Ipsilateral retrograde LAD CTO PCI

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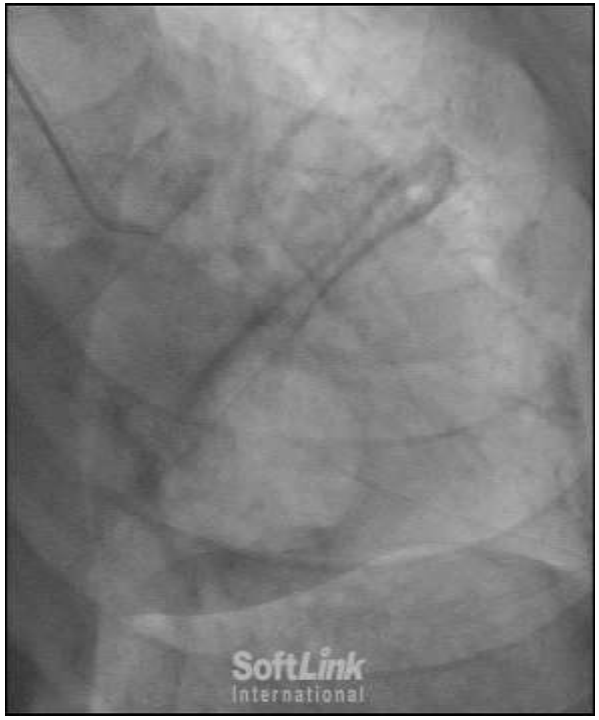
CLINICAL DETAILS

- 54 year old male patient named Mr D P
- Hypertension(5 years), Dyslipidemia(5 years), Diabetes Mellitus(1 year)
- ACS-Inferior Wall Myocardial Infarction(August 2022); Post PAMI to RCA, LAD CTO
- Current Complaints- Angina on exertion class 2
- Echo: EF-40% Apical HK, with Trace MR
- Stress Sestamibi scan: Viable myocardium with inducible ischemia in LAD territory

Coronary Angiogram



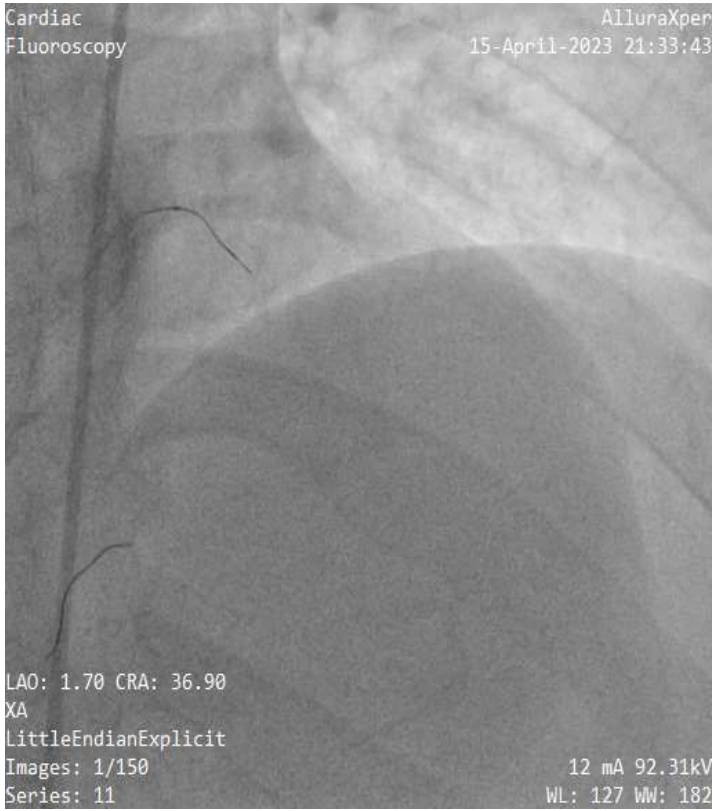
RCA stent is patent with calcified Mid LAD CTO with ambiguous proximal cap, Diffusely diseased distal vessel, retrograde filling from ipsilateral septals and RCA

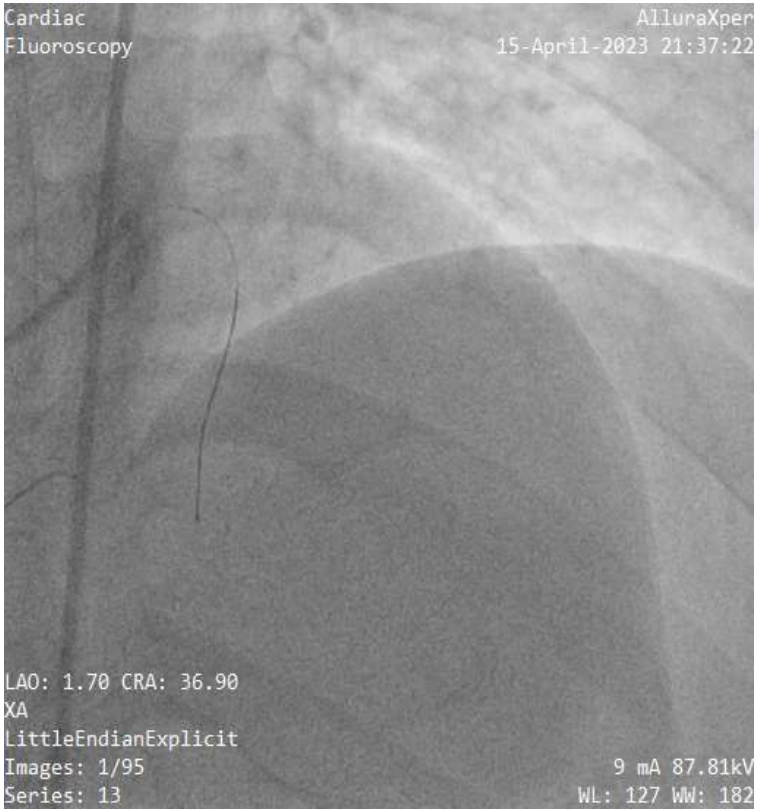
Interventional Plan

- Target Vessel- LAD CTO(J-CTO- 2: Calcification, ambiguous proximal cap)
- Side branch at cap, diffusely diseased distal target: Other challenges
- Access- Right Radial- 7F JR, Right Femoral- 7F EBU
- Strategy- 1) Antegrade Wire Escalation(AWE) under IVUS guidance

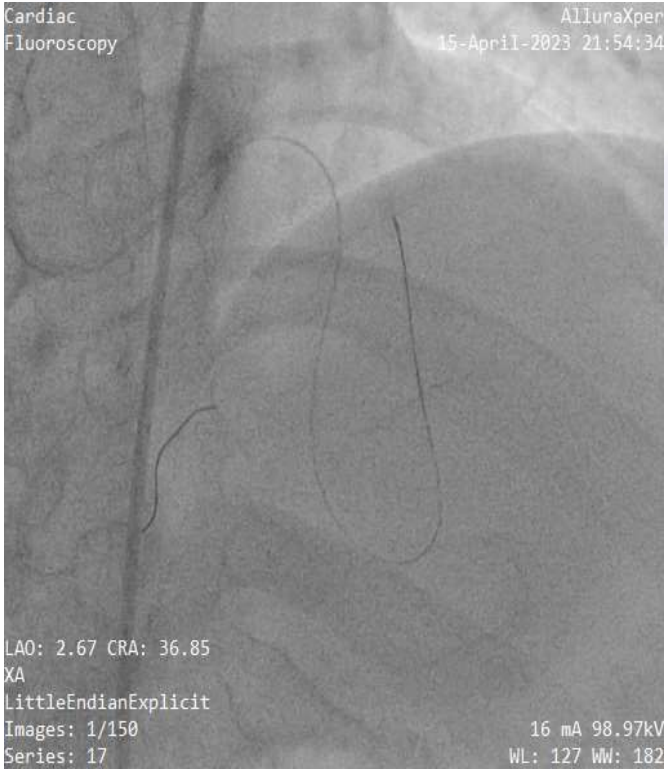
  2) Retrograde approach

Bilateral injections was taken. The **short tipped IVUS catheter** could not be delivered into septal branch. We tried **Antegrade wire escalation** with various guidewires using **Finecross Microcatheter** support but could not puncture the cap in view of the calcification and ambiguity of proximal cap. We decided to go **retrograde via ipsilateral septal collateral.** We used a **sion blue guidewire** and entered the distal LAD via septal collateral.

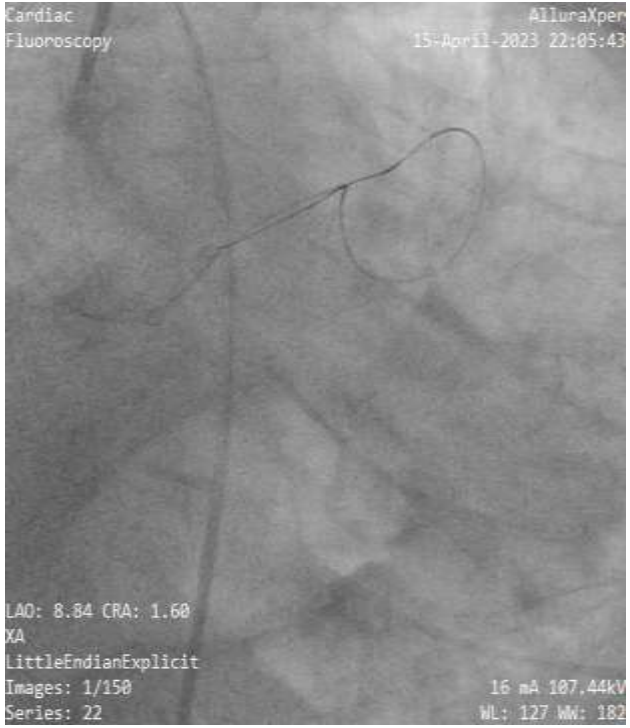


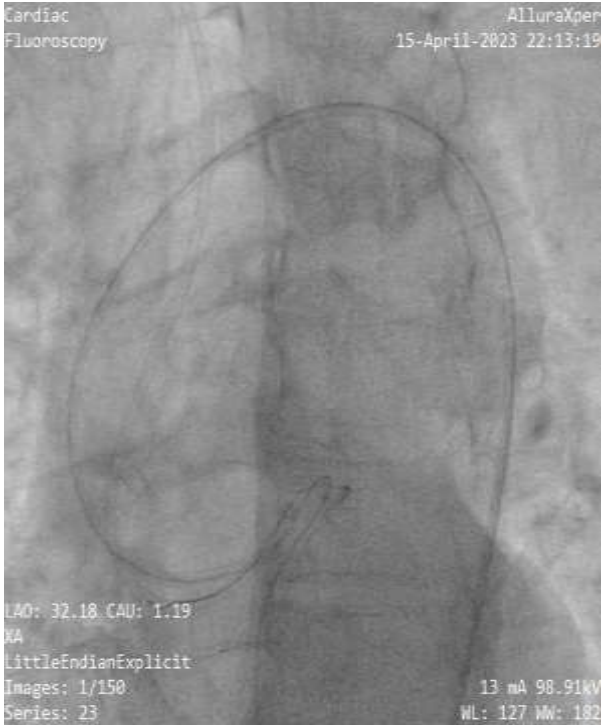


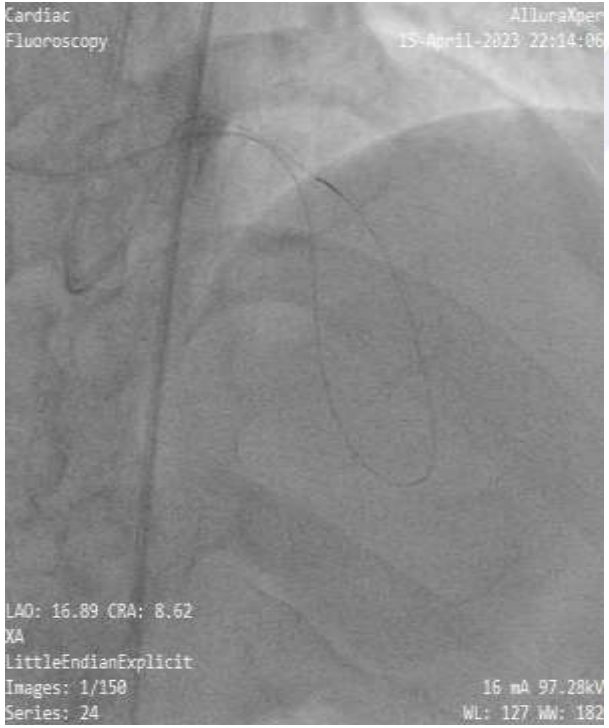
The Finecross failed to cross the bend of the collateral. We switched to a Caravel microcatheter. The Caravel reached the distal cap. We escalated to a Pilot 200 guidewire and were able to cross the lesion and enter the proximal LAD.



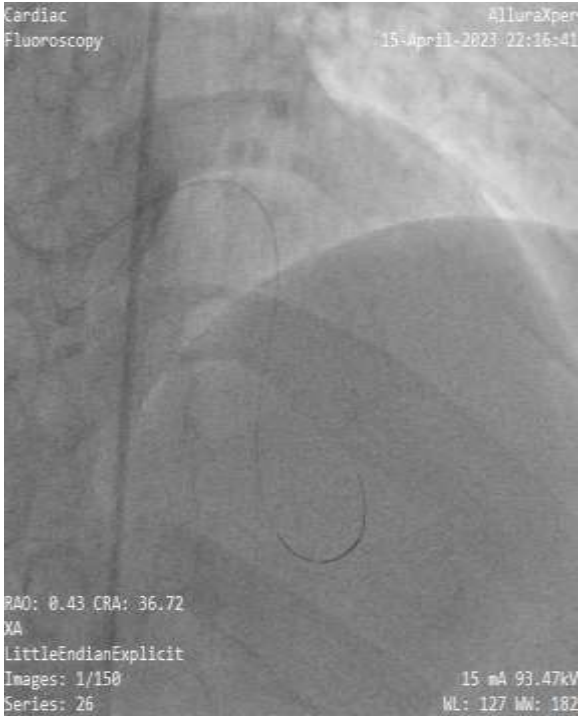
LAD guidewire position confirmed in 2 orthogonal views. JR guiding catheter exchanged for a 7F EBU catheter from right radial. Retrograde wire maneuvered into second EBU guide (**Ping-Pong**). **The Caravel failed to cross the heavily calcified lesion**. Went ahead with **"Tip-in"** using an Antegrade Finecross microcatheter. The Antegrade Finecross was then advanced over the retrograde guidewire to cross the occlusion.



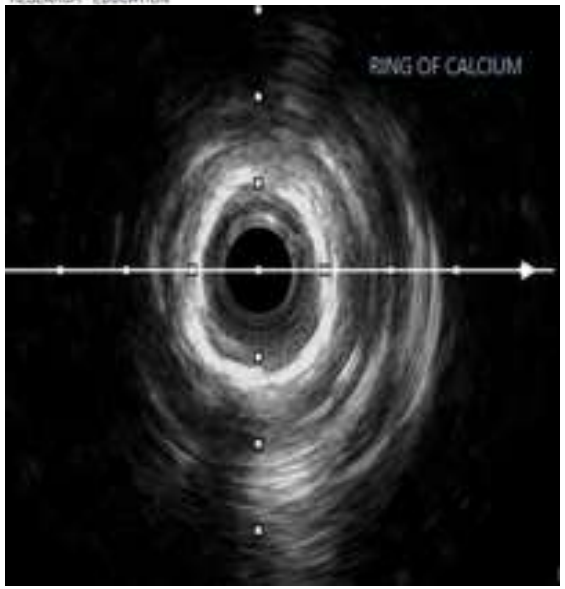


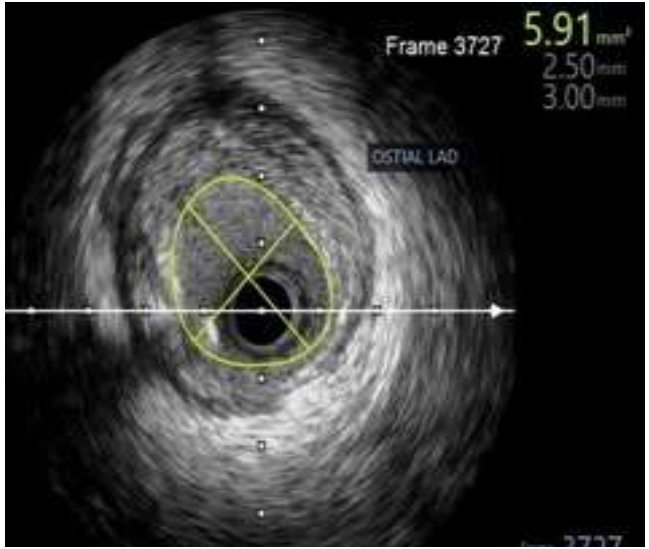


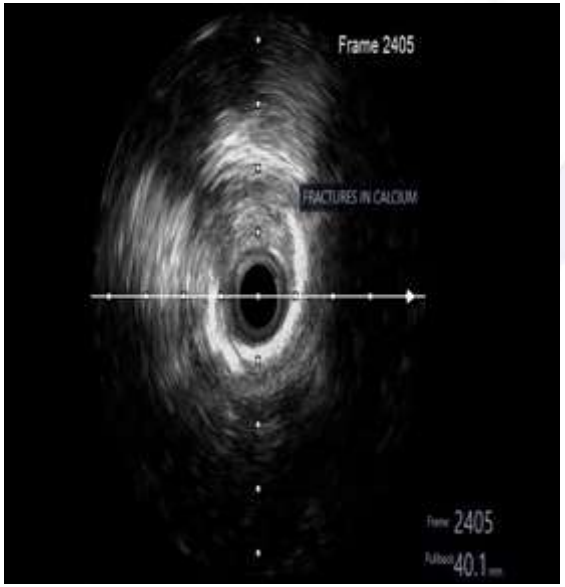
The Caravel and retrograde guidewire pulled back, septals checked for any damage. LAD wired with a workhorse wire through the Finecross Microcatheter. The **lesion could not be crossed with a 1.0 mm balloon even over guide-extension support. Finecross put in again, workhorse wire changed to rota floppy, rotablation done with 1.25 mm burr**



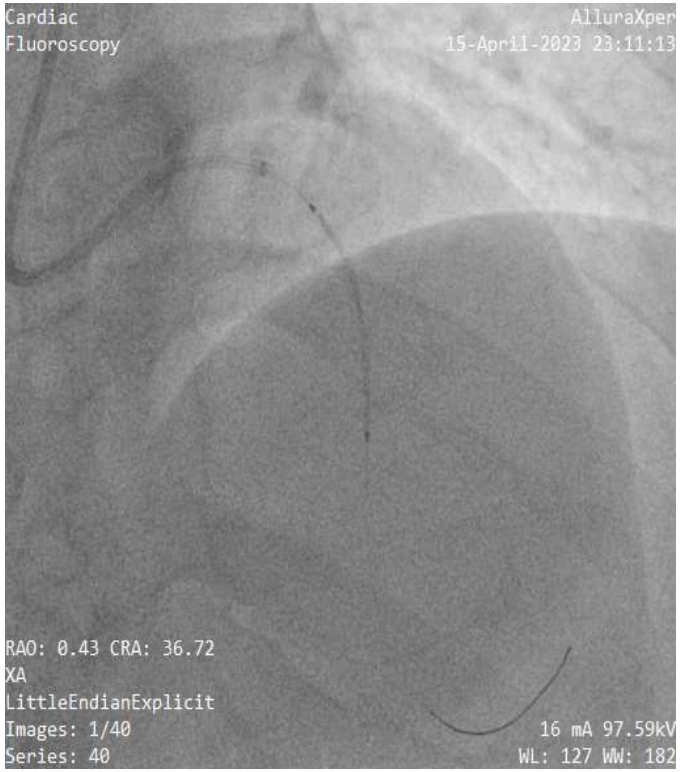
IVUS was done. The site of occlusion was dilated with a 2.75*10 mm Wolverine cutting balloon in view of concentric ring of calcium, Proximal vessel dilated with 3mm NC balloon, Disease extending from left main, LCX ostia disease free, stents sized as per distal landing zones

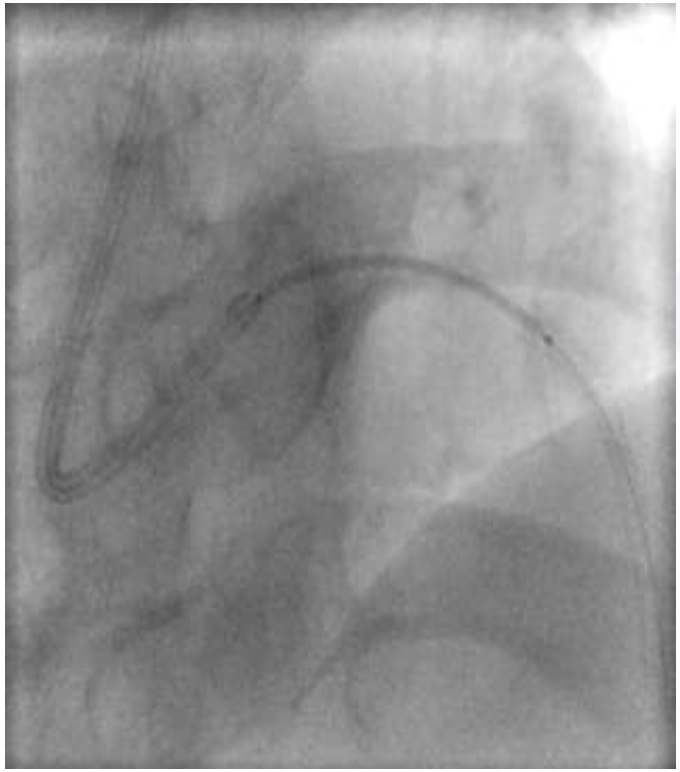




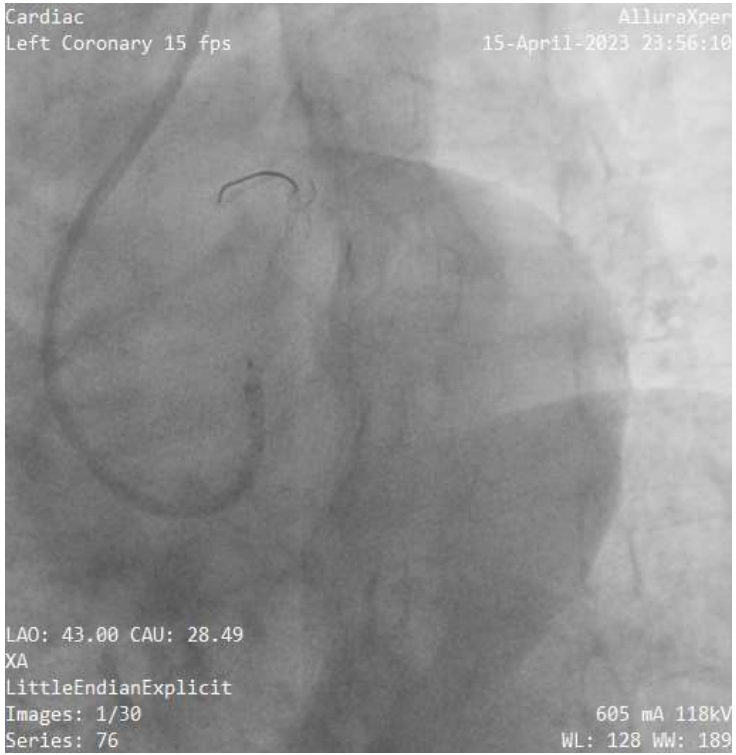


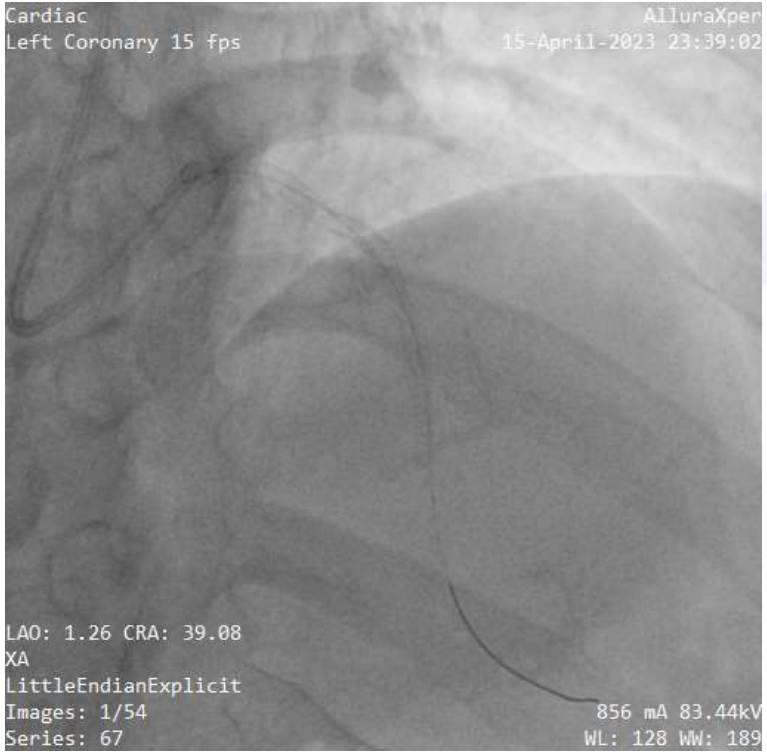
2 overlapping DES 3*34 and 2.5*38 placed from LMCA to LAD with guide-extension catheter support. POT in LMCA done with a 4.5*8 mm NC balloon. The stents were dilated with 3.5, 3 and 2.5 mm NC balloons from ostioproximal to mid to distal LAD.





Final Result





Final angiograms showing good result with distal TIMI 3 flow with no complications, Final IVUS too showed well expanded stents

Conclusion and take home messages

- Procedure time: 2 hours, Contrast volume: 200 ml, Radiation : 3000 mgray
- Post procedure course uneventful, doing well at 1 month follow up
- CTO PCI requires meticulous planning and knowledge of hardware, hybrid approach increases chance of success
- Tip-in is a useful method if externalization not feasible.
- Rotablation: Go To method in balloon uncrossable heavily calcified lesions
- Proper lesion preparation and IVUS useful in improving short term and long term stent outcomes.