Overcoming CTO Challenges: Uncrossable lesions

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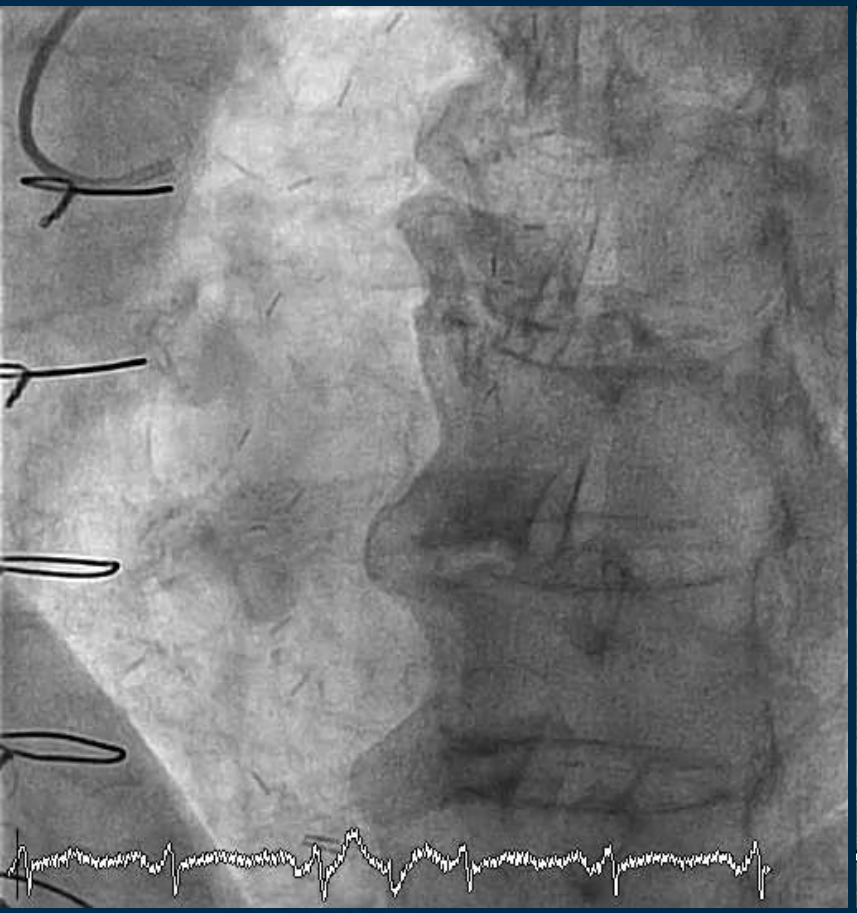
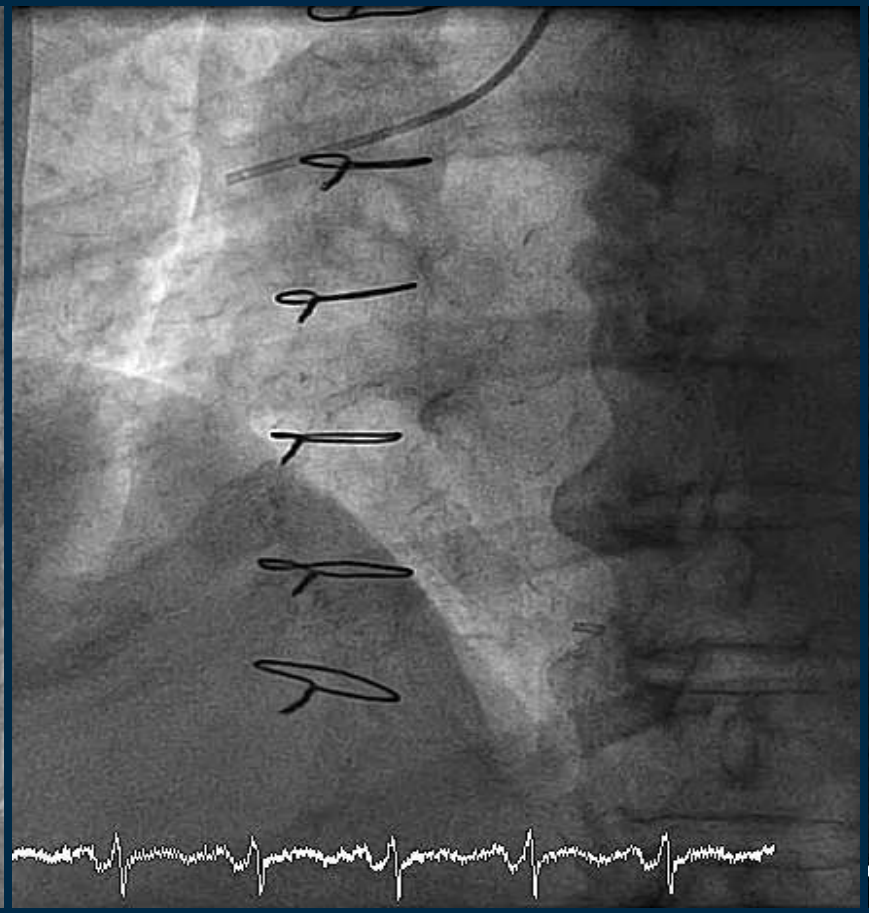
Clinical data

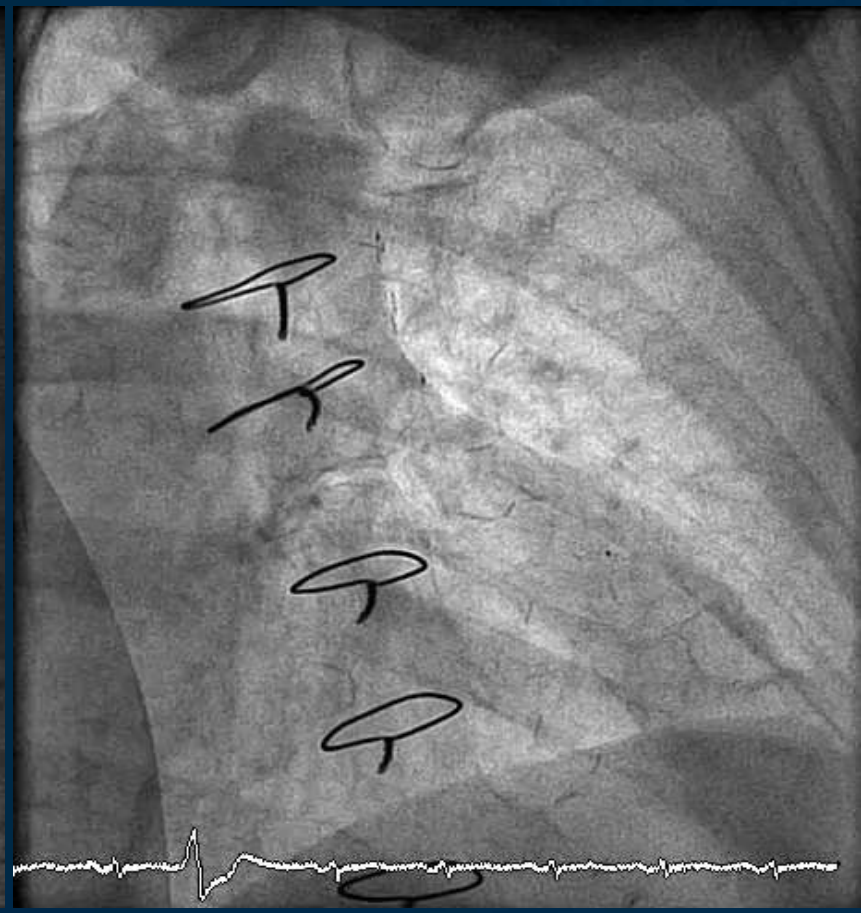
- A 74 years old female
- Underlying disease:
  - Triple vessel disease S/P CABG (LIMA-LAD, SVG-OM, and SVG-RPL) since 2010
  - Hypertension
  - Hyperlipidemia
  - T2DM
- Recent NSTEMI with HF
- Echocardiogram : poor LV systolic function EF about 30-35%, global wall hypokinesia, no significant valvular abnormalities

Coronary Angiogram from Private hospital

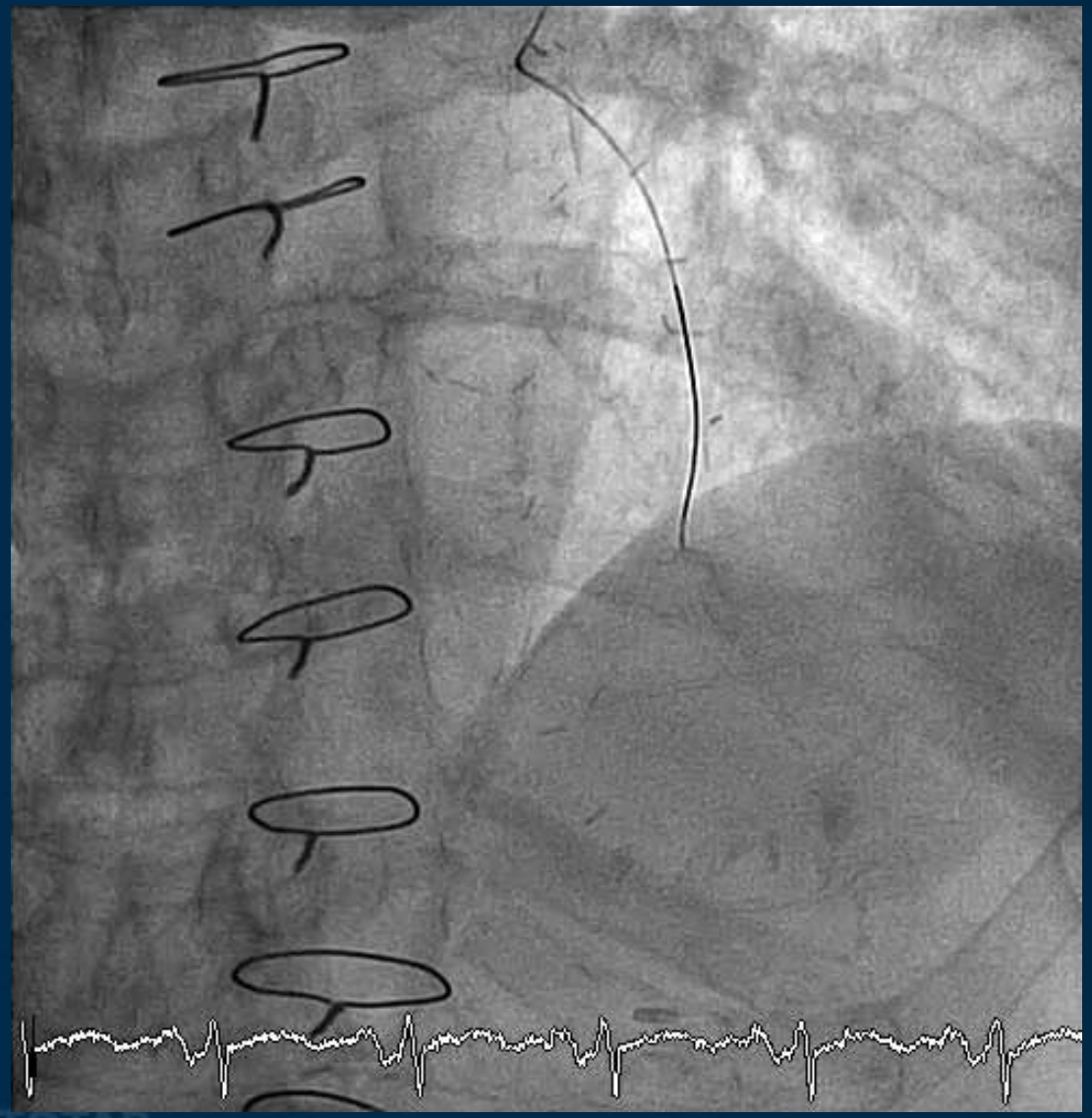
Coronary Angiogram from Private hospital

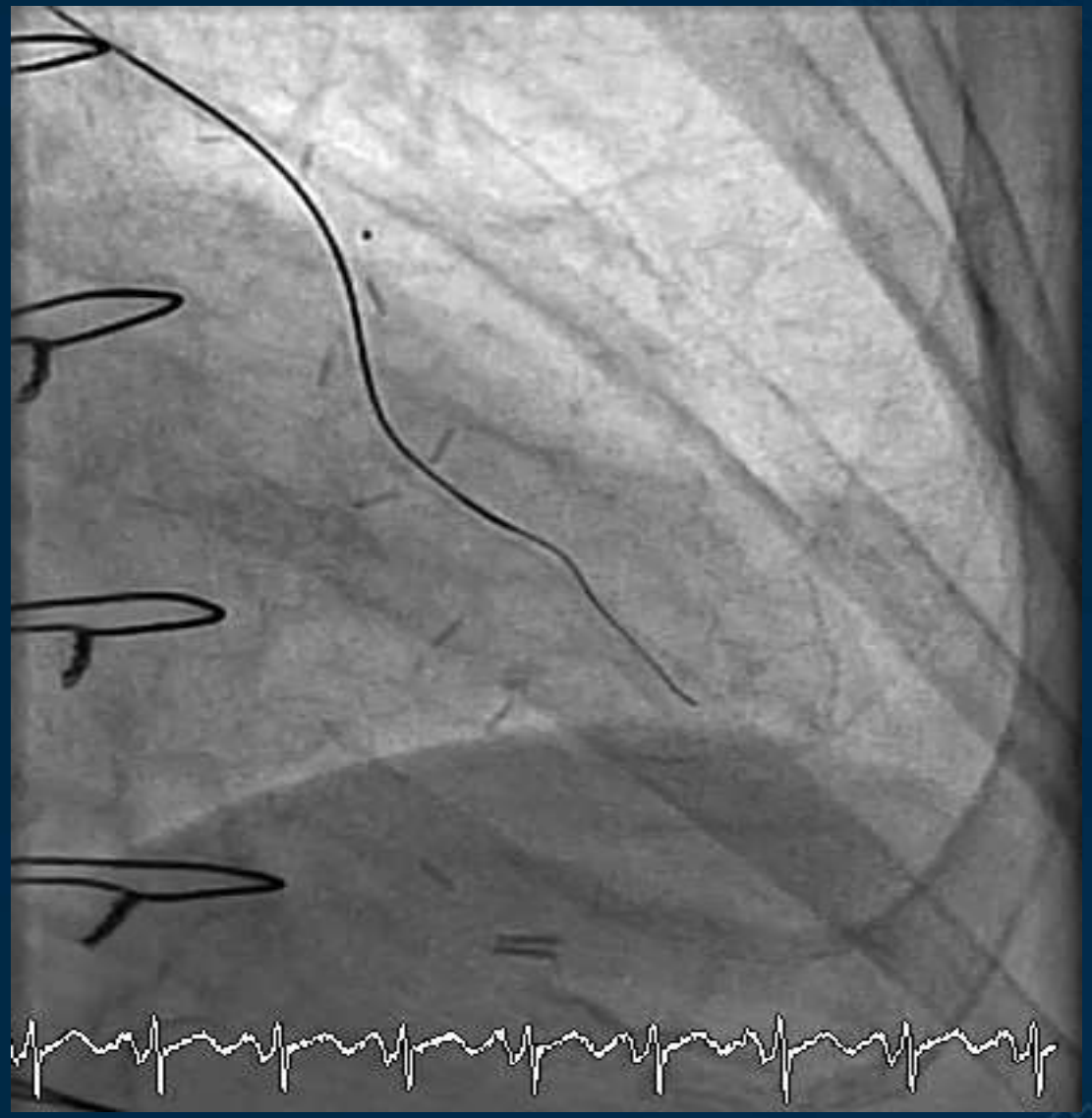






Failed PCI to distal LAD (uncrossable wire: Gaia Second)

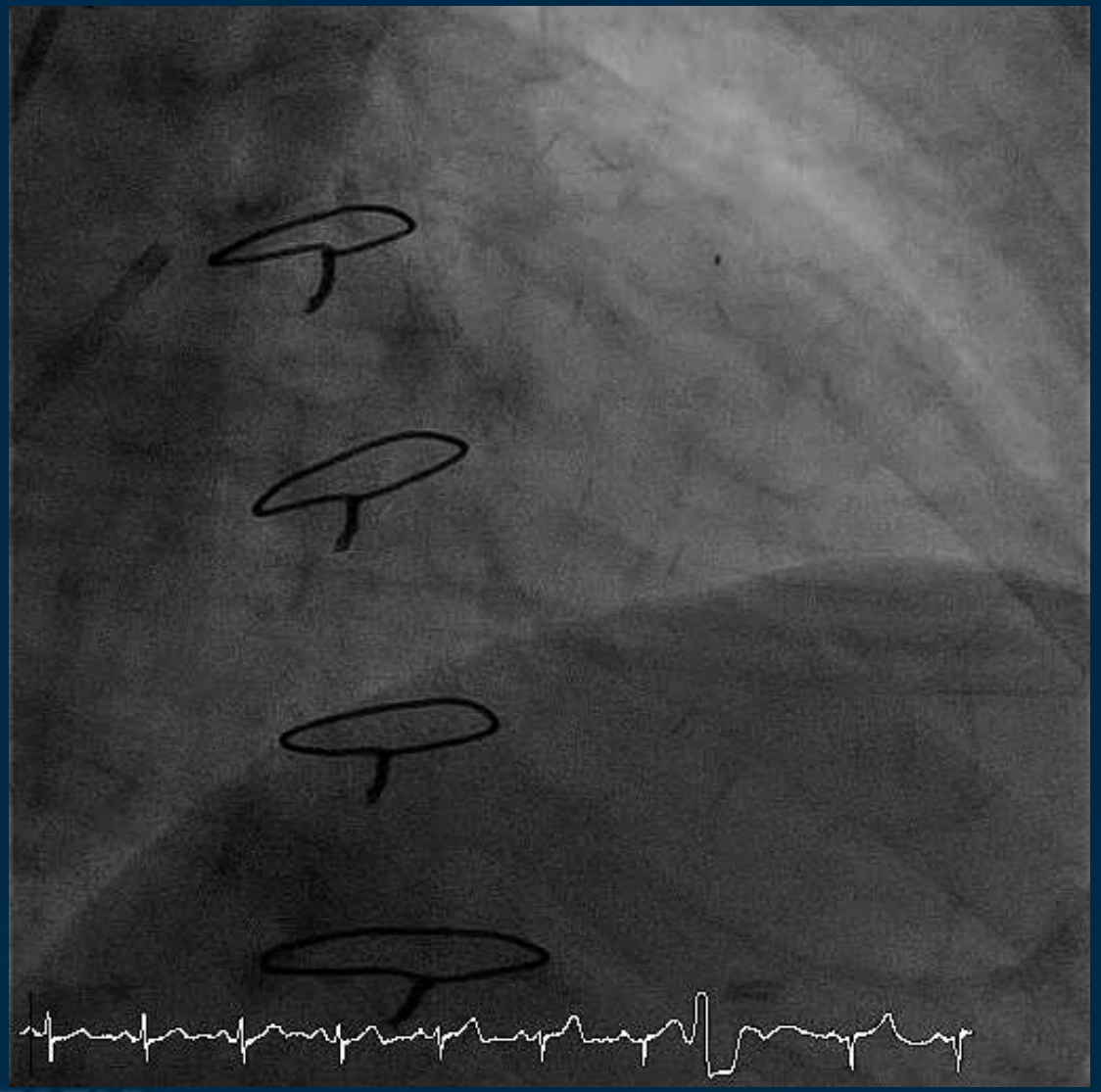


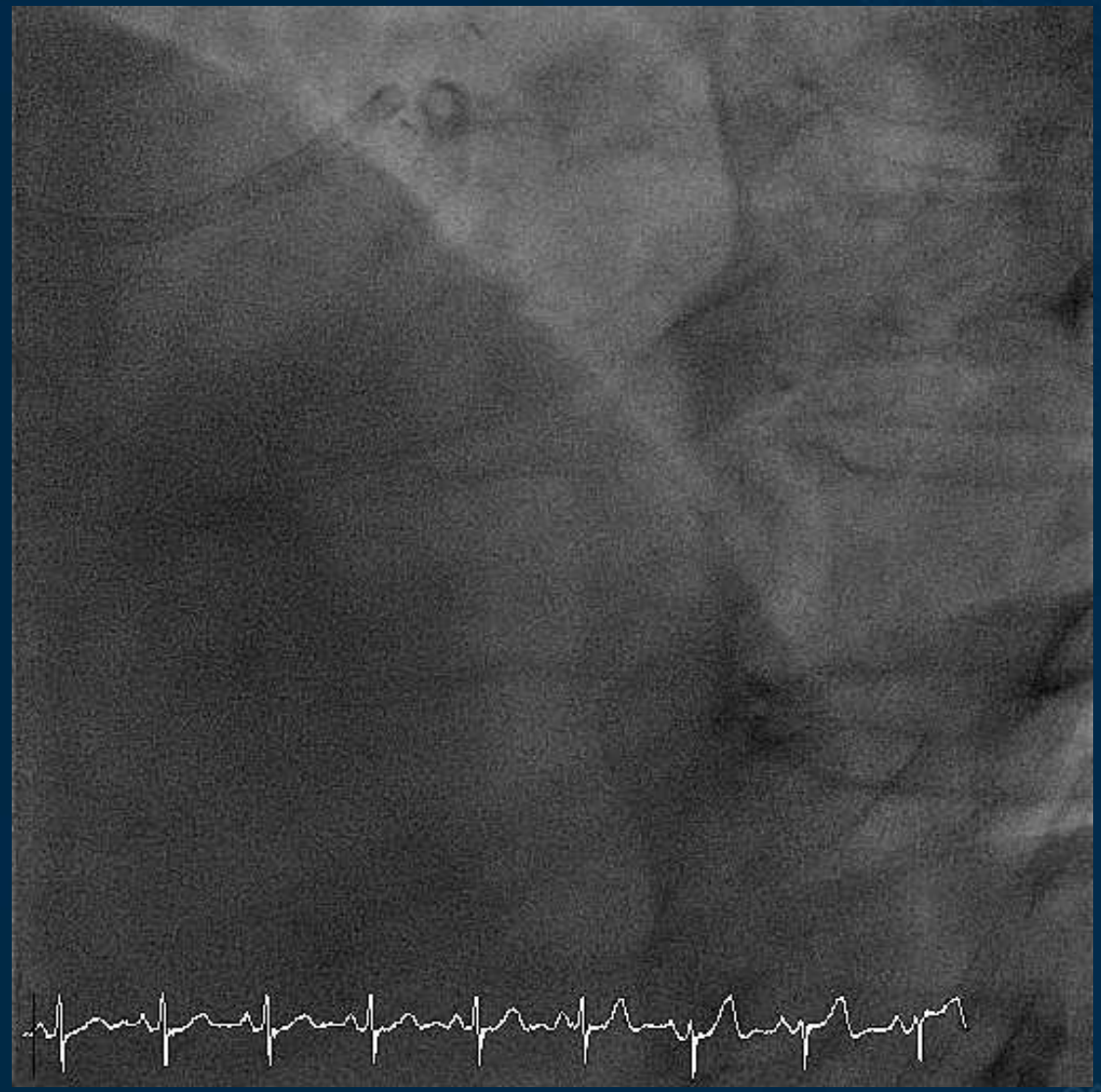


Summary data

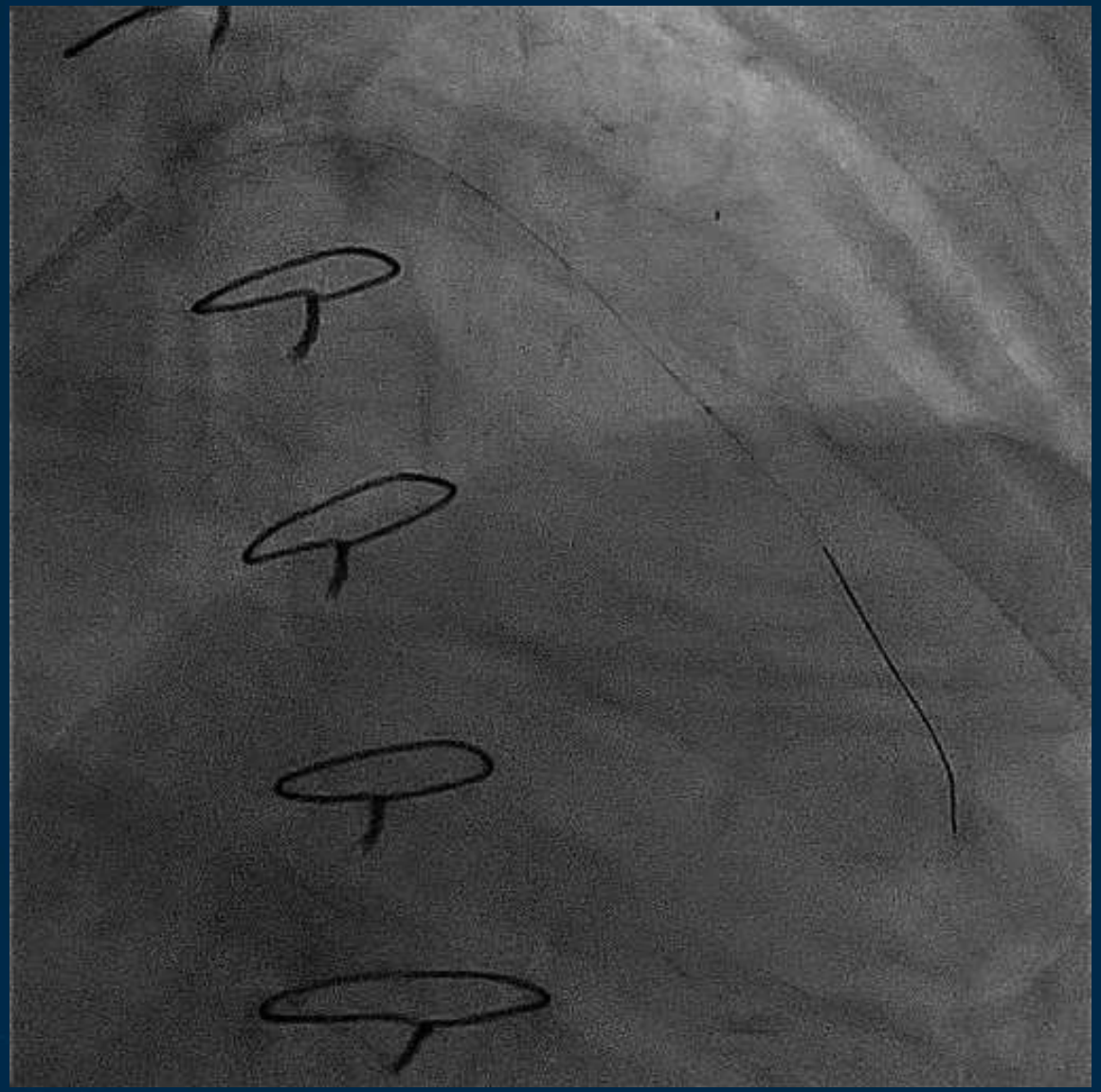
- A 74 years old female
- Known case : TVD S/P CABG with CTO distal LAD and severe stenosis at distal anastomosis of SVG-OM (Failed PCI to distal LAD)
- Underlying disease: Hypertension, Hyperlipidemia, T2DM
- Patient was referred to KMCH for PCI

Coronary angiogram

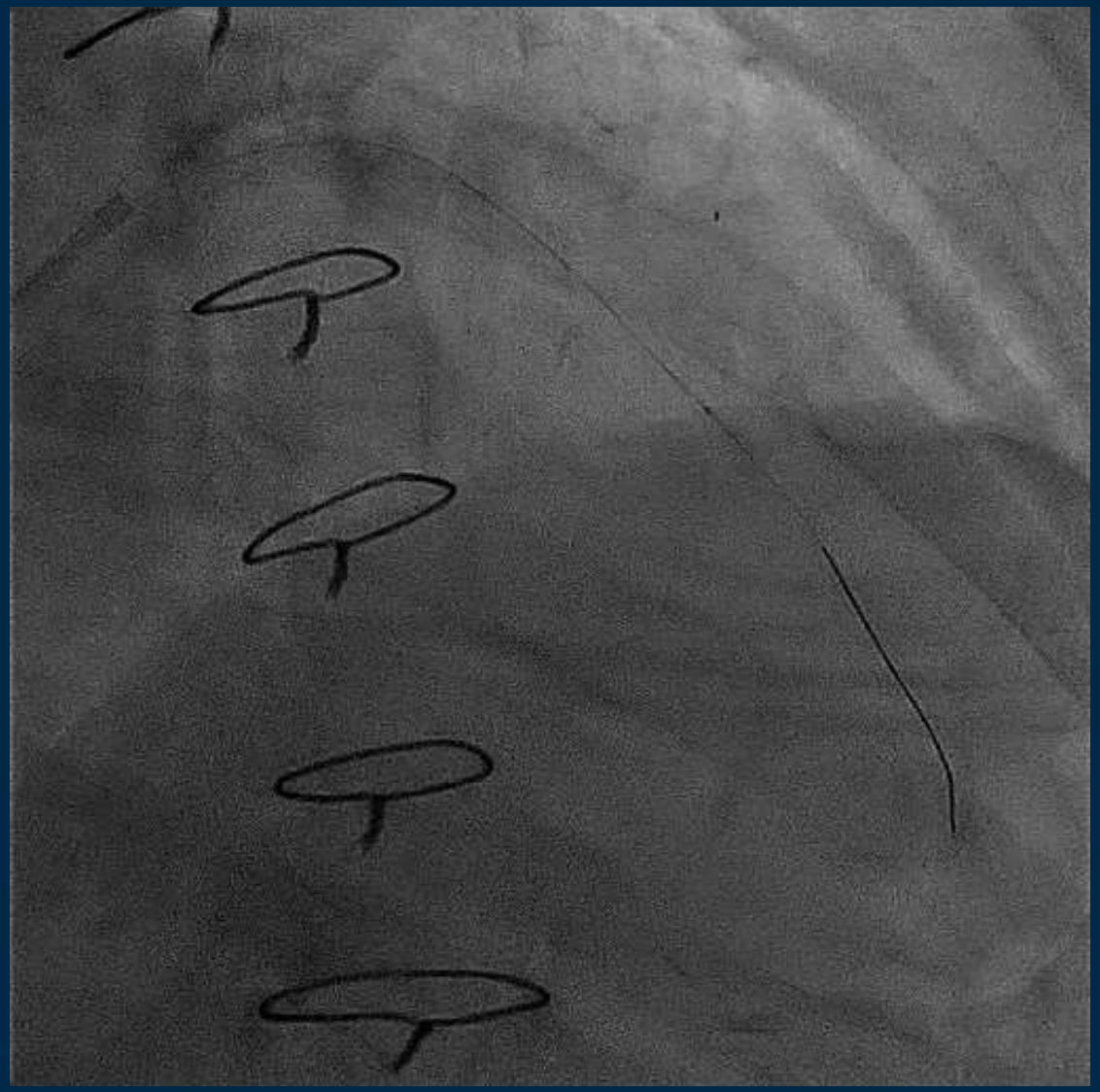




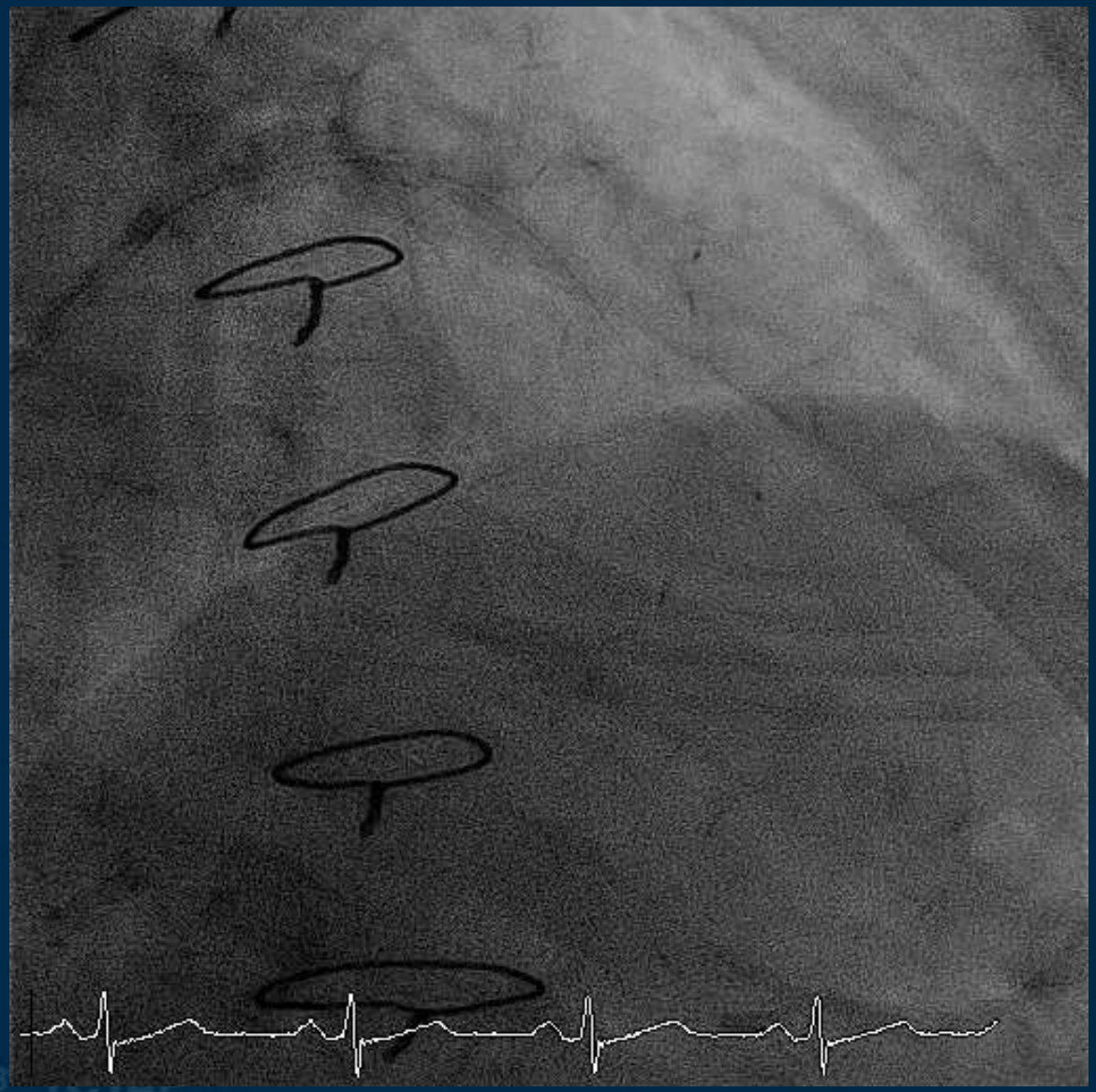
Sion Blue could pass through distal LAD
Finecross microcatheter could not pass the lesion

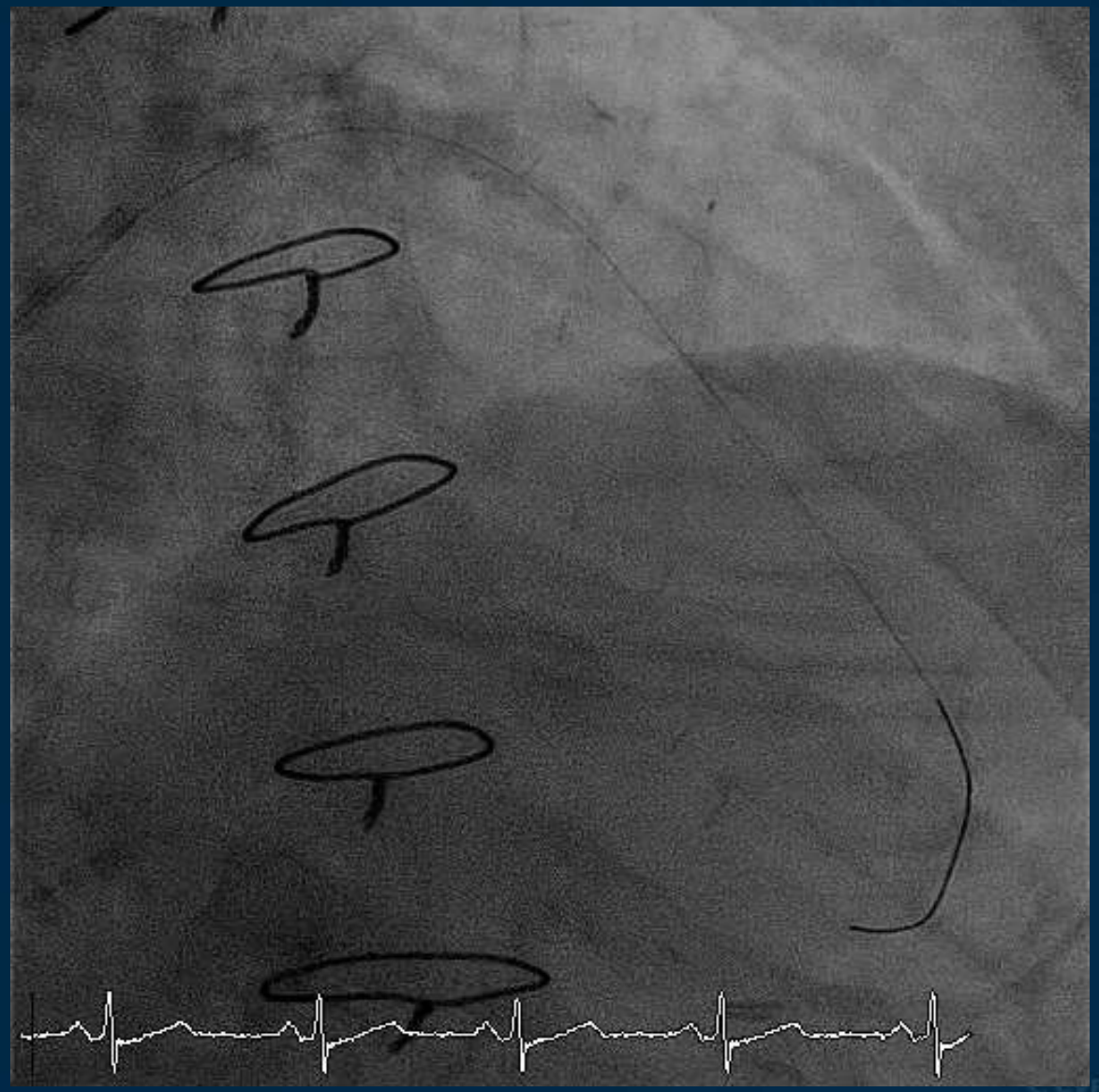


Pre-dilatation with Ryurei balloon 1.5x10 mm at mid LAD (2.0 x 12 mm SC-balloon could not pass)

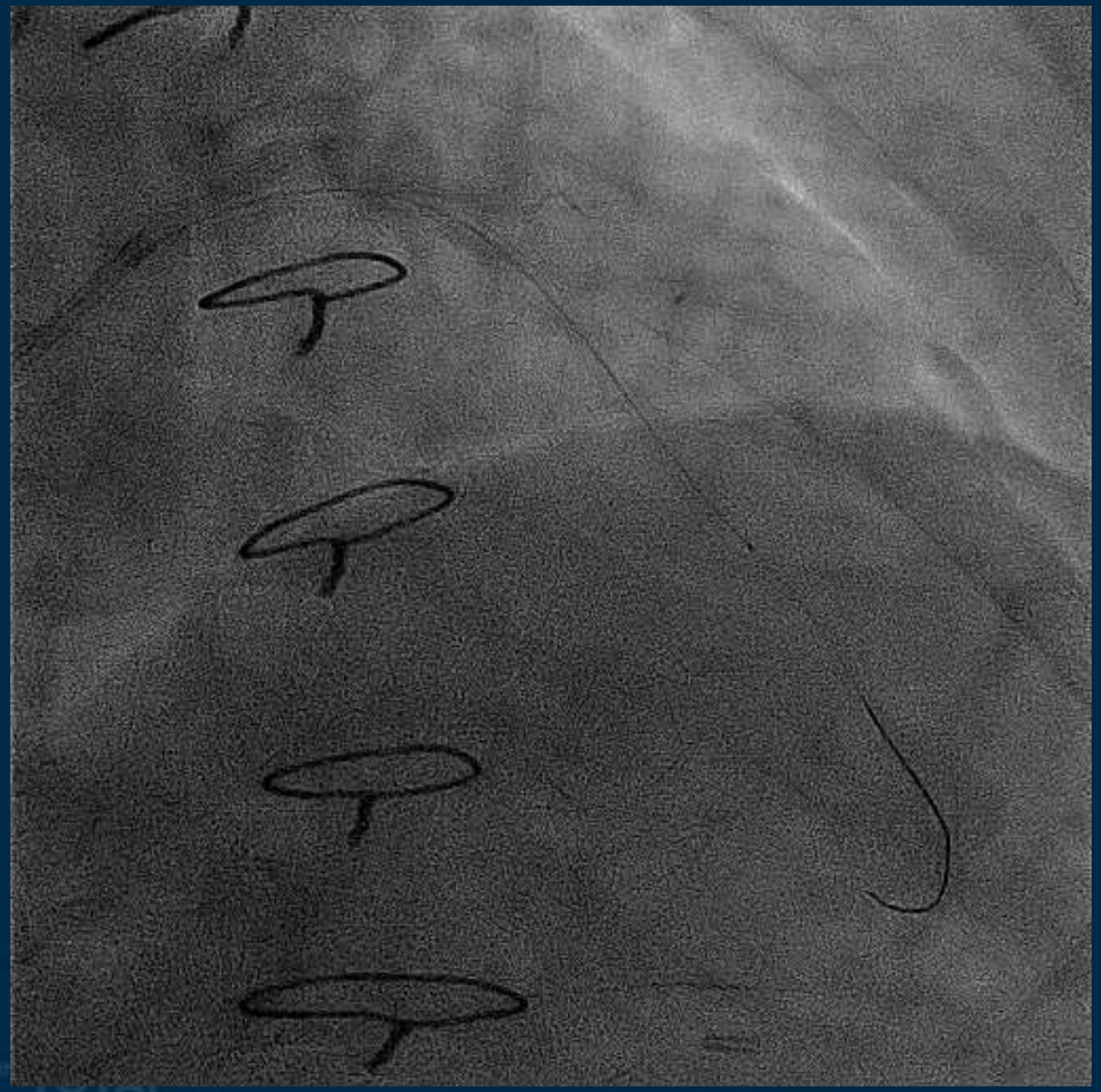


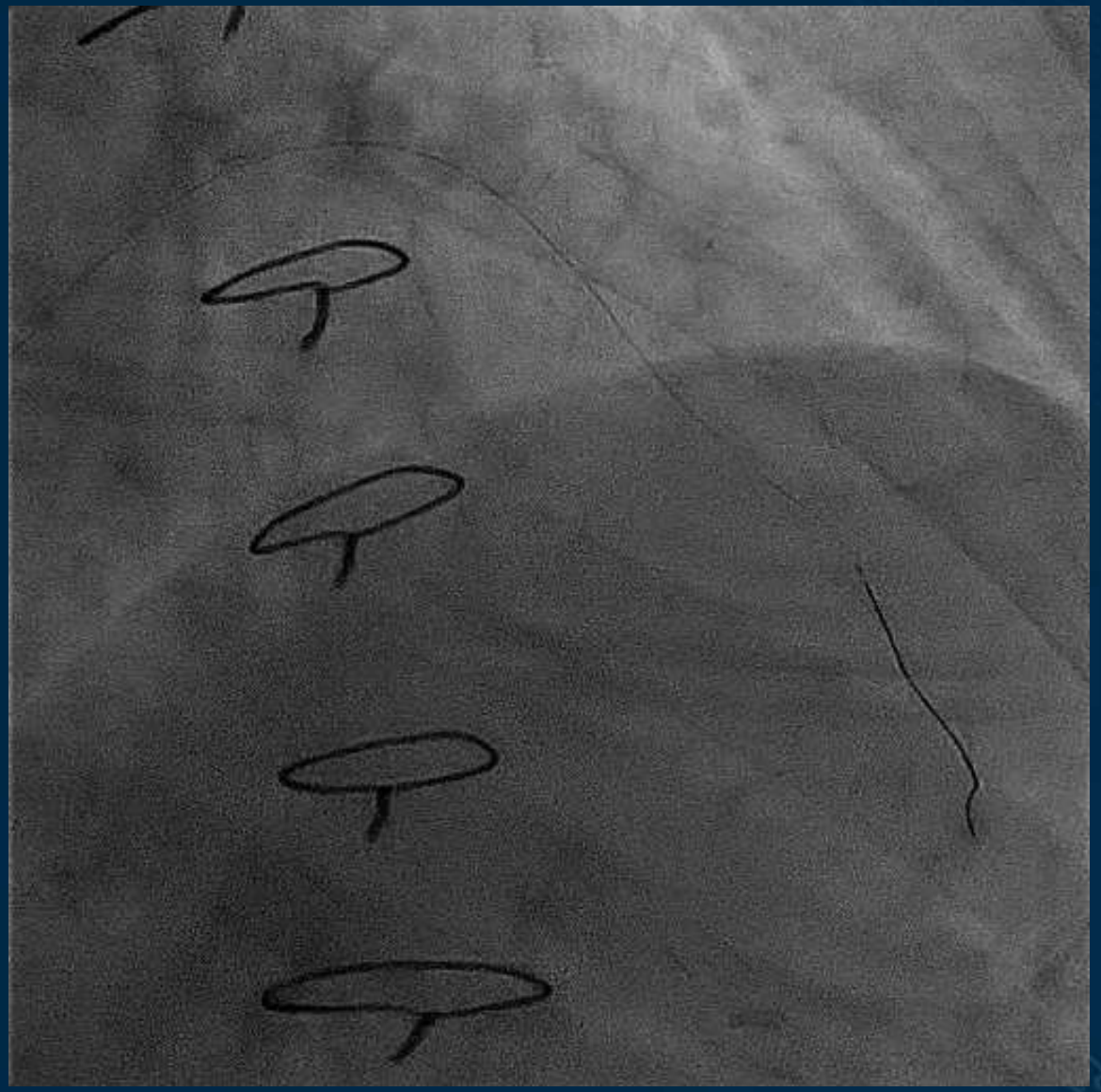
Angiogram after dilate mid LAD



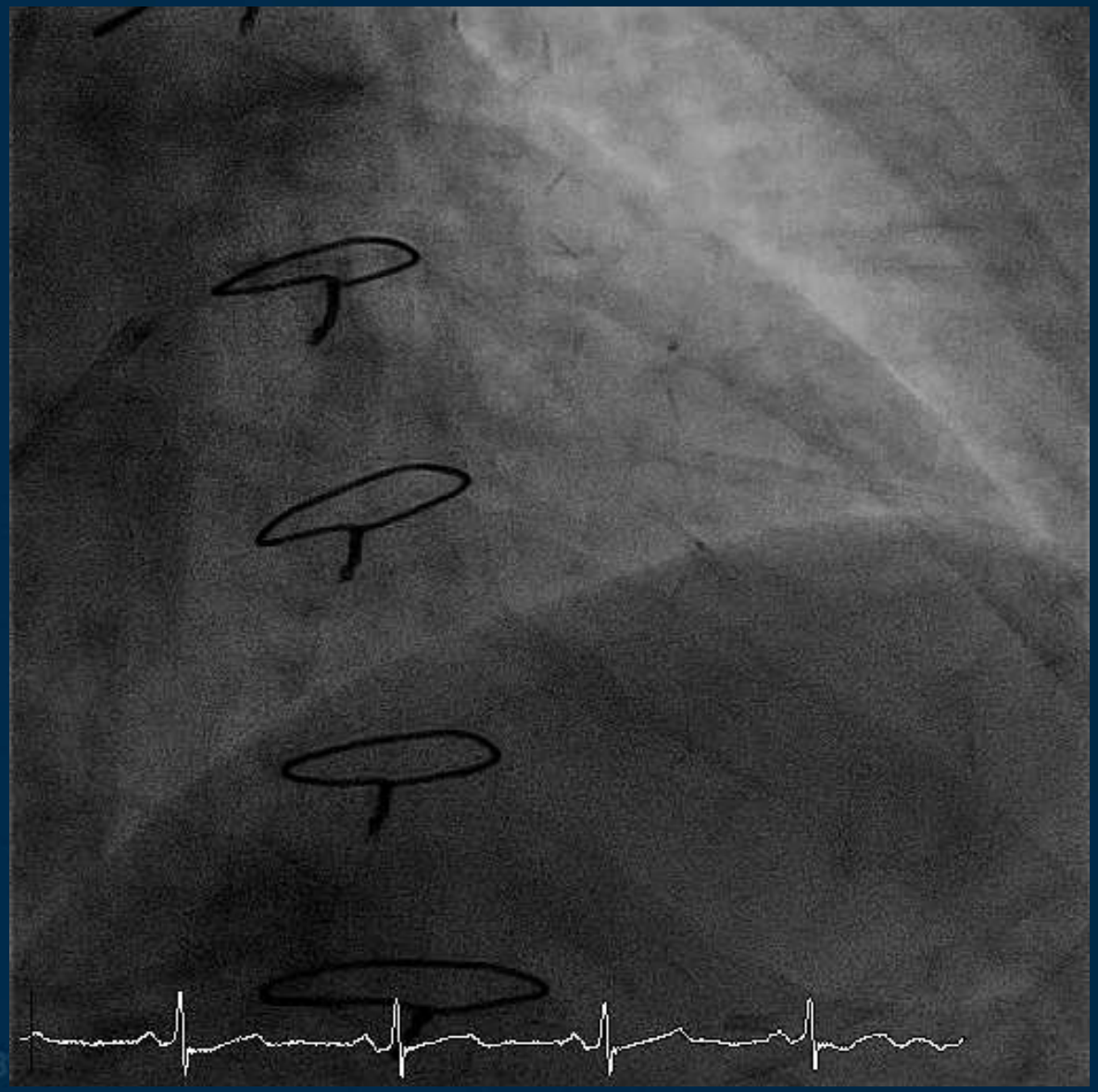


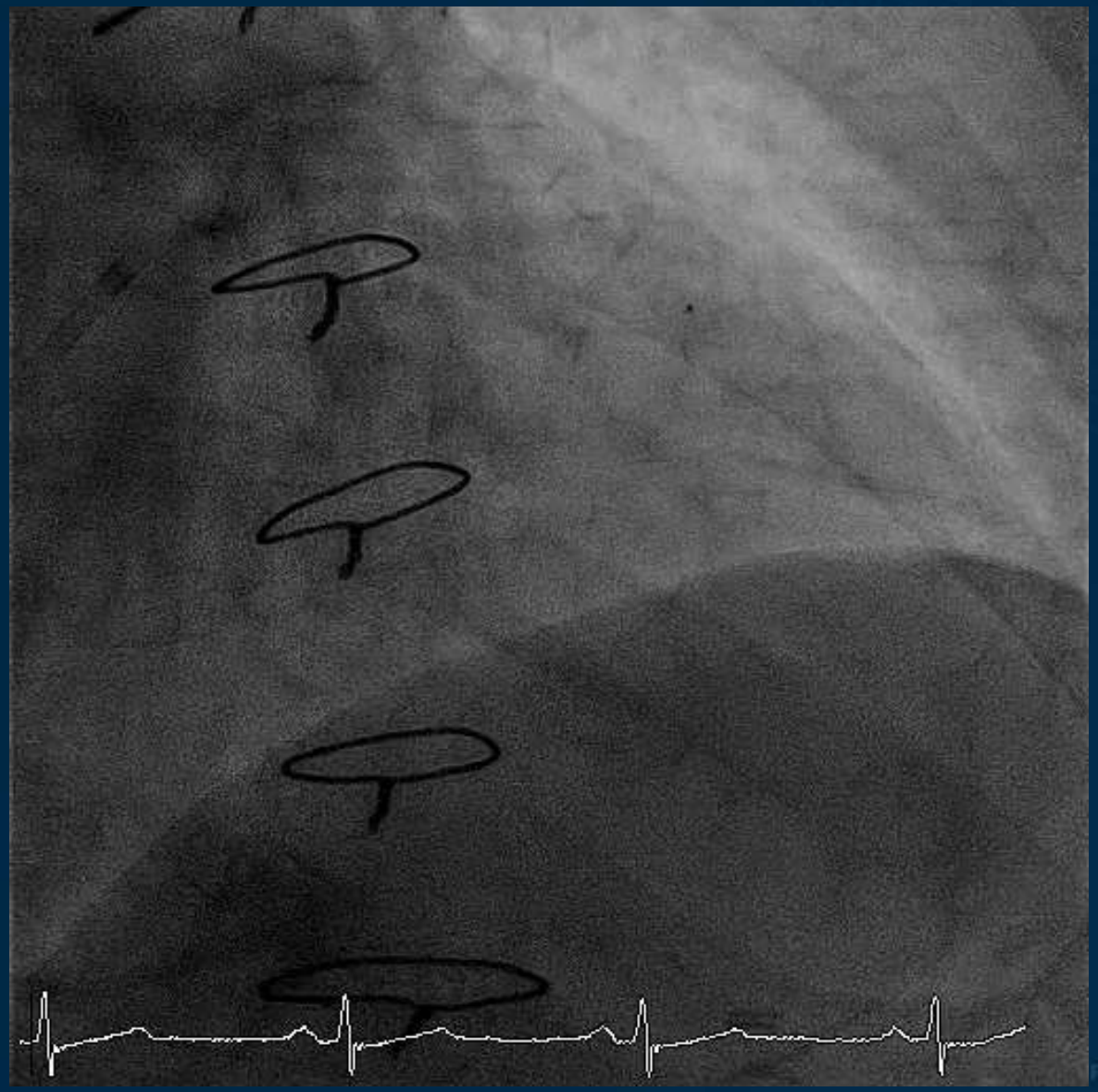
POBA with Ryurei balloon 1.5x10 mm at distal LAD



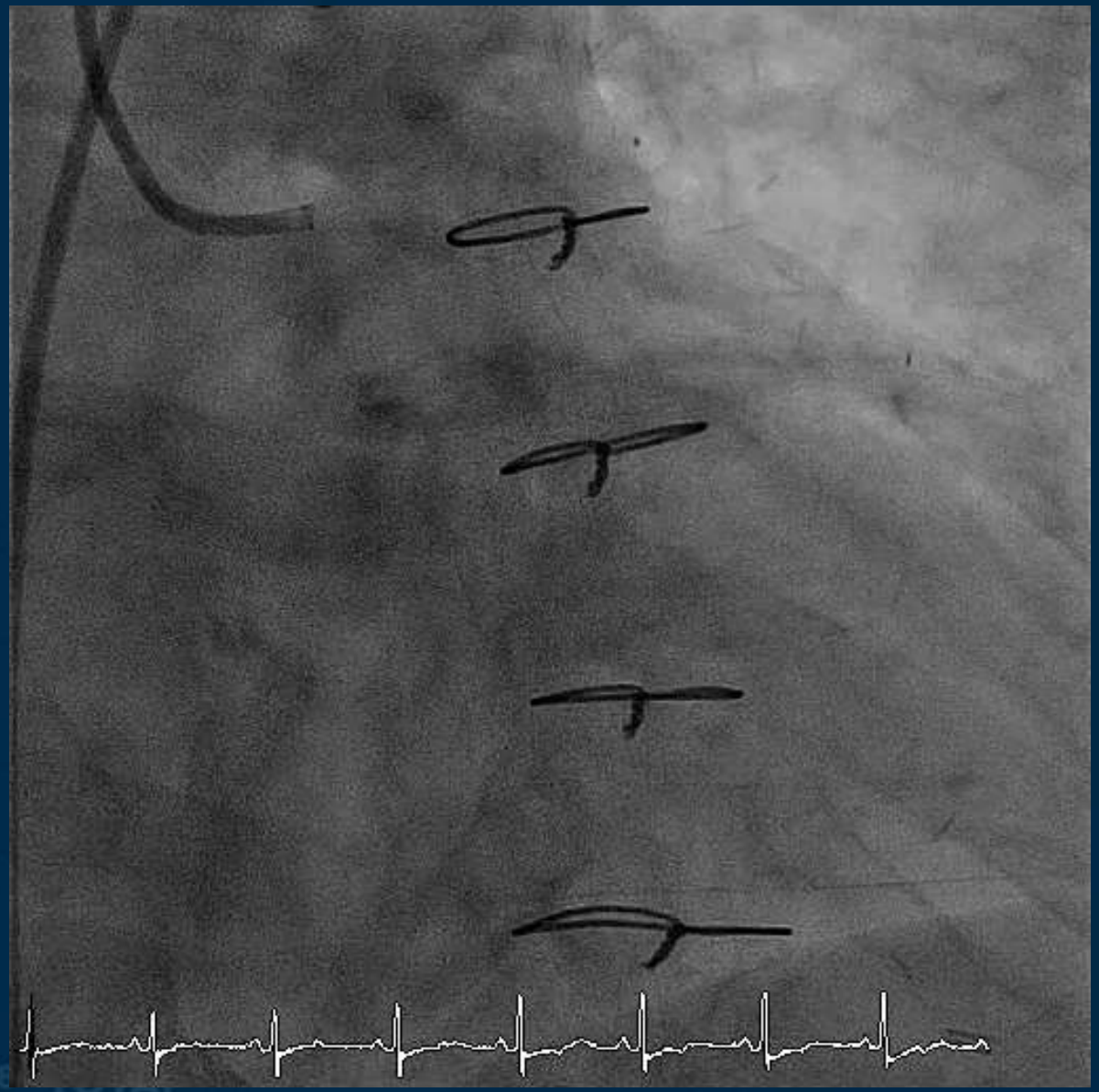


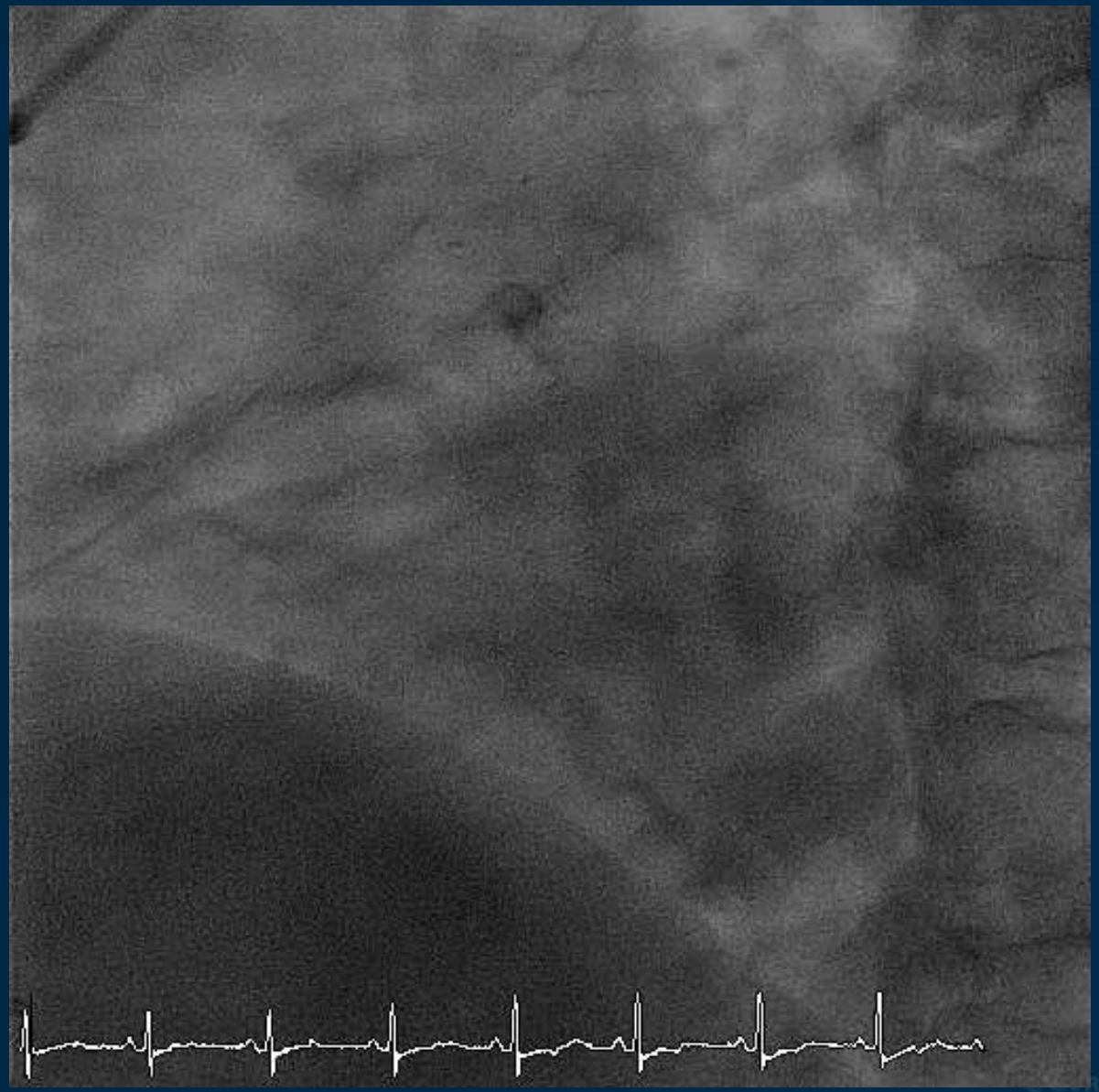
Angiogram after POBA



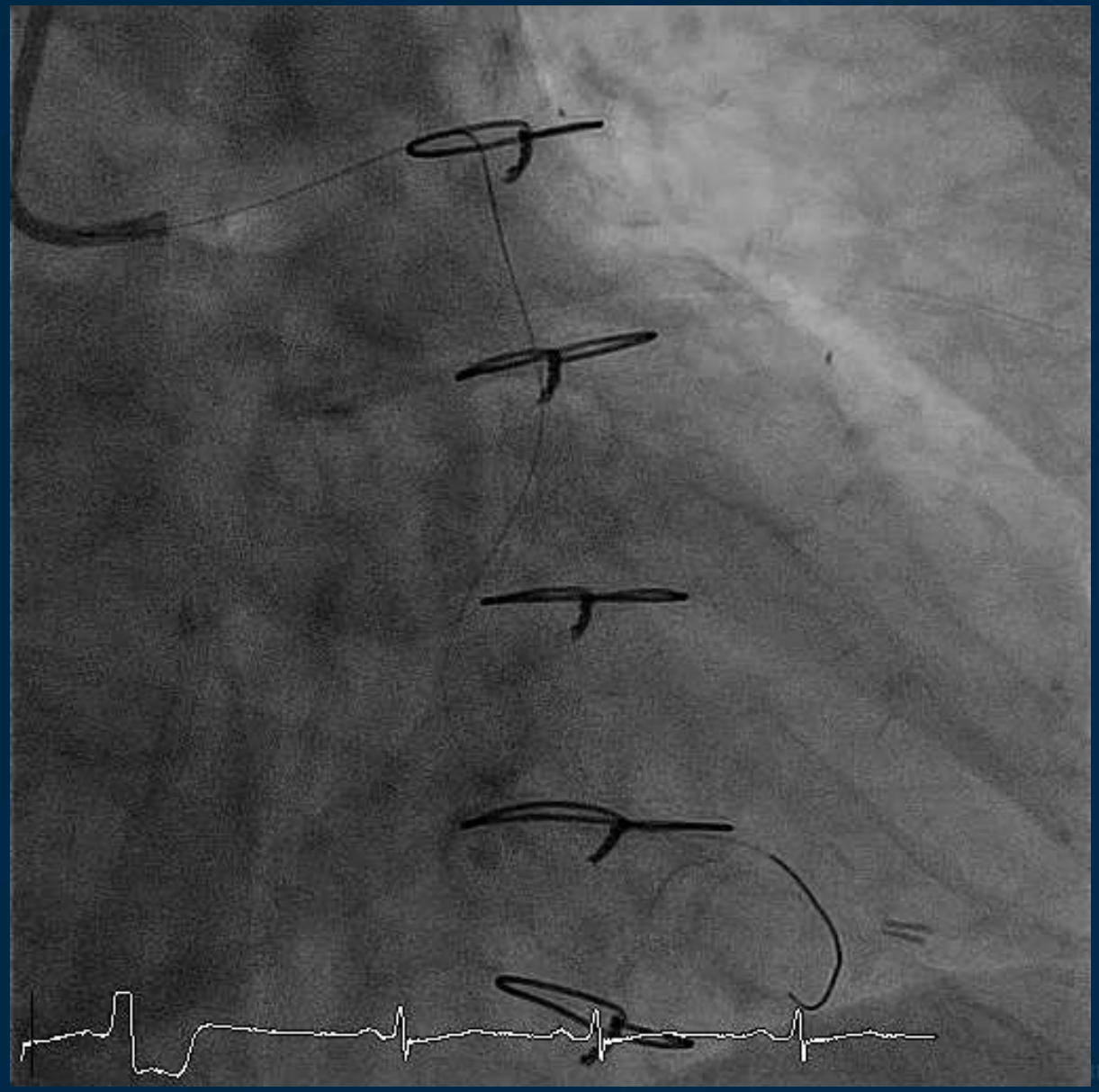


SVG-OM

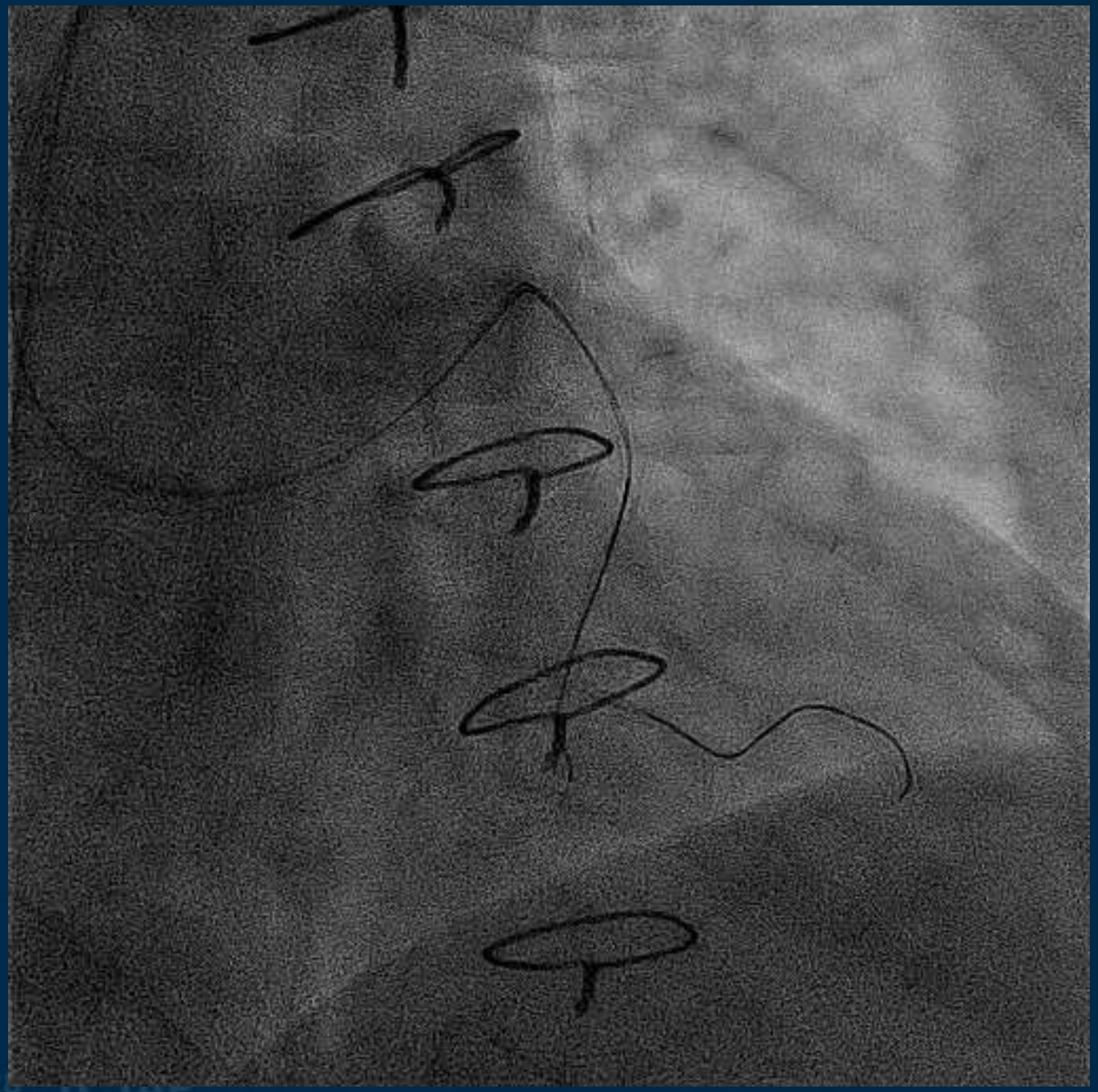


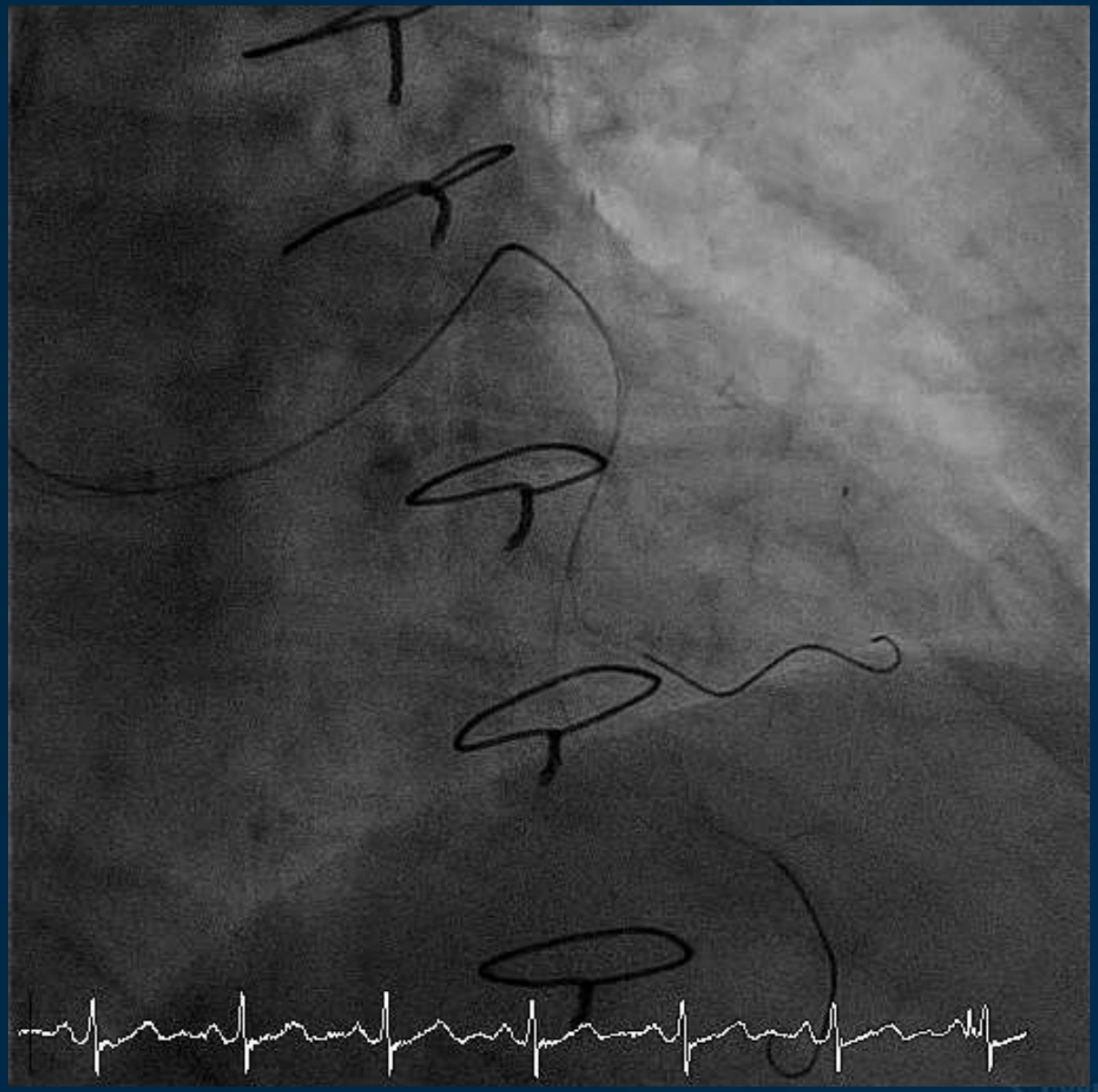


Pre-dilatation with Ryurei balloon 1.5x10 mm @12 ATM

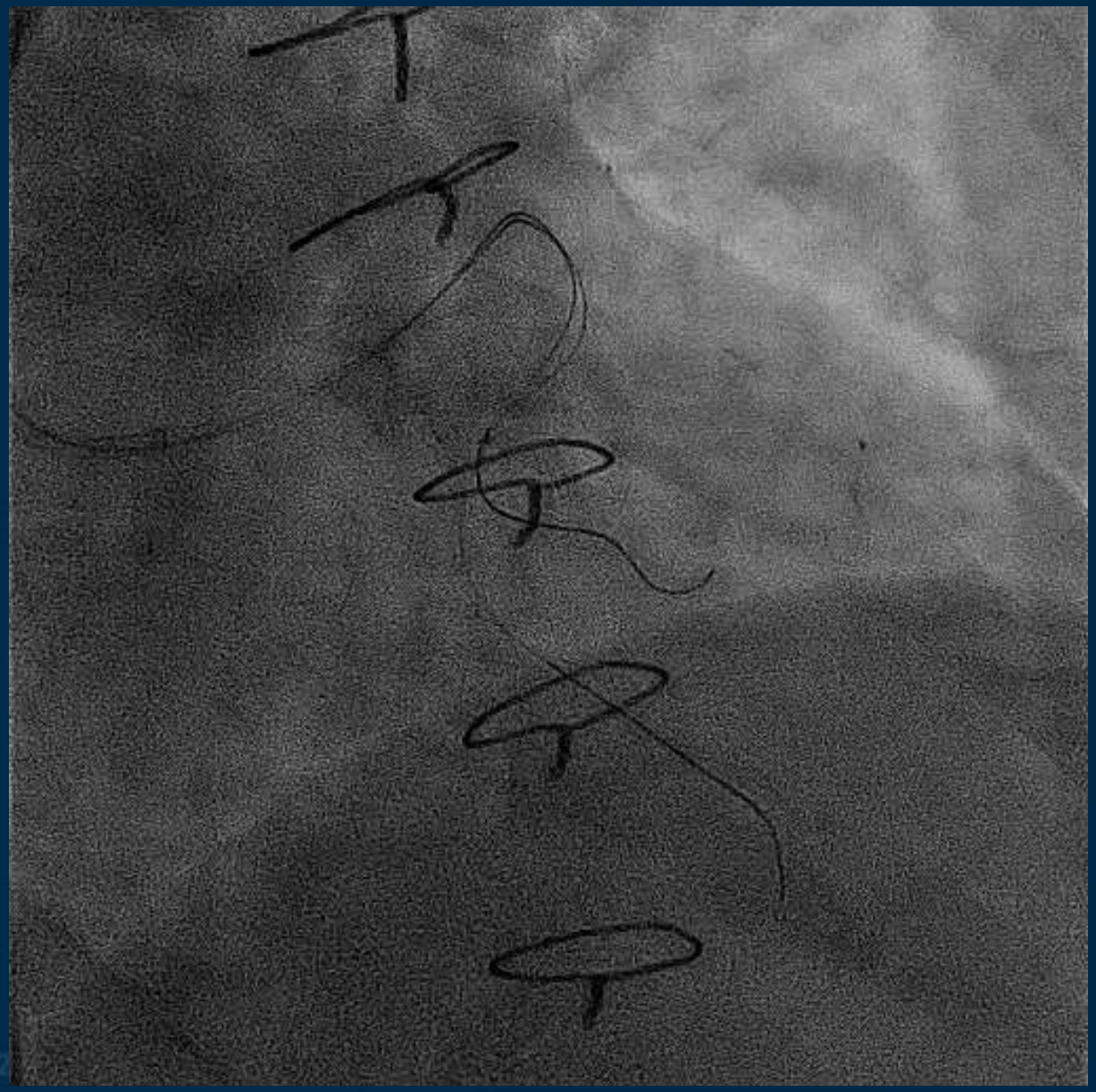


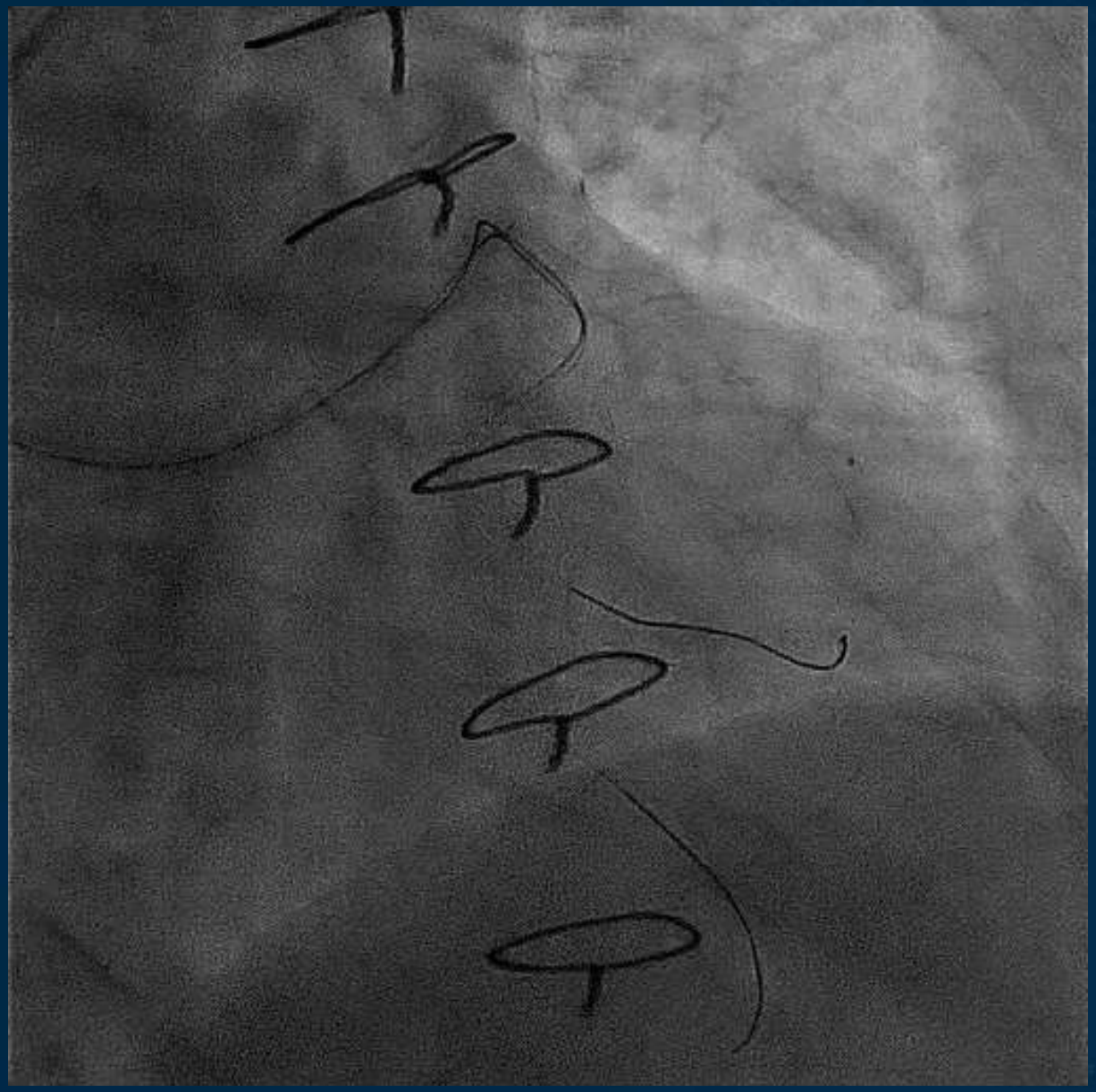
PCI at SVG-OM (OM2-Sion, OM3- Sion Blue)



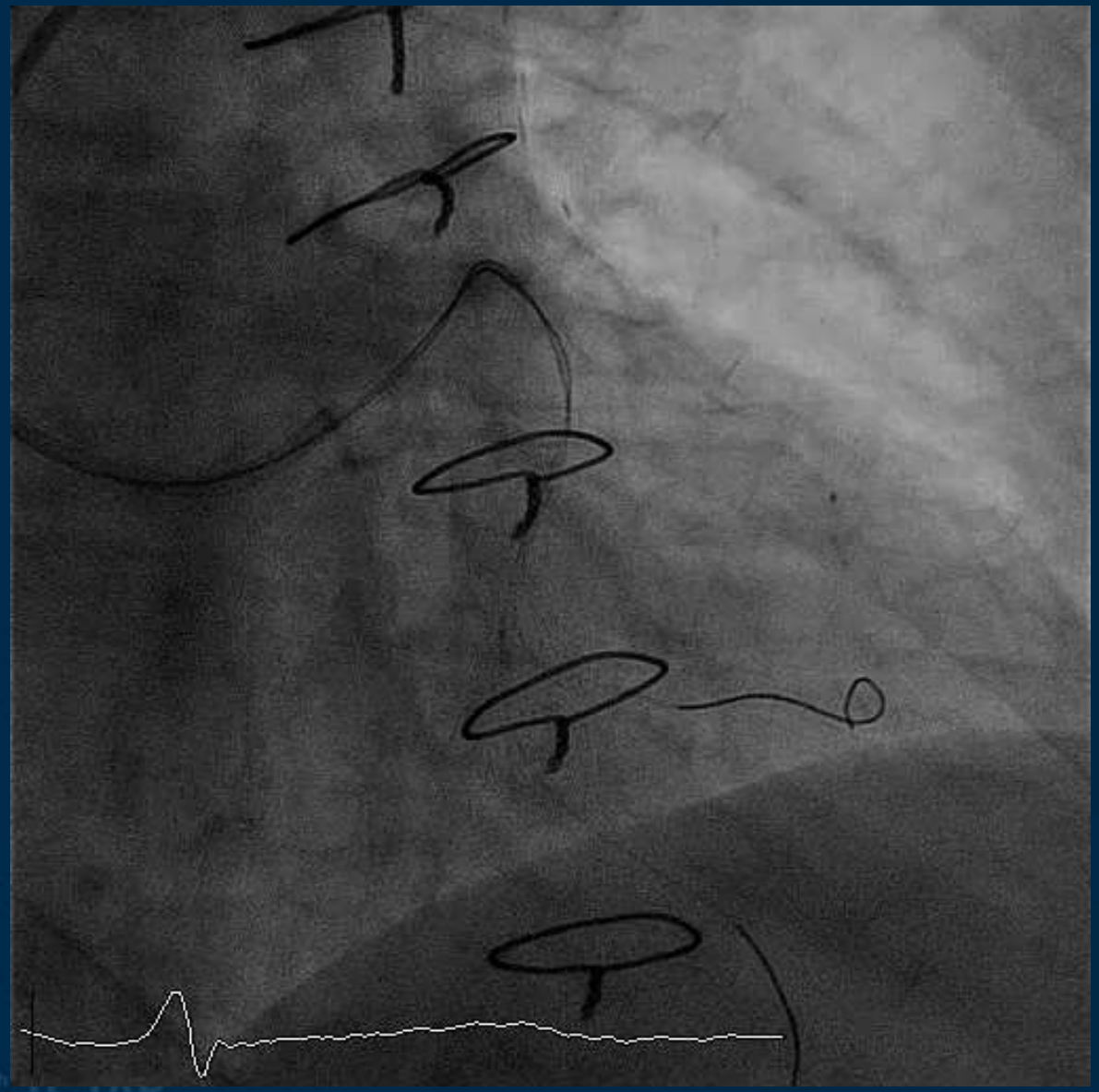


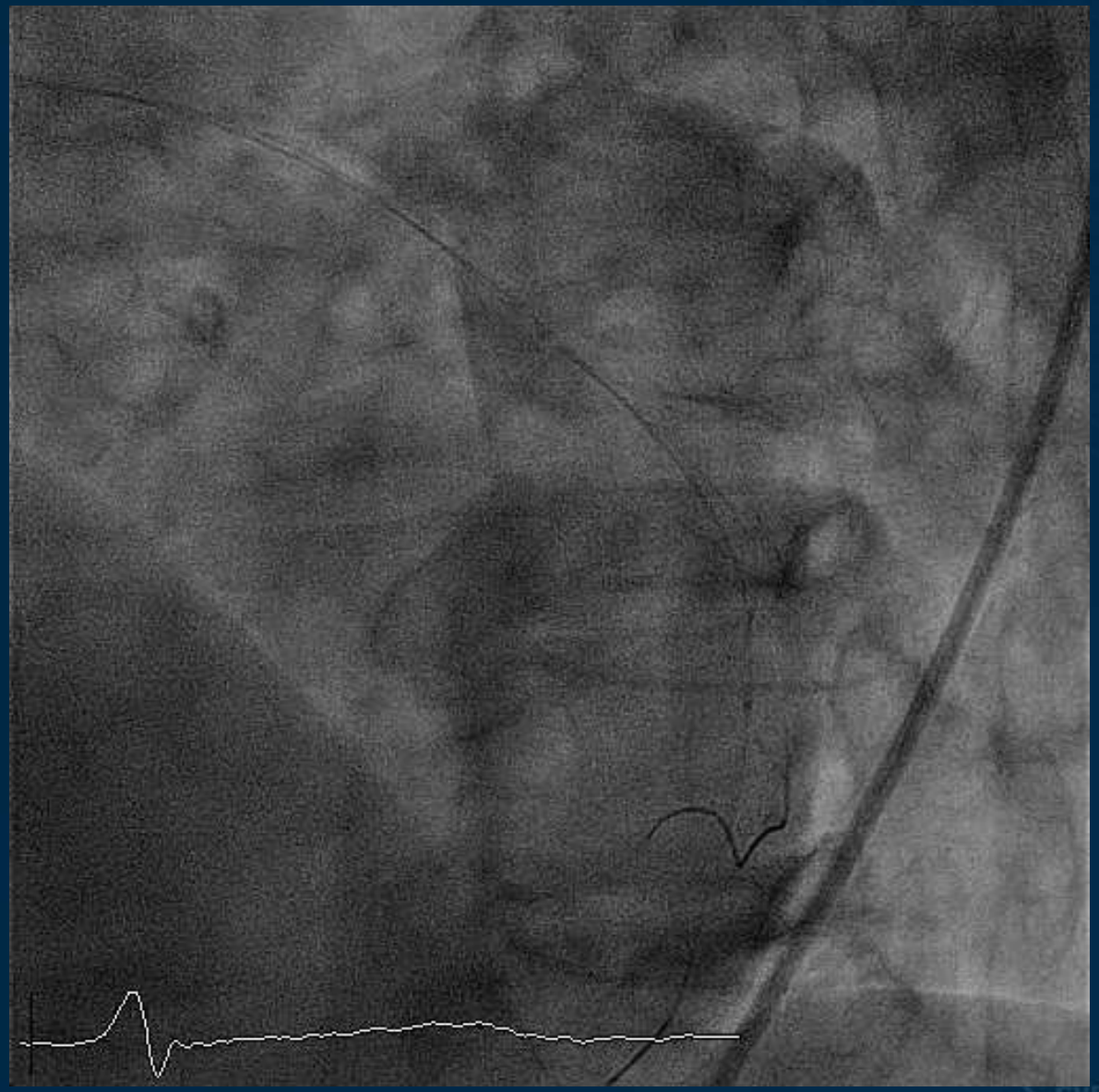
Pre-dilatation with Ryurei balloon 1.0x5 mm @14 ATM at OM3



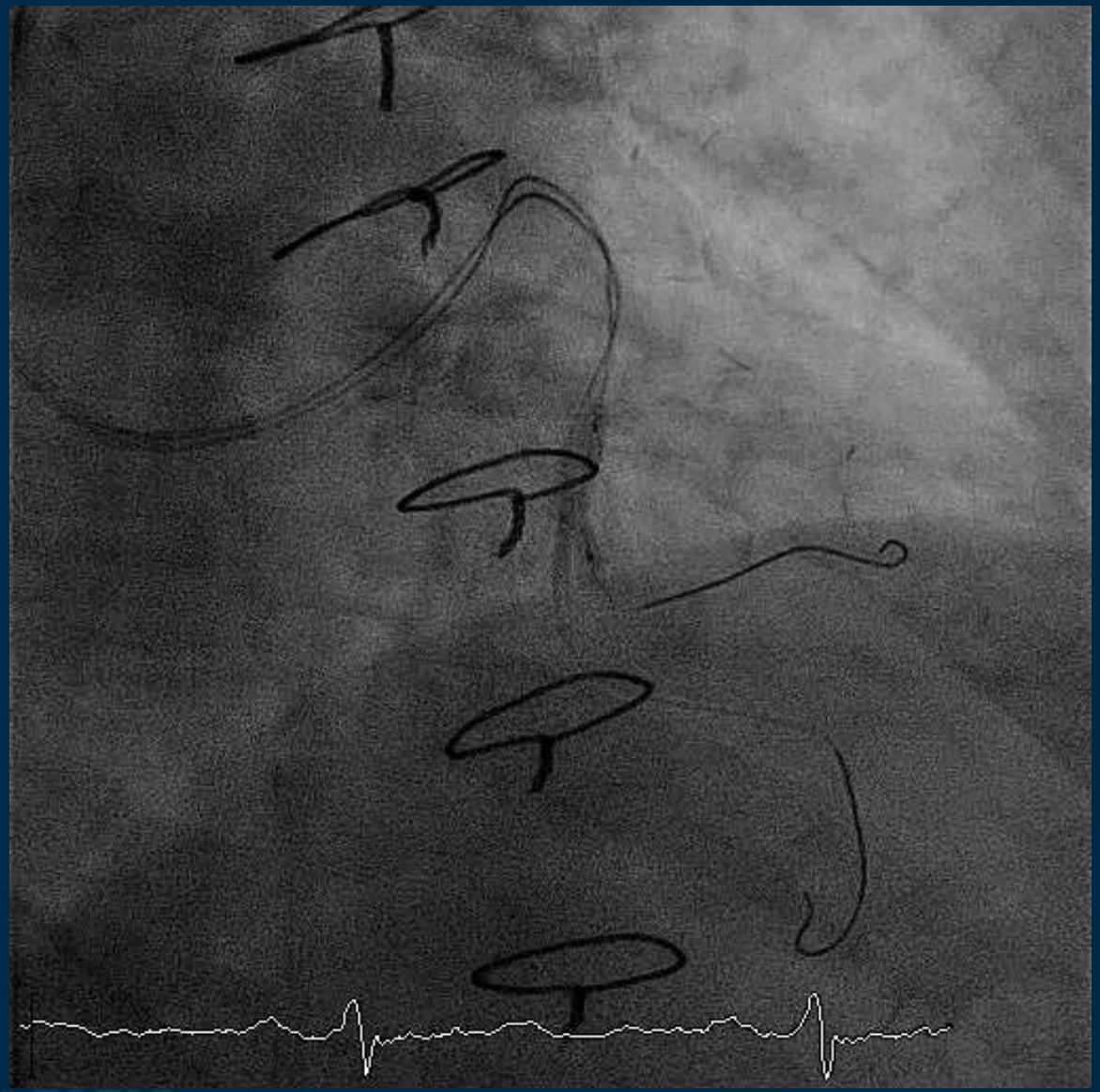


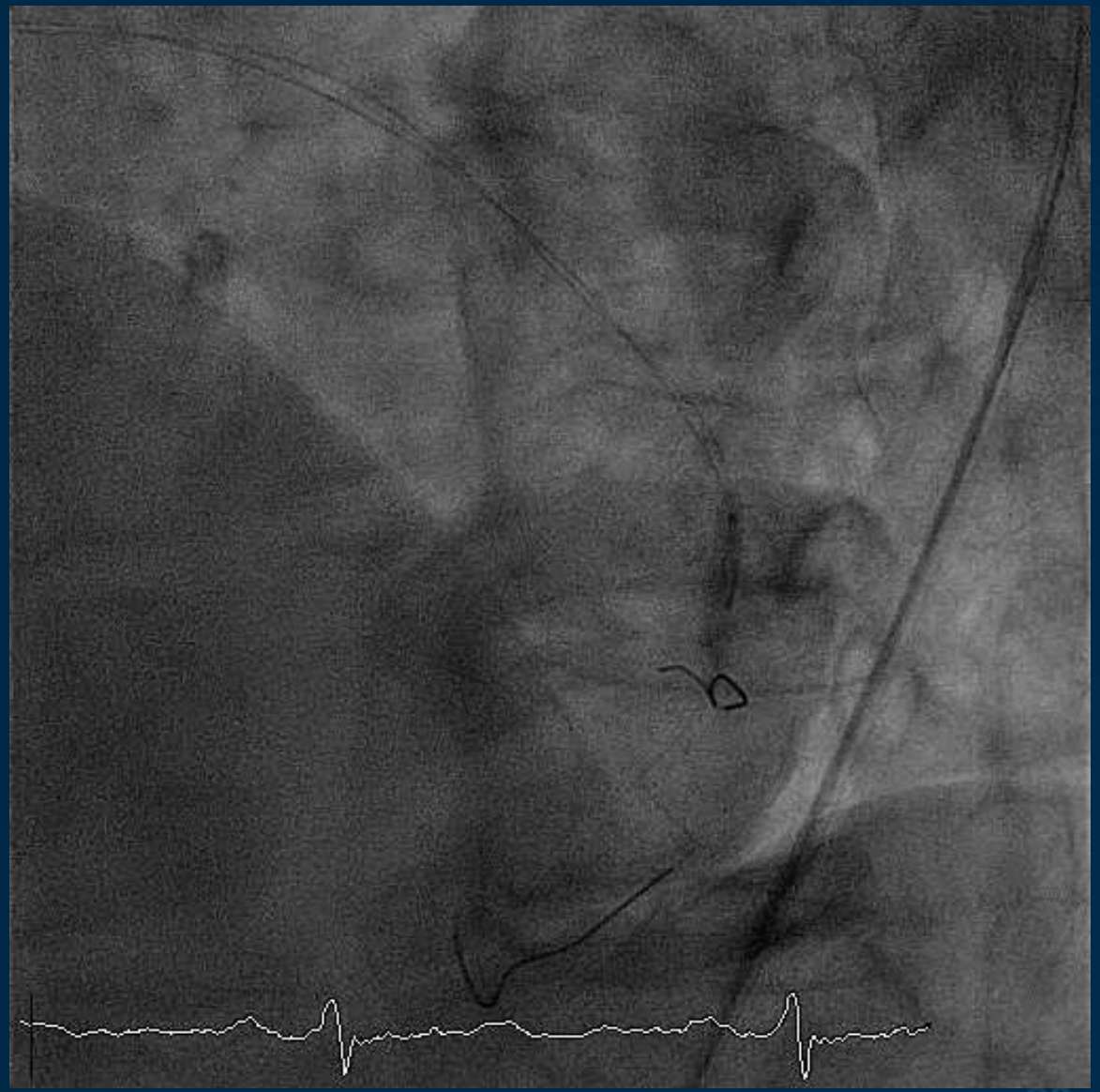
Pre-dilatation with SC-balloon 2.5x12 mm @14 ATM at OM2



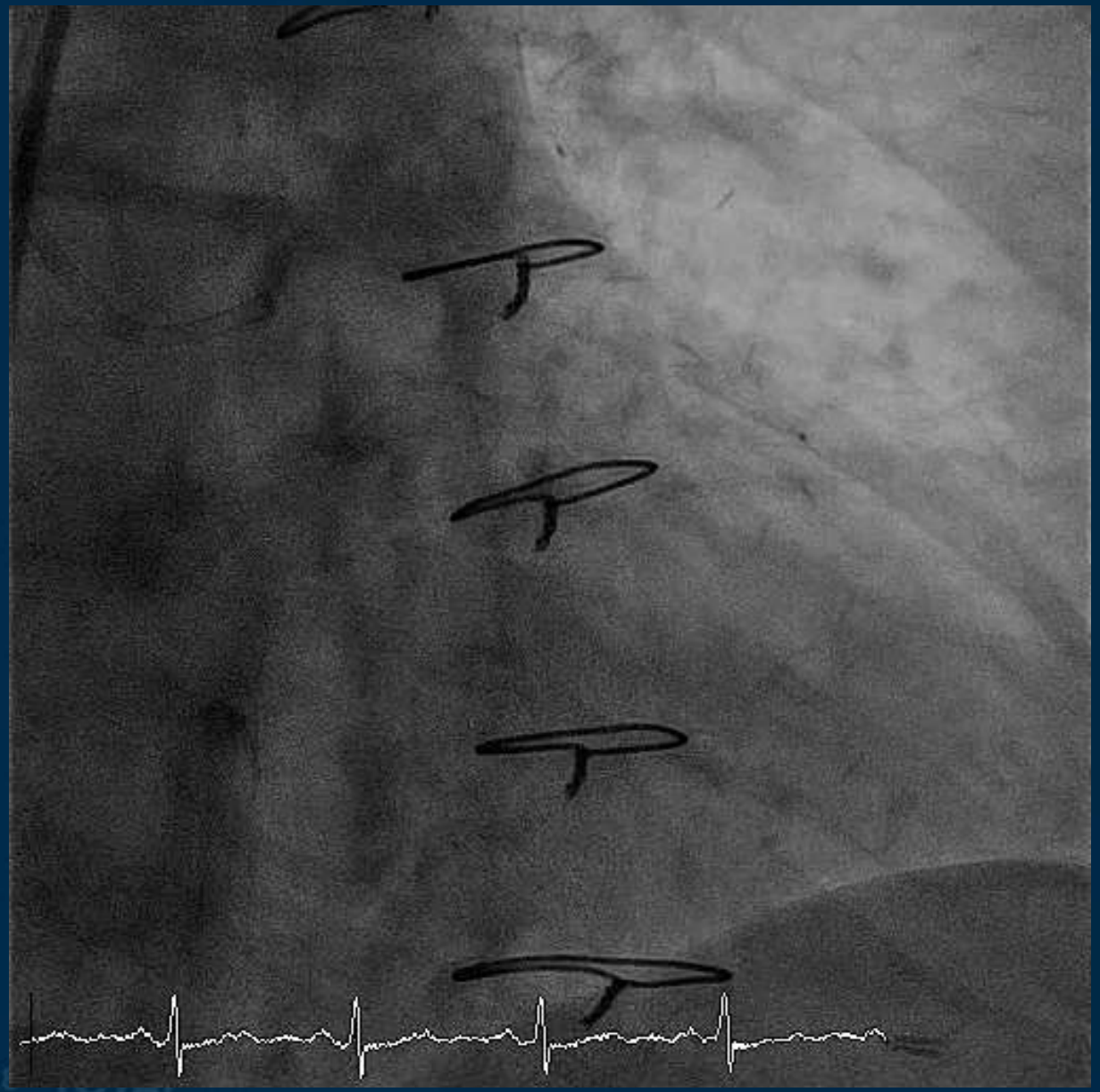


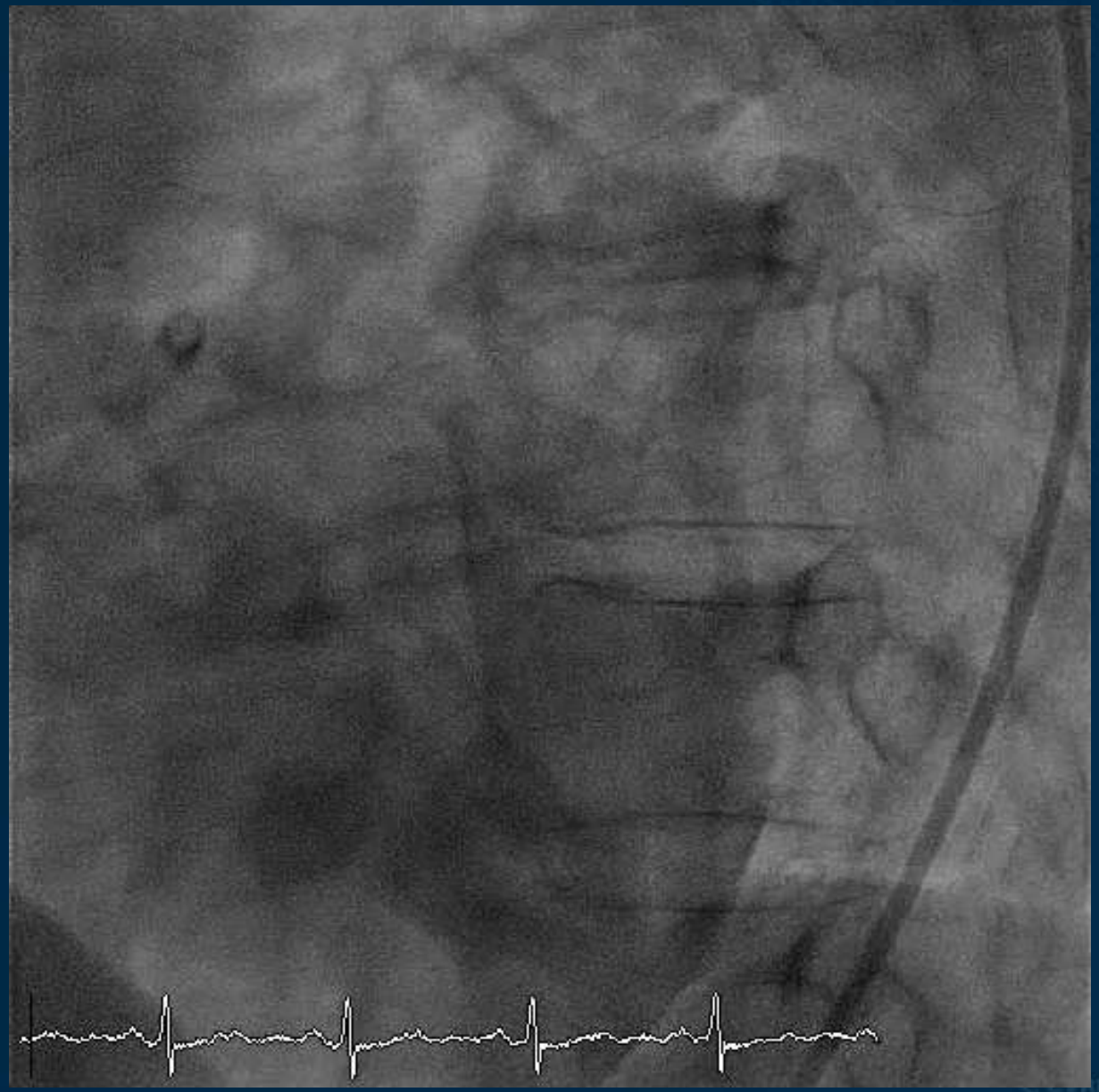
KBI with Euphora balloon 2.5x12 mm and Ryurei balloon 1.5x10 mm @12 ATM





Final angiogram

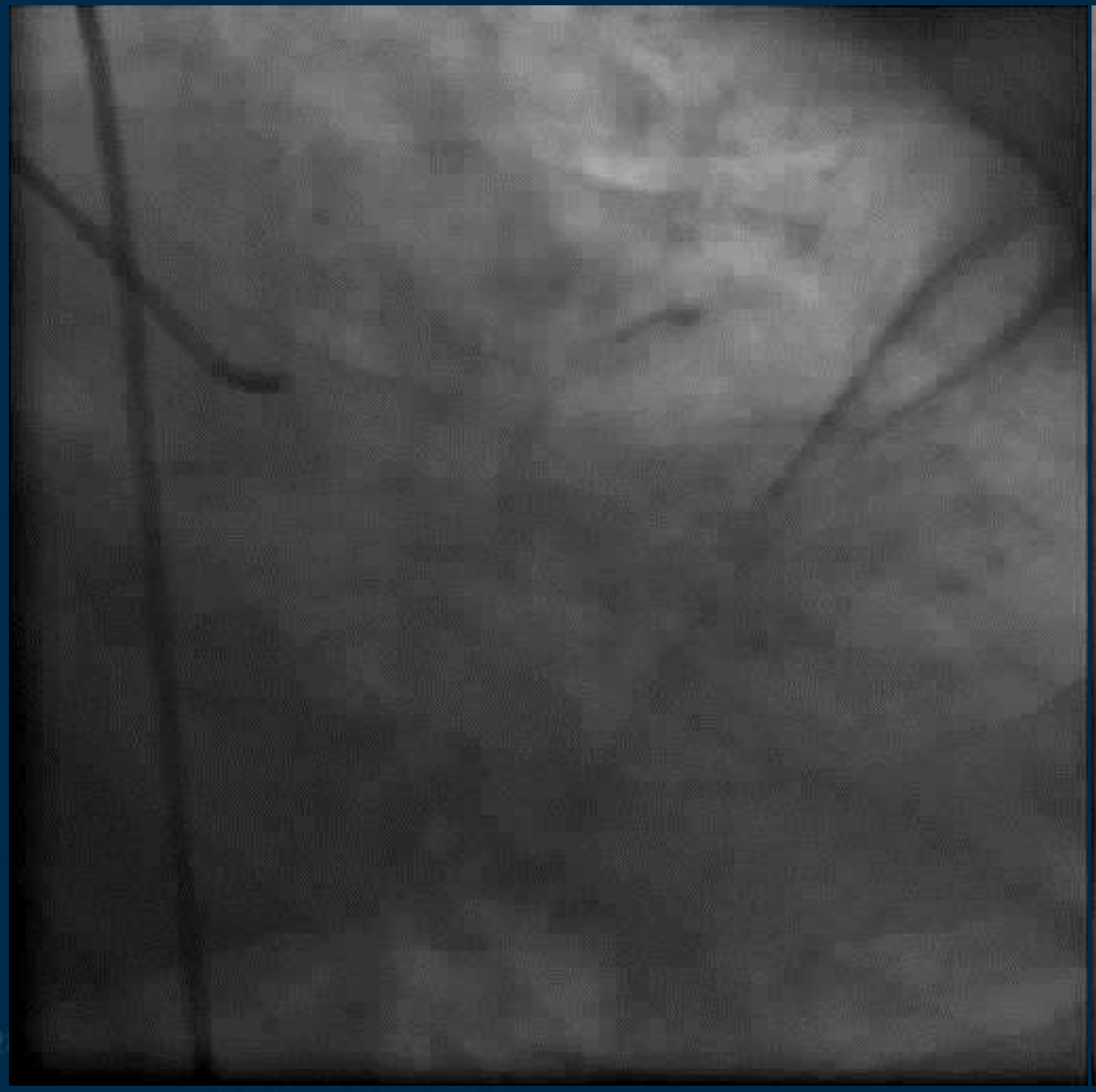


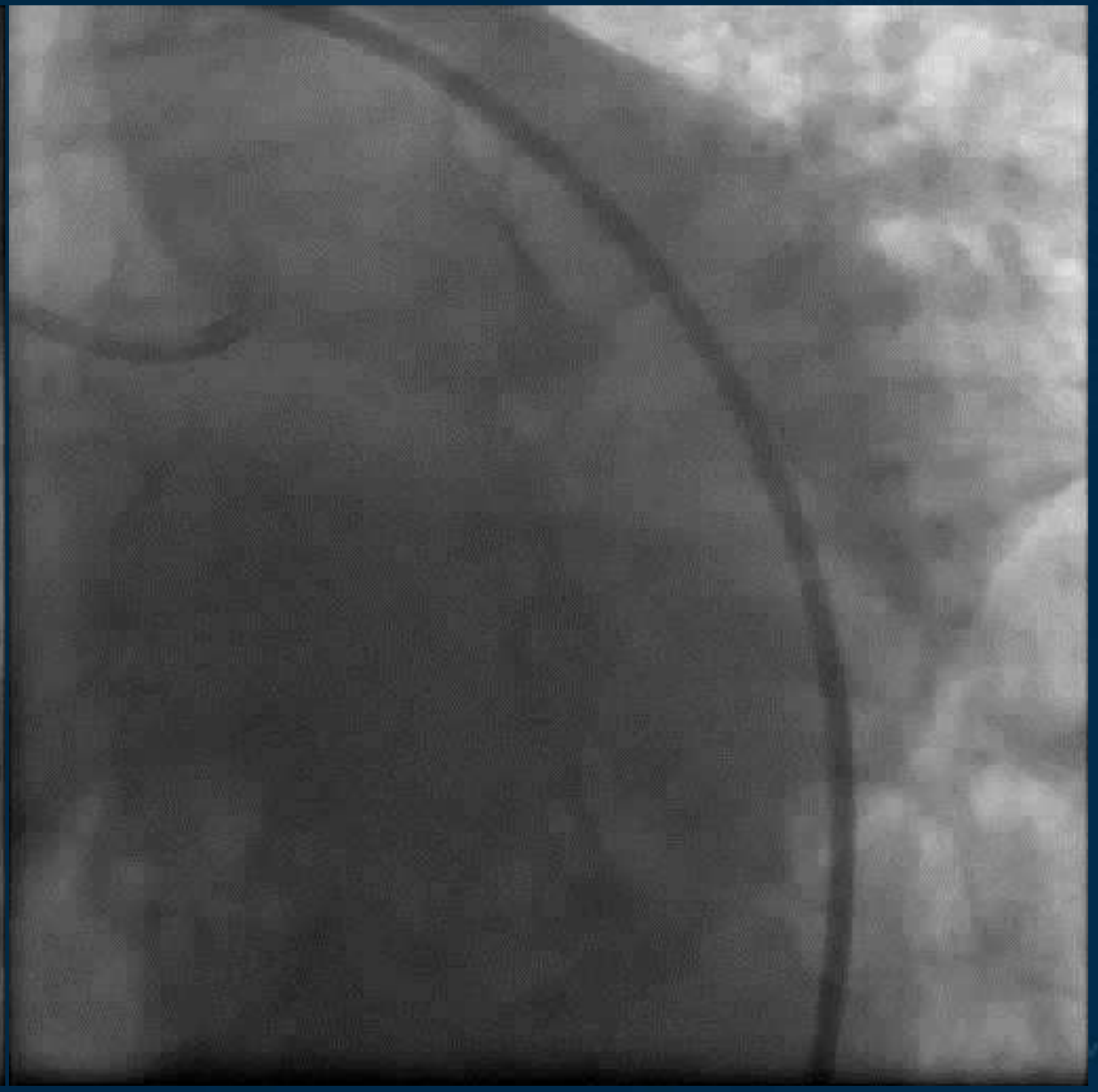


Case summary

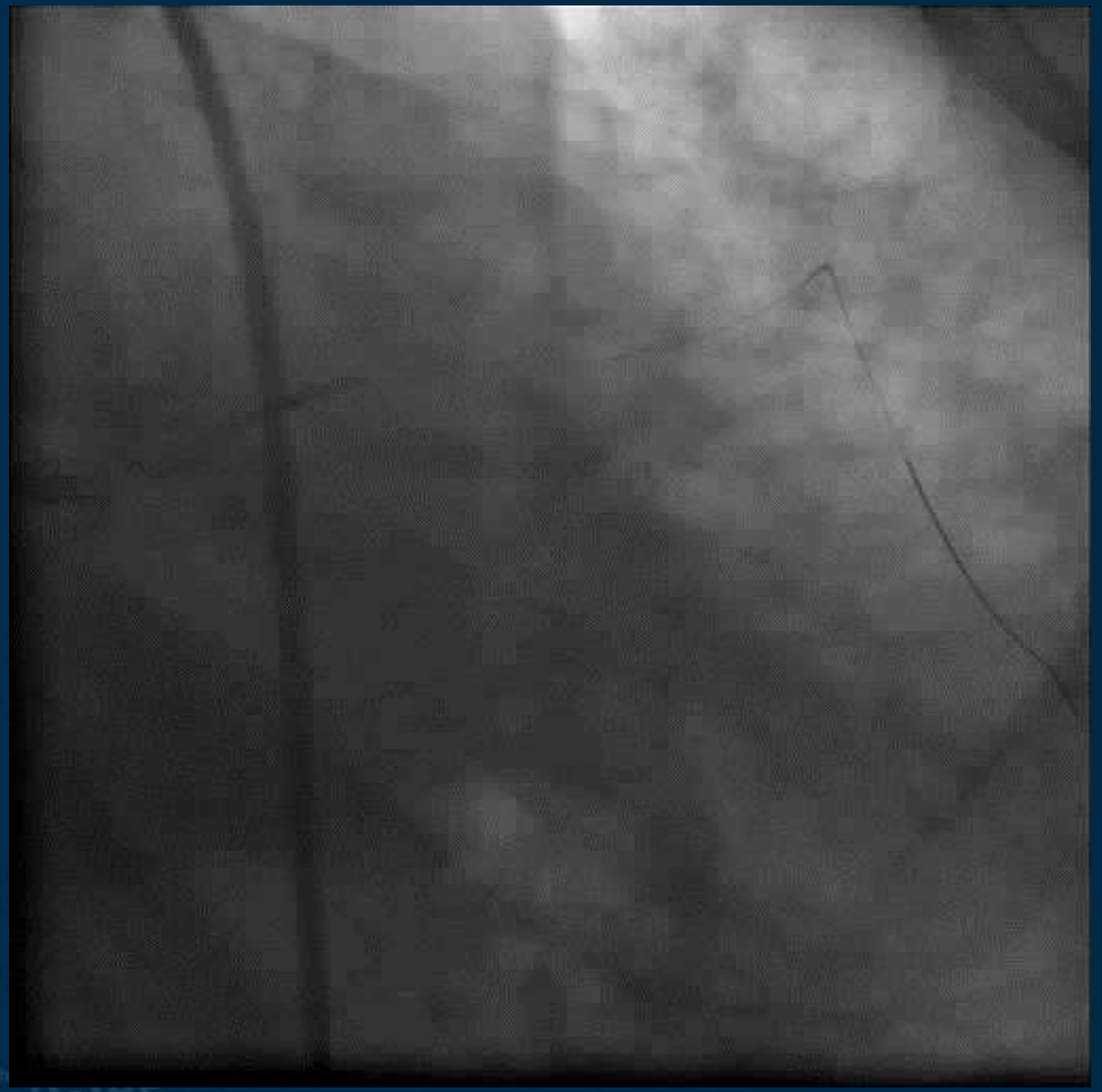
- A case of CTO-mLAD distal to LIMA anastomosis and tight stenosis of distal anastomosis SVG to LCx (bifurcation)
- Failed PCI via LIMA graft to LAD
- Successful POBA with 1.5 mm Ryurei balloon in both lesions
- Good profile (even with re-dilated), pushability and crossability of this novel balloon are the keys for successful passing through very tight lesion esp. CTO lesion

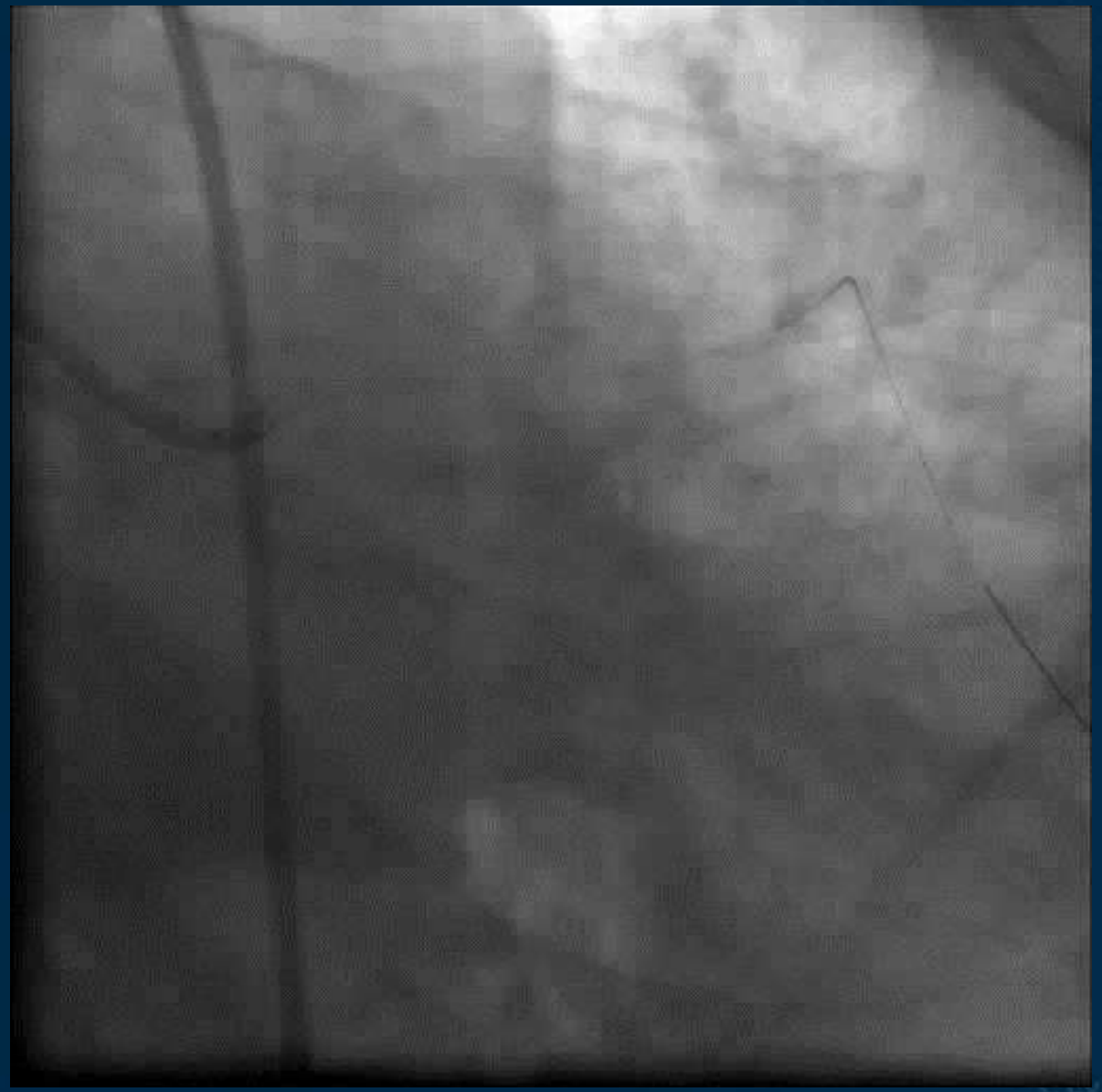
A case of LAD-CTO



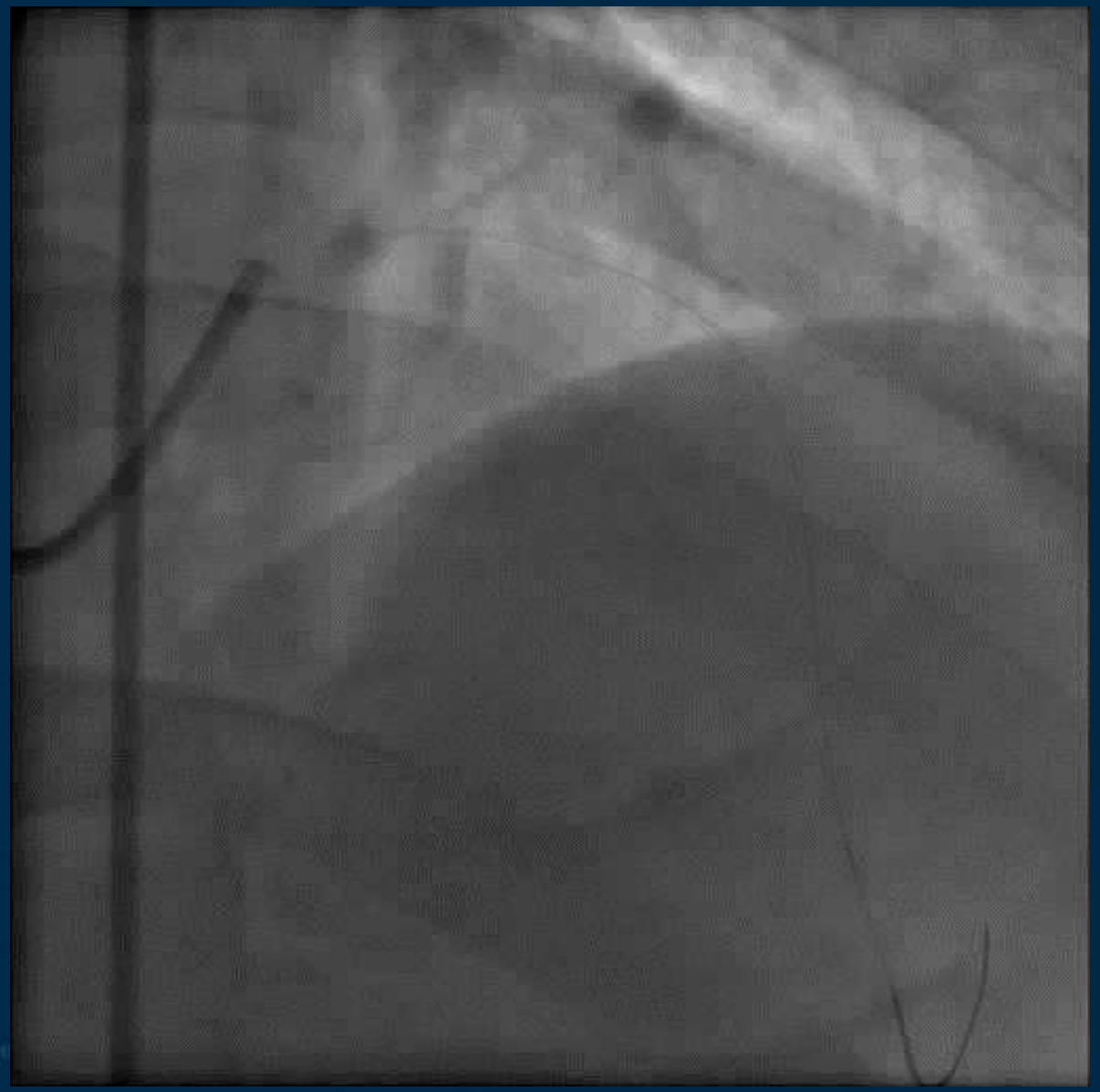


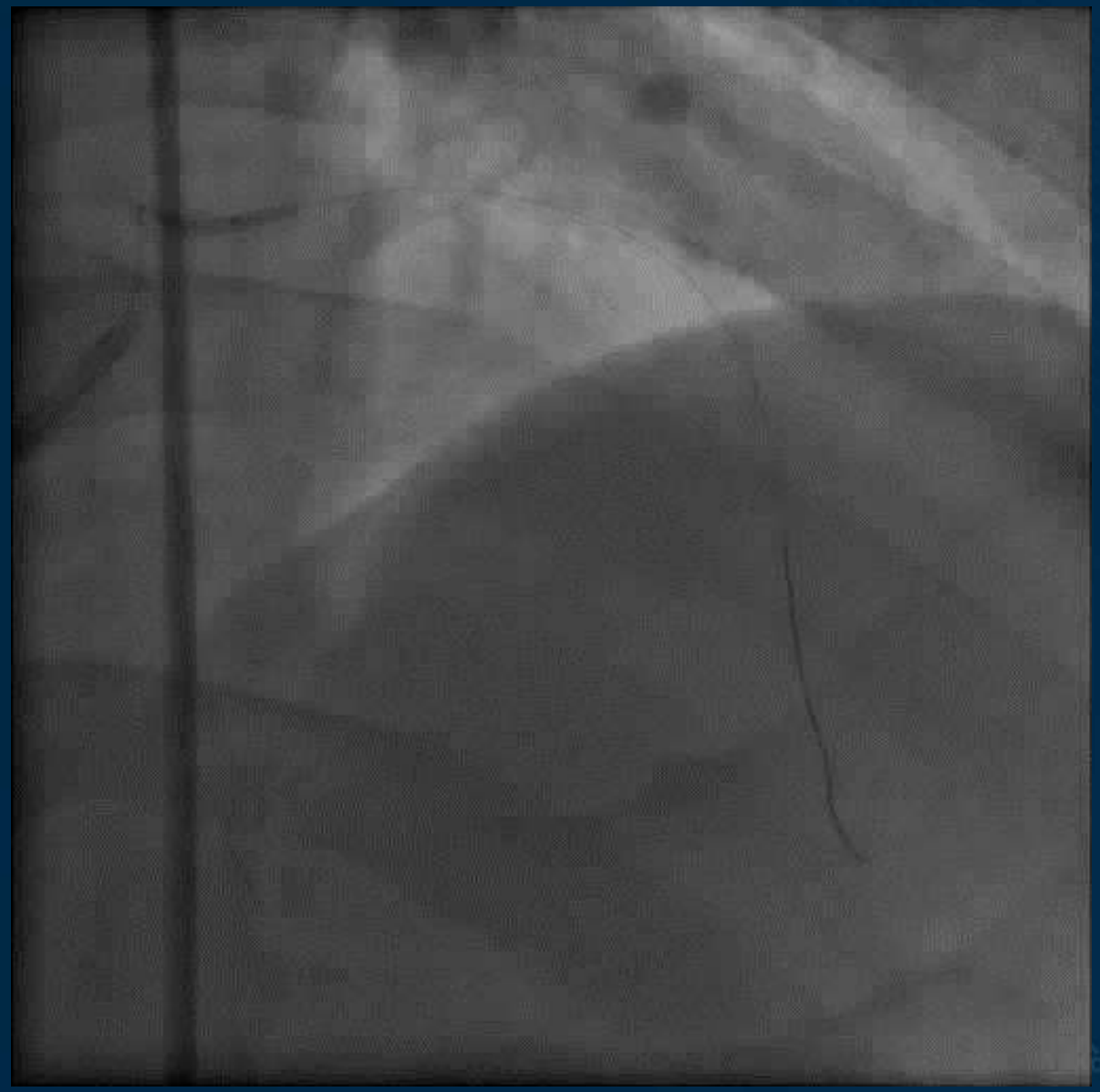
Small balloon couldn’t pass



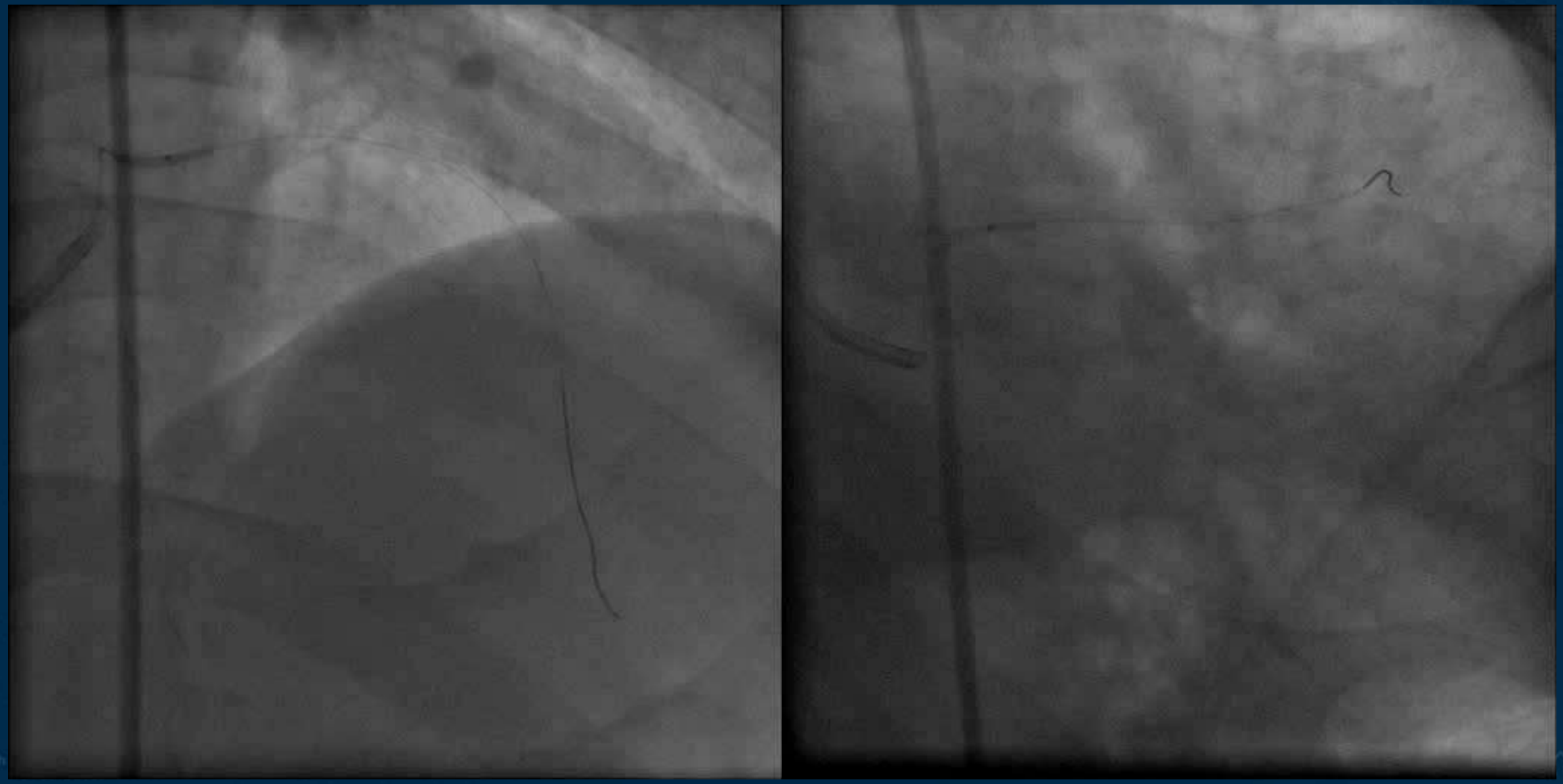


Change the guiding to XB

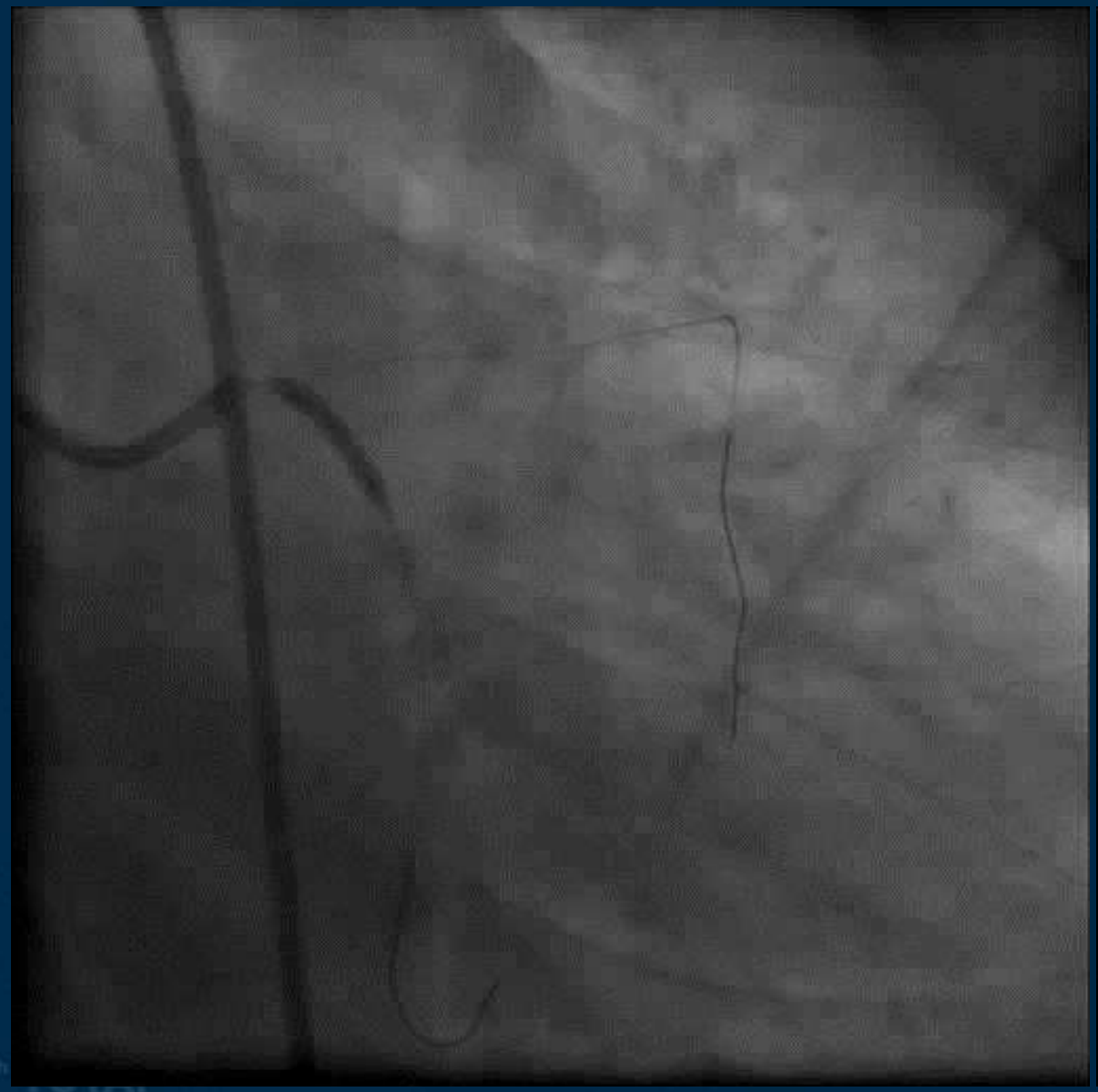




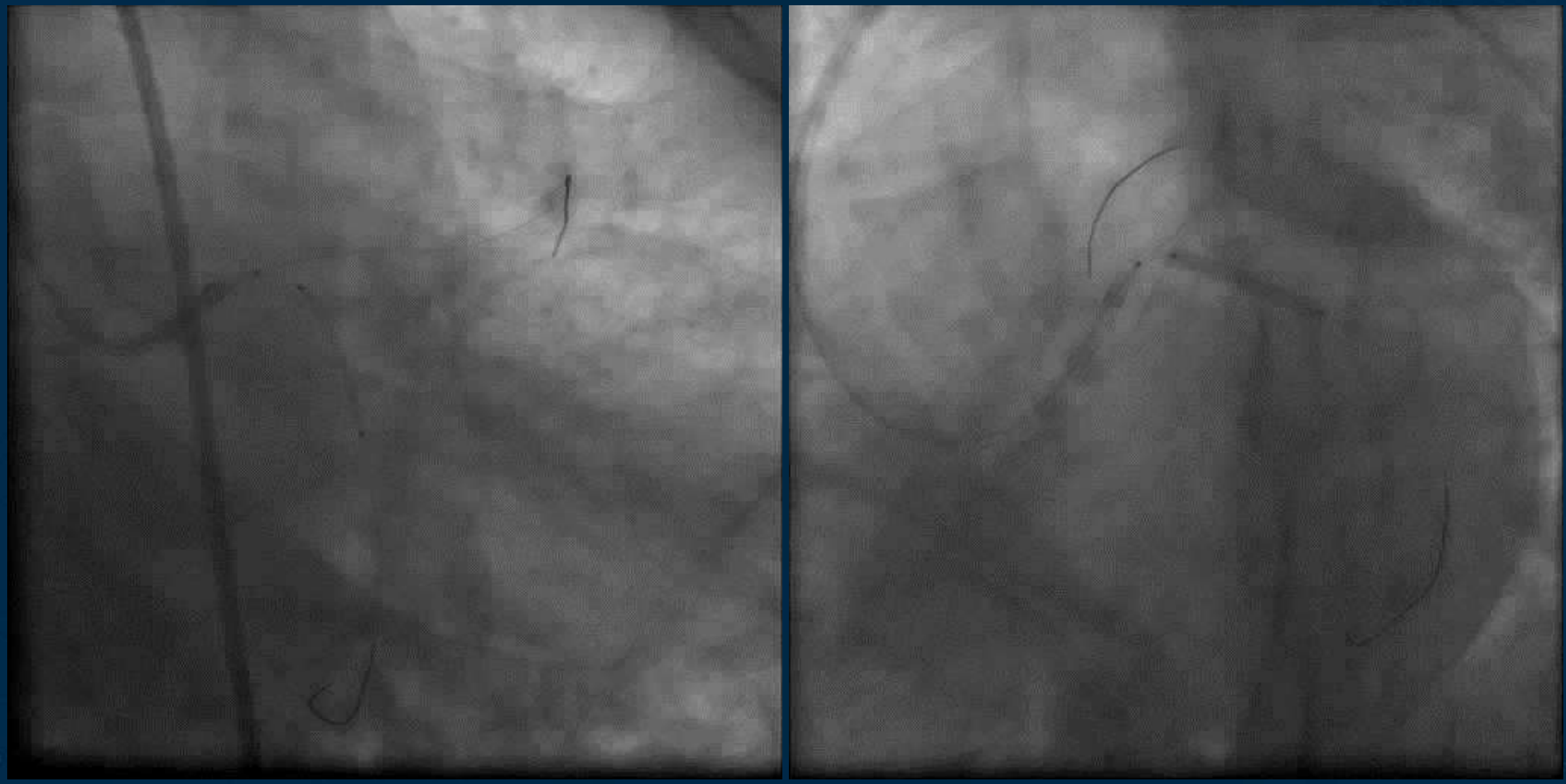
Balloon still couldn’t pass



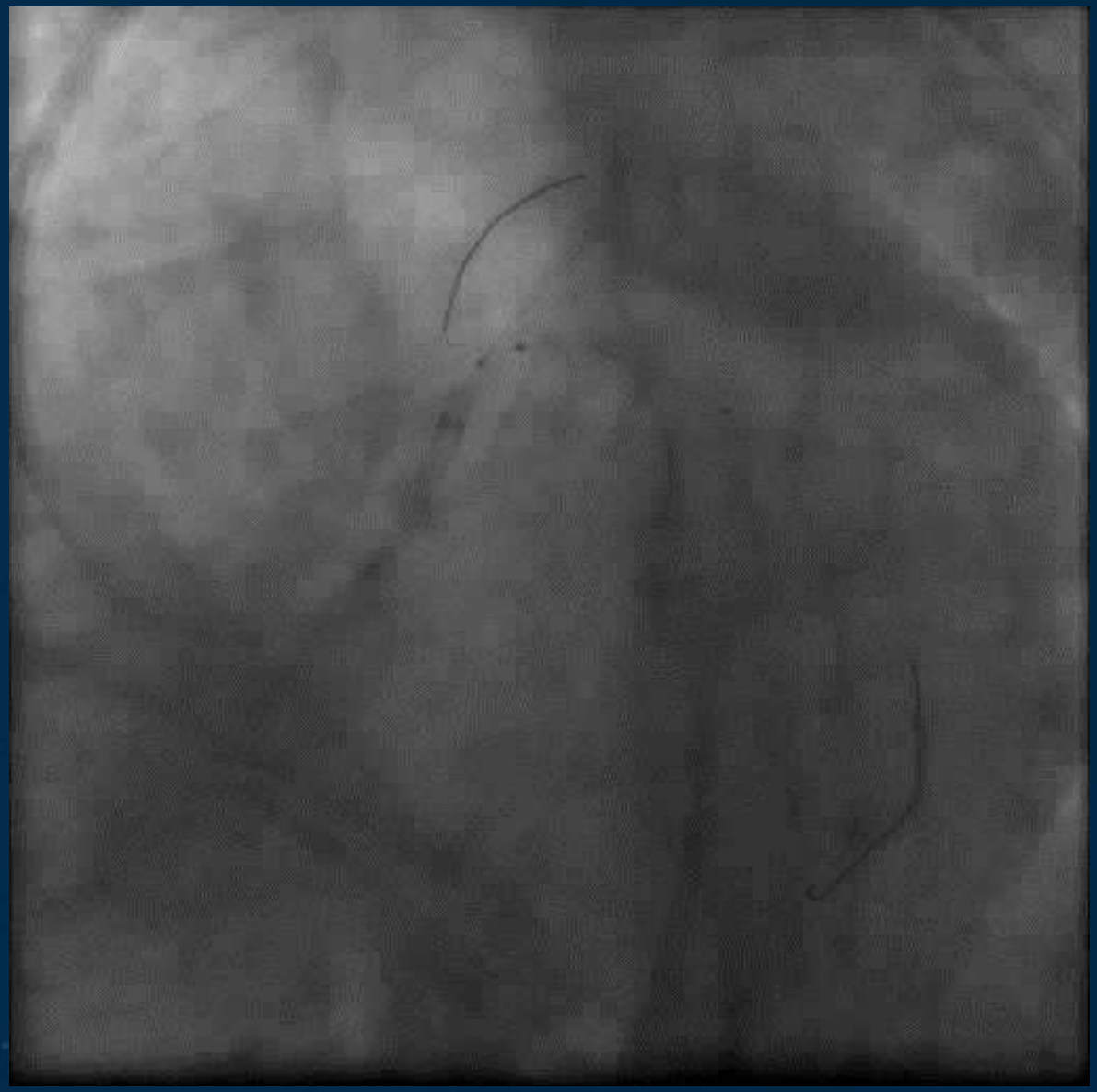
Dilated LCx with a balloon

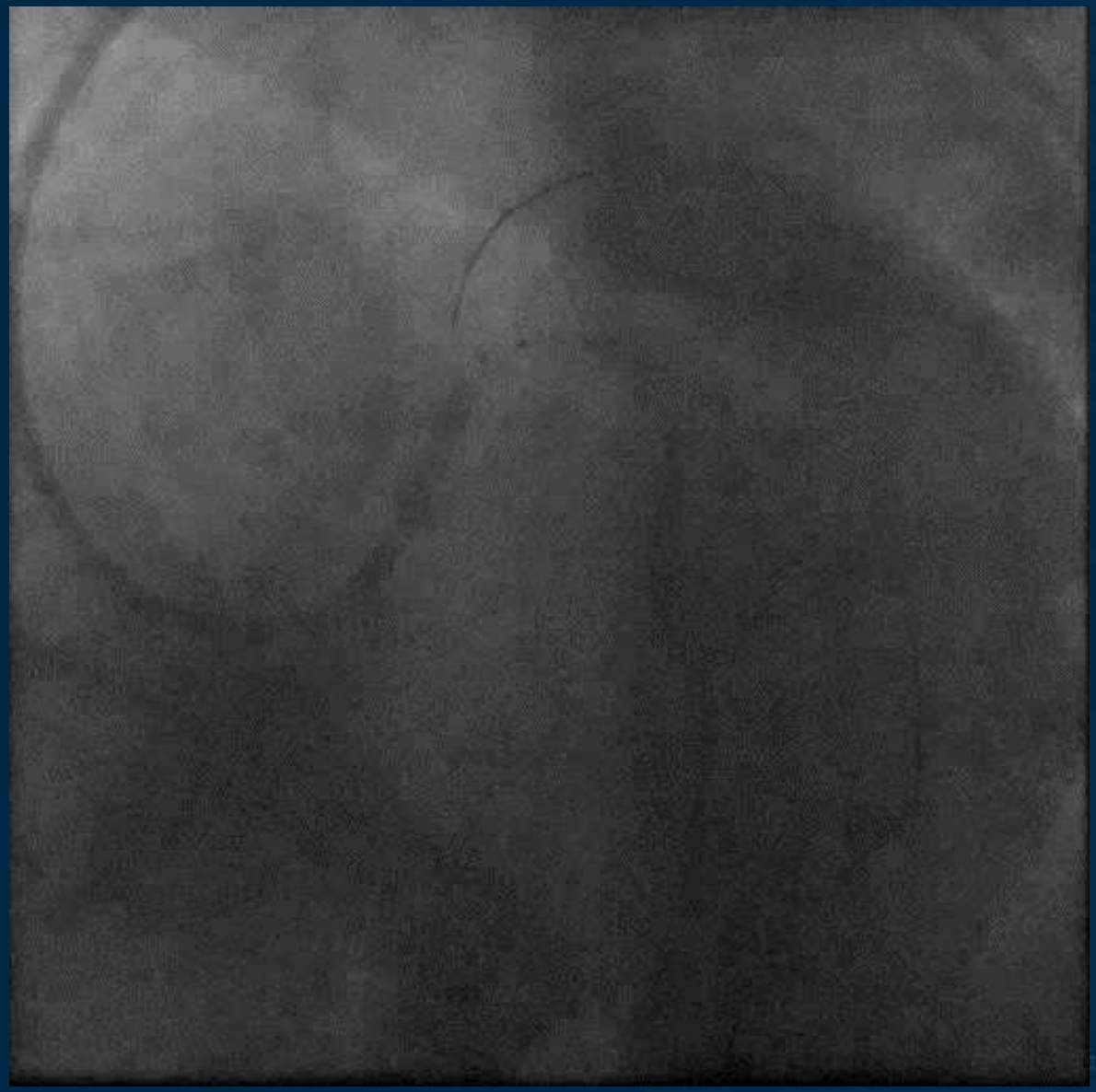


Stent LCx

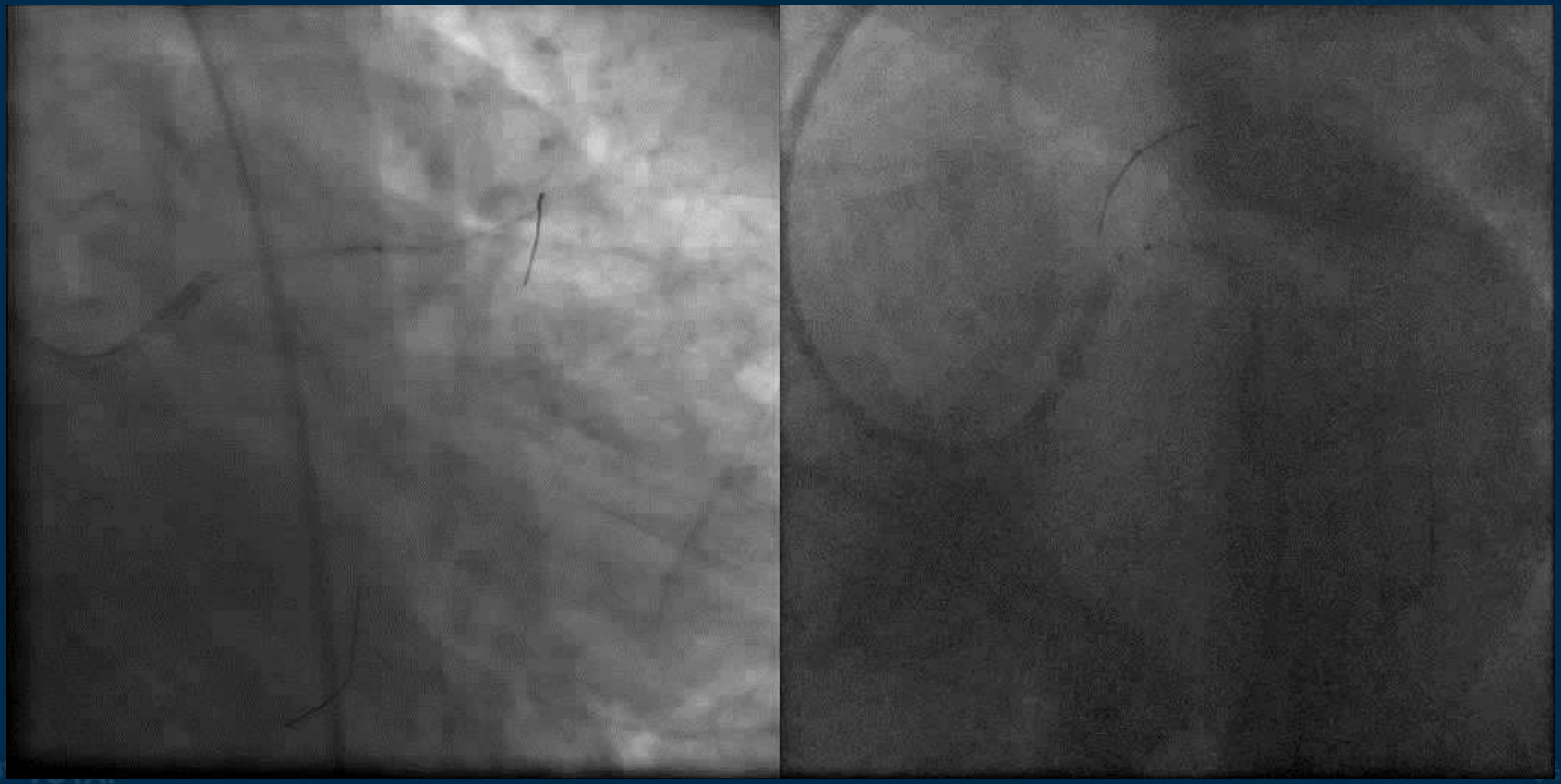


Prepare for enchoring

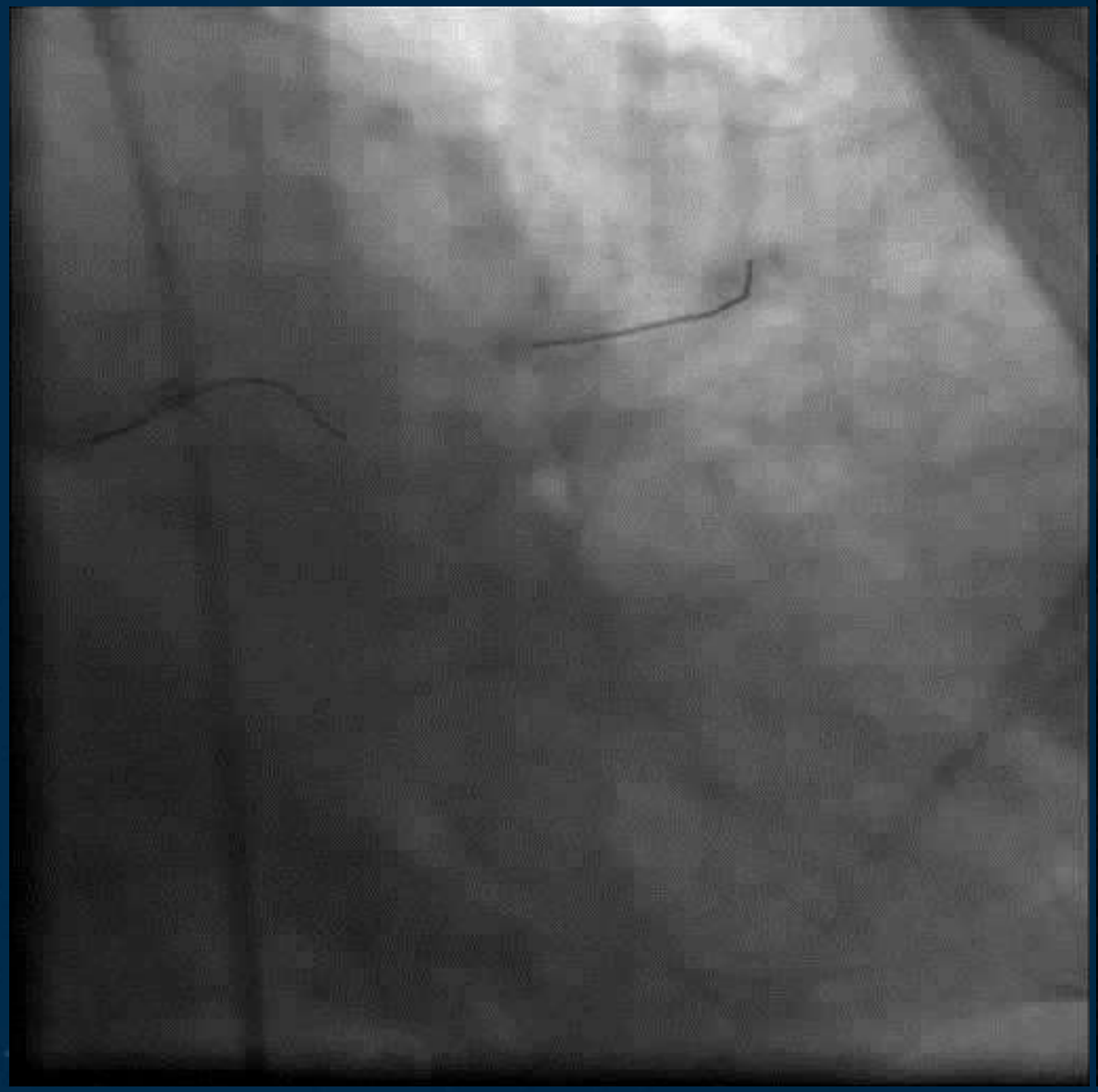




After balloon dilatation



Final result



Take home

- Uncrossable lesion esp. after successfully passing CTO lesion with the guide wire is not uncommon
- Good guide wire(s) choice + wiring techniques together with microcatheter are used to pass the lesion
- Good back up support from passive & active guiding catheter and some useful techniques eg. extension guiding, anchoring technique are used to increase the support
- Novel balloon esp. very small balloon is one of the key for success
- If balloon failed to cross lesion, we may consider using other devices or techniques such as
  - Laser catheter
  - Rotablator
  - Calino’s technique
  - Ruptured balloon technique (granadoplasty),etc.