

Cases of Rotablator Burr Entrapment

The NIGHTMARE of rotational atherectomy

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M/60 recurrent angina

- 3YA, LV systolic dysfunction → PCI to LM/LAD/LCX & RCA
- Recurrent angina + positive stress ECG

PMHx>

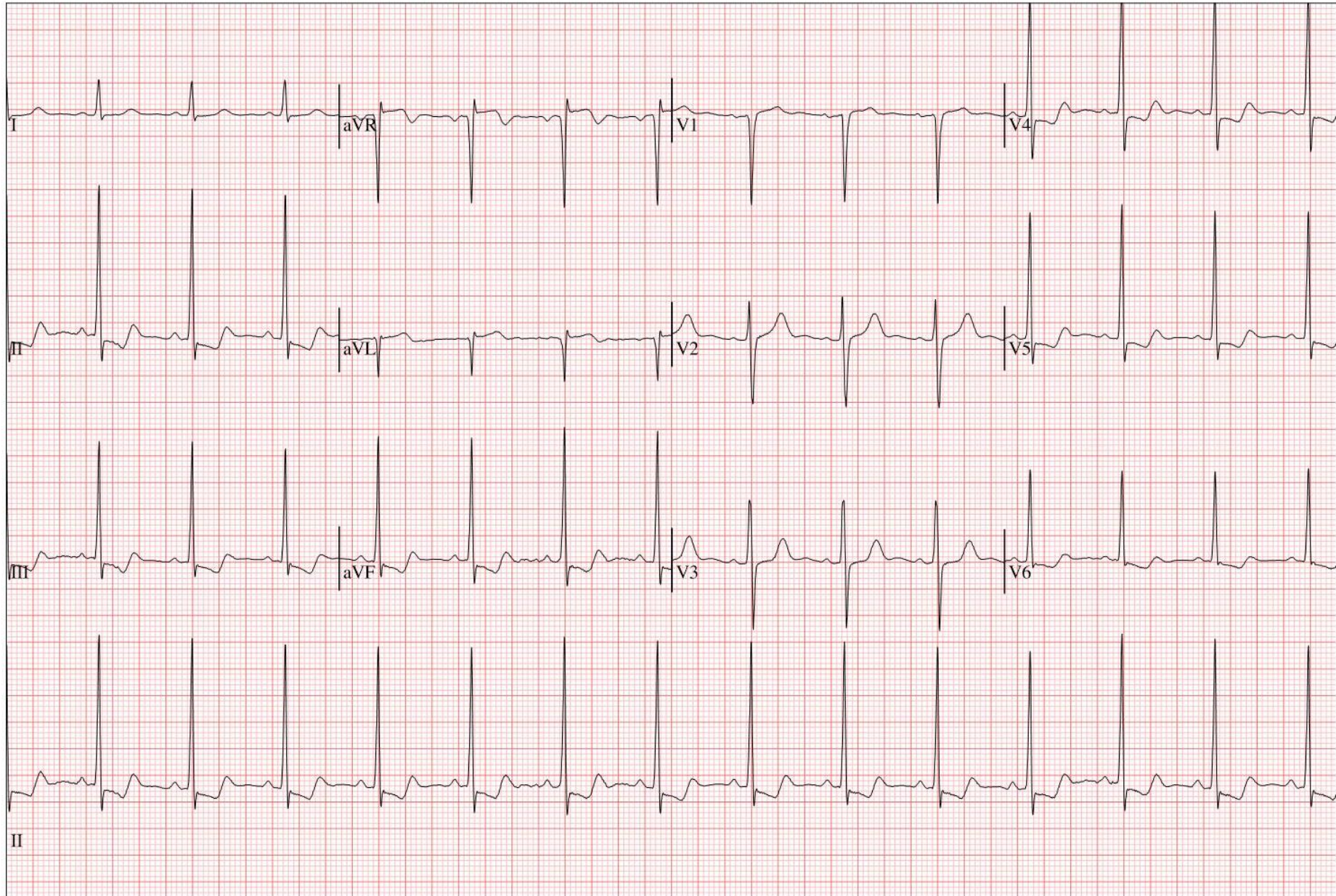
Angioimmunoblastic T-cell lymphoma

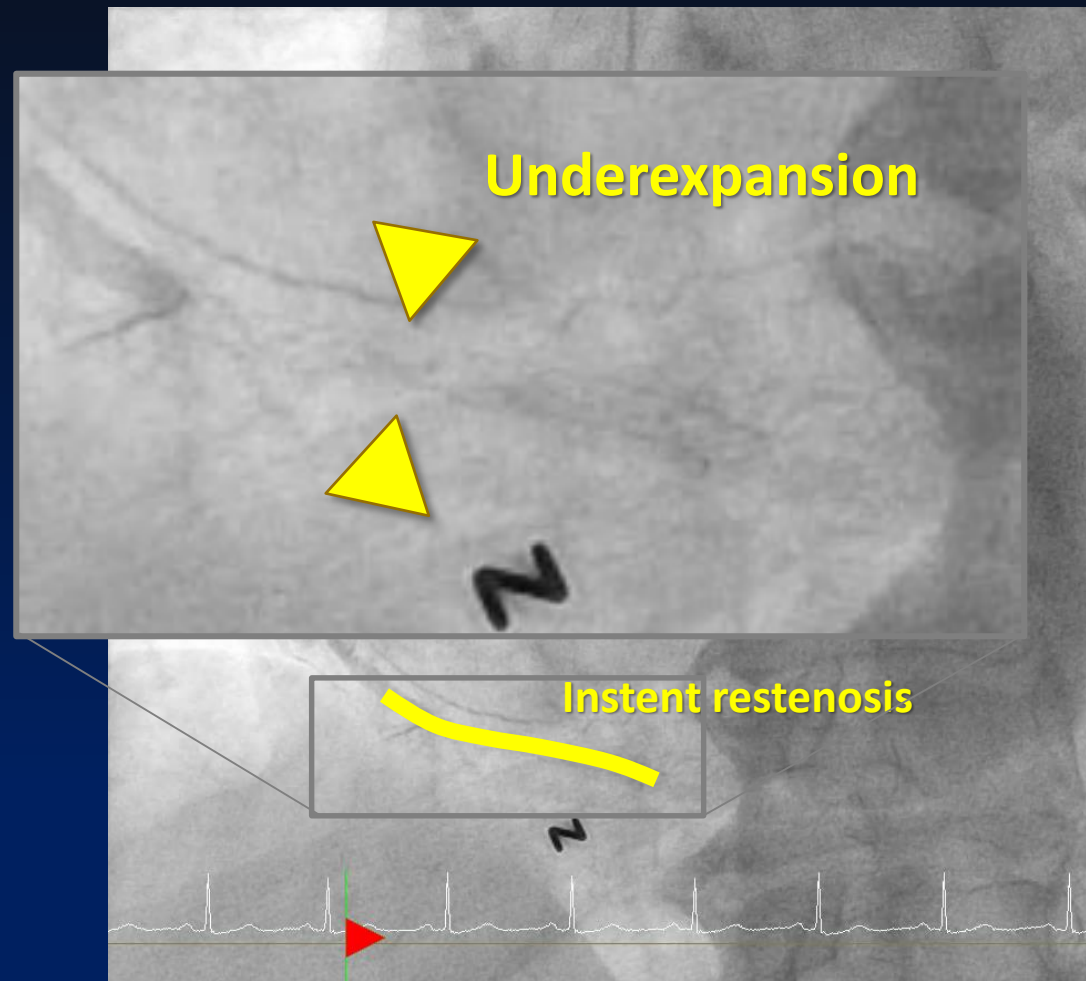
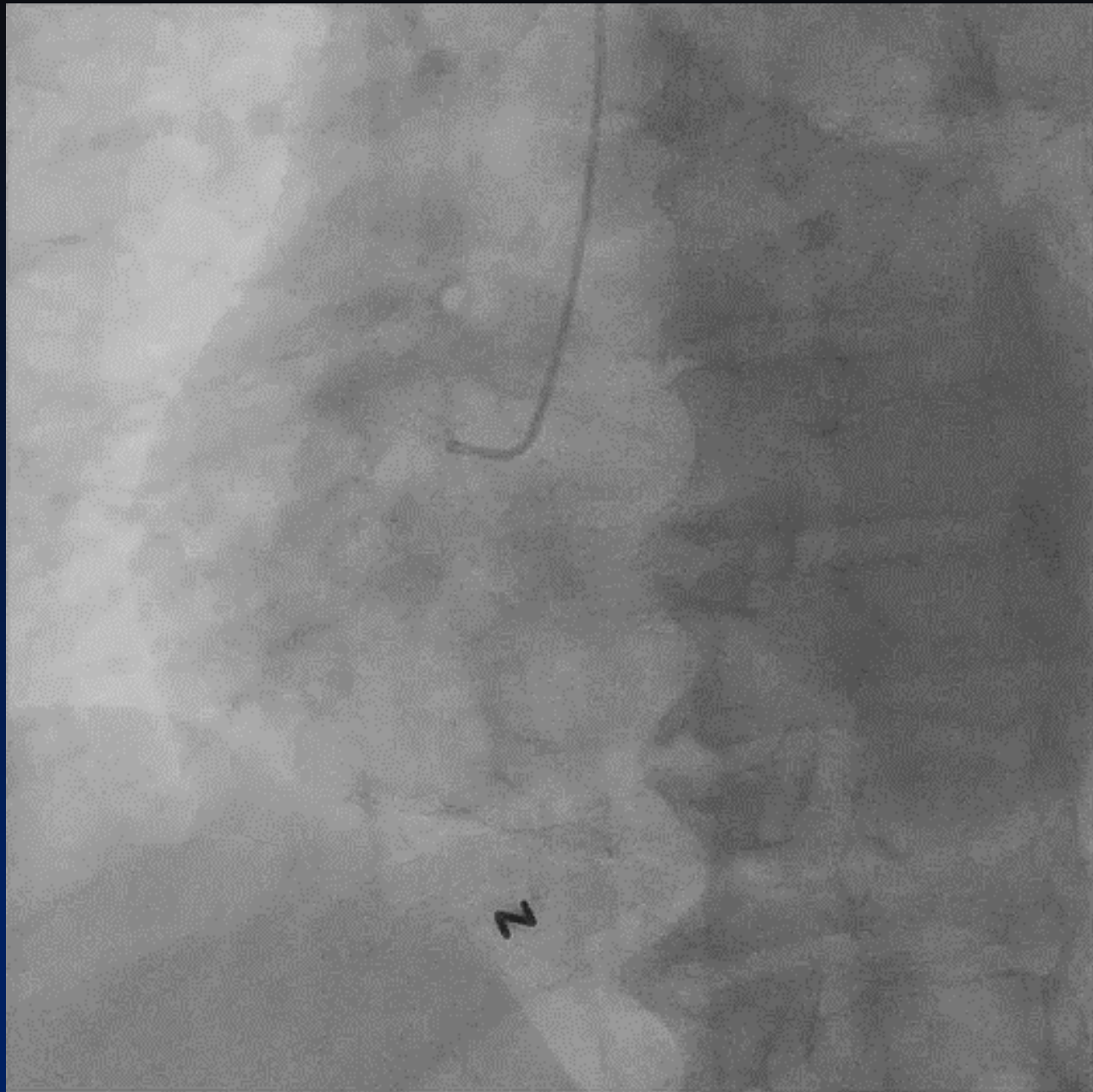
s/p autoPBSCT → NED state

current smoker

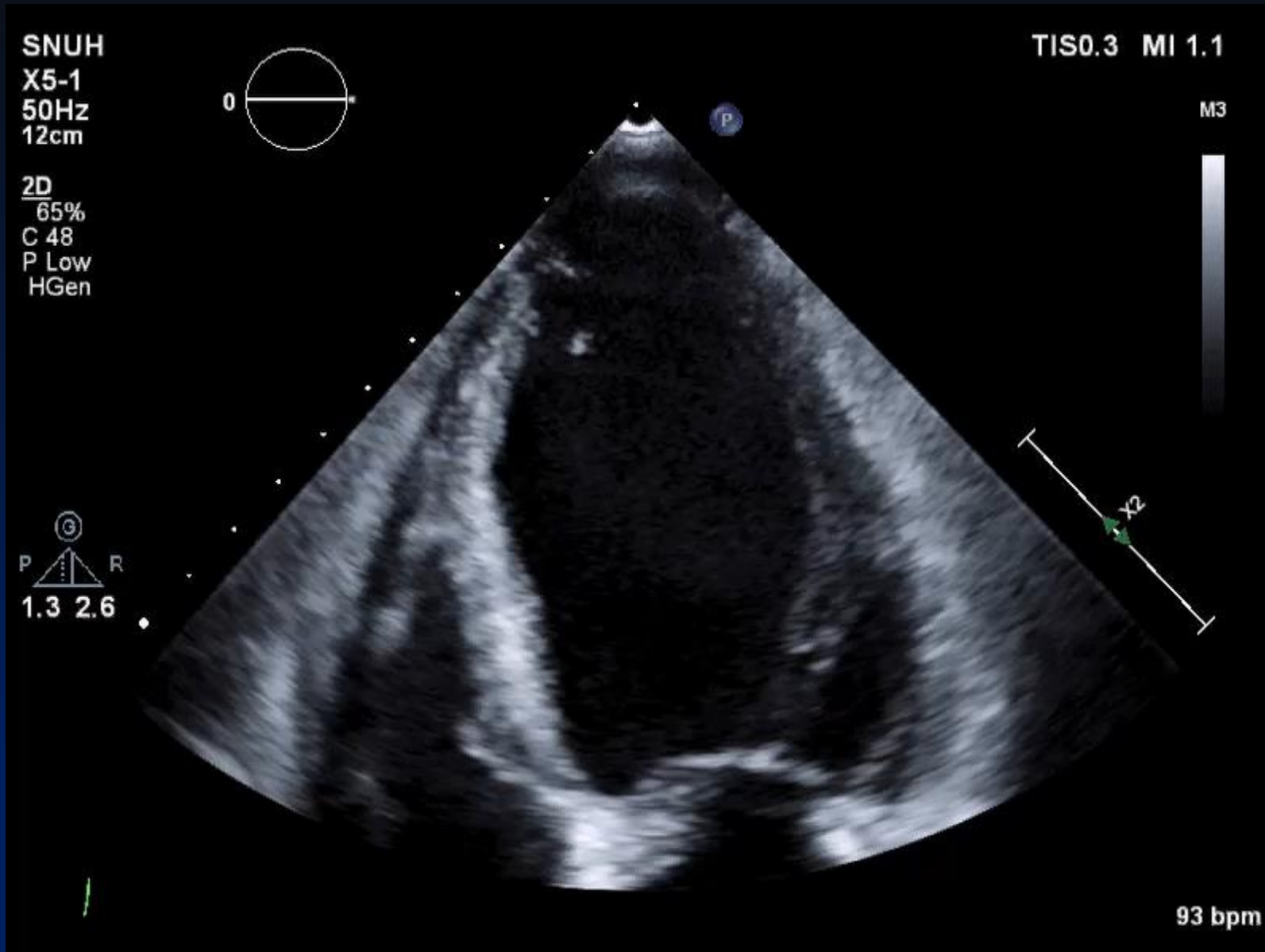


Stress ECG: positive, 9 min, 10.1 METs





Going back to 3 years ago..



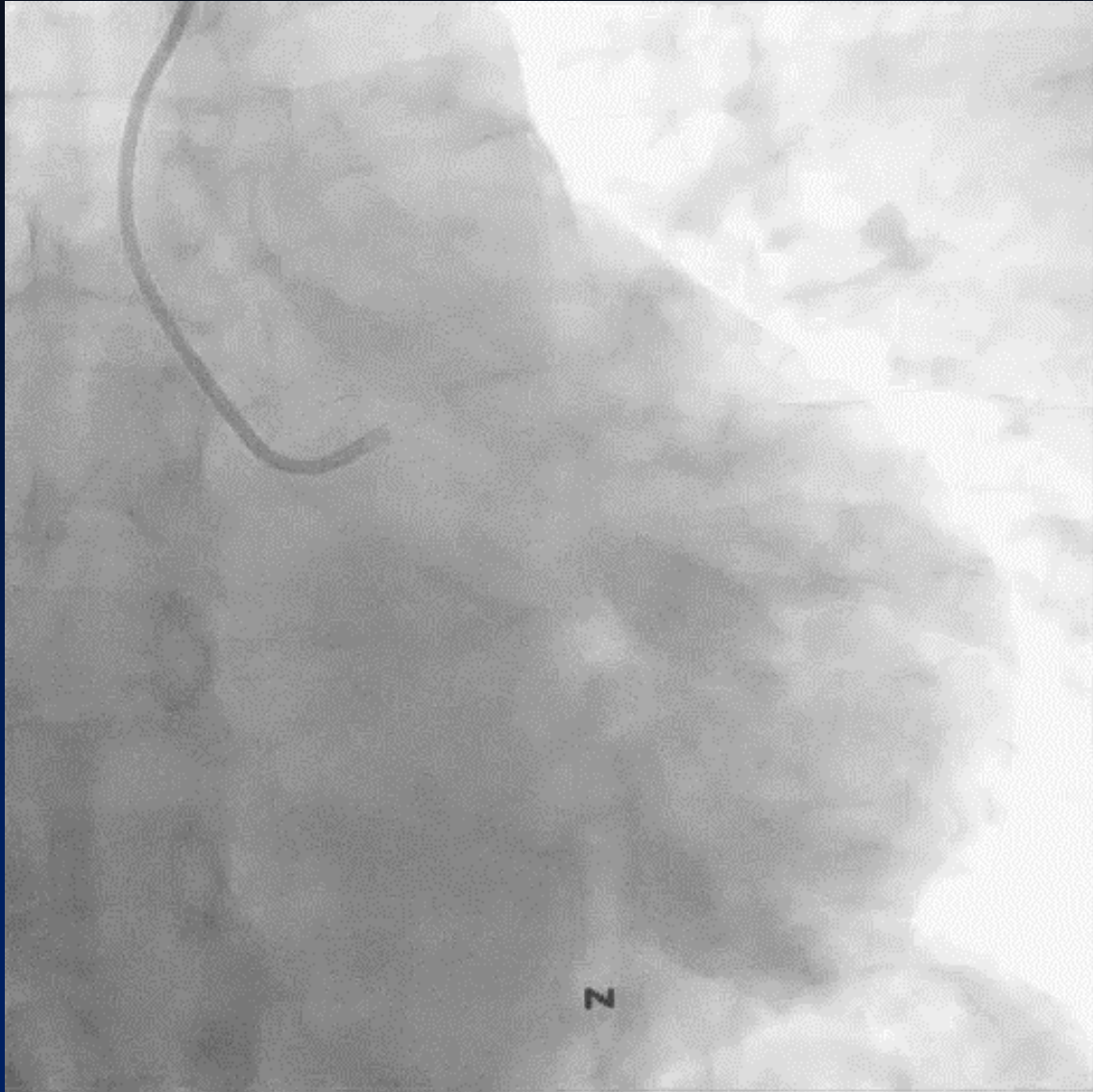
LVEF=35%

Suggesting ischemic insult

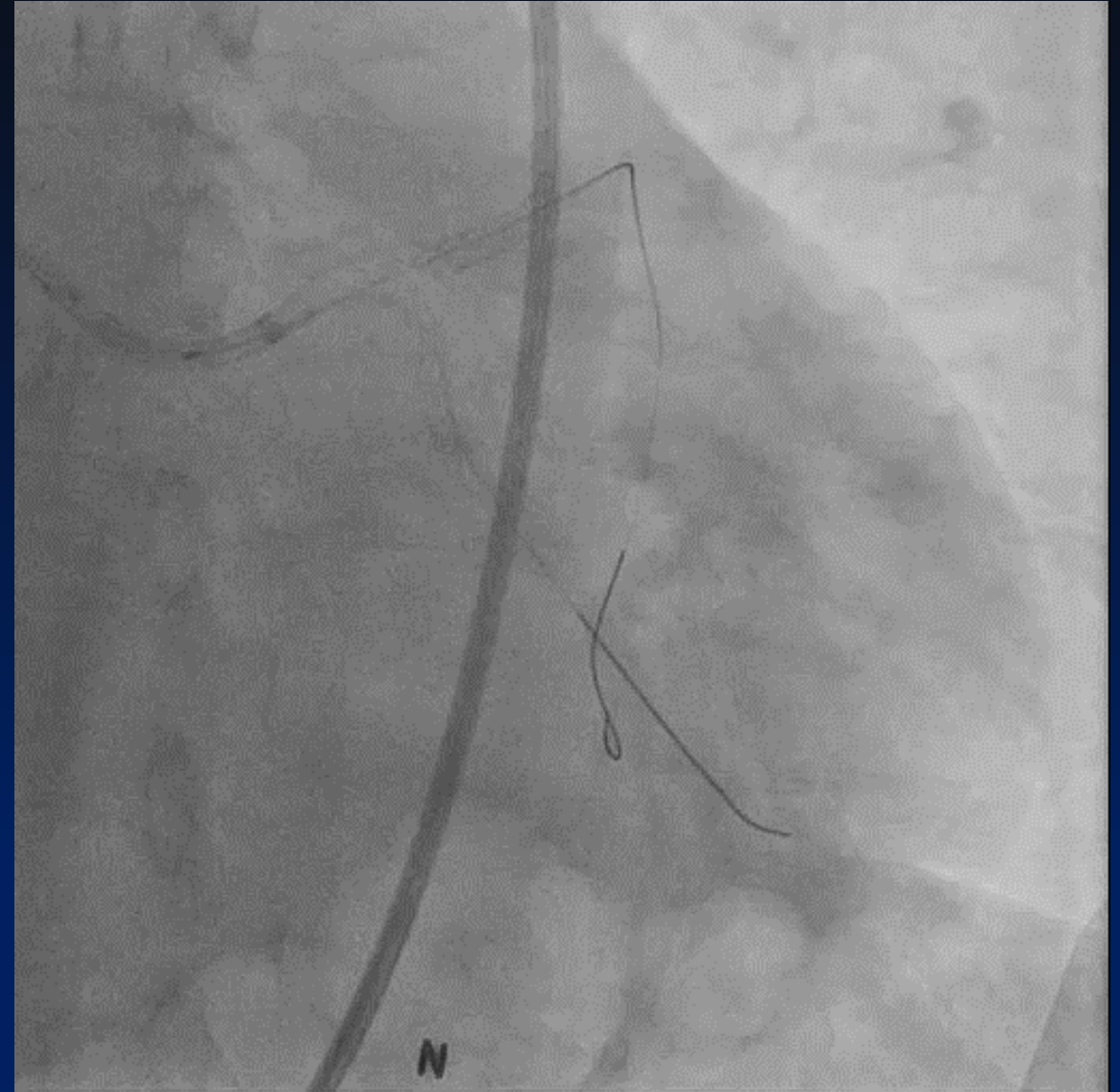
Dx'ed to have
angioimmunoblastic T-cell lymphoma
→ Systemic chemotherapy was urgent

PCI to LM/LAD/LCX (3 years ago)

Pre-PCI

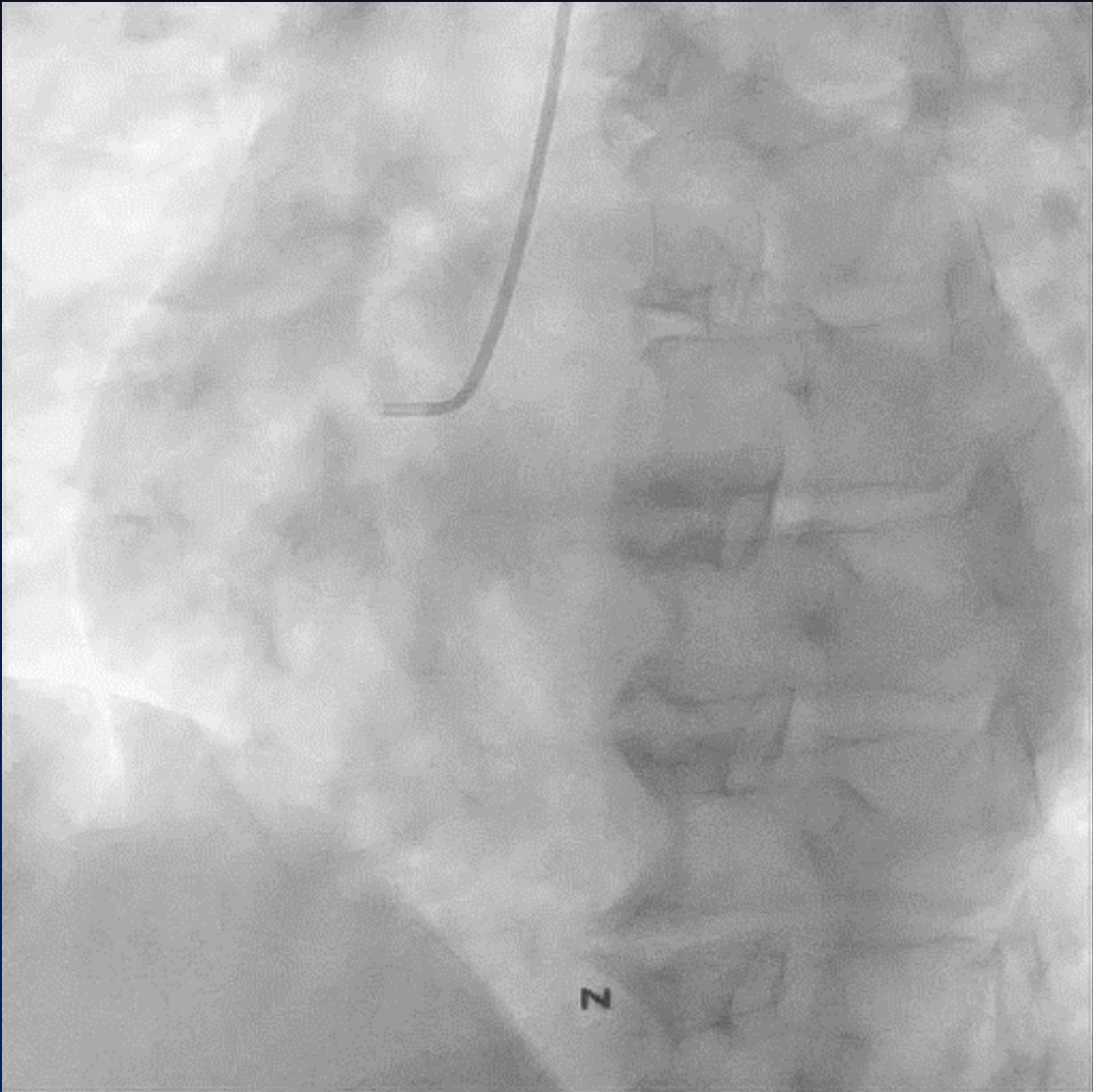


Post-PCI

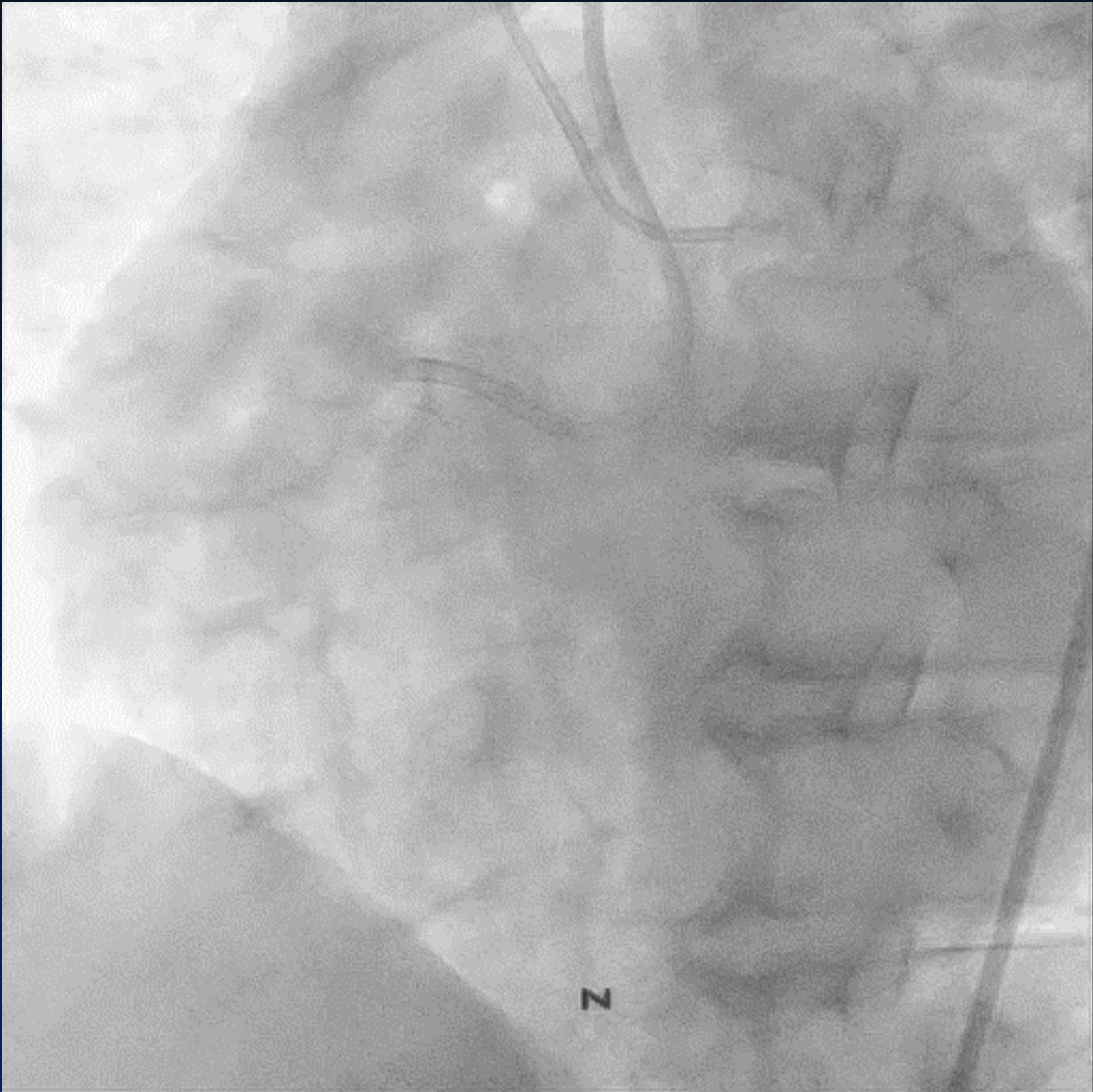


PCI to RCA (3 years ago)

Pre-PCI



Post-PCI: suboptimal outcome

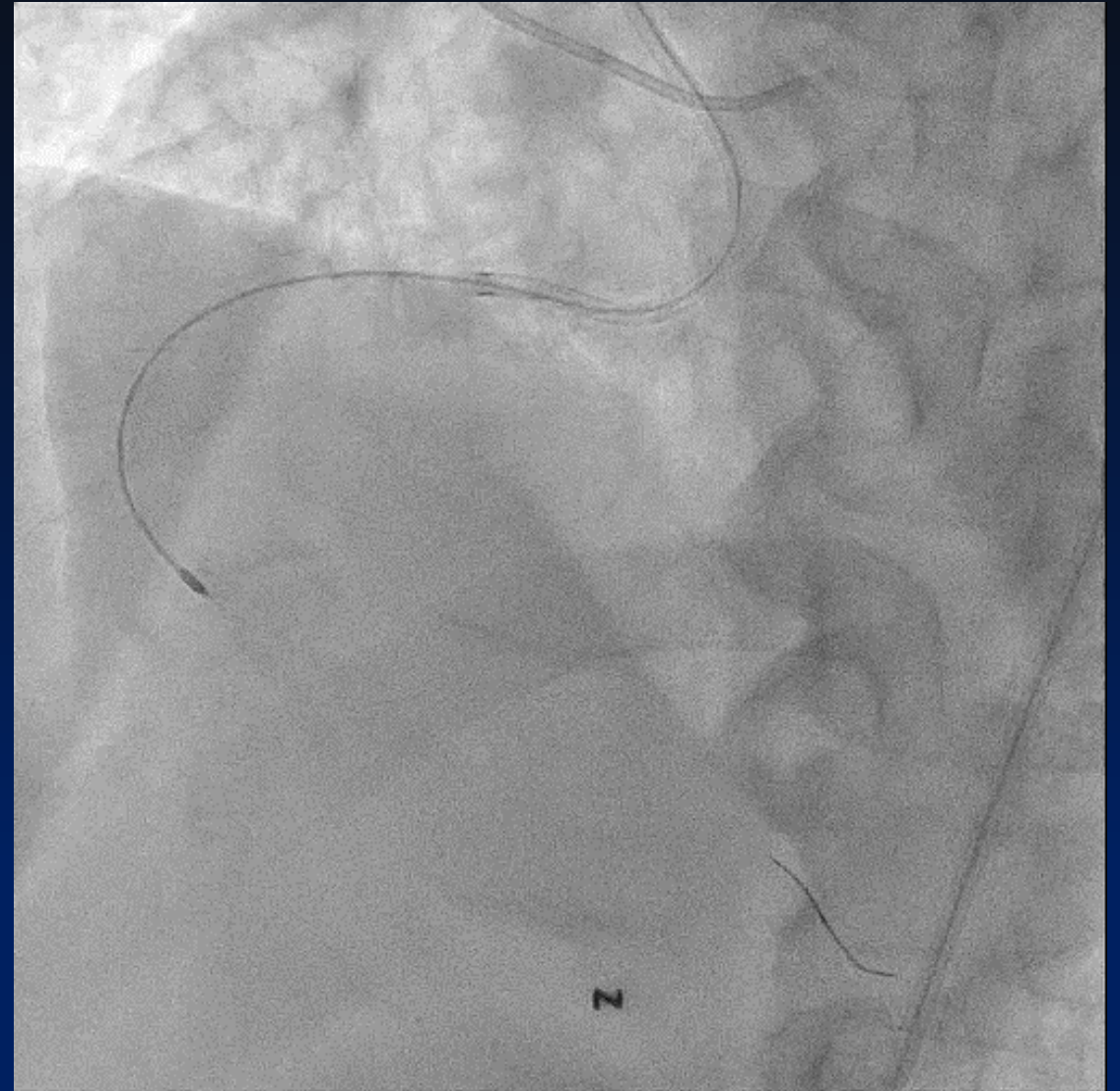
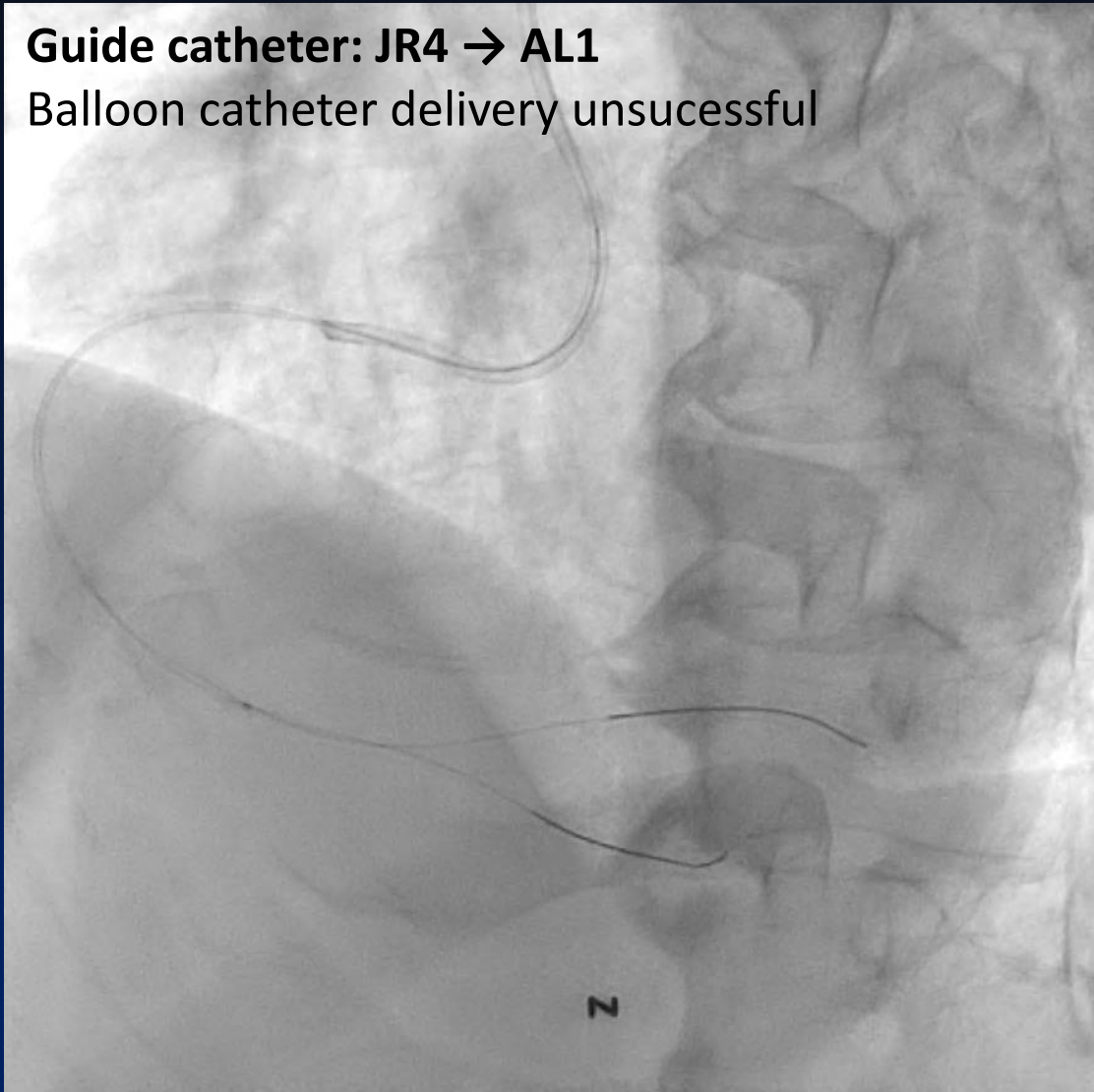


Suboptimal PCI to RCA (3 years ago)

Rotational atherectomy

Guide catheter: JR4 → AL1

Balloon catheter delivery unsuccessful



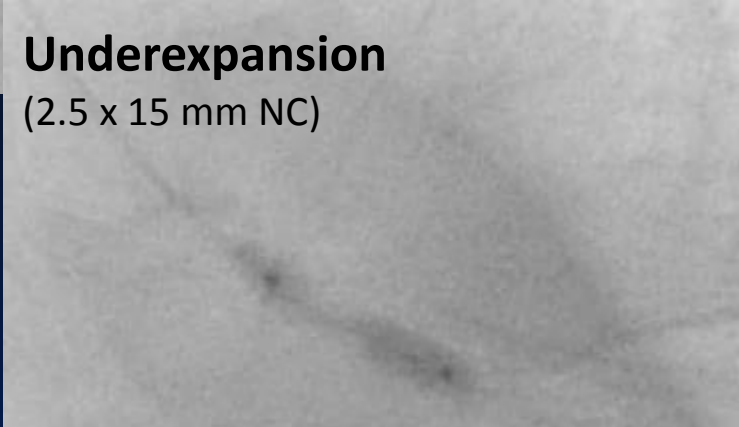
Underexpansion

(2.5 x 15 mm semicompliant)



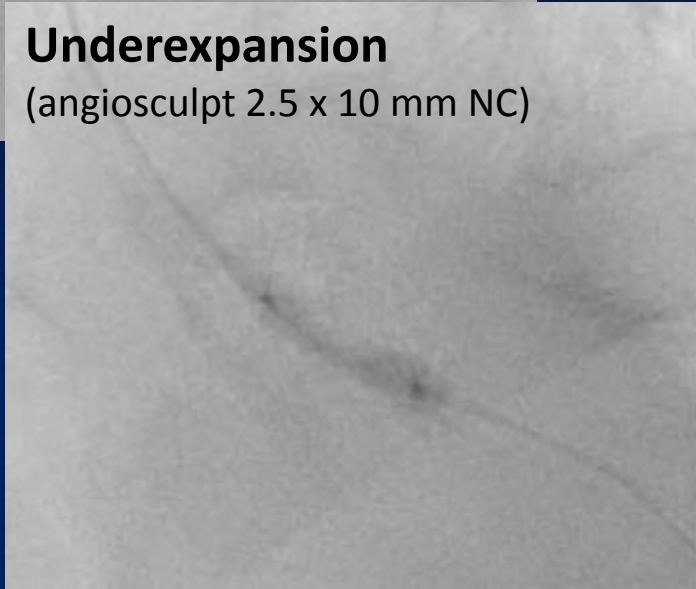
Underexpansion

(2.5 x 15 mm NC)



Underexpansion

(angiosculpt 2.5 x 10 mm NC)



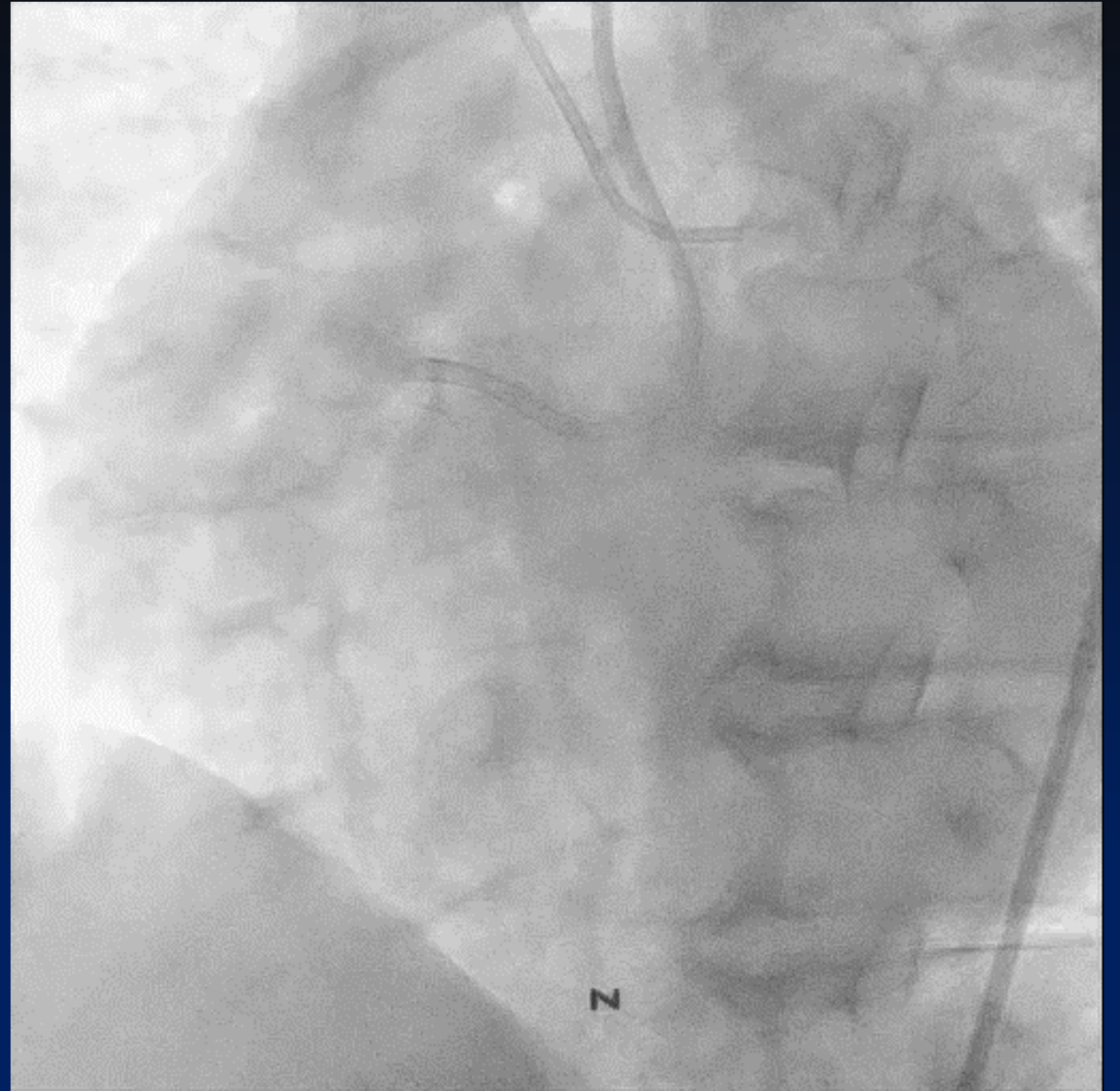
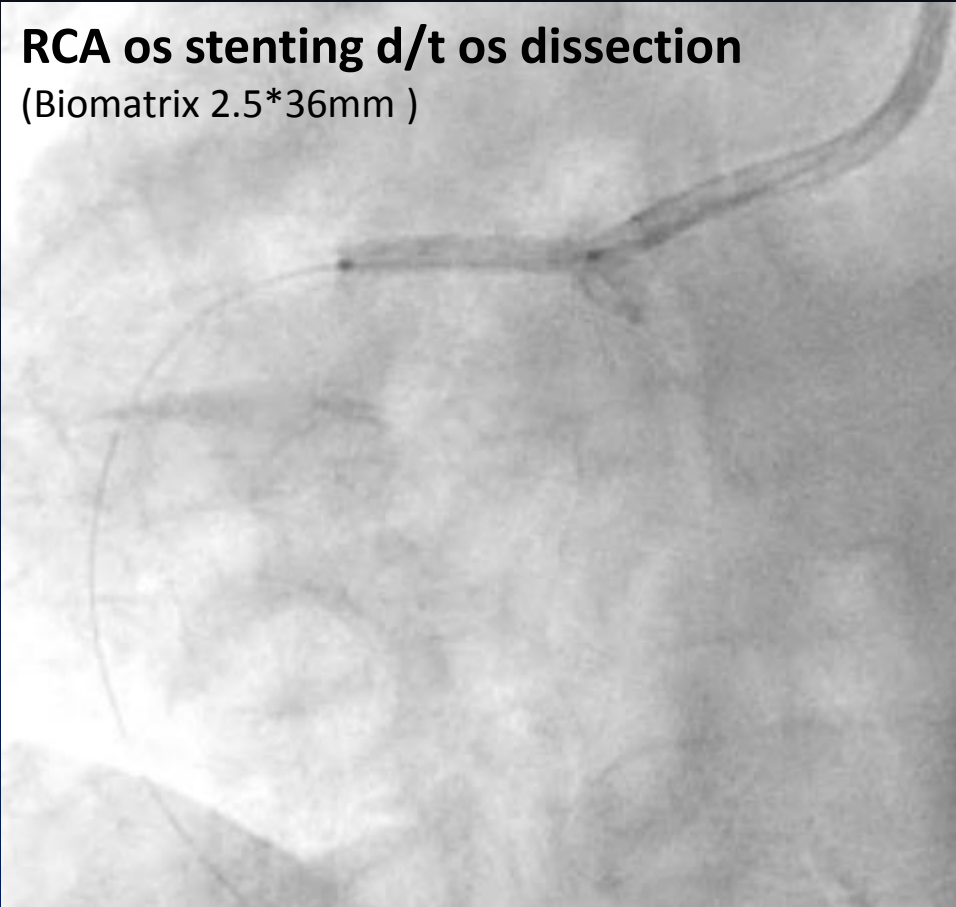
Stenting

(Biomatrix 2.5 x 36 mm)



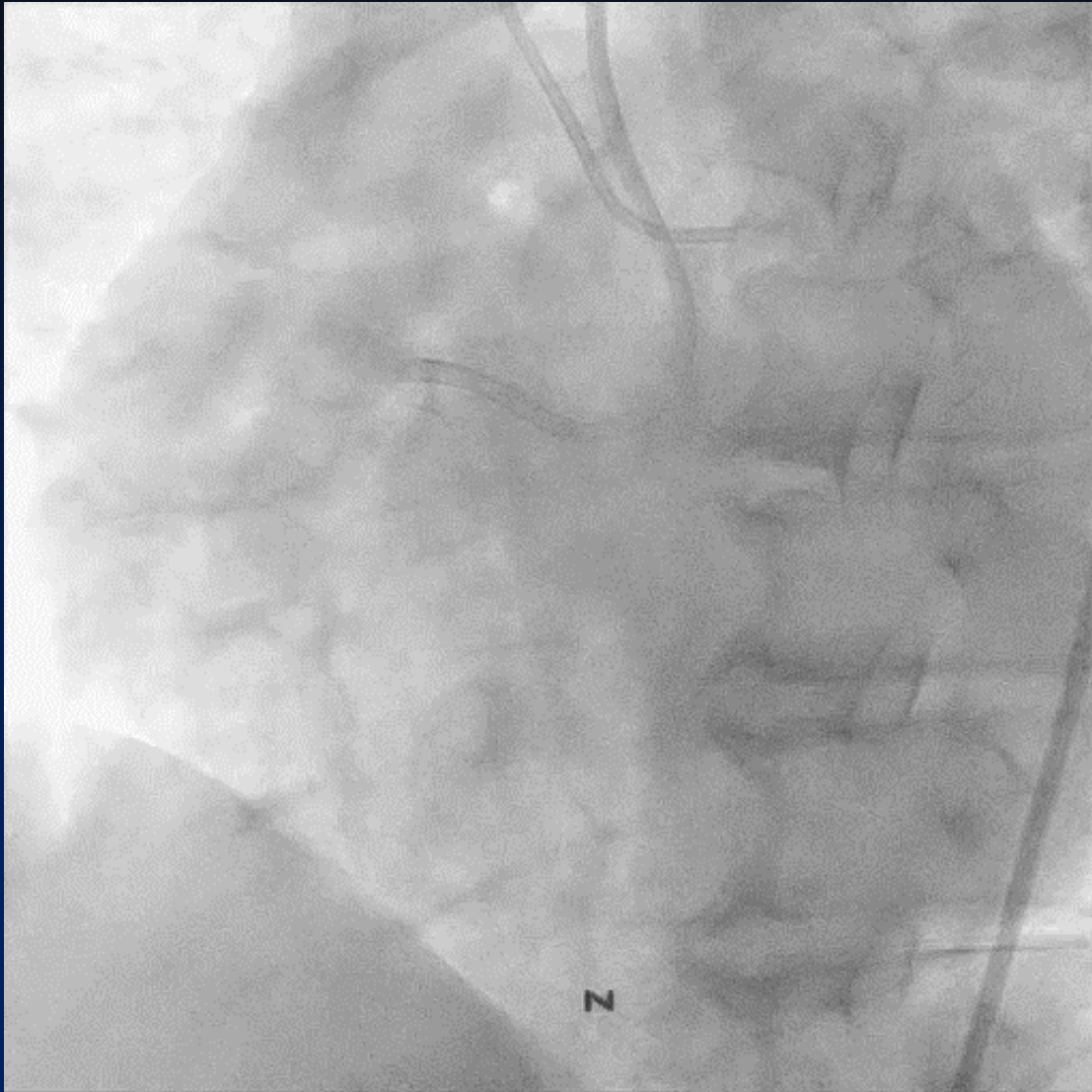
Post-PCI: suboptimal outcome

RCA os stenting d/t os dissection
(Biomatrix 2.5*36mm)

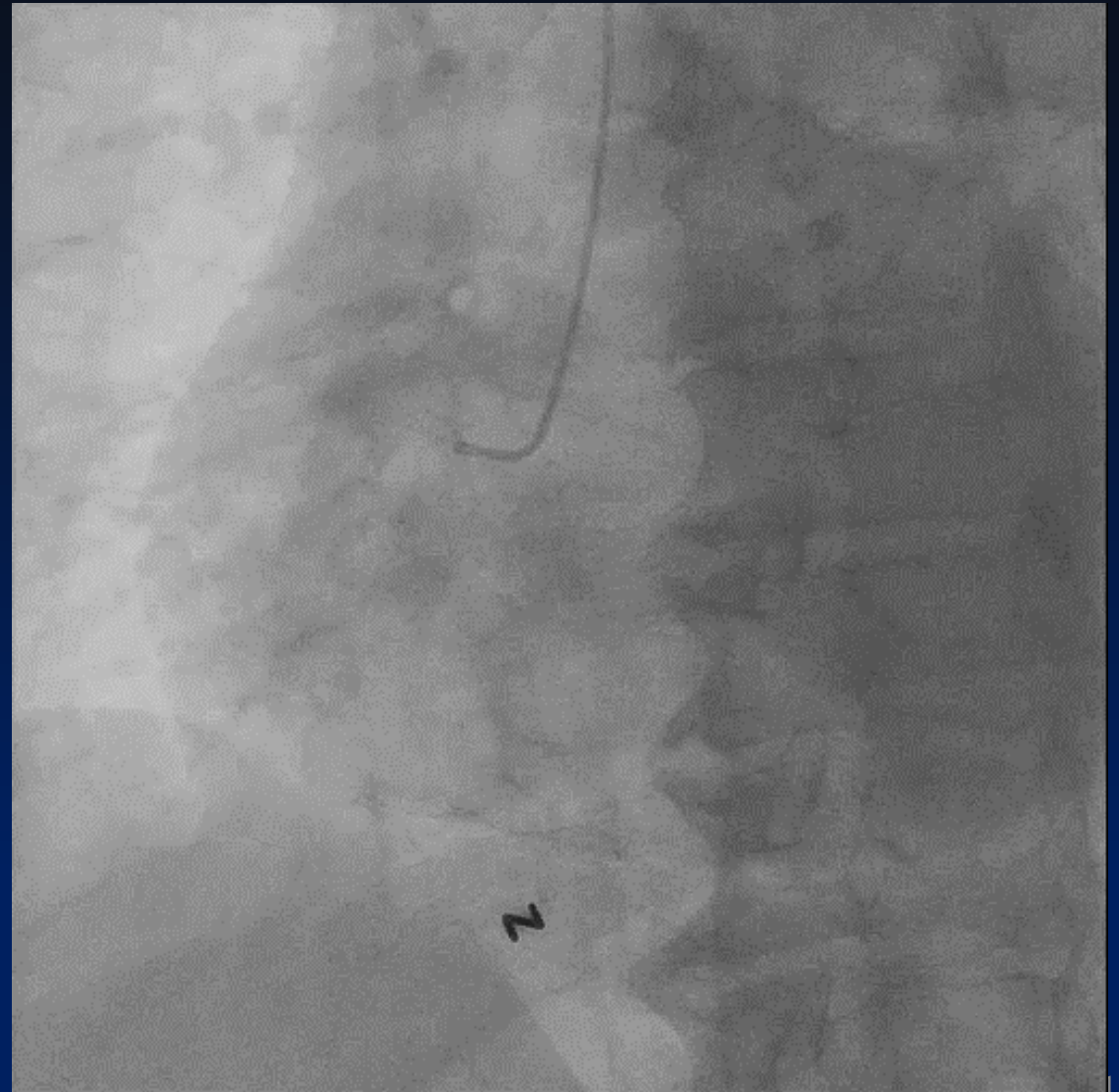



3 years later...

Post-PCI (3YA)



3 years later: ISR + de novo lesion





Let's go for
rotablation
once again!!

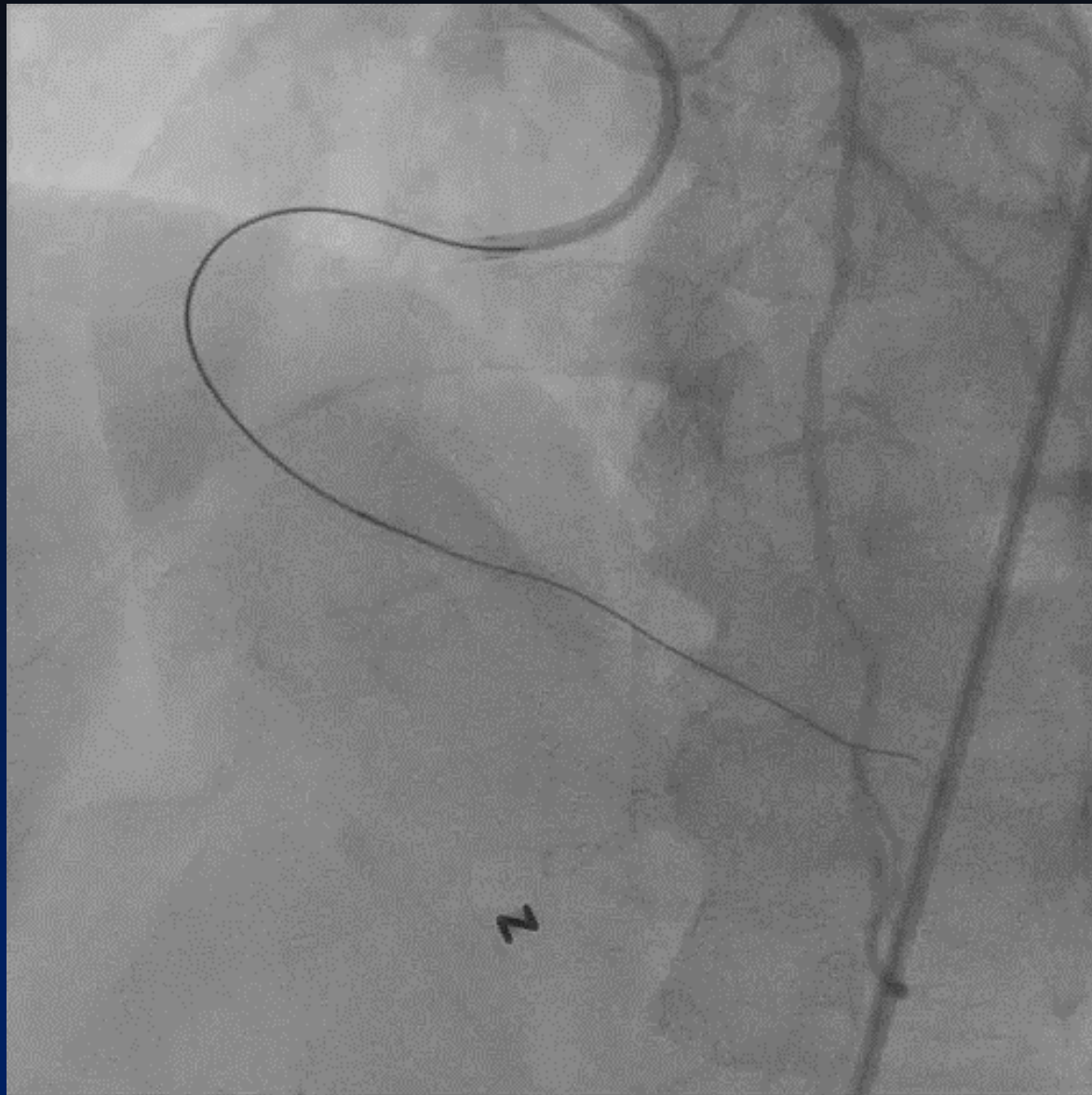
“

I was too tired at that time.
Now I have better experience with rotational atherectomy.
Stepped burr approach would be more successful!

”

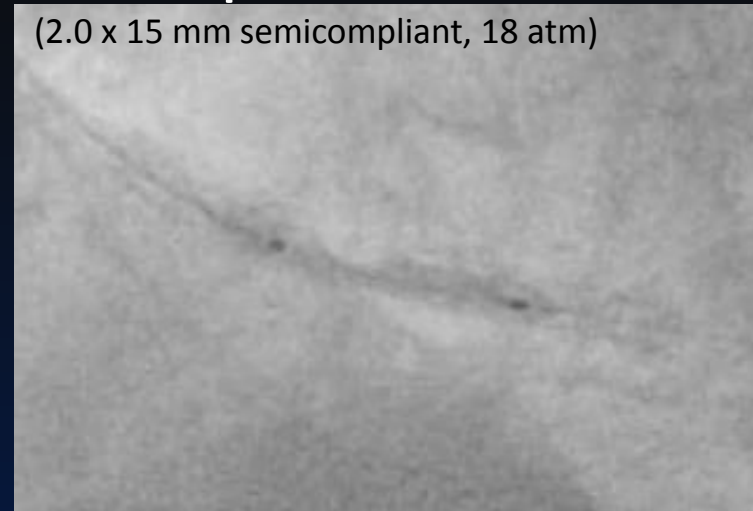
Successful wiring

Sion → Gaia 1st (Corsair microcatheter support)



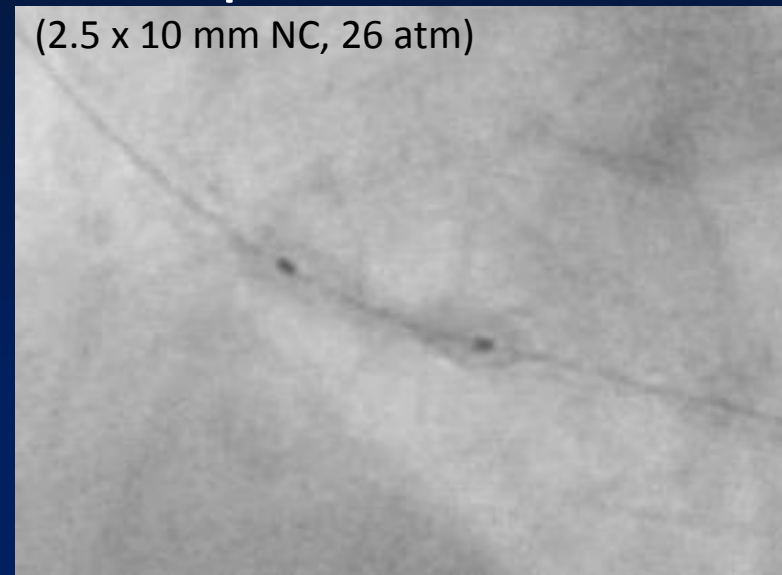
Underexpansion

(2.0 x 15 mm semicompliant, 18 atm)



Underexpansion

(2.5 x 10 mm NC, 26 atm)



Repeated Rotablator runs

A 1.25 mm burr failed to cross the lesion

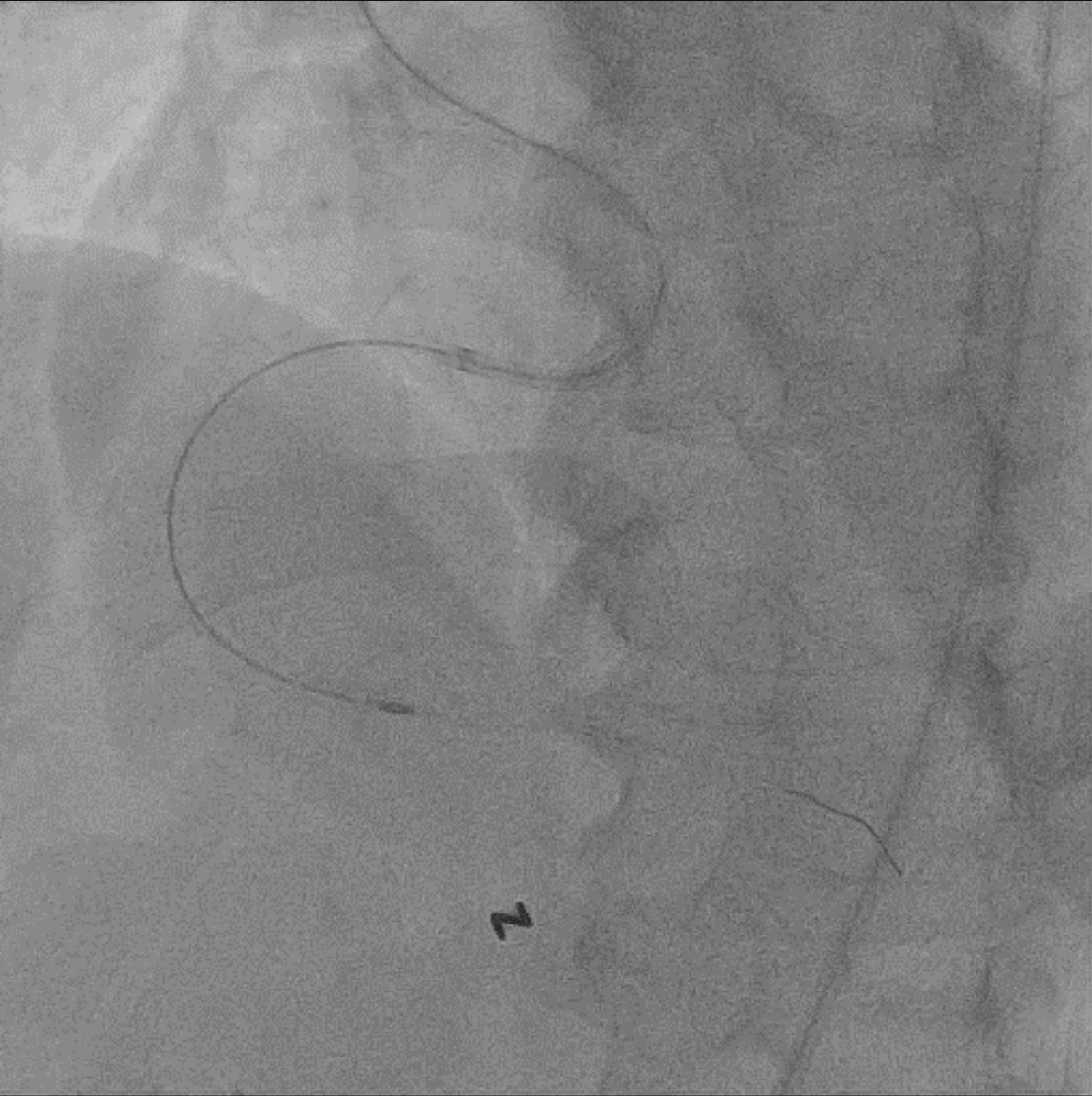


Not expanded yet

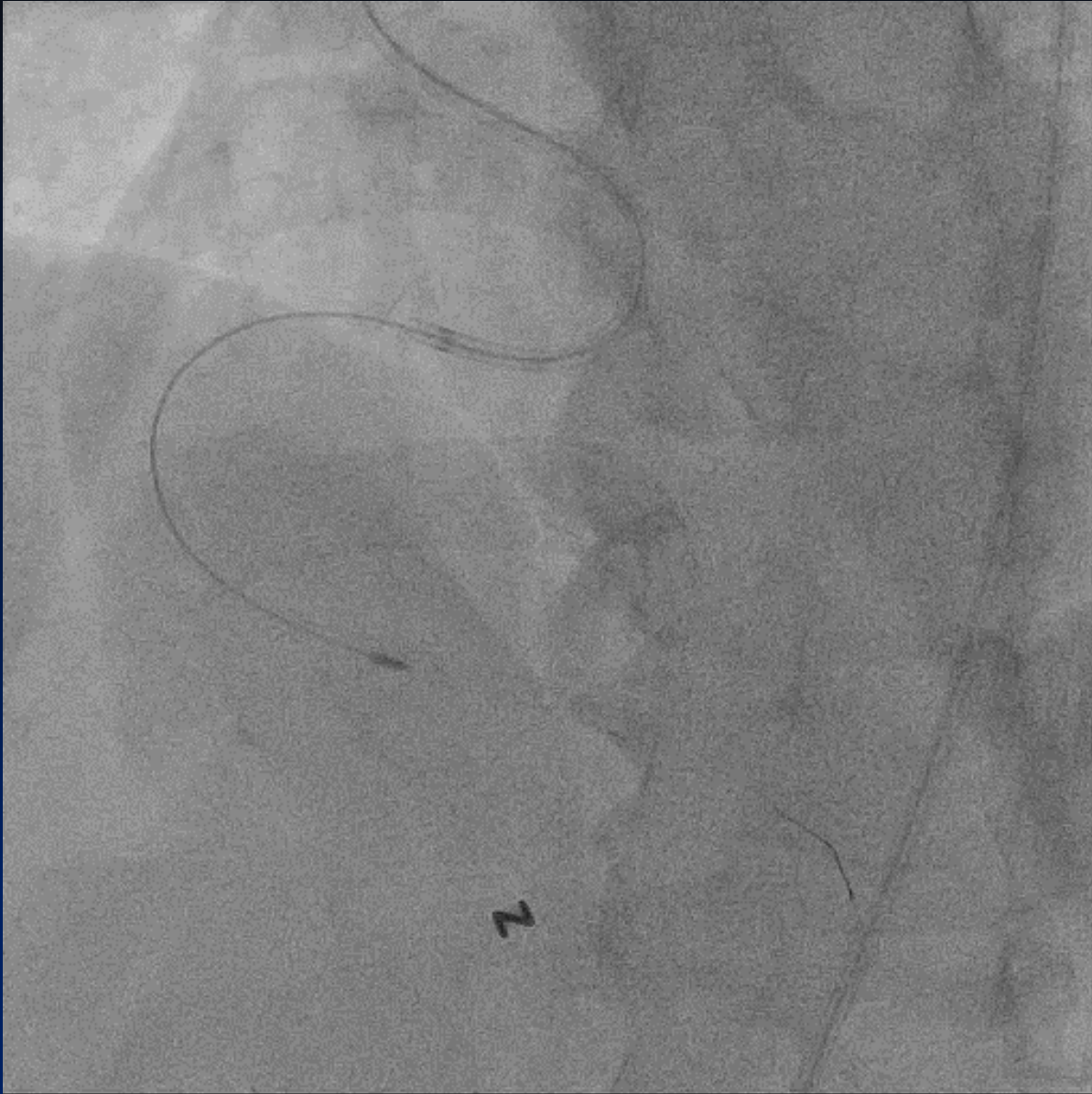
(2.5 x 10 mm NC, 26 atm)



Next round of rotablator run

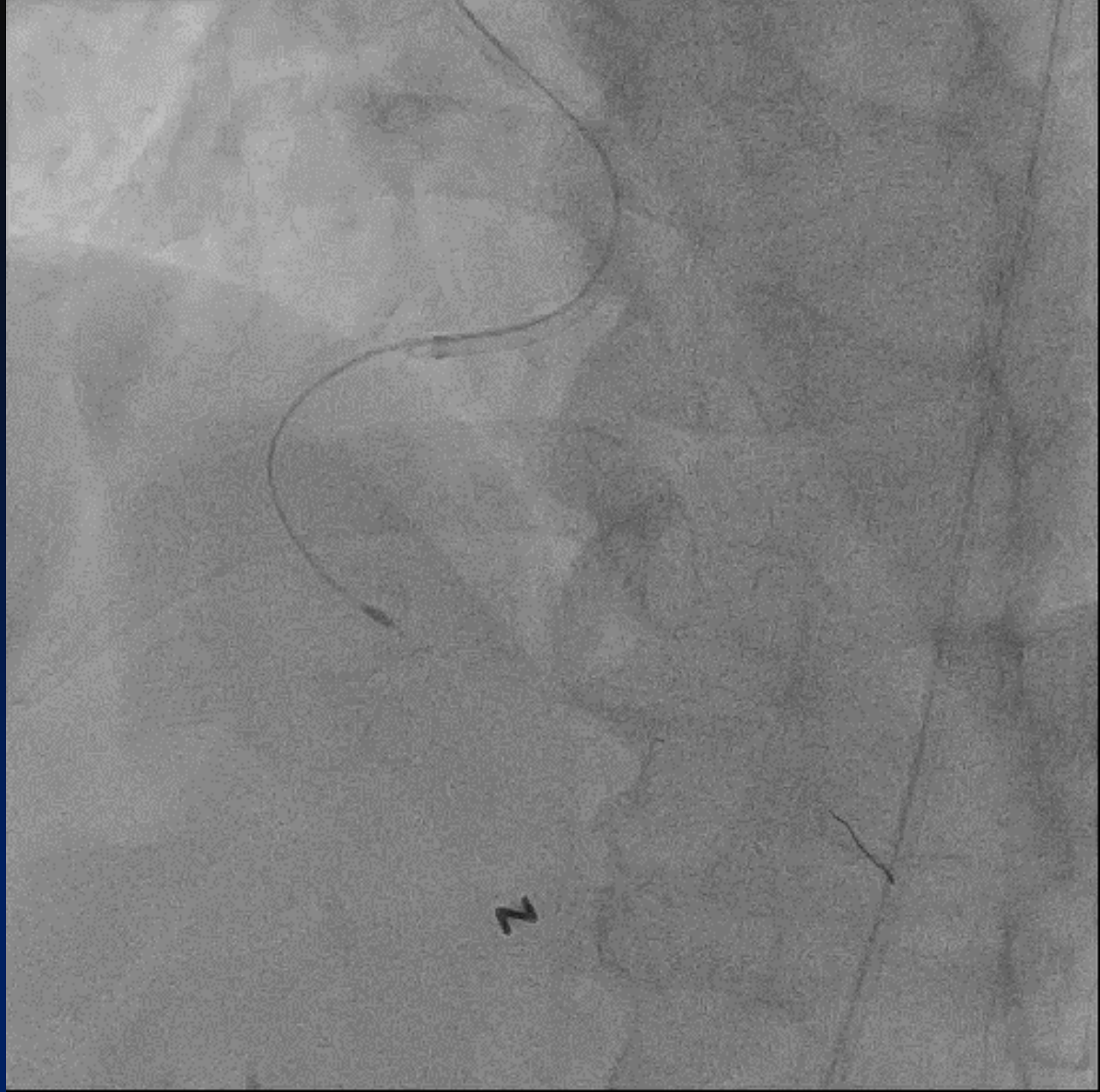


BURR ENTRAPMENT



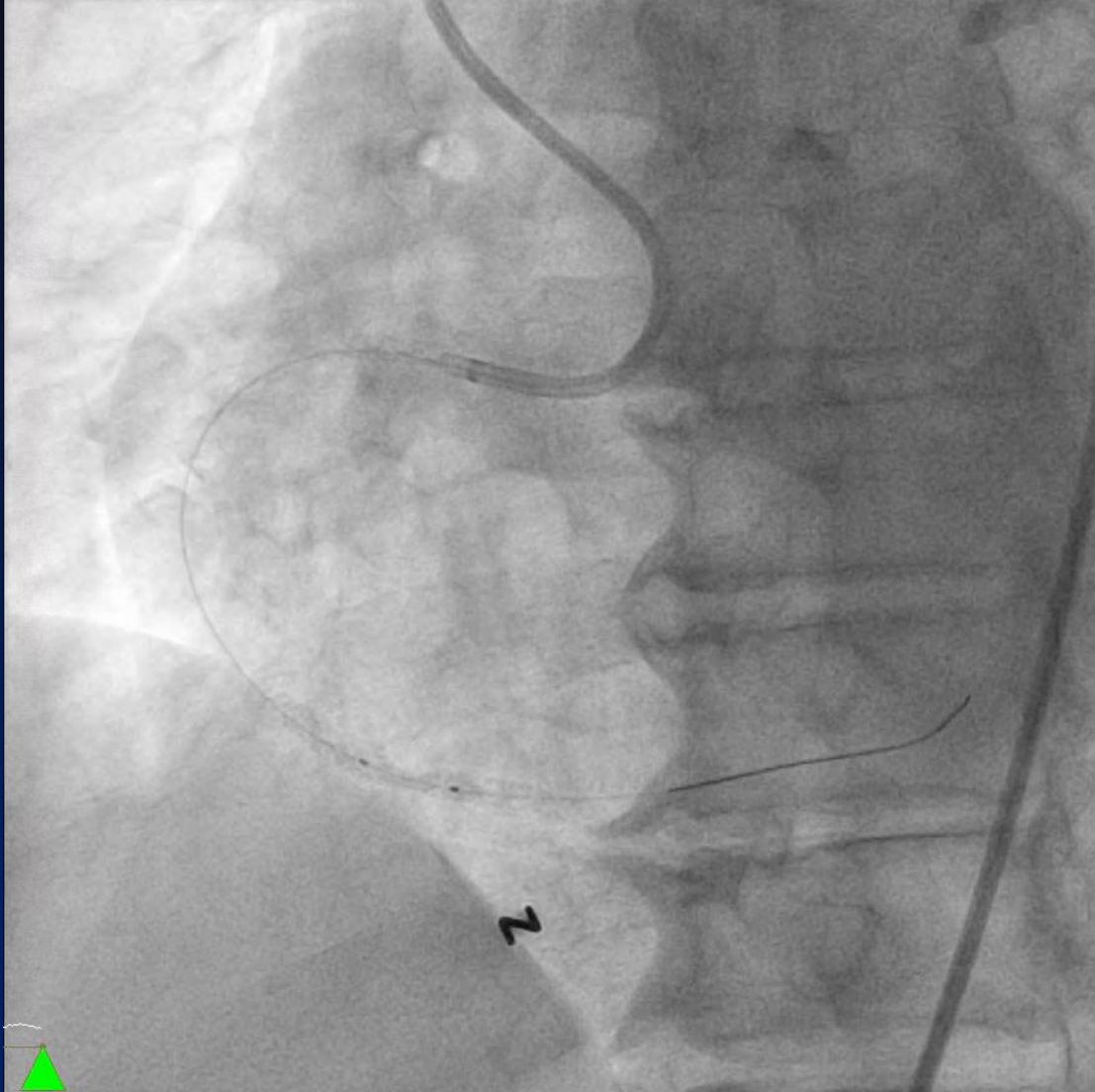
Entrapped Burr removal

- Deep intubation of guide catheter
- Gentle manual pullback
- Sheath was not cut off
- Fortunately the trial was successful

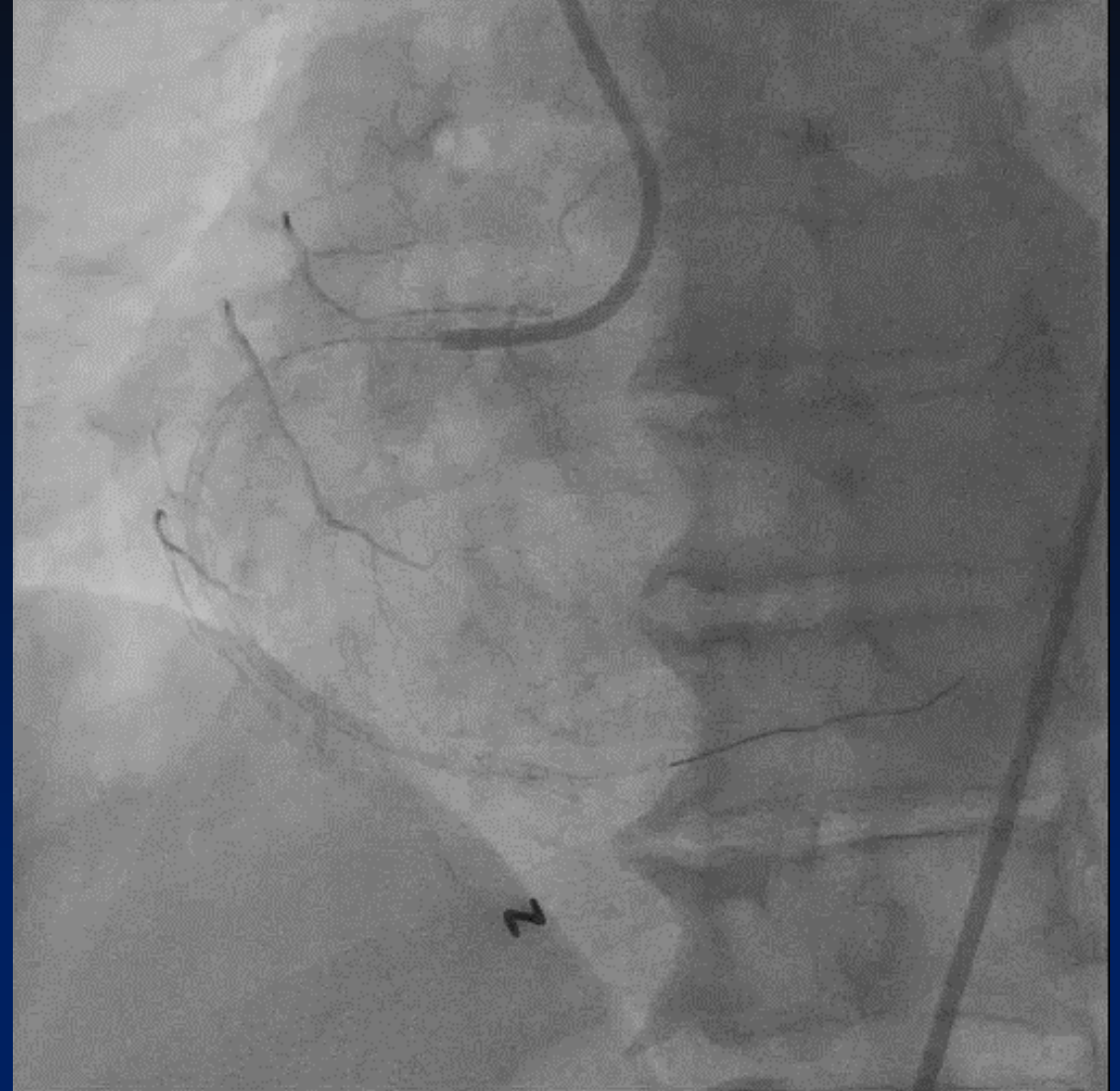


Final angiography

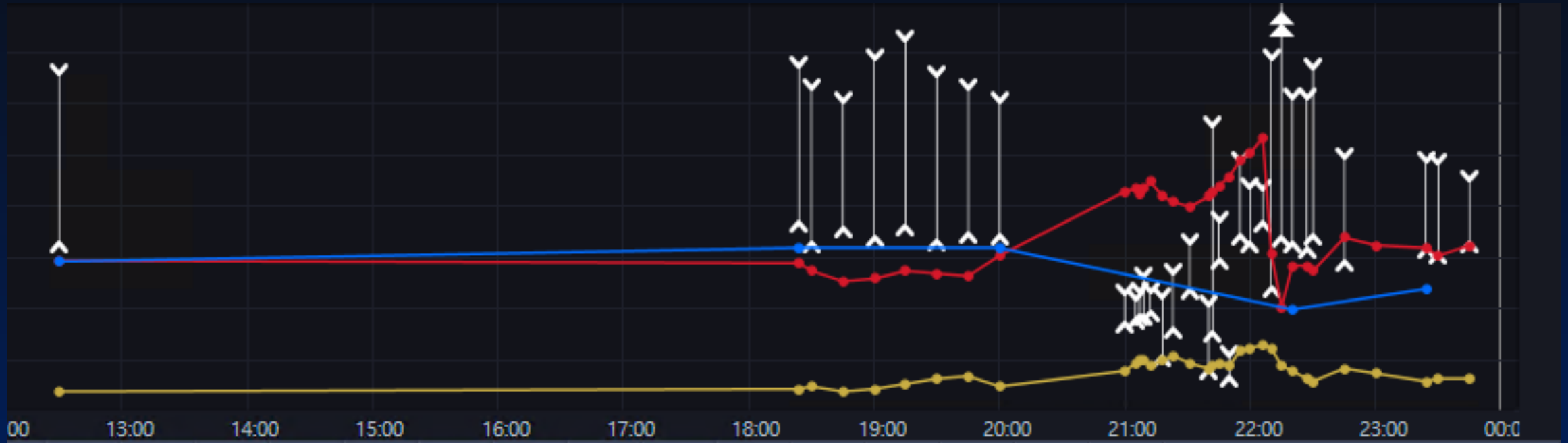
Failed lesion expansion



Final RCA angiography



Shock developed 3 hours after the procedure

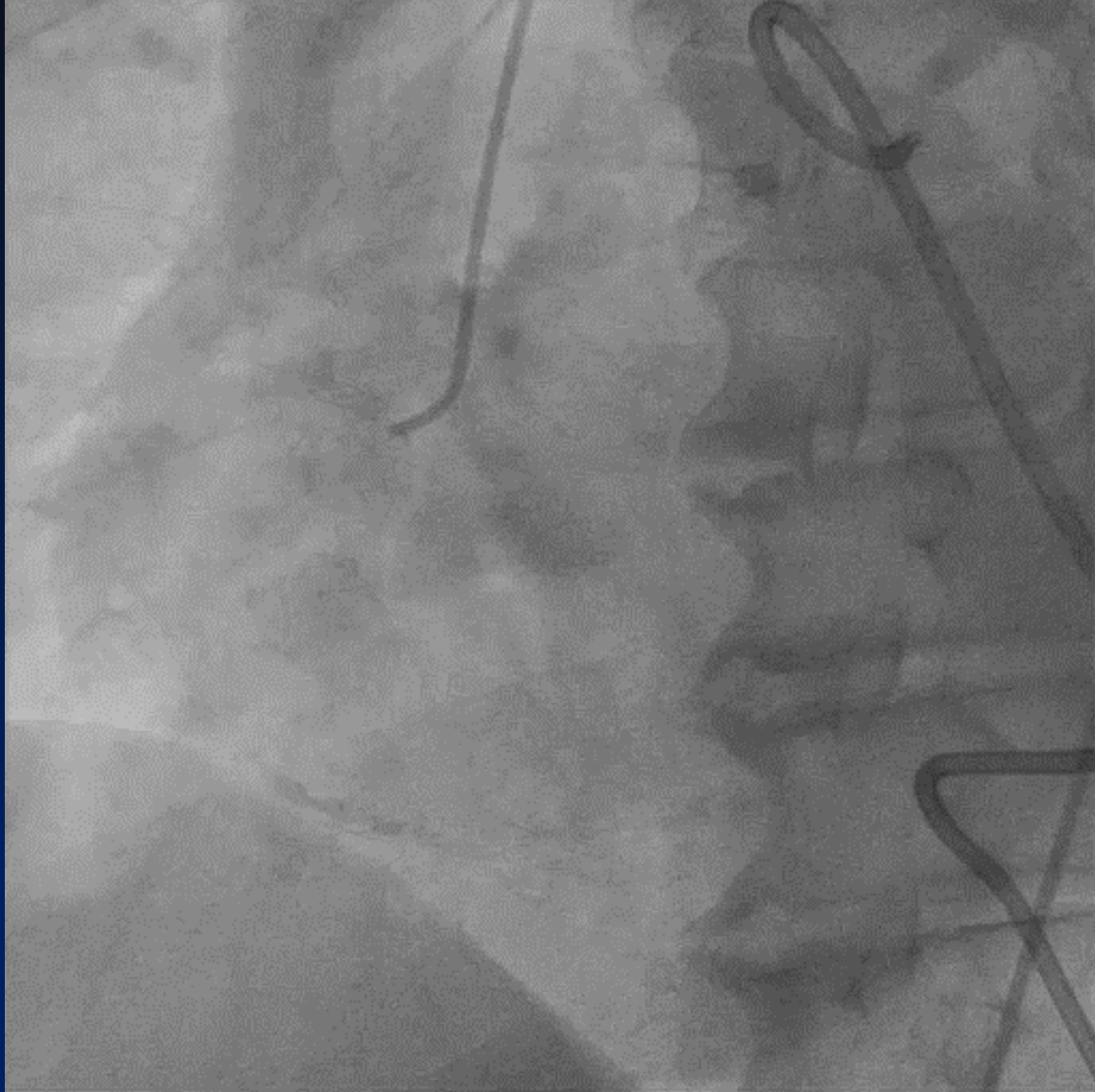


Echocardiography: Pericardial effusion with tamponade physiology

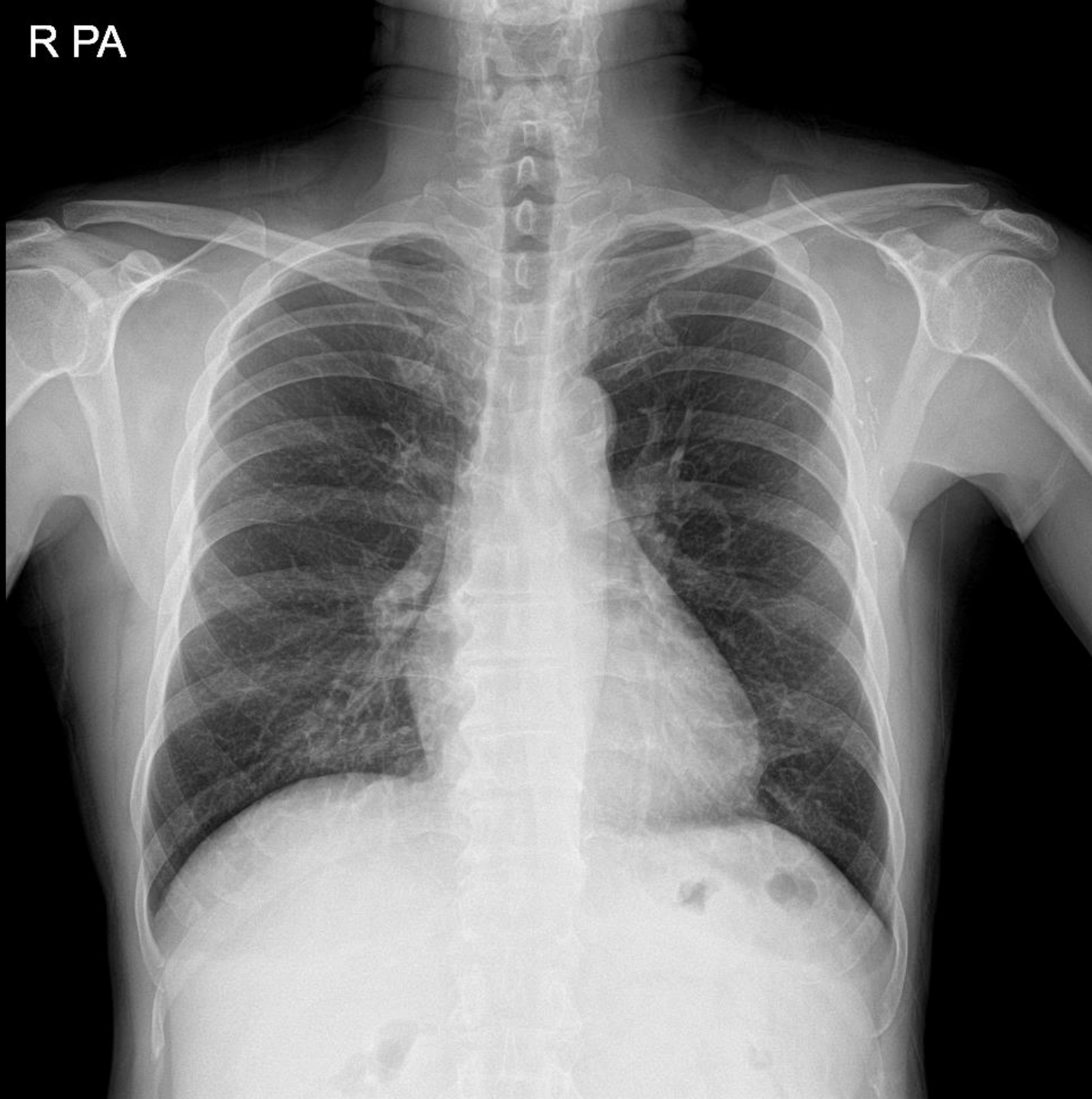
Emergency pericardiocentesis performed

Emergency CAG

no definite evidence of coronary artery rupture




R PA



DISCHARGED ALIVE

Hemodynamic stability recovered
PCC removed 2 days later



This case
reminded me
of our worst
experience..

F/91 NSTEMI

NSTEMI with Killip class IV

Pulmonary edema, respiratory failure

Under mechanical ventilation and inotropic support



Rotablator Burr Entrapment

1.25-mm burr

Antegrade flow compromised

→ Bradycardia

→ → Arrest

→ → → CPR



Entrapped Burr released after CPR

EBS implemented

Emergency CABG performed

Unfortunately, the patient did not survive...

Rotablator Burr

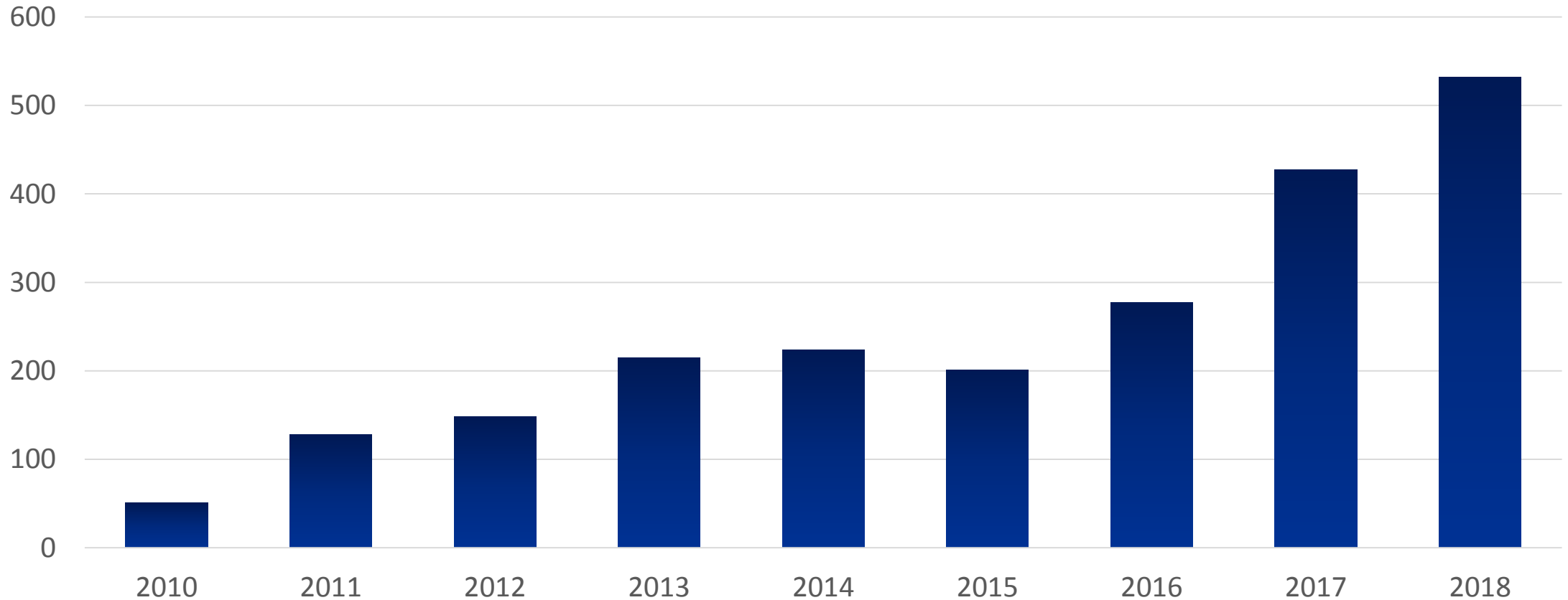


- The distal part of the burr is covered with diamond crumbs. The proximal part is smooth without sputtering.
- Only the distal part can ablate the lesion during rotation, while the proximal part is not able to ablate while pulling back the burr.



Rotational Atherectomy in Korea

Data from Health Insurance Review & Assessment Service

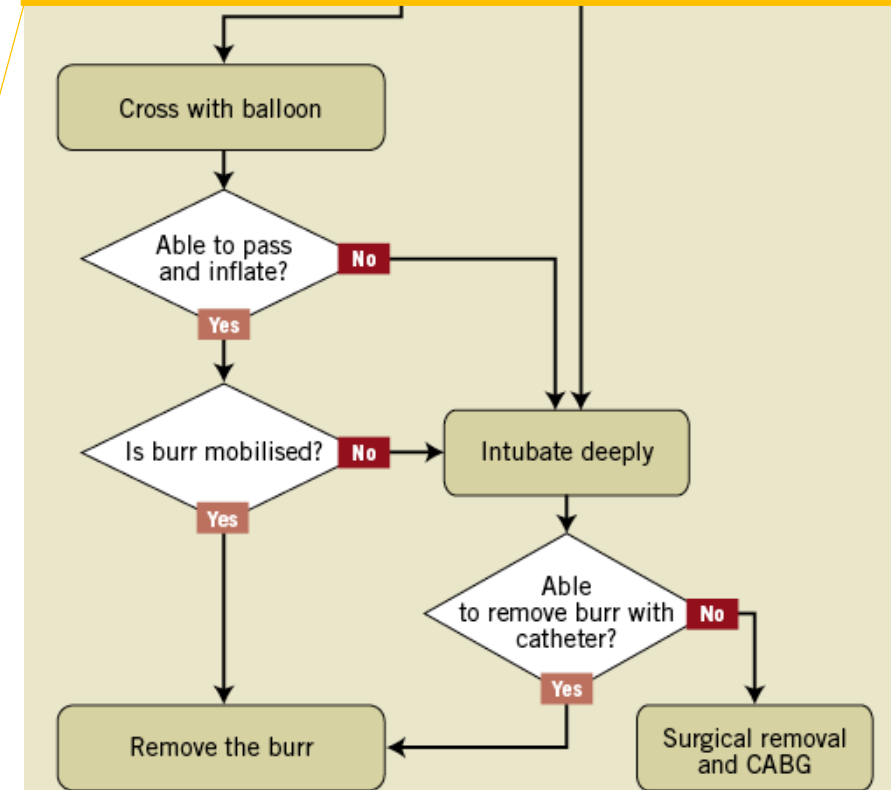
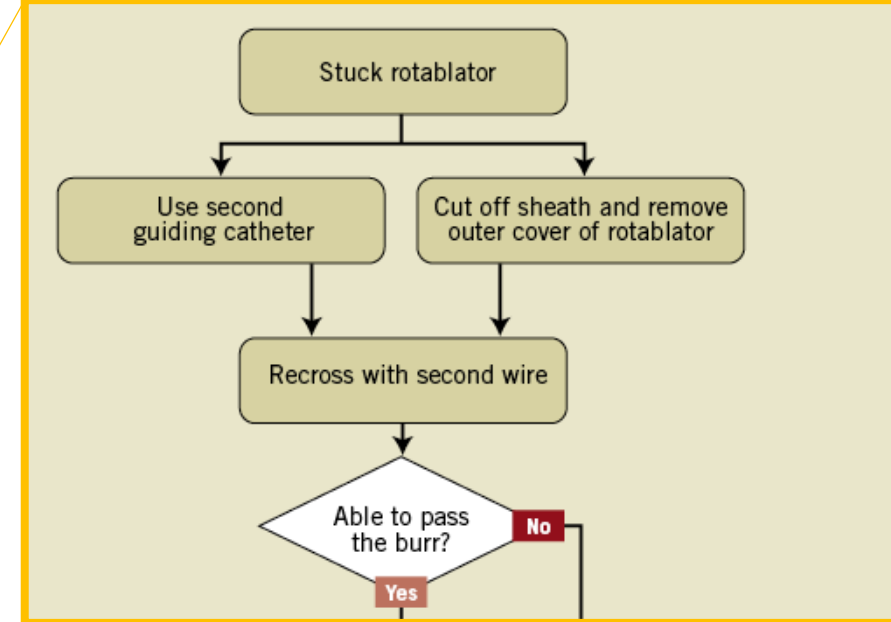
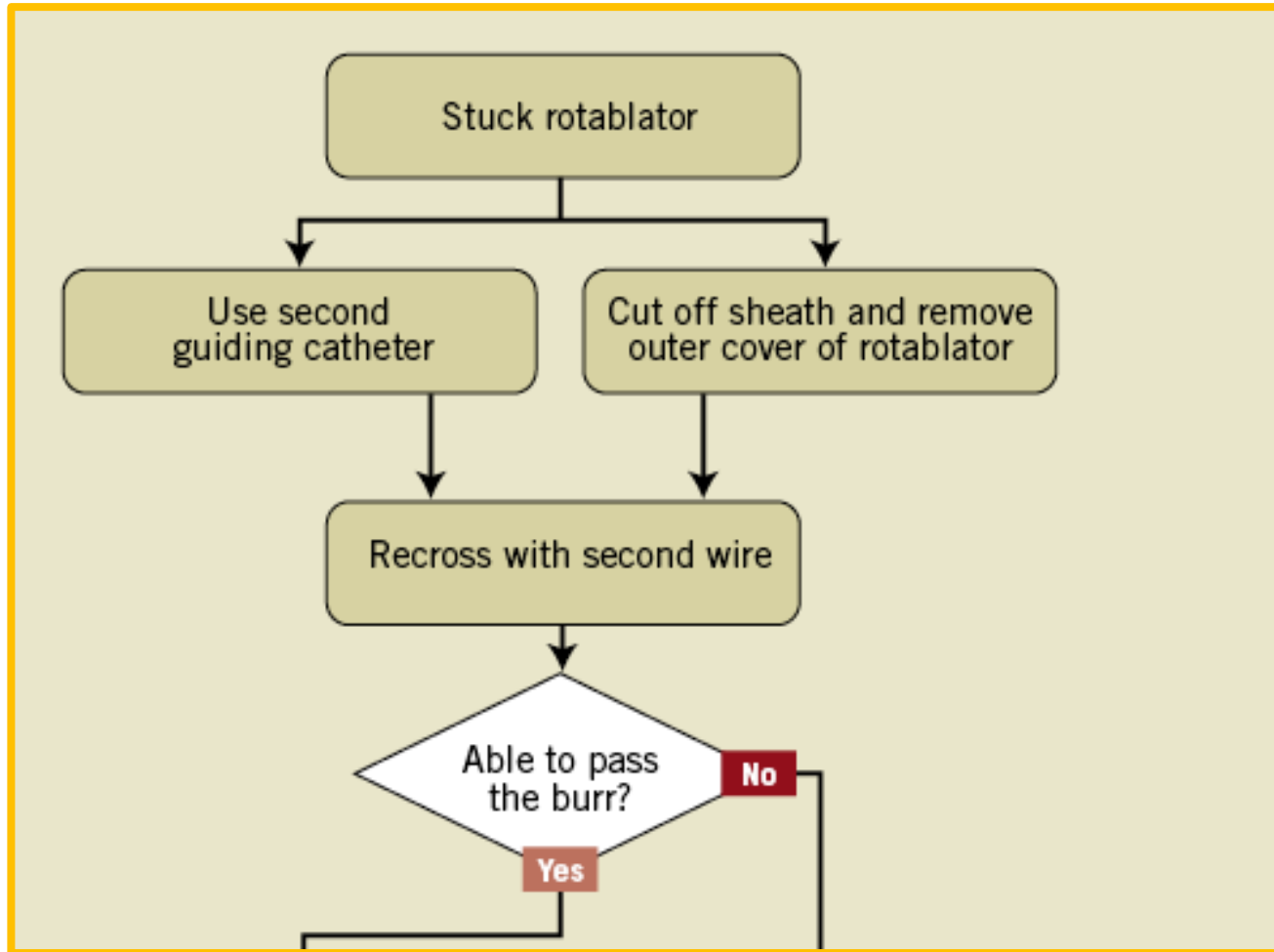


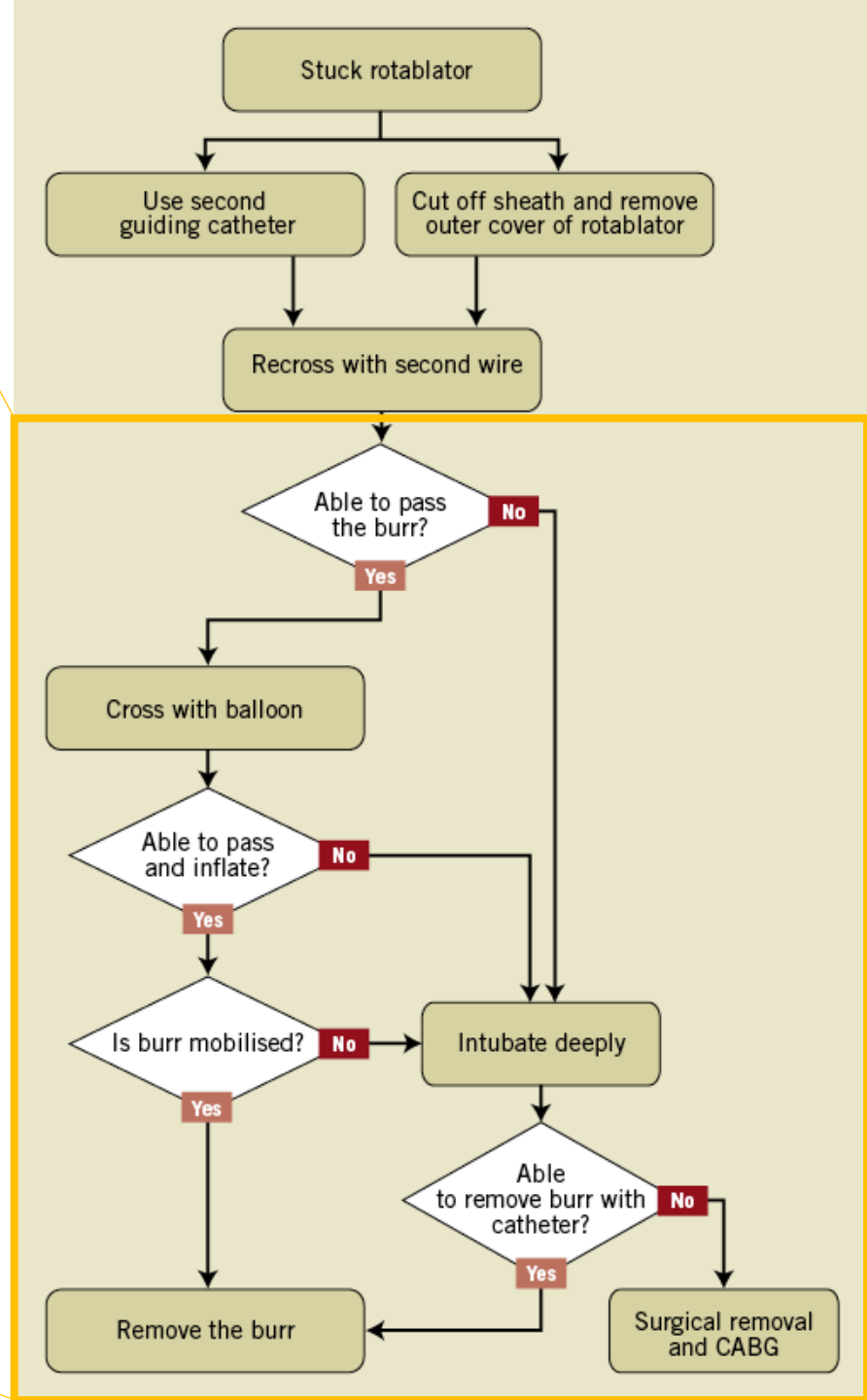
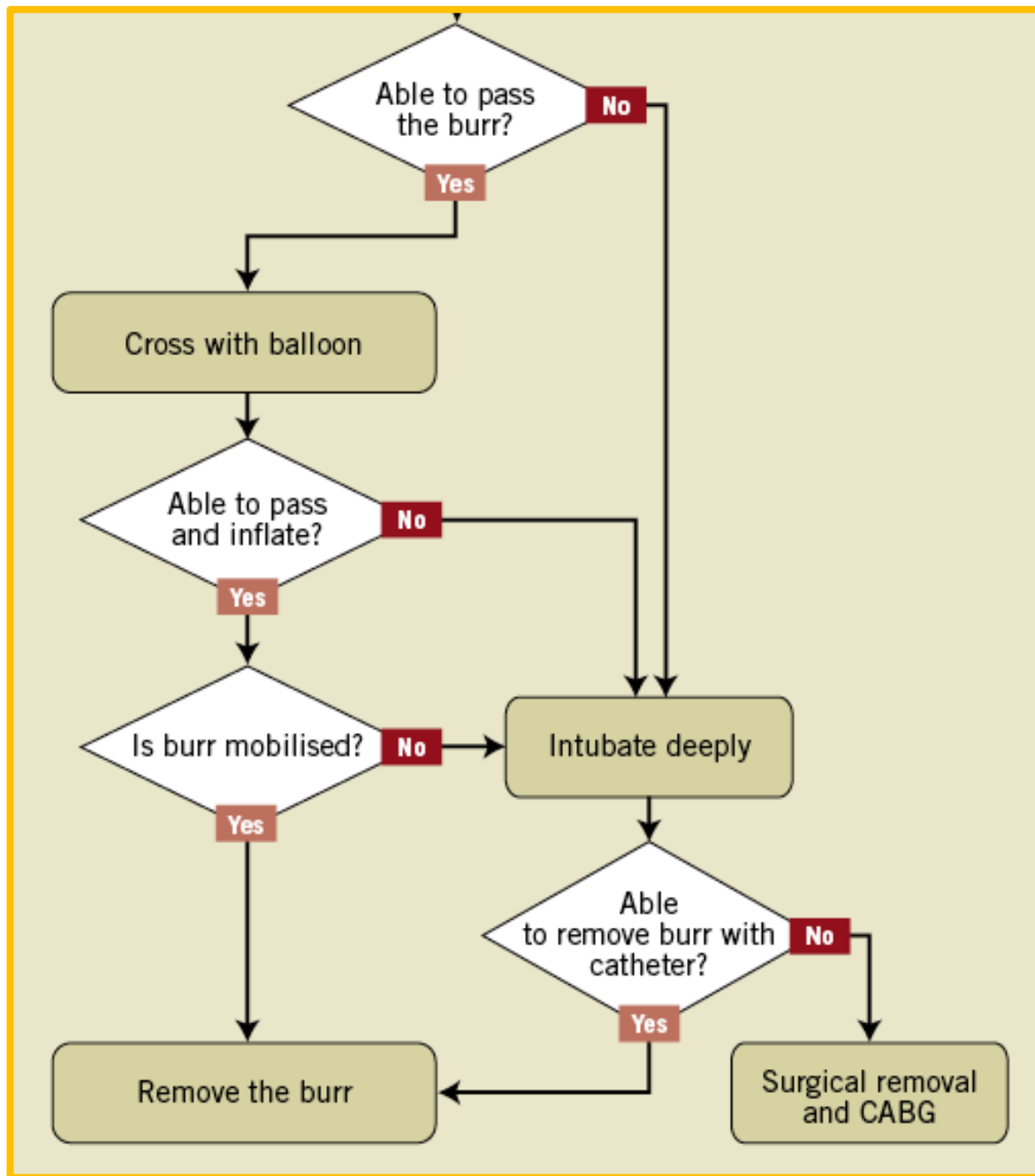
Prevention

- Choice of relatively small burrs
- A higher speed of rotation
- Operators should not exert excessive forward force.
- Rotablation of metal stents must be performed very carefully:
It results in early blunting of the diamonds and often several burrs of the same size will ultimately be necessary to ablate the stent.

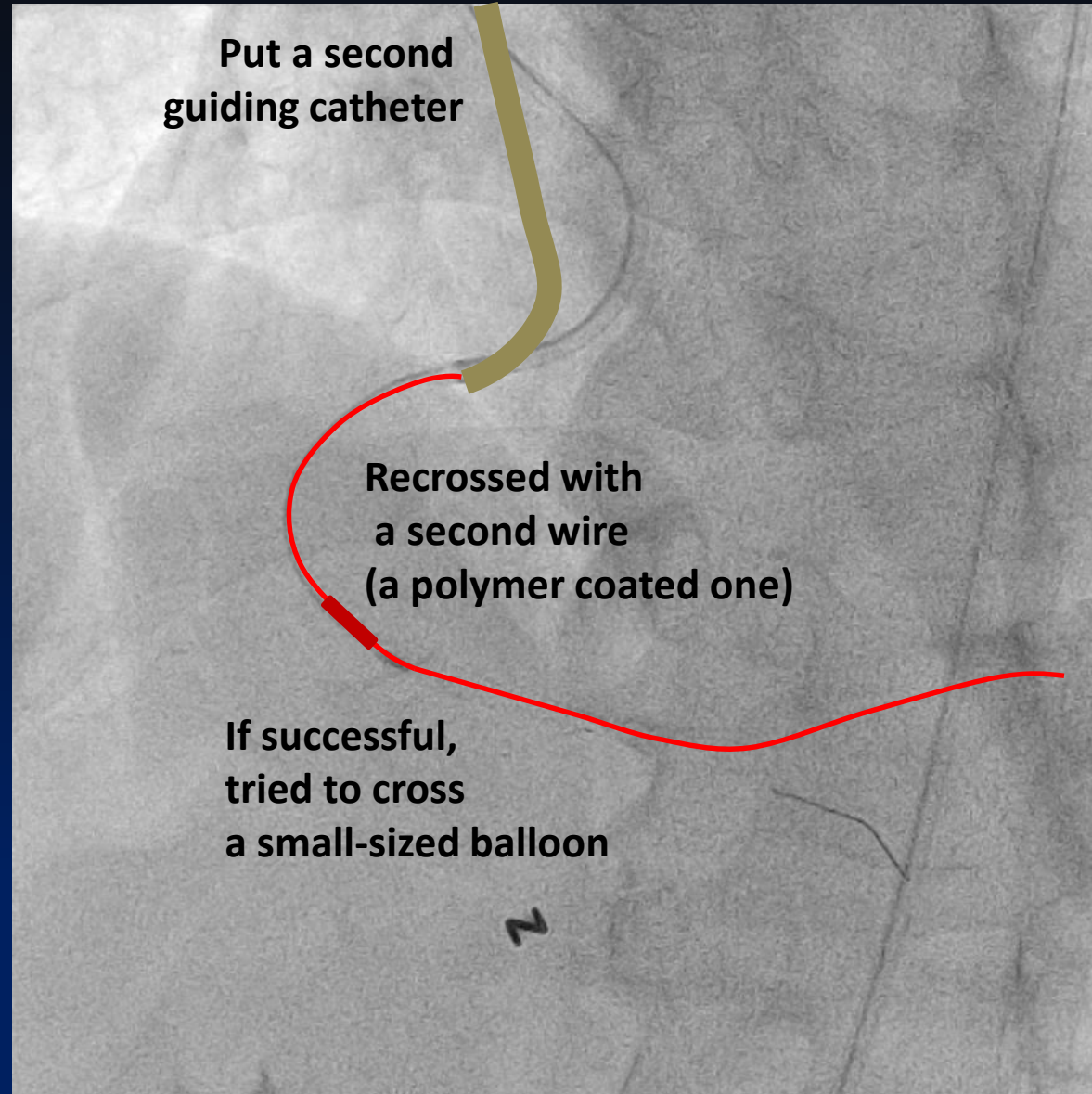


Management

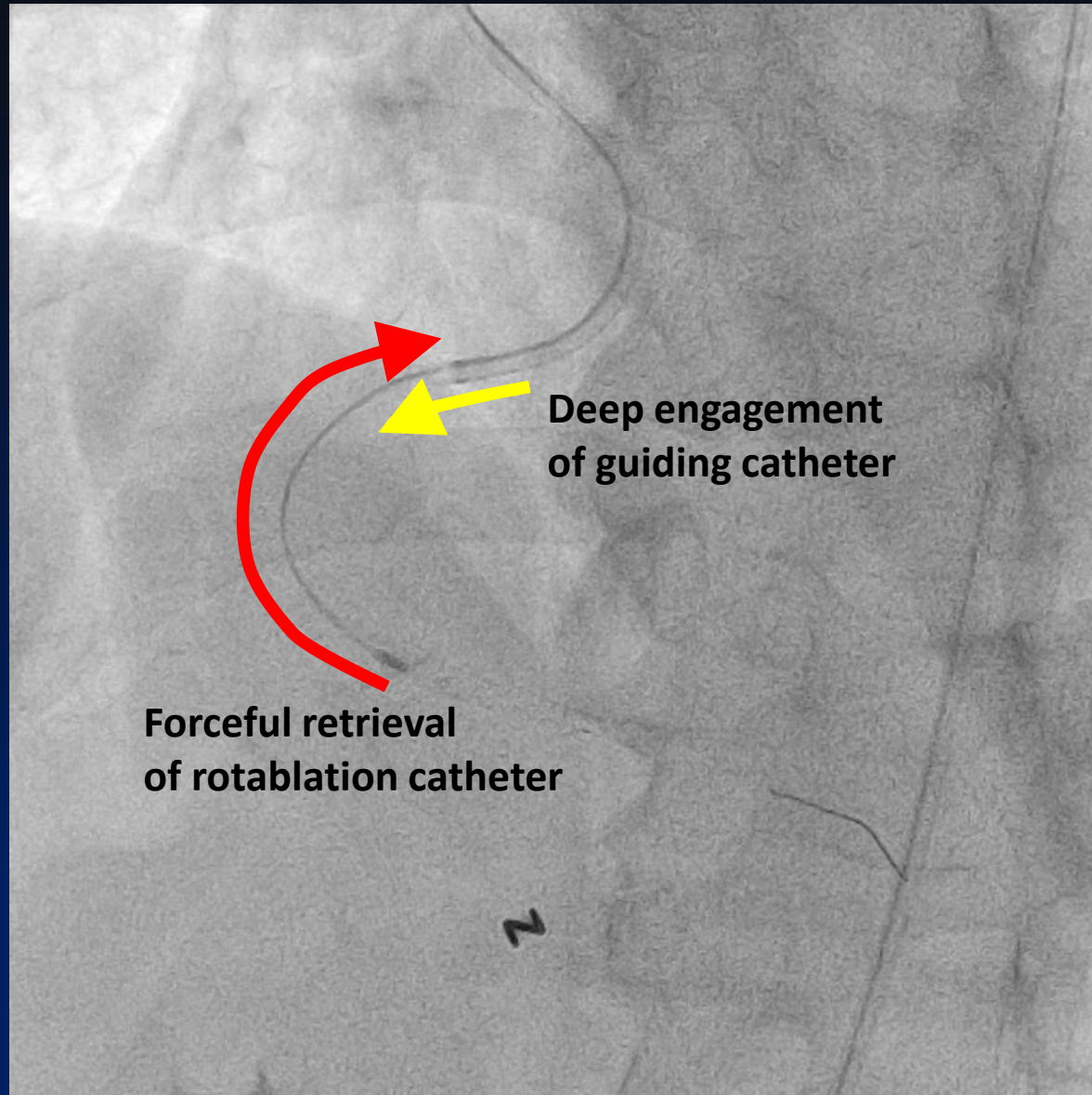




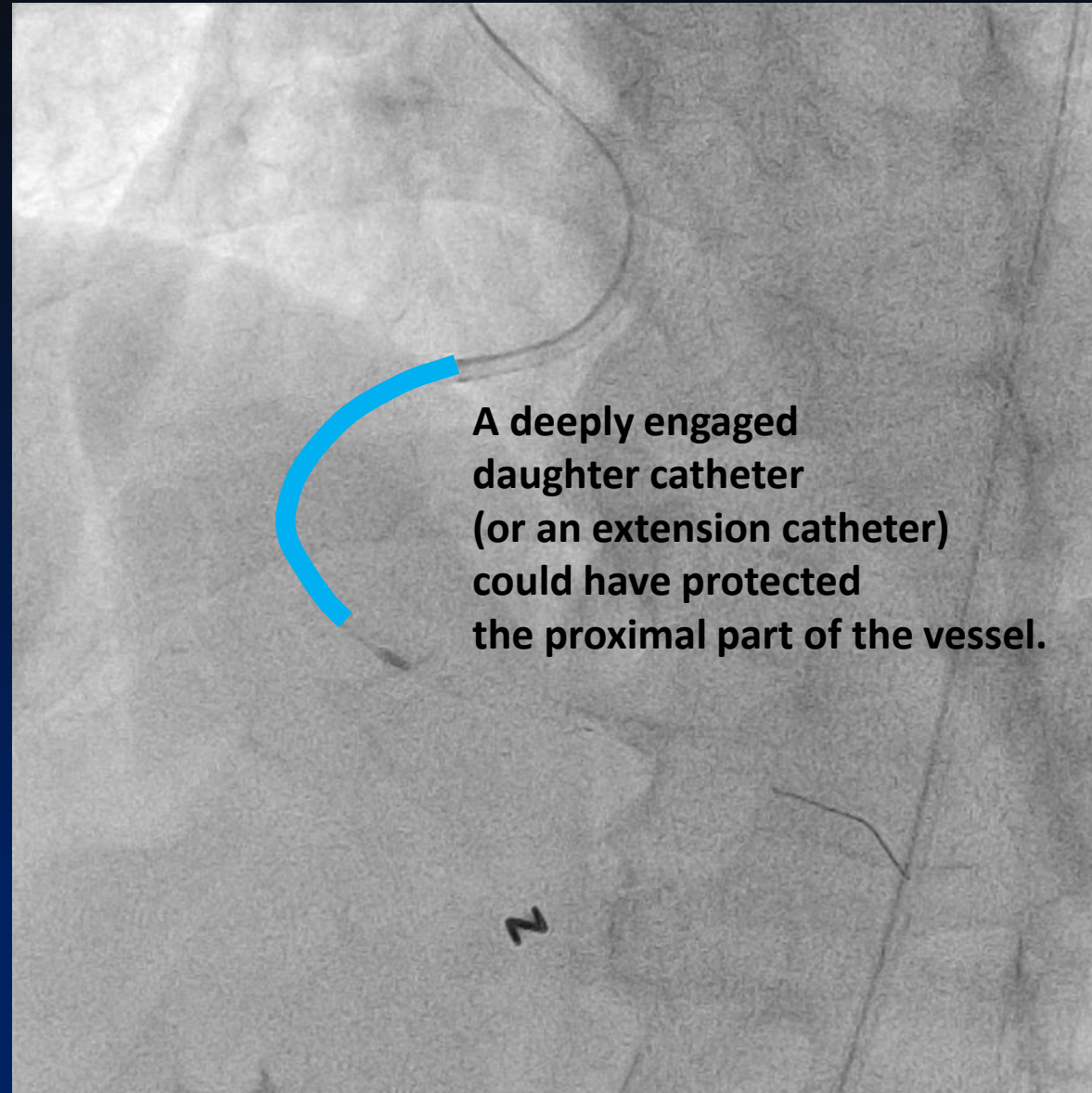
I should have done..



There could have been vessel injuries d/t..



A daughter catheter could have..



Summary

- 01** Rotablator burr entrapment is a rare but potentially life-threatening complication.
- 02** “An ounce of prevention is worth a pound of cure.” – Benjamin Franklin
: Gentle pecking motion, short runs of rotablation, small burrs, a higher speed
- 03** Rotablation of implanted metal stents must be performed very carefully.
- 04** Keep in mind the management strategies for a stuck rotablator.



Thank you for
your attention!

