

Antegrade Dissection and a Re-Entry

Basic Technique and Advanced Tips and Tricks

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Disclosures

- **As a faculty member for this program, I disclose the following relationships with industry:**
- **Speakers Bureau for Abbott Vascular, MDT vascular and Boston Scientific**

Retrograde Coronary Chronic Total Occlusion Revascularization: Procedural and In-Hospital Procedural Outcomes from a Multicenter Registry in the United States

Author	Year	n	Prior CABG (%)	Septal collaterals used (%)	Reverse CART (%)	Technical Success (%)	Major complications (%)	Fluoroscopy time, min	Contrast use, mL
Sianos	2008	175	10.9	79.4	NR	83.4	4.6	59 ± 29	421 ± 167
Rathore	2009	157	17.8	67.5	NR	84.7	4.5	NR	NR
Kimura	2009	224	17.6	79	14	92.4	1.8	73 ± 42	457 ± 199
Tsuchikane	2010	93	10.8	82.8	60.9	98.9	0	60 ± 26	256 ± 169
Morino	2010	136	9.6	63.9	NR	79.2	NR*	NR*	NR*
Karpaliotis*	2012	462	50.0	71	41	81.4	2.6	61 ± 40	345 ± 177

Karpaliotis, Tesfaldet, Brilakkis, Lembo, Lombardi, Kandzari:
JACC Cardiovasc Interv. 2012 Dec;5(12):1273-9.

Summary of Large Contemporary Registry Publications of Percutaneous Coronary Interventions of Chronic Total Occlusions

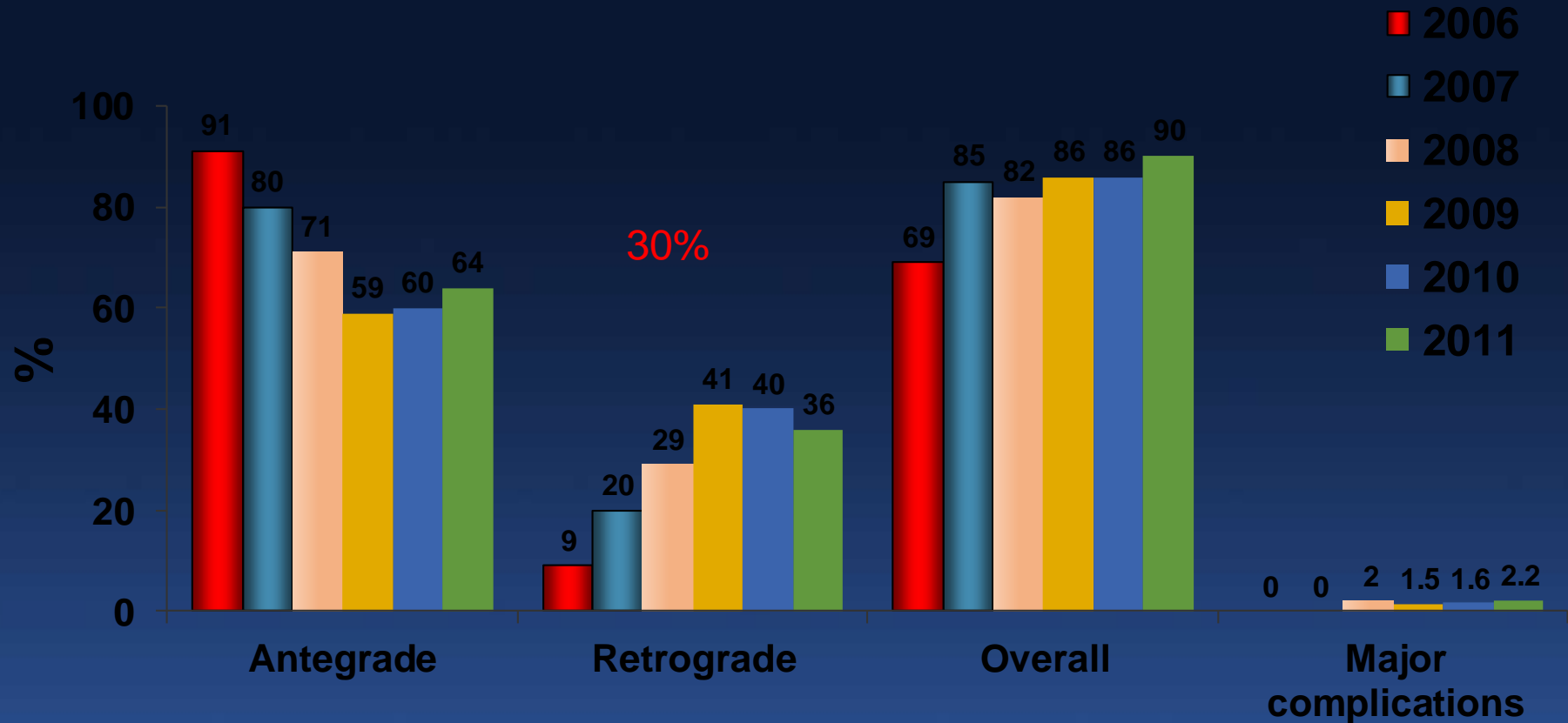
Author	Year	N (CTO lesions)	Prior CABG	Diabetes	Retrograde	Technical Success	Major complications	Death	Tamponade	Fluoroscopy time (minutes)	Contrast use, (ml)
Rathore	2009	904	12.6	40.0	17	87.5	1.9	0.6	0.6	NR	NR
Morino	2010	528	9.6	43.3	26	86.6	NR	0.4	0.4	45 (1-301)*	293 (53-1,097)*
Galassi	2011	1983	14.6	28.8	14	82.9	1.8	0.3	0.5	42.3±47.4	313 ±184
U.S Registry*	2013	1361	37.0	40.0	34	85.5	1.8	0.22	0.6	42±29	294 ±158

* Median (range)

* Tesfaldet, Karpaliotis, Brilakis, Lembo, Lombardi, Kandzari. *Am J Cardiol* 2013

CTO PCI: success and complications

N=1,363
3 US sites





Multicenter CTO registry

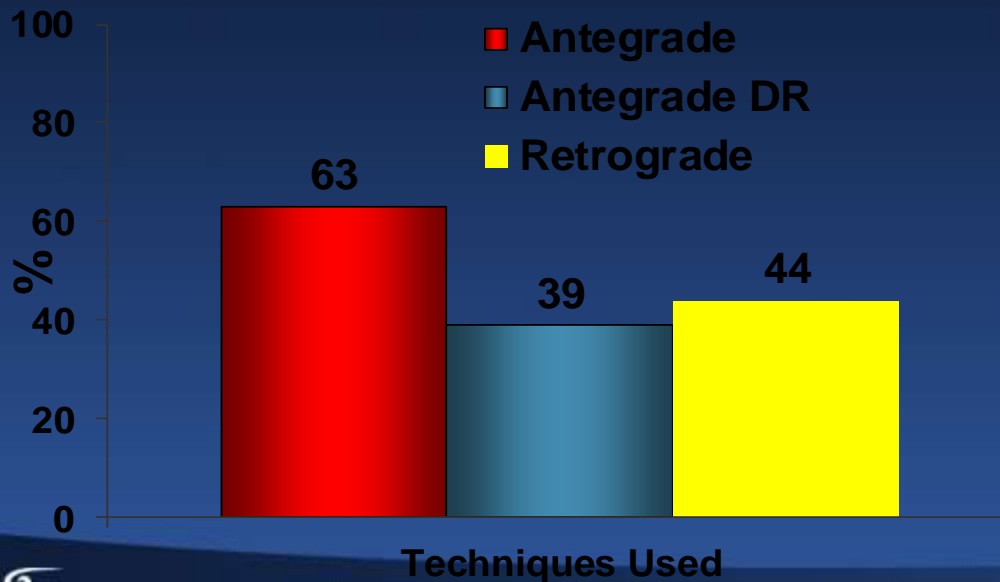
- Appleton Cardiology, WI
- Dallas VAMC/UTSW
- Peaceheath Bellingham, WA
- Piedmont Heart Institute, GA
- St Luke's Mid America Heart Institute, MO

1/2012 to 8/2013

n=489

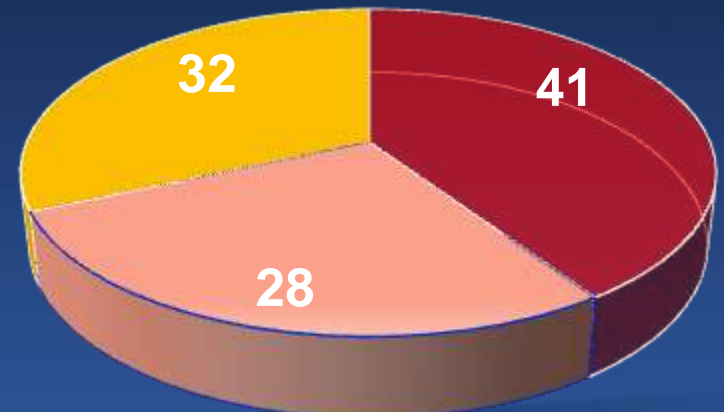
Technical success: 91.6%

Major complications: 1.6%

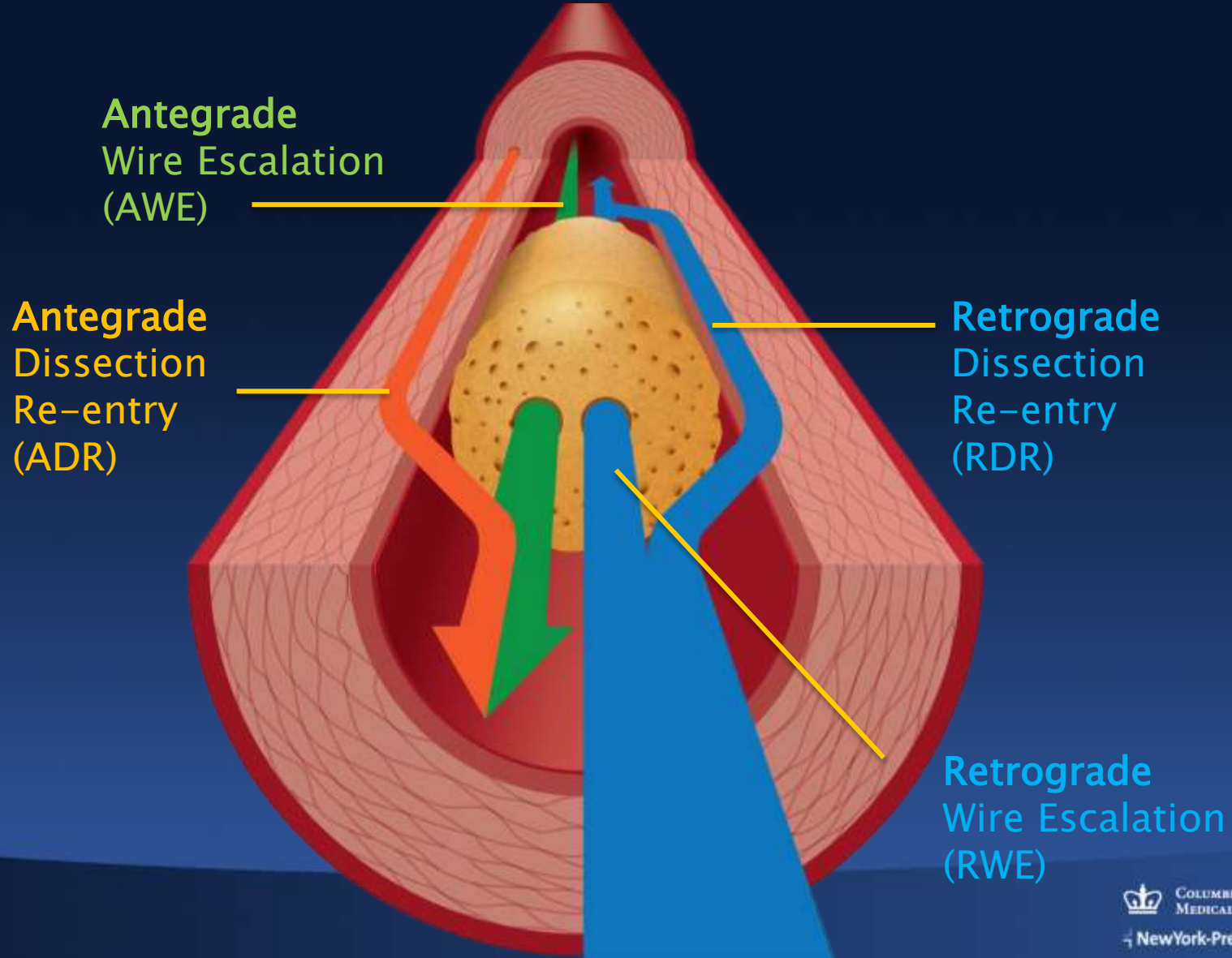


Successful technique

- Antegrade
- Antegrade dissection/re-entry
- Retrograde



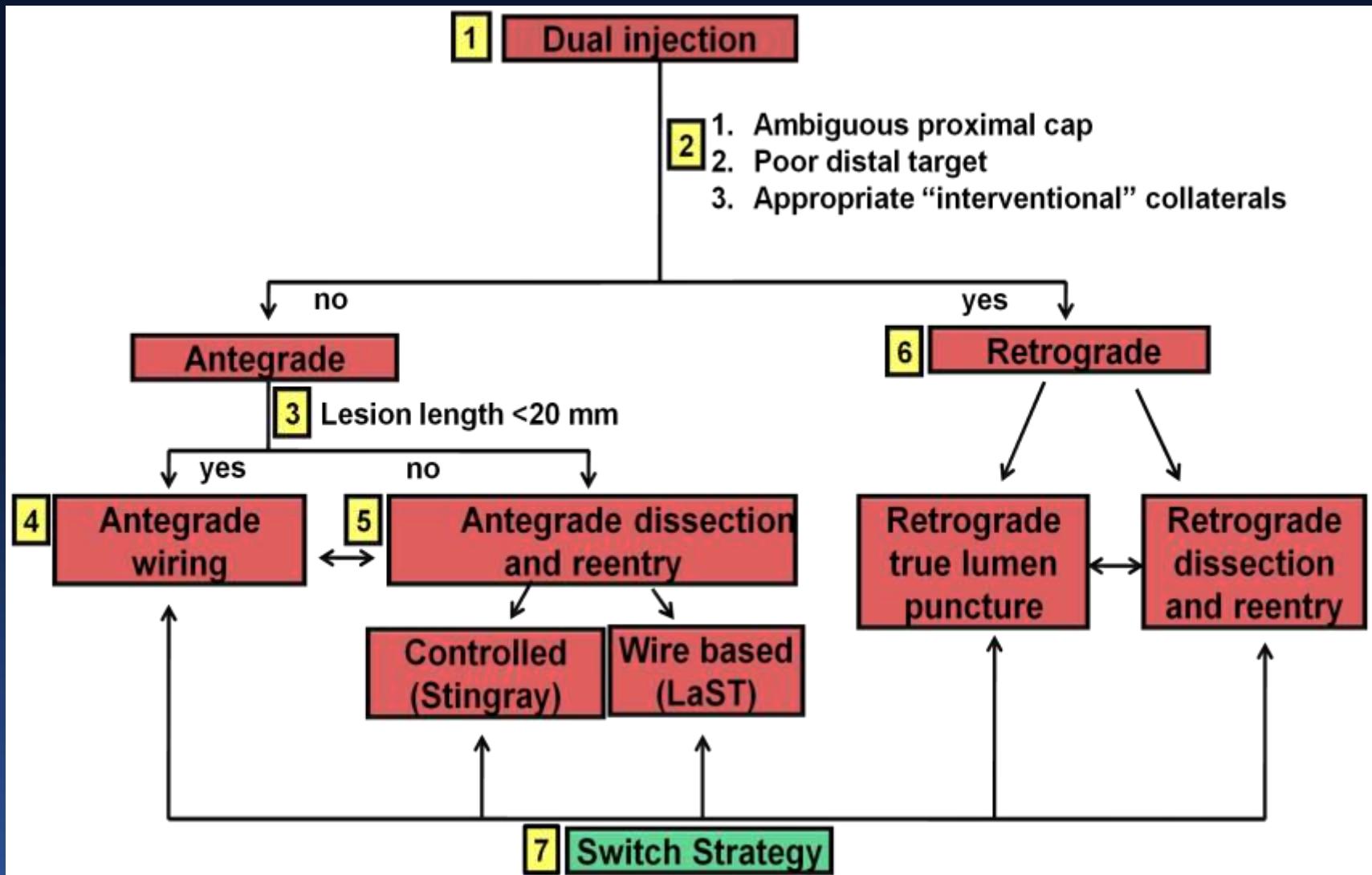
4 options to crossing CTOs

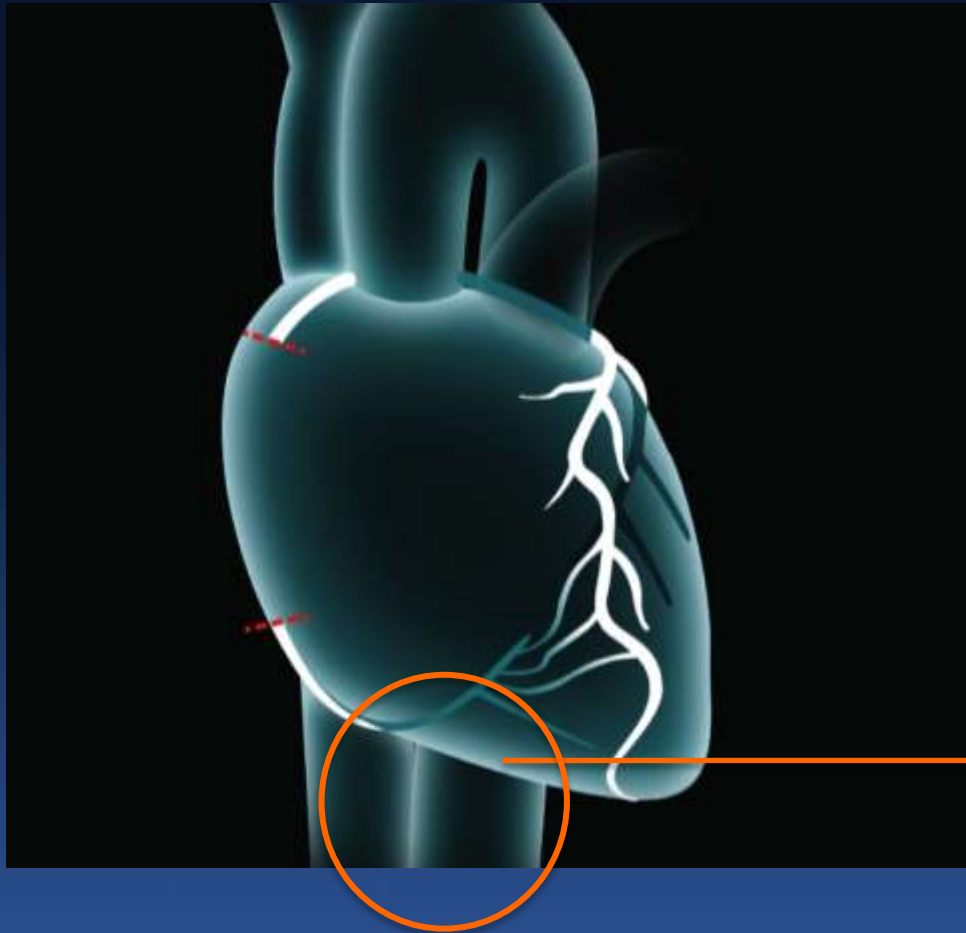


Antegrade Dissection and a Re-Entry

1. Basic Concept
2. How to select the right patient
3. How to start the dissection
4. How to navigate the body of the occlusion
5. How to re-enter
6. Tips and trips

Hybrid Strategy Treatment Algorithm

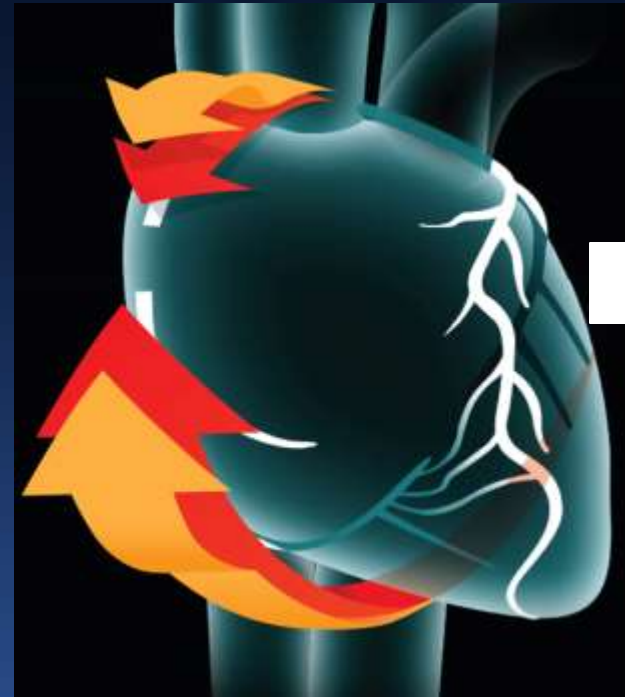




**Degree of disease
in the distal
“landing zone”**

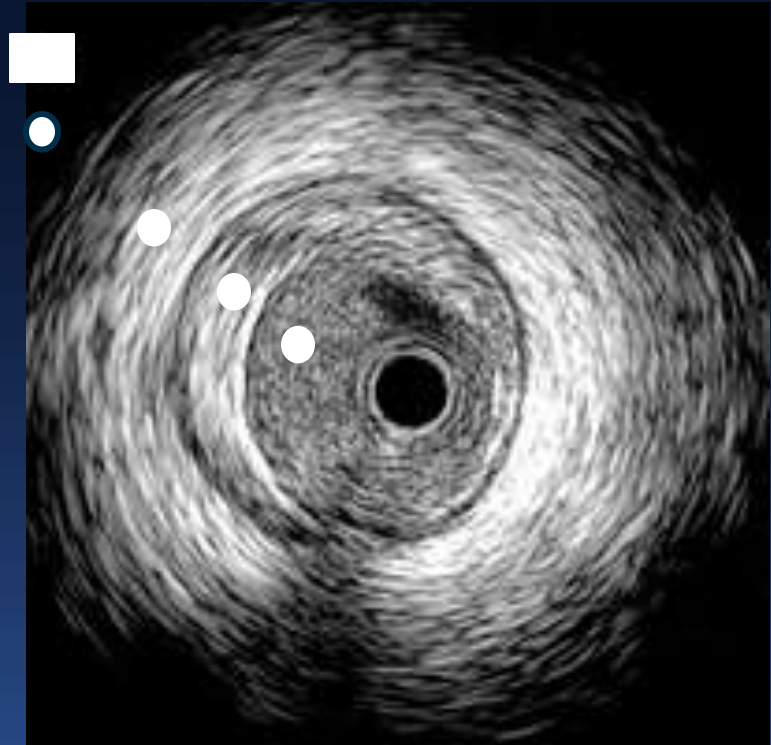
Base of Operation

- Term describing the location in the vessel at which the operator is trying to employ techniques to cross the CTO or utilize re-entry strategies to enter the true lumen



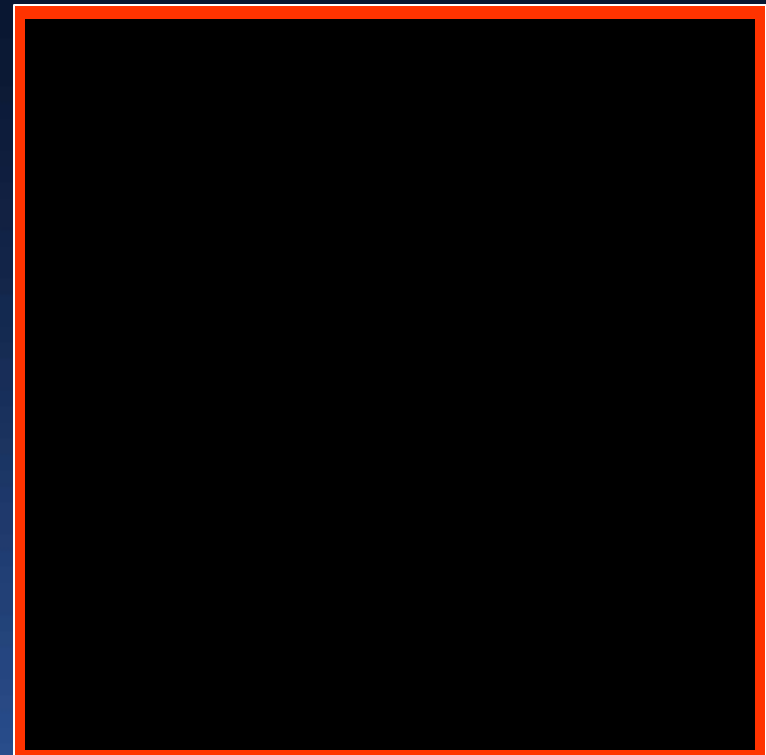
Vessel Architecture

- Term used in reference to the location of a guidewire in an effort to distinguish its binary location of either outside of the vessel (i.e. in the pericardial space) or anywhere within the three layers of the target vessel



Knuckle Wire

- Creating a blunt dissection tool by forward advancing a polymer-jacketed guidewire (Fielder XT or Pilot 200) until it prolapses on itself to form a tight loop which can be advanced past the occlusion in the suboptimal space



Antegrade Dissection Re-Entry (ADR)

1. Basic Concept



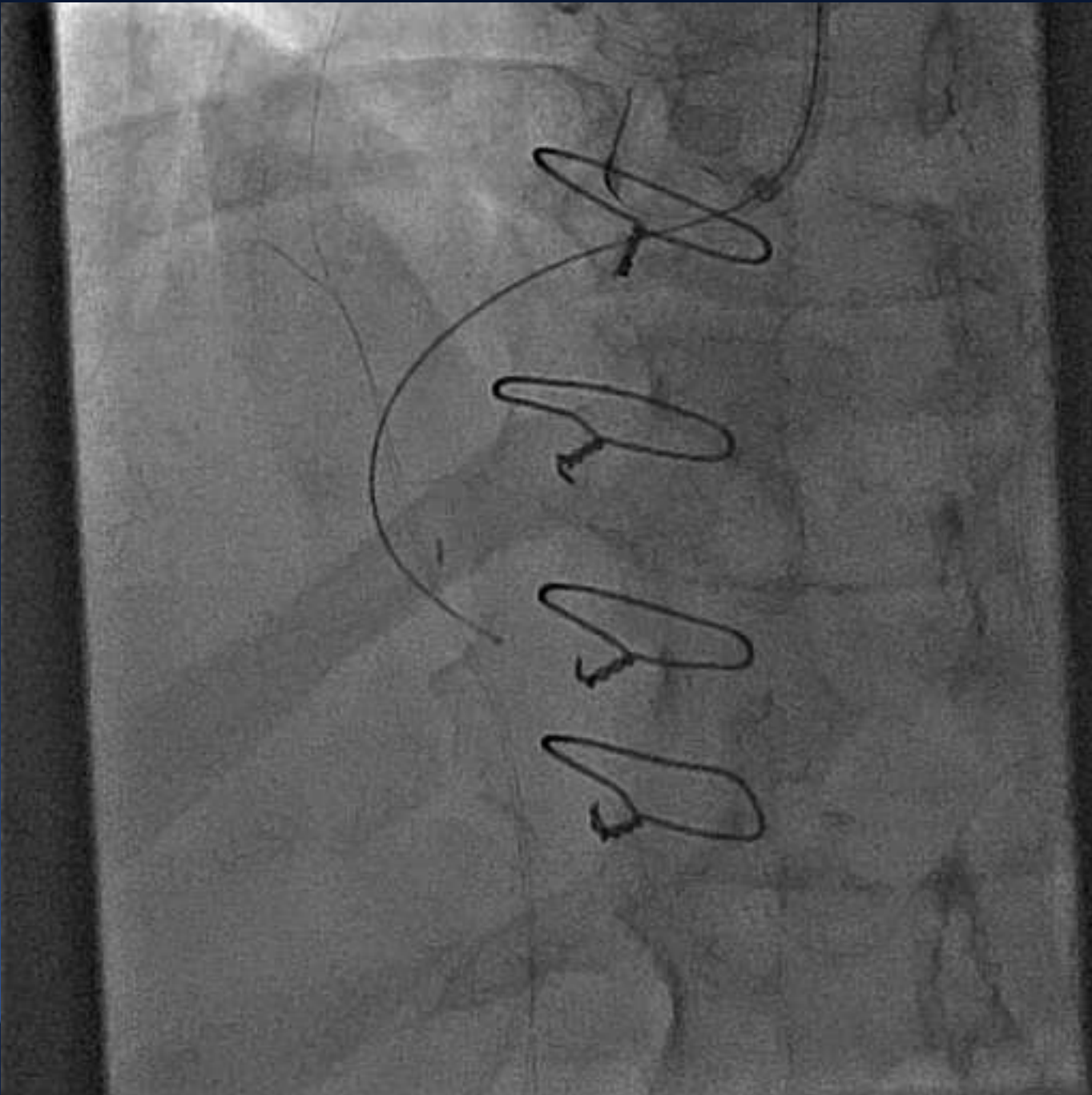
Antegrade Dissection Re-Entry (ADR)

2. How to start a dissection and how to navigate the body of the occlusion



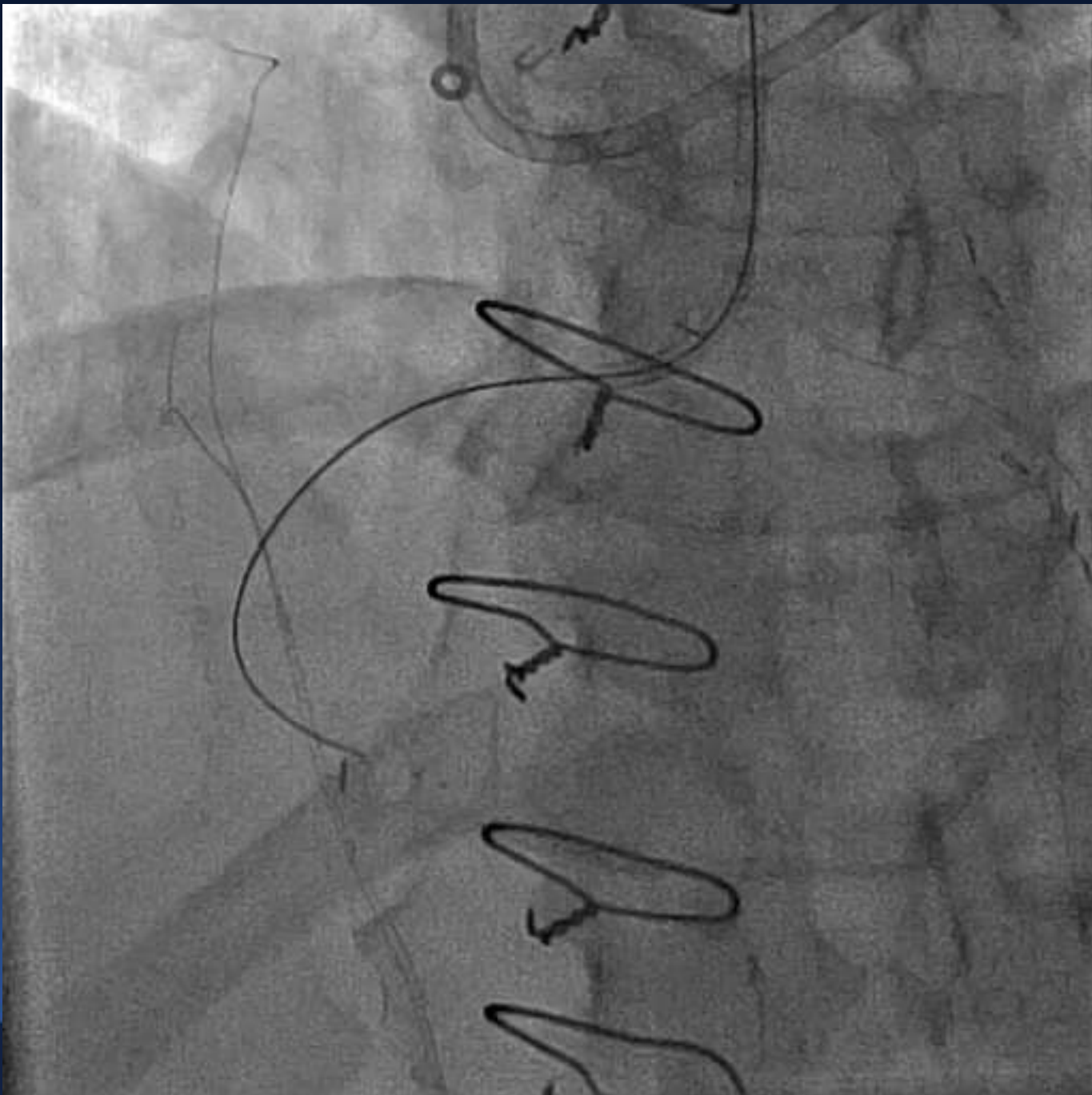
Antegrade Dissection Re-Entry (ADR)

3. How to protect the landing zone



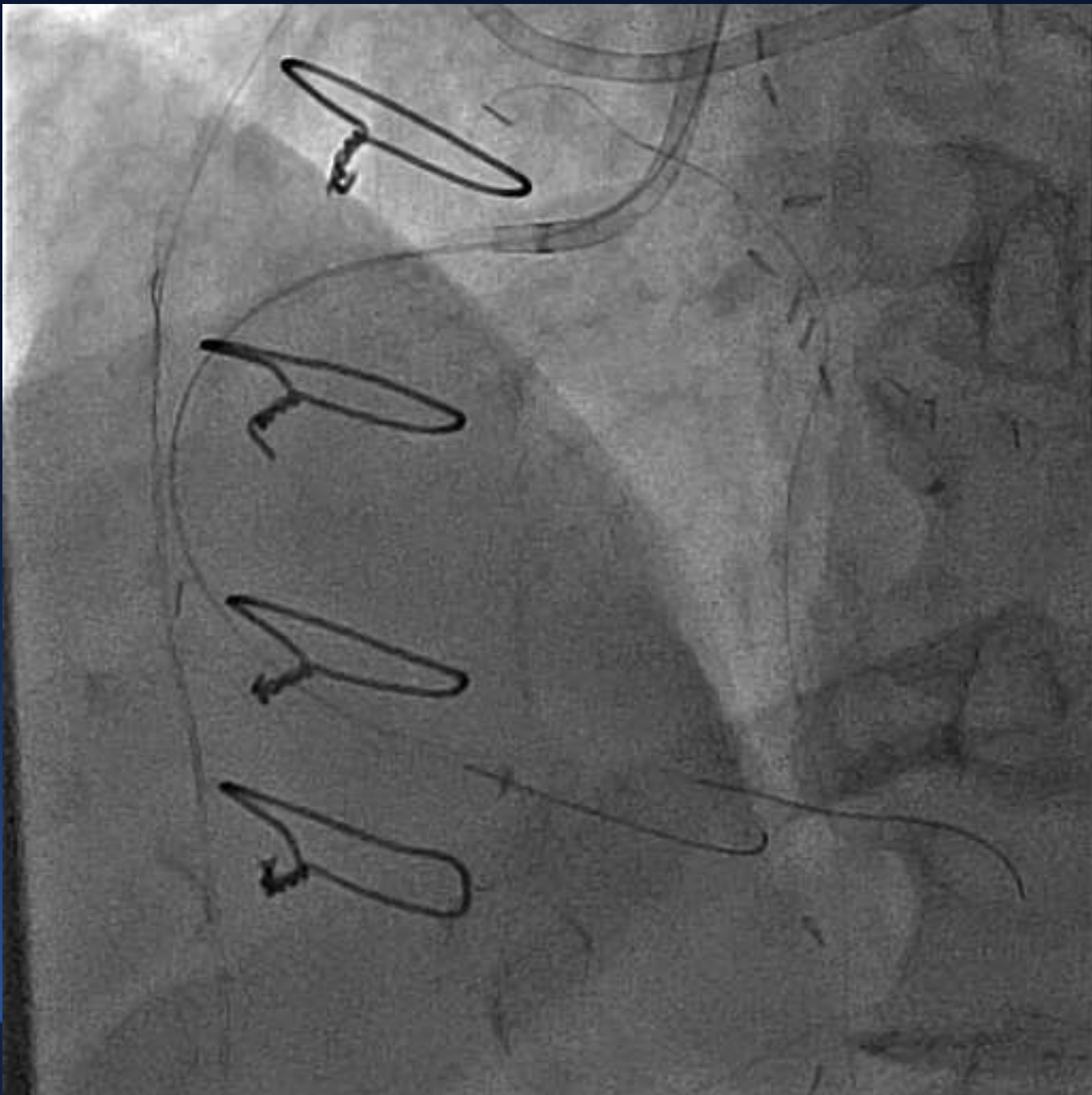
Antegrade Dissection Re-Entry (ADR)

4. How to re-enter









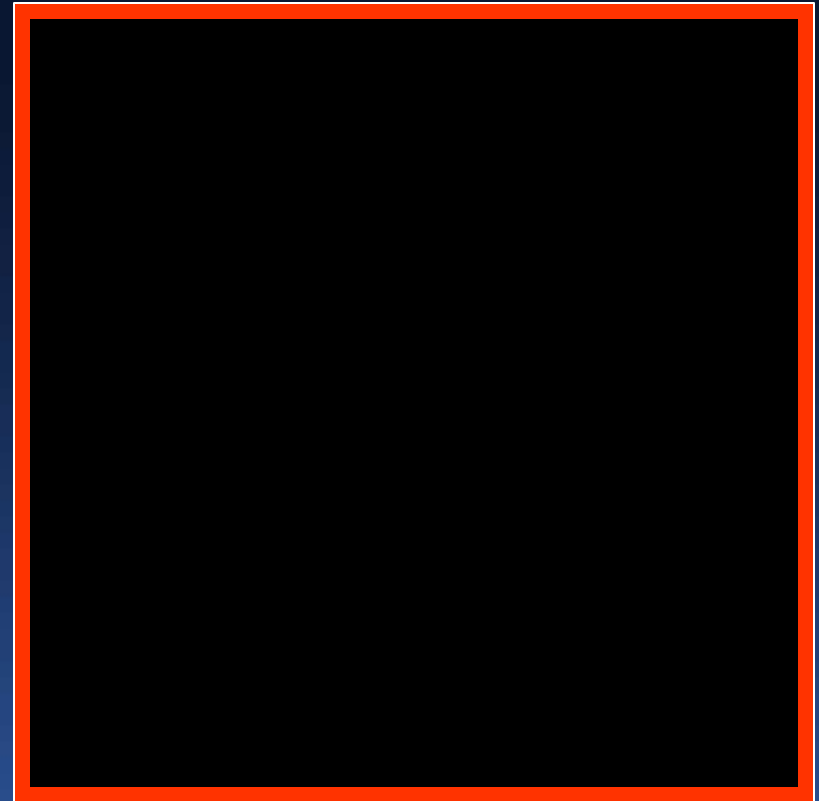


Antegrade Dissection Re-Entry (ADR)

5. Tips and tricks

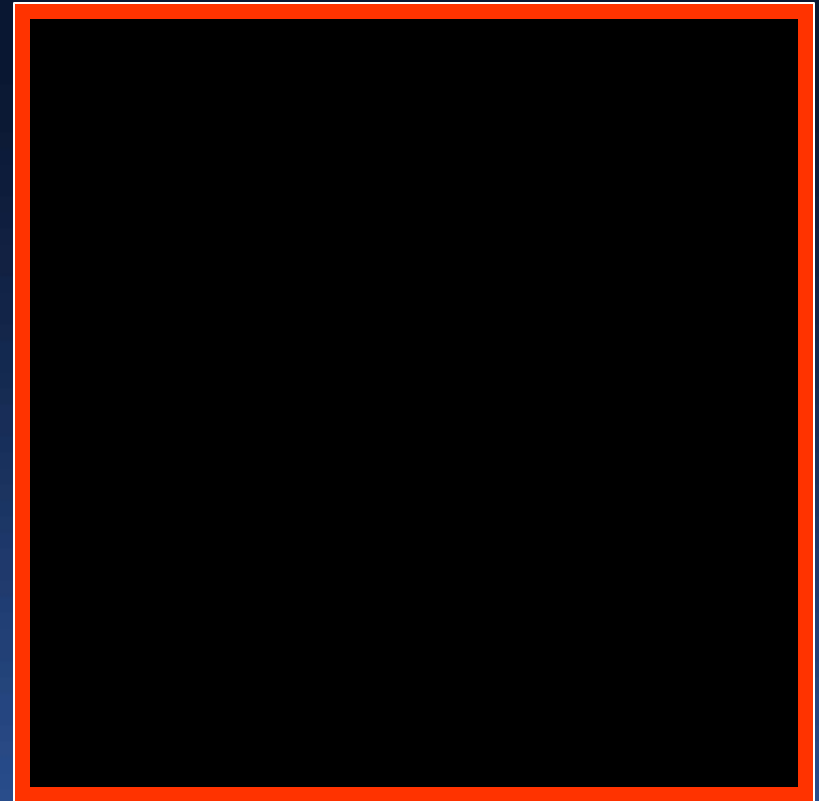
Bobsledding

- After unsuccessful StingRay re-entry, the balloon is deflated and pushed forward downstream in the subintimal space without a leading guidewire to allow for a fresh zone to attempt re-entry



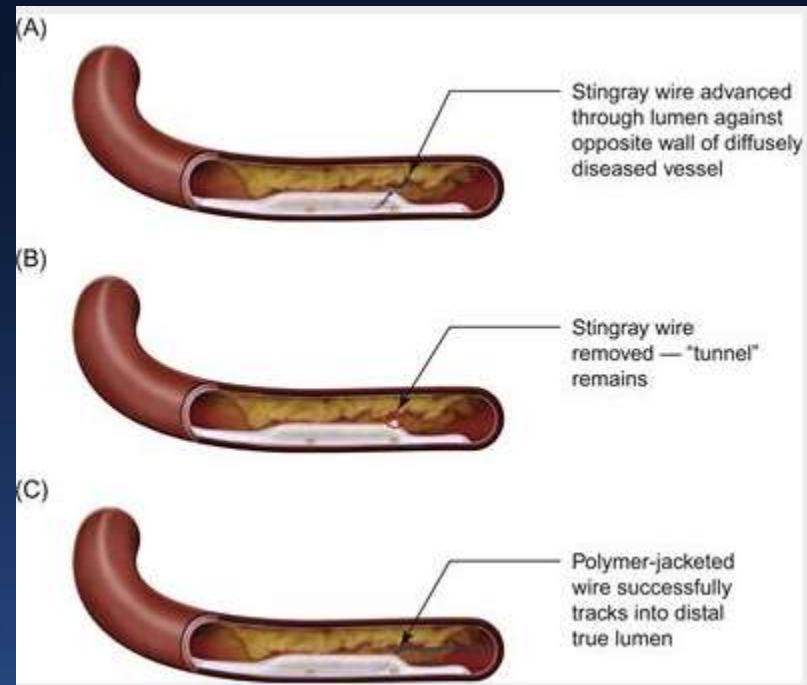
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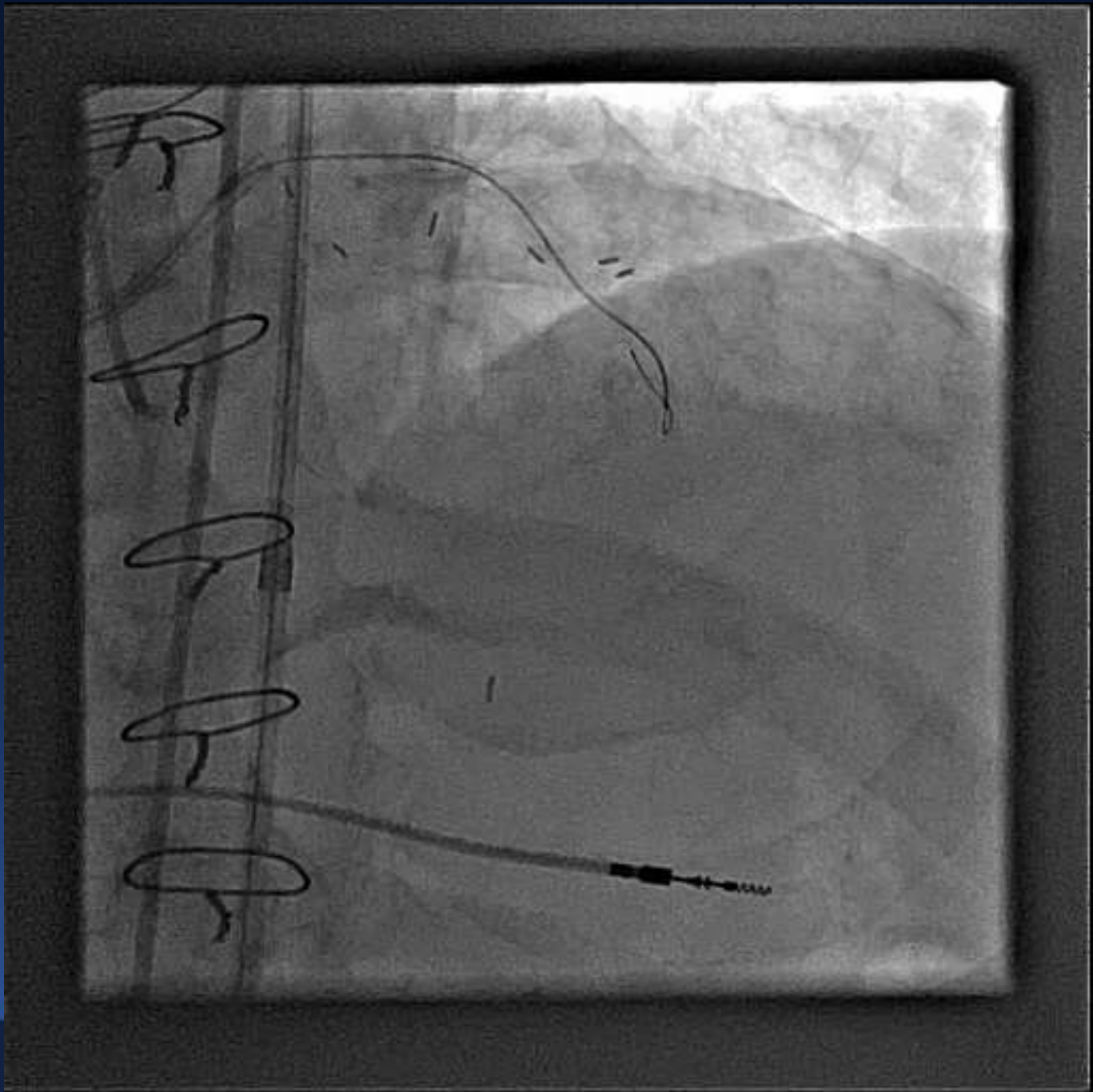


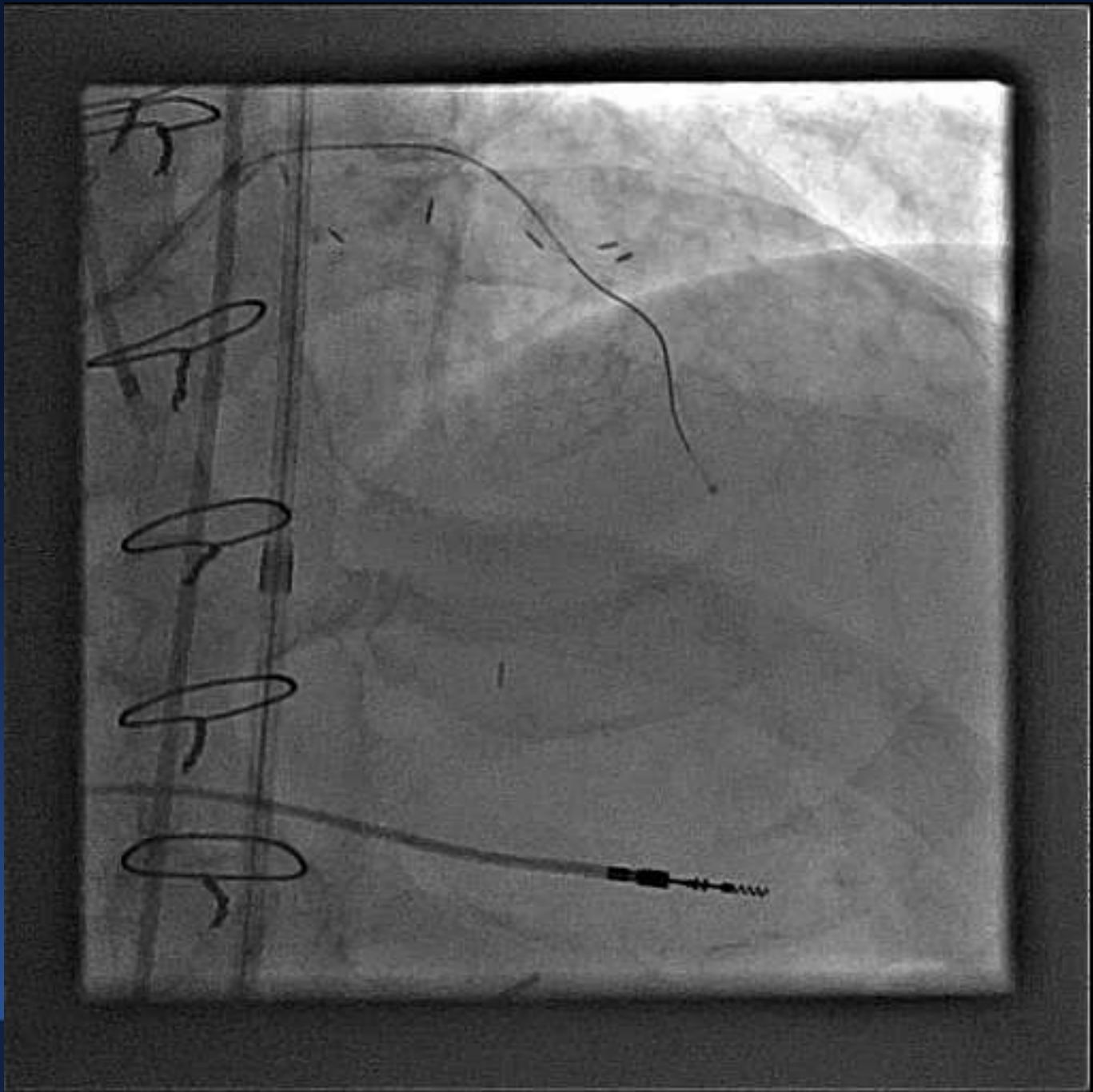
Stick and Swap

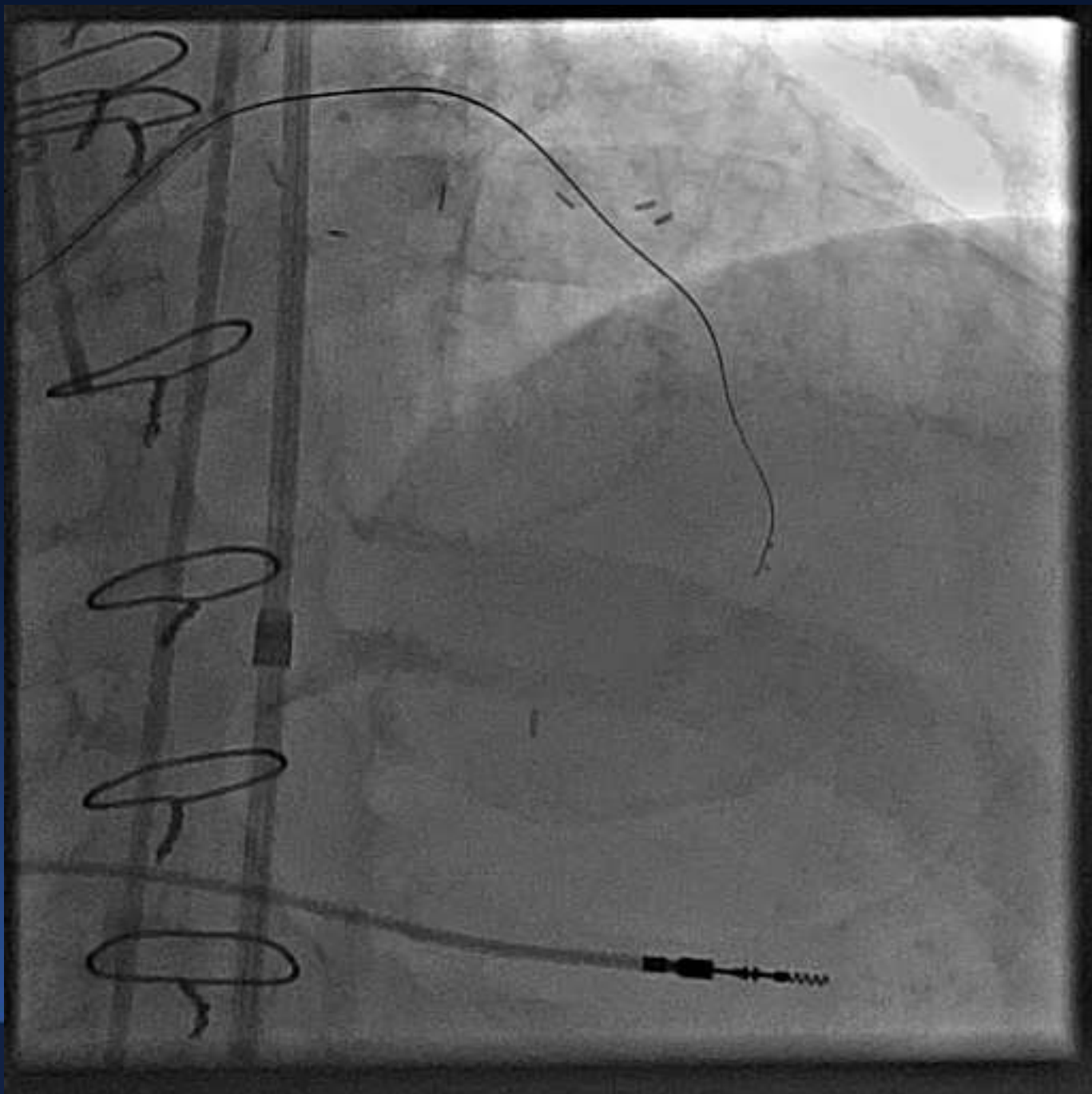
- Method of reentry in which an initial puncture into the true lumen from the Stingray balloon side-port is performed with the Stingray wire. This wire is removed and a Pilot 200 guidewire is advanced through the same tunnel created by the Stingray wire into the distal true lumen.

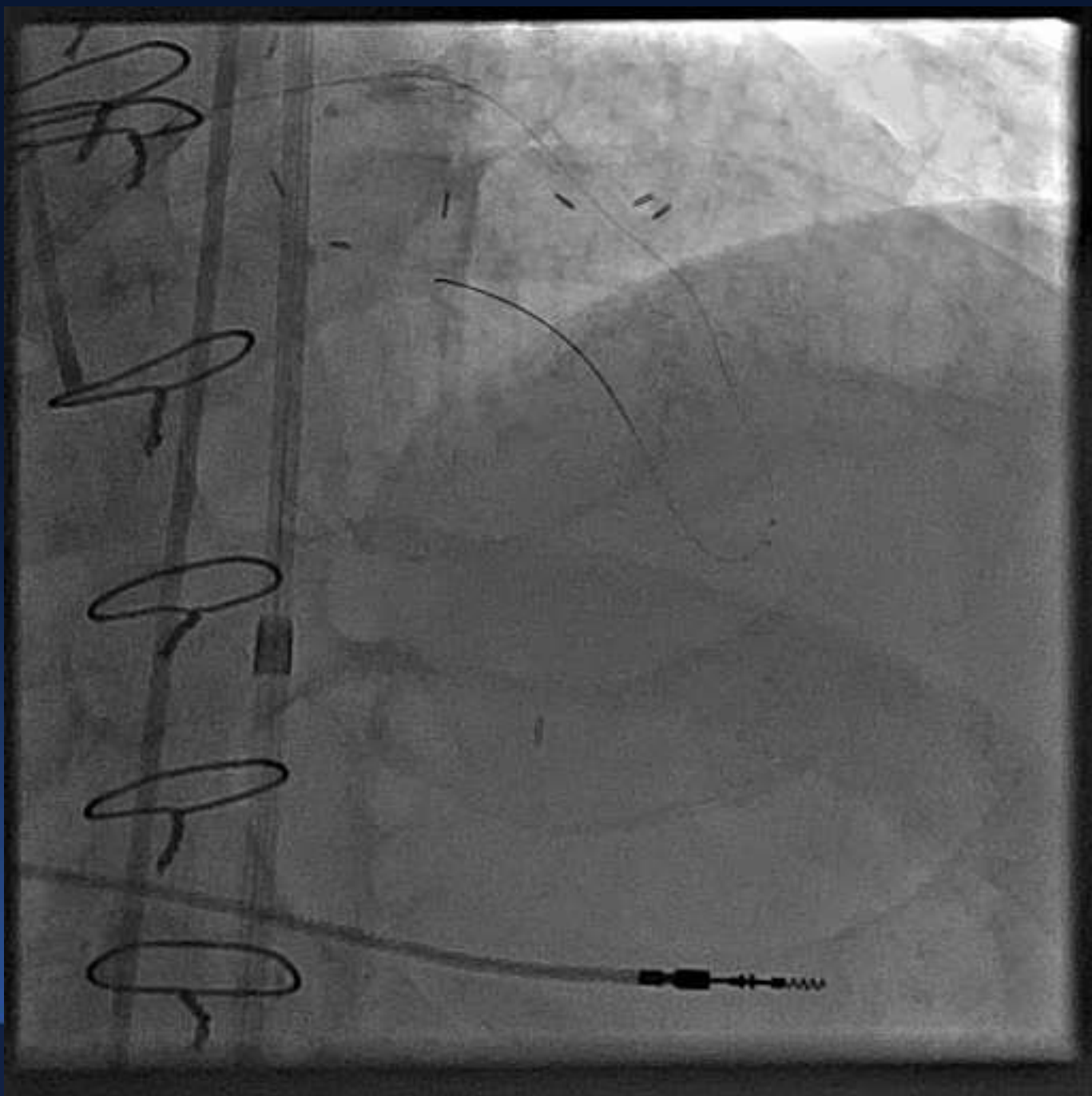










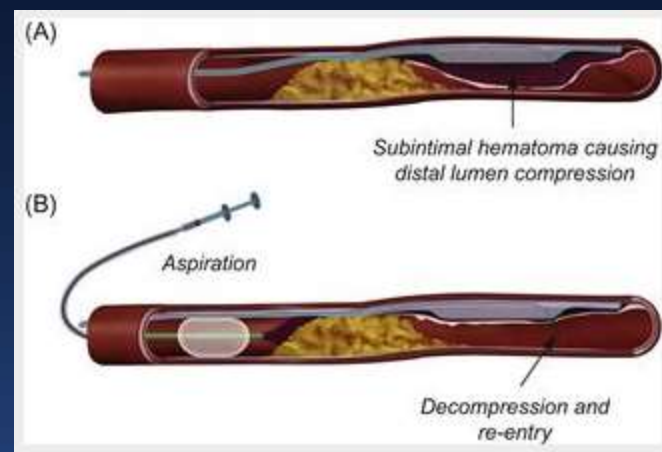




STRAW

Subintimal Transcatheter Withdrawal

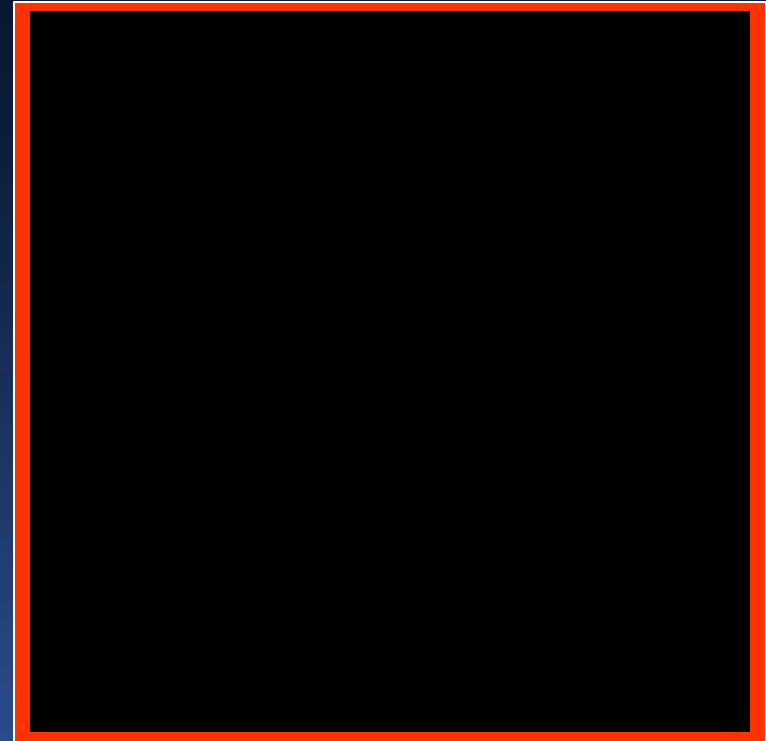
- Method used to aspirate subintimal hematoma which may develop in the dissection plane by placing an over the wire balloon or microcatheter next to the Stingray balloon and aspirating.



STAR

Subintimal Tracking And Re-entry

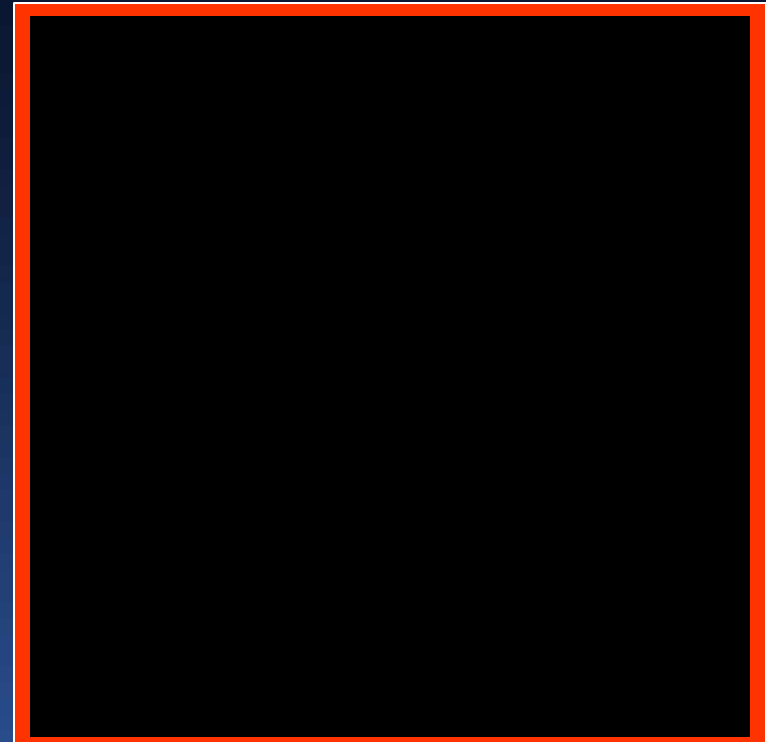
- Antegrade re-entry technique described by Antonio Columbo by entering the subintimal space with a knuckle wire and advancing the knuckled wire distally until it spontaneously re-enters the distal true lumen



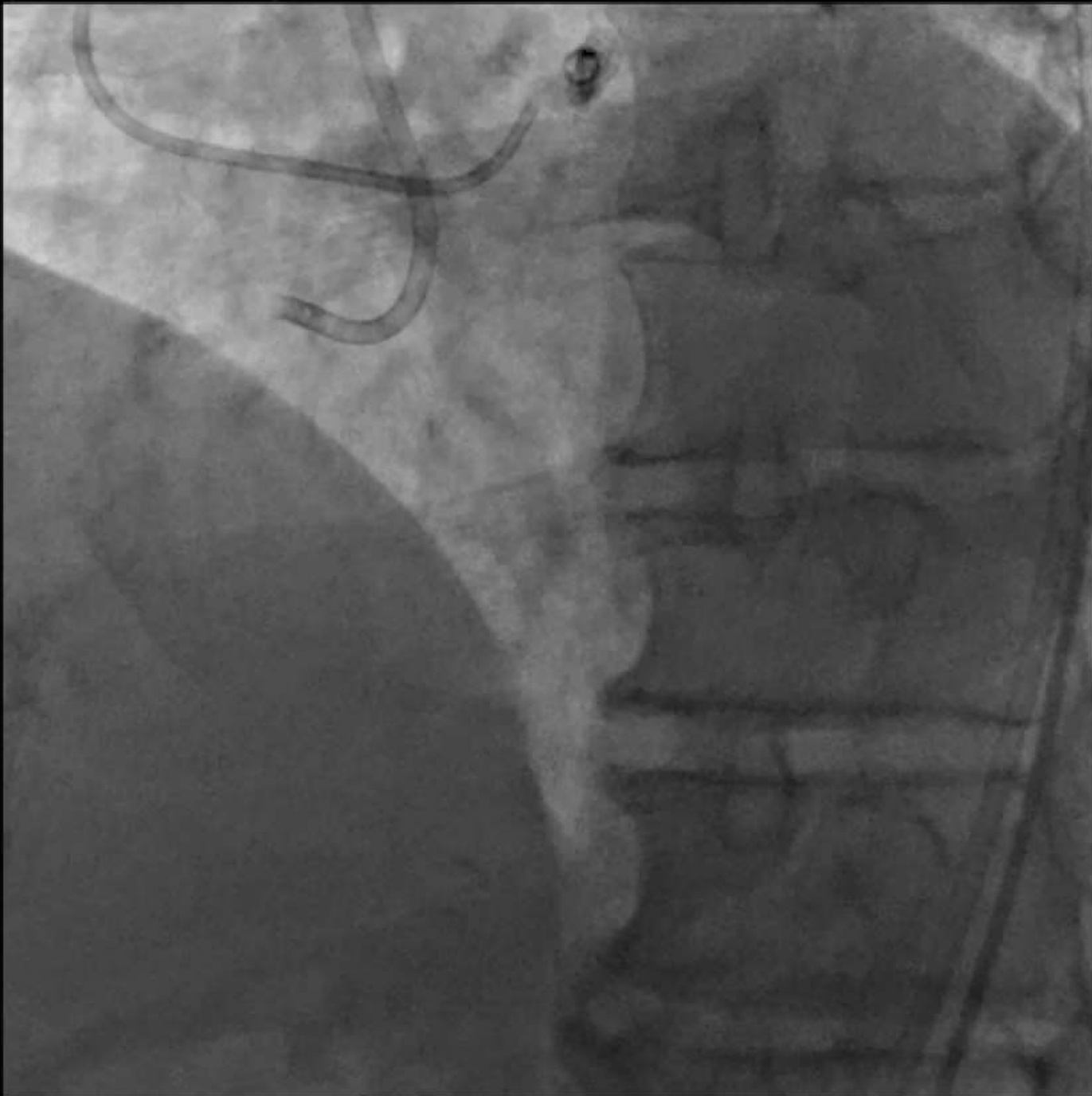
STAR

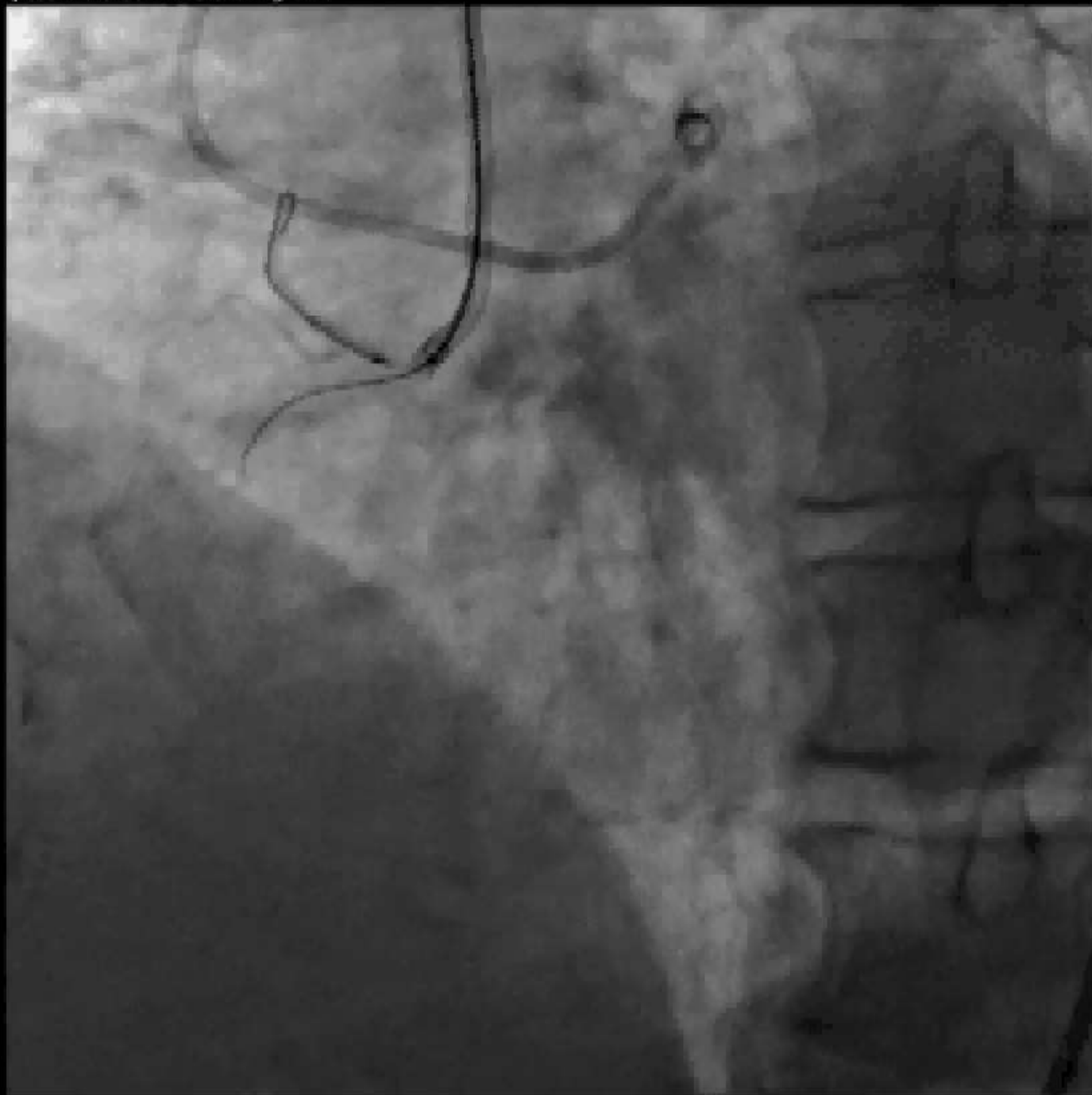
Subintimal Tracking And Re-entry

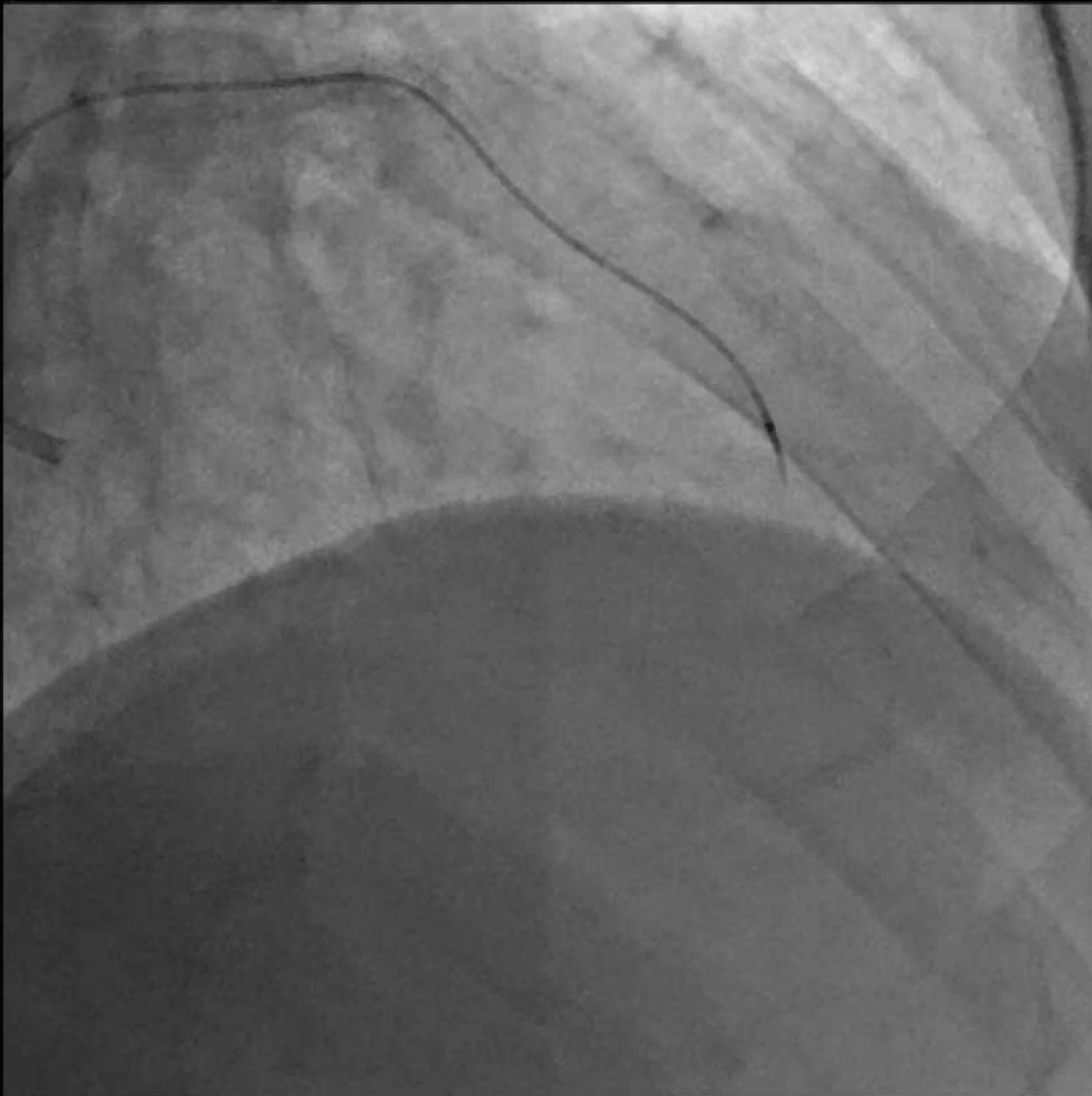
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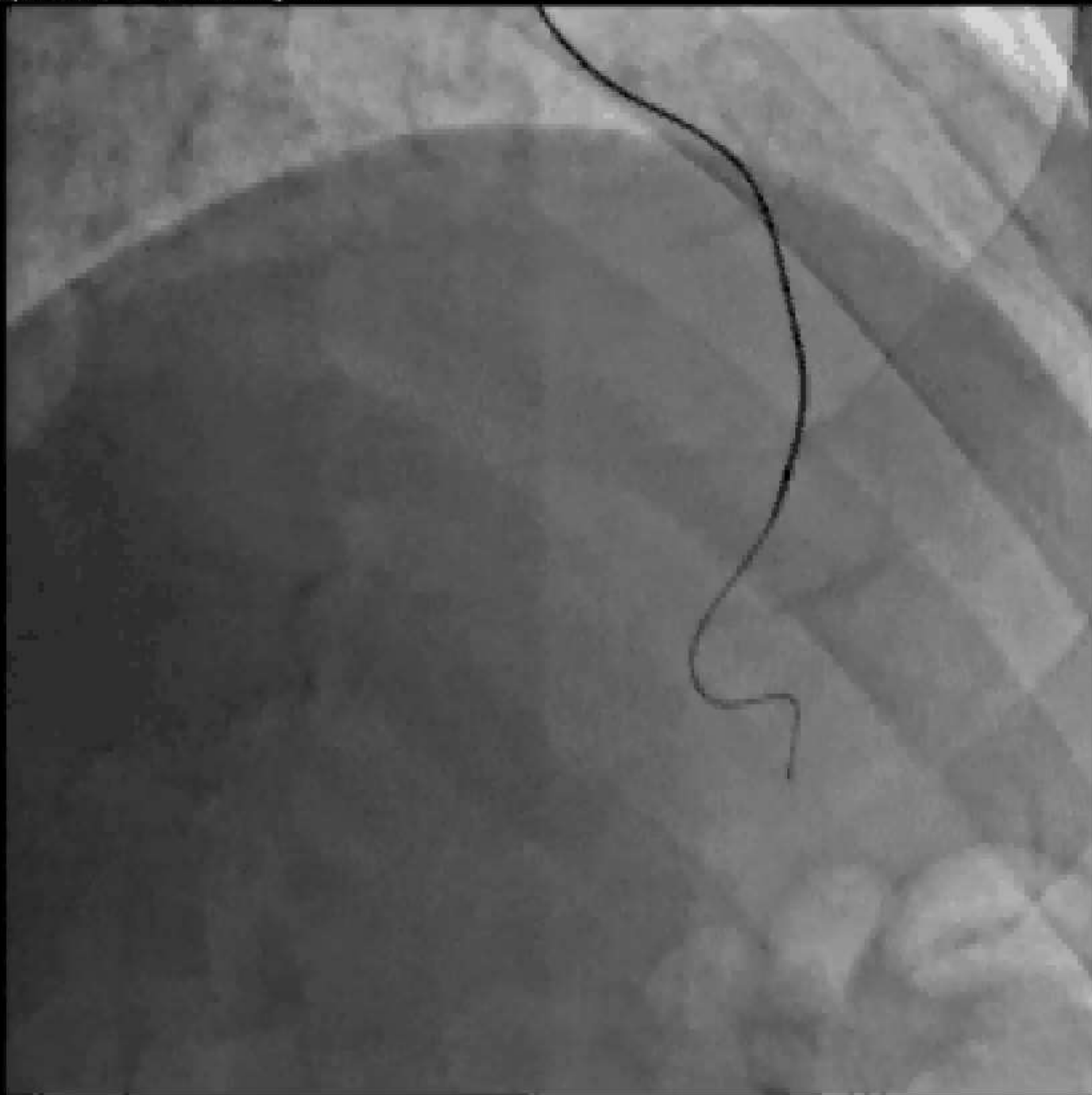


Putting it all together

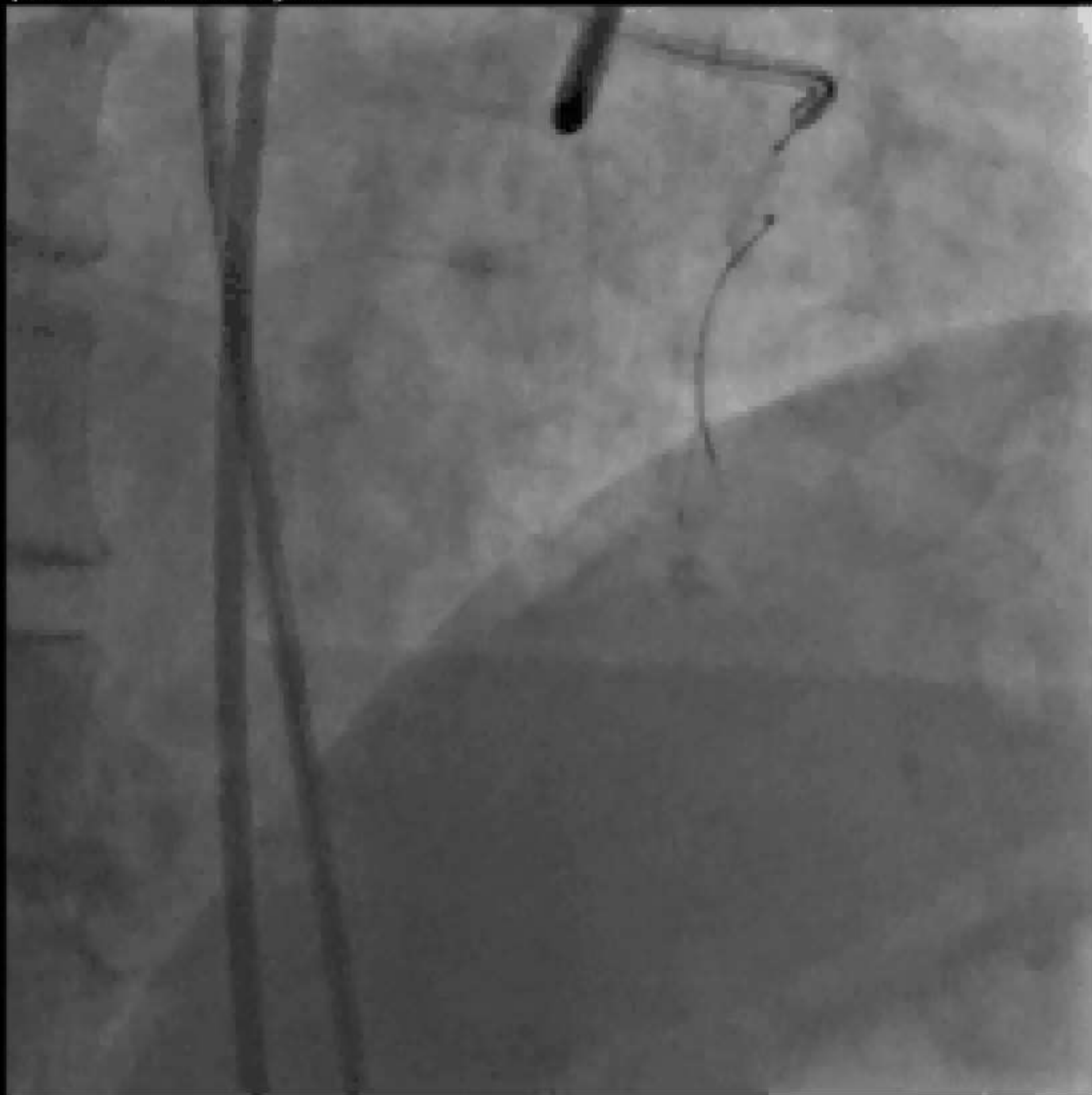




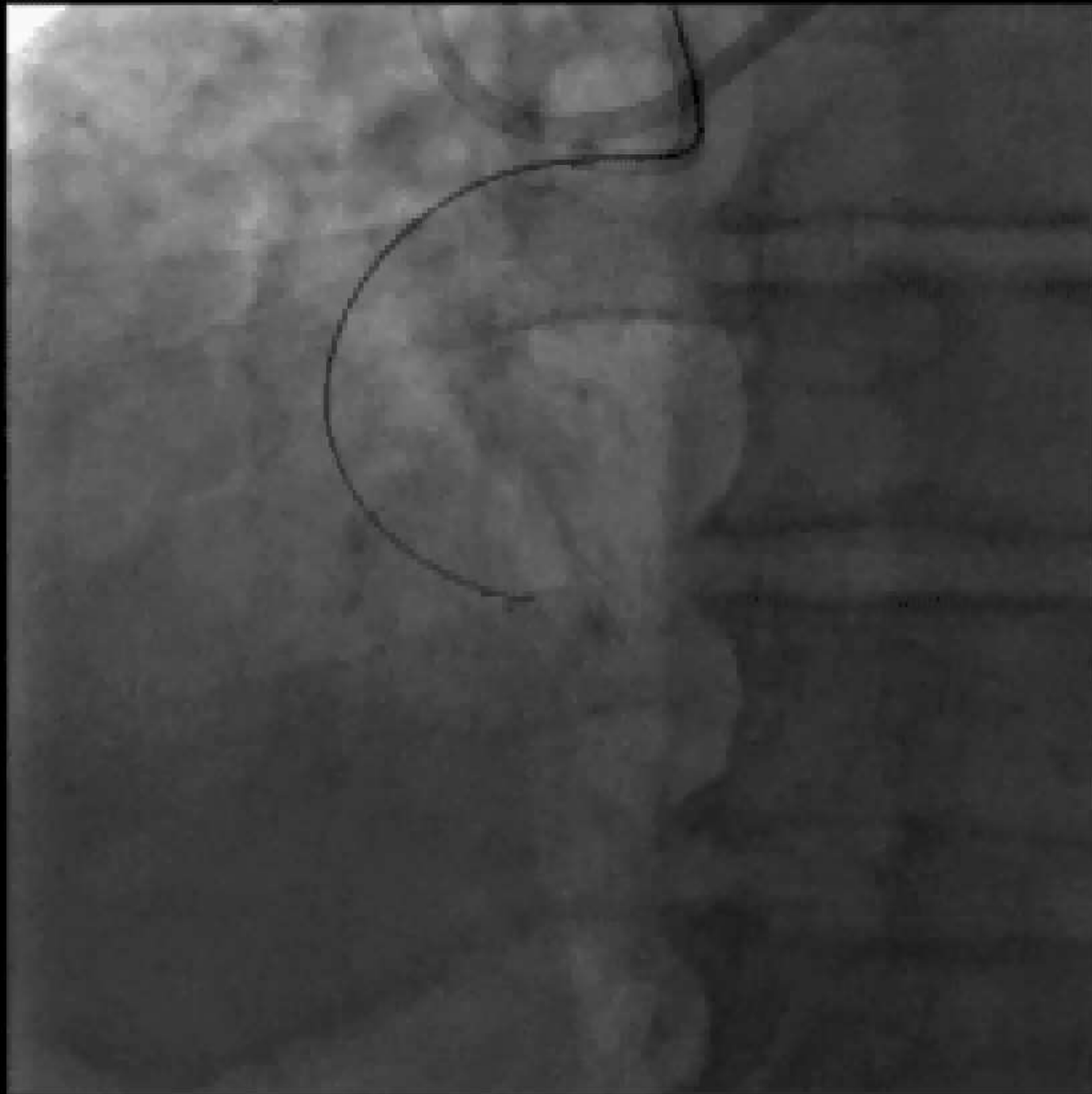
















MANUAL OF CORONARY CHRONIC TOTAL OCCLUSION INTERVENTIONS

A STEP-BY-STEP APPROACH



EMMANOUIL BRILAKIS



Release: TCT 2013