Transradial Orbital Atherectomy Facilitated Primary Angioplasty

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4th COMPLEX PCI
Make It Simple!
Technical Forum: A to Z
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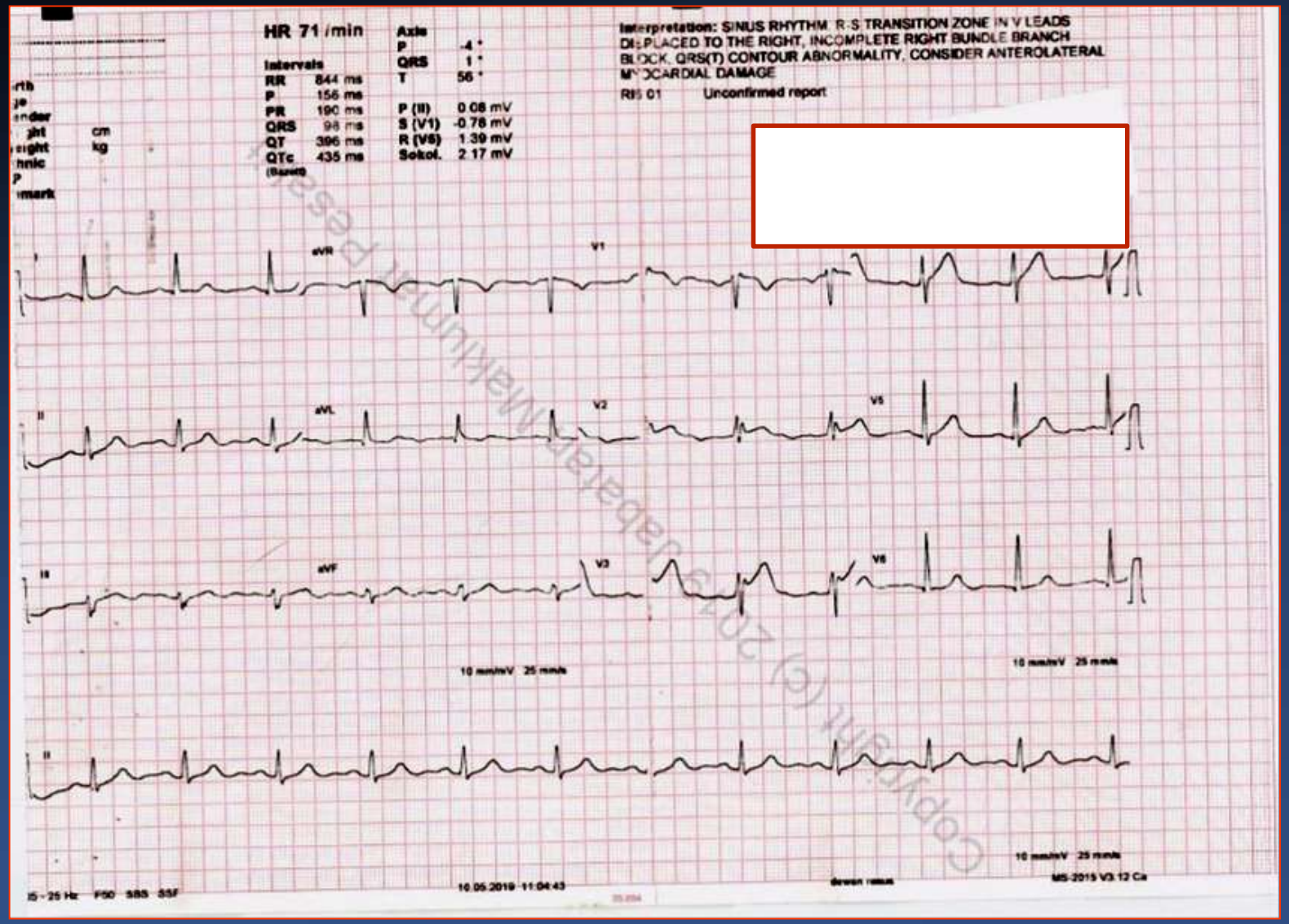
Case History

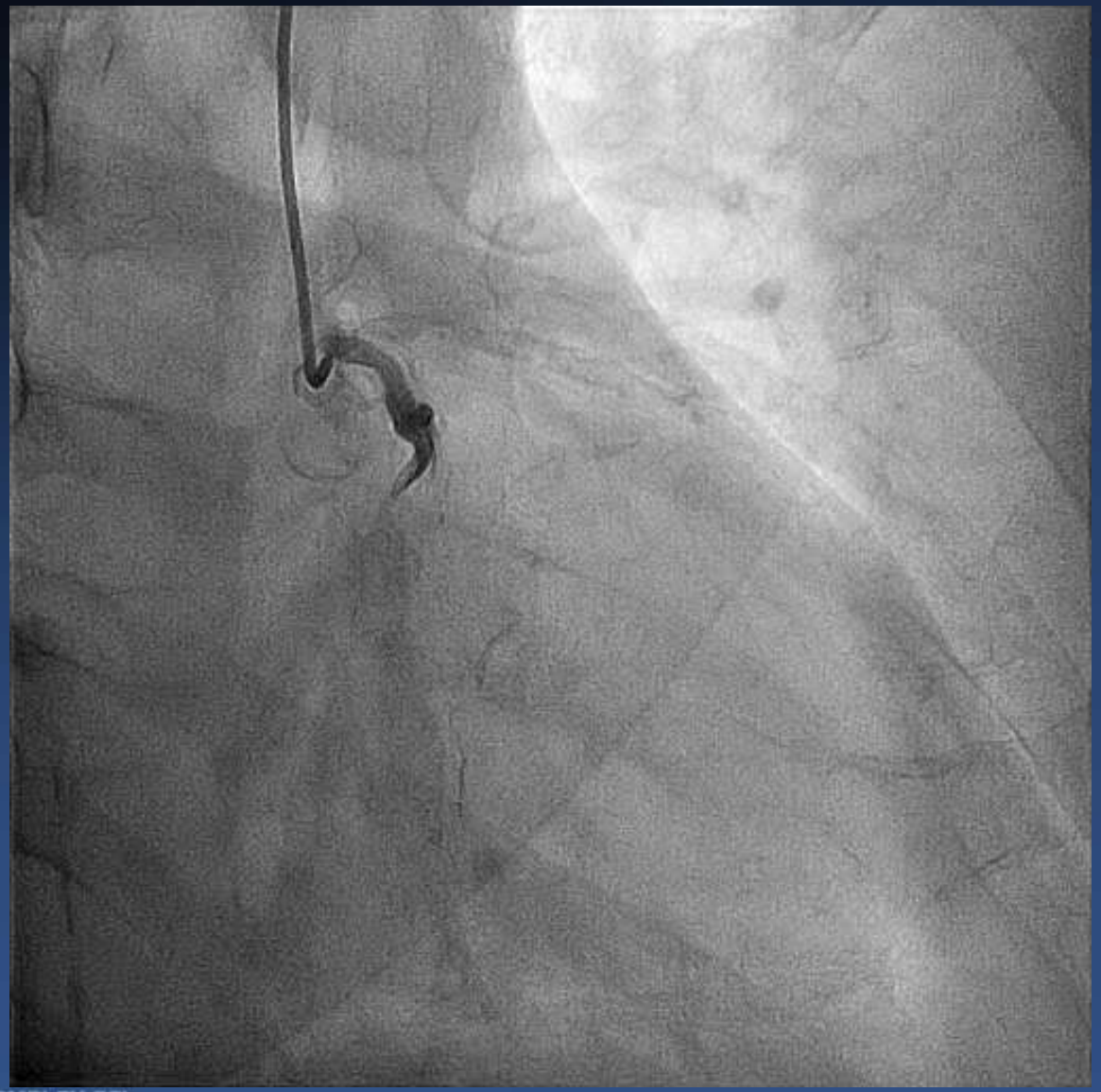
- 83 year old male
- Past medical history of hypertension, colorectal cancer, benign prostatic hypertrophy and hypothyroidism

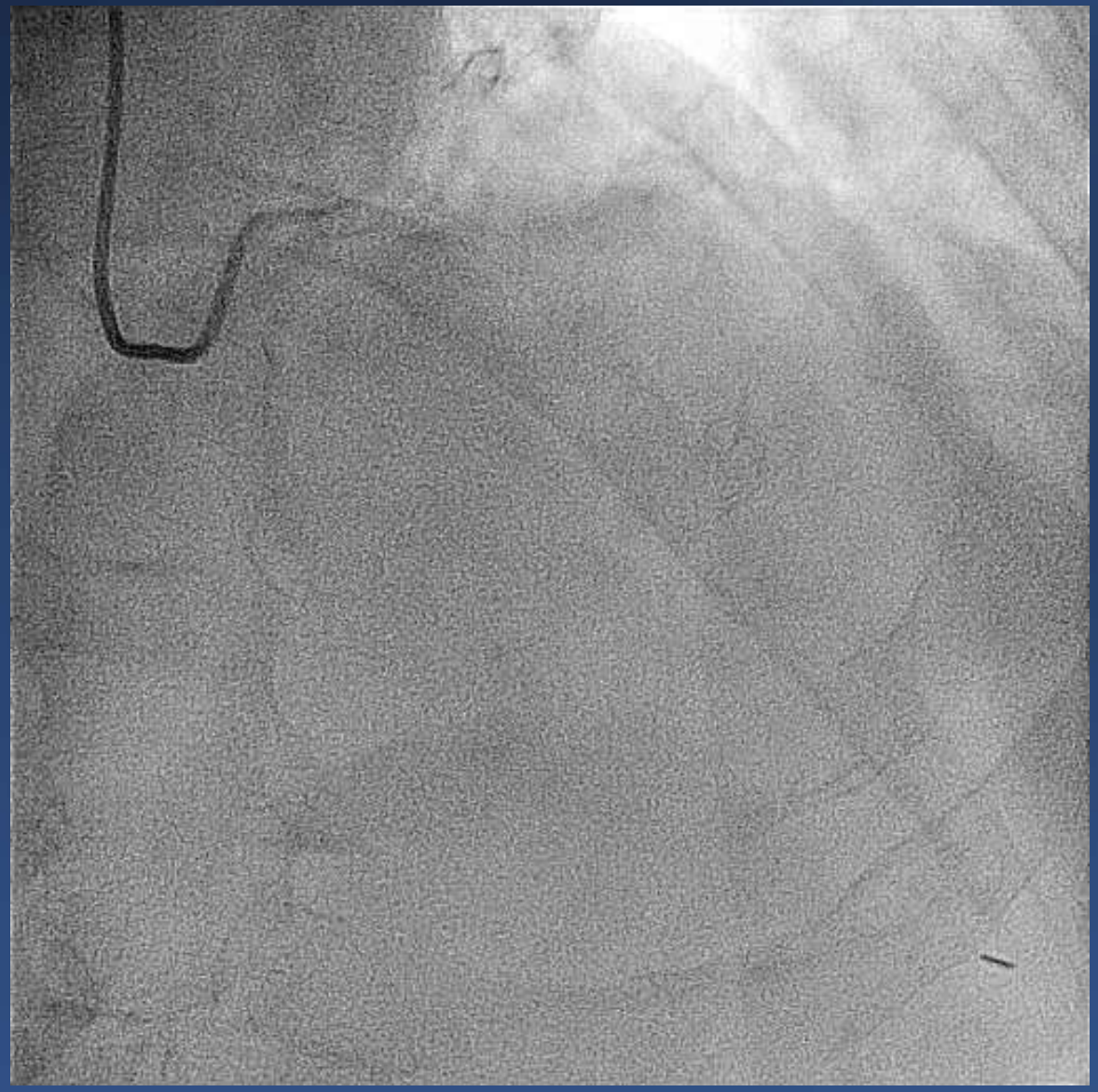
- Central crushing chest pain onset at 10 am
- Arrived hospital 11.20 am
- BP 146/61 mmHg, HR 65/minute, SpO_2 96% on room a air



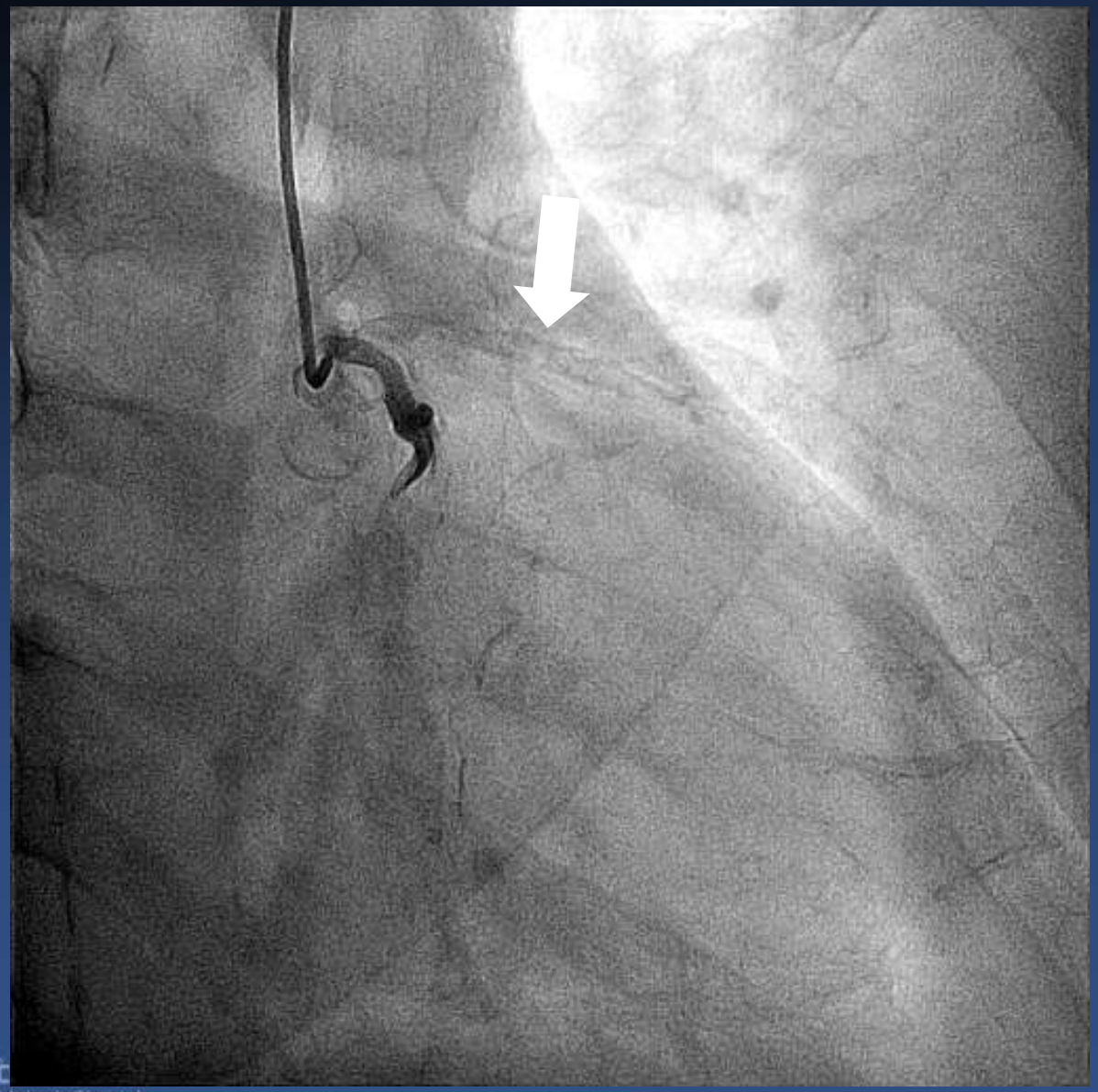
- Bedside echocardiogram:
  - Preserved EF
  - Hypokinetic anteroseptal region
- Loaded with aspirin 300 mg and ticagrelor 180 mg stat.
- Accepted for primary angioplasty
  - Dx: Acute anterior ST elevation myocardial infarction

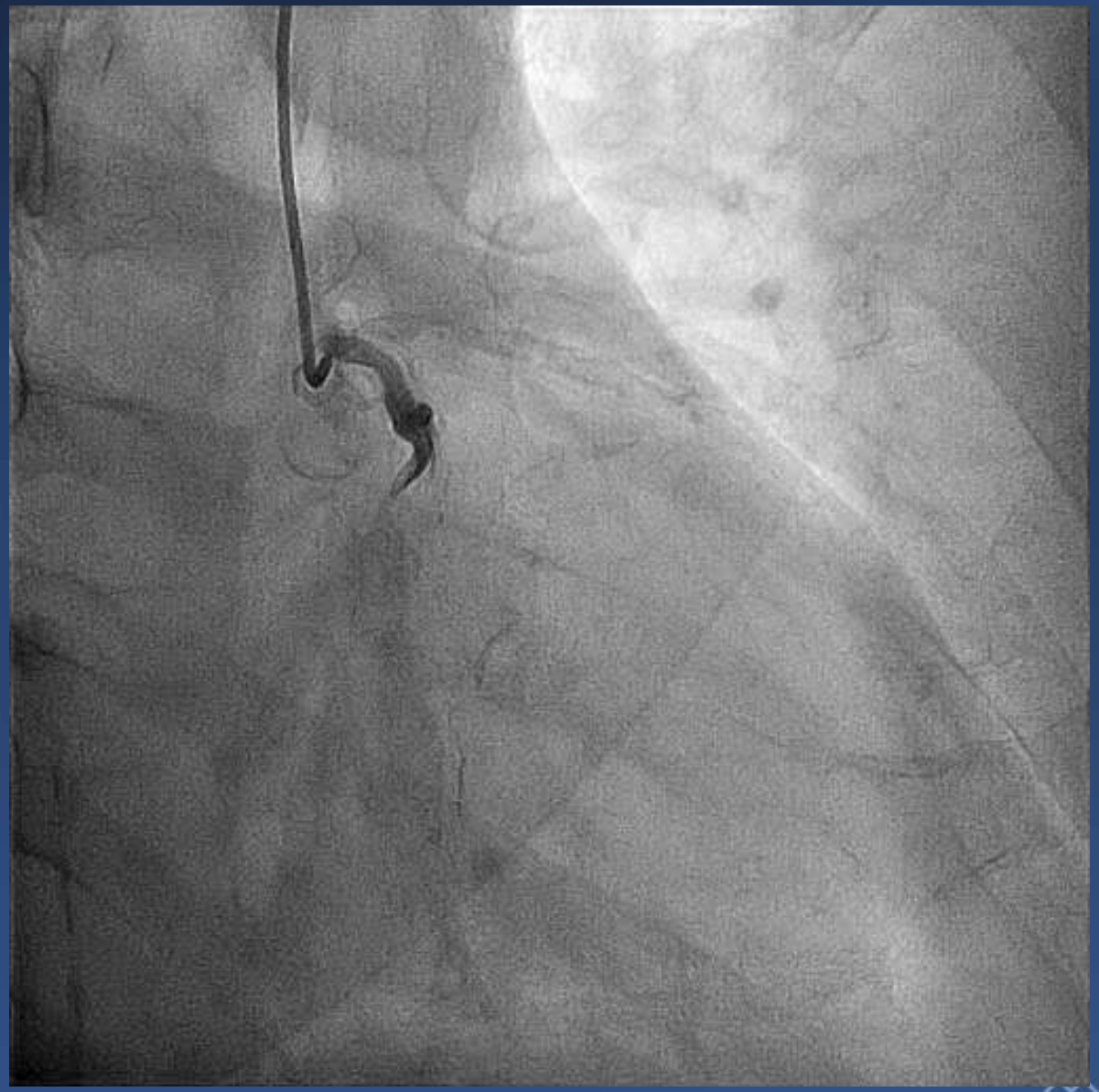
Standard set up – Radial 6Fr. Culprit lesion noted in mid-LAD





Severe calcification at the target lesion





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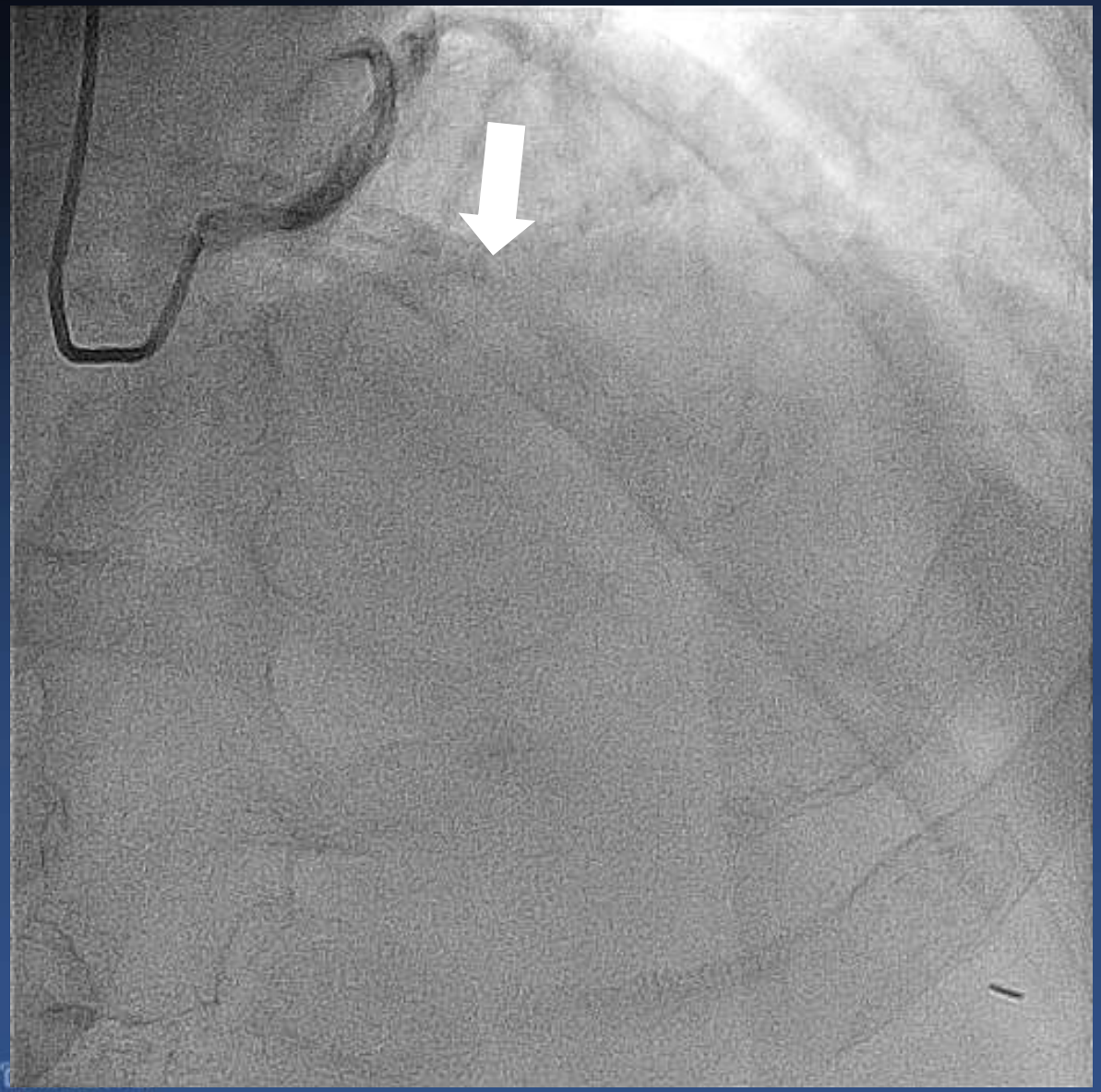
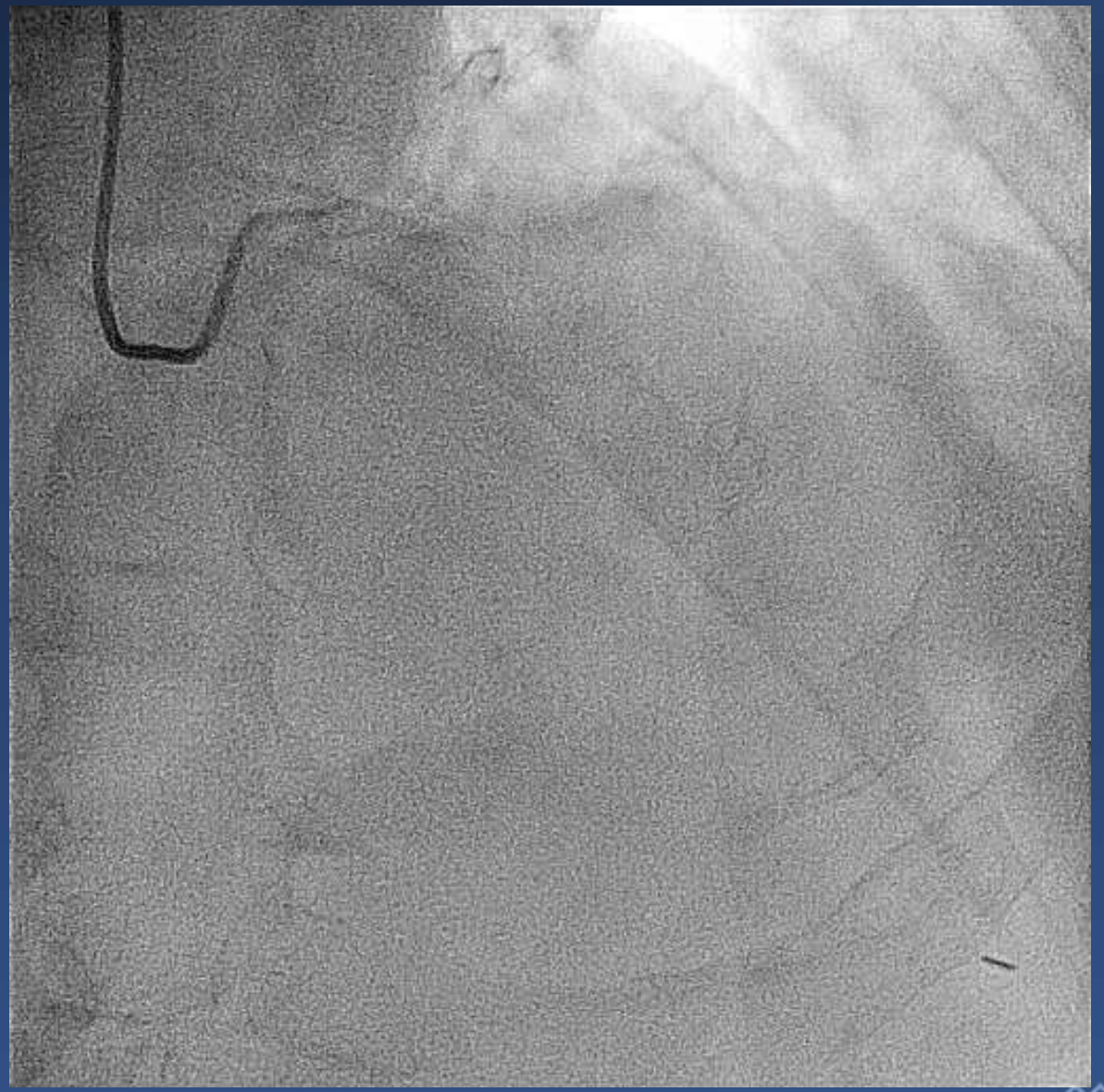
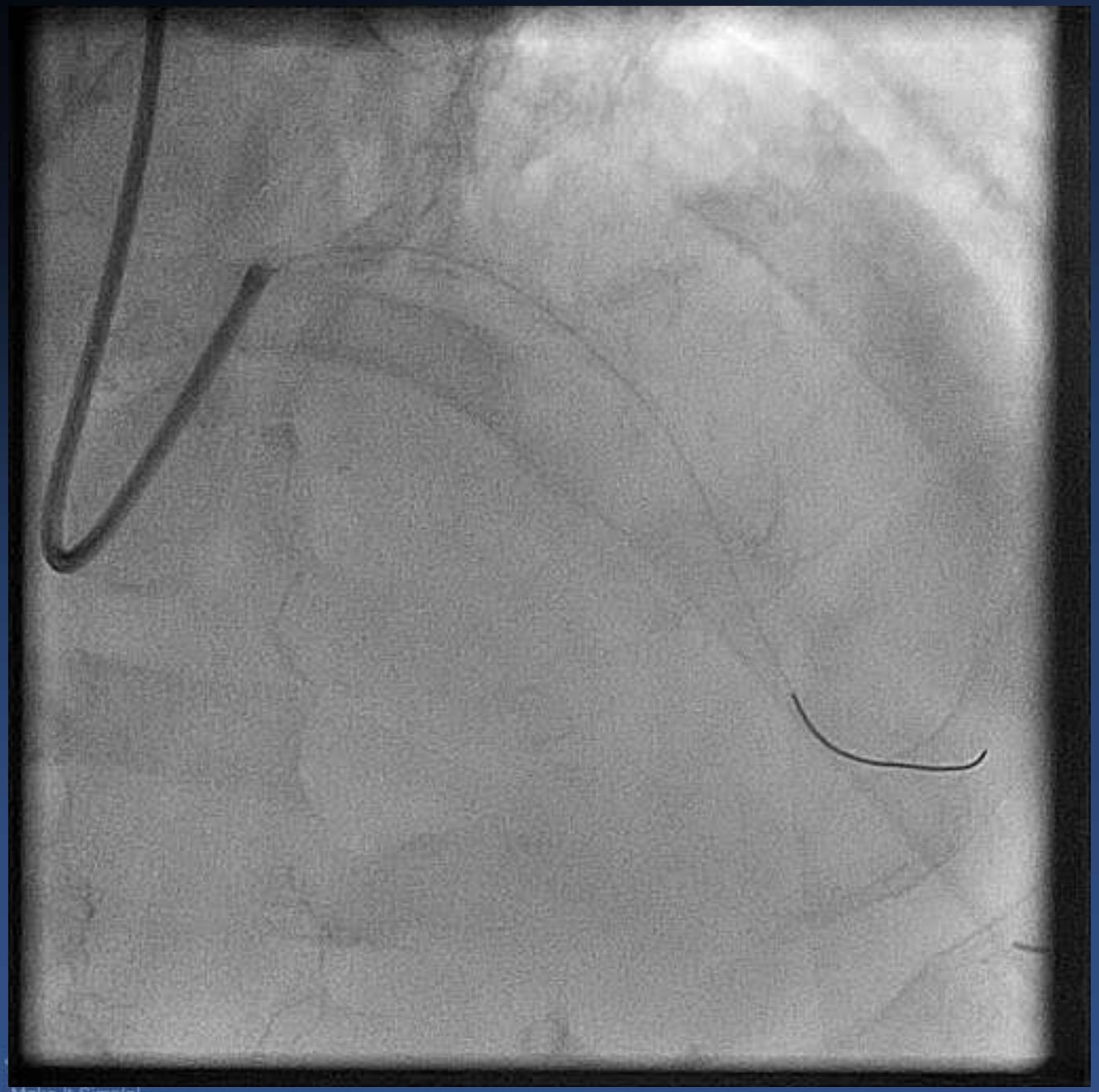




Heavy presence of calcium

- Heavy calcification of culprit lesion.
- ?Ulcerated plaque distally.
- Decision to spend time to prepare lesion with non-compliant/ scoring balloons vs up-front preparation for atherectomy.

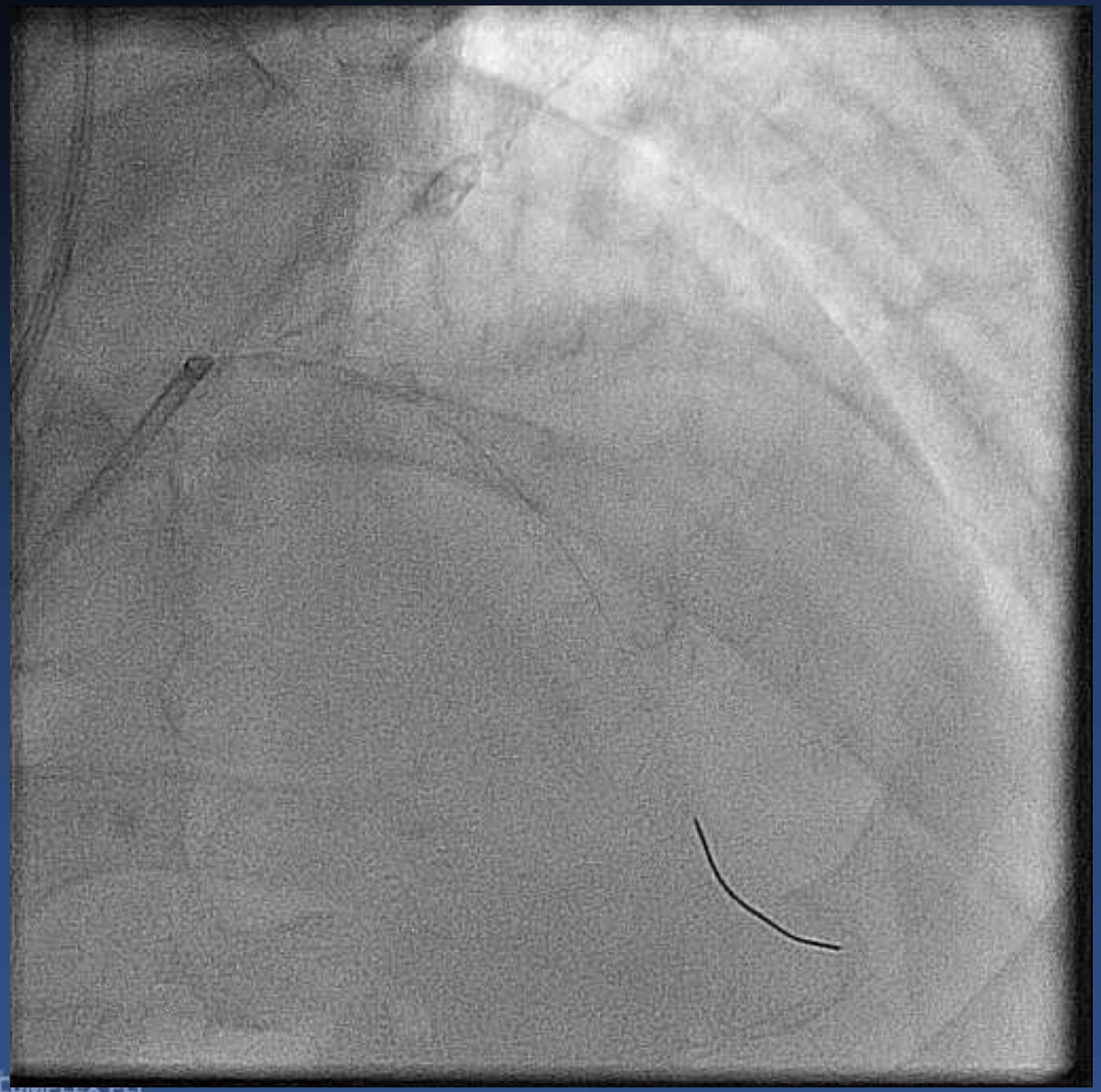


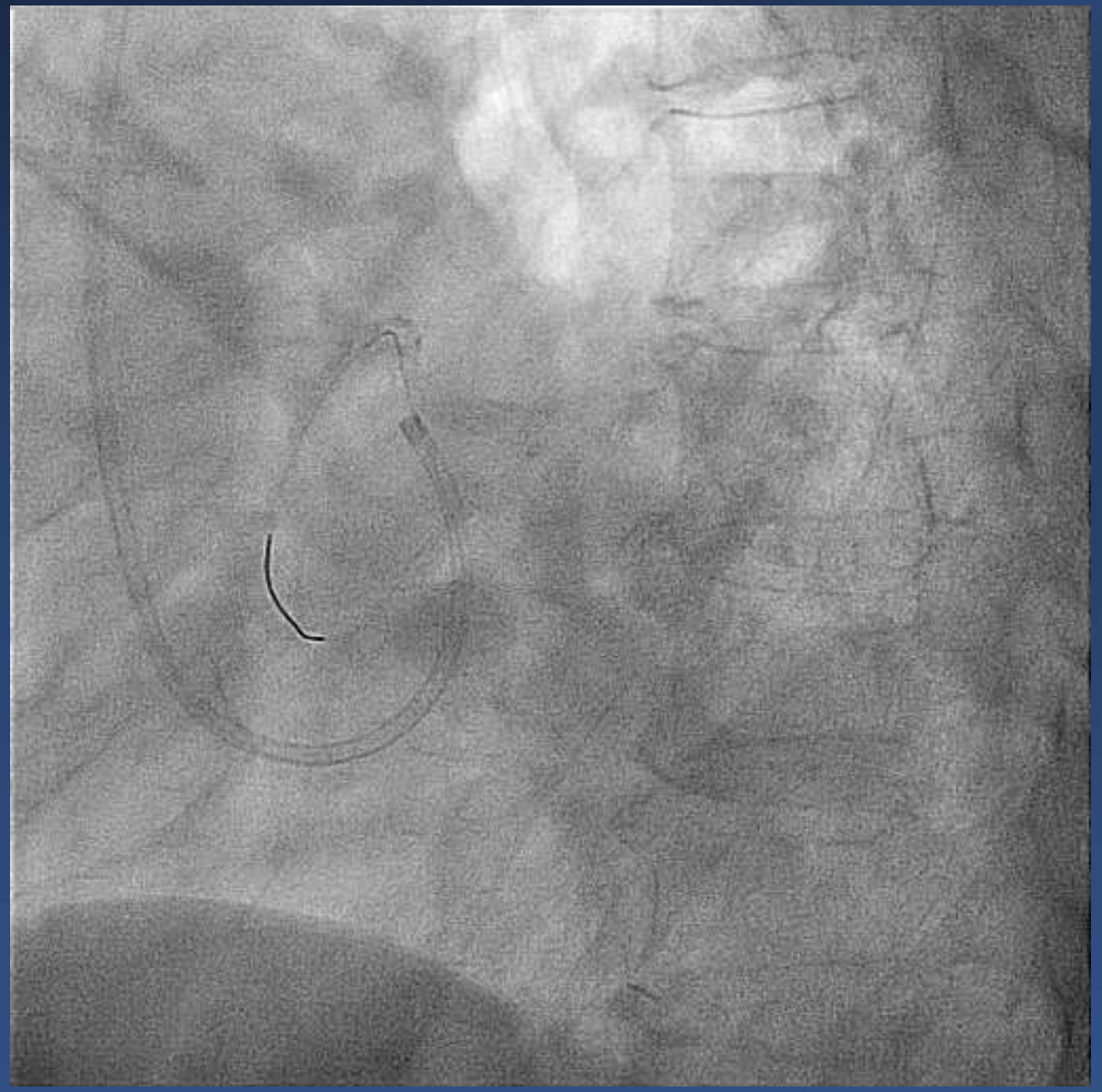
System set up

- Radial sheath upgraded to a 7 Fr sheath
- 7Fr XB 3.5 guiding catheter used to engage
- Terumo Runthrough Floppy guidewire down the LAD and this subsequently exchanged with a Finecross microcatheter to a Viperwire Advance guidewire

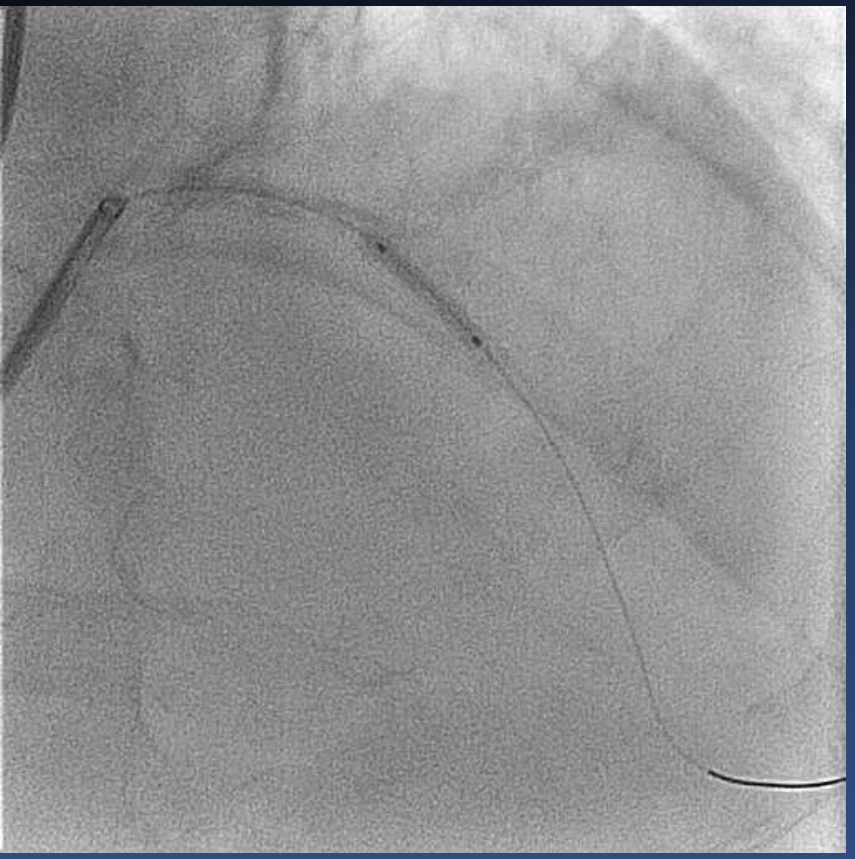
Multiple low speed OA runs from proximal to mid LAD

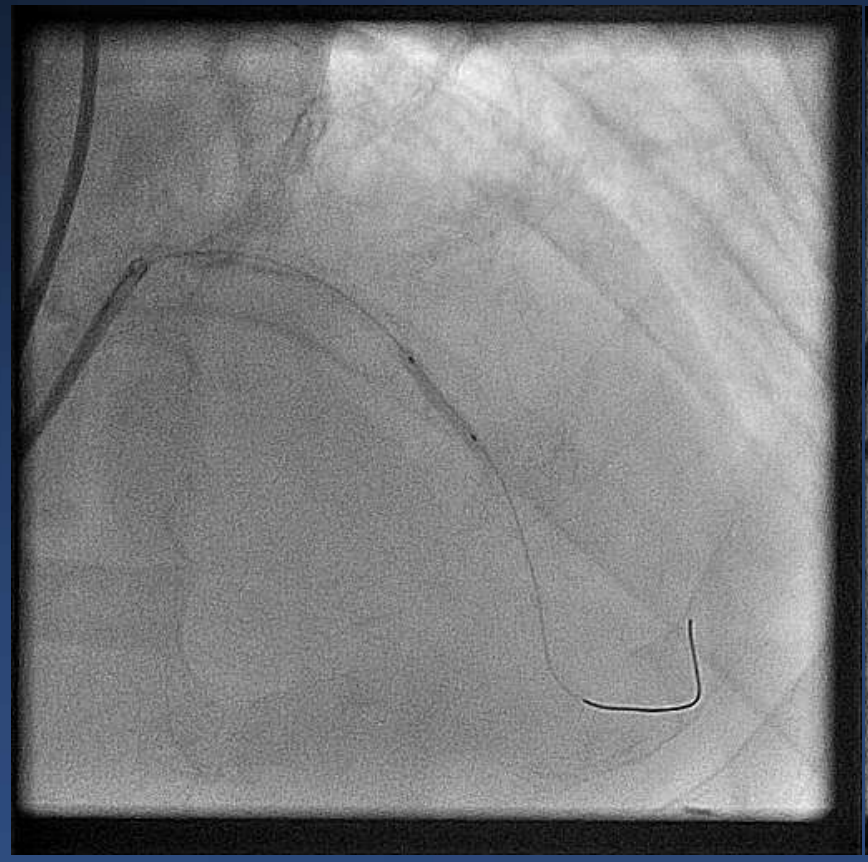
Slow flow!!!!!

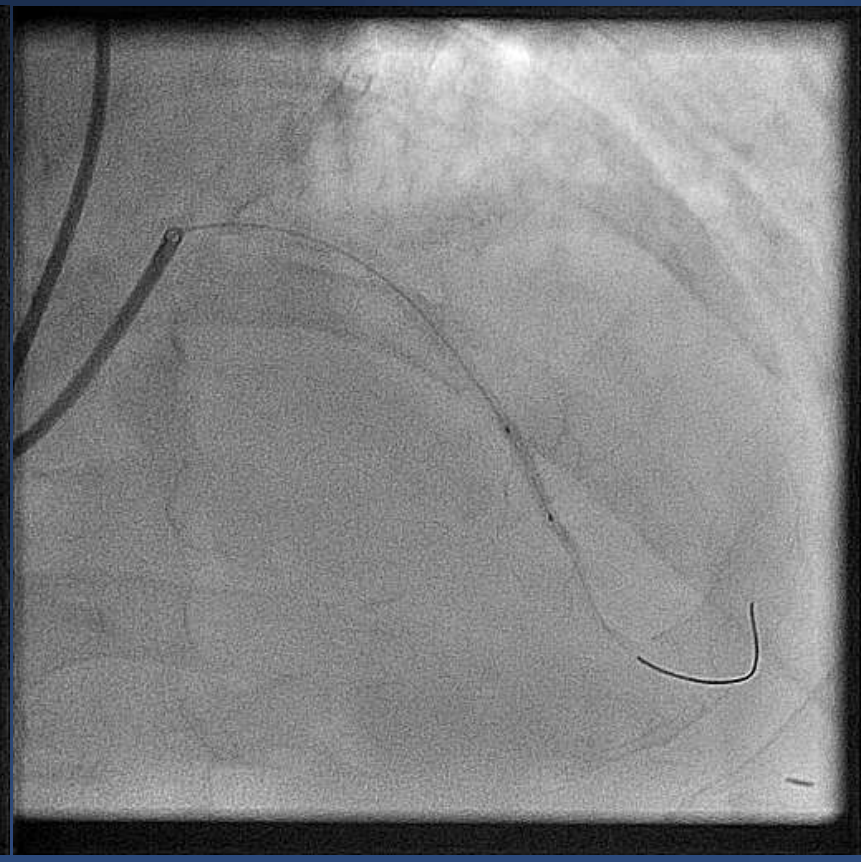




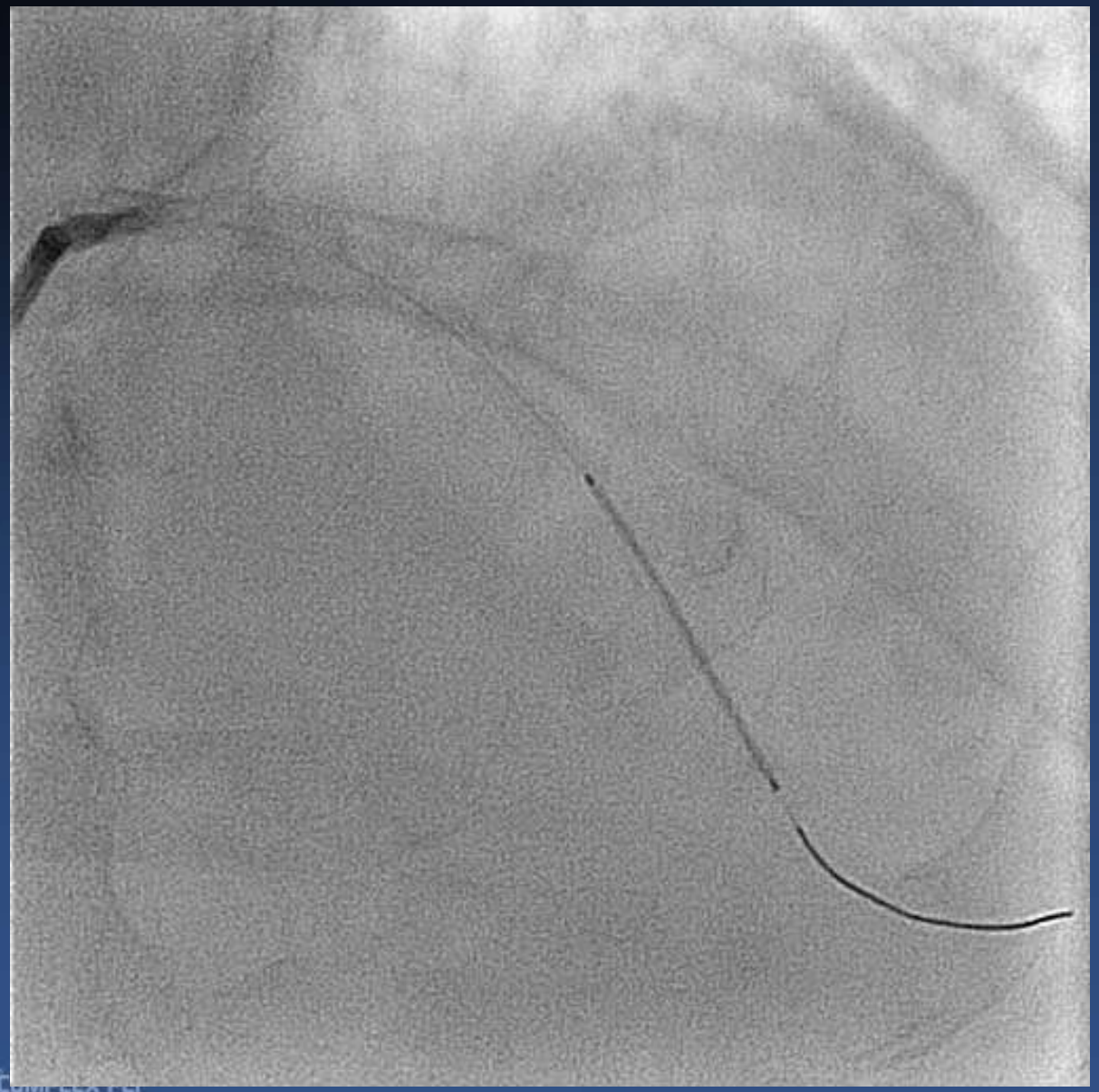
Vessel preparation for stenting

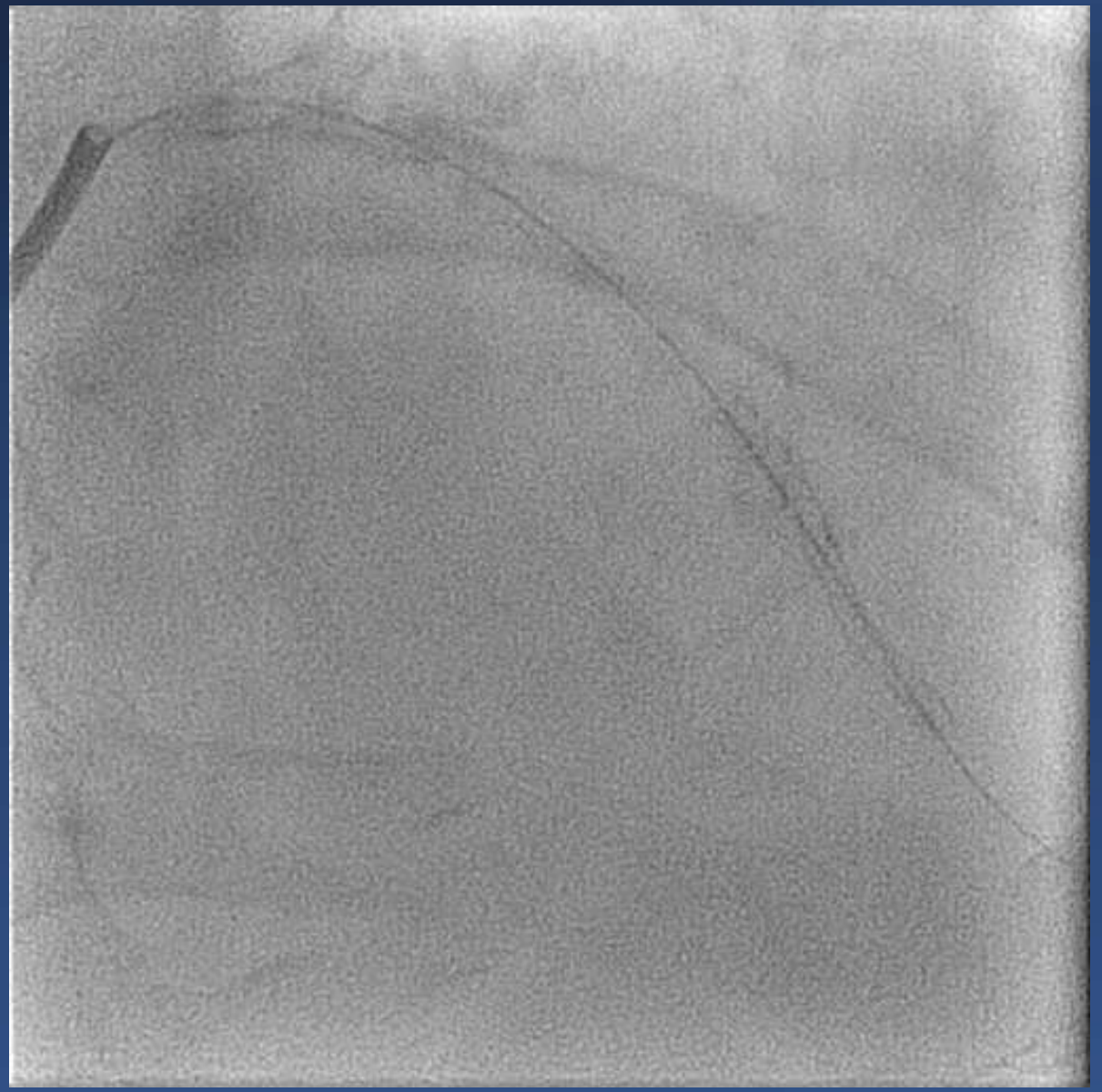




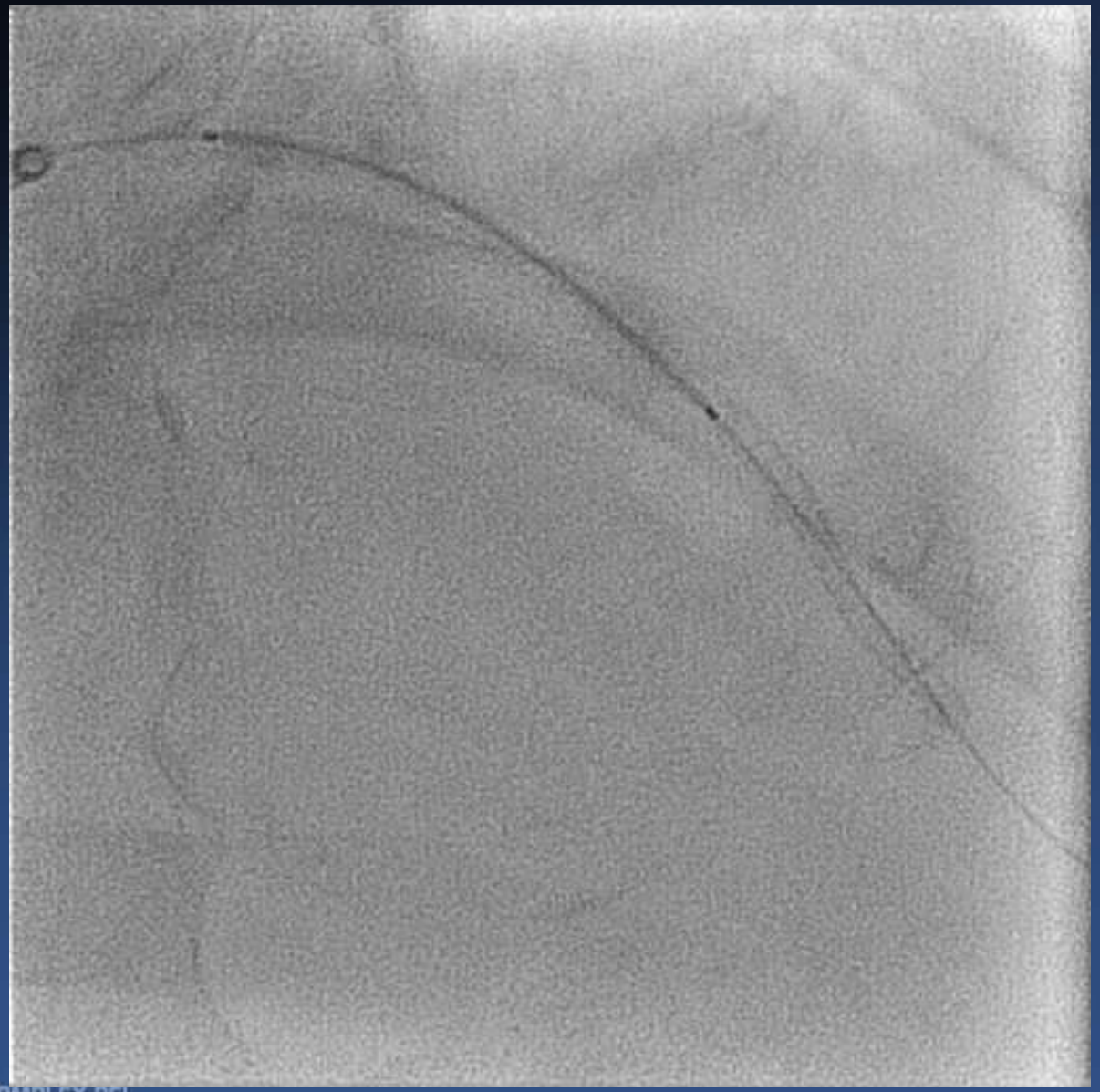


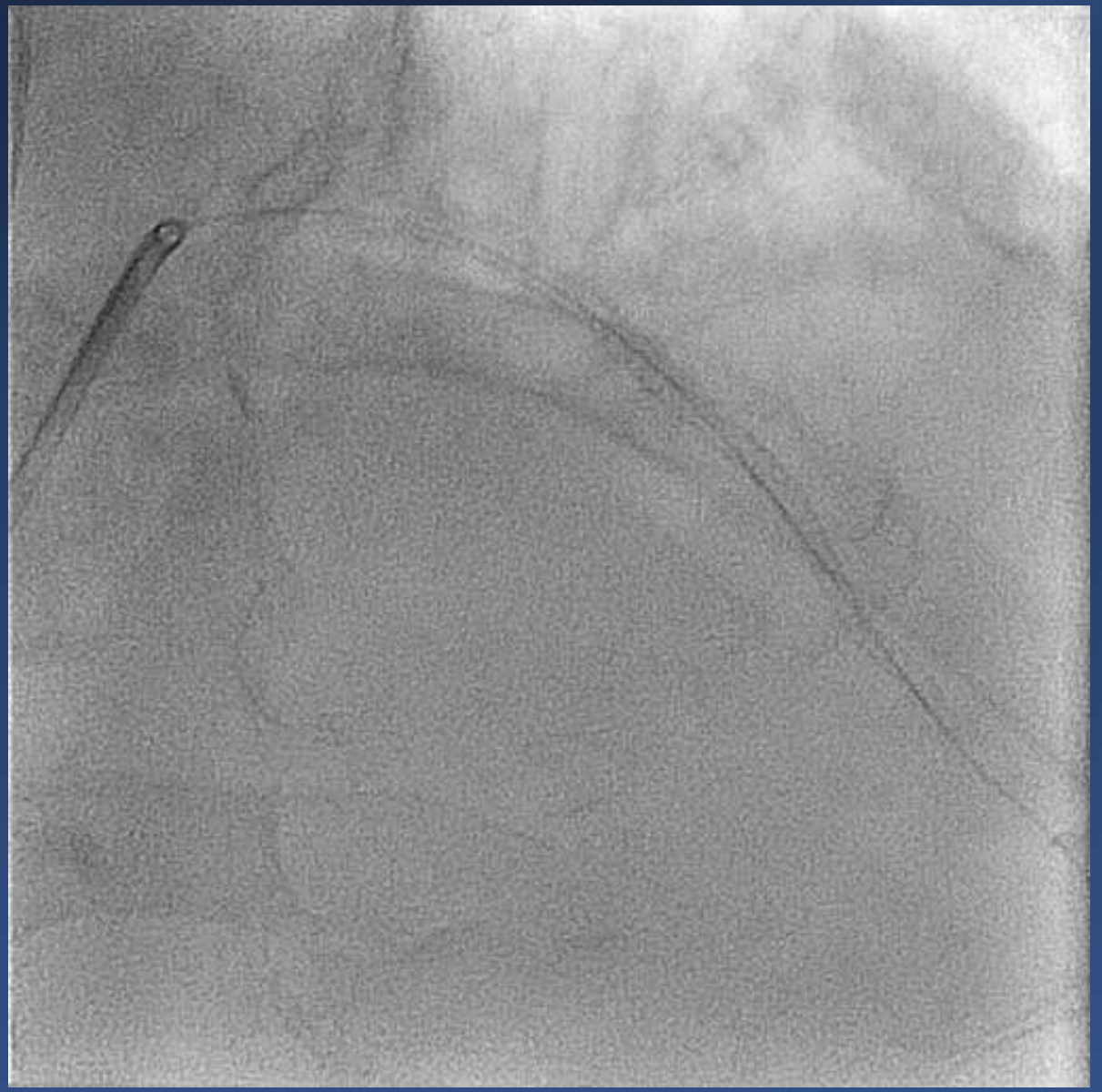
Distal LAD DES placed and deployed



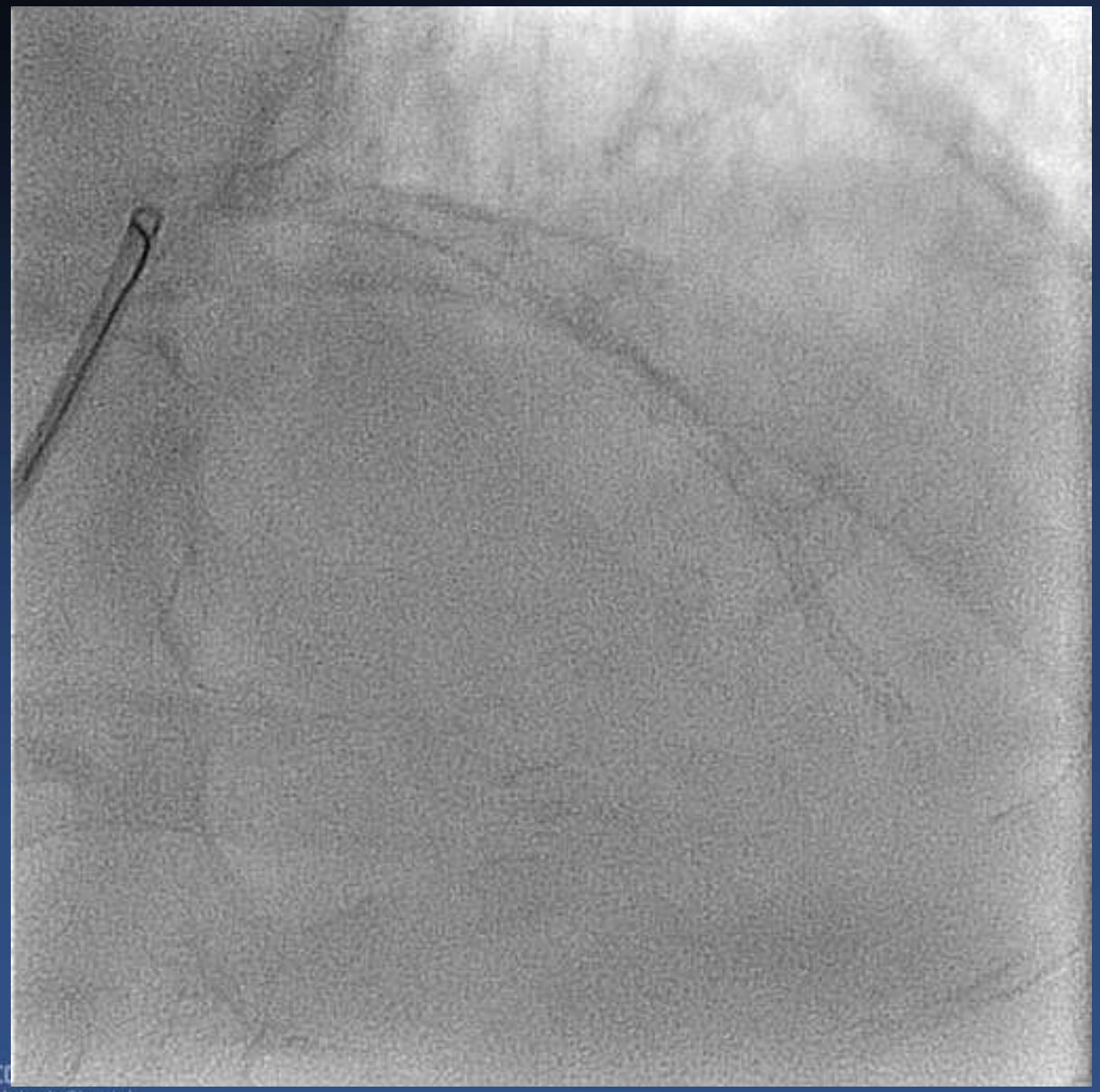


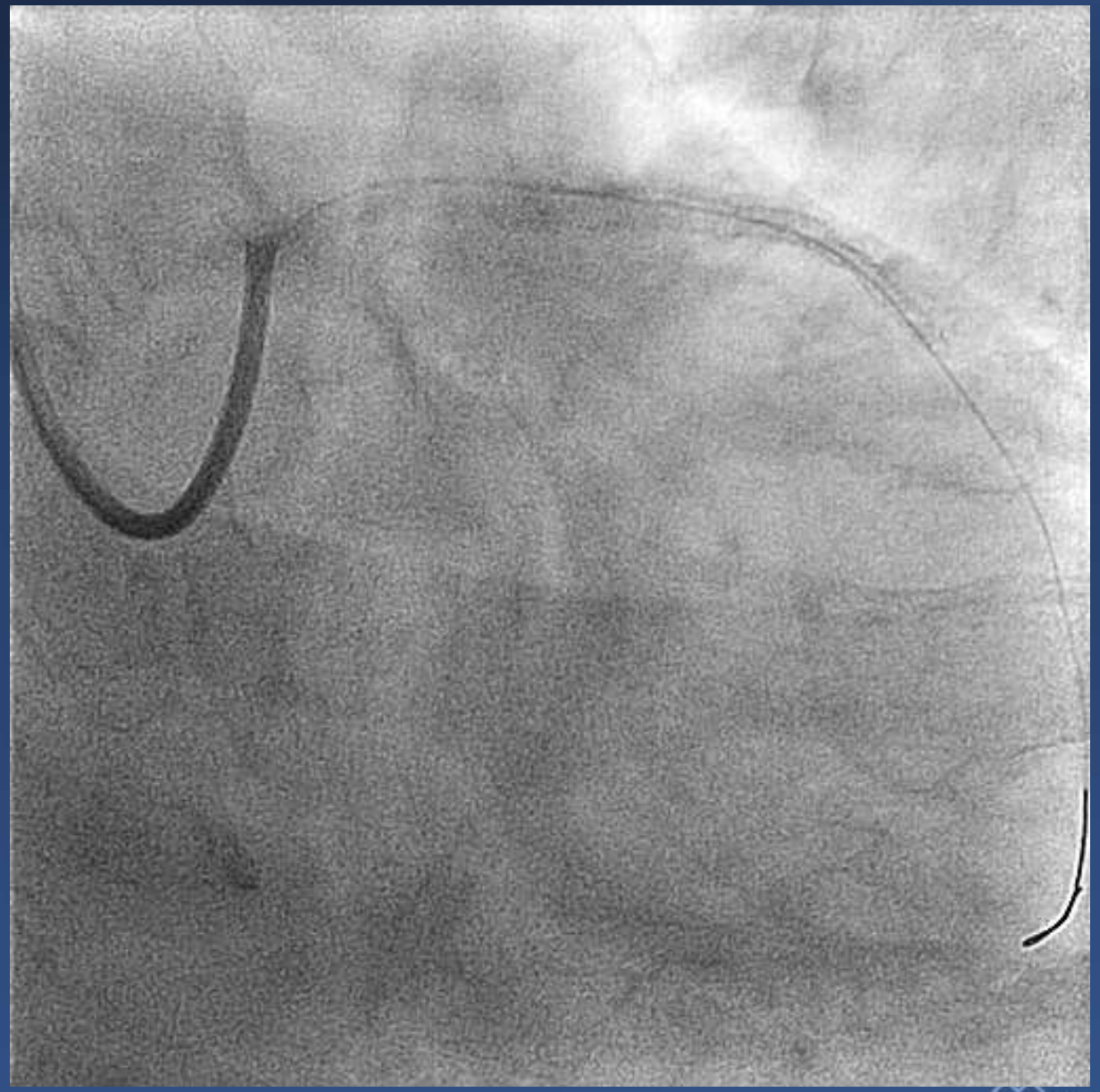
Mid LAD DES placed and deployed



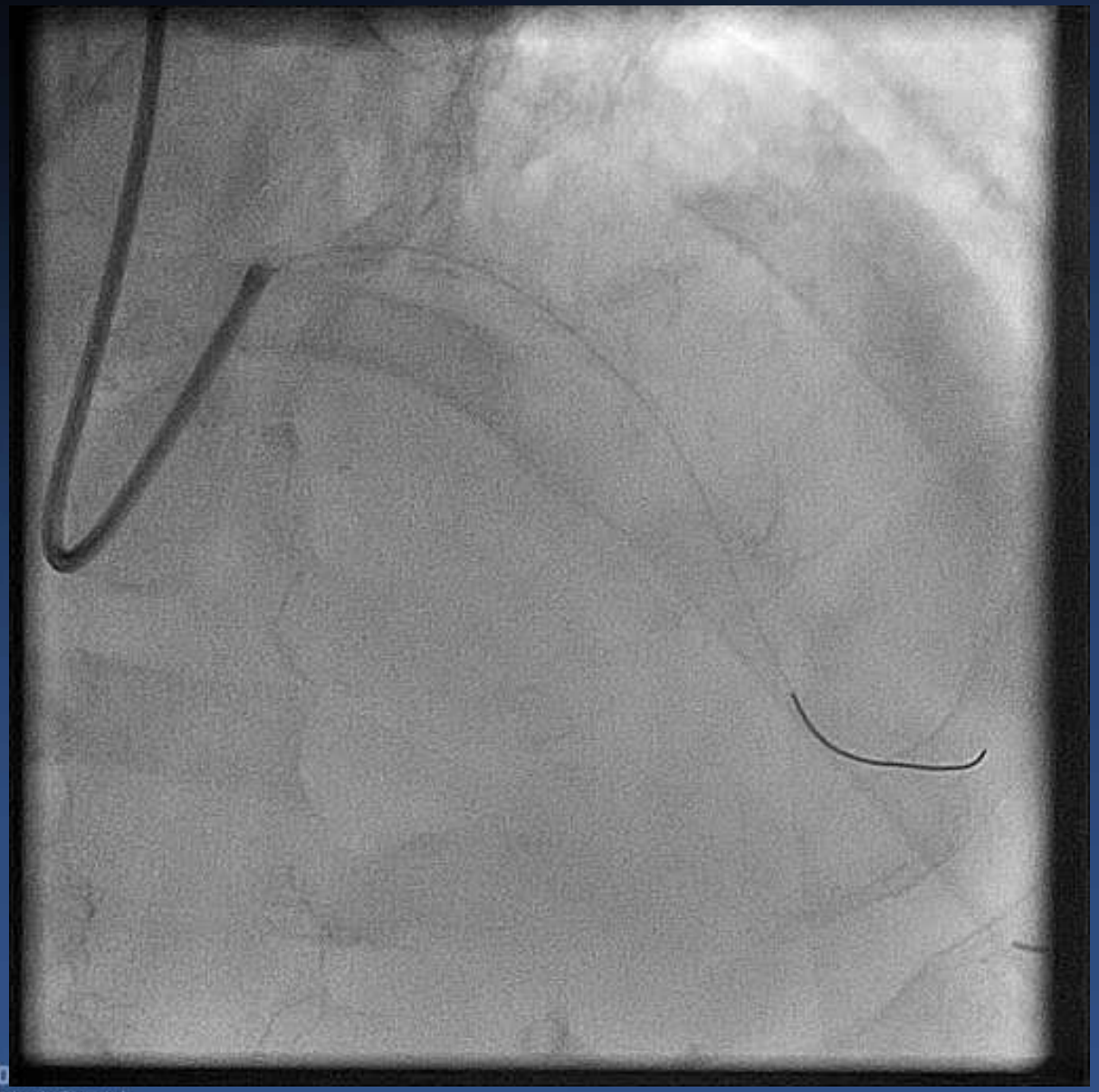


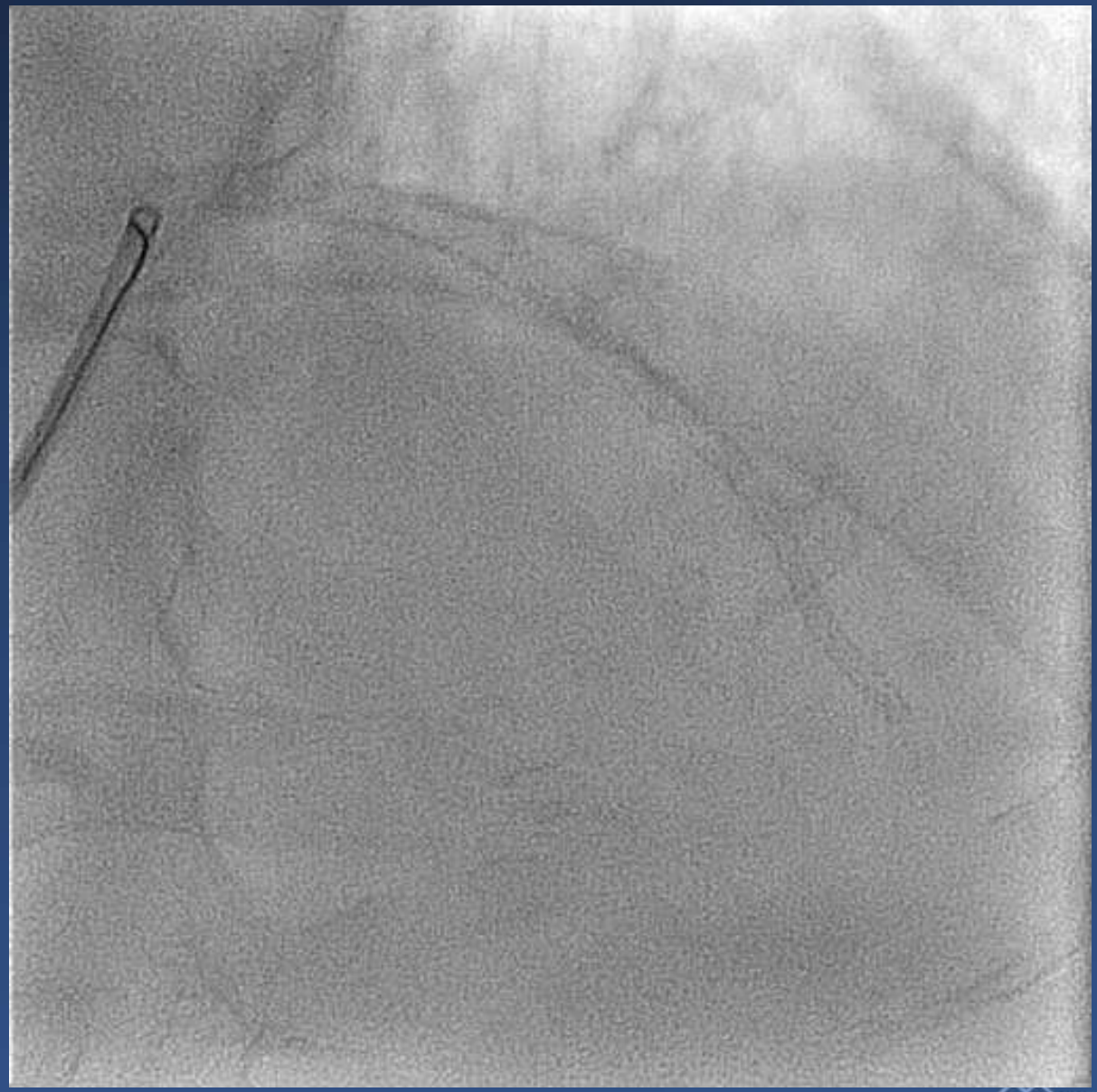
Final shots after non-compliance ballooning post PCI





Pre and Post shots ☺





Discussion Points

- Presence of calcified lesions in acute coronary syndromes is a challenge. (associated with higher rates of stent thrombosis and urgent revascularisation at 1 year)
- How do we tackle calcified lesions in a high risk situation? e.g. STEMI
- Should I have used sequential NC/ scoring balloons first or upfront atherectomy acceptable?
- Rotational vs orbital?? Safety and speed?

Conclusions

- Coronary artery calcification is common and is more likely with increased age, diabetes and those with renal impairment.
- Calcified target lesions are associated with poorer outcomes due to challenges to optimal stent delivery and expansion.
- Calcified culprit lesions in acute coronary syndromes are associated with increased rates of stent t hrombosis and target lesion revascularization at 1 year.
- Calcified lesions require adequate preparation prior to stenting and may require utilization of cutting balloons and atherectomy devices.
- Orbital atherectomy in acute STEMI is unconventional but may be used to facilitate timely delivery of PCI