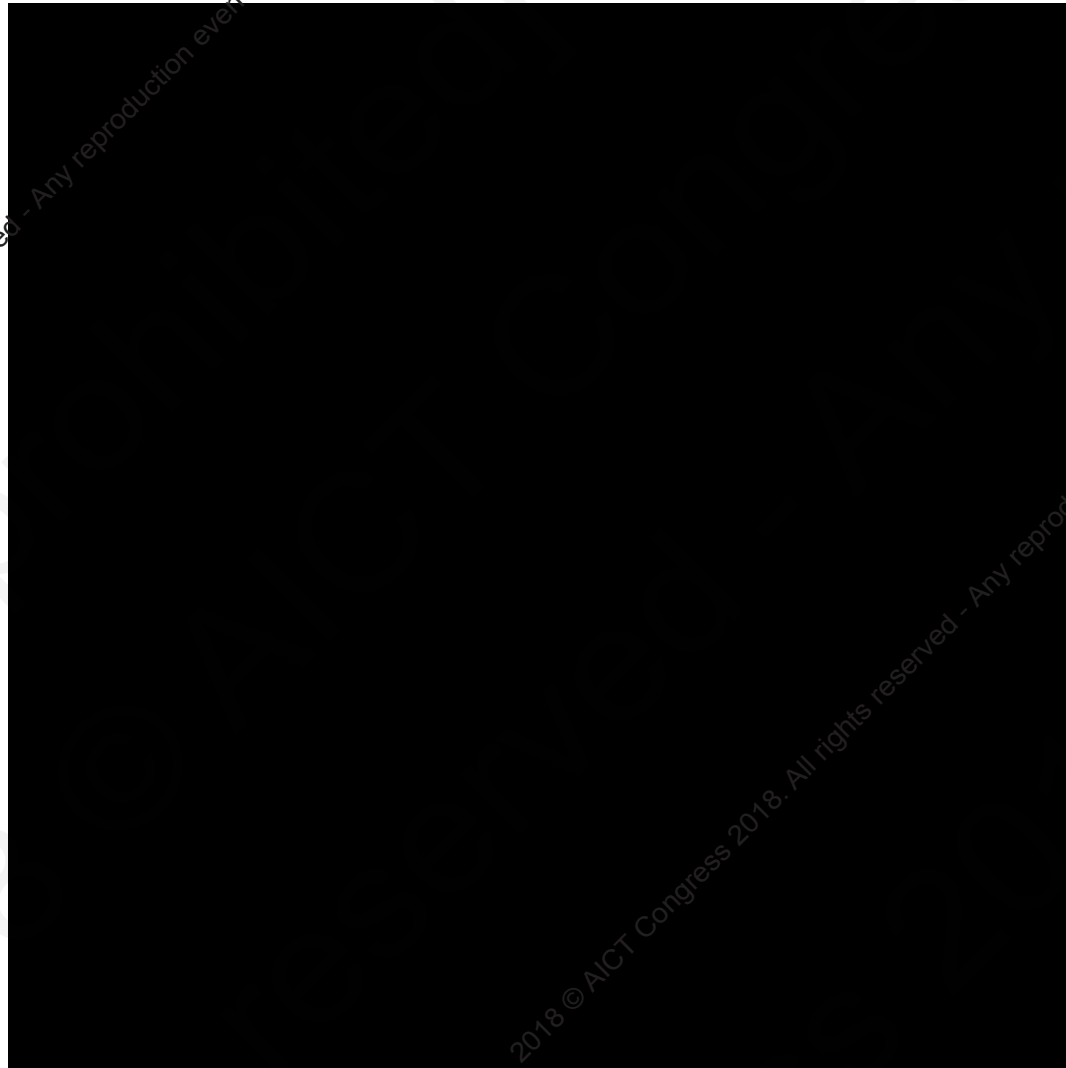
Check angio



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Wire with workhorse wire



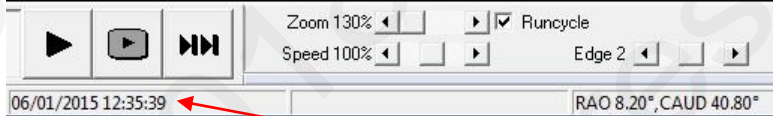
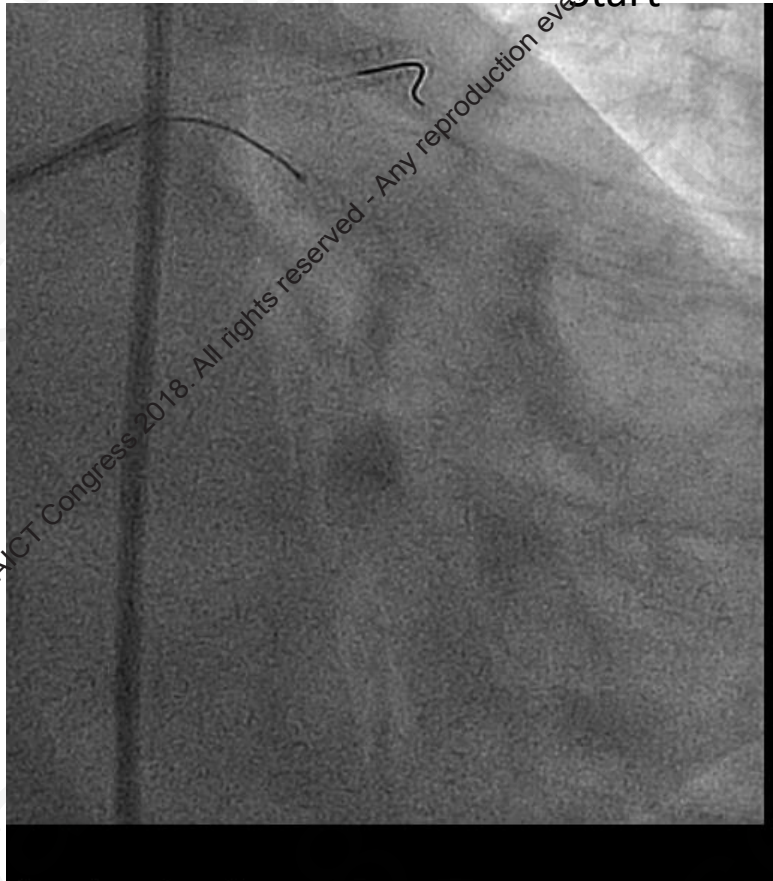
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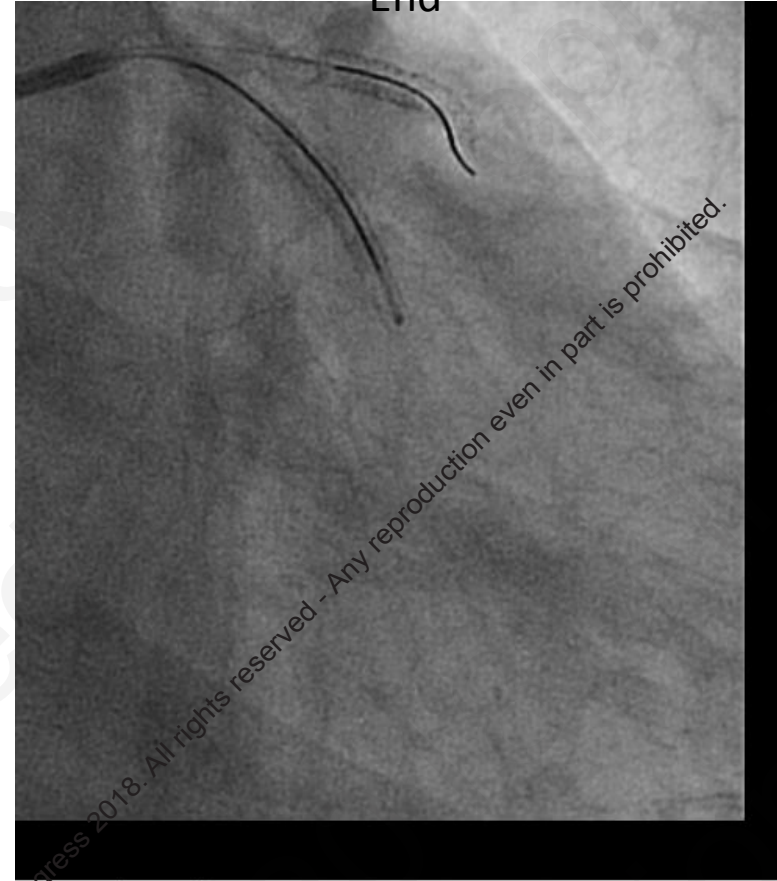
SPEED



Start



End

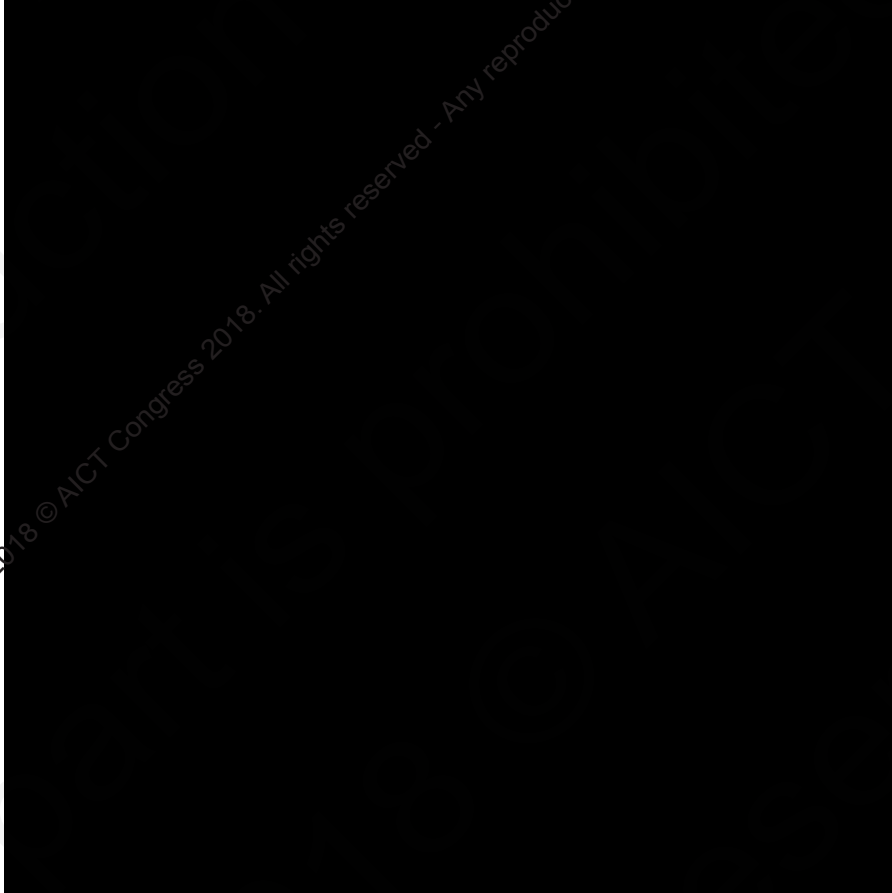


1min 20 sec

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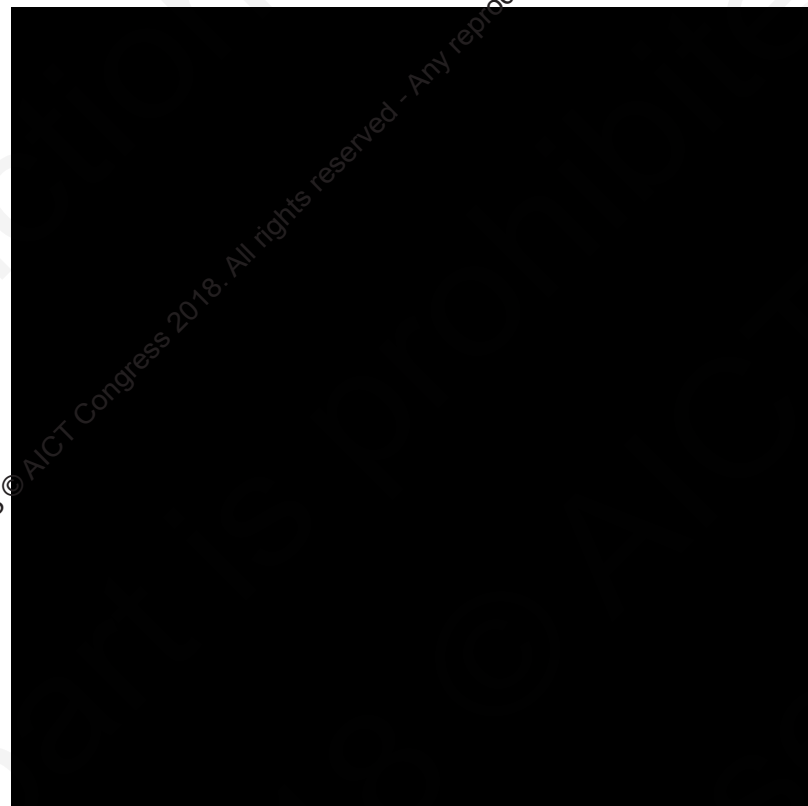
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Another case



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Crossboss



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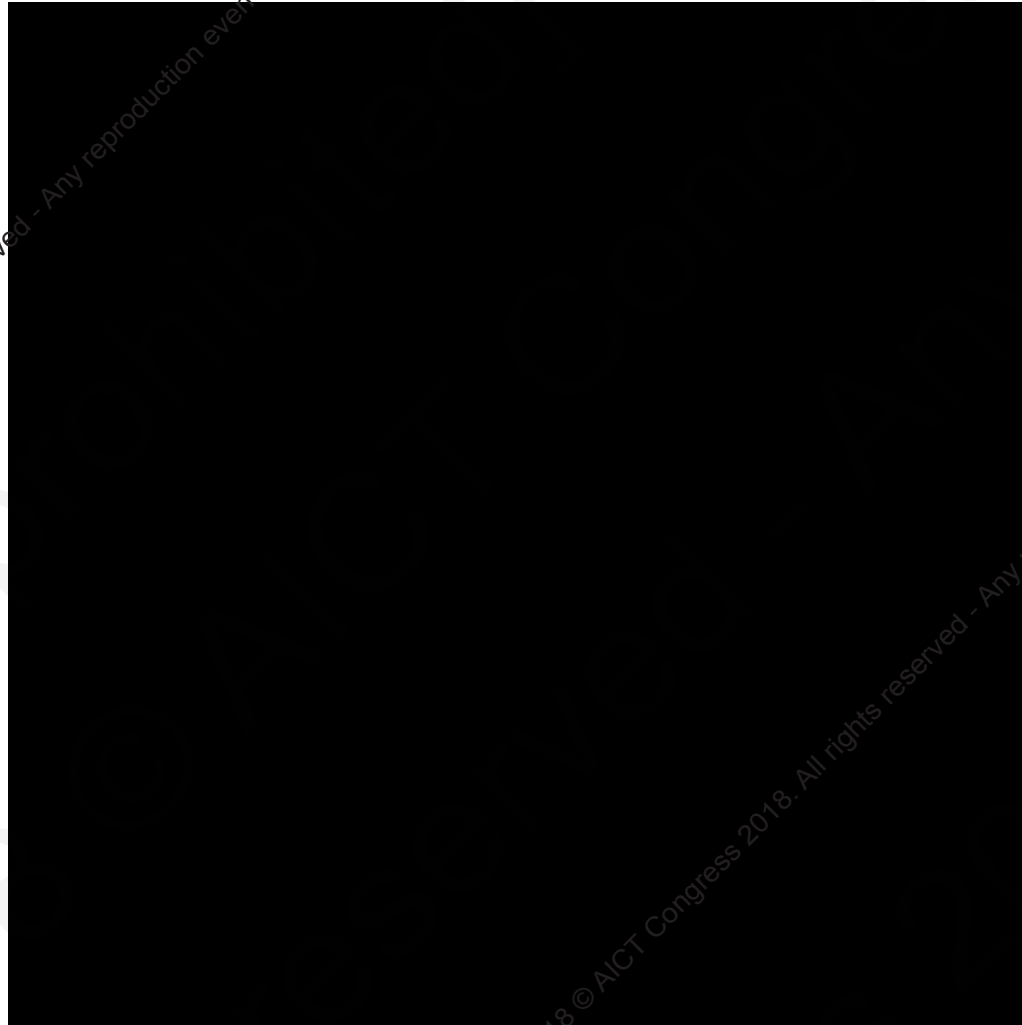


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Crossboss catheter stay inside the stent by 2 views



Crossboss further



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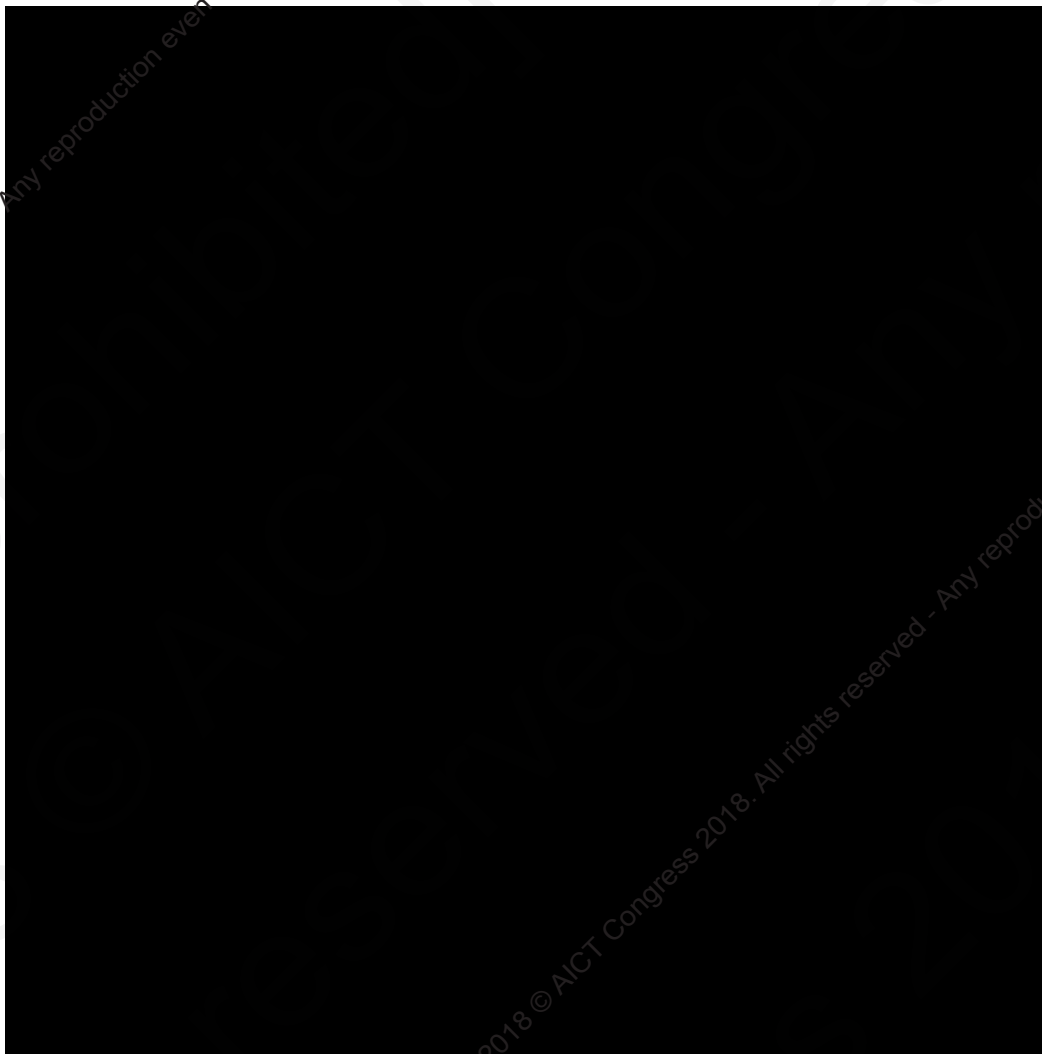
Check



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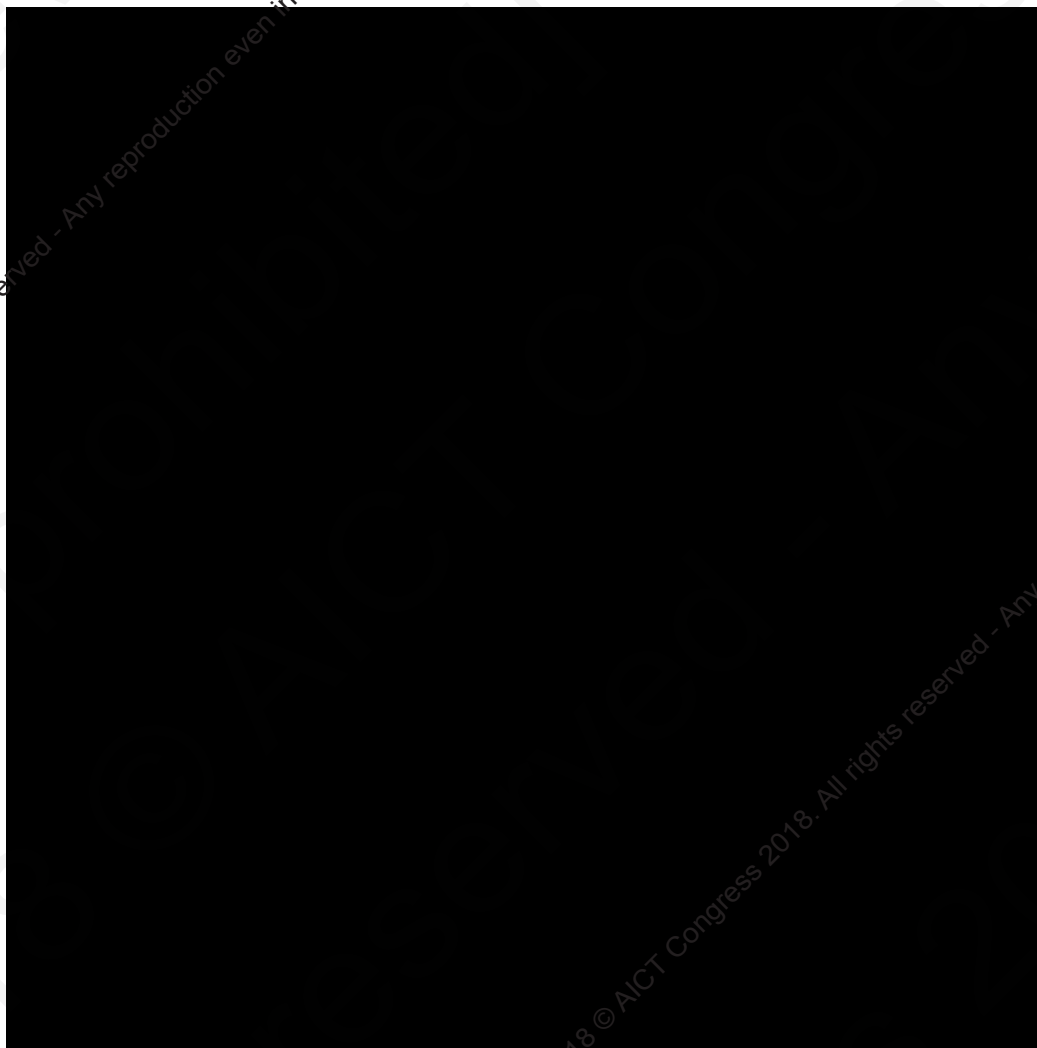
Workhorse wire



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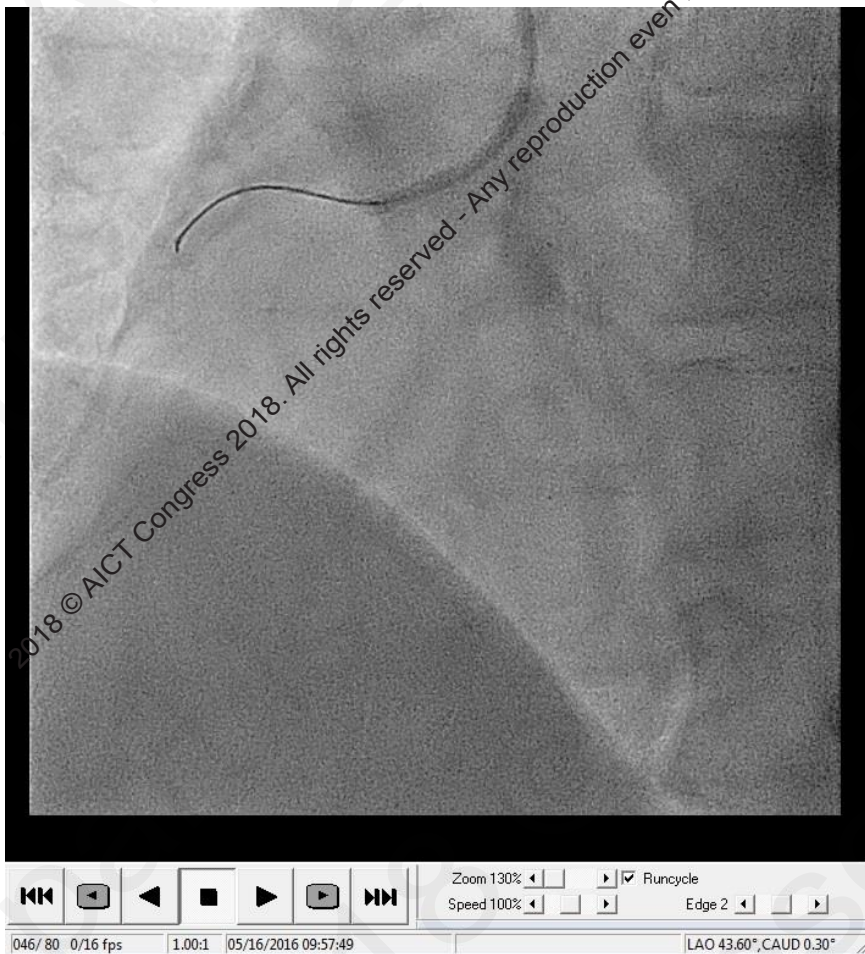
Final Angio



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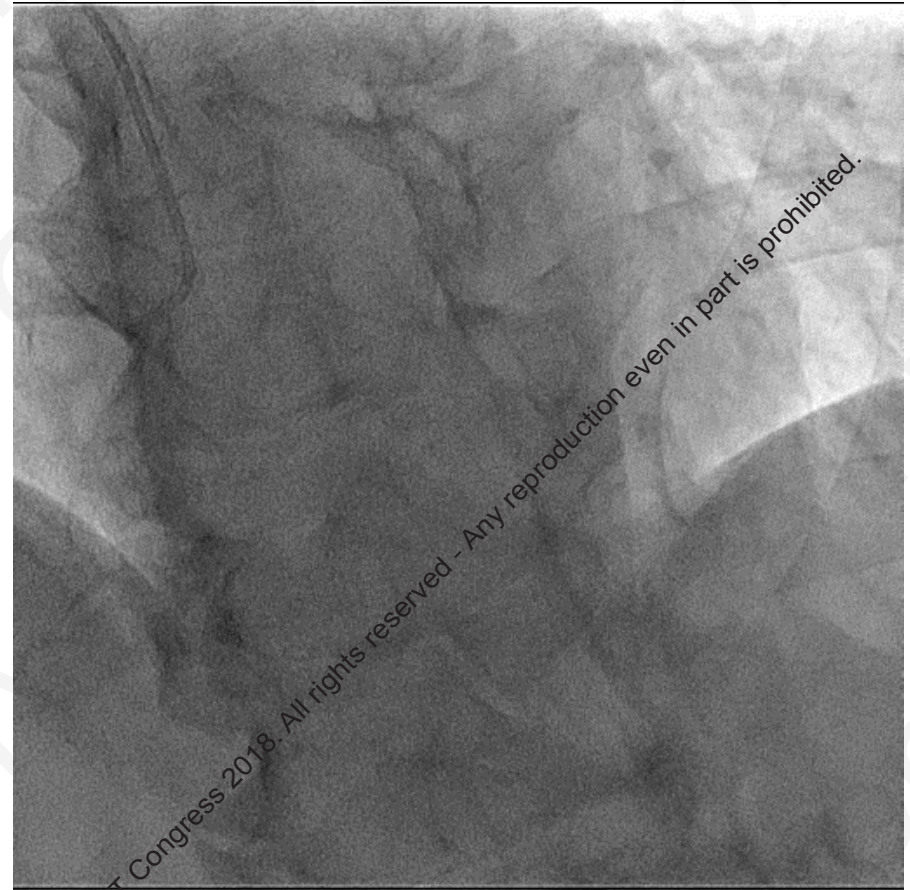
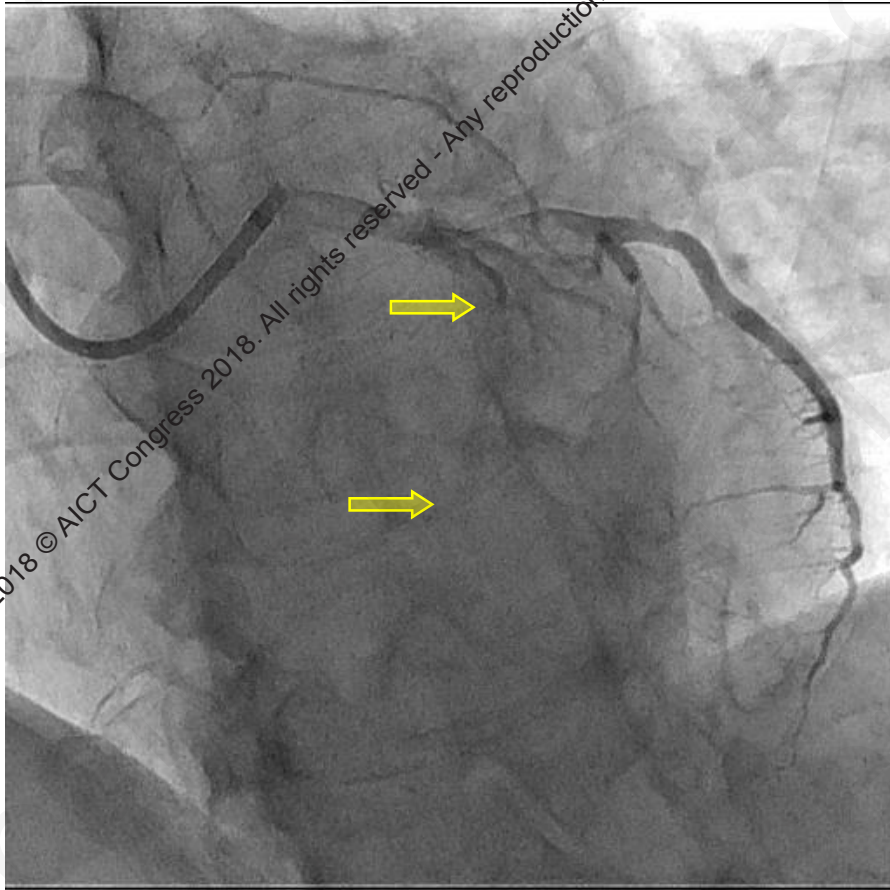
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Speed

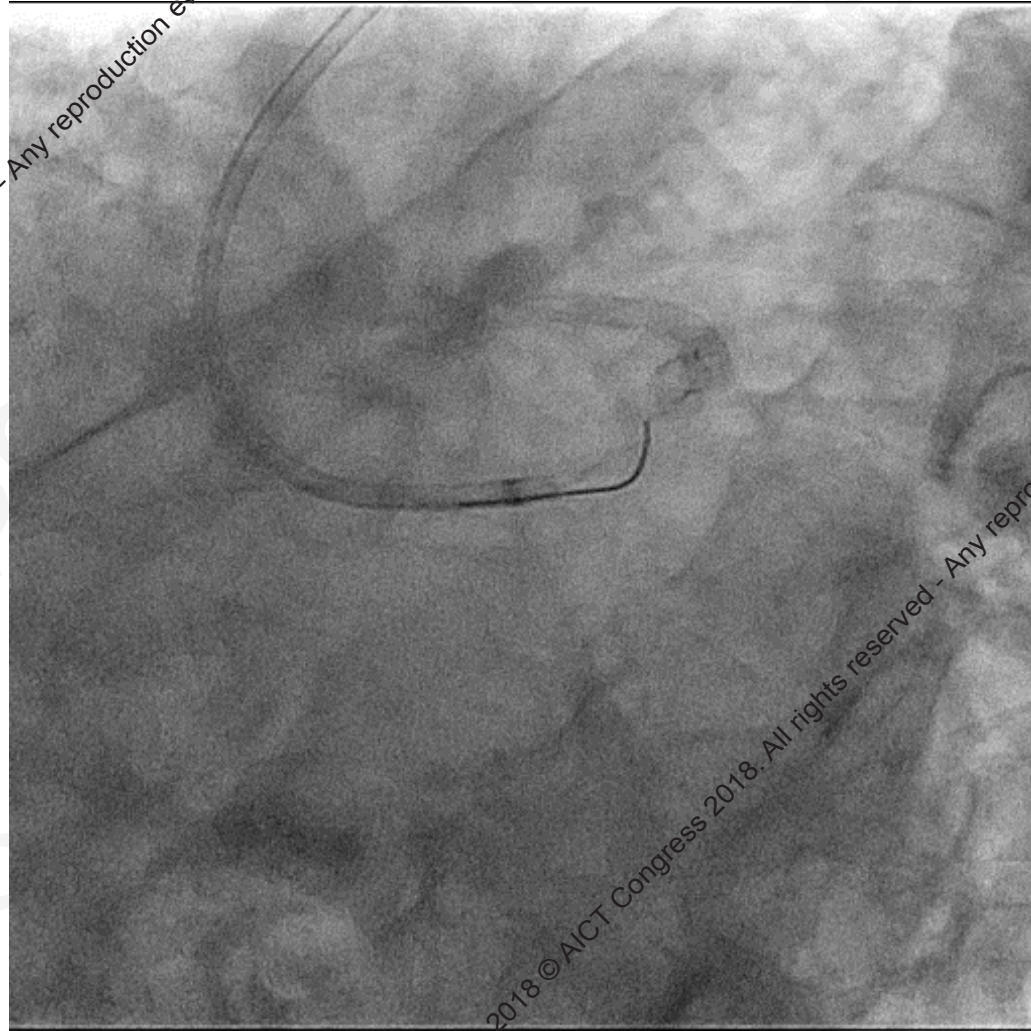


1 min 48 sec

Case illustration



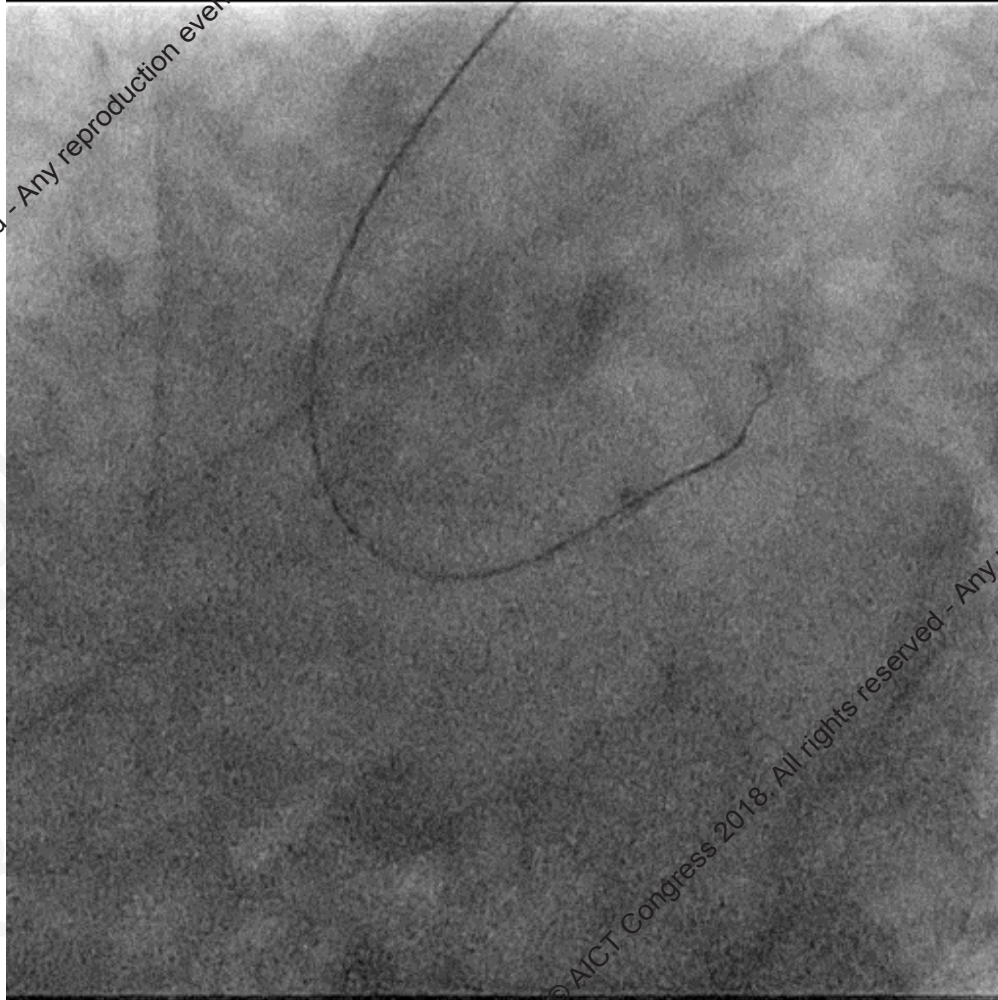
Proximal subtotal occlusion



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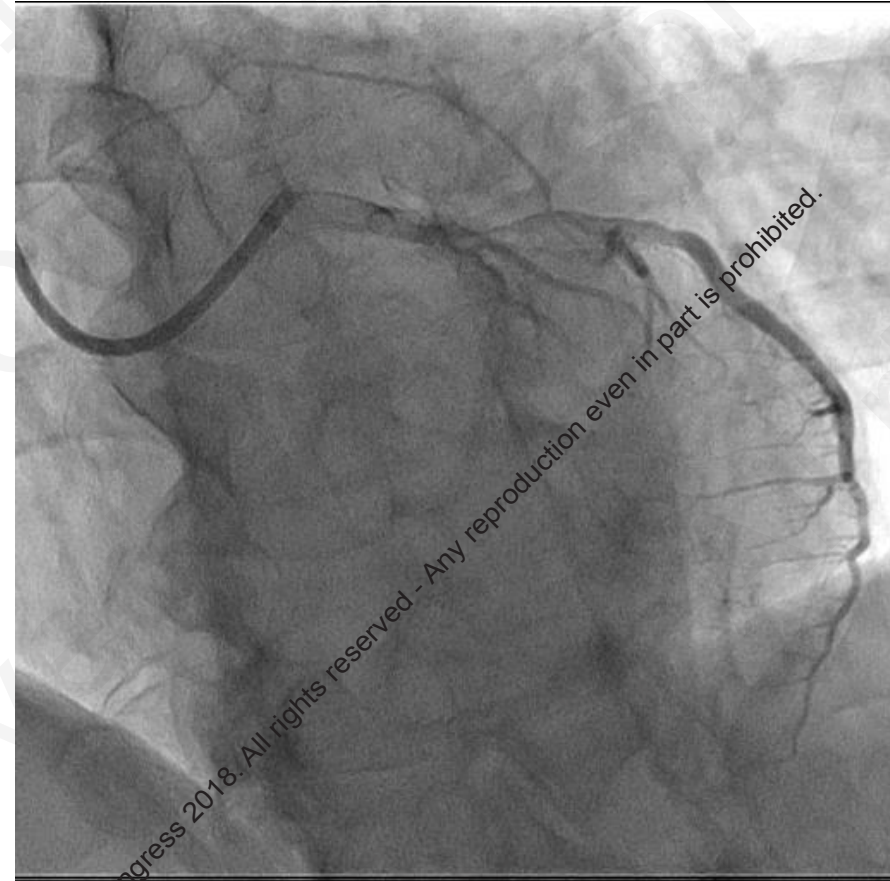
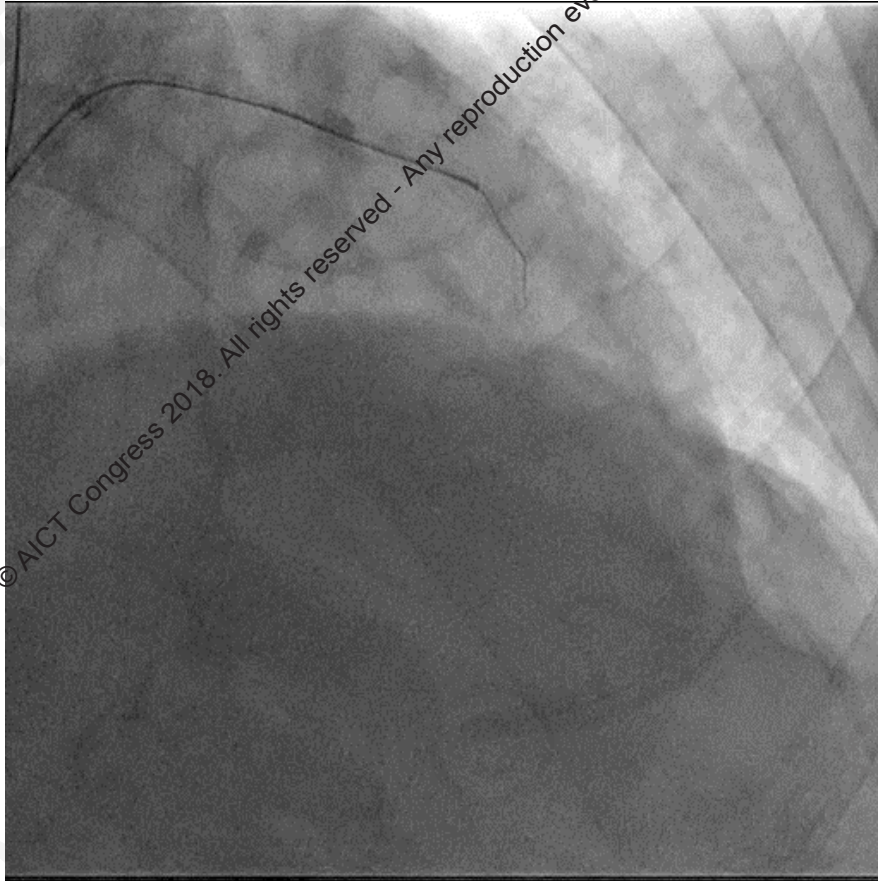
XTR



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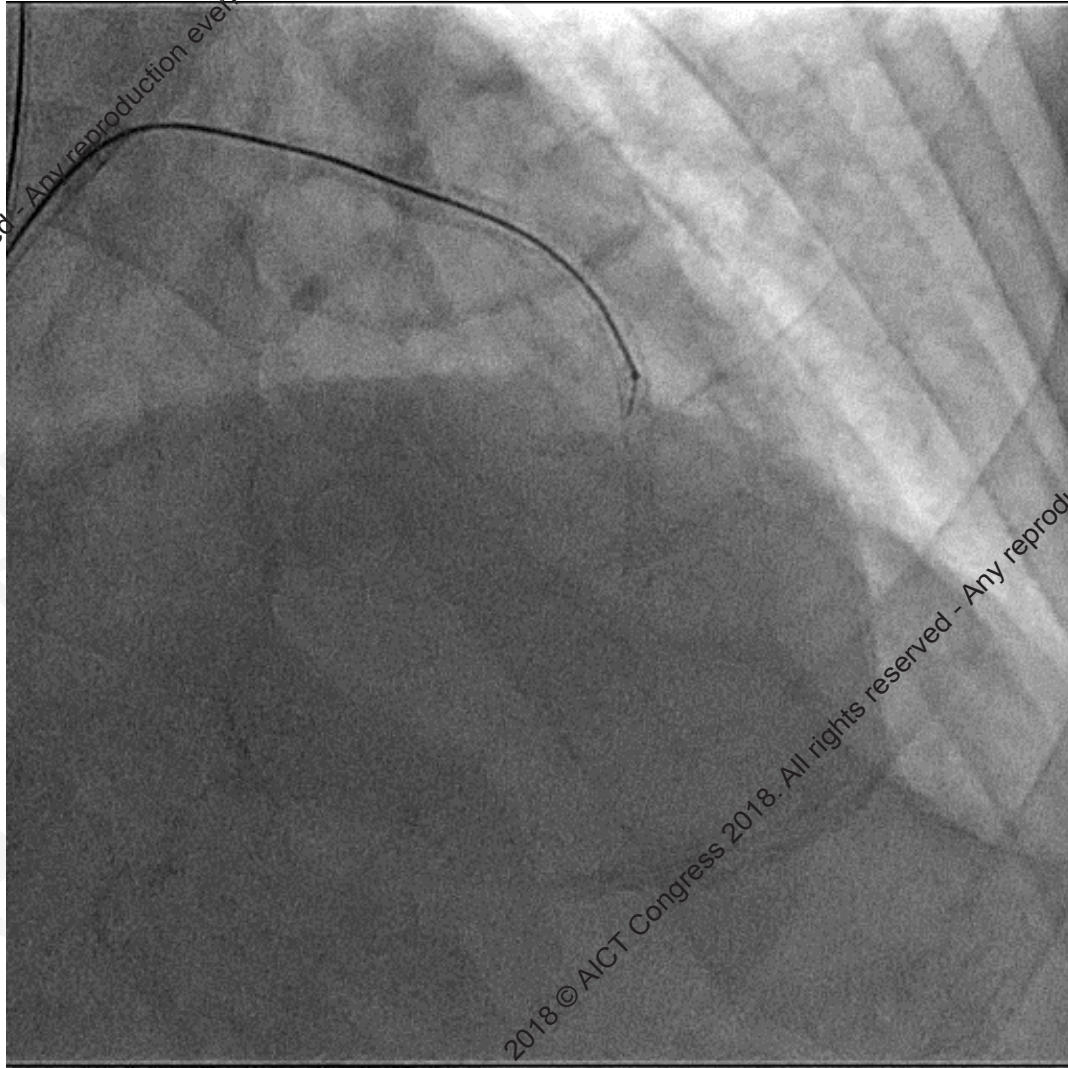
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XTR hit the resistant part of CTO and deflected



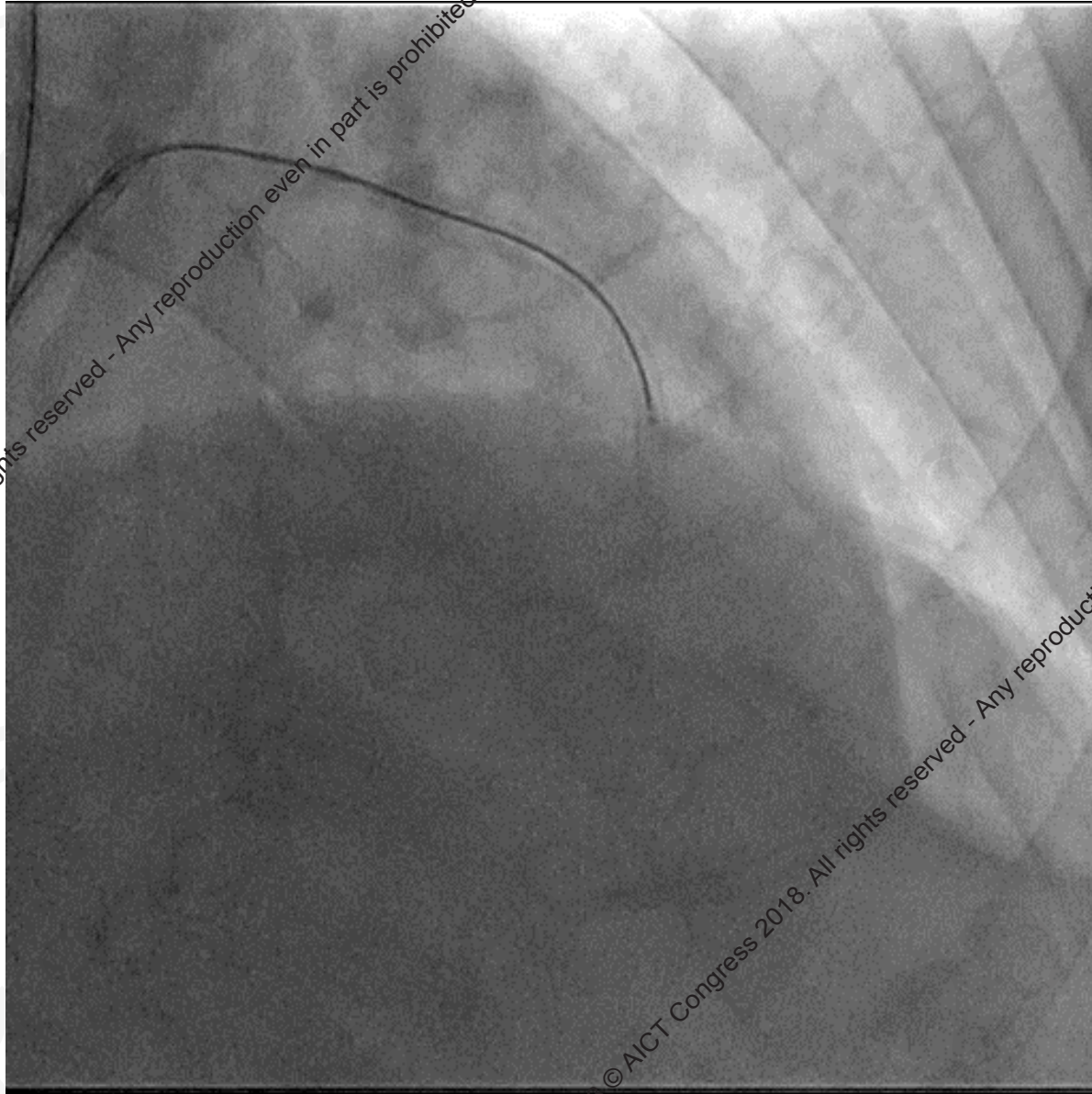
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Crossboss to the deflection point and withdrew the wire



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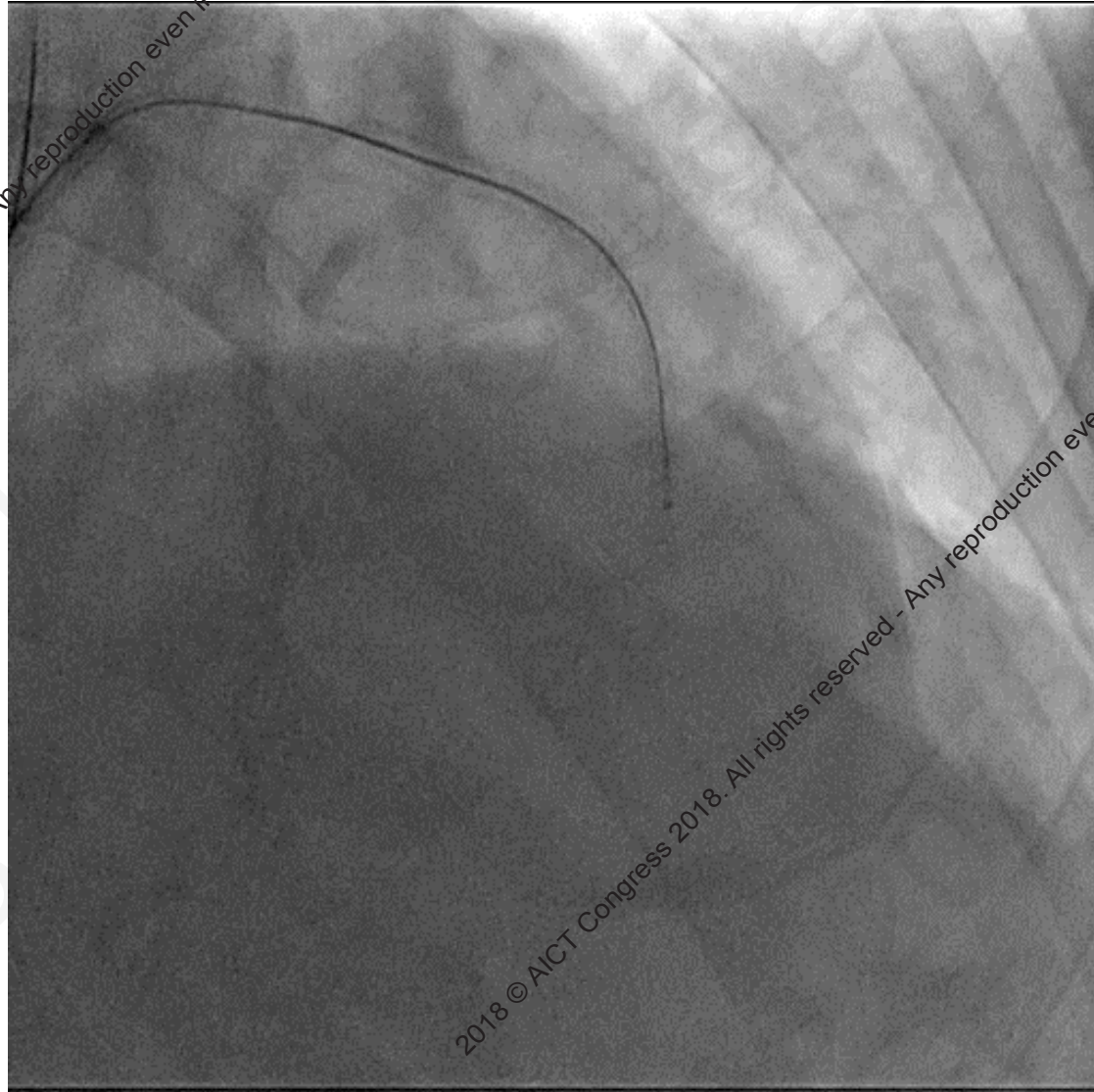
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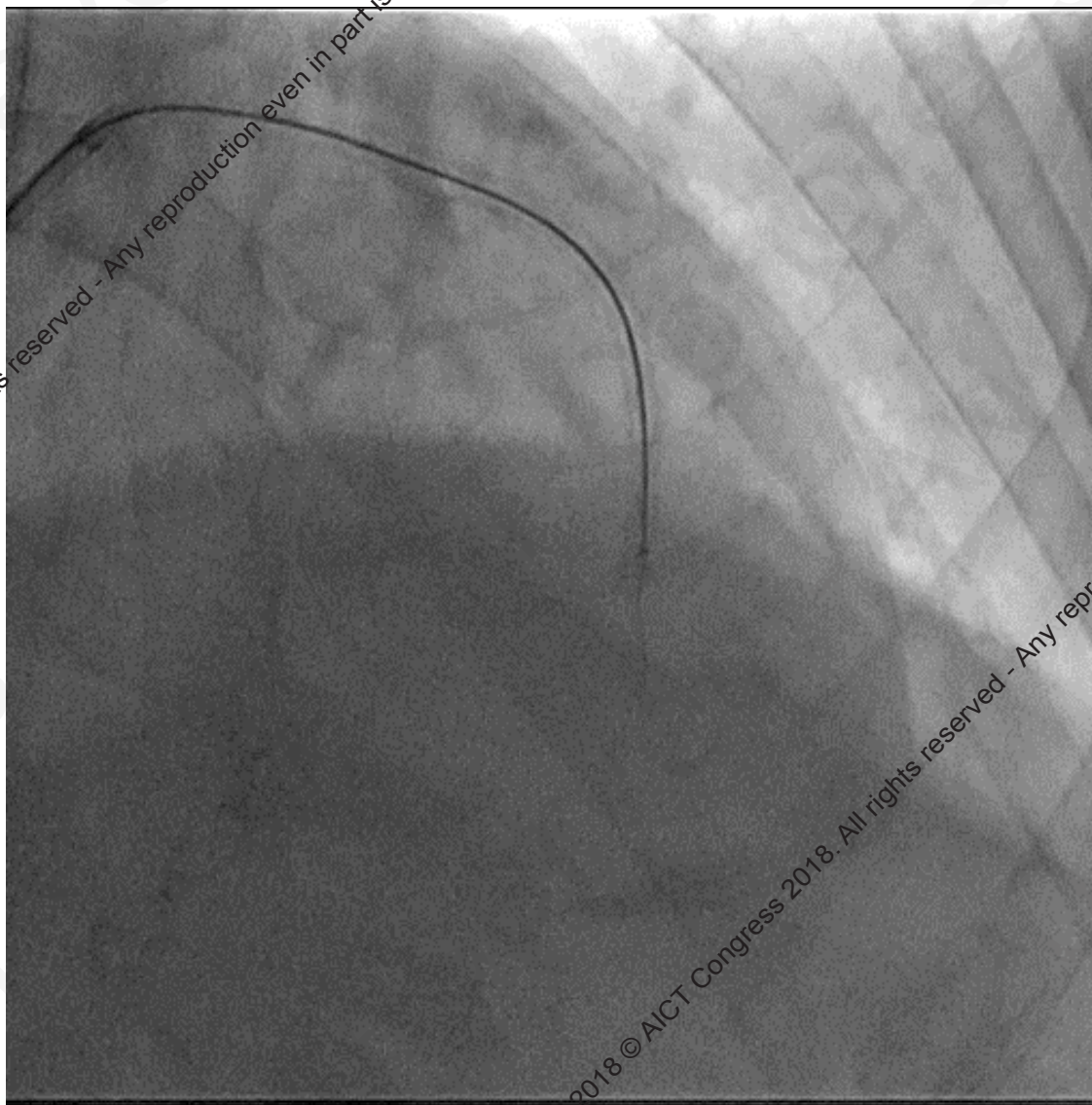
Boss in further to the very distal end of stent



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Wire to true lumen



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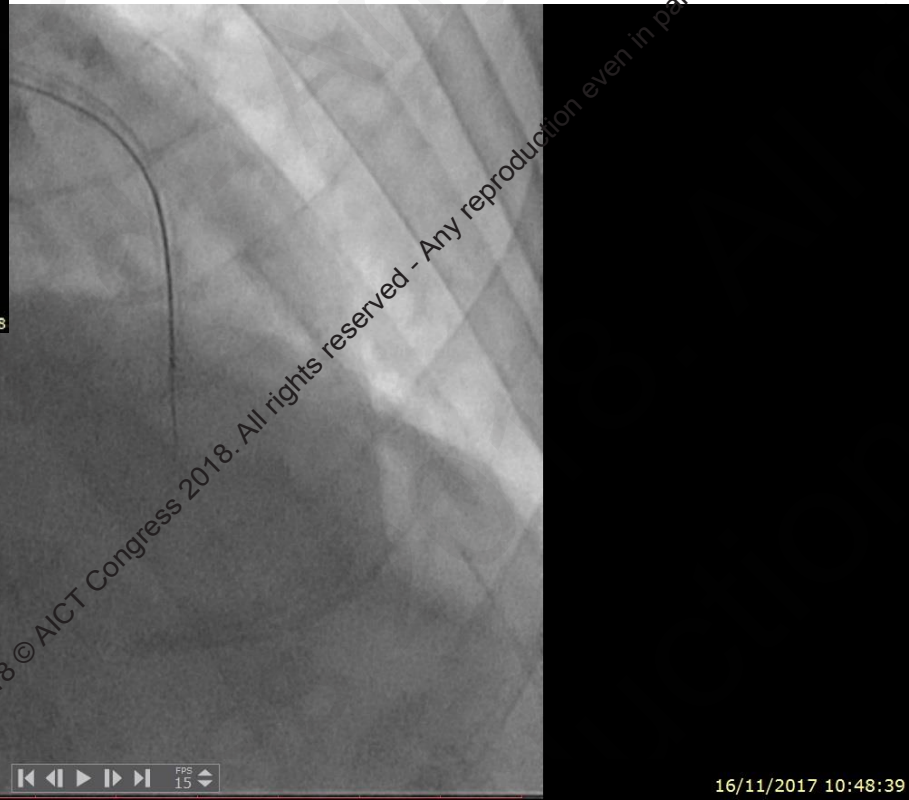
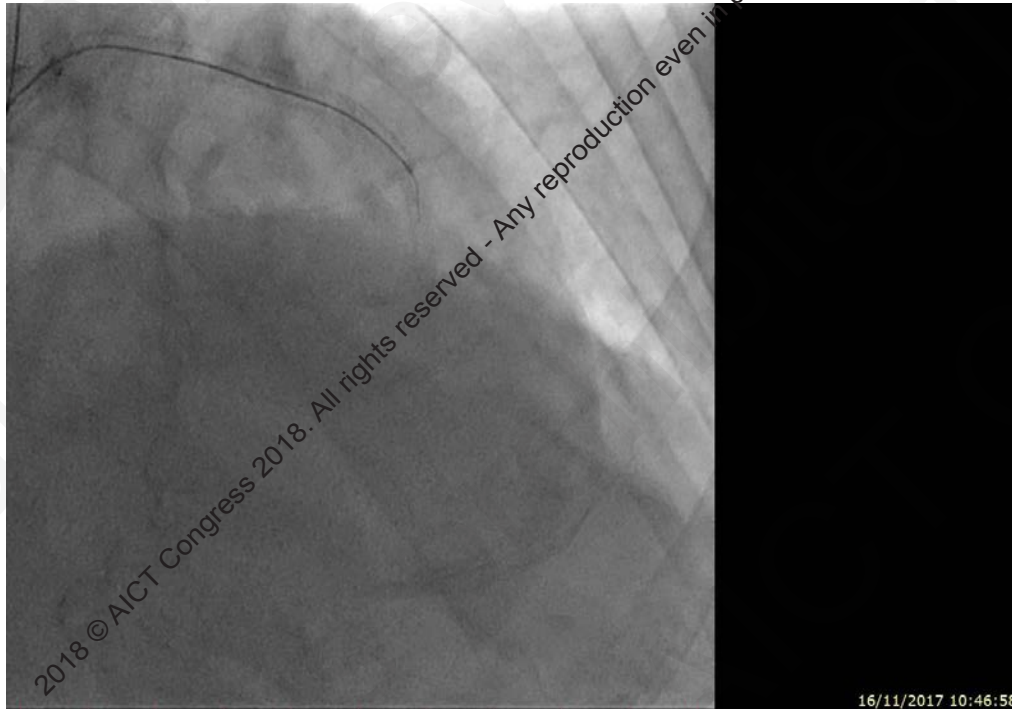
Final Angio



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Crossing time : 1 min 43 sec



ISR CTO



- CTO wire may exit the stent
- CrossBoss catheter is more likely to stay within the stent if there is no side branch in the stented segment

What data do we have about crossboss?



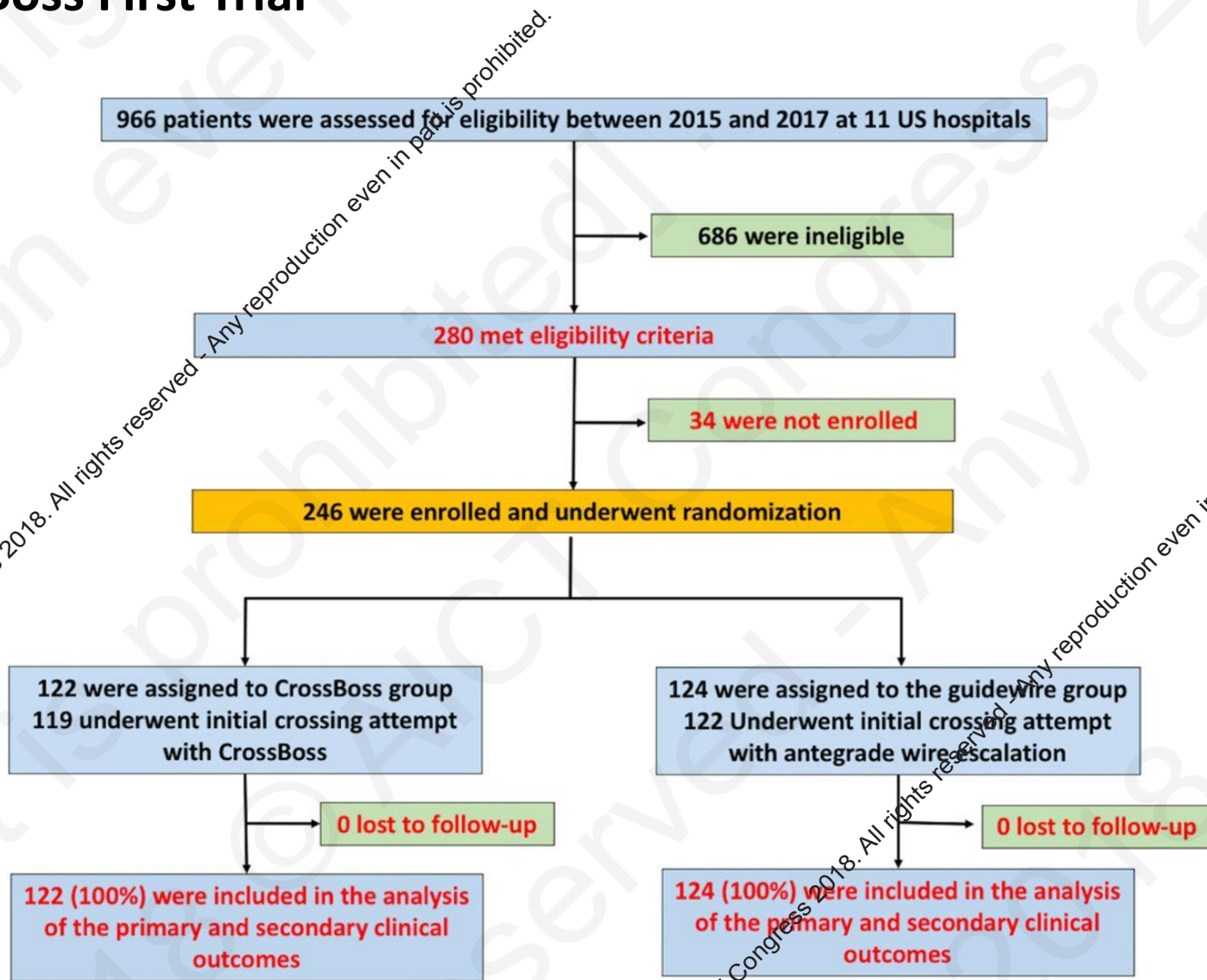
- Retrospective analysis of 349 CTO PCI, 52 CTOs due to ISR
- 31 CTOs were managed with the use of CrossBoss catheter
 - In 30 patients; one patient had 2 CTOs due to occlusive ISR
- 90% technical success (28/31)
 - 81% (25/31) directly facilitated success
 - 22/25 cases passed from true to true
 - 3/25 facilitating wiring of the distal vessel when catheter had crossed at least part of the distal vessel
- Short crossing time: Median 8 min

Mode of failure 6 out of 31



- Failed to penetrate proximal cap due to proximal vessel tortuosity or ostial occlusion or crushed stent
- Failed to penetrate distal CTO body due to proximal vessel tortuosity or in-segment tortuosity
- Under appreciation of the actual stented length
 - Premature use of wire resulting in sub-stent wiring

CrossBoss First Trial



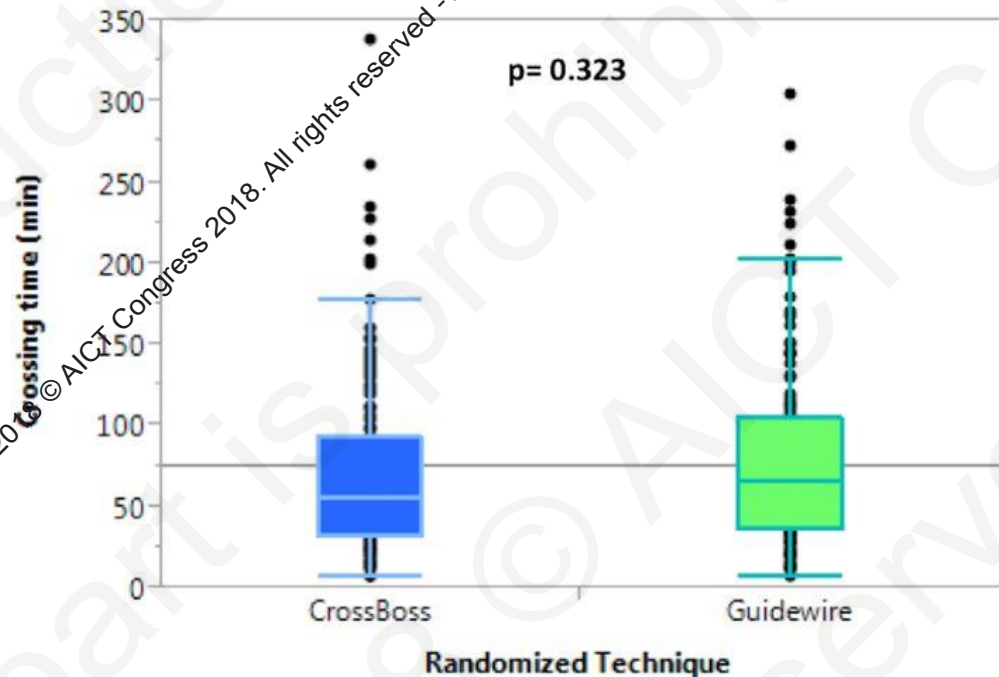
Judit Karacsonyi et al. JCIN 2018;11:225-233



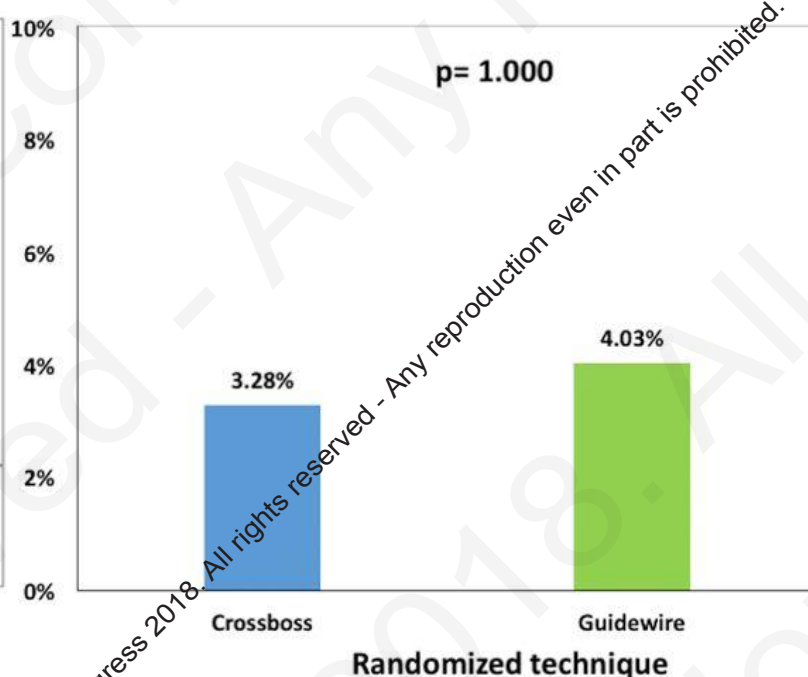
CrossBoss First Trial (n=246)



Crossing time



Major cardiac adverse events

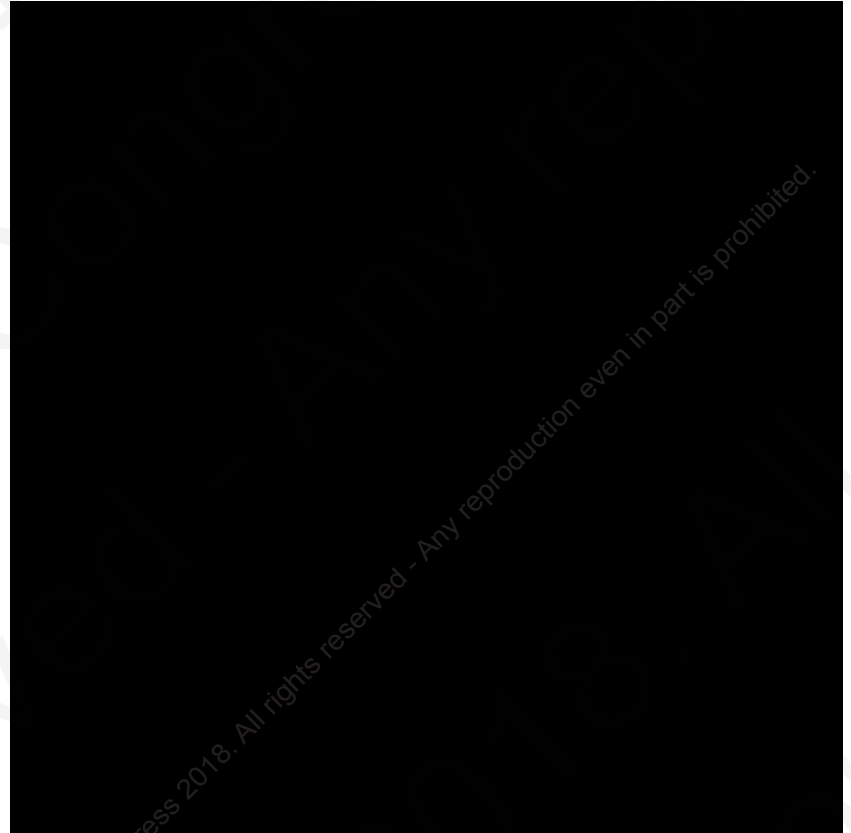
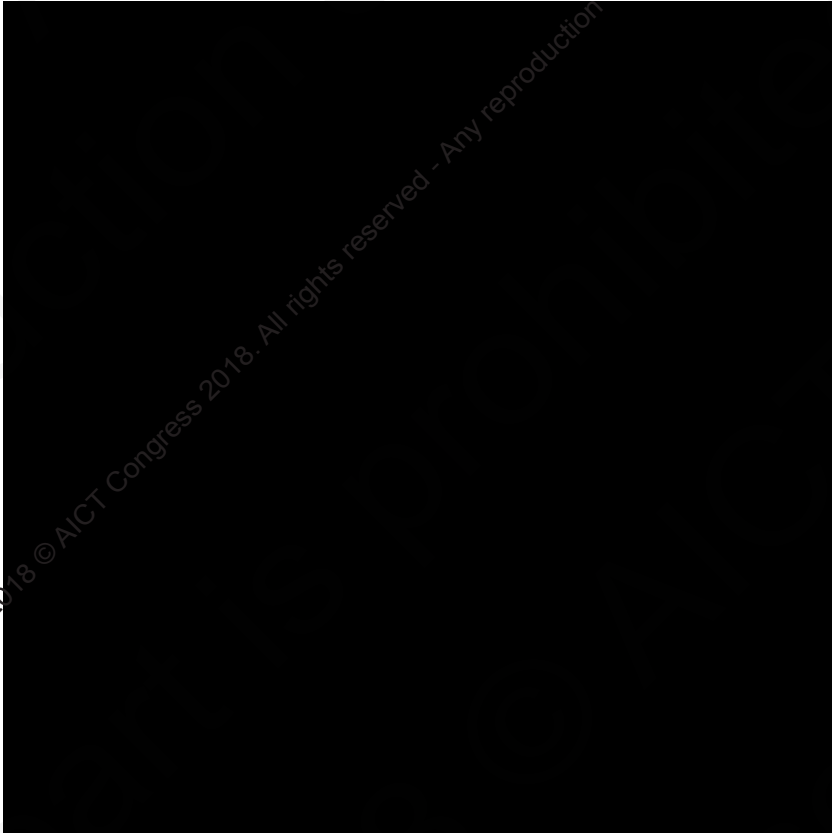


Post-hoc sub-group analysis



- Shorter crossing time in ISR (23% cases)
 - Median 41 [IQR: 23 to 58] vs. 66 [IQR: 32 to 111] min; $p = 0.047$
- But no difference in long lesion, lesions with proximal cap ambiguity, calcified lesions or torturous lesions

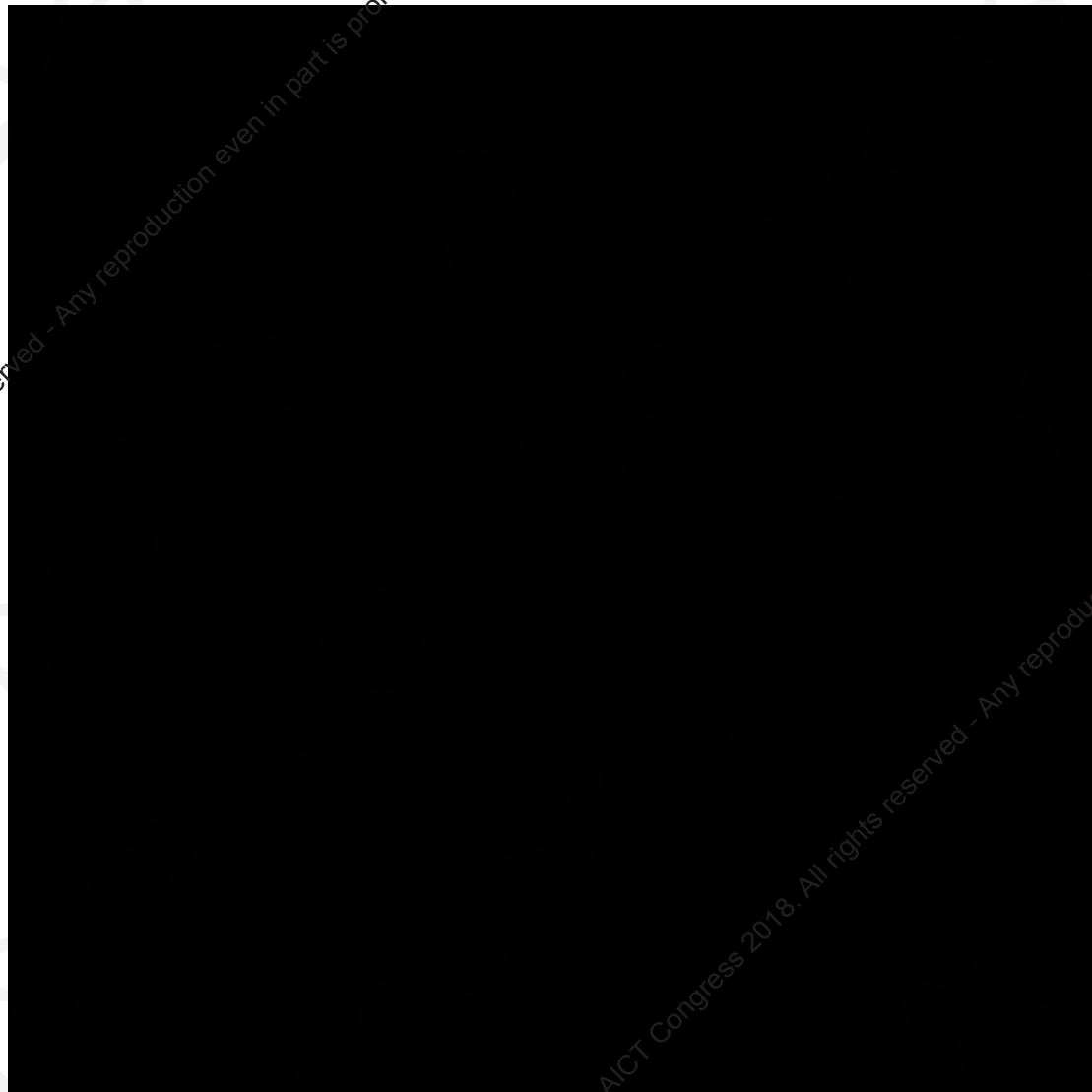
ADR case



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IVUS guided stenting



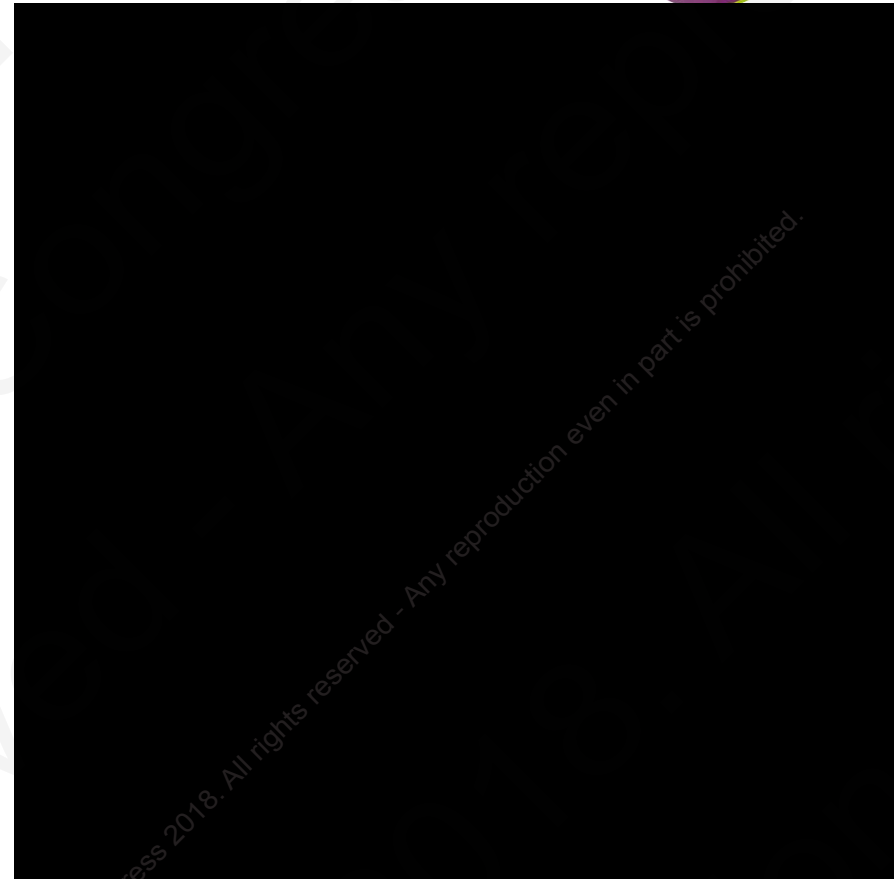
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Stage PCI to RCA



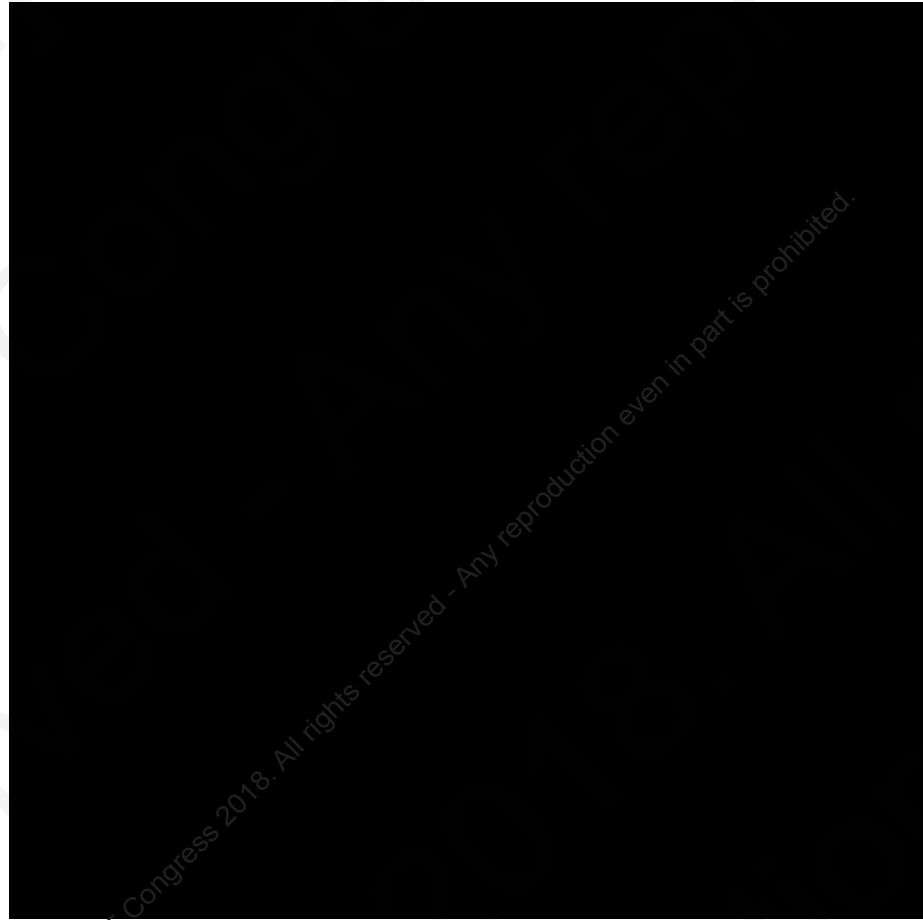
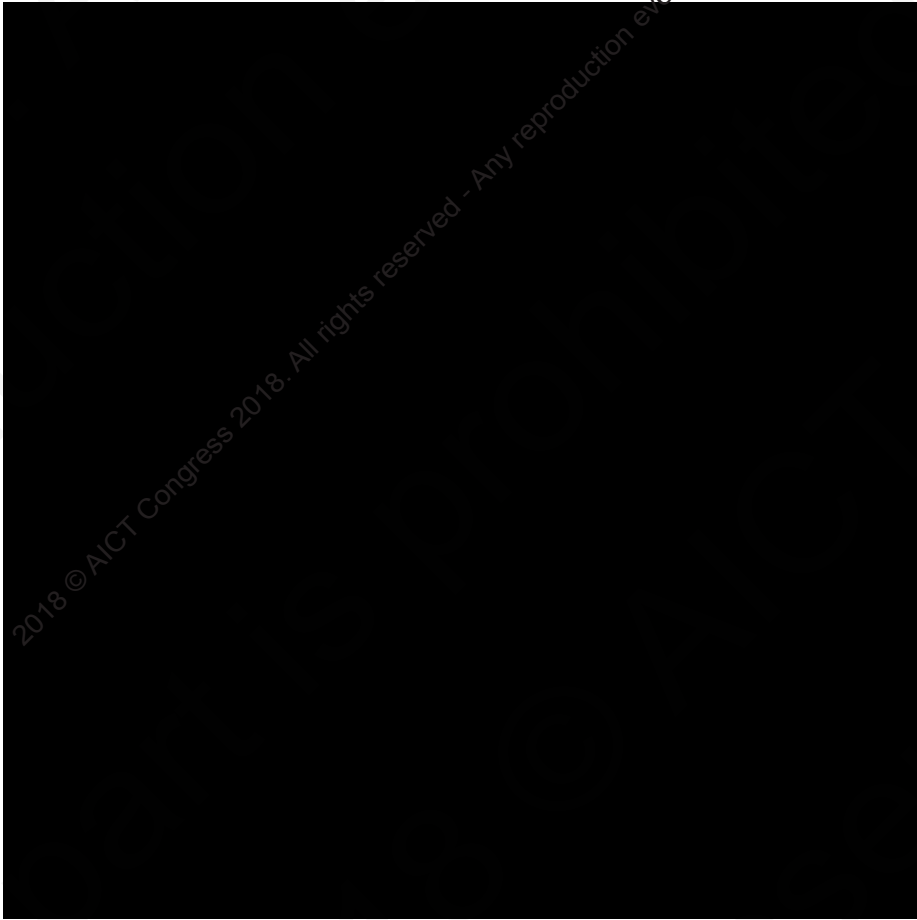
RCA



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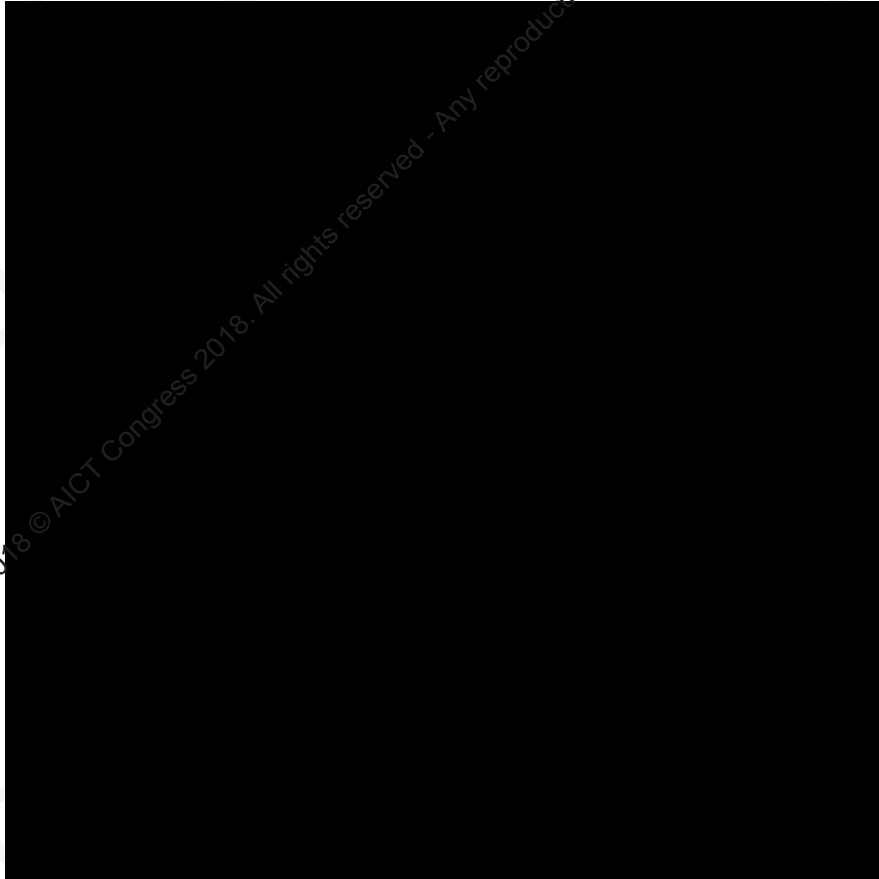
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XT-A



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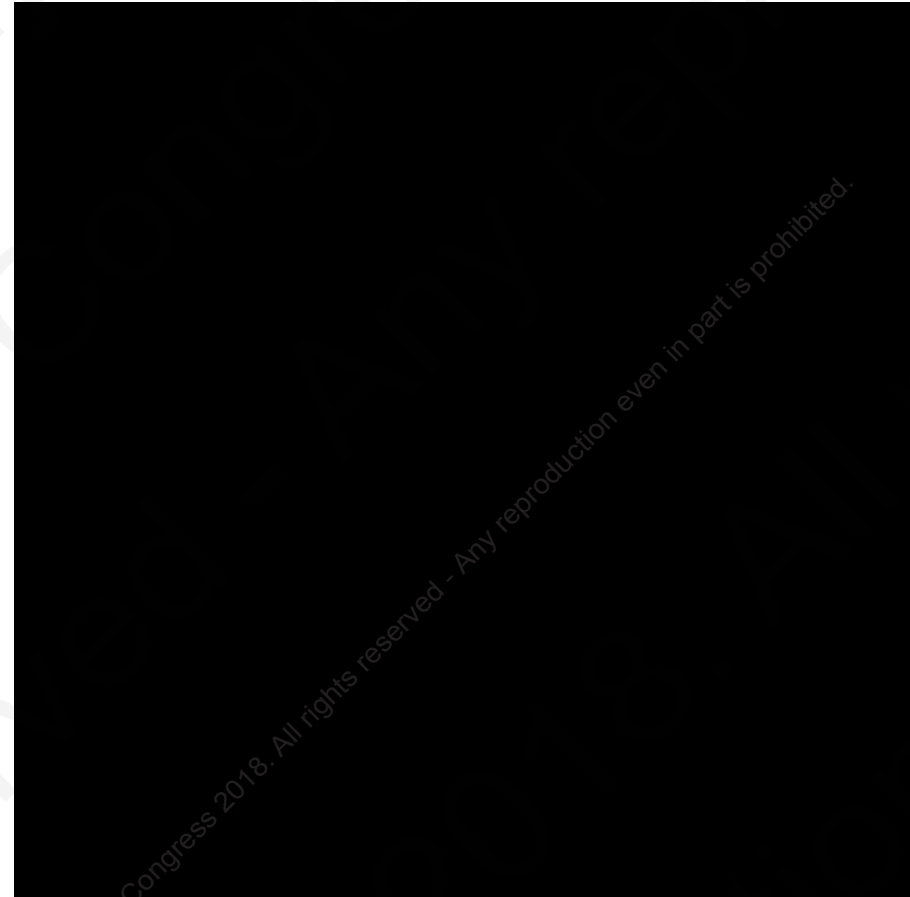
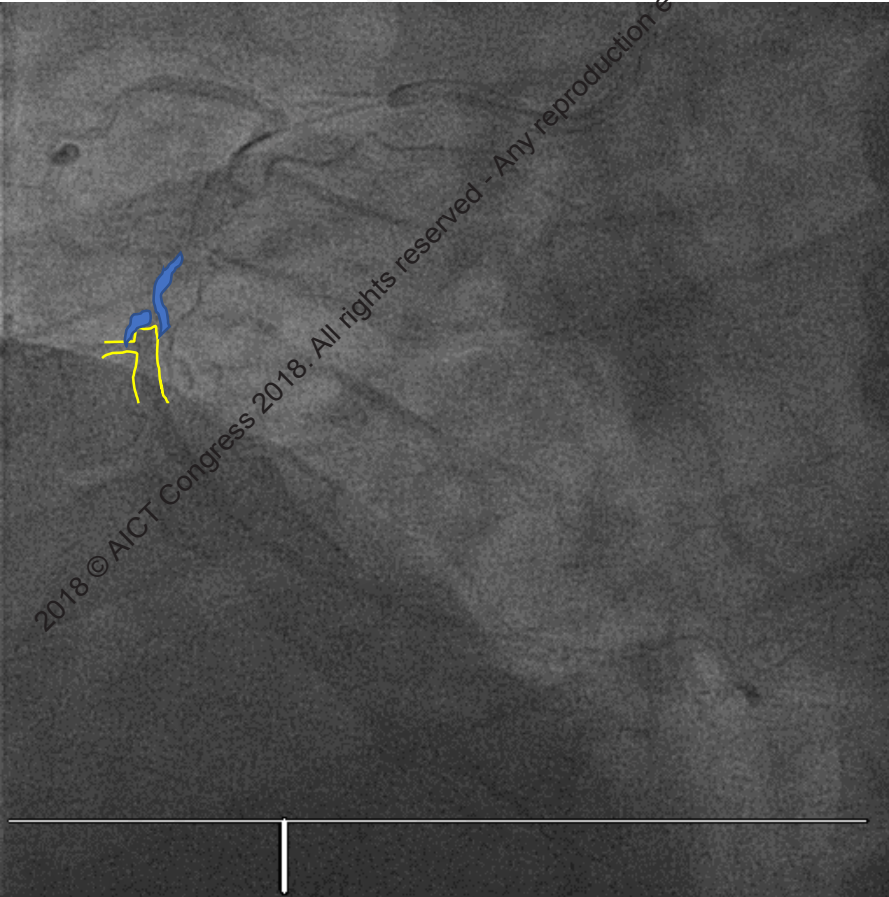
Gaia 2nd redirect



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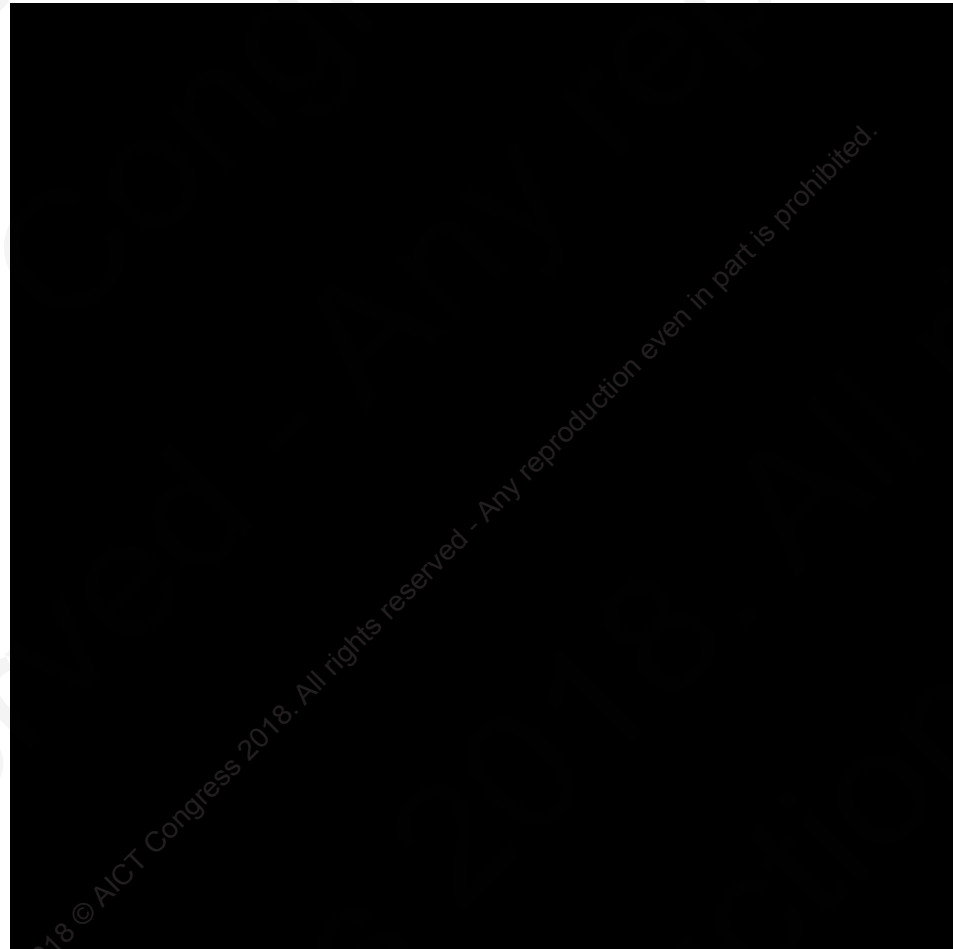
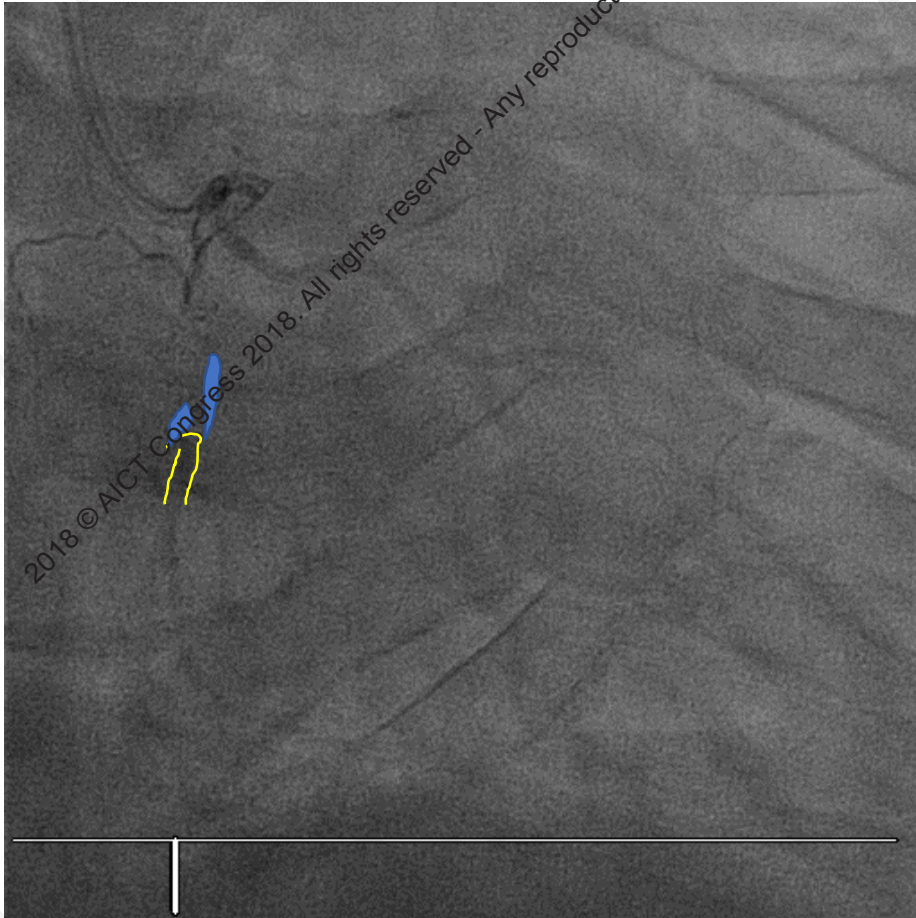
Calcified nodules



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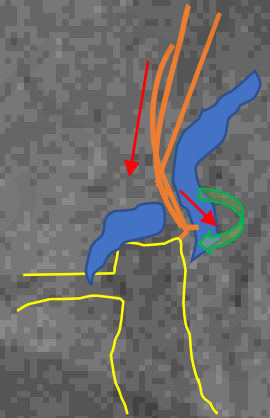
RAO view



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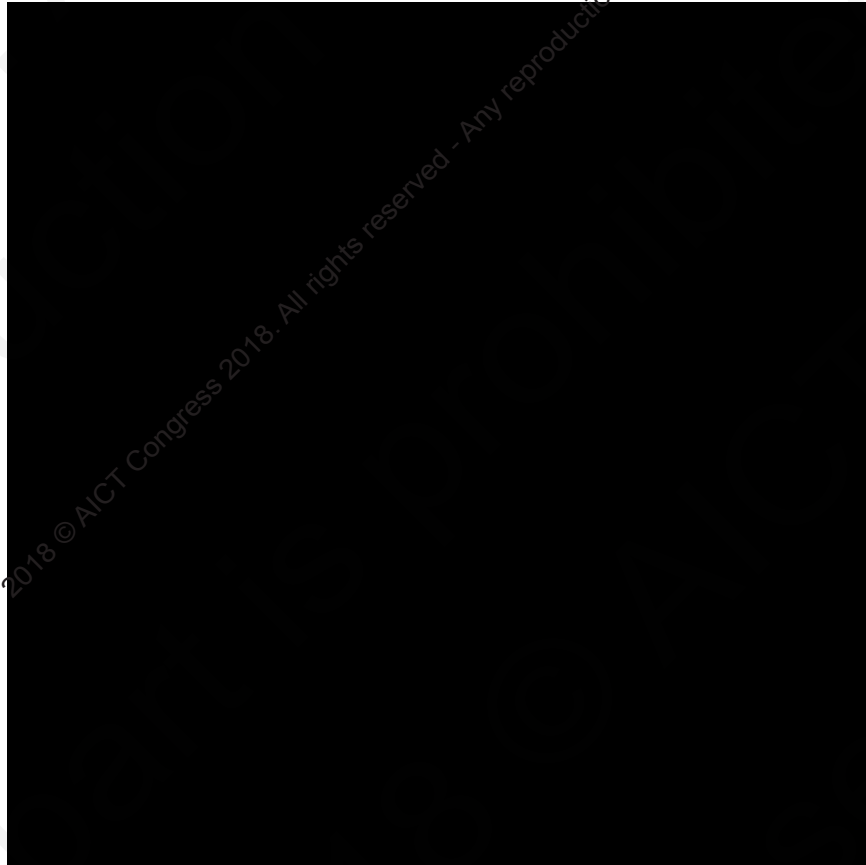
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Rock on the road

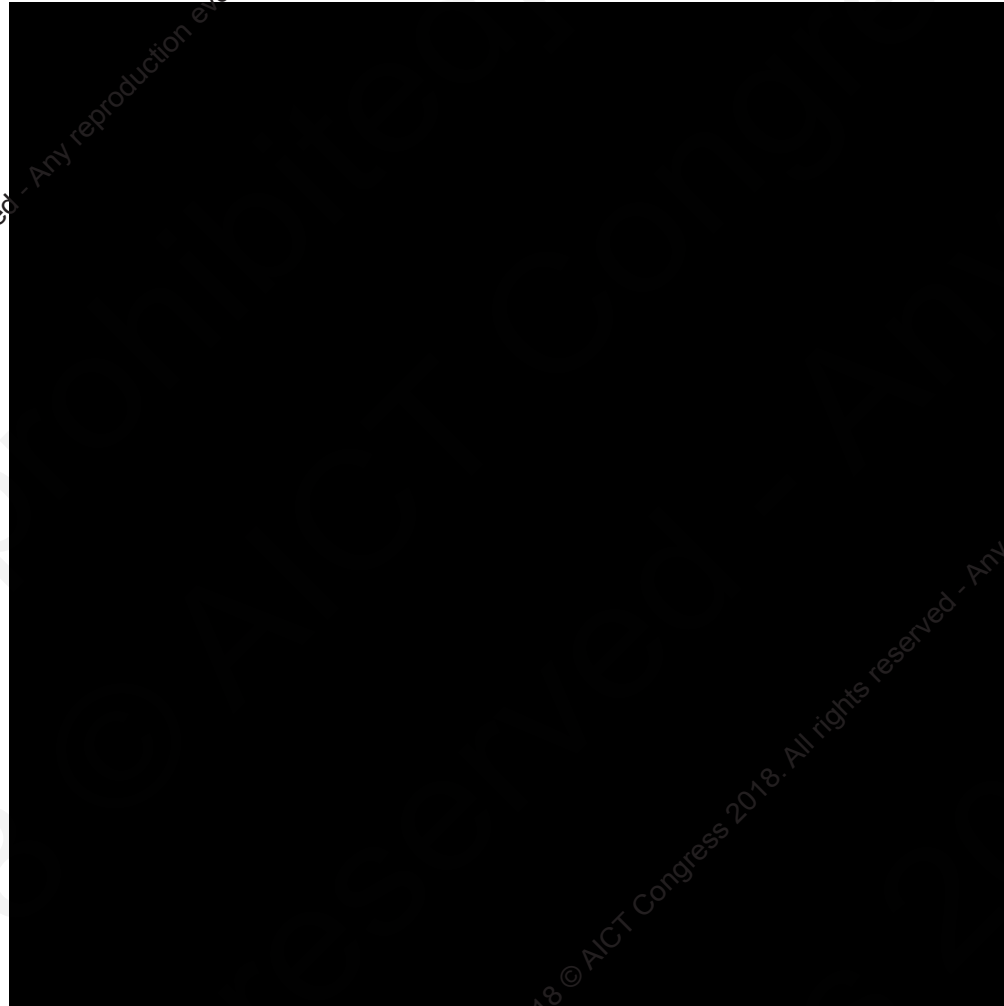


Knuckle wire



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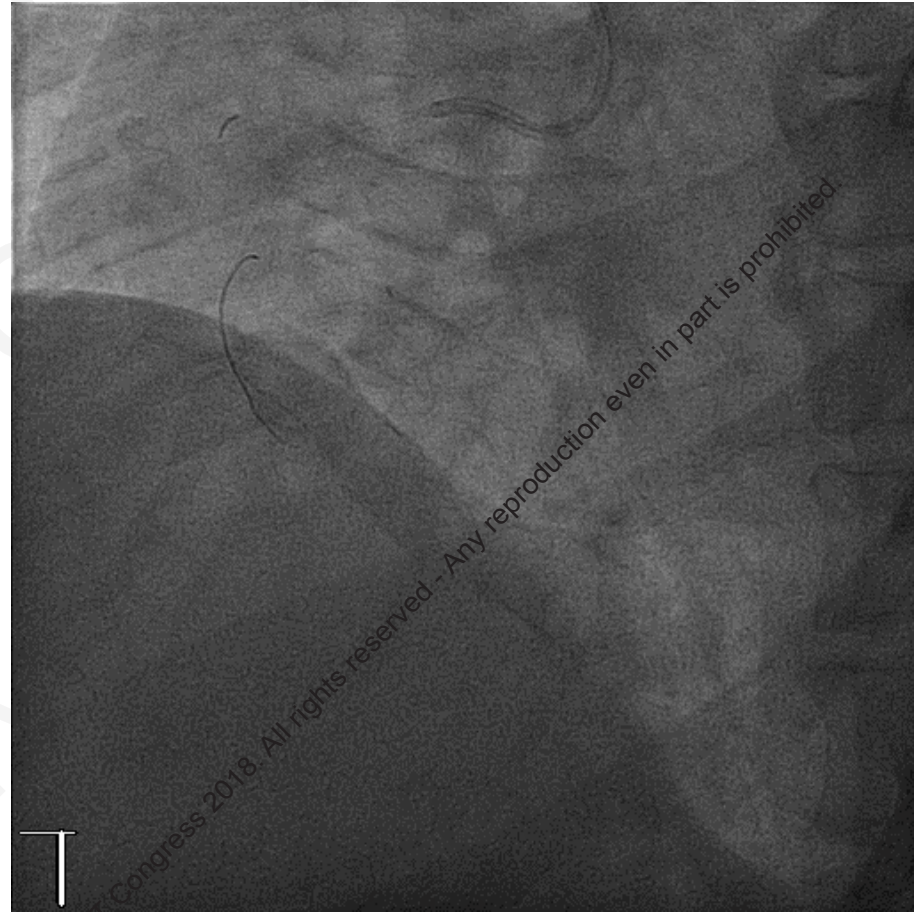
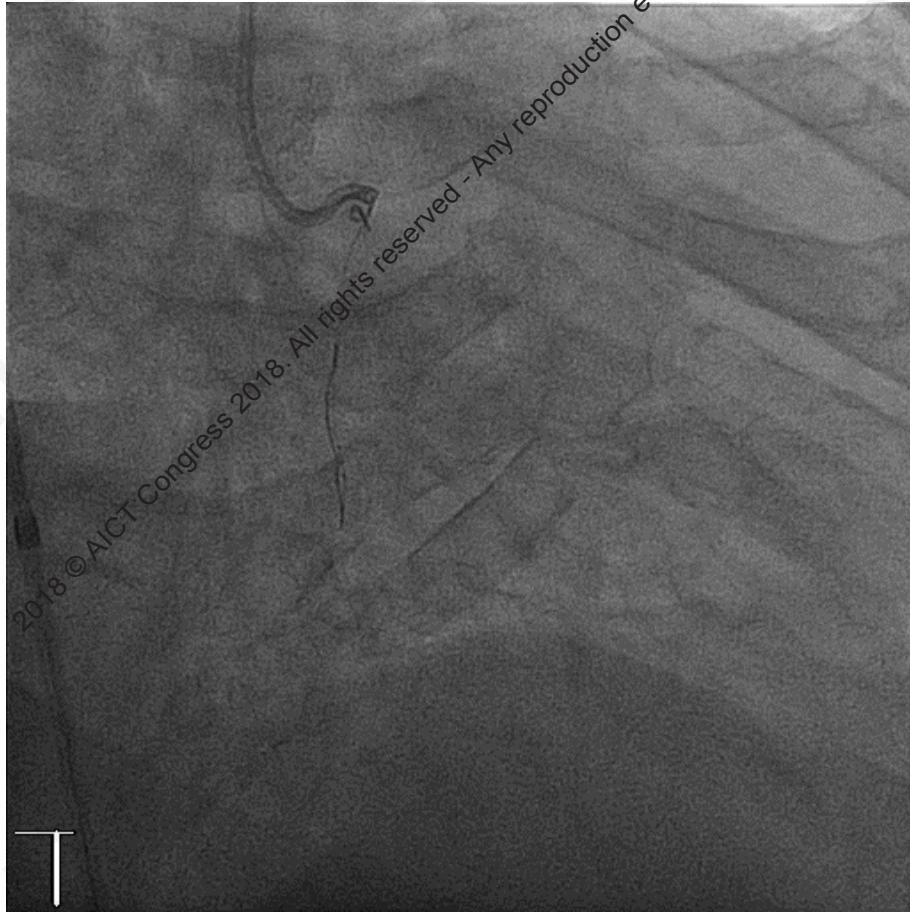
Knuckle further



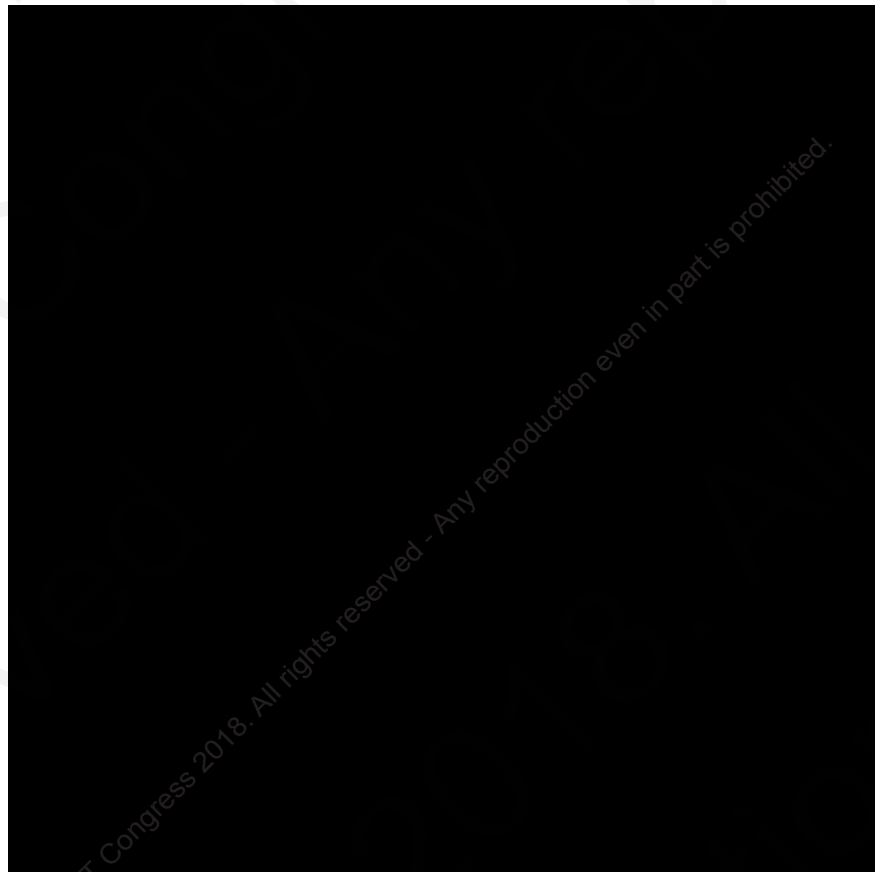
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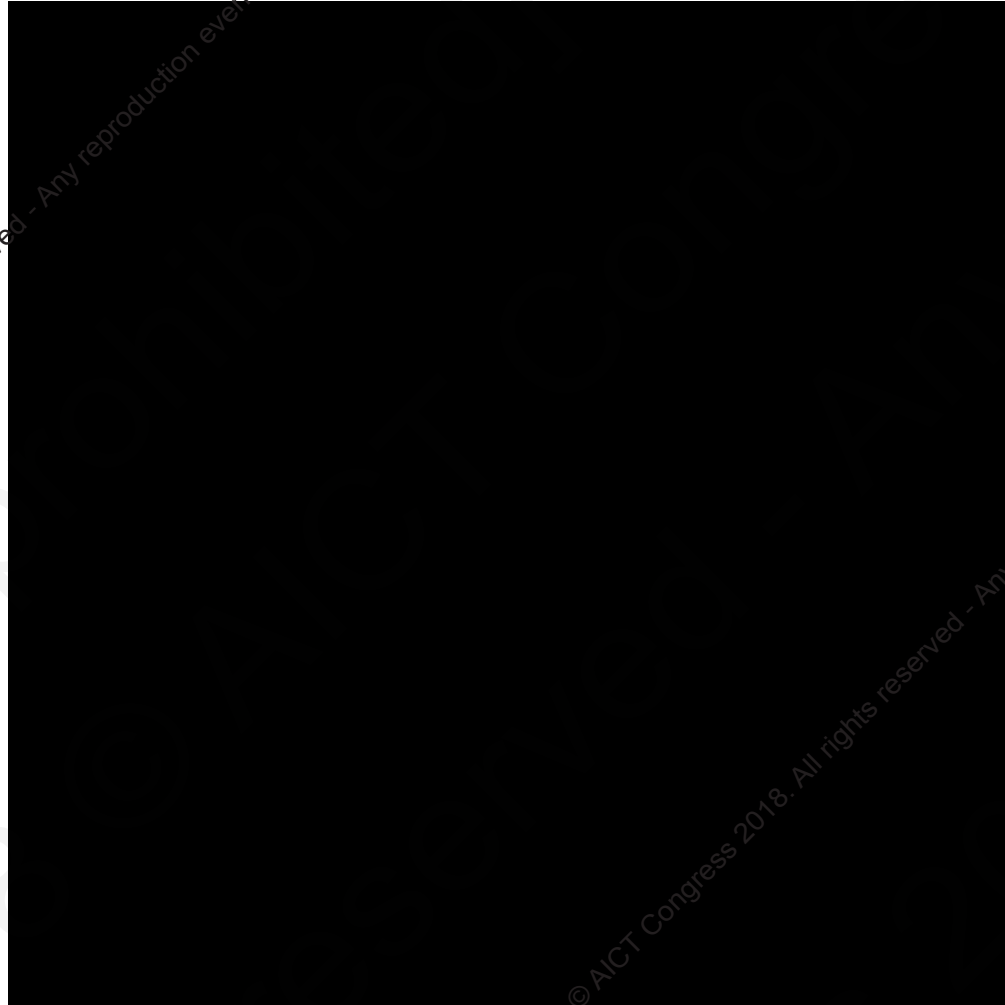
Stingray



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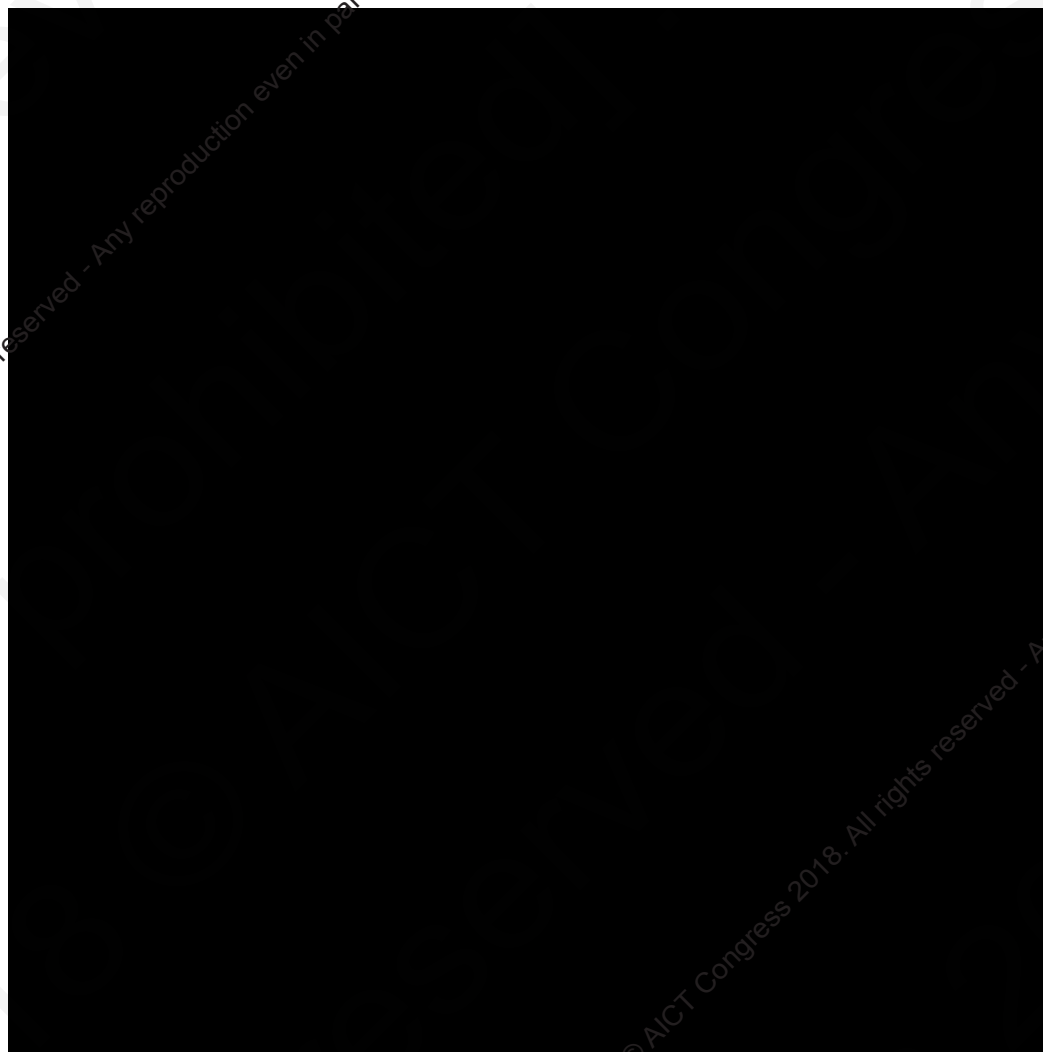
Difficult to control the wire tip



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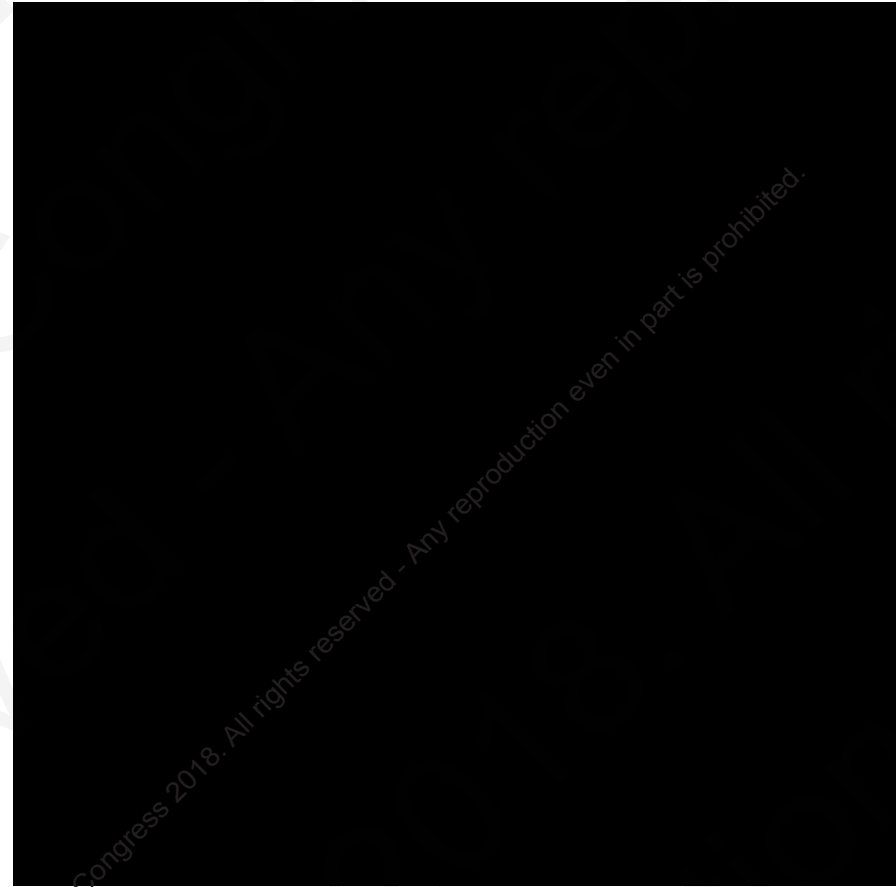
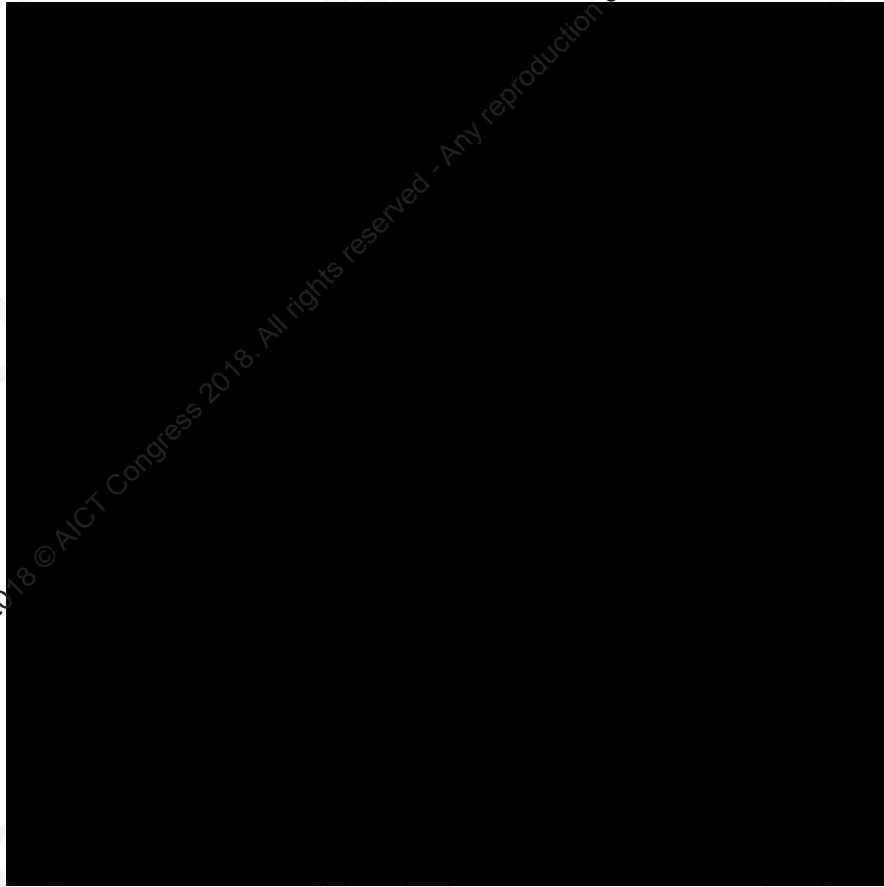
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Knuckle further in



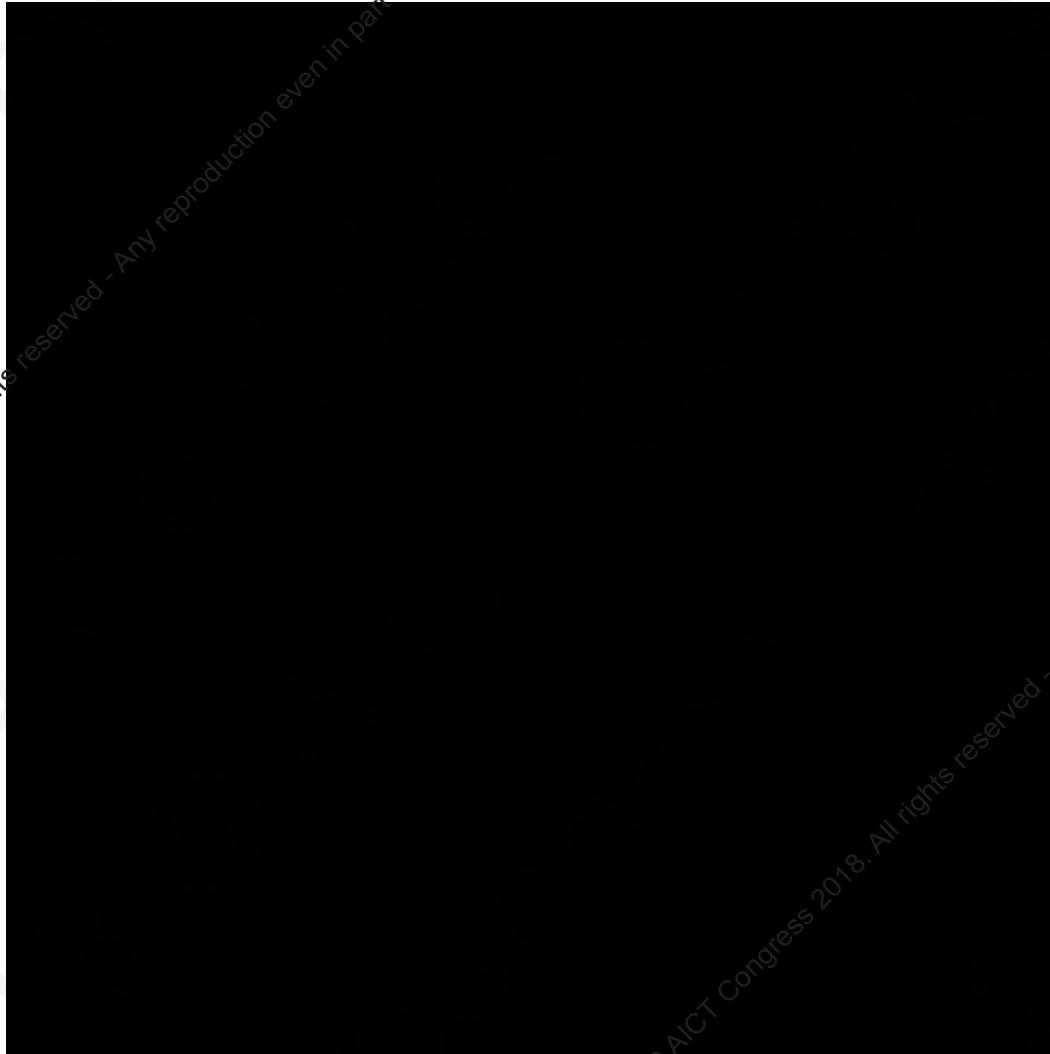
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Angio after straw



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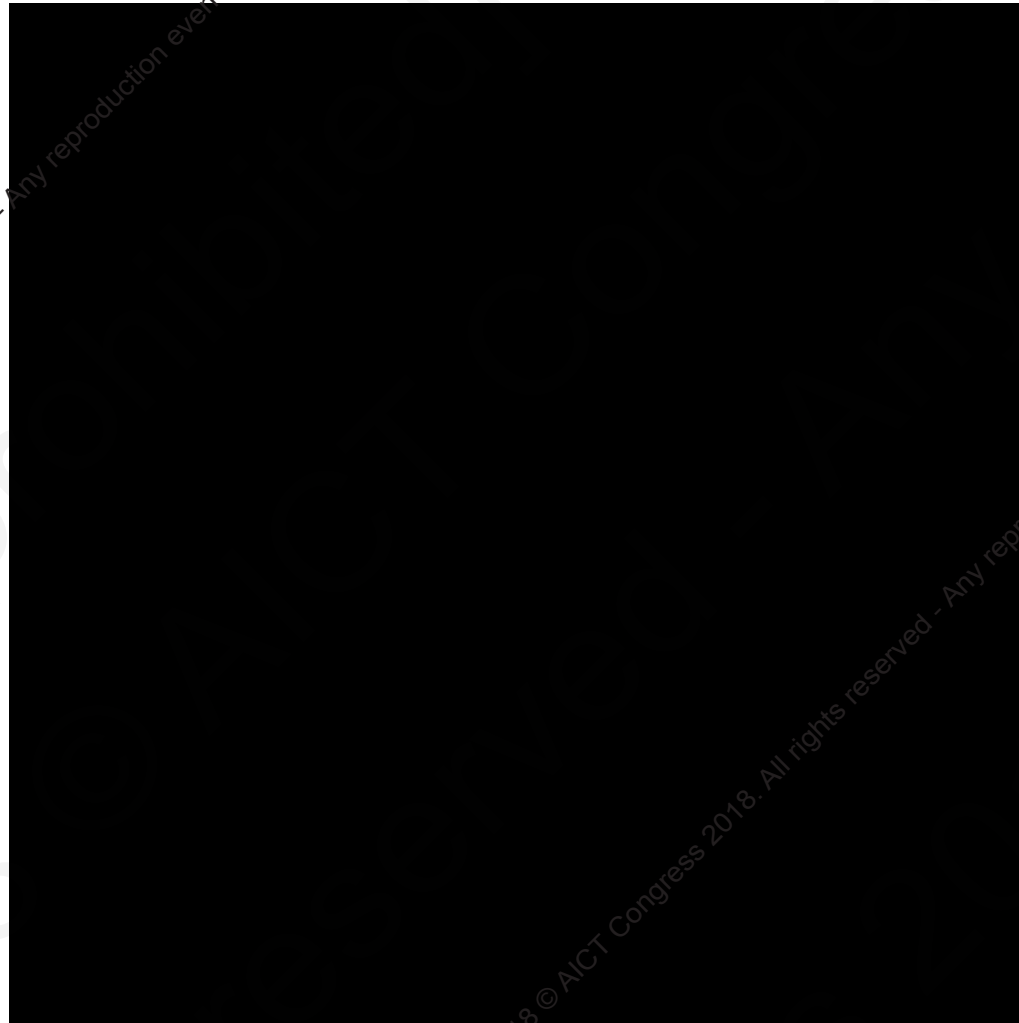
Stick



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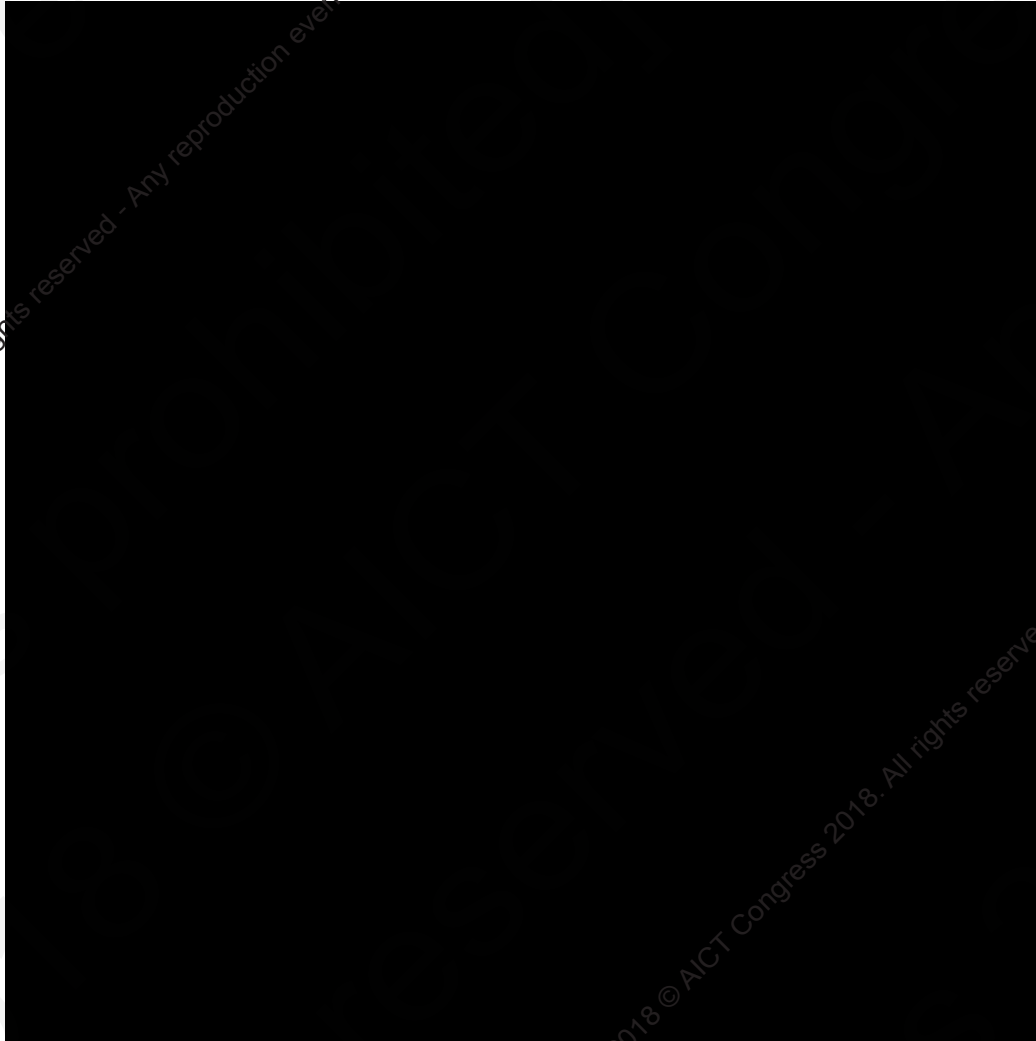
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Swap with Sion black



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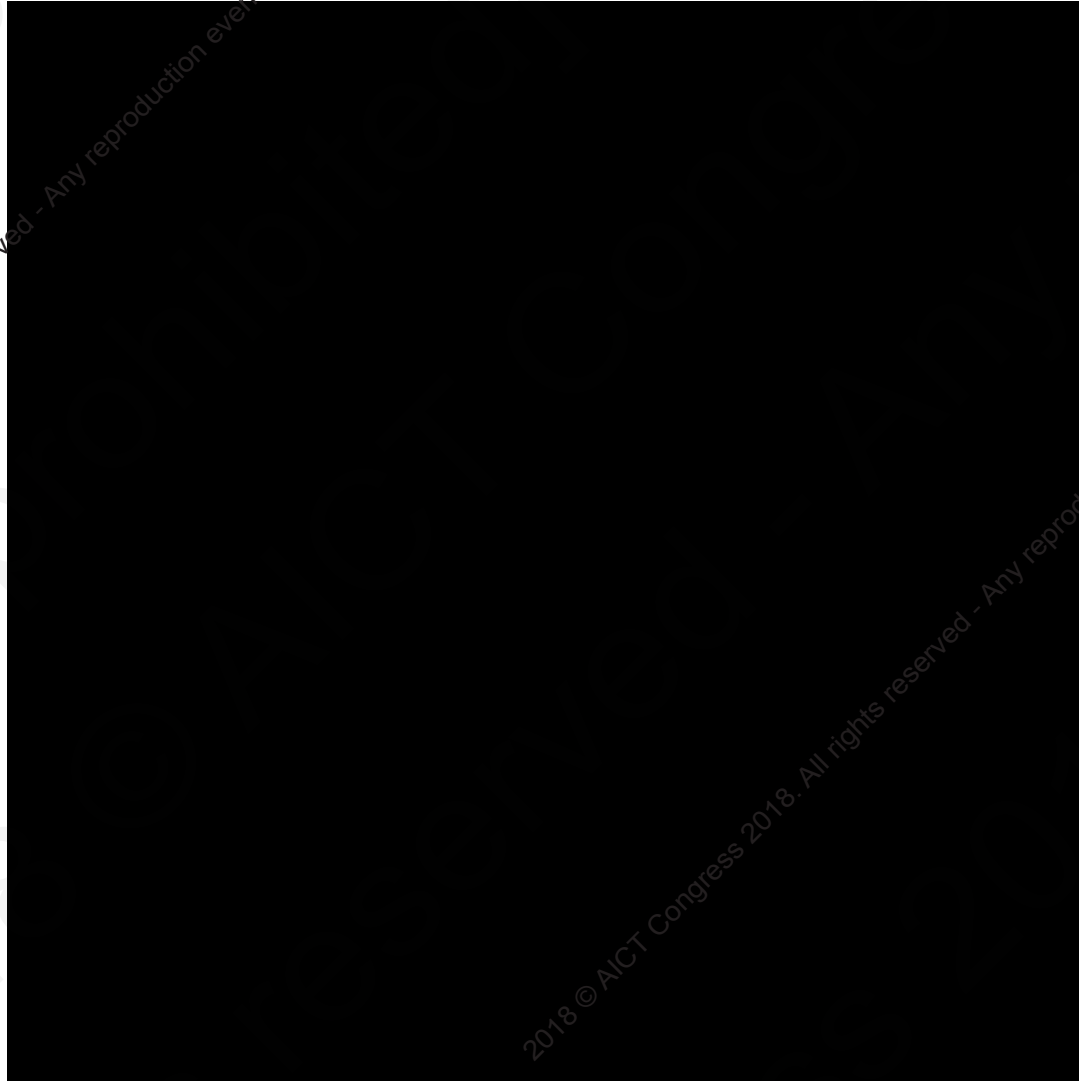
Slide to dRCA true lumen



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Final Angio



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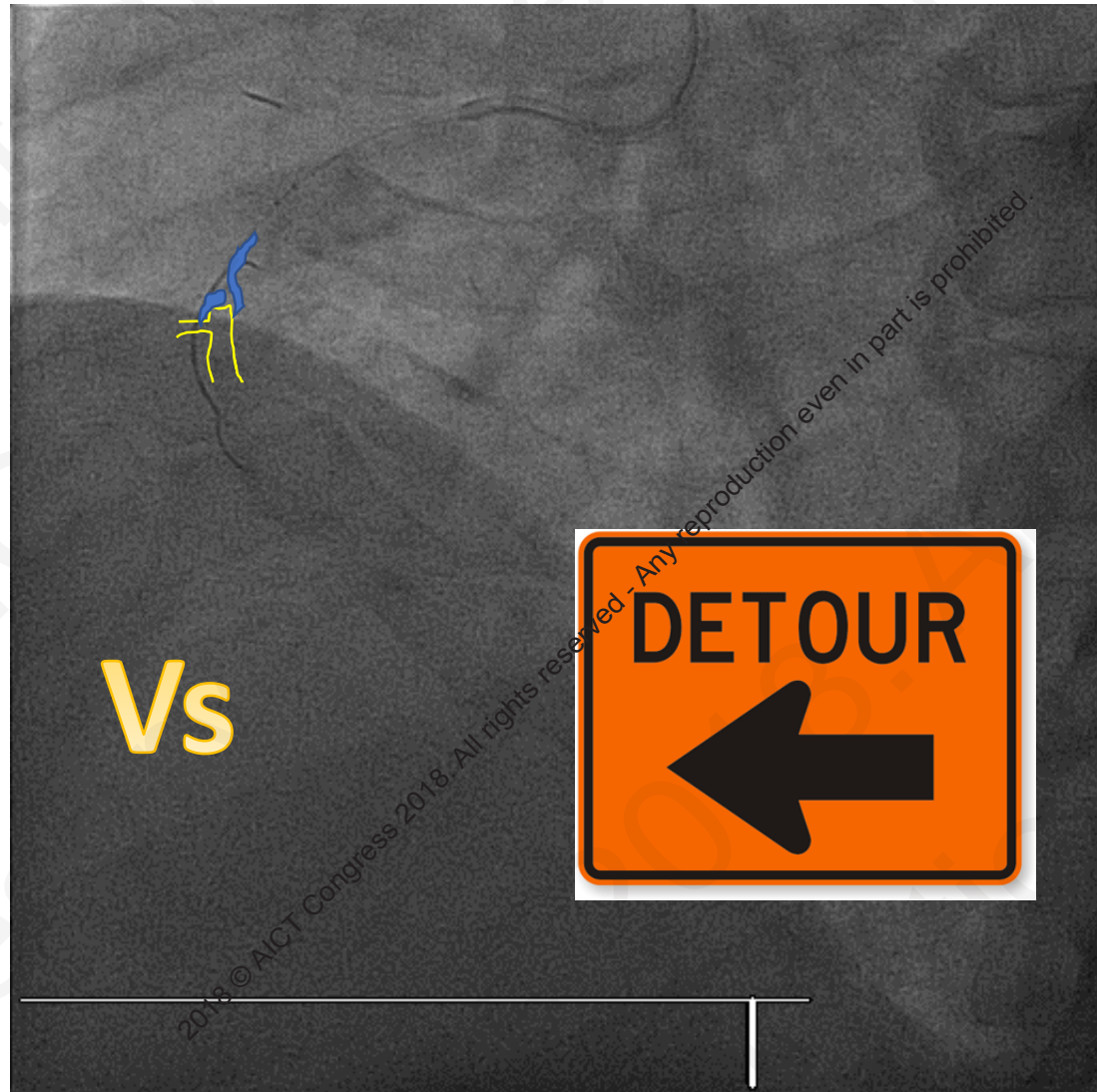
Calcium



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Vs



Summary



- Keep intraplaque travel as far as possible
- If went into sub-adventitial space, keep the space as small as possible
 - Bigger true lumen size
 - Better wire control
- Go into subadventitial space
 - Resolves vessel ambiguity
 - Detour when there is tough / calcified cap on the road

14th

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ASIAN INTERVENTIONAL CARDIOVASCULAR THERAPEUTICS
THE OFFICIAL CONGRESS OF APSIC

7 - 9th September 2018

Hong Kong

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