RCA CTO PCI COMPLICATION

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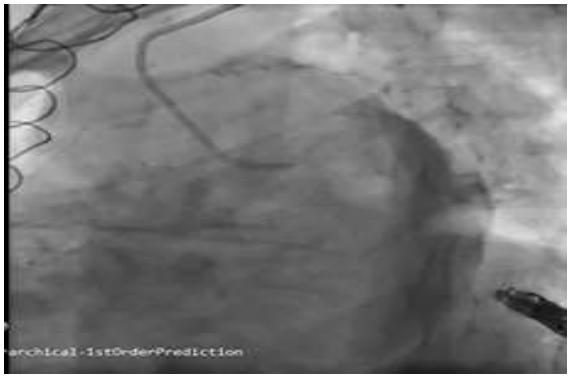
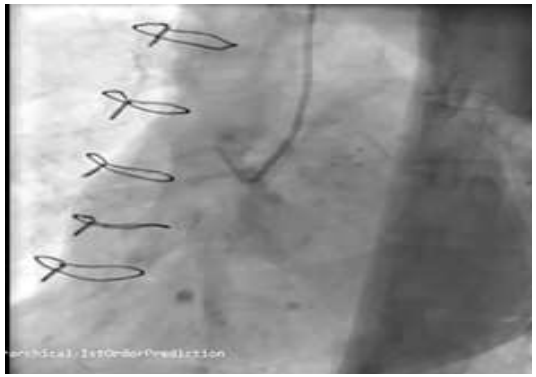
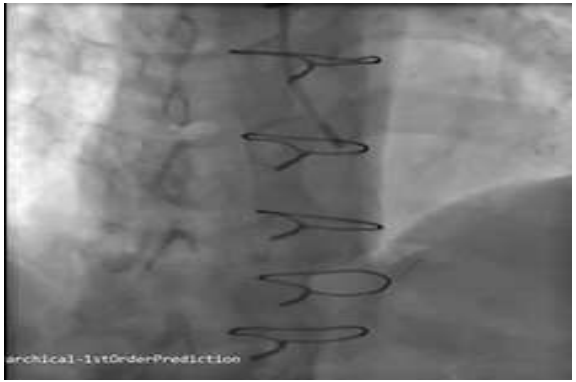
Clinical Profile

- 60 year old female patient named Mrs K R
- Post CABG Status-LIMA-LAD(2012)
- Admitted with Unstable Angina- Increasing Episodes for last 6 months
- ECG- Normal Sinus Rhythm; Echo- EF-55%, Trace Mitral Regurgitation

Coronary Angiogram showed total occlusion of RCA. Native LAD showed total occlusion with mild disease in OM branch. LIMA-LAD is patent and provides epicardial collaterals to RCA



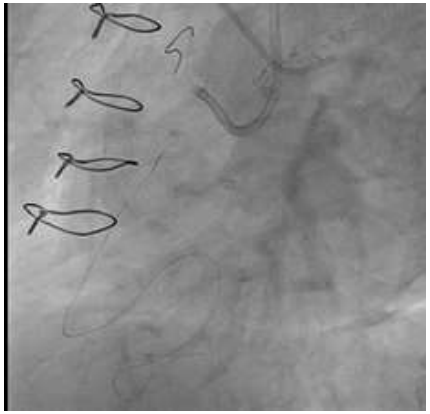
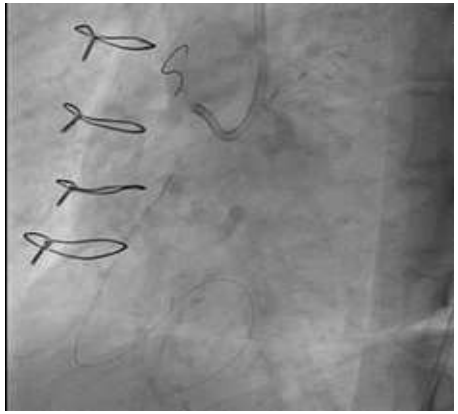
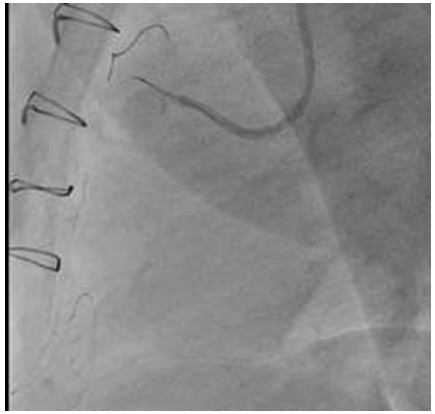
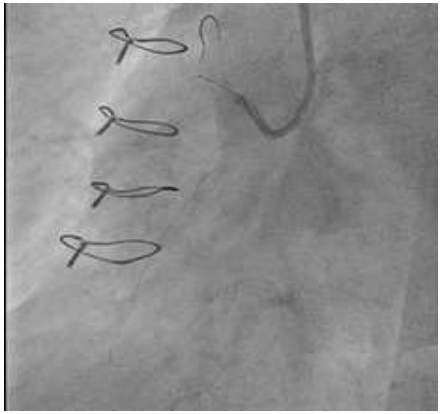
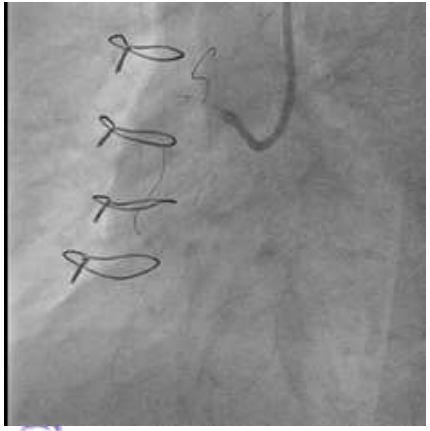
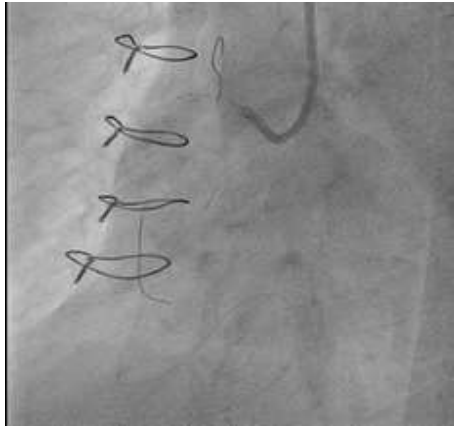


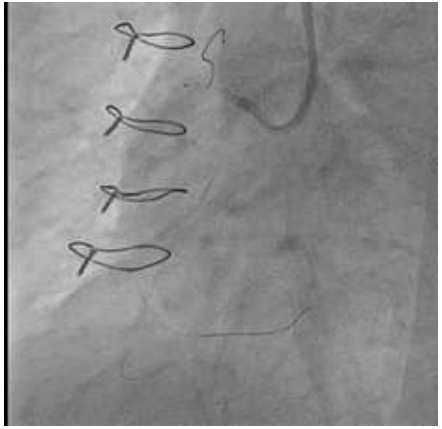



Interventional Plan

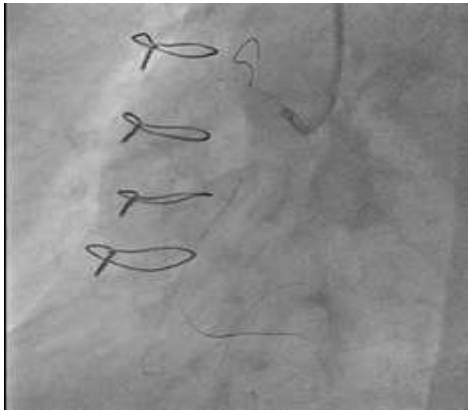
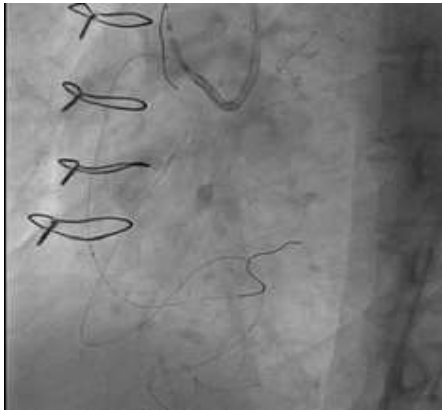
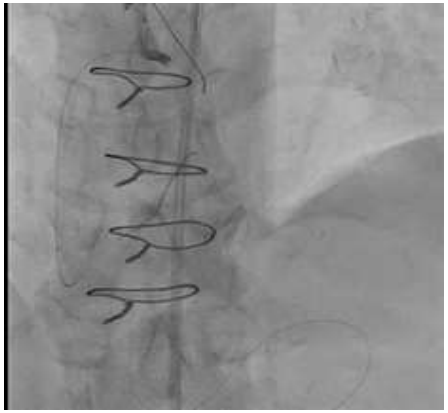
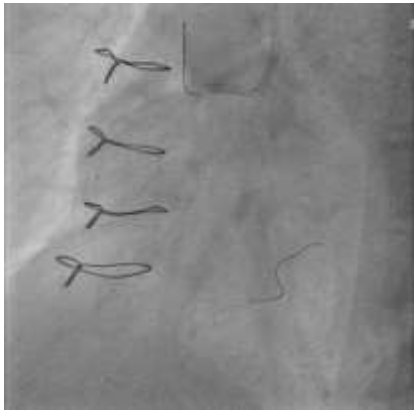
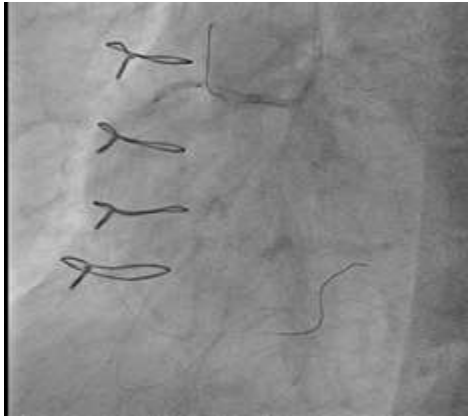
- Target Vessel- RCA(J-CTO-2)
- Right Femoral-7F AL-1, Left Radial- 5F IMA catheter for left internal mammary
- Approach- 1) Antegrade Wire Escalation(AWE)
- 2) Antegrade Dissection and Re-Entry(ADR)(Last Resort)

Bilateral Injections were taken. No collaterals were visualized from native LCX. LIMA injection showed epicardial collaterals to RCA via Acute Marginal branch. We put a guidewire in a conal branch to stabilize the guide. We went with a PILOT 50 guidewire and Finecross microcatheter. We were able to cross the lesion with PILOT 150 polymer jacketed guidewire. We confirmed the position of the guidewire from LIMA injection in various orthogonal views.

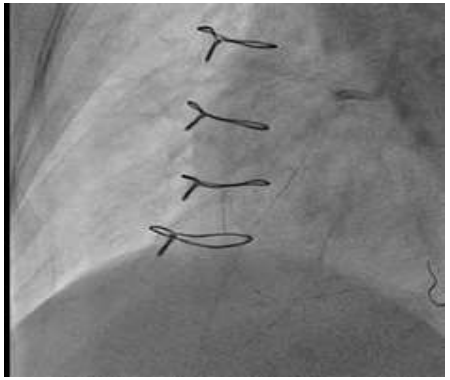
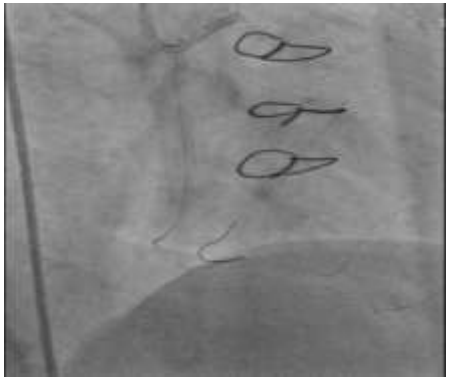
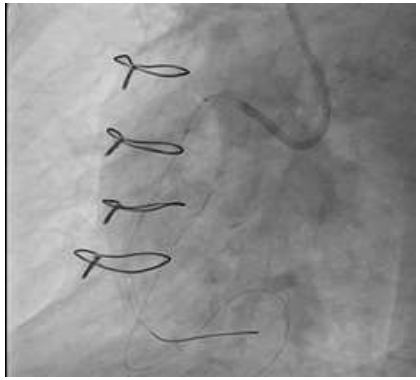
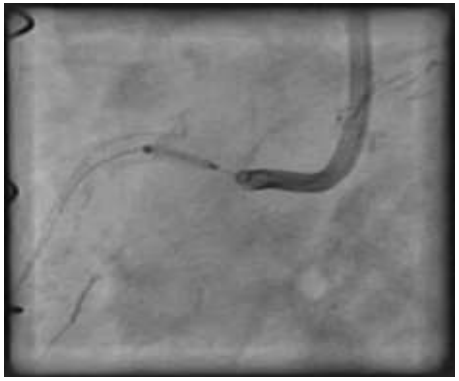
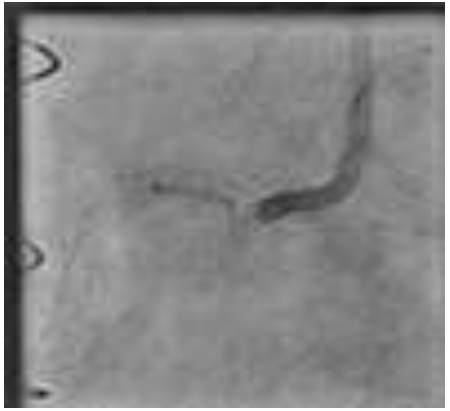
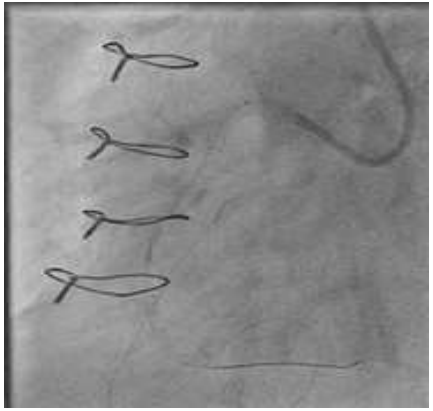
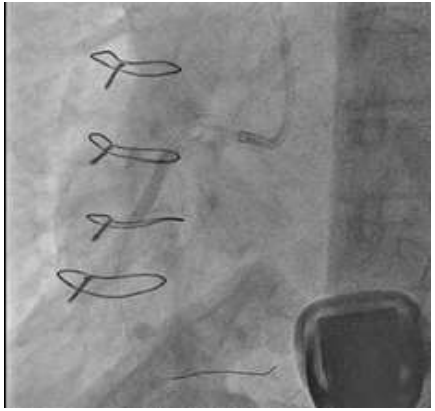
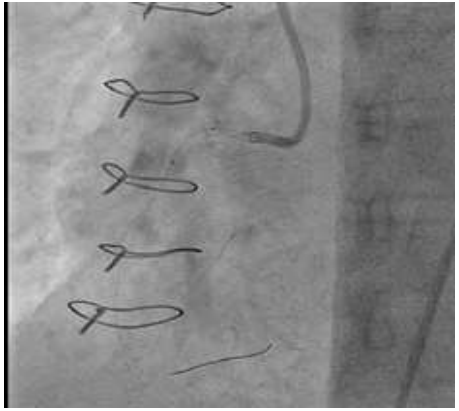









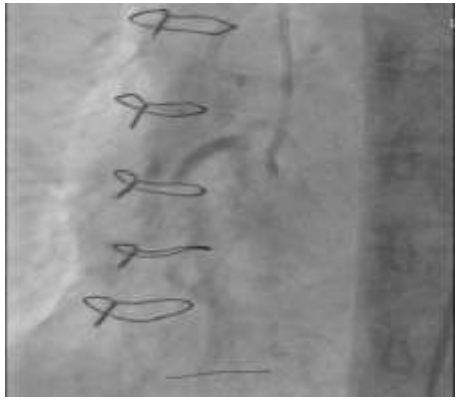
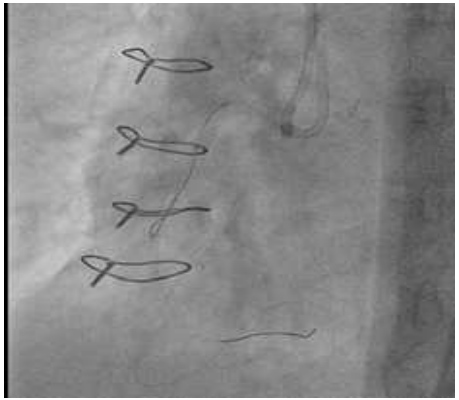
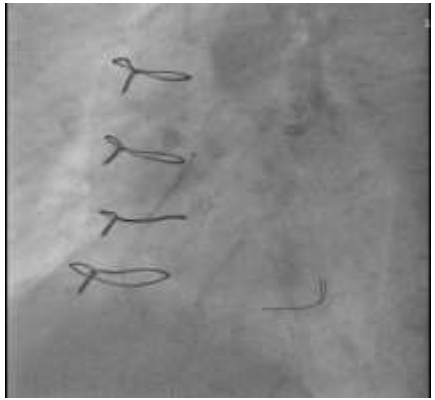
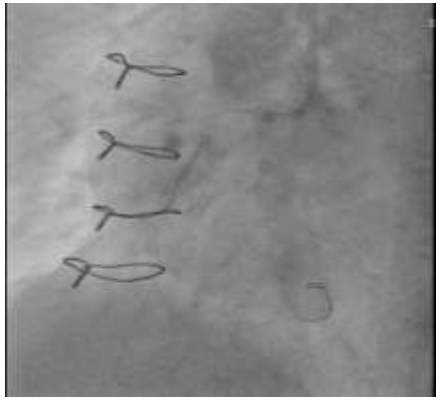
We inflated a 2.0 mm balloon in the conal branch as an anchor and crossed the lesion with Finecross microcatheter. We exchanged the PILOT for a workhorse wire and dilated the lesion with a 2.5 mm NC balloon. We further predilated the lesion with 2.75 NC balloon. We placed a 2.5*38 mm stent to cover the mid to distal lesion. We placed a 3.5*38 mm stent to overlap the 1st stent. .

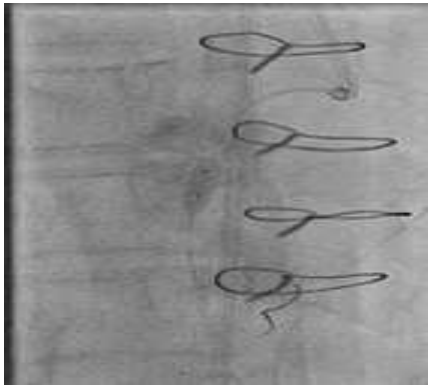
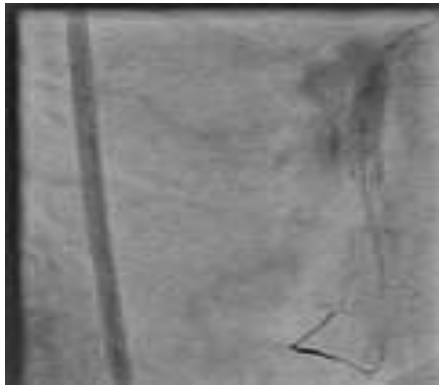







Post Stent placement, there was mild extravasation of contrast from mid part of proximal stent which went unnoticed. We dilated the proximal part with 3.5*12 mm NC balloon. We placed a 3.5*8 mm stent from ostium. We noticed a Ellis type 3 perforation in mid part of proximal stent. We quickly inflated the NC balloon at 4 atm. We continued balloon tamponade for 10-15 minutes. We prepared the patient for pericardiocentesis. Echo revealed thin rim of pericardial effusion.

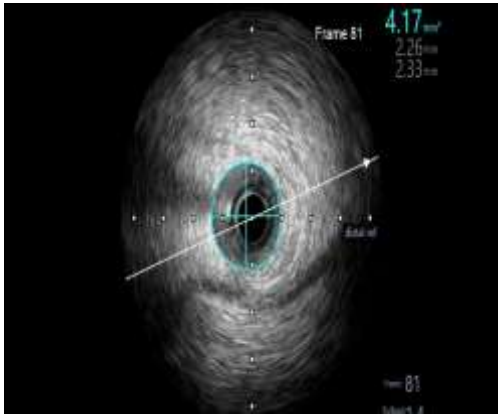









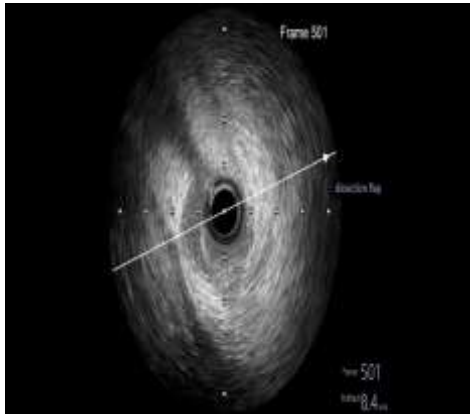
In view of ongoing extravasation, we decided to place a covered stent using Ping-Pong technique. We used a left femoral access and JR 7F guiding catheter. We disengaged the AL guiding, engaged the JR, deflated the balloon, wired the RCA and inflated the ballo on again. We placed a 3.5*19 mm Graftmaster covered stent. We postdilated the stent with 4*8 mm NC balloon to seal the perforation.

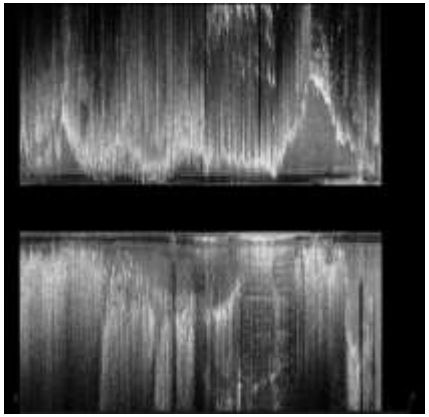





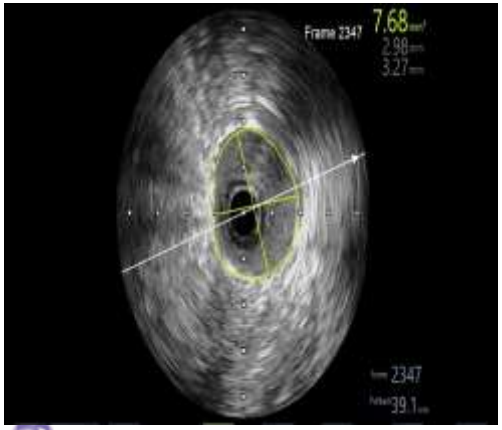



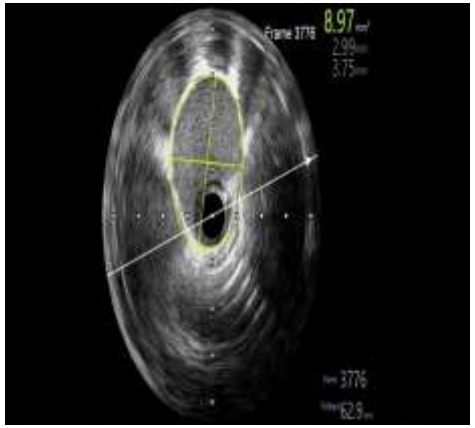

IVUS was done for post procedure optimization. IVUS showed dissection at distal stent edge. The covered stent was well expanded and apposed.

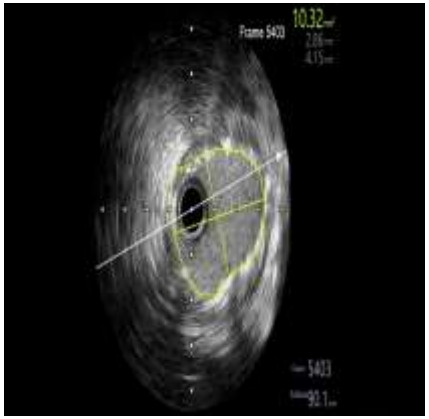






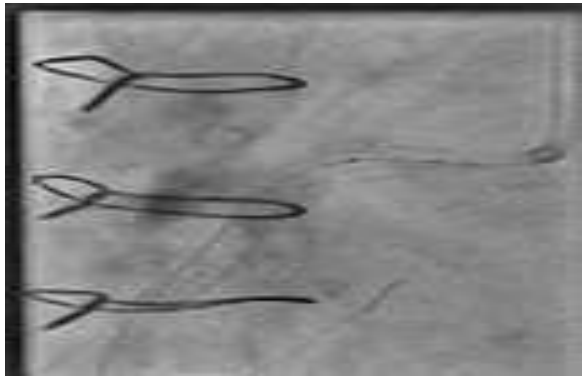
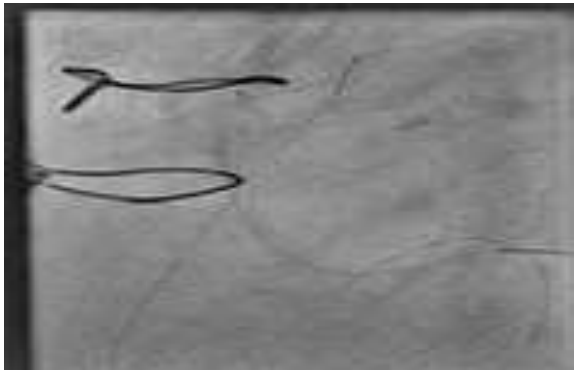






A 2.5*18 mm stent was deployed at nominal pressure to cover the dissection. The mid part was optimized with 3*15 mm NC balloon and ostioproximal part with 3.5 mm NC balloon. Final Angiographic result was satisfactory



Hospital course

- Patient was monitored for pericardial effusion for 48 hours
- Patient was shifted to step down ICU after 48 hours and discharged on 4th day post procedure with stable hemodynamics
- Patient has had her 1st follow up and is doing well.

Take home messages

- Post CABG CTOs can be challenging and requires precise planning.
- Wire based dissection and reentry and subsequent dilation of the subintima can be a source of perforation.
- Post CABG patients can have dry tamponade; low threshold for implanting covered stents and careful watch of henmodynamics is required.
- Imaging can help in identifying distal edge dissections and improving long term outcomes