Left main stem restenosis in an elderly patient with prior lithotripsy and stenting

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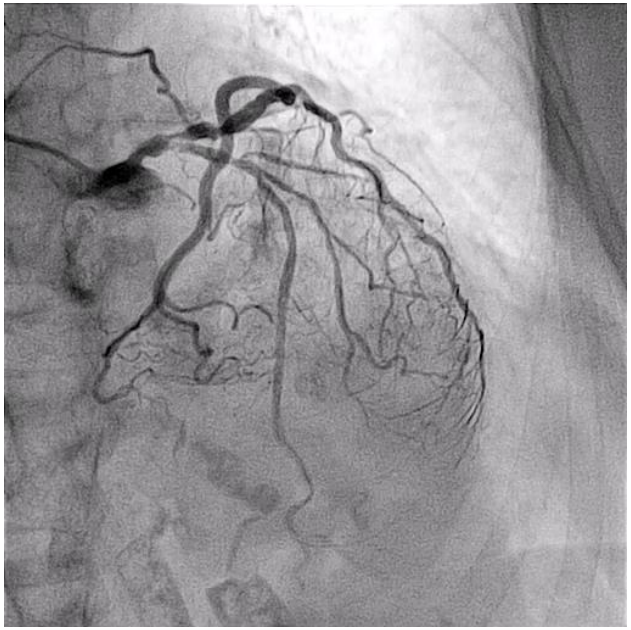
Case history

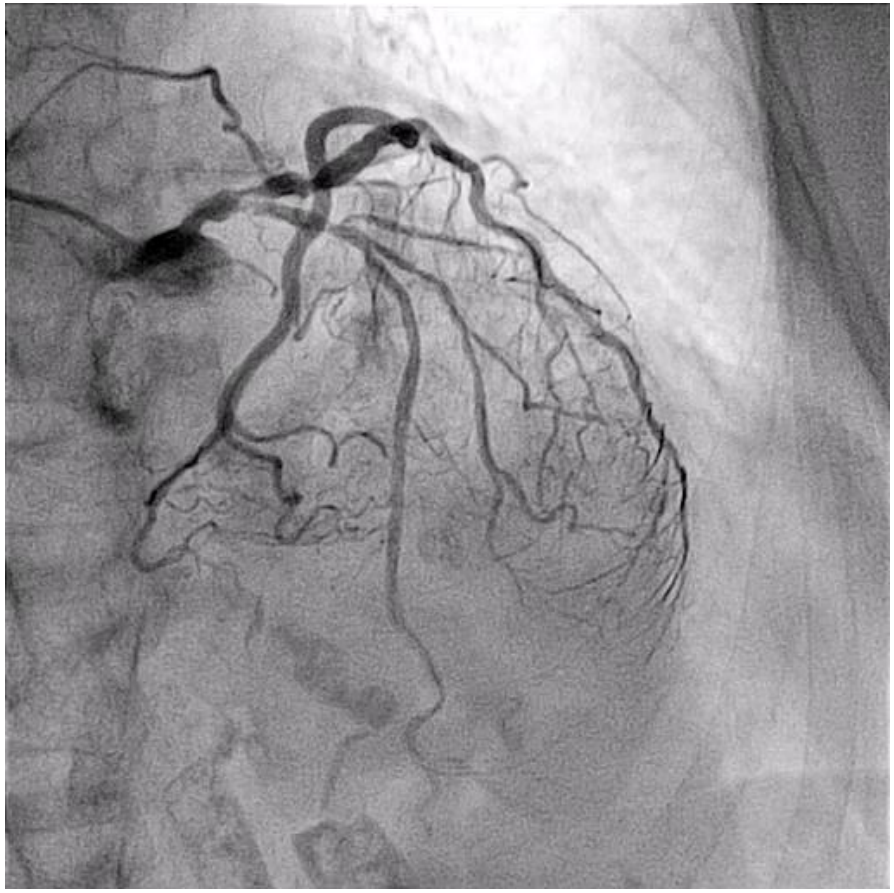
- 95 year old female
- Cardiovascular risk factors
  - Hypertension
- Cardiac History
- 2018 NSTEMI
  - Severe distal LMS bifurcation stenosis with the LAD and Cx (Medina 1.1.1)
  - Severe ostial OM1 and OM2

Diagnostic coronary angiogram

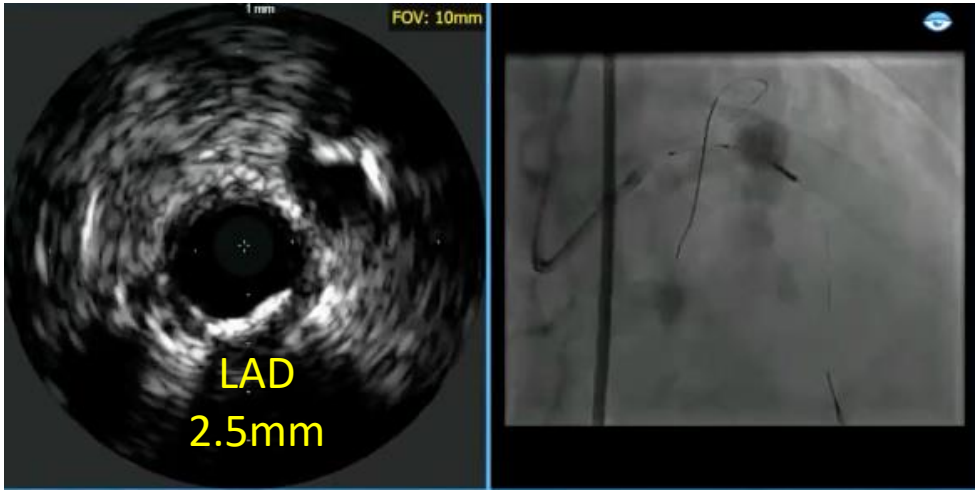


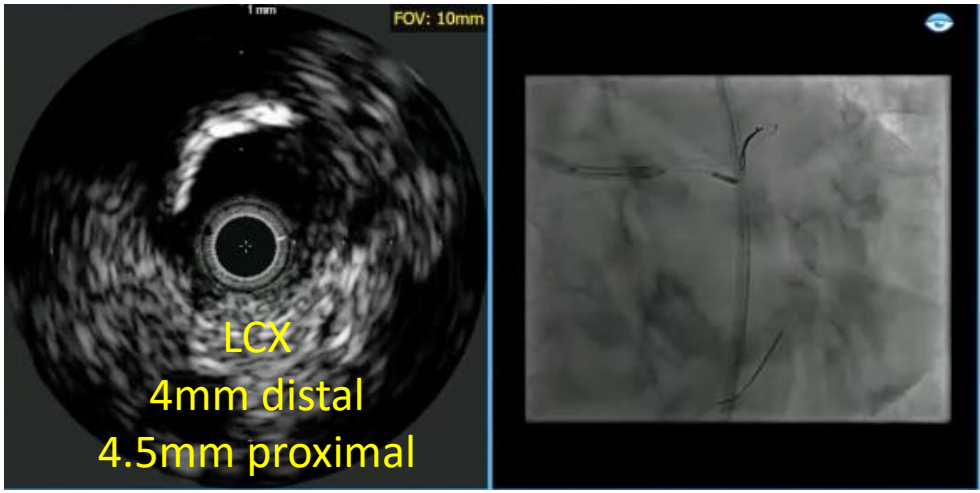
Diagnostic coronary angiogram
Severe calcific distal LMS stenosis with severe ostial stenosis in the LCx and LAD (Medina 1.1.1).
Small calibre RCA with no significant stenosis

IVUS LAD &LCx

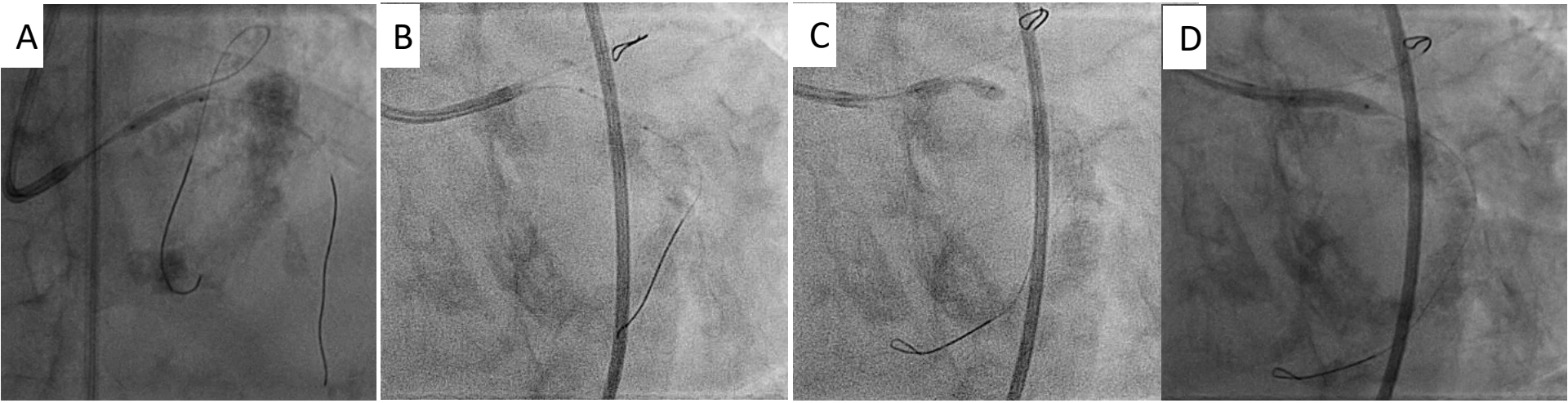


Difficult wiring of the LAD requiring the use of a double lumen microcatheter and a hydrophilic wire subsequently exchanged for a high support wire



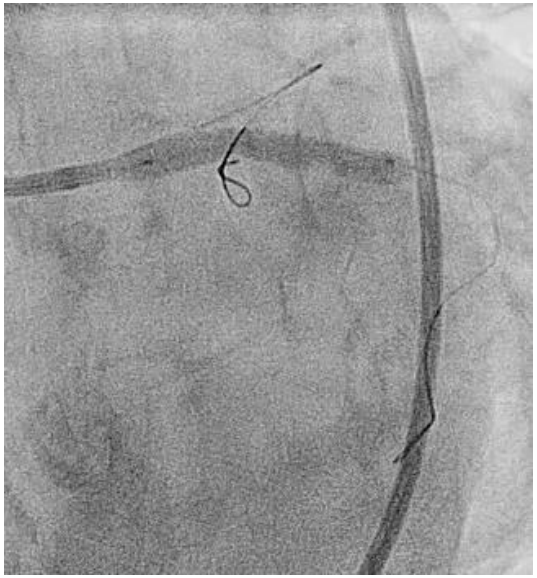


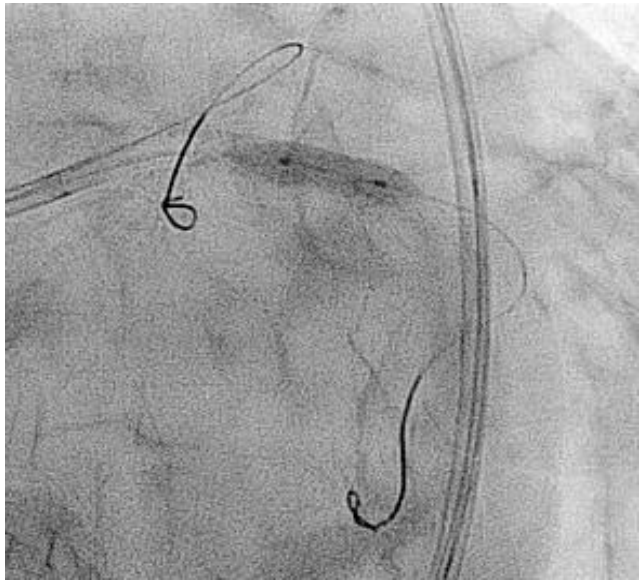
LMS/LCx/LAD plaque preparation with intravascular lithotripsy

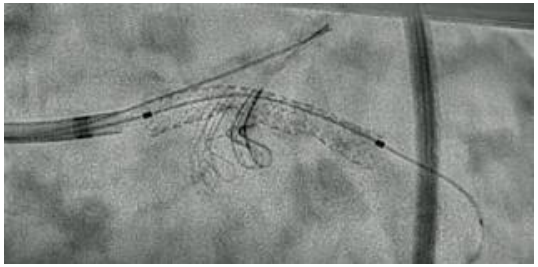


A: Intravascular lithotripsy (2.5mm balloon at 4 atm) to the Proximal LAD with good expansion of the vessel after 6 cycles of 5 pulses each
B-D: Resistant calcific disease in the ostial and proximal LCx but with good expansion after 5 cycles of 10 pulses using a 3.5mm balloon at 4 atm.

LMS/LCx/LAD stenting TAP technique

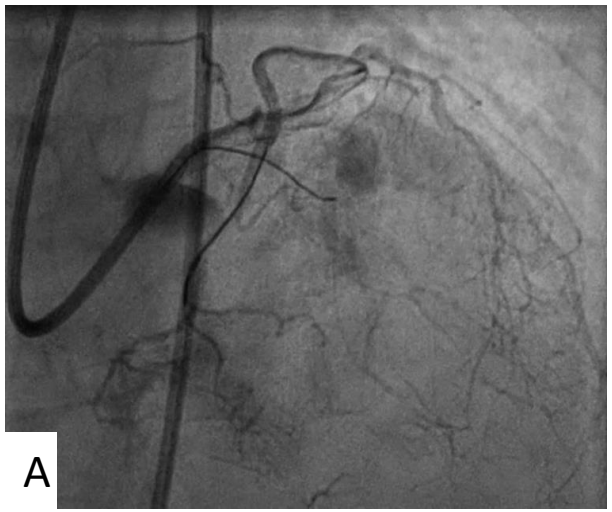


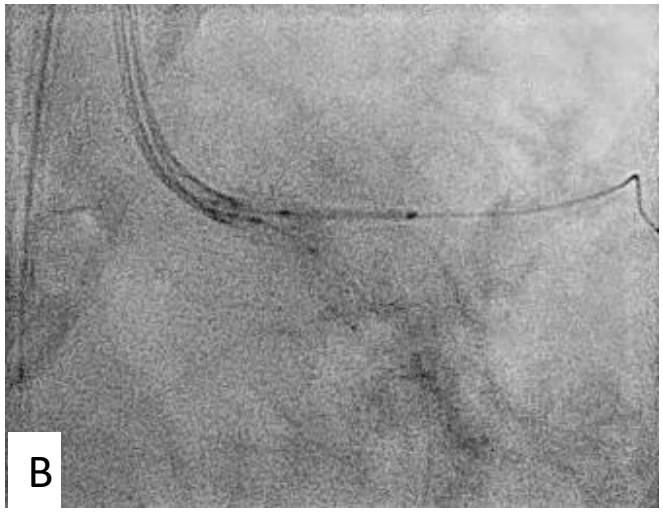


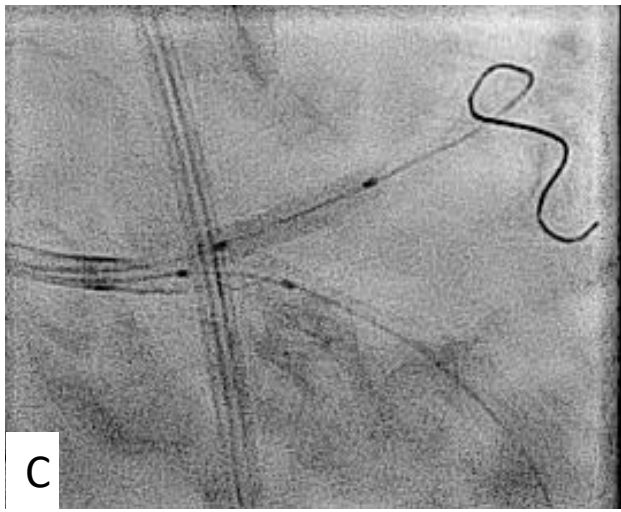


A: LMS/LCx DES 4 x 28mm after postdilation
B: POT and postdilation with 4.0 and 4.5 NC balloons
C: Result of LMS-LCX stent

LMS/LCx/LAD stenting TAP technique

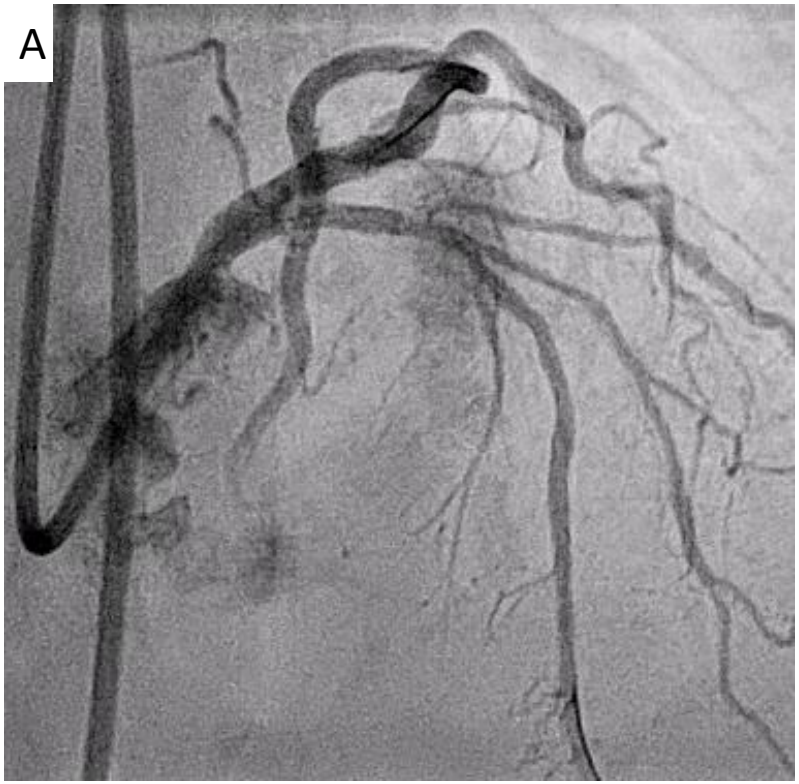


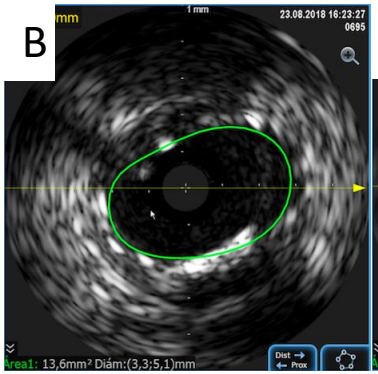


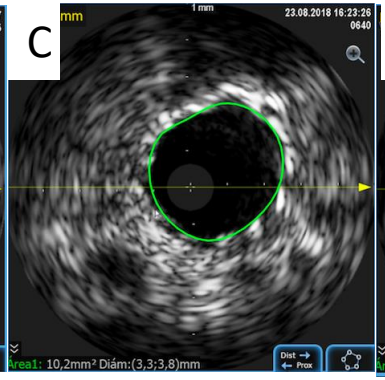


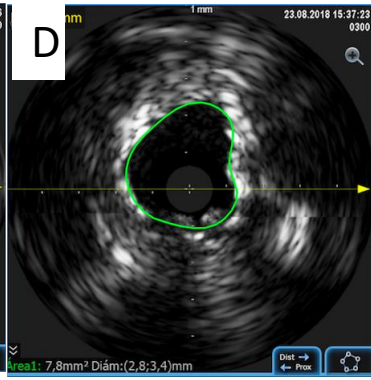
A: Re-wiring of the LAD across stent struts
B: Stent positioning for T-stenting
C: Stent implantation in the LAD (2.75 x 12 mm) with concomitant balloon dilation in the LMS/LCX

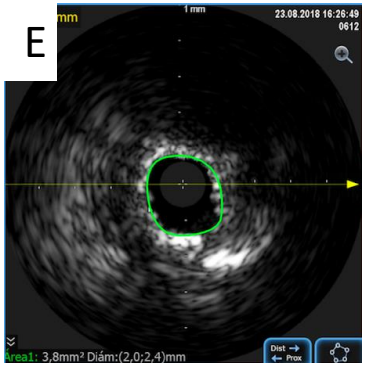
Final result with IVUS imaging







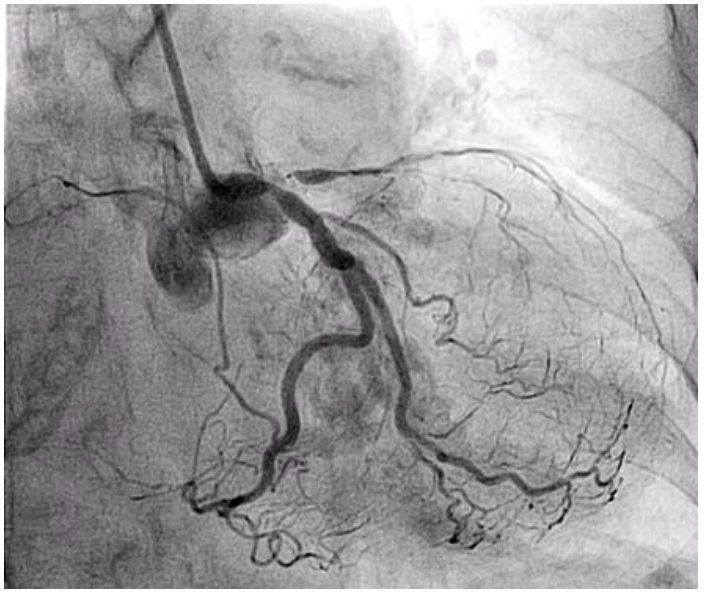




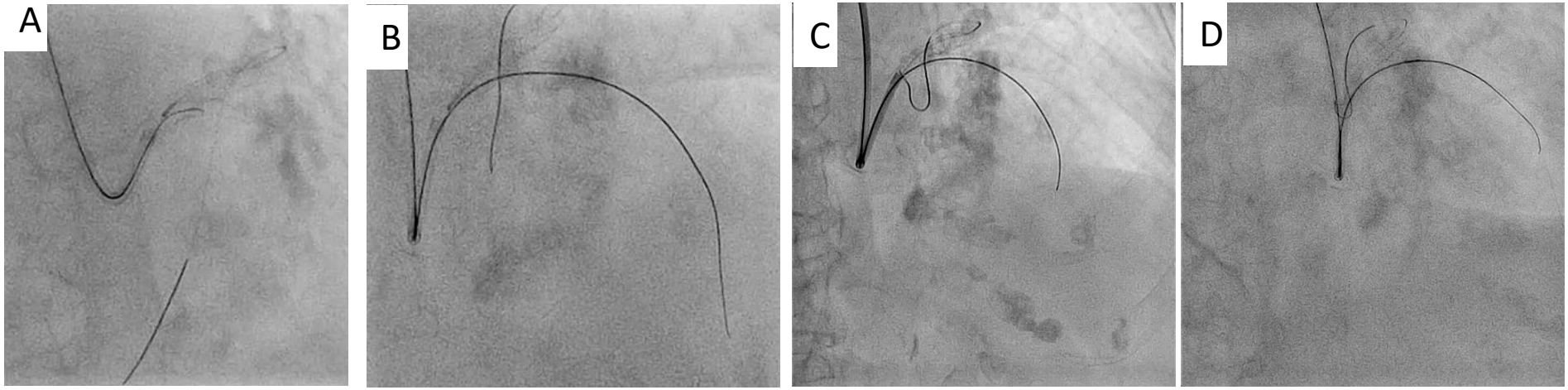
A: Final angiographic result of LMS/LCX/LAD bifurcation stenting
B: LMS area 13.6 mm^2
C: LCx ostium area 10.2 mm^2
D: LCX MSA 7.8mm^2
E: LAD ostium MSA 3.8 mm^2

14 months later

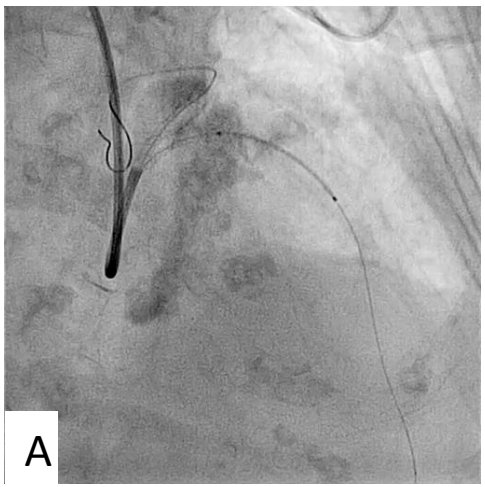
- Sudden onset dyspnoea
  - Acute pulmonary oedema
  - Type 1 respiratory failure
  - ECG: LBBB (old)
  - Elevated troponin (0.17 -> 41 -> 106)
  - ntProBNP 5022
- Diagnostic coronary angiogram
  - Severe calcified ISR of ostial LAD and ostial LCx

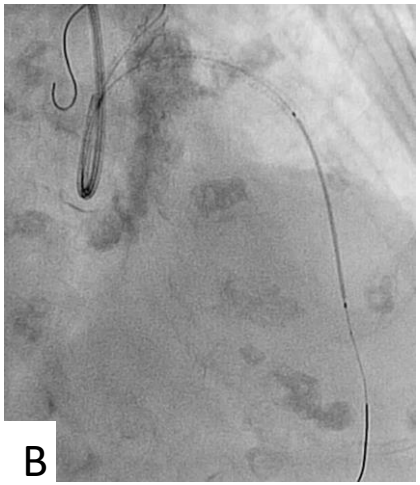


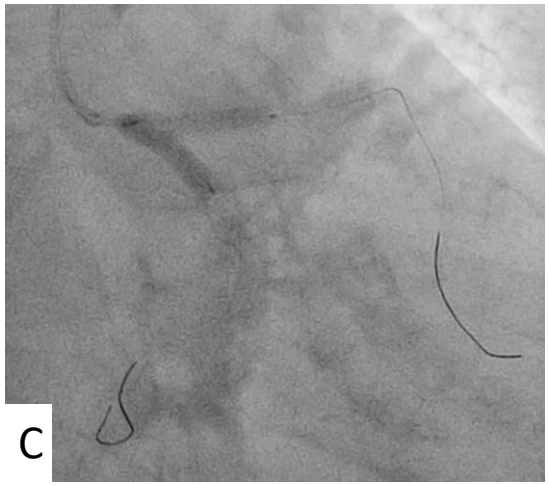
Procedure

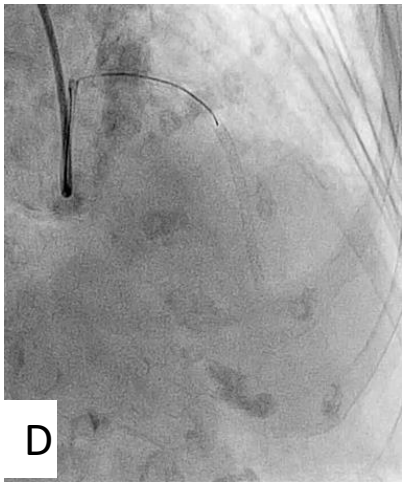


A: Difficult wiring of LAD. Wire escalation with final crossing using a Confianza 12 and double lumen microcatheter
B: Serial predilation of LMS/LAD/LCX (NC balloons 1, 1.5, 2, 2.5 mm)
C: Evidence of dissection of the LAD and wire in false lumen
D: wiring of true lumen facilitated by double lumen microcatheter









A&B: PCI to mid and distal LAD (2.5 x 28 and 2.25 x 38 mm DES)
C: Kissing drug eluting balloons to the LMS/LAD/LCX
D: Final result with residual evidence of calcified stenosis in the ostial LAD but TIMI 3 flow

Learning points

- Stent failure after LM PCI may have a sudden clinical presentation (flash pulmonary oedema in our case)
- In our case, might be related to the use of a 2-stent technique and a severely calcified LMS-LAD-LCX bifurcation
- In the absence of long-term follow-up data of patients treated with intracoronary lithotripsy, it remains speculative to associate stent failure in this patient with the use of this novel plaque modification technique.