Acute ST-elevation Myocardial Infarction and heavily calcified lesion

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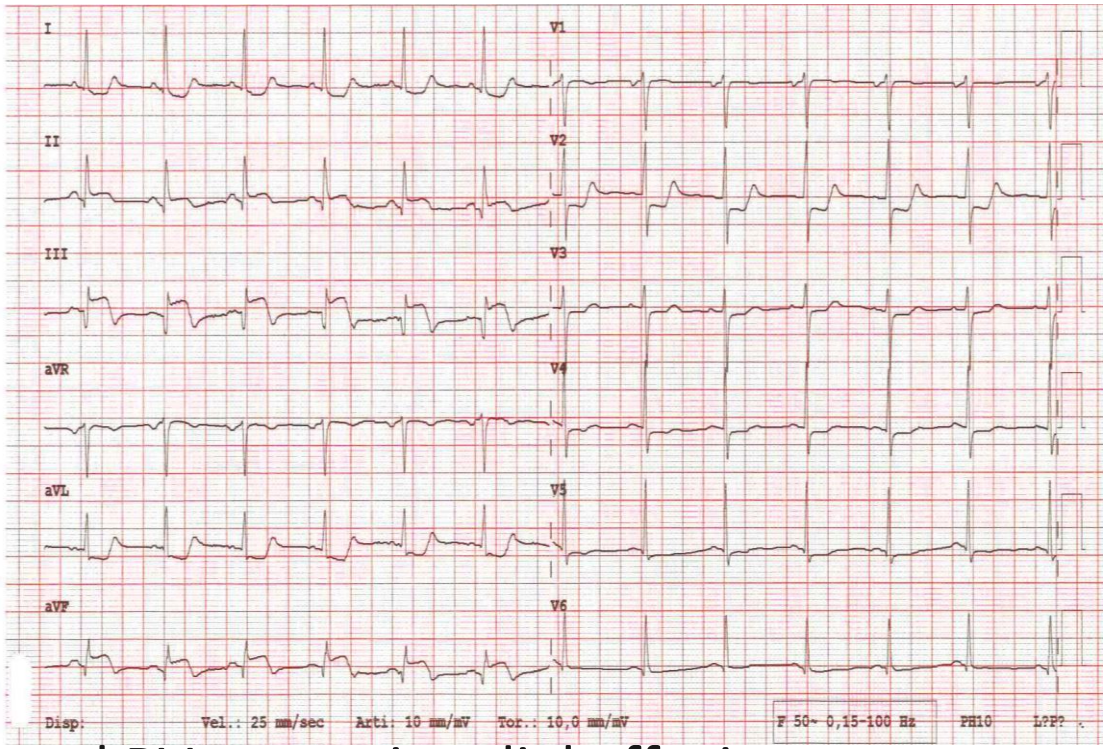
Clinical presentation

65 years-old woman

Cardiovascular risk factors: Hypertension, Dyslipidemia, Smoke, Familiar history of coronary artery disease

18 Sep 2020, **1 am** access to emergency department for 5-hour retrosternal chest pain



BP 140/65 mmHg

HR 75 bpm

SpO2 96%

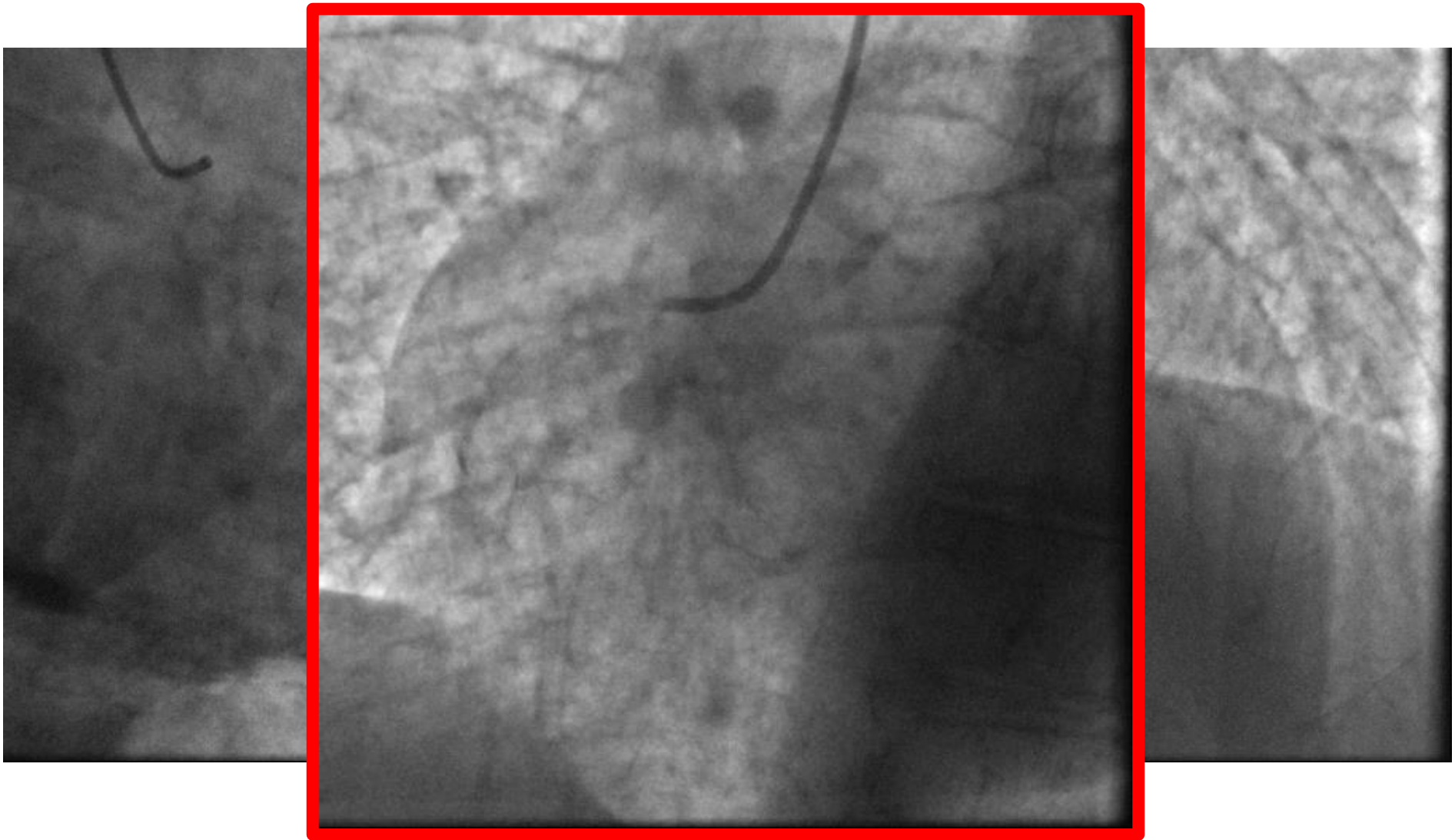
Killip 1

Fast echo: 45% LVEF,

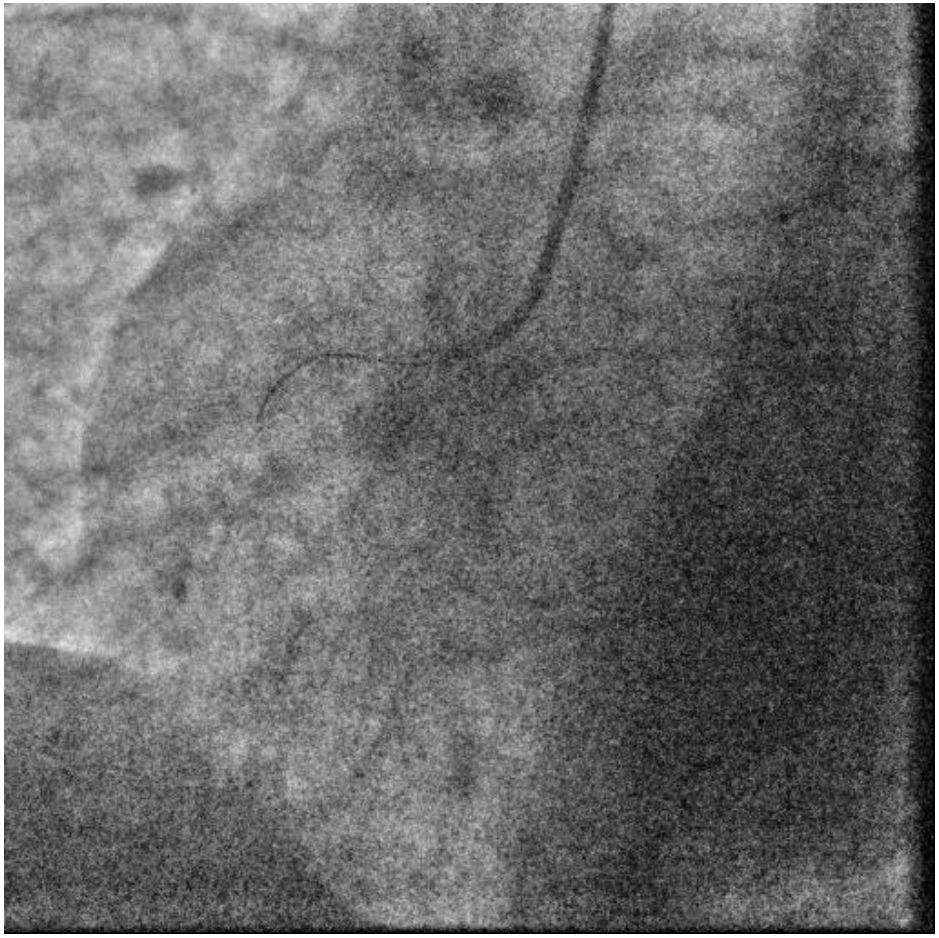
inferoposterior akinesia, normal RV, no pericardial effusion

Urgent coronary angiography

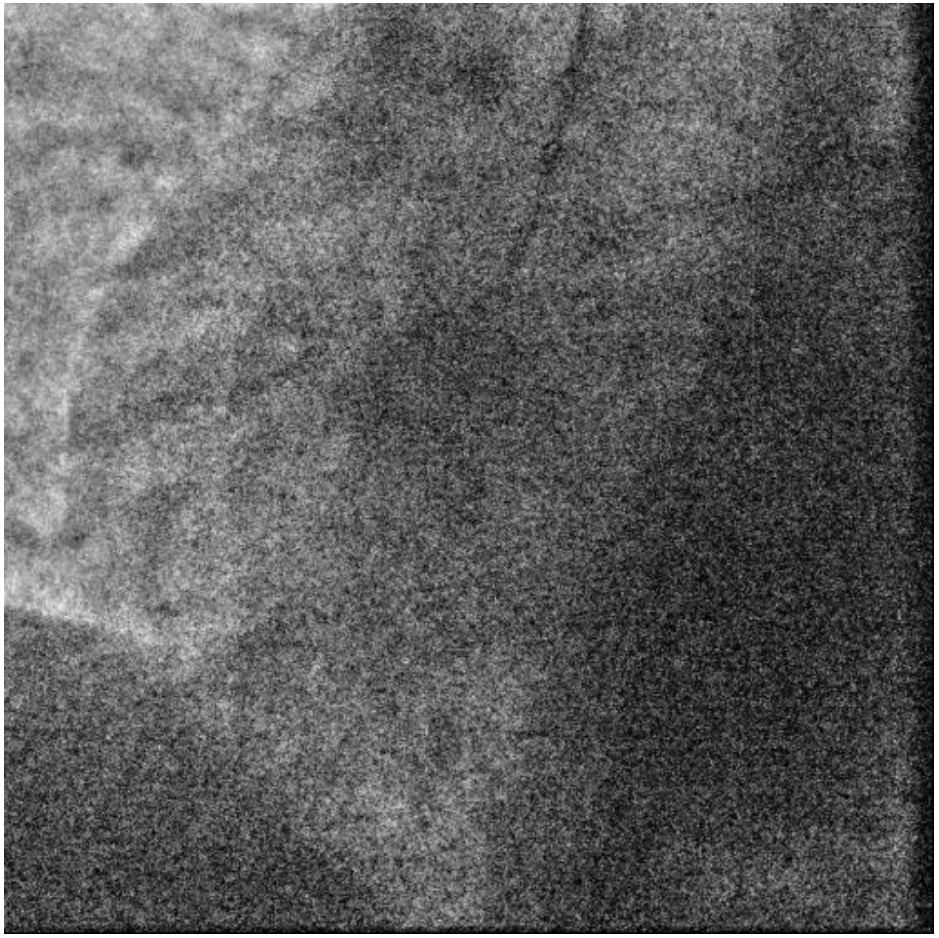
Pre-treatment with oral loading doses of Aspirin 300 mg + Prasugrel 60 mg



Primary PCI

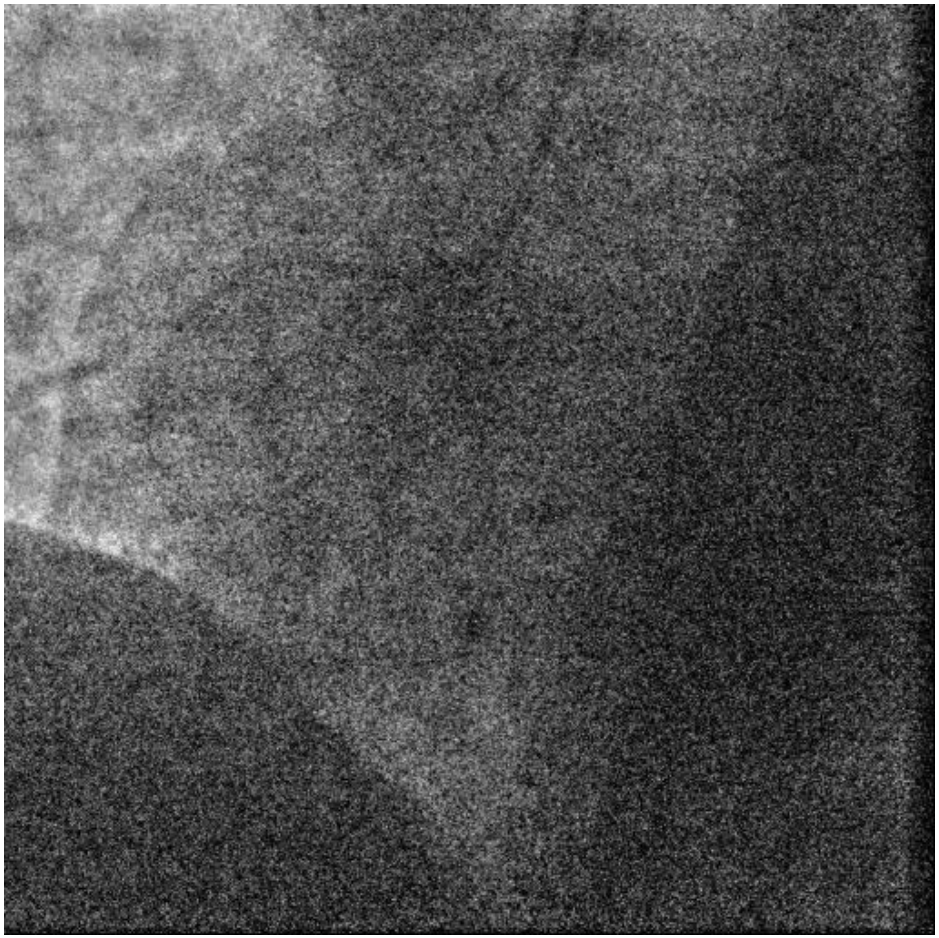


Easy occlusion crossing (RunThrough™ wire)

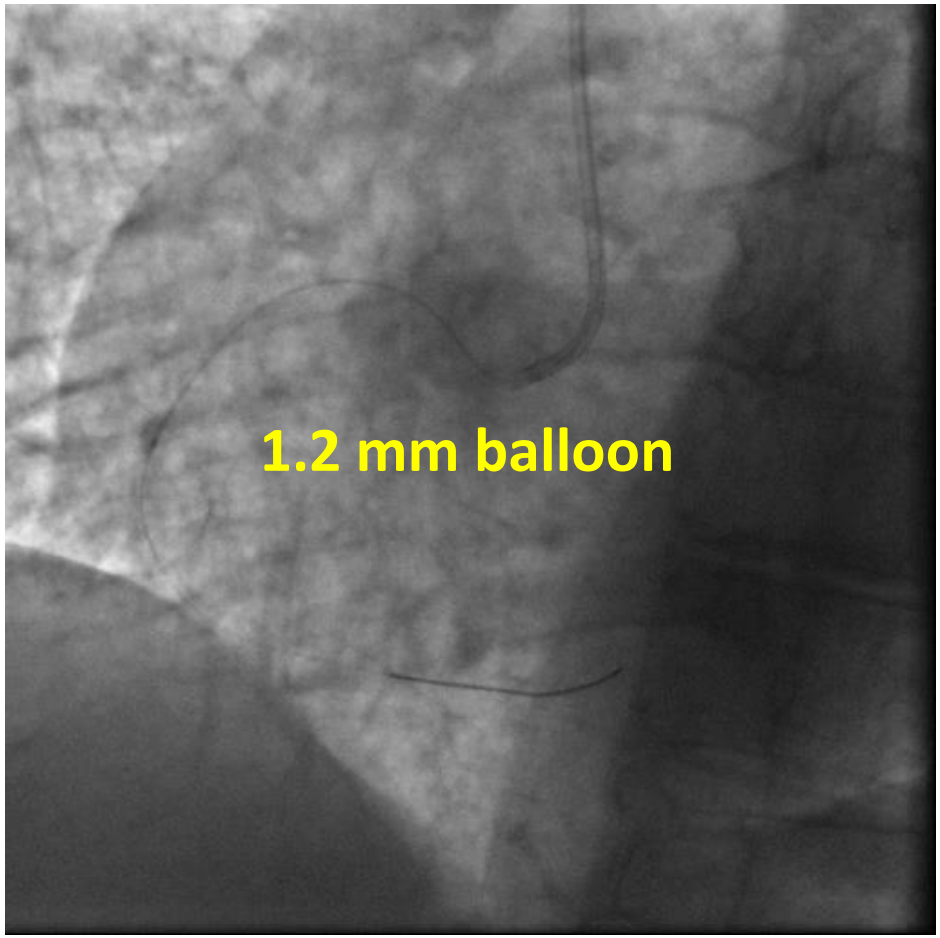


Check after wire crossing

But…

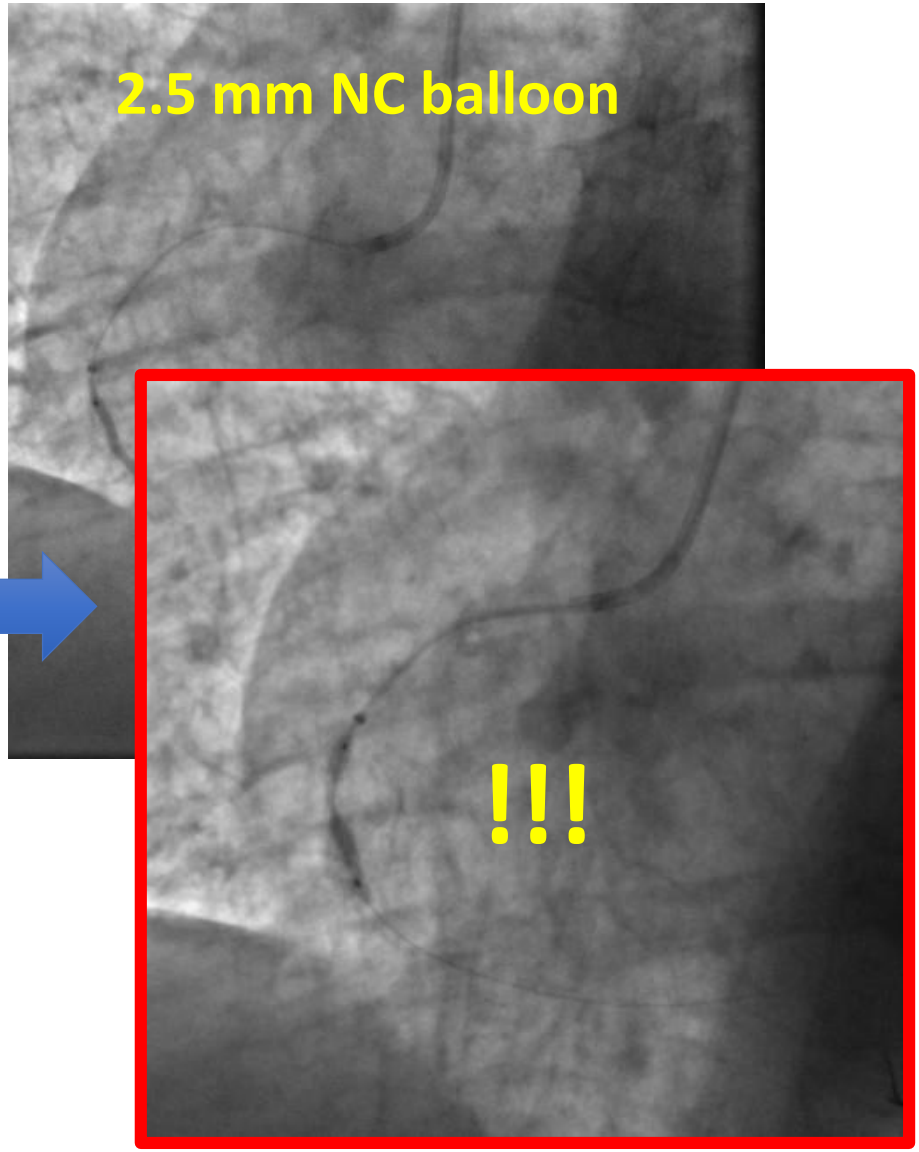


Thrombus aspiration catheter doesn't cross the lesion …

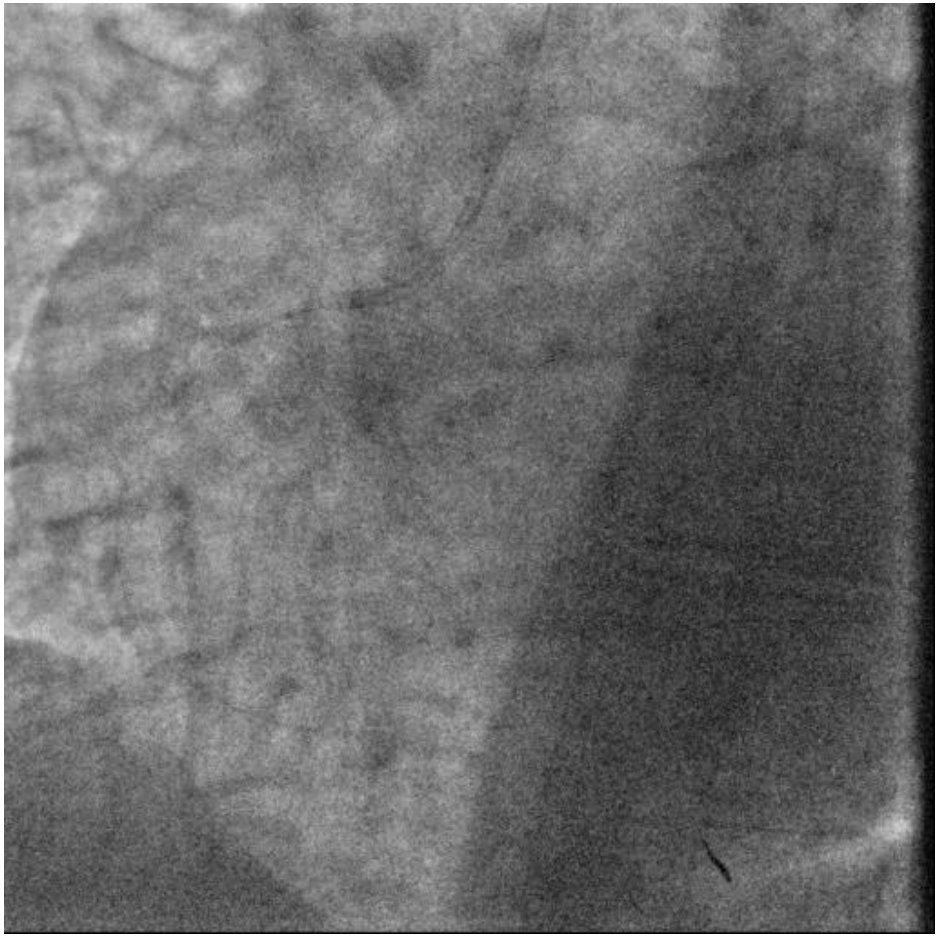


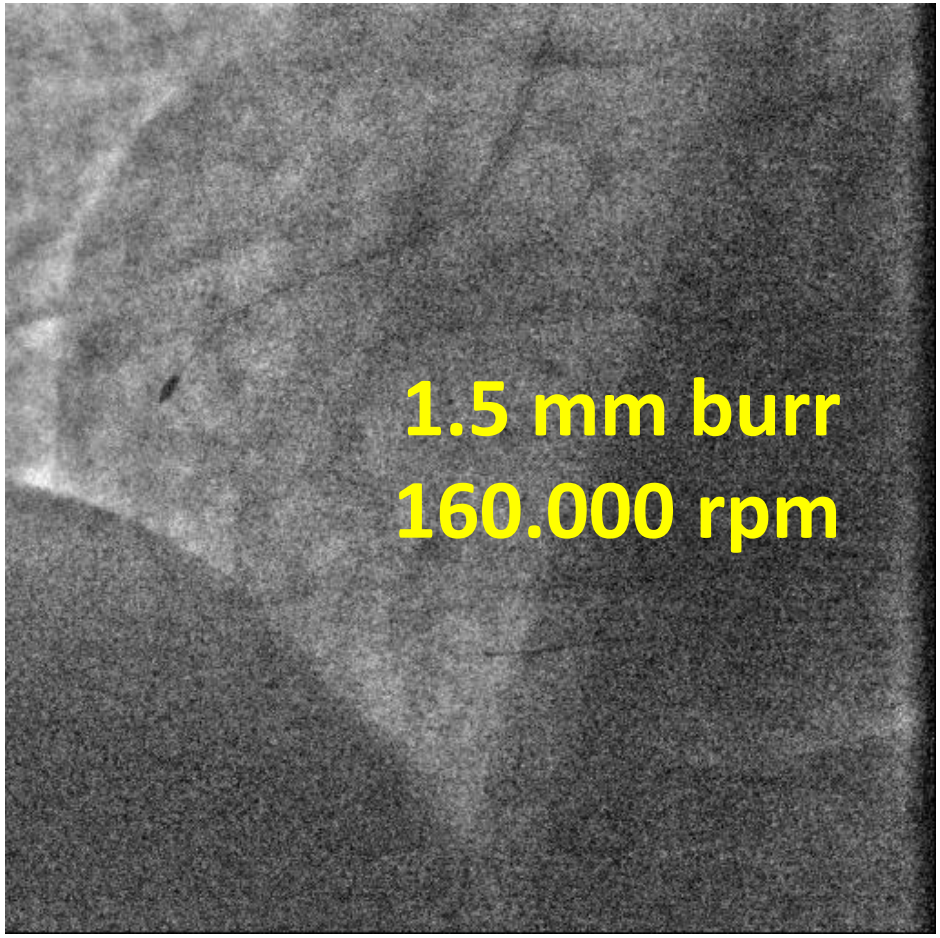
… neither 2.0, 1.5, 1.20 mm semi-compliants balloons !!!

1.2 mm balloon crosses the lesion with 5.5 Fr Guideliner™ support...



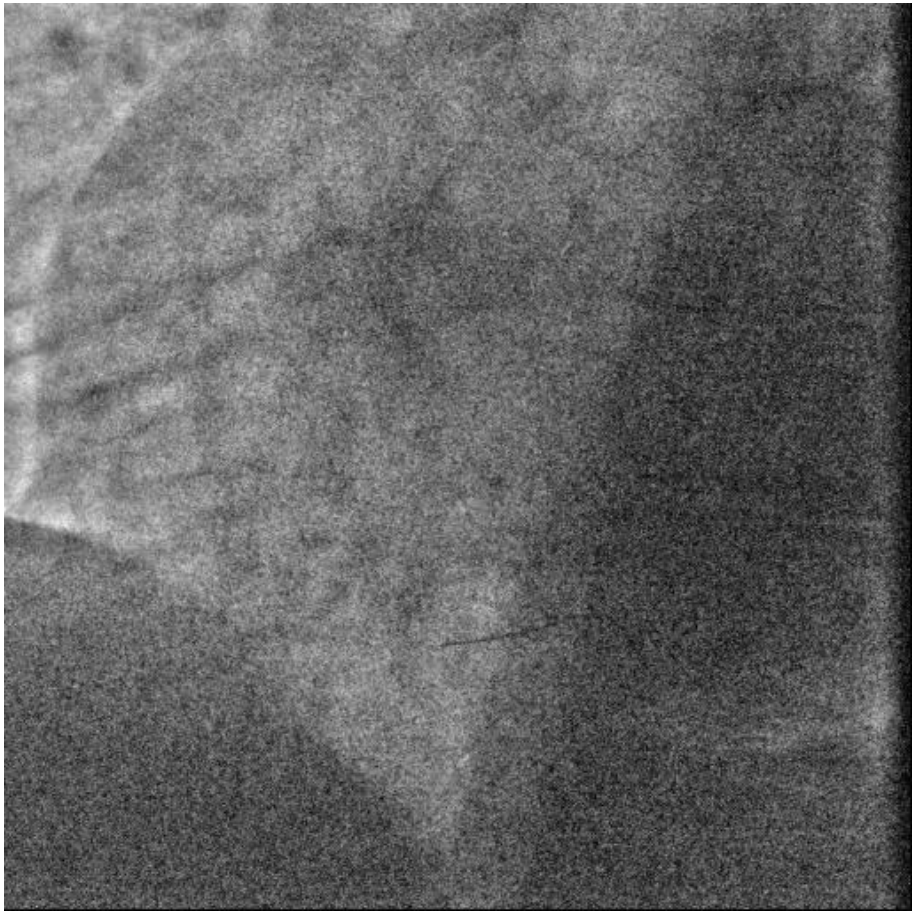
Rotational atherectomy



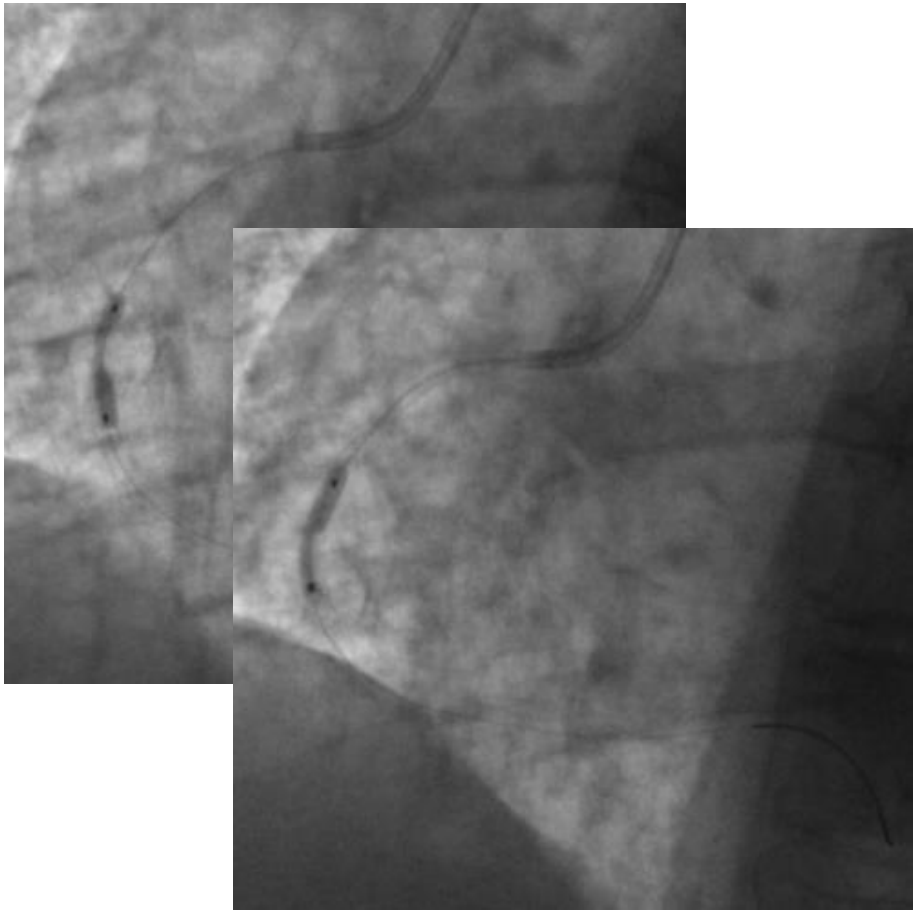


Finecross™ 130 cm microcatheter used to exchange workhorse wire to a RotaWire™ Floppy

Now 2.5 mm NC balloon crosses the lesion without need for mother-in-child support ...



... but still doesn't expand !!!



Coronary lithotripsy

Primary PCI from 6 French right radial access and 6 French guiding catheter: no possibility of significant burr size upgrade

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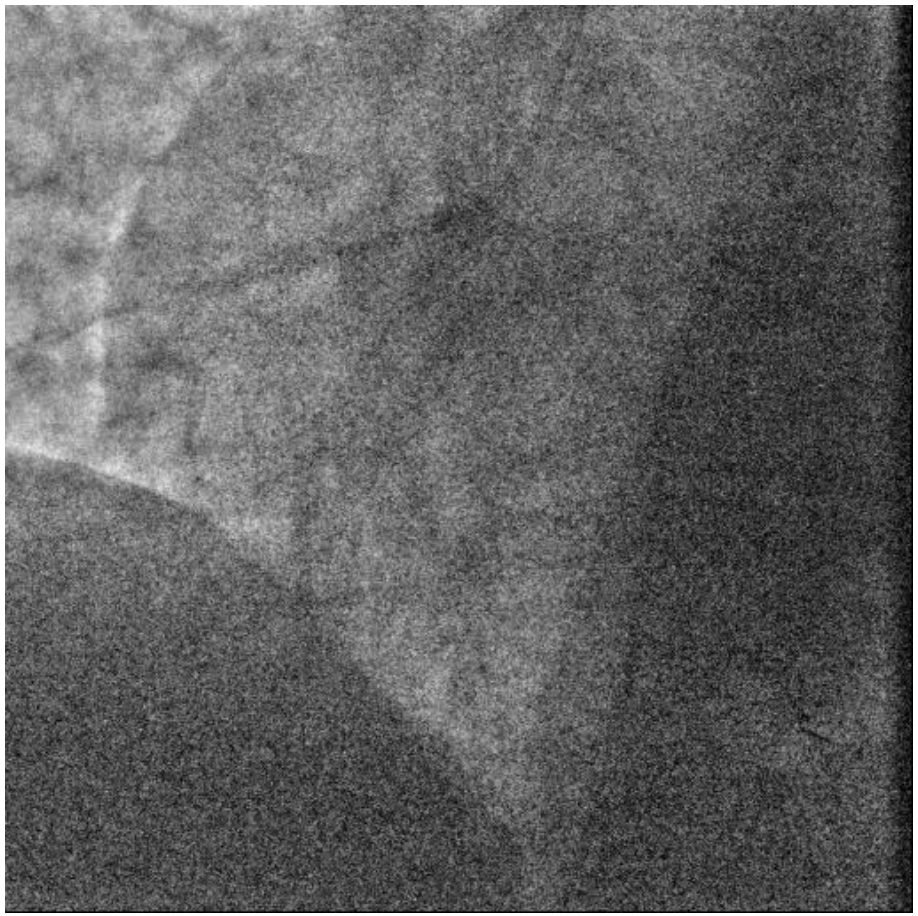
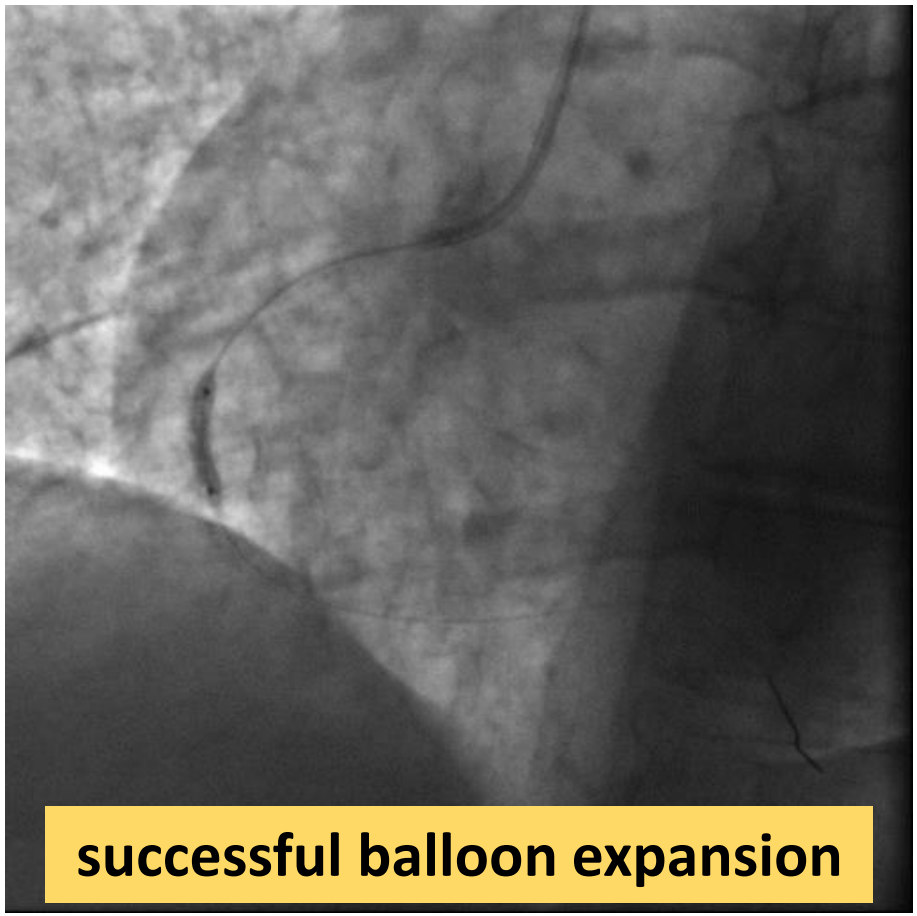
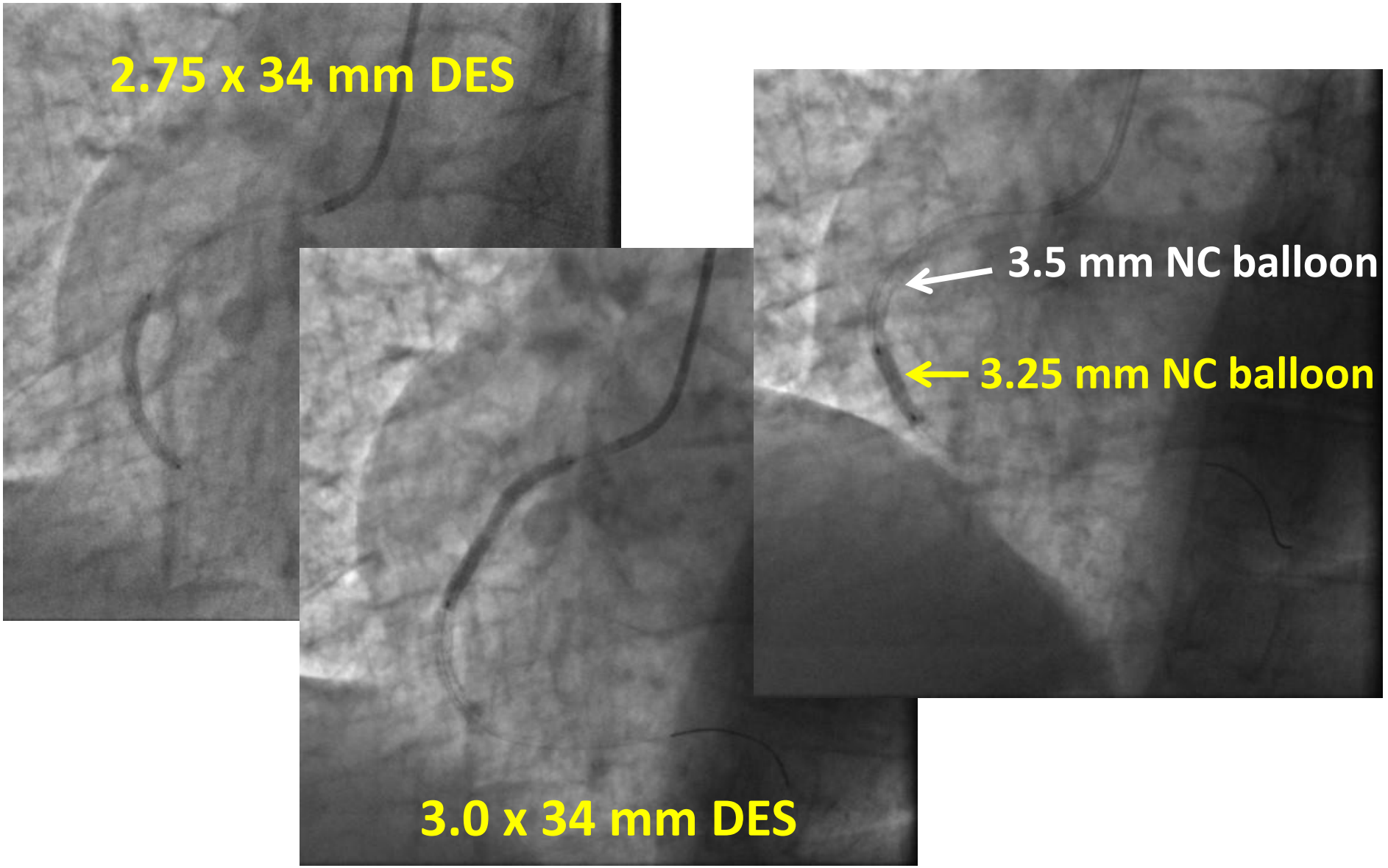
SHOCKWAVE Coronary IVL System™ (3.0 x 12 mm balloon)

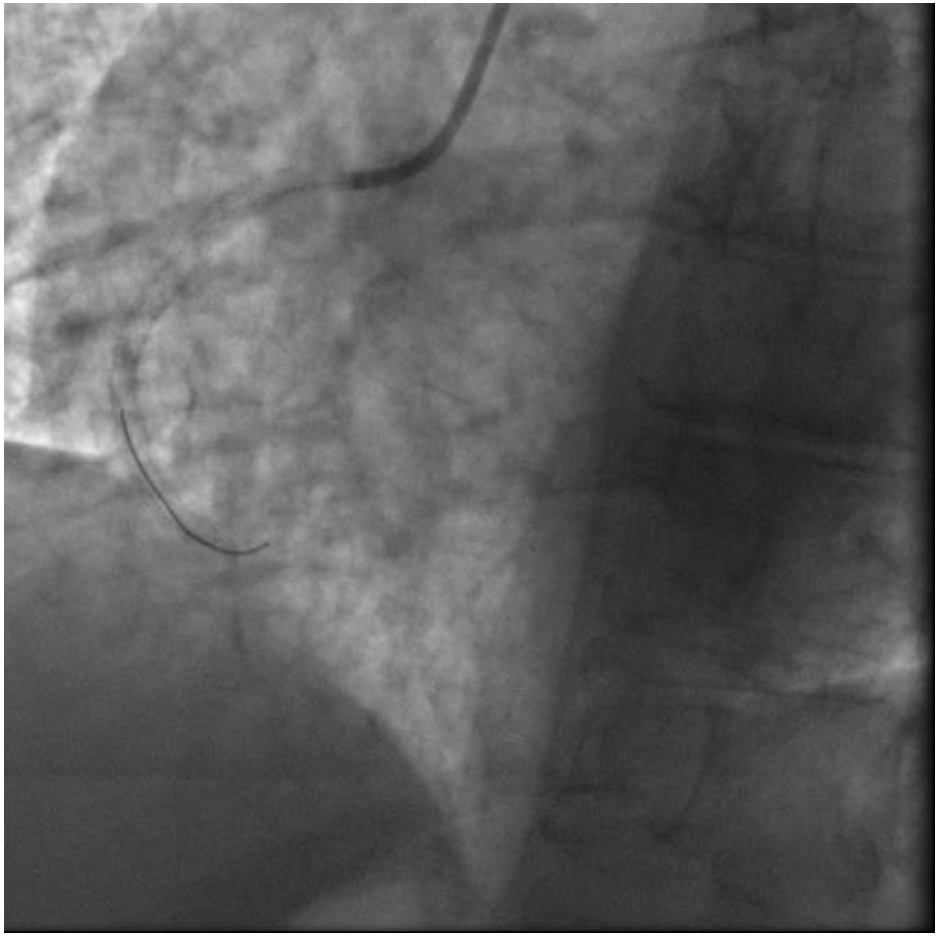




RCA stenting & post-dilations



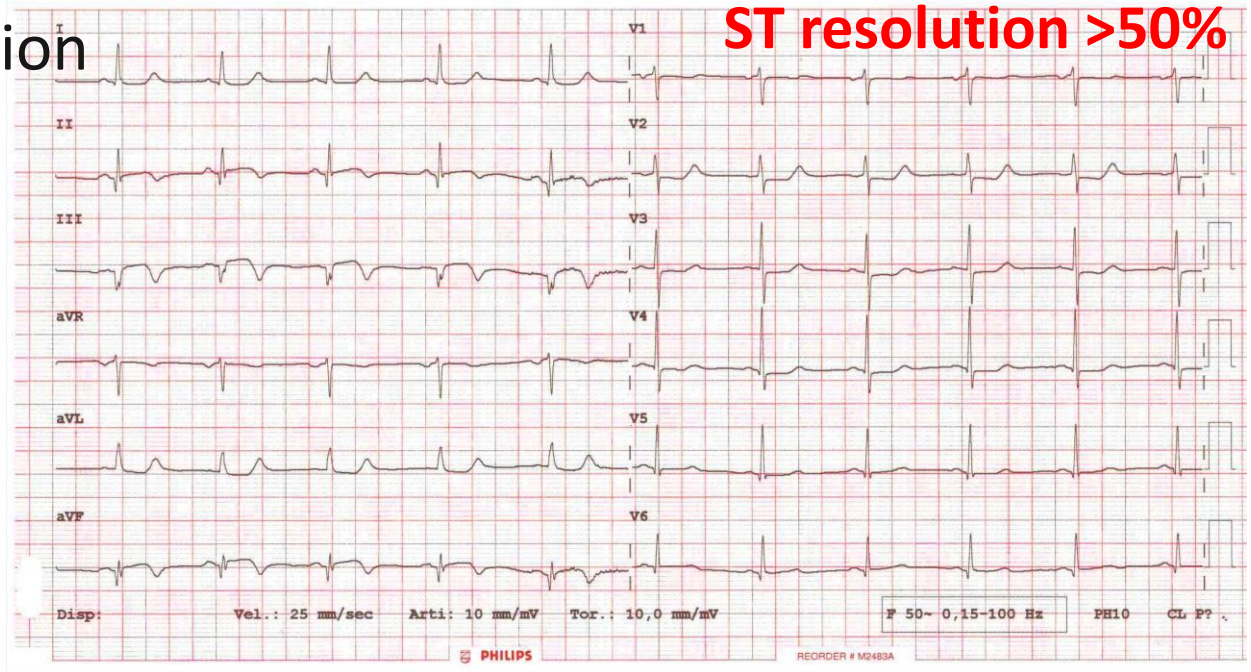
Final angiographic result



Clinical evolution

At the end of the procedure:

- chest pain regression
- BP 105/65 mmHg



Troponin peak 2.58 ng/ml

LAD/diagonal PCI (minicrush) on day 4

Discharged on day 6

Echo at discharge: LVEF 54%, normal RV

At 6 months follow-up asymptomatic, no adverse events

Conclusions

- The concomitant existence of acute ST-elevation myocardial infarction (STEMI) and truly undilatable lesions is not a common circumstance, but may occur.
- Despite generally avoided in high thrombotic states, rotational atherectomy may serve as an alternative option when standard interventions fail.
- Nevertheless, in this case the lesion continued to be undilatable after successful rotablation and the solution was provided by coronary intravascular lithotripsy.
- However rotational atherectomy facilitated devices advancement, lithotripsy balloon included.
- Ultimately the combination of both techniques allowed successful treatment.
- To the best of our knowledge this is the first report of combination of both debulking techniques in primary angioplasty.
- Complex coronary lesions in STEMI patients may require familiarity with all techniques / devices dedicated to calcified lesions treatment.