Uncommon complication during a complex PCI procedure

By

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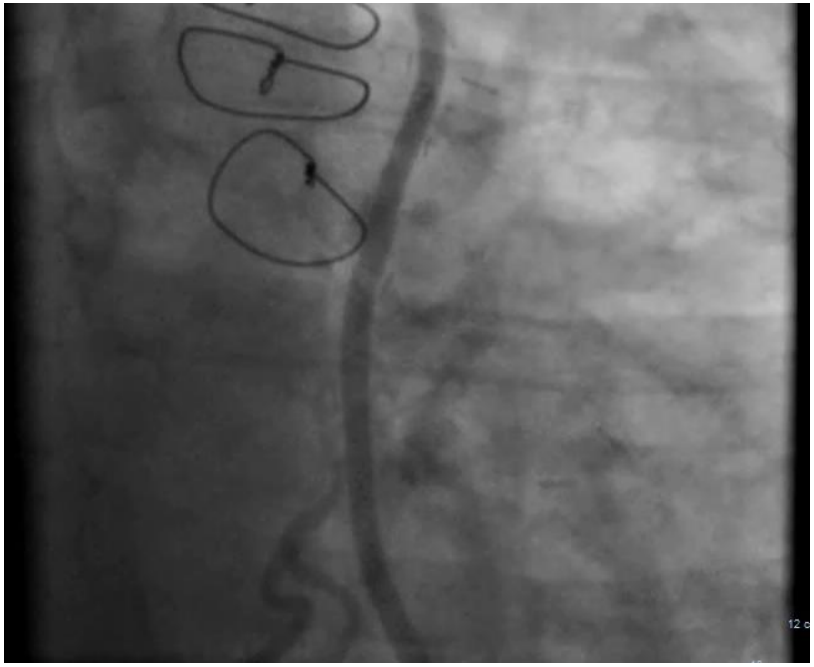
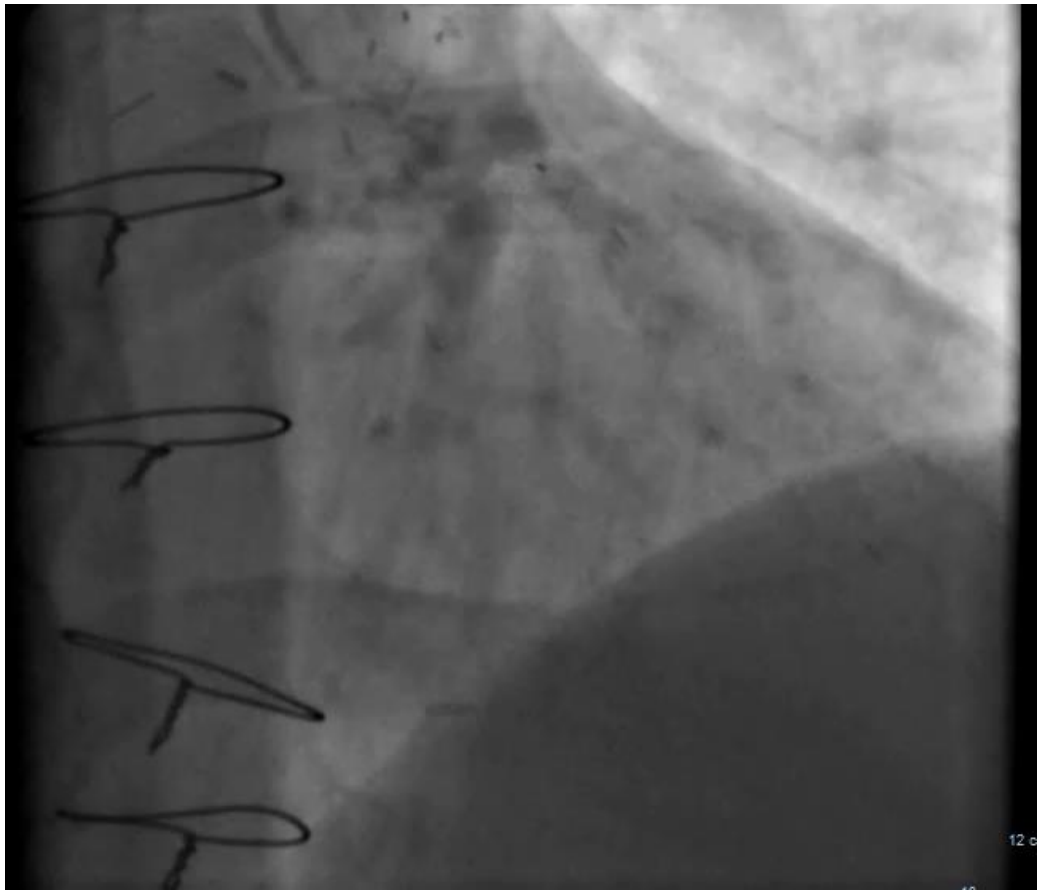
Clinical Background

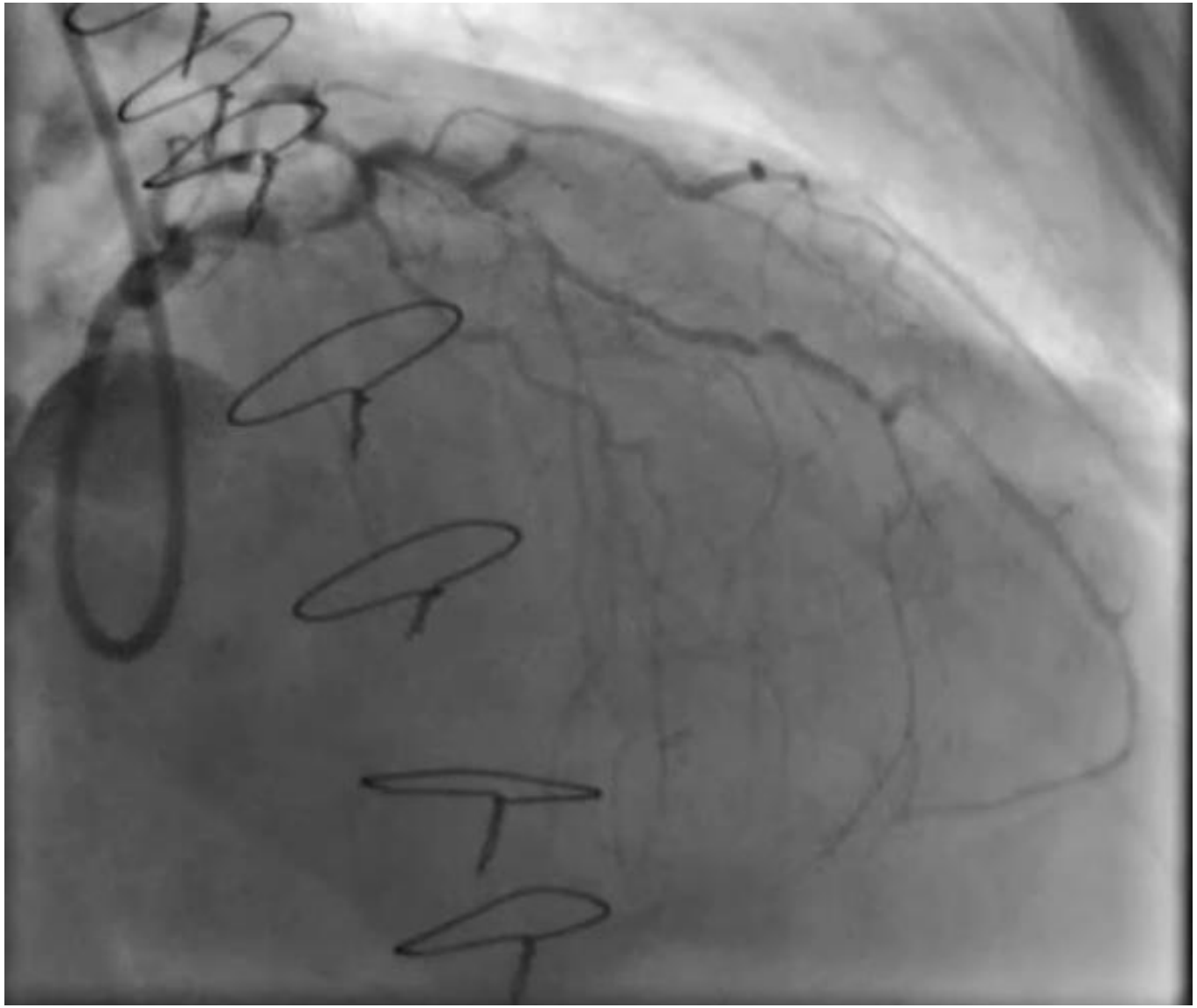
- **65-year** old **male** patient
- **Previous CABG** in 2016 for NSTEMI (two grafts; left internal mammary artery to Left anterior descending artery (LAD) and venous graft to obtuse marginal OM)
- Past medical History: Diabetes type 2, Hypercholesterolemia, Angina
- Four months ago (**May 2020**), **NSTEMI, coronary angiogram: diseased LIMA to LAD, diseased native (calcific and tortious) Left LAD, patent venous graft to OMA and diseased non dominant right coronary RCA)**. **Balloon angioplasty to left anterior descending** which was intentionally aborted in the balloon stage because of difficult wiring to distal vessel.
- Presented with NSTEMI, ECG changes and positive tropinin
- After **MDT decision made for upfront rotablation PCI**.

Coronary angiogram

- Patent venous graft to OM/ Diseased (calcific and tortious) native LAD)/Diseased LIMA to LAD/Non dominant diseased right coronary

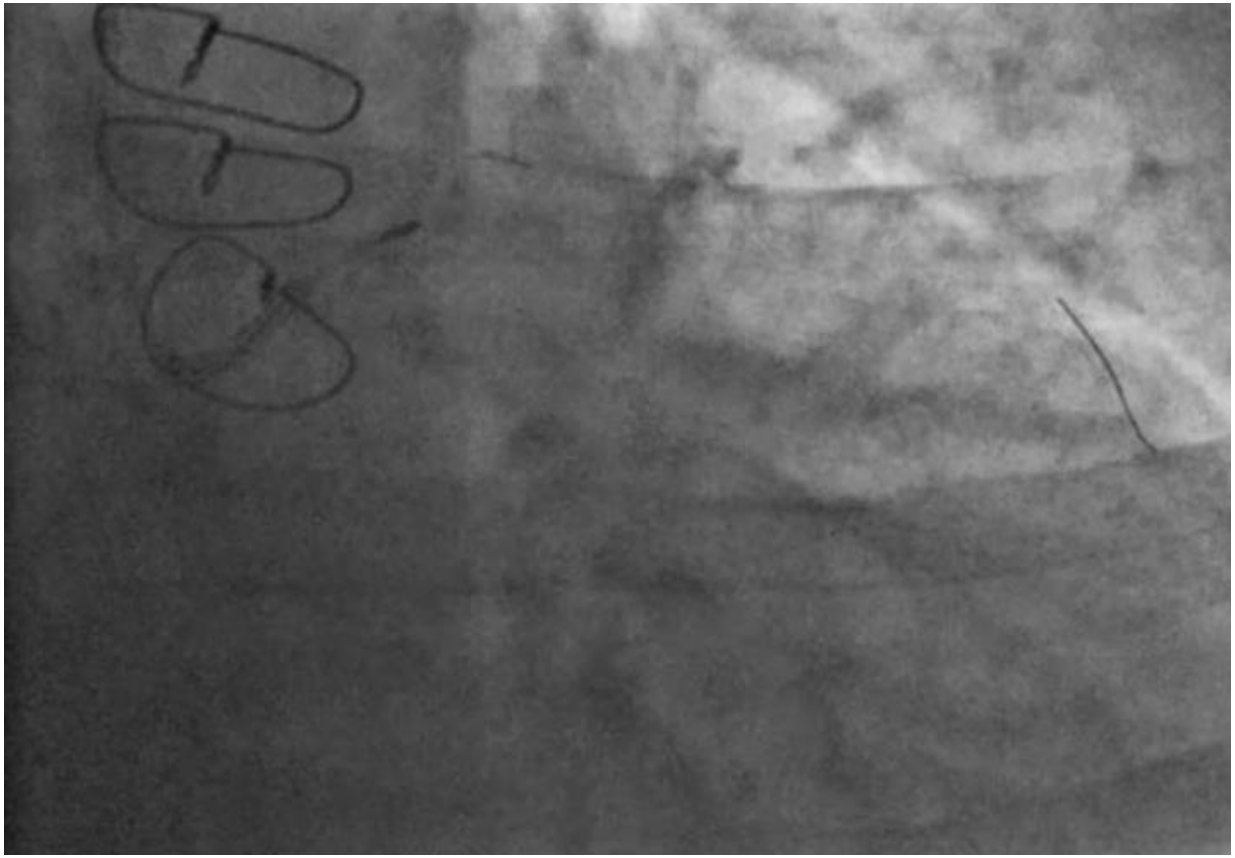






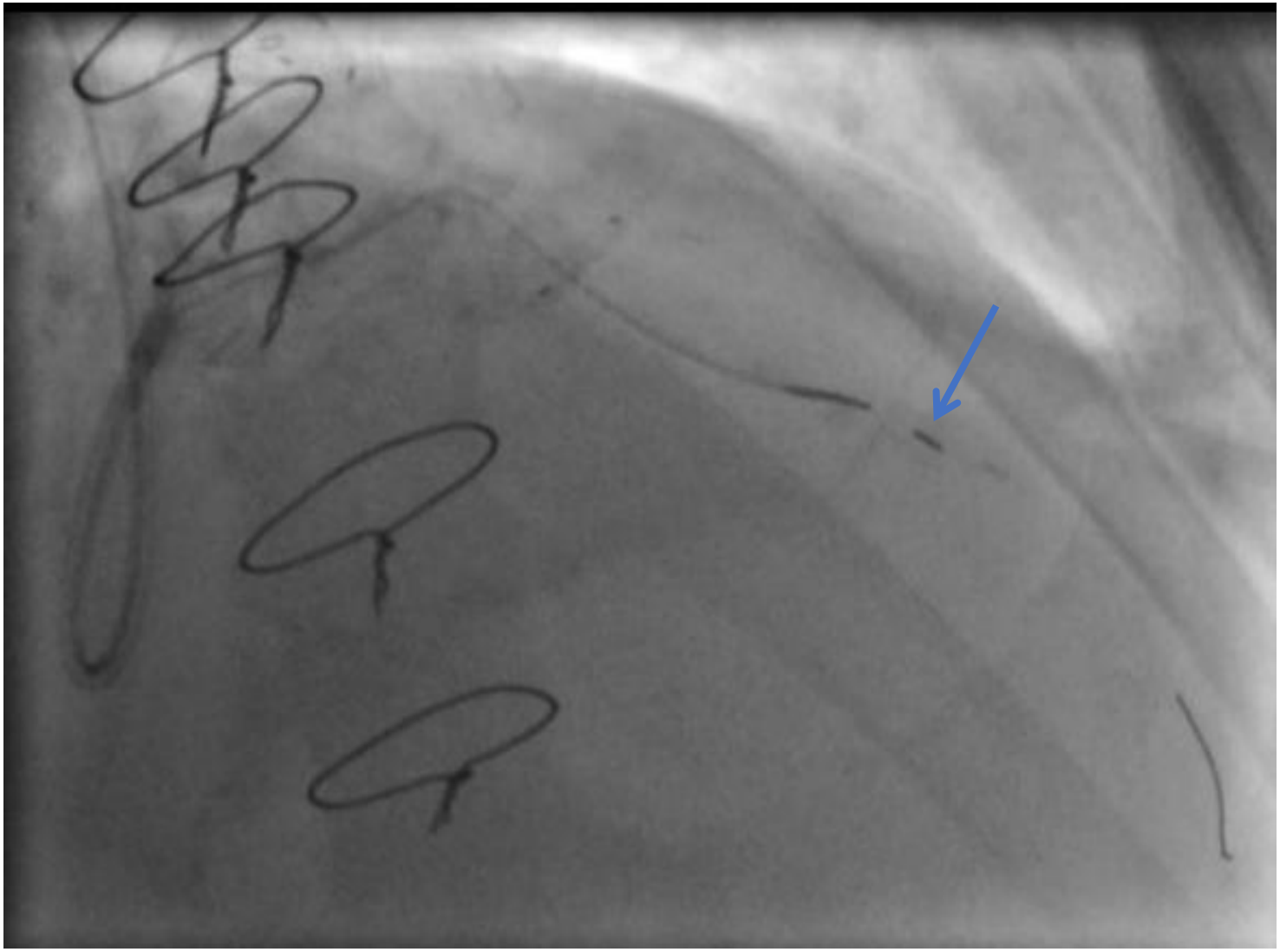
Angioplasty to LAD with Planned Upfront Rota

- **Radial artery 6/7Fr** and **EBU 4 7Fr** guide catheter
- **Fielder XTA** to LAD
- **Turnpike spiral** advanced over for wire exchange to **Rota floppy wire**
- **Rota-ablation of proximal LAD** lesion done successfully with **1.25 mm Rota burr**
- However, the **burr could not pass through the mid** LAD lesion
- Turnpike re-introduced again to exchange for a extra support rota wire
- Turnpike passed the mid LAD but not distally

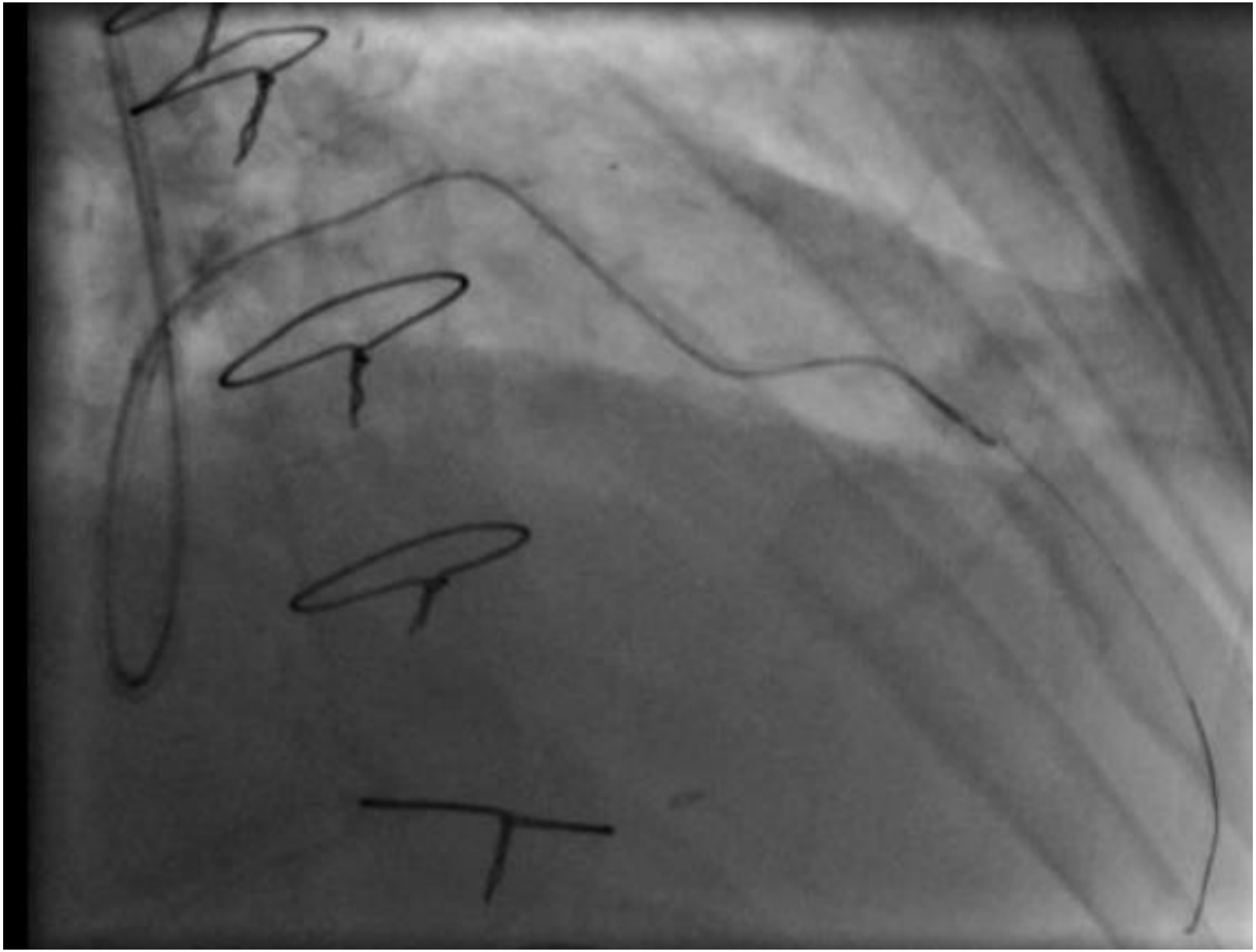


Fractured distal tip of Turnpike spiral micro catheter

On attempts to retrieve the turnpike, it was noted that the tip is fractured in the middle and not at the junction (the usual area) at the site of LIMA anastomosis.

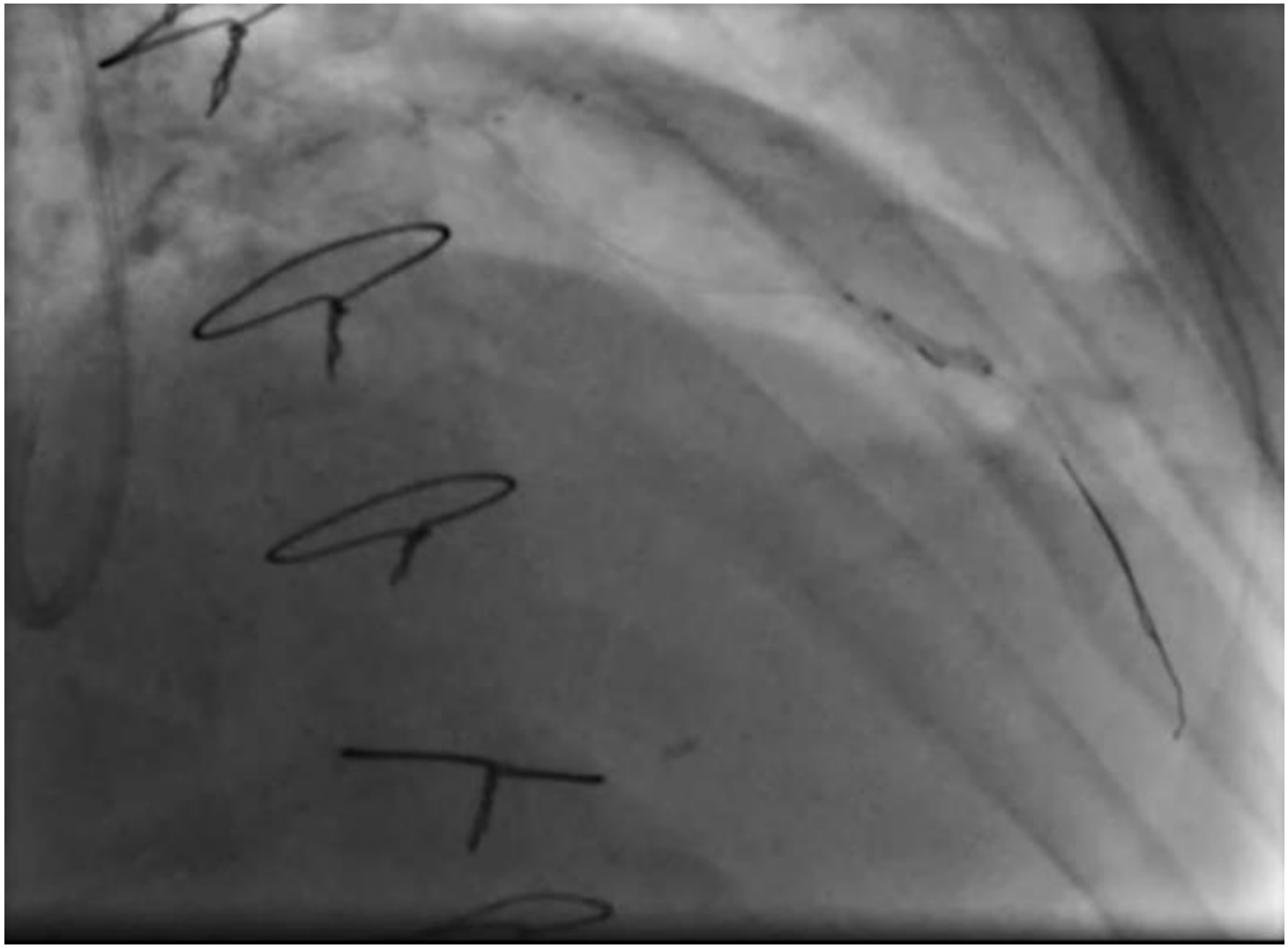


Attempts were made to push the tip fragment distally with different micro catheter failed.



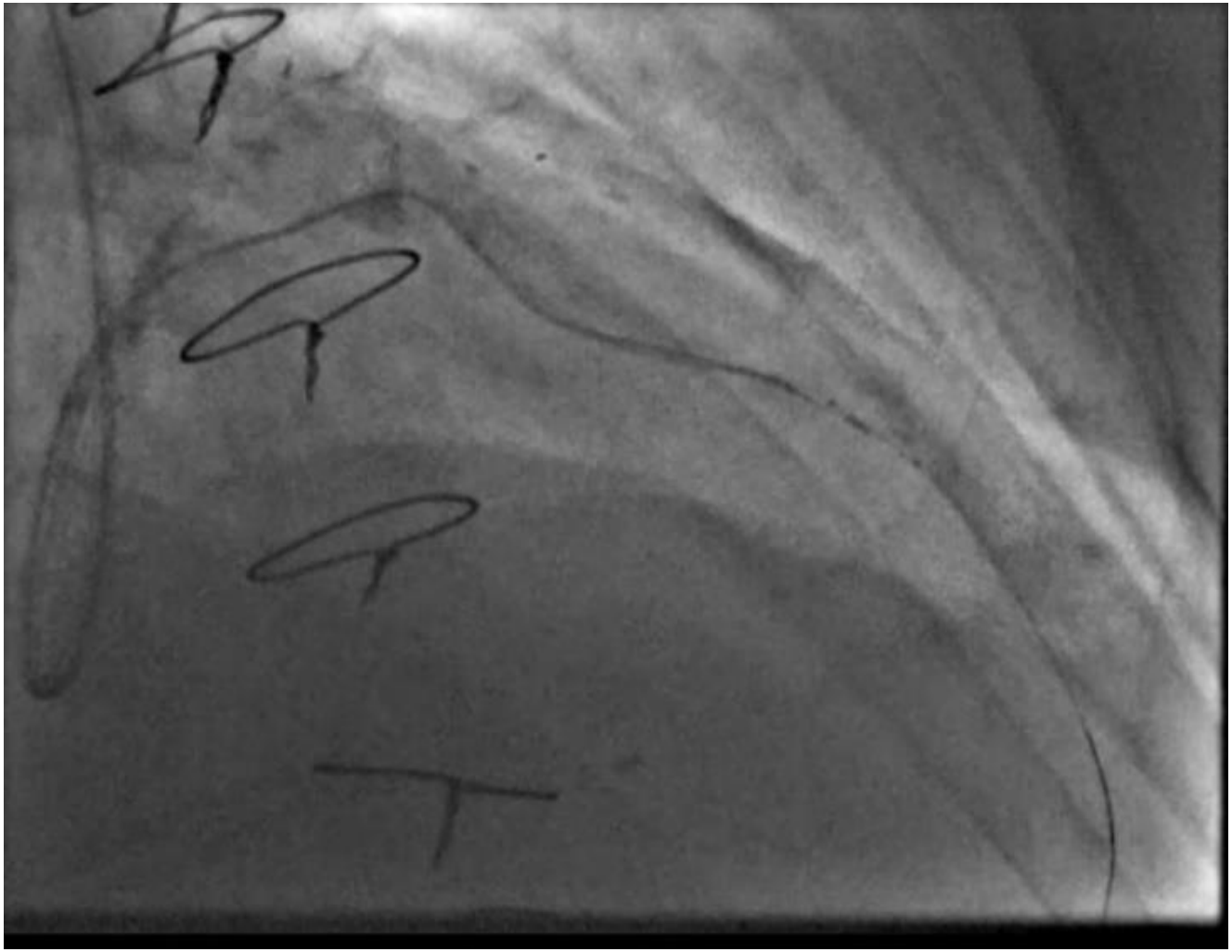
Dislodging the fractured tip by beside balloon inflation

Another Fielder FC wire and balloon dilatation with 1.5, 2.0 NCB were made to help with pushing this fragment distally but failed.



Trial to Pull it back and trap (failed)

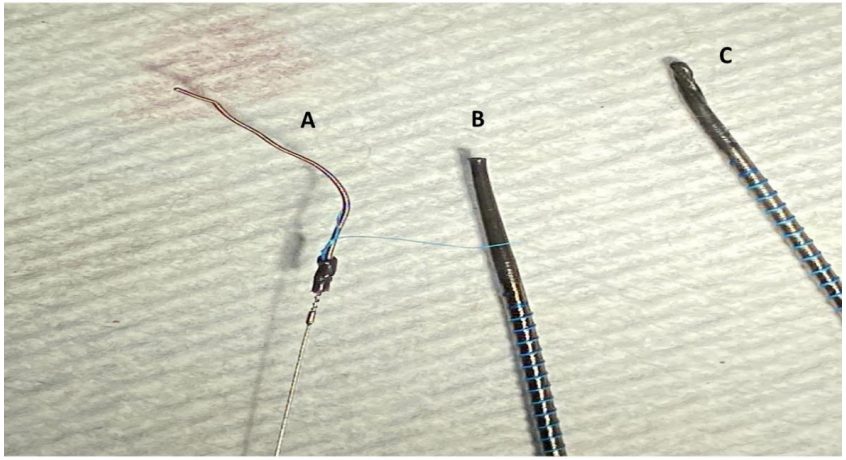
A 2.0 mm balloon was inflated beyond the fractured tip at 4 ATM and attempts to pull the fragment back with the balloon and to trap it against the tip of micro catheter, all failed.



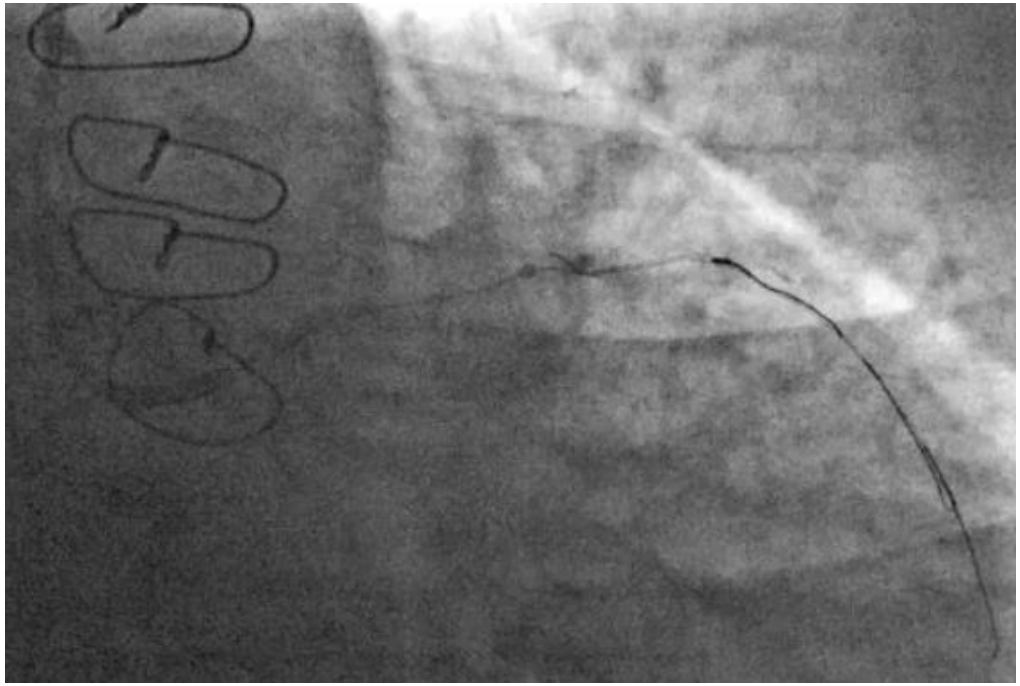
Successful retrieval by cautiously withdrawing the Rota wire.

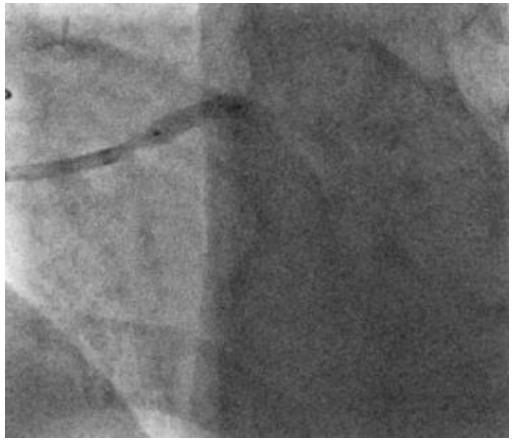
Decision made to apply gentle traction on the Rota wire, as it was felt that the fragment was extremely adherent to it. This was successful in retrieval of the wire and the fragmented and broken tip with it

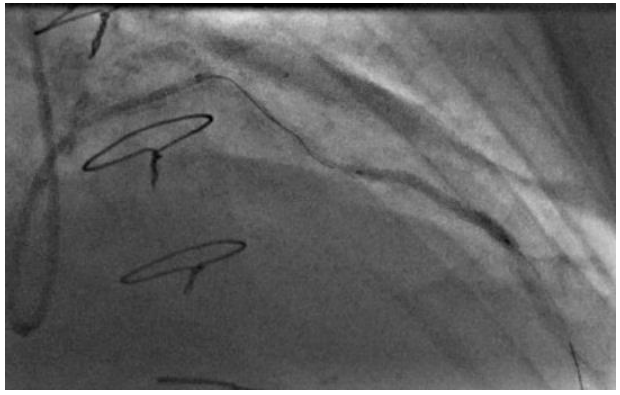
Figure: A) Fractured distal tip of turnpike micro catheter fixed on the Rota floppy wire B) Intact new turnpike micro catheter C) Proximal shaft of fractured Turnpike spiral micro catheter

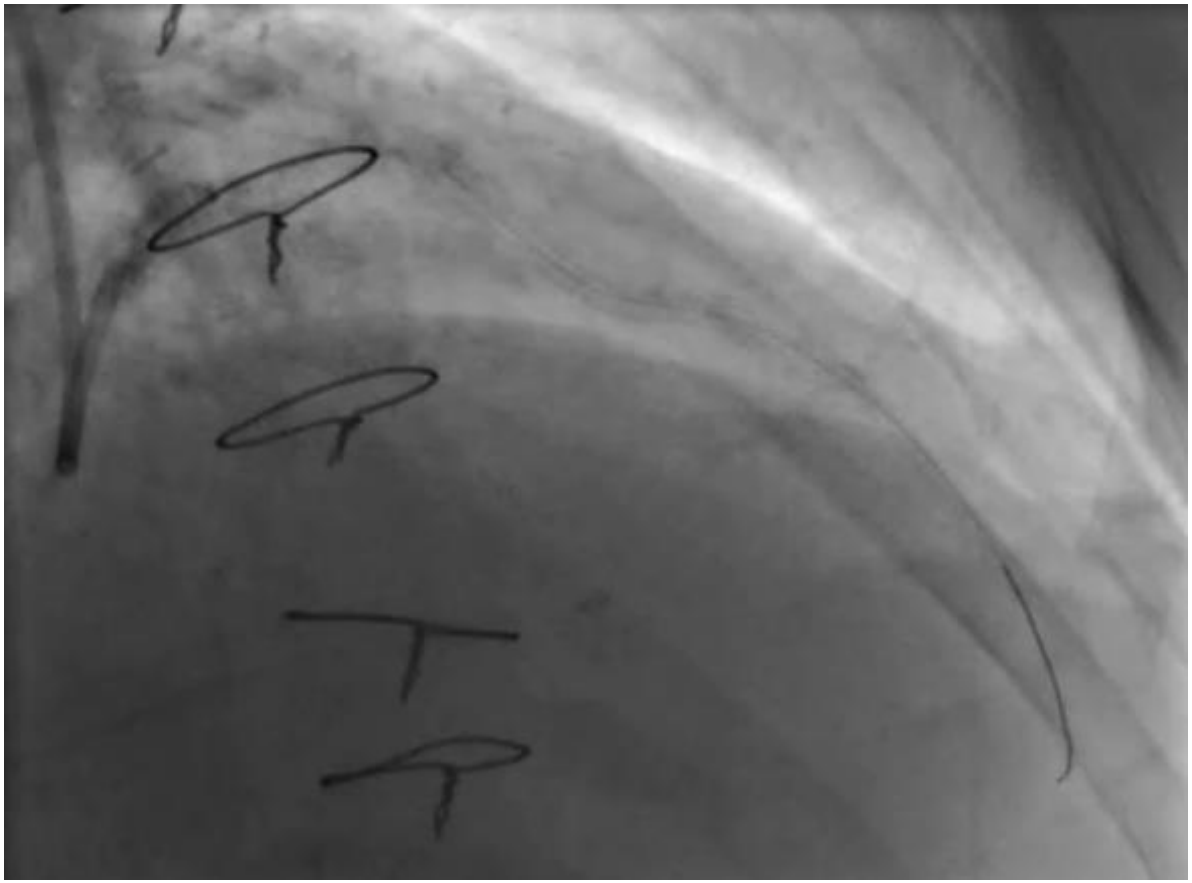


The procedure was finished with 3 DES from LAD back to LMS with satisfying results.









Conclusion:

- Tip fracture is a rare complication and occurs in resistant and uncrossable lesions. It is usually caused by extensive rotation when it is fixed in the lesion.
- In this case, The tip was sliced and broke in the middle rather than at the usual transitional connection
- Entraped fragments can be managed by pushing distally, snaring, triple wire technique, and pulling by low pressure distally inflated balloon with varying success.
- On occasion, leaving the fragment in place or stenting over it, can be safer than extreme efforts to retrieve it