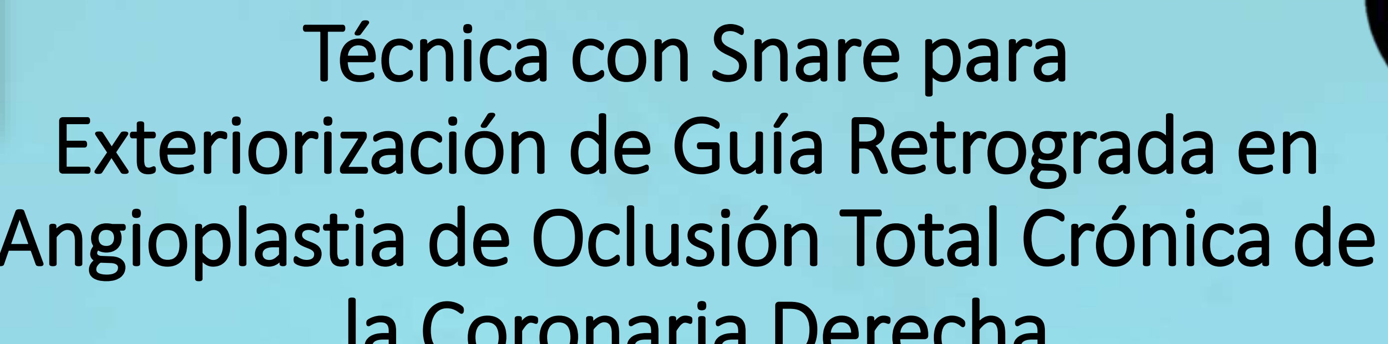
2022

IMSS

CARDIOLOGÍA U.M.A.E. 34 MONTERREY N.L.



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Observational Study

OPEN

Application of a snare technique in retrograde chronic total occlusion percutaneous coronary intervention – a step by step practical approach and an observational study

Hsiu-Yu Fang, MD*, Wei-Chieh Lee, MD, Chih-Yuan Fang, MD, Chiung-Jen Wu, MD

Abstract

Percutaneous coronary intervention (PCI) for chronic total occlusion (CTO) has recently become popular among interventional cardiologists. CTO originating from the ostium has been one of the most difficult CTO lesions to treat with PCI for a number of reasons. Our aim was to illustrate a specific technique during retrograde CTO PCI referred to as the "snare technique."

We retrospectively examined the use of "snare technique" among 371 consecutive retrograde CTO PCIs performed at our institution between 2006 and 2015.

"Snare technique" was used in 10 patients among the 371 retrograde CTO PCIs. The baseline clinical and angiographic characteristics of patients with or without "snare technique" were similar. The "snare technique" group had significantly fewer side branches at occlusion (30.0% vs 71.2%, $P=0.01$) and a higher incidence of externalization (90% vs 25.5%, $P<0.001$). The contrast volume was significantly lower in the "snare technique" group (285.0 ± 68.5 vs 379.2 ± 144.0, $P=0.04$). The incidence of major complications, retrograde success, or final success did not differ between the groups.

The "snare technique" is safe and feasible in retrograde CTO PCI, especially in cases of difficult coronary engagement in cases such as ostial occlusion, challenging coronary anatomy, or retrograde guidewire cannot get in antegrade guiding catheter.

Abbreviations: AsAo = ascending aorta, CART = controlled antegrade and retrograde subintimal tracking, CTO = chronic total occlusion, DES = drug eluting stent, IVUS = intravascular ultrasound, LAD = left anterior descending artery, PCI = percutaneous coronary intervention, RCA = right coronary artery, TIMI = thrombolysis in myocardial infarction.

Keywords: chronic total occlusion, percutaneous coronary intervention, snare

CENTRAL ILLUSTRATION: The Global Chronic Total Occlusion Crossing Algorithm

1. Dual Injection
2. Careful analysis of angiogram

3. Proximal cap ambiguity

Yes

Presence of Side Branch

No

Yes

Move the cap

Intravascular Ultrasound

Yes

No

4. Poor distal vessel quality

Yes

5. Feasible Retrograde Option

No

No

Yes

6. Antegrade wiring

7. Retrograde Approach

Fail

Fail

Fail

8. Change Strategy

6a. Parallel Wiring/ IVUS

or

6b. Antegrade dissection and re-entry

Success

No

Fail

Fail

10. Consider stopping if >3 hours;
3x estimated glomerular filtration rate ml contrast;
Air Kerma >5 Gy unless procedure well advanced.

Yes

9. Investment

10. Stop

Wu, E.B. et al. J Am Coll Cardiol. 2021;78(8):840-853.

CI

Caso clínico

Datos demográficos

- Género: Masculino
- Edad: 58 años

Presentación clínica

- Angina CCS III

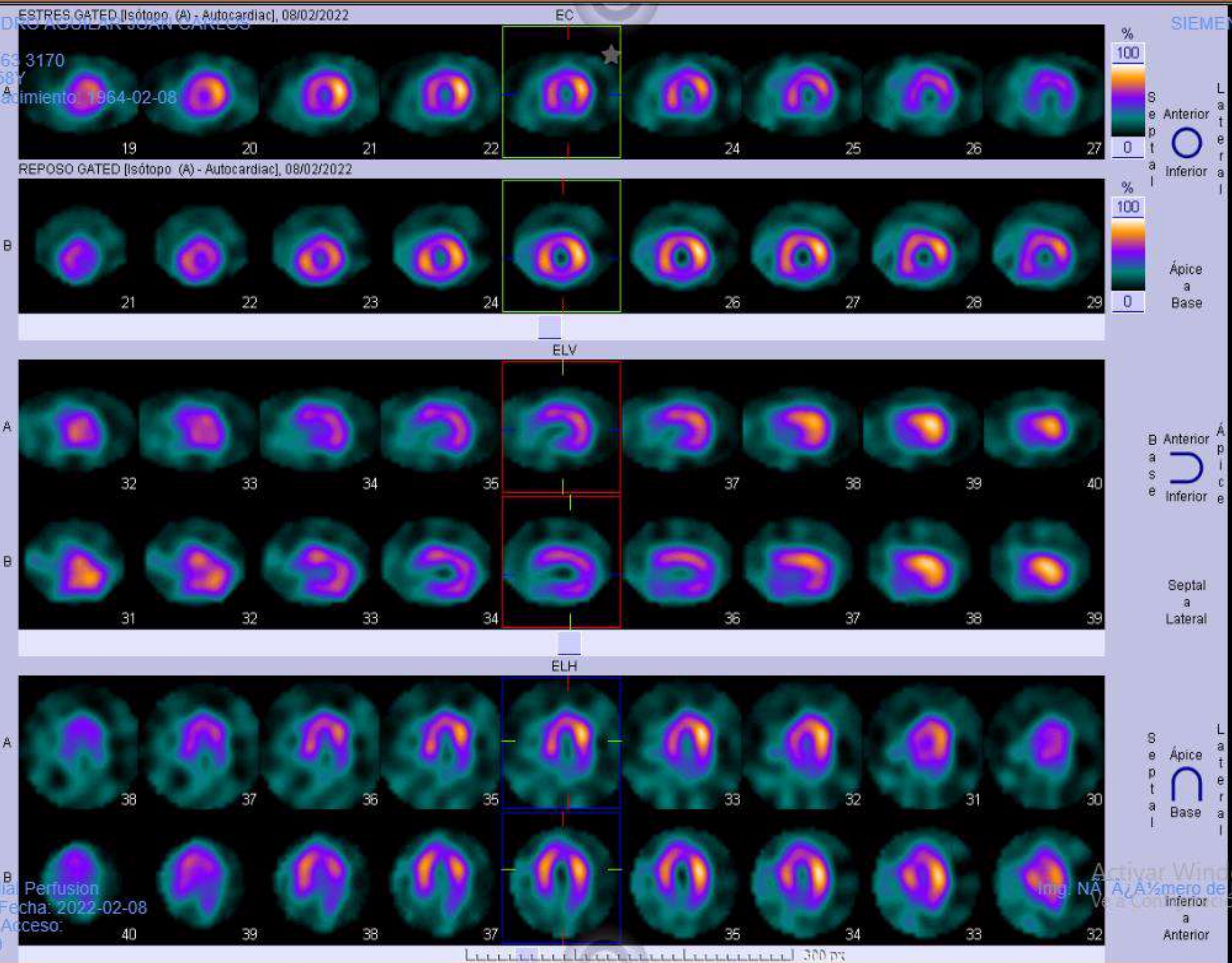
Historia médica

- HAS 1 año de dx, tx. Enalapril 10mg VO cada 24 horas.
- DM 2 3 años de dx, tx. Metformina 850mg VO cada 24 horas.
- Dislipidemia mixta 1 año de dx, tx. Atorvastatina VO cad 24 horas.

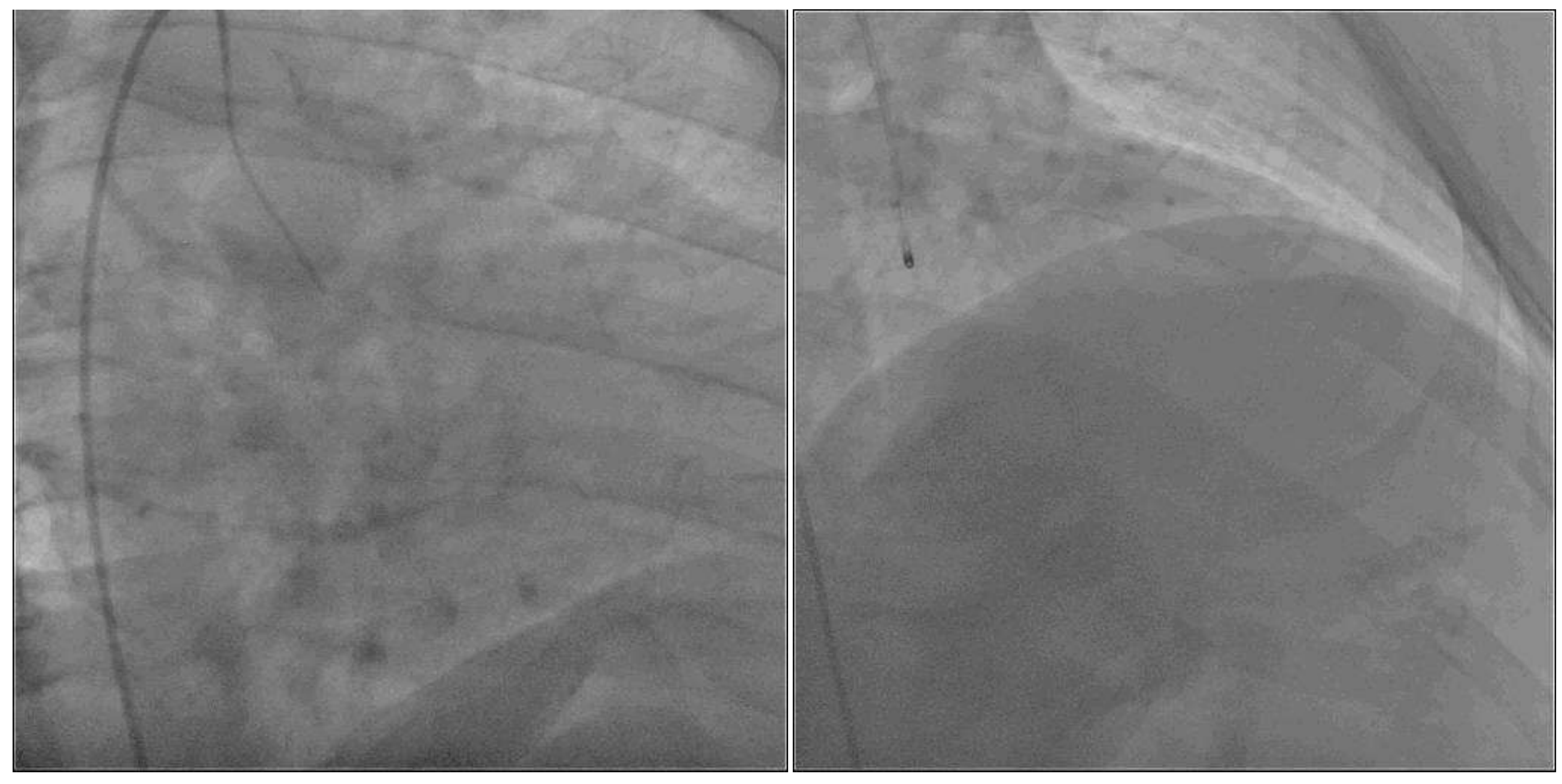
Estudios de laboratorio y gabinete

- **Labs (03/02/22):** Hb 15, cr 1.1, TP 11, INR 1.0
- **Ecocardiograma (04/02/22):** VI con hipocinesia inferolateral basal y media, anterolateral basal y media e
- inferior basal y media, FEVI 47%, sin valvulopatías, PSAP 26mmHg.
- **Gamagrama de perfusión/viabilidad miocárdica (08/02/22):** Isquemia severa inferior de punta a base,
- isquemia moderada septal basal y media.

Paciente: JCAA
NSS: 4386633170 1M1963OR

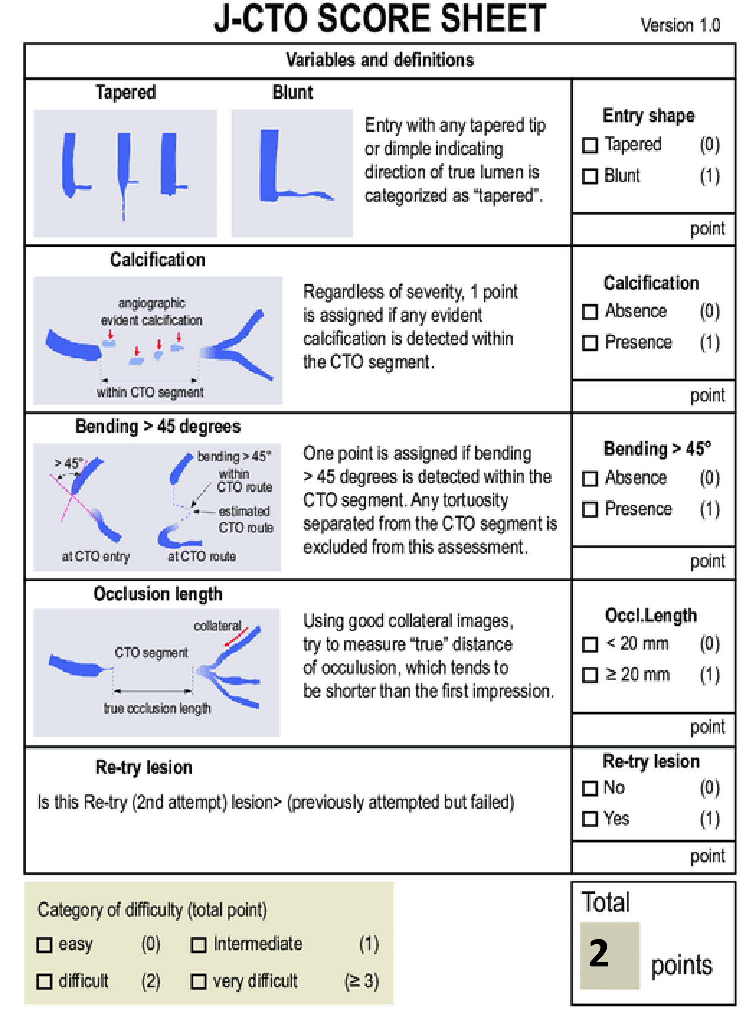

ESTRES GATED [Isótopo (A) - Autocardiac], 08/02/2022
EC
REPOSO GATED [Isótopo (A) - Autocardiac], 08/02/2022
ELV
ELH
Anterior
Inferior
Septal
Lateral
Ápice a Base
Base
Ápice
Septal a Lateral
Inferior a Anterior
%
100
0
SIEMENS
Fecha: 2022-02-08
Acceso:
Perfusion
nacimiento: 1964-02-08
300 px

Coronariografía 10/02/22



JCTO SCORE

- Coronaria derecha: JCTO 2.



J-CTO SCORE SHEET

Version 1.0

Variables and definitions	
Tapered / **Blunt** Entry with any tapered tip or dimple indicating direction of true lumen is categorized as "tapered".	**Entry shape** ☐ Tapered (0) ☐ Blunt (1) point
Calcification angiographic evident calcification; within CTO segment Regardless of severity, 1 point is assigned if any evident calcification is detected within the CTO segment.	**Calcification** ☐ Absence (0) ☐ Presence (1) point
Bending > 45 degrees > 45°; at CTO entry; bending > 45° within CTO route; estimated CTO route; at CTO route One point is assigned if bending > 45 degrees is detected within the CTO segment. Any tortuosity separated from the CTO segment is excluded from this assessment.	**Bending > 45°** ☐ Absence (0) ☐ Presence (1) point
Occlusion length collateral; CTO segment; true occlusion length Using good collateral images, try to measure "true" distance of occulusion, which tends to be shorter than the first impression.	**Occl.Length** ☐ < 20 mm (0) ☐ ≥ 20 mm (1) point
Re-try lesion Is this Re-try (2nd attempt) lesion> (previously attempted but failed)	**Re-try lesion** ☐ No (0) ☐ Yes (1) point

Category of difficulty (total point)

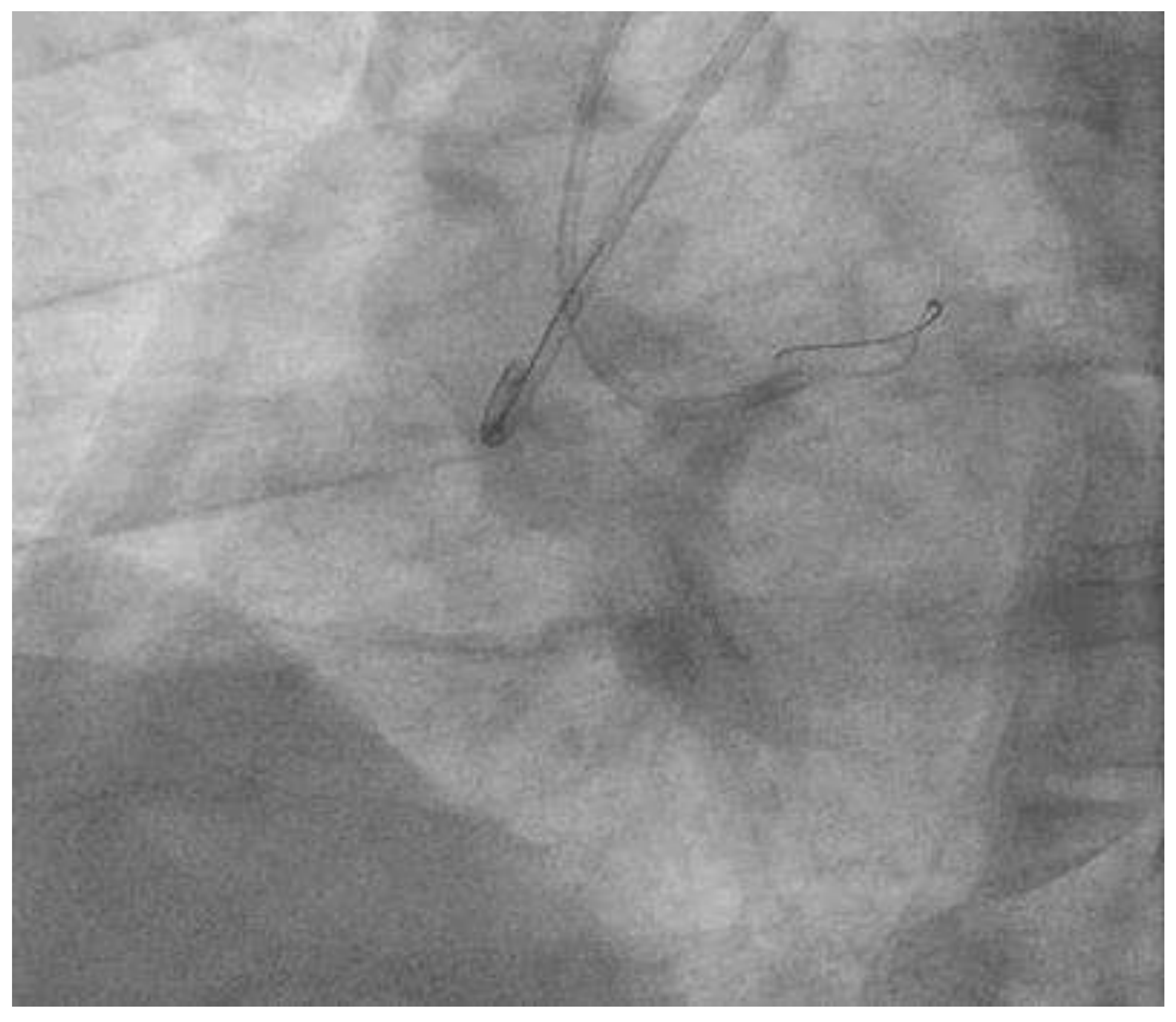
☐ easy	(0)	☐ Intermediate	(1)
☐ difficult	(2)	☐ very difficult	(≥ 3)

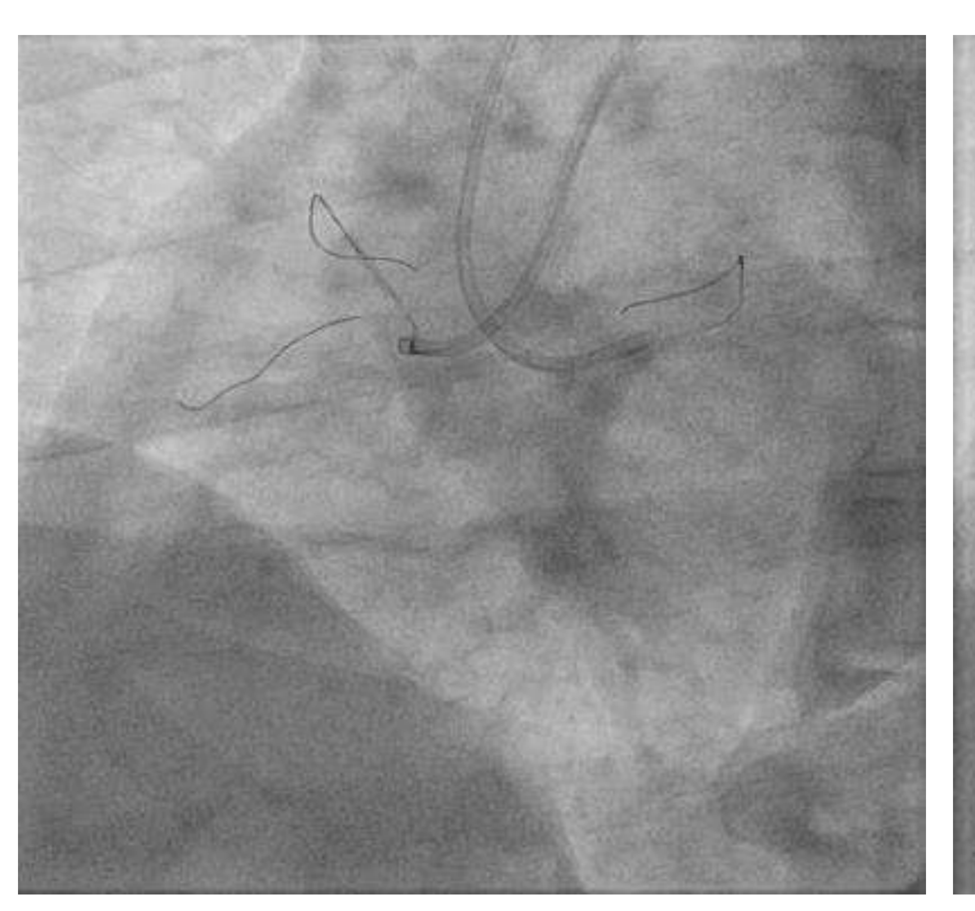
Total **2** points

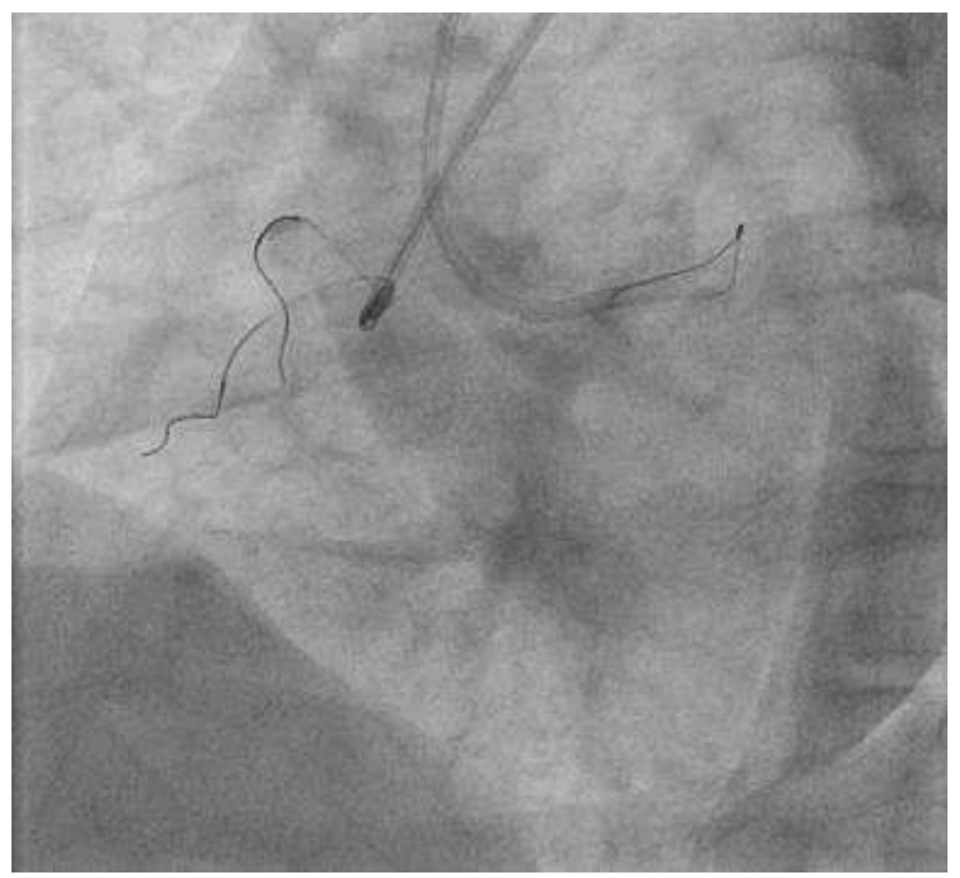
TIME OUT

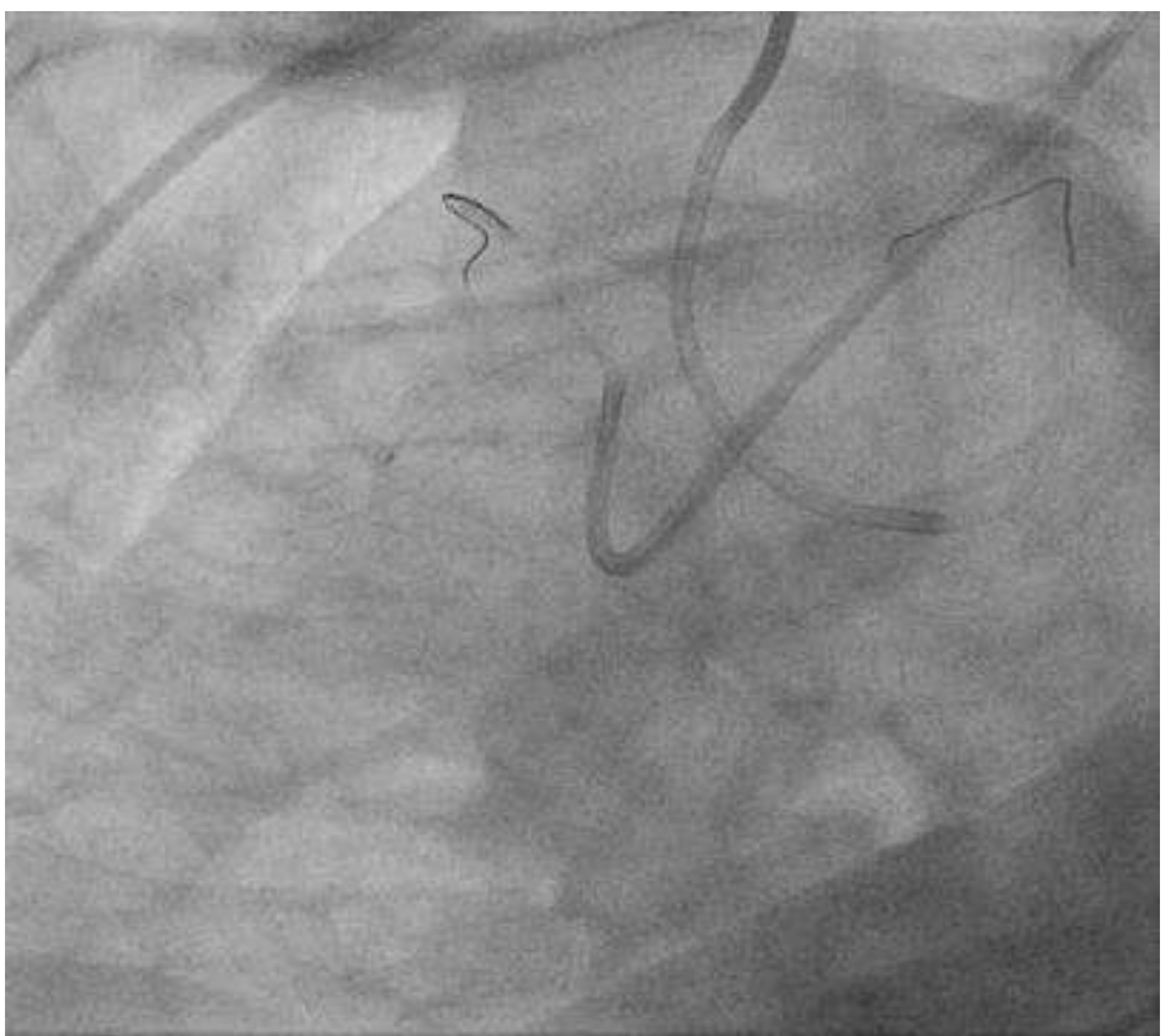
- **Accesos:** Radial distal/proximal derecho e izquierdo, con introductores Slender 7/6Fr.
- **Catéter:** TCI: con EBU c 3 7Fr.
  CD: AL 1 7 Fr.
- **Guía coronaria de abordaje inicial:** Abordaje anterógrado con microcatéter y guía Fighter-Pilot 200 y Hornet 14.
- **Técnica:** AWE, ADR, RWE, RDR.

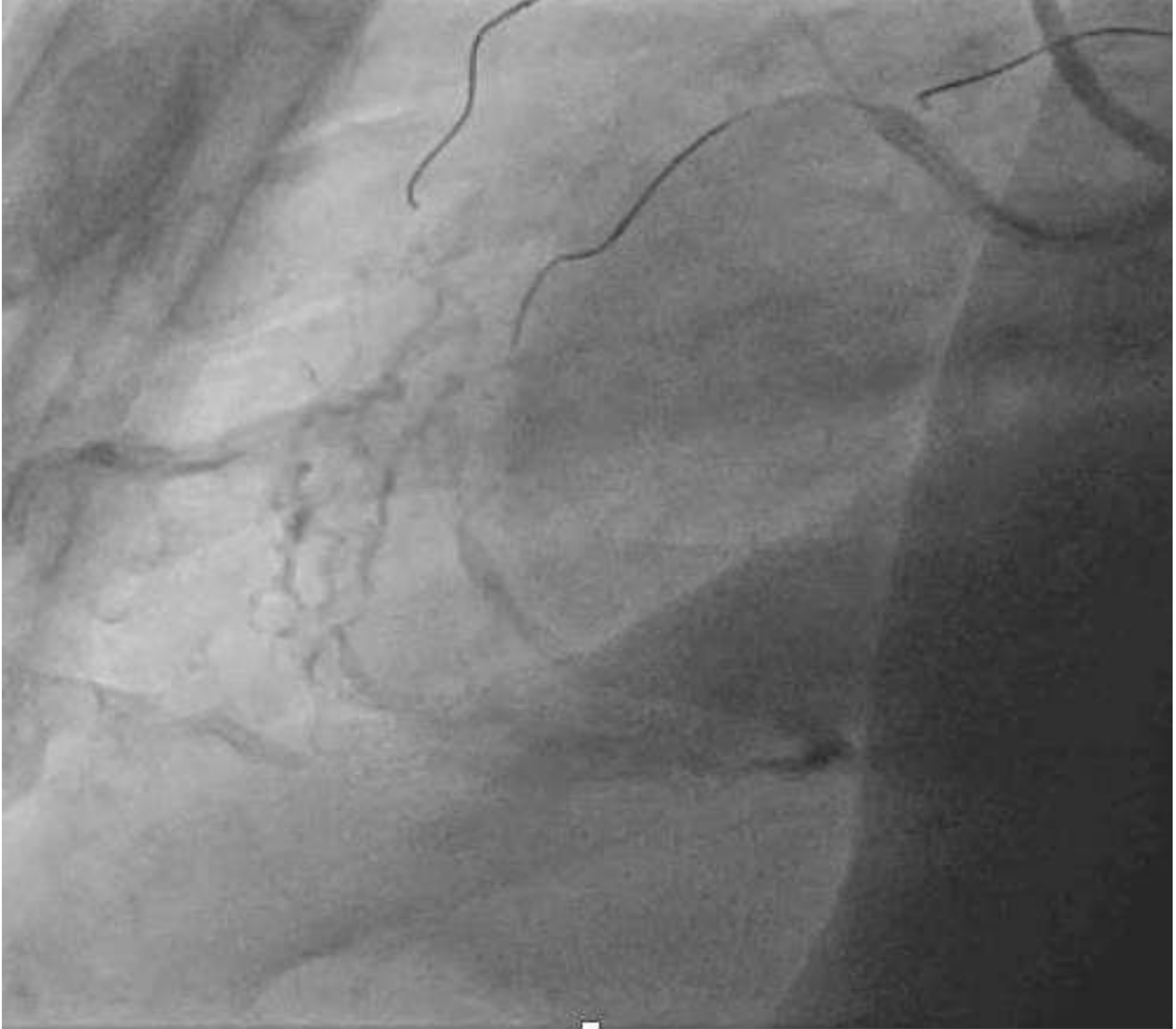
ICP 09/03/22

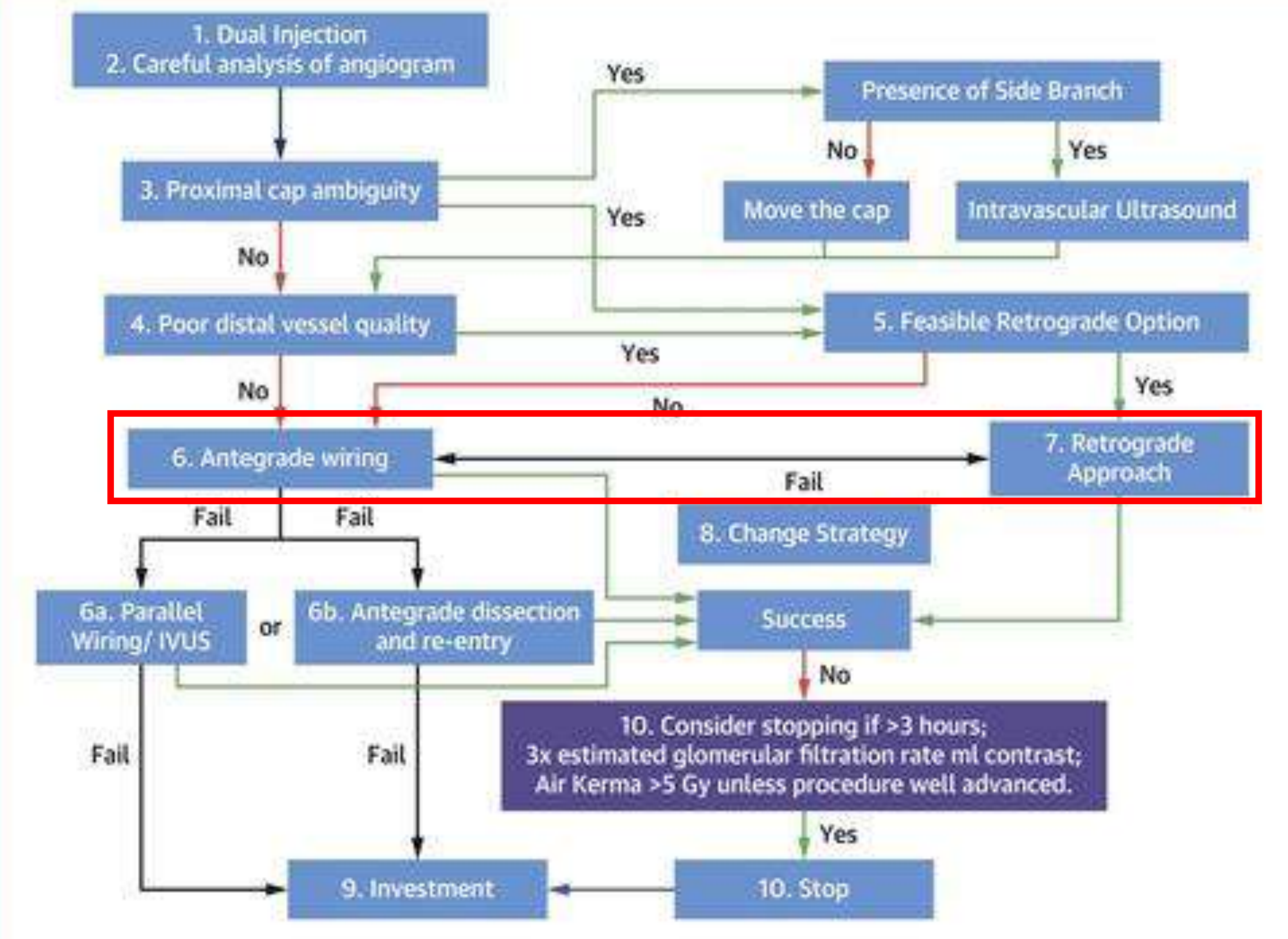








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6. Antegrade wiring
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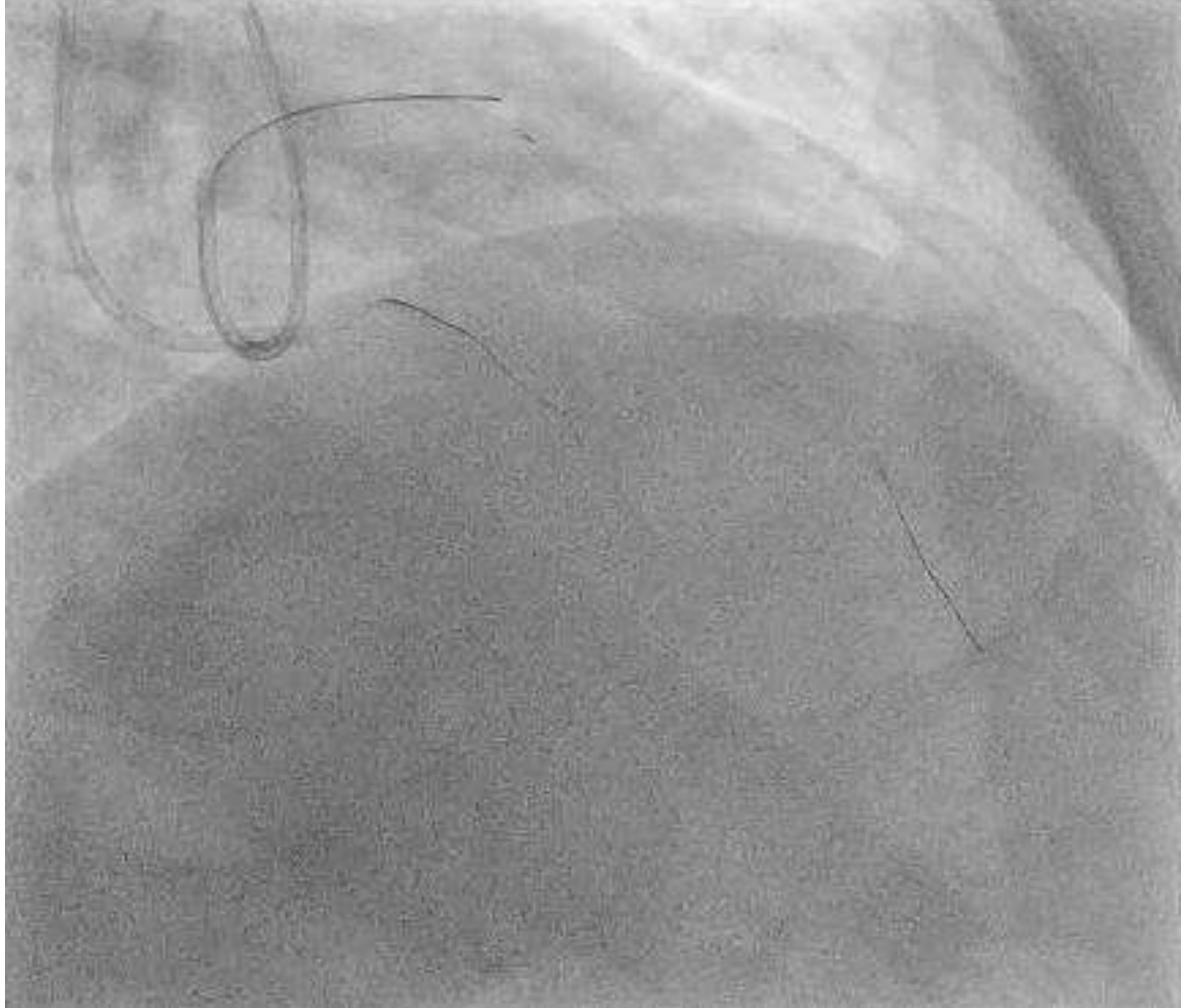
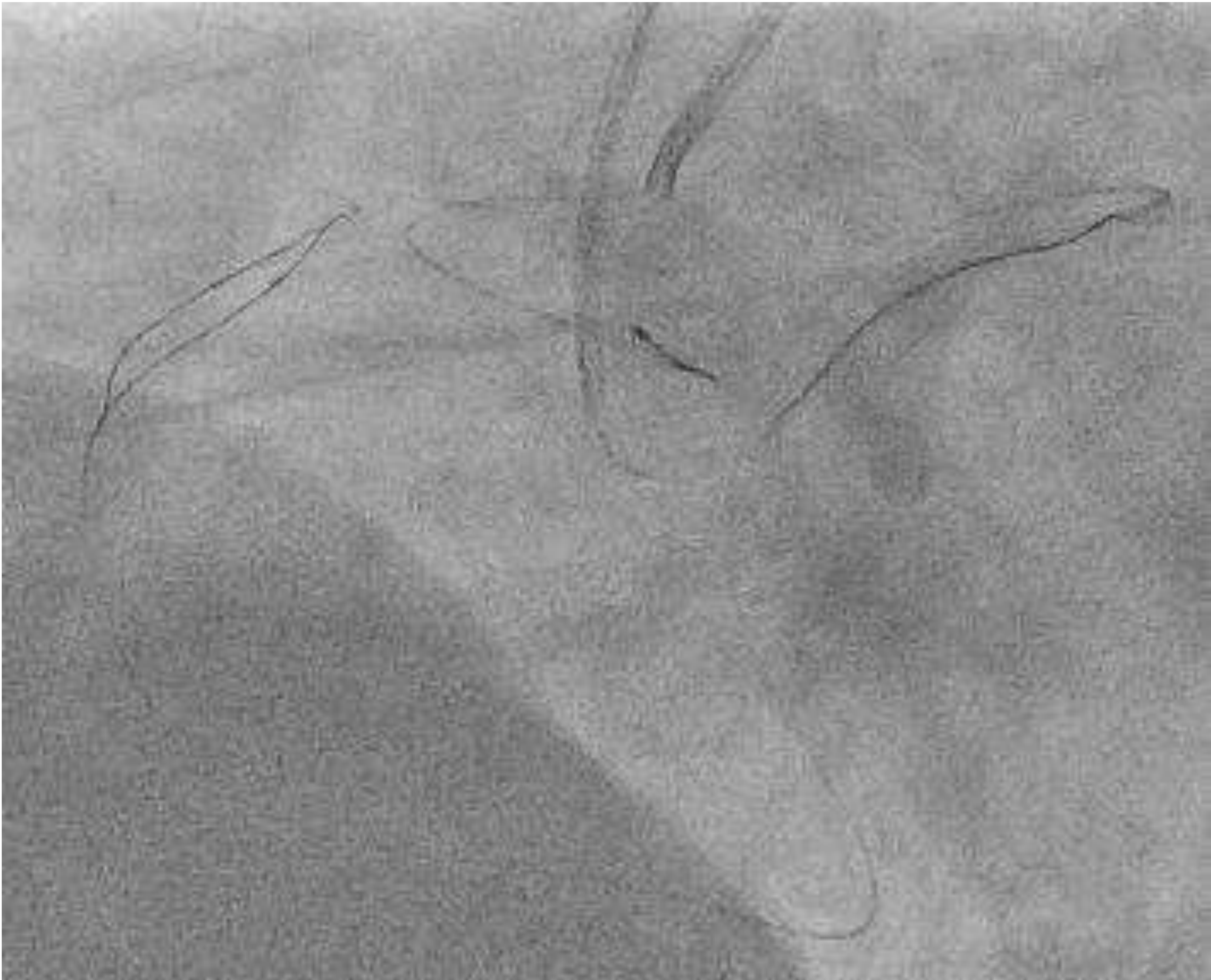
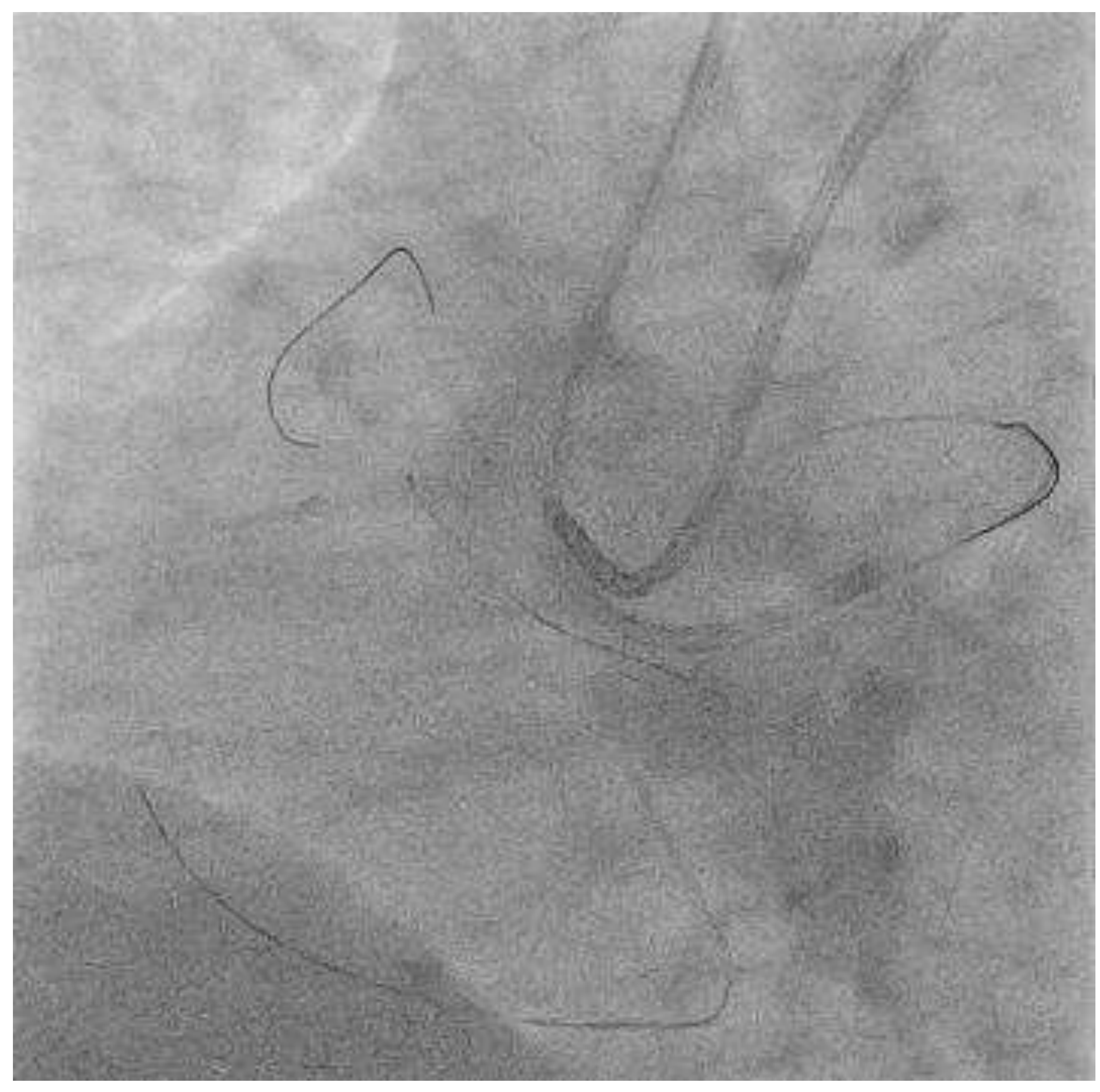
Wu, E.B. et al. J Am Coll Cardiol. 2021;78(8):840-853.

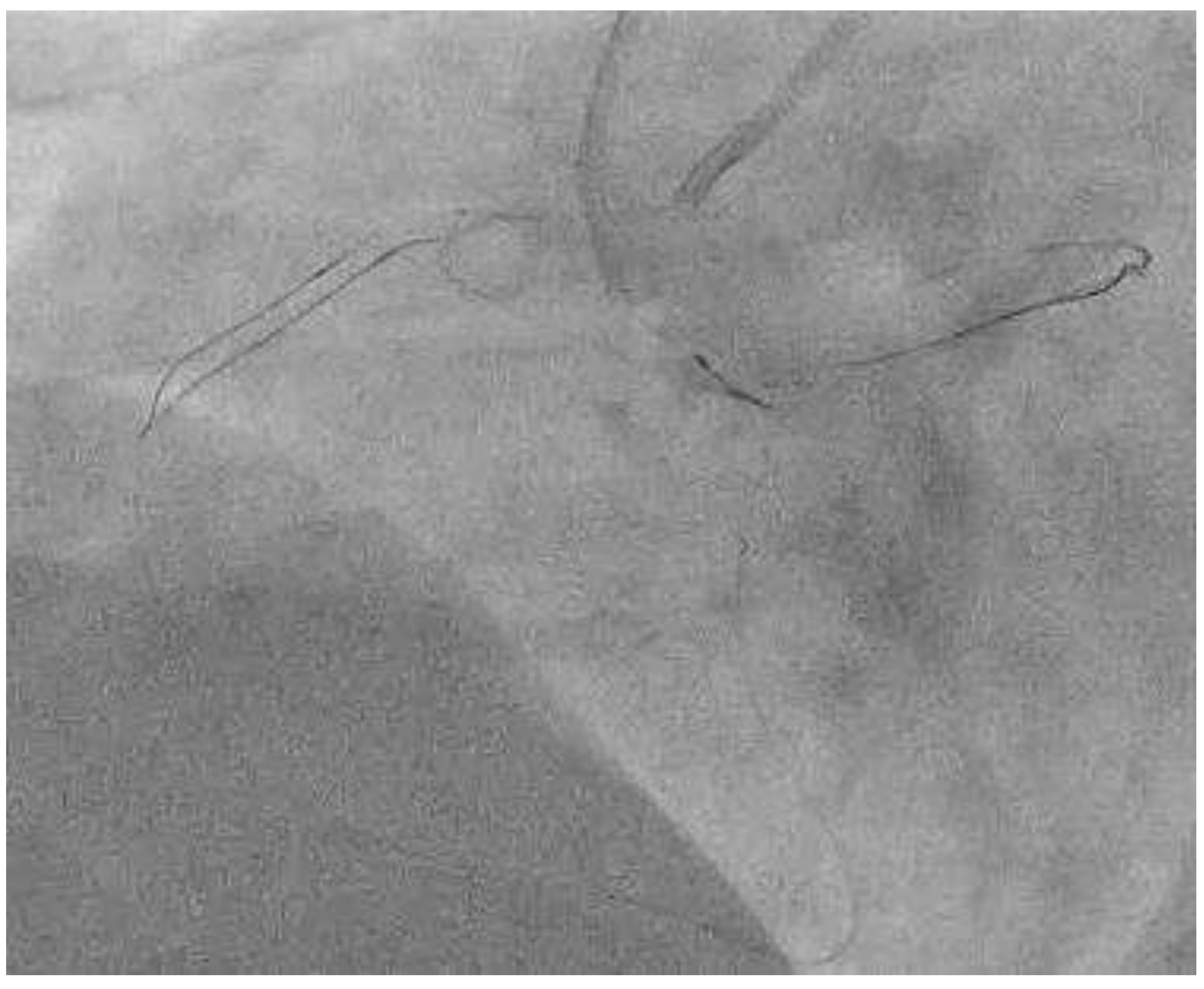




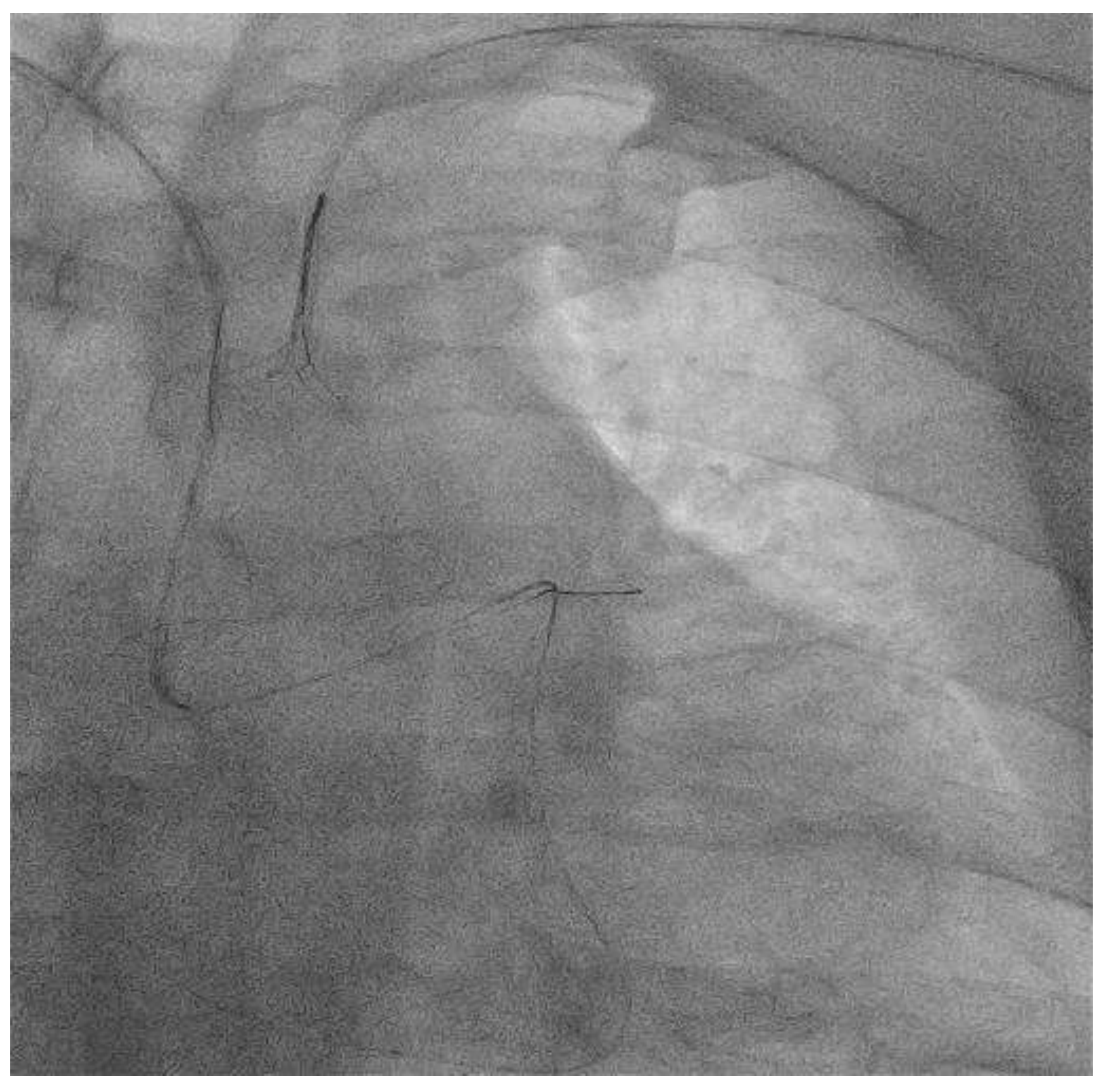
Reverse CART

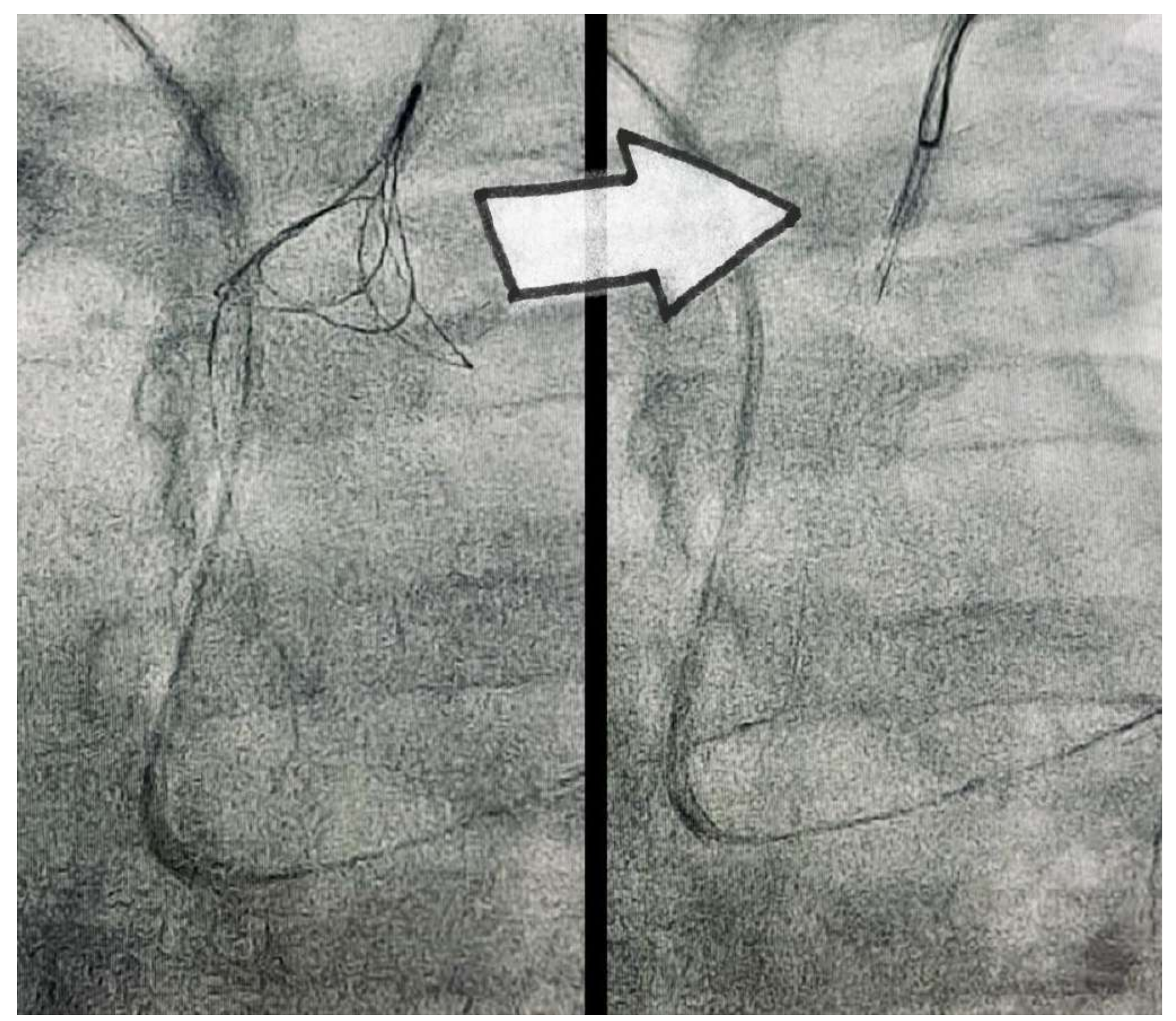


Knuckle wire

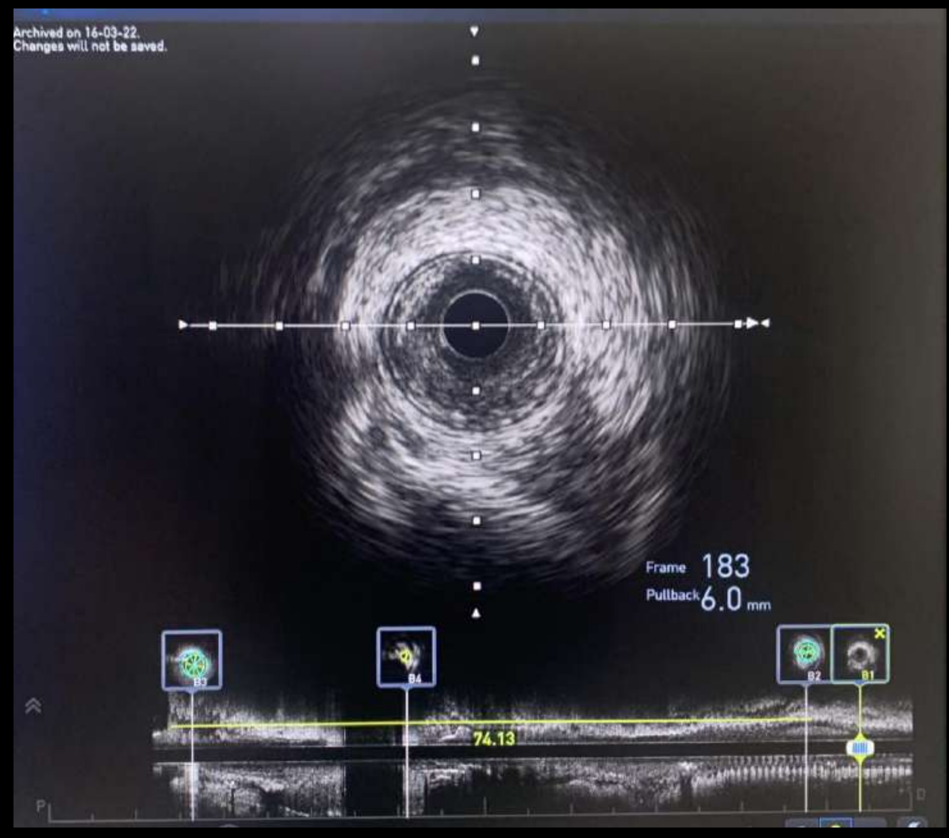


SNARE TECHNIQUE

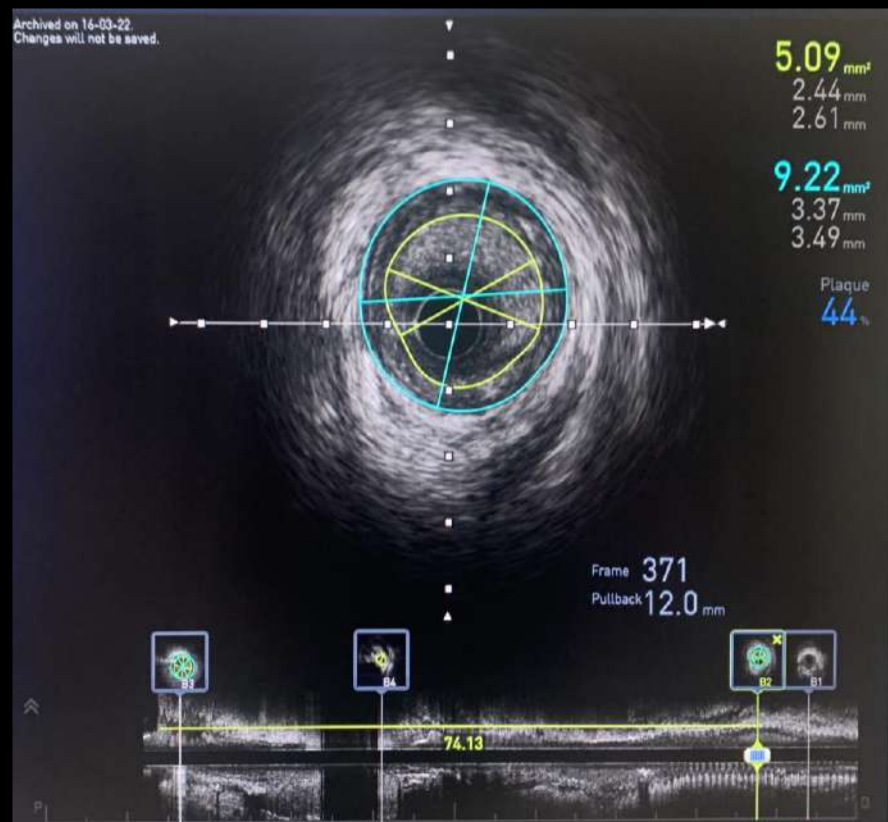




Se realiza captura de la guía retrograda con snare, logrando avance de microcatéter retrogrado en catéter guía anterogrado, consiguiendo exteriorización de guía 330cm.



Archived on 16-03-22.
Changes will not be saved.
Frame 183
Pullback 6.0 mm
B3
B4
B2
B1
74.13



Archived on 16-03-22.
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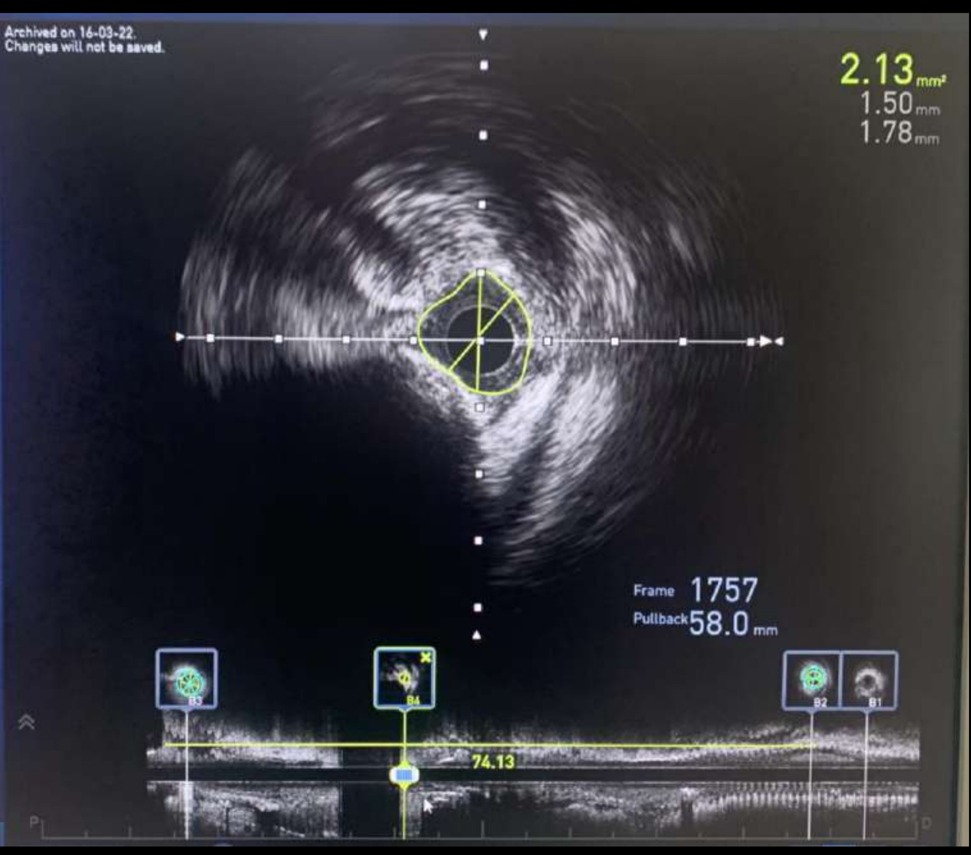
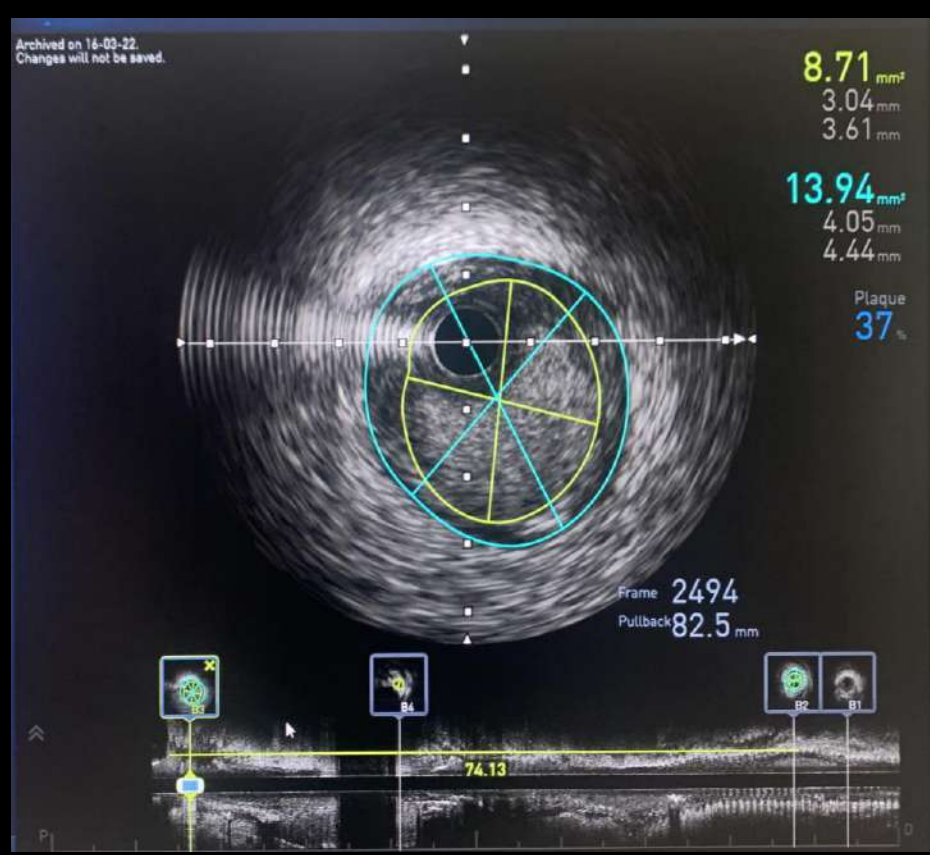
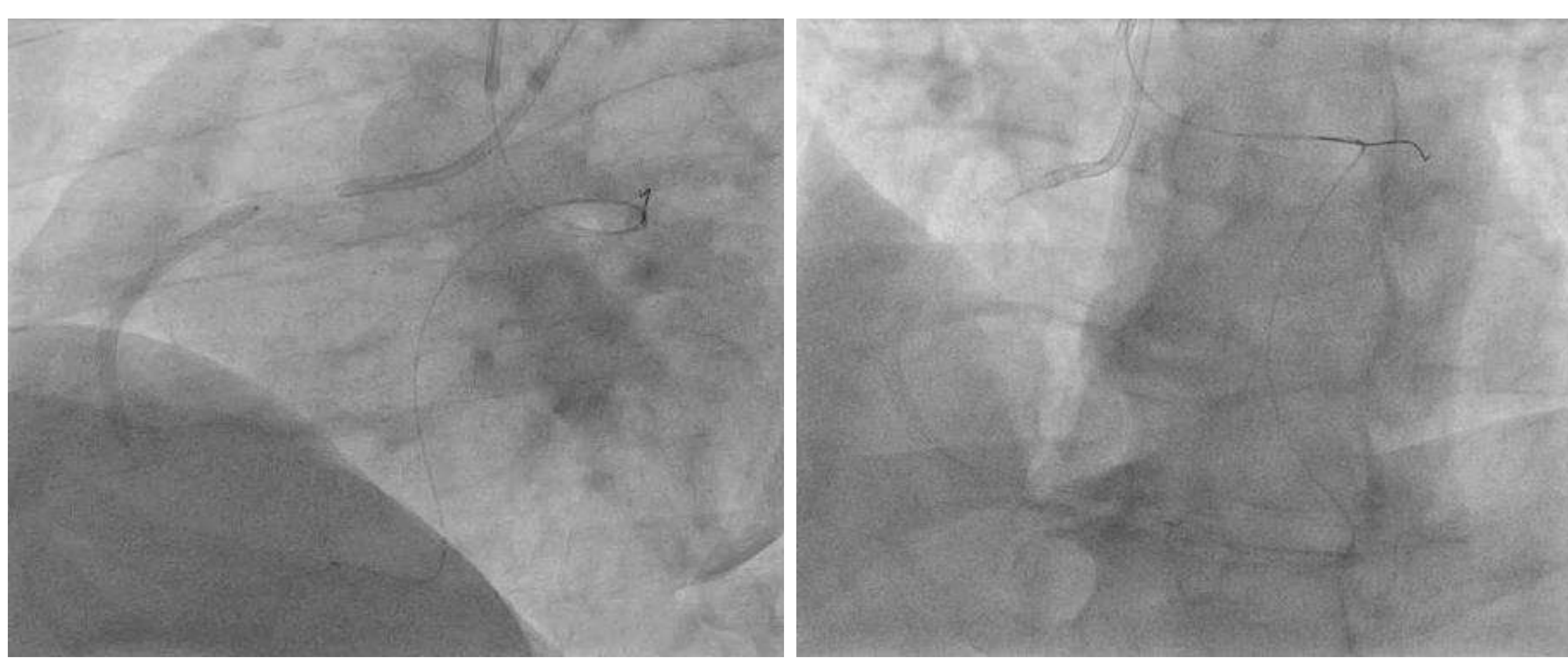
5.09 mm²
2.44 mm
2.61 mm
9.22 mm²
3.37 mm
3.49 mm
Plaque
44 %
Frame 371
Pullback 12.0 mm
B3
B4
B2
B1
74.13

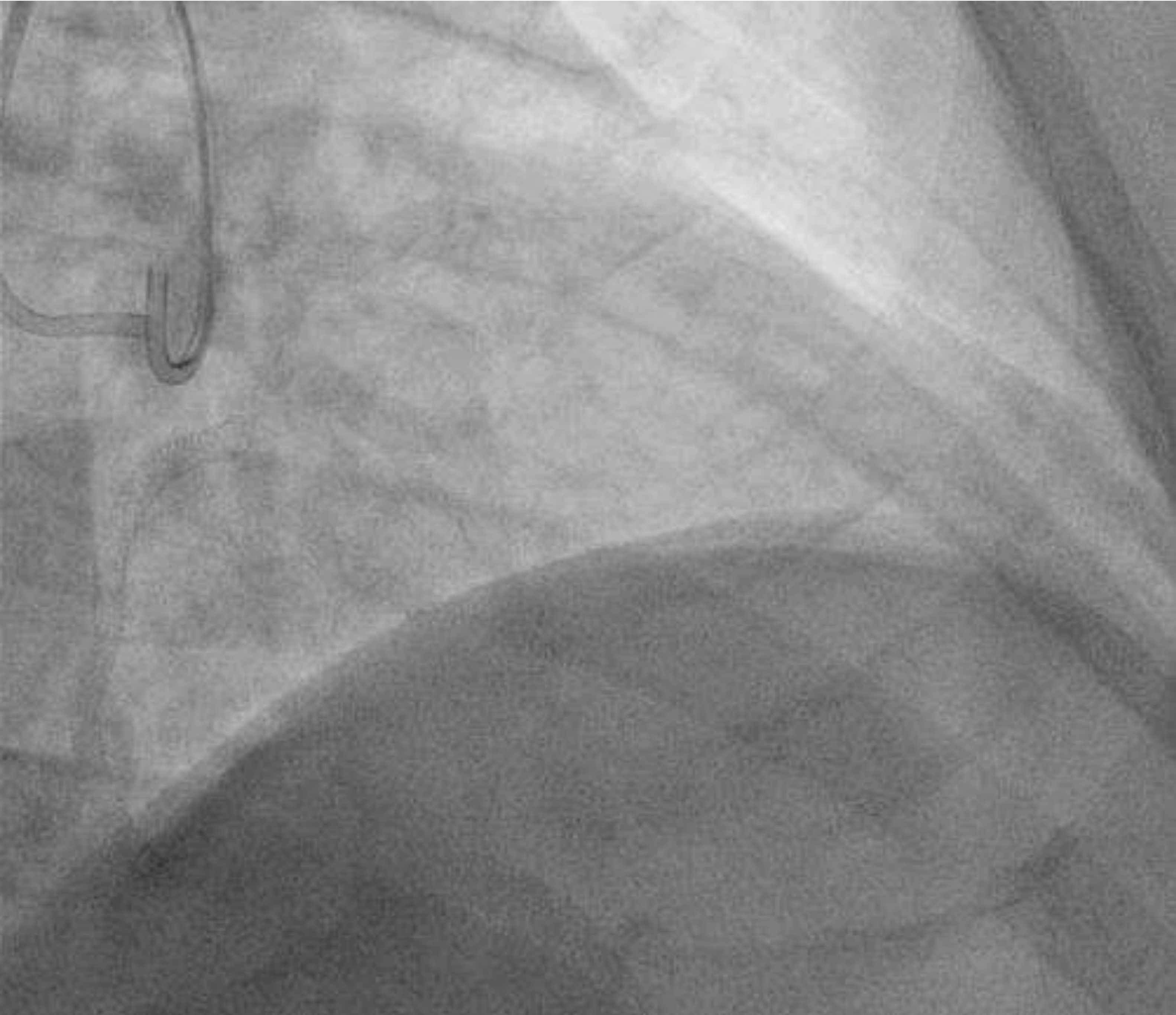


Archived on 16-03-22.
Changes will not be saved.
2.13 mm²
1.50 mm
1.78 mm
Frame 1757
Pullback 58.0 mm
B3
B4
B2
B1
74.13
P
D

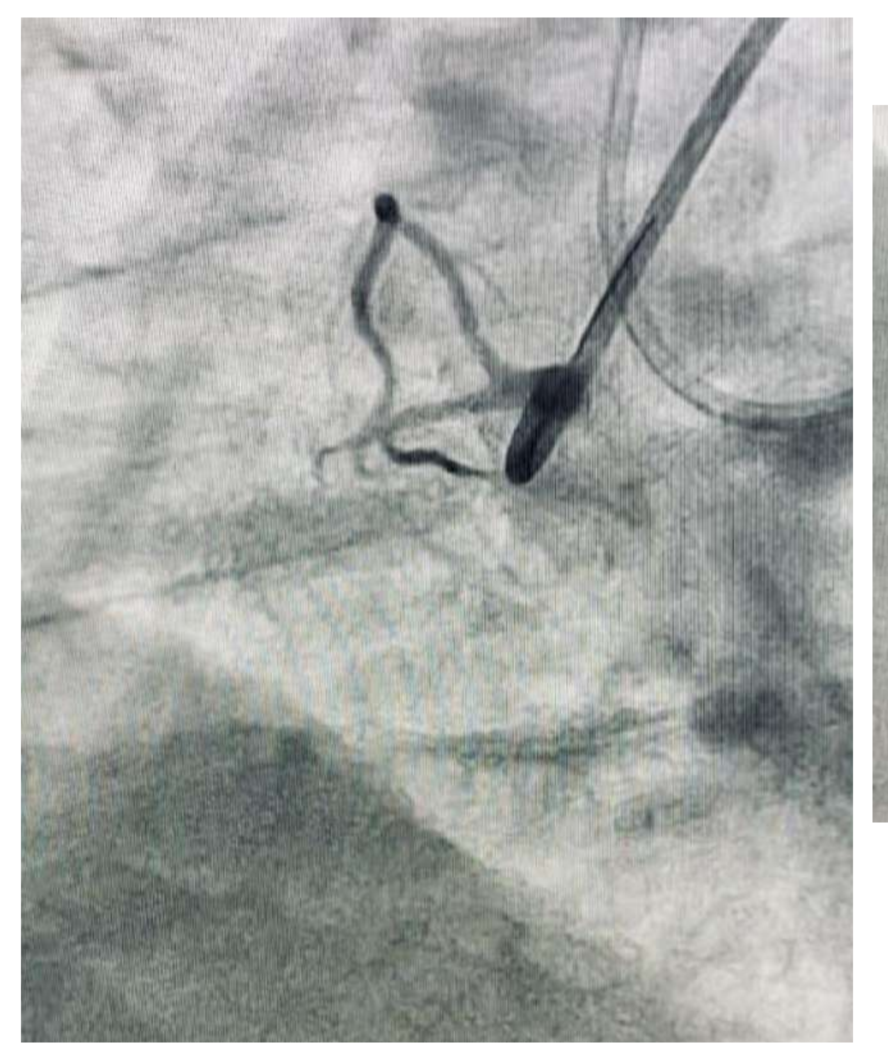


Archived on 16-03-22.
Changes will not be saved.
8.71 mm²
3.04 mm
3.61 mm
13.94 mm²
4.05 mm
4.44 mm
Plaque
37 %
Frame 2494
Pullback 82.5 mm
B3
B4
B2
B1
74.13
P
D

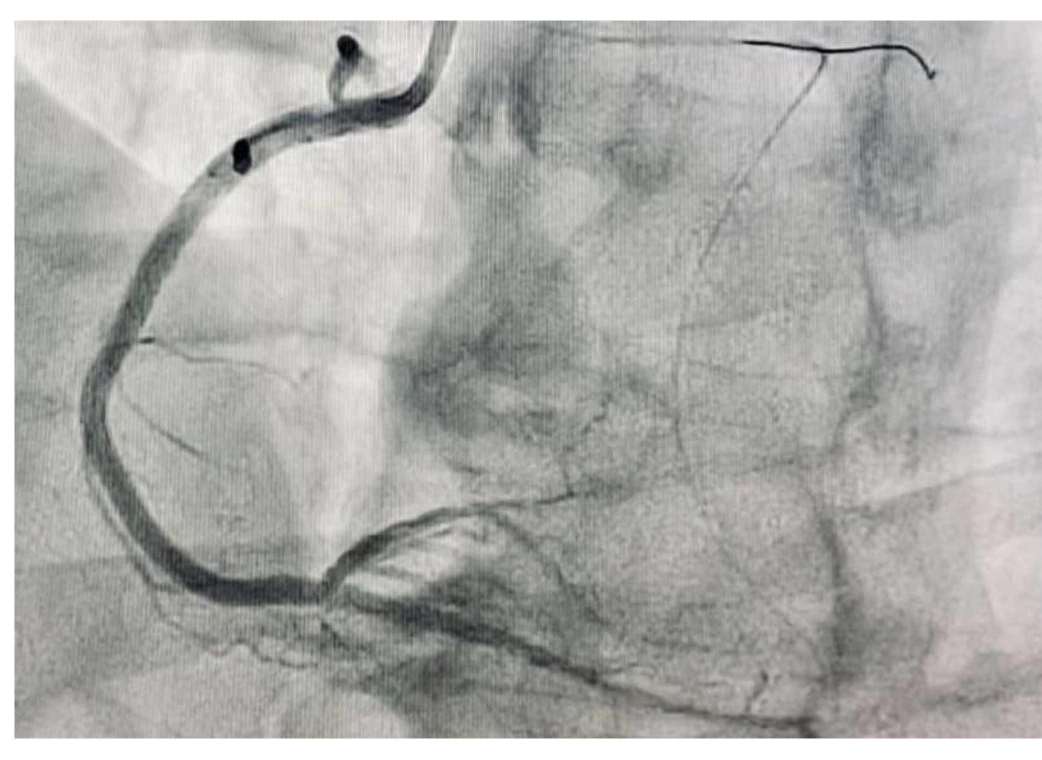




Inicial



Final



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Seguimiento

- Última consulta mayo 2021:

Asintomático cardiovascular. CF I.

Conclusiones

“Snare technique” es segura y factible en el abordaje retrógrado de una CTO:

- Dificultad para canular (Lesiones ostiales).
- Dificultad por la anatómia coronaria.
- Una guía retrógrada no puede ser avanzada hacia el catéter anterógrado.

GRACIAS POR SU ATENCIÓN