IVUS AND FFR GUIDED LOW CONTRAST CTO PCI

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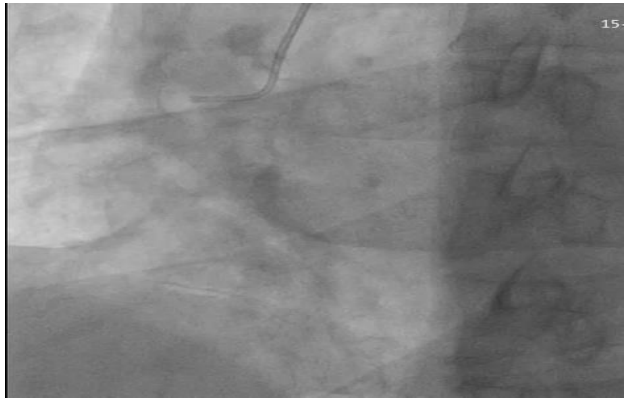
CLINICAL PROFILE

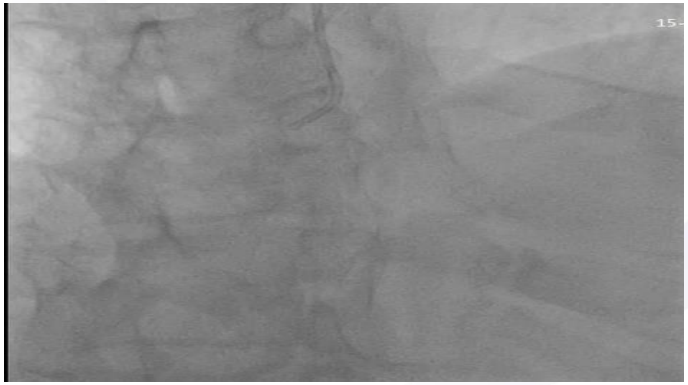
- Hypertension(15 years), Non-Oliguric, non dialysis dependent CKD(2years)
- Presented with unstable angina for past 6 months(Increasing frequency of symptoms for past 1 month)
- ECG- showed minimal ST-T changes in anterolateral leads
- Echo- shows mild hypokinesia in LAD territory with preserved wall thickness
- Coronary Angiogram showed totally occluded LAD with Grade 3 collaterals from RCA to LAD

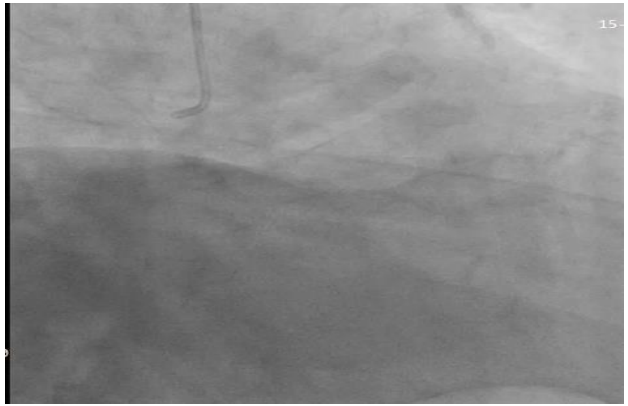
Investigations

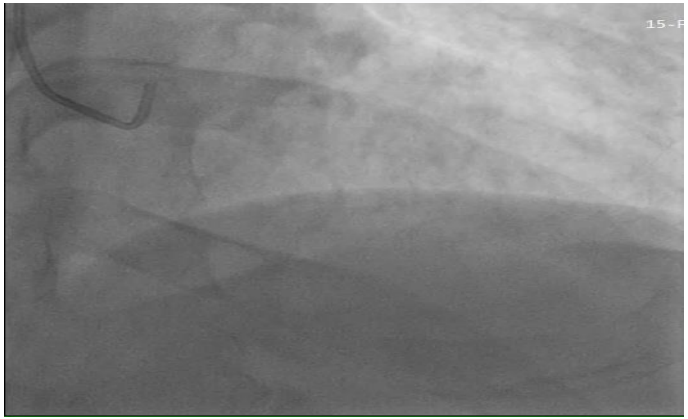
Parameters	Values
Hemoglobin(g/dl)	9.9
Urea(mg/dl)	141.24
Creatinine(mg/dl)	6.94
eGFR(ml/min/m2) by MDRD equation	8.0
Potassium(mEq/L)	4.7

Coronary angiogram done with 8 ml of diluted contrast





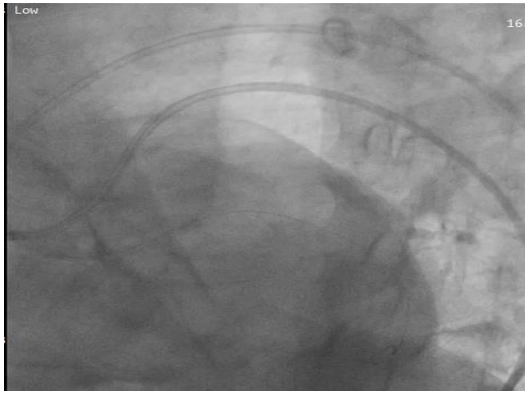


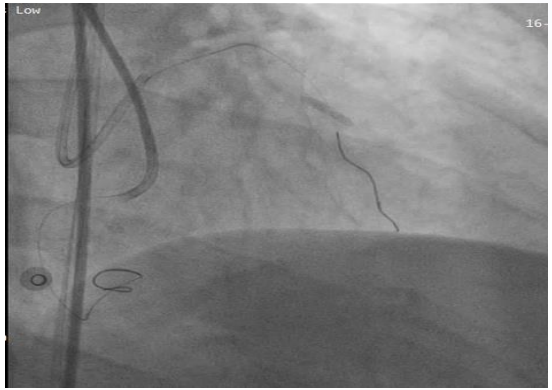


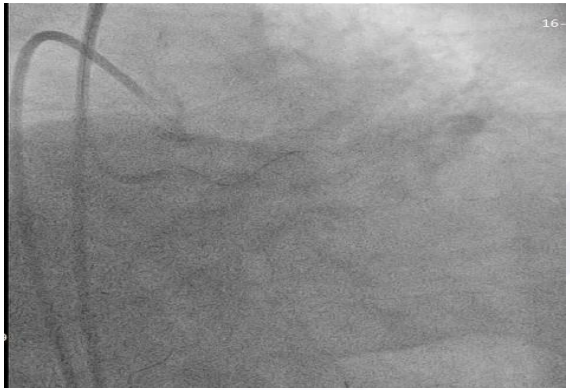
Interventional Plan

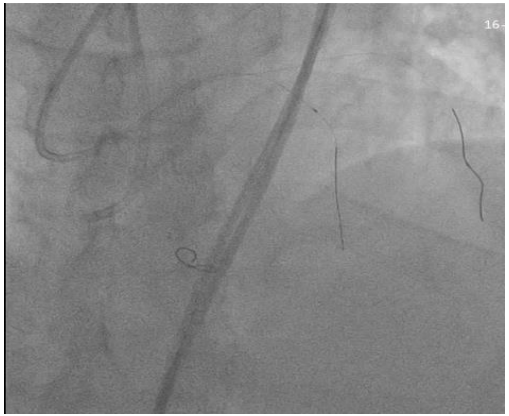
- Use of Bilateral Access(B/L femoral in view of weak radial pulses)
- Antegrade wire escalation as default strategy(Clear proximal cap, Length<20 mm, no calcification and no tortuosity in CTO segment-JCTO-0)
- IVUS and FFR to guide at every step of procedure
- Minimize the amount of contrast volume by imaging

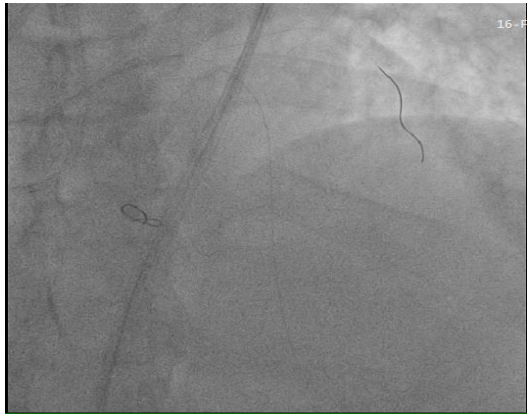
Safety wire put in RCA and LCX. Bilateral injections taken to define the Chronic total occlusion. We were able to cross the lesion with a polymer jacketed PILOT 150 guidewire with Finecross microcatheter support. We took a small retrograde injection to confirm the position of wire in true lumen. We exchanged it for a workhorse BMW guidewire. We dilated the lesion with a 2.5 mm NC balloon and wired the diagonal branch

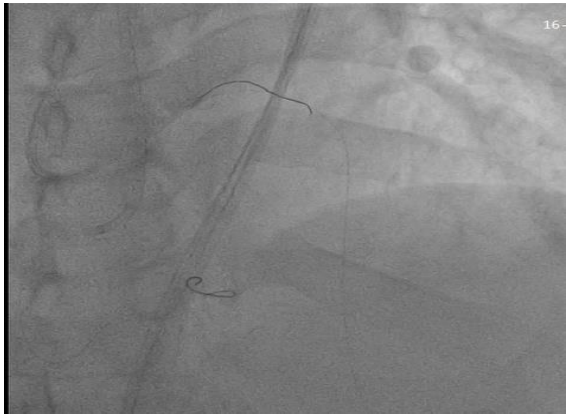




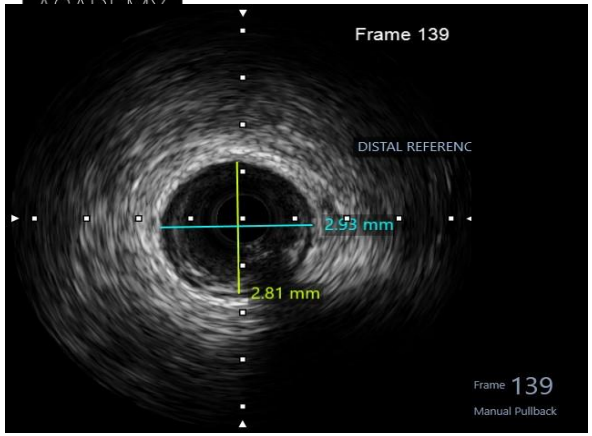


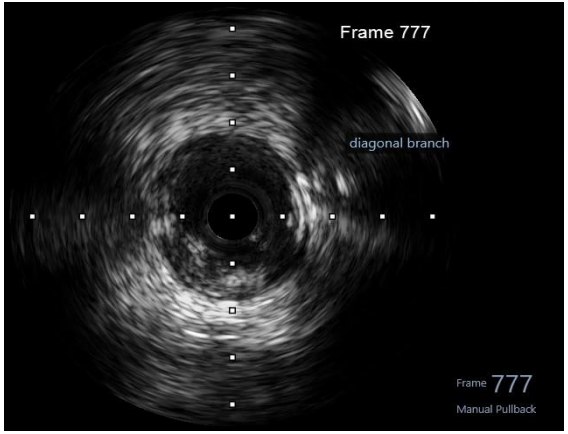


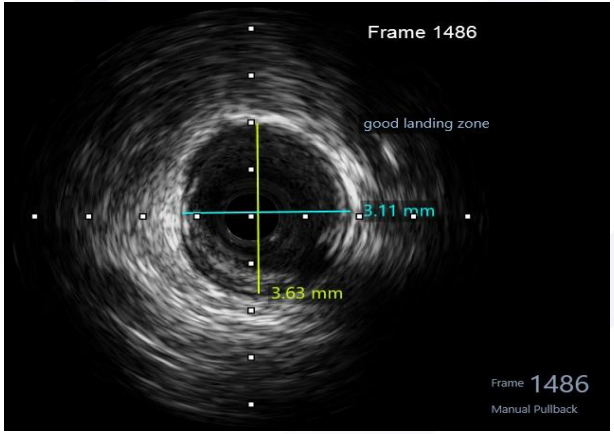


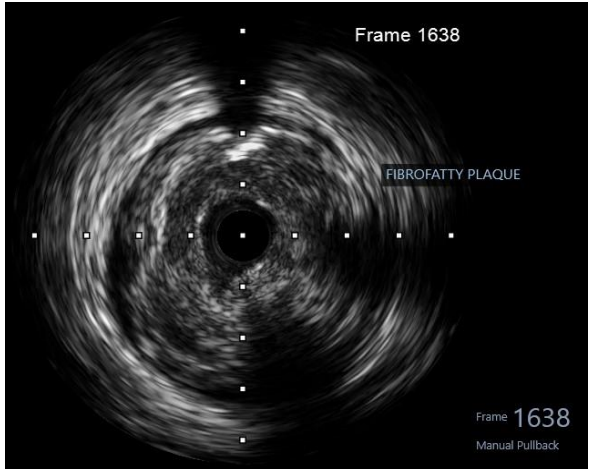


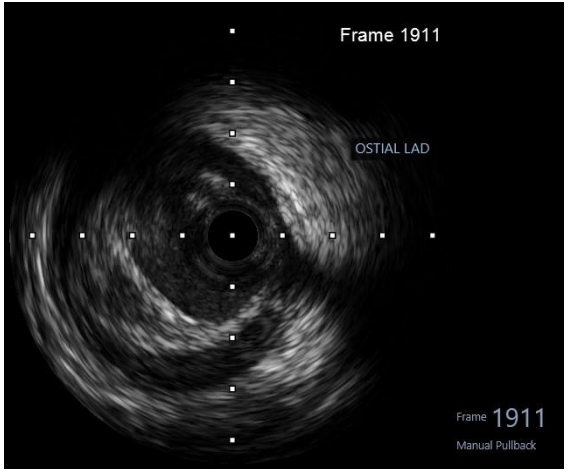
IVUS was performed

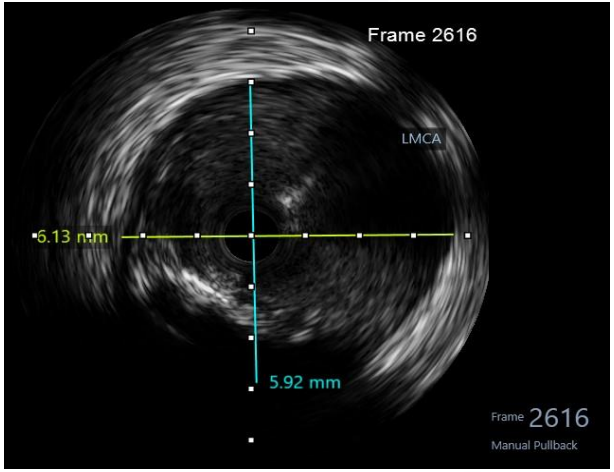




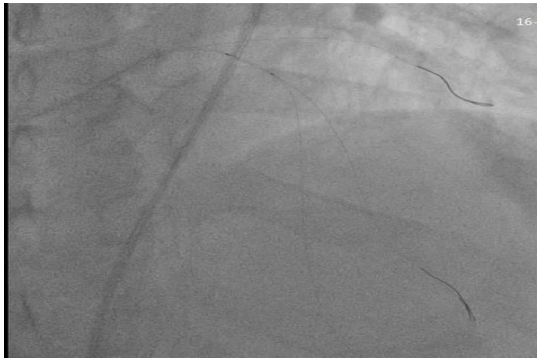


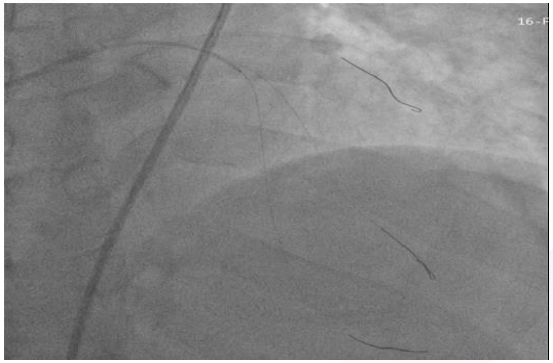


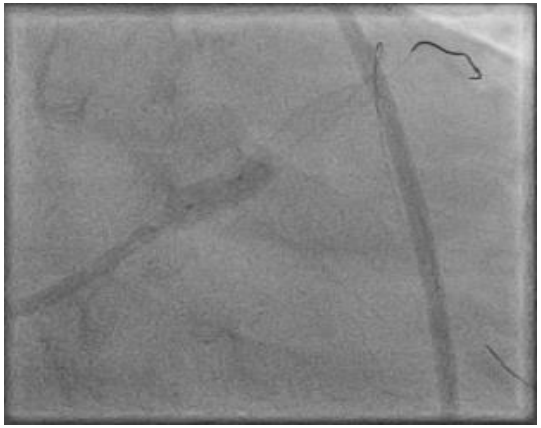


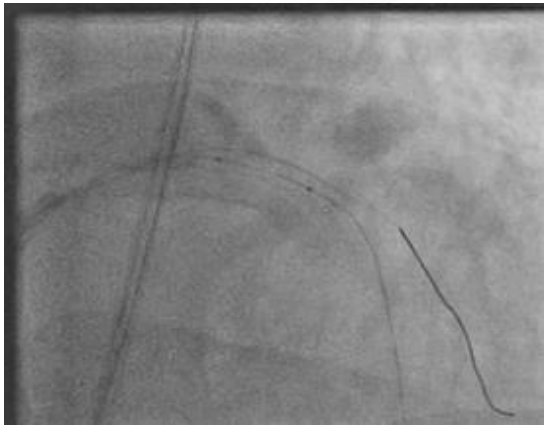


The lesion predilated with 3.5 mm NC balloon. 3.5*38 mm stent deployed from LMCA to LAD. Proximal Optimization in LMCA done with 5.5*8 mm NC balloon. The LAD part was post dilated with 4*15 mm NC balloon and ostioproximal LAD with 4.5mm NC balloon

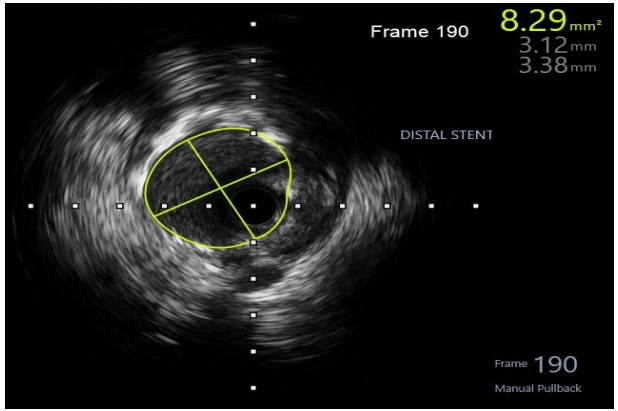


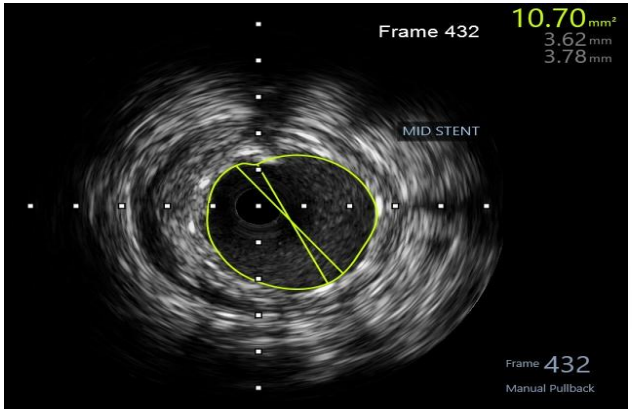


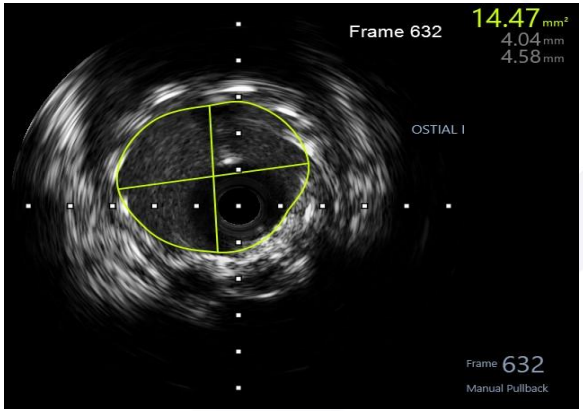


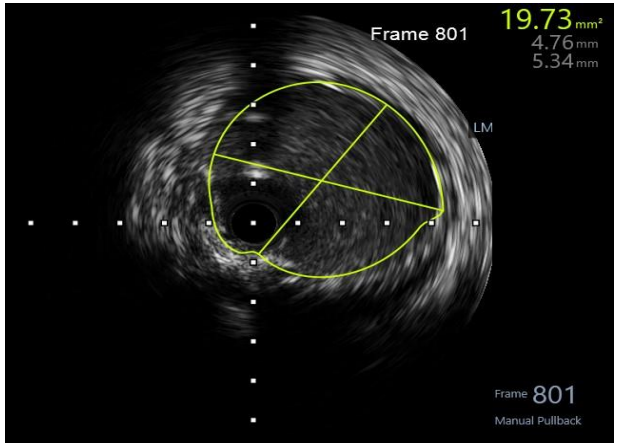


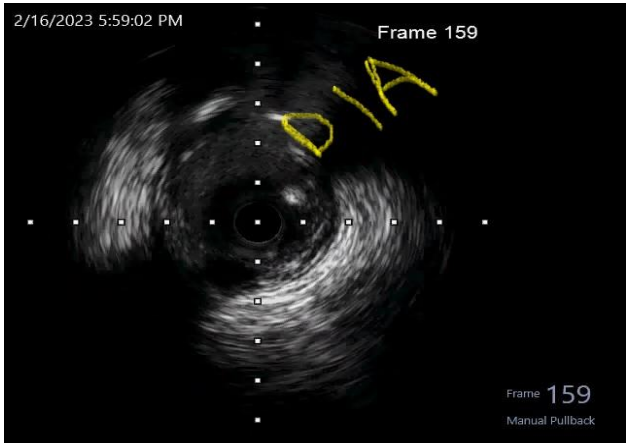
Post IVUS showed good expansion and apposition of stent in LMCA and LAD with well open diagonal and LCX

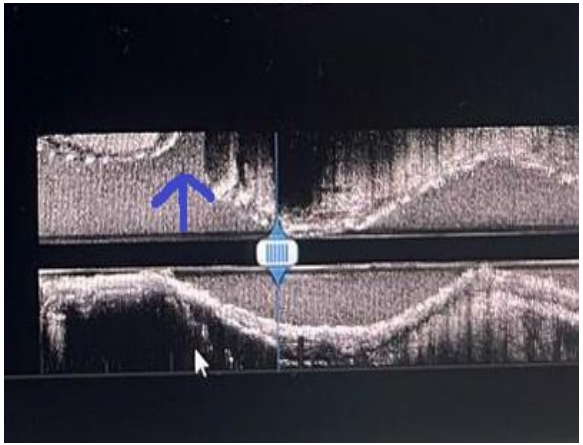




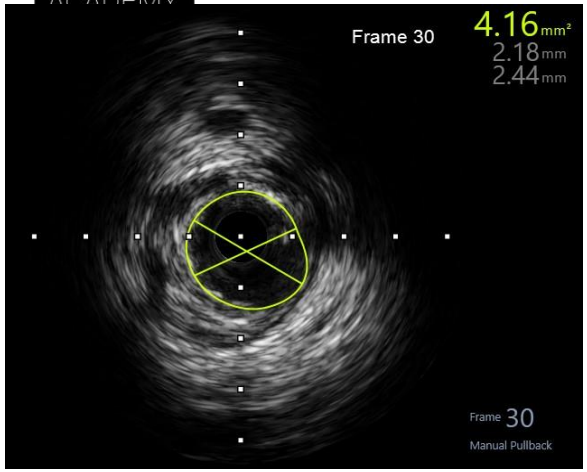


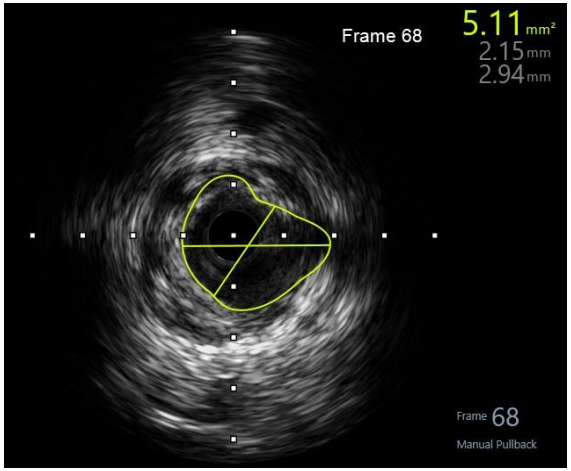


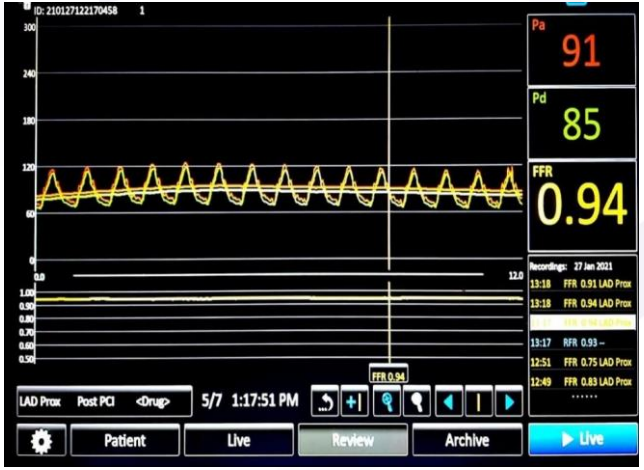


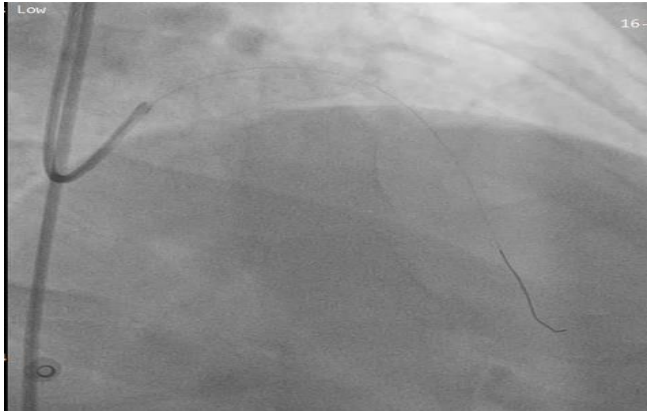


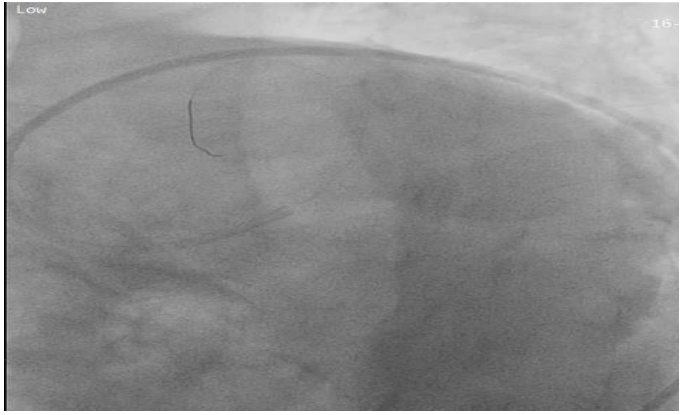
There was moderate disease on IVUS in mid to distal LAD. FFR was done which showed negative value. Final angiogram showed a satisfactory result.











Post procedure details

- Total Contrast Volume- 20 ml
- Post procedure Creatinine- 4.4 mg/dl
- Patient discharged on 3rd day with stable hemodynamics
- Patient is doing well on 1st follow up visit

Take Home Messages

- Low contrast CTO PCI requires meticulous planning
- Imaging contributes immensely to success of procedure and improving long term outcomes
- Physiologic assessment helps in proper assessment of ambiguous lesions