MLCTO ACADEMY
RESEARCH · EDUCATION

THE DOUBLE HIT: Failed LAD CTO PCI

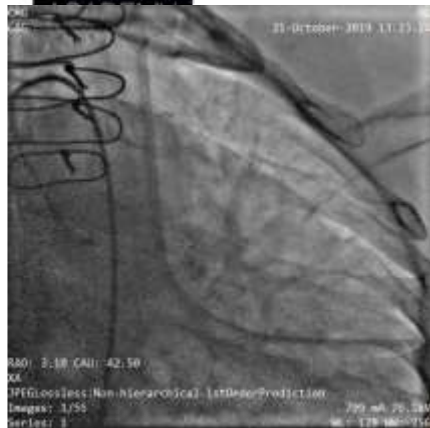
Dr Karthik Natarajan
Associate professor of Cardiology
U N Mehta Institute of Cardiology & Research Centre

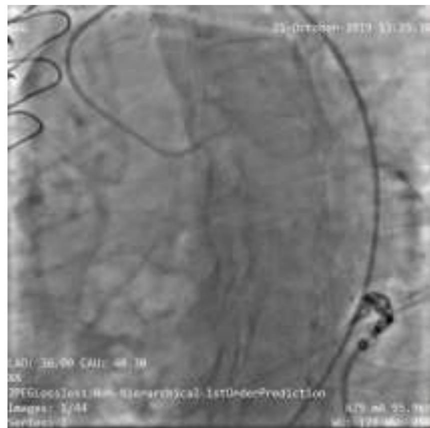
MLCTO ACADEMY
RESEARCH · EDUCATION

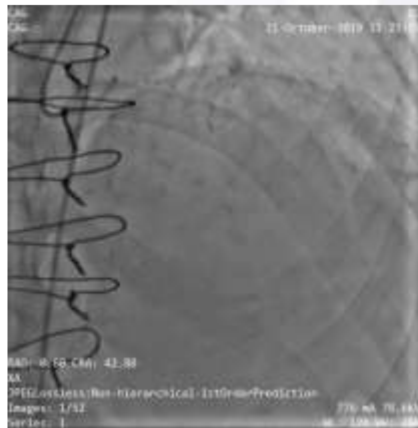
Clinical details

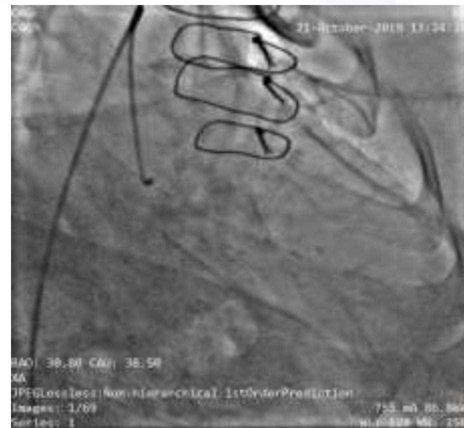
- 63 year old male patient named Mr R P
- Hypertension(15 years), Dyslipidemia(15 years)
- Post CABG(2012)- LIMA-LAD, RSVG-OM; ECG- NSR; ECHO- EF-55%, Trace MR
- CT Coronary Angiogram done in 2019- Non functional grafts
- Currently having CCS class 3 Angina for 6-8 months on maximum antianginals
- Coronary Angiogram done at outside hospital- advised Redo-CABG

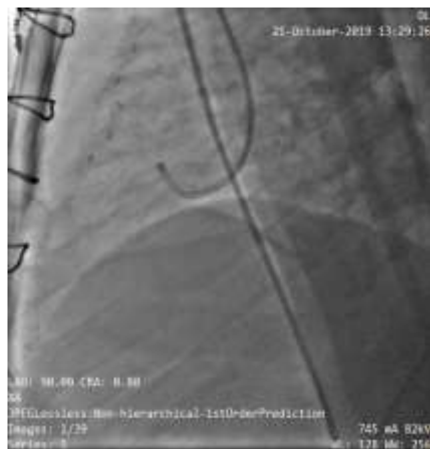
Coronary Angiogram in 2019

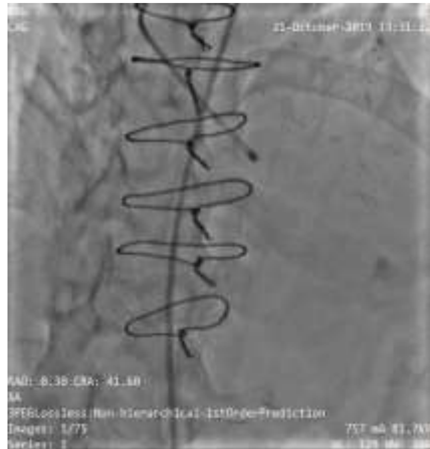


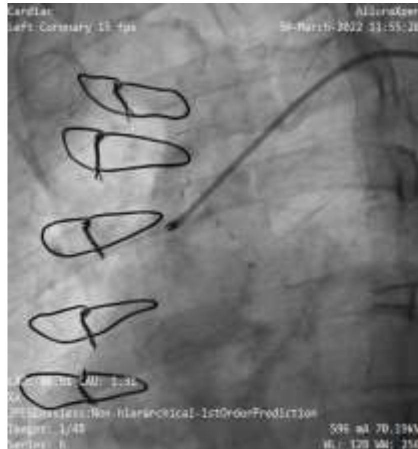


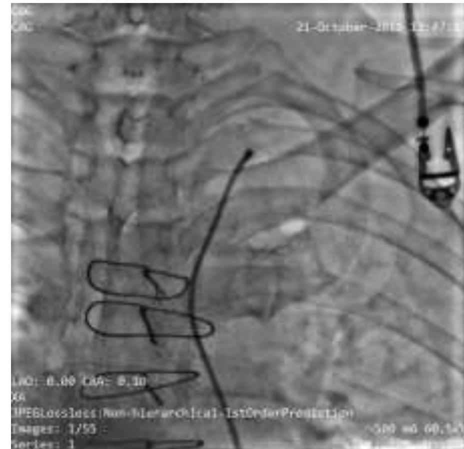












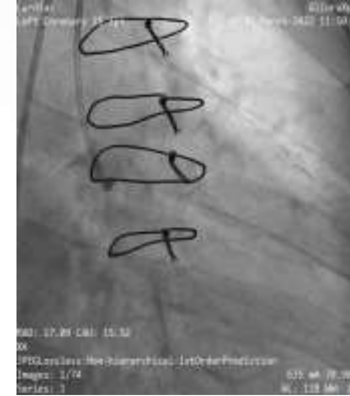
MLCTO ACADEMY
RESEARCH · EDUCATION

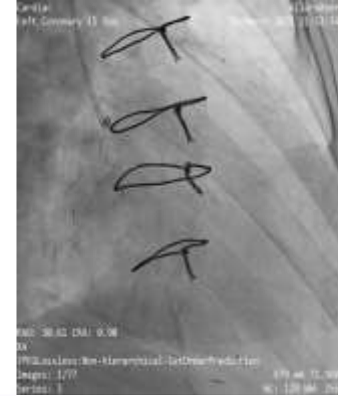
Interventional plan

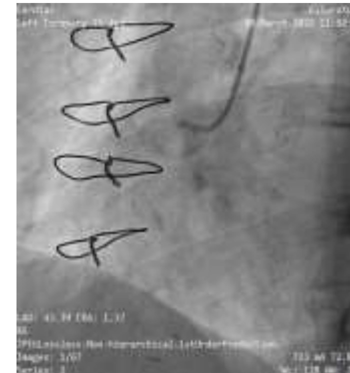
- Target vessel- LAD(J-CTO-1)
- Access- Right Femoral- 7F EBU , Left femoral- 6F JR
- Strategy- 1)Antegrade wire escalation

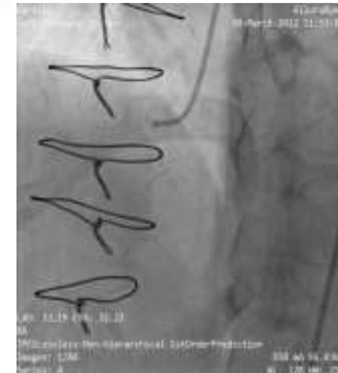
  2)Retrograde via septal collaterals from RCA

CAG 2022





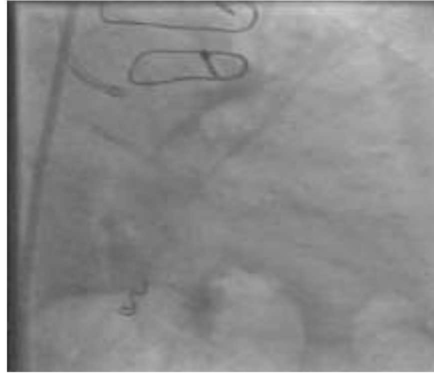
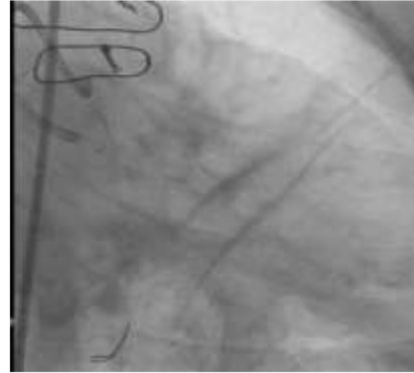
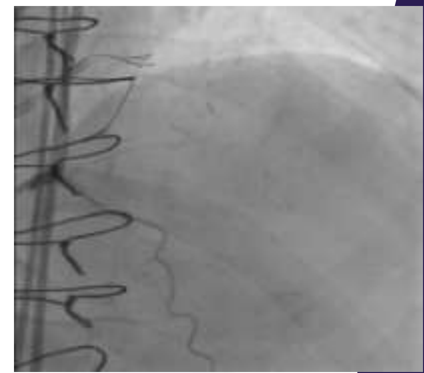
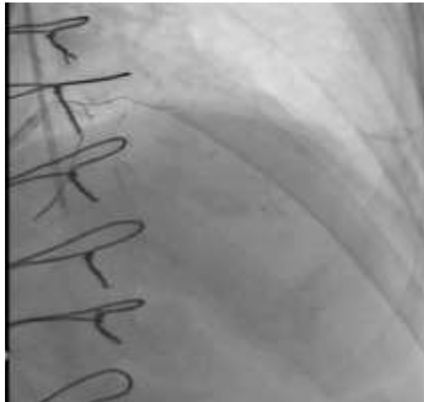
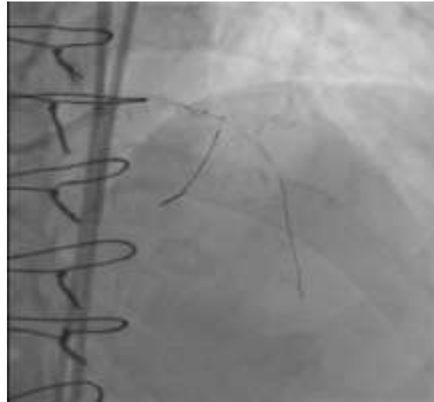
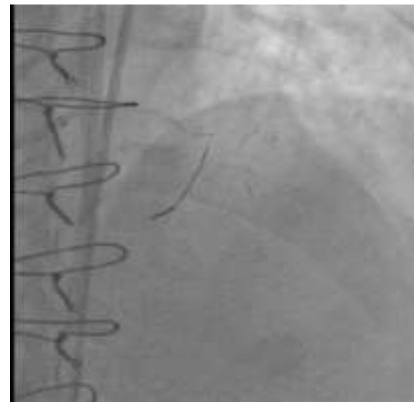
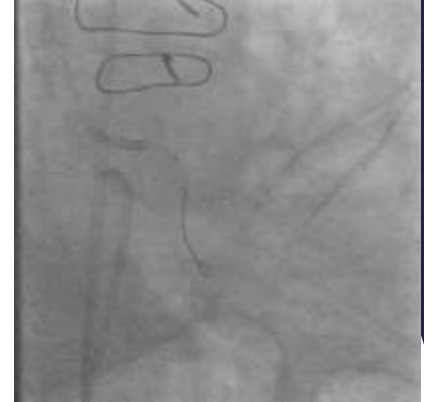




MLCTO ACADEMY
RESEARCH - EDUCATION

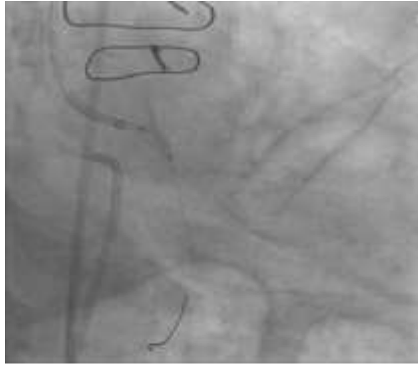
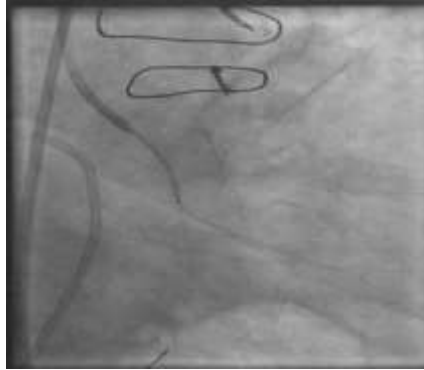
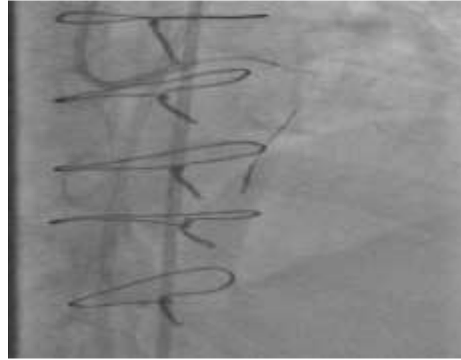
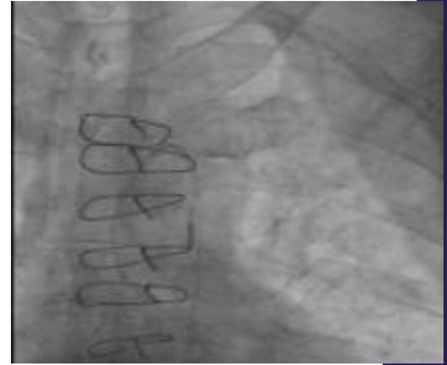
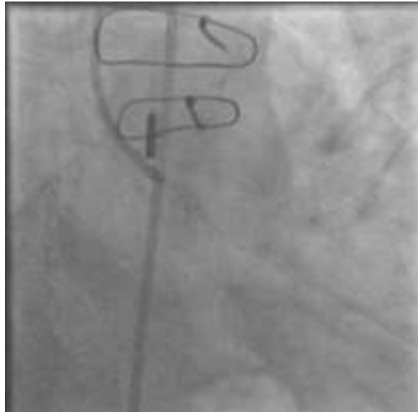
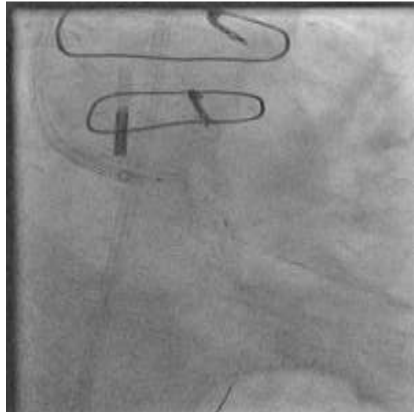
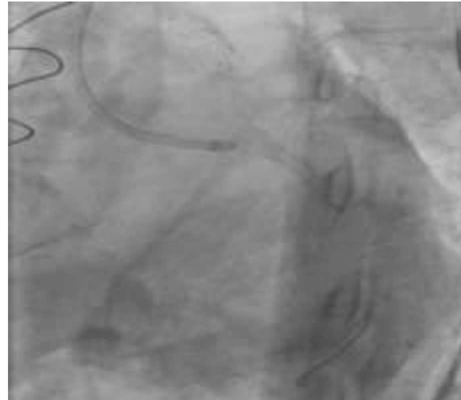
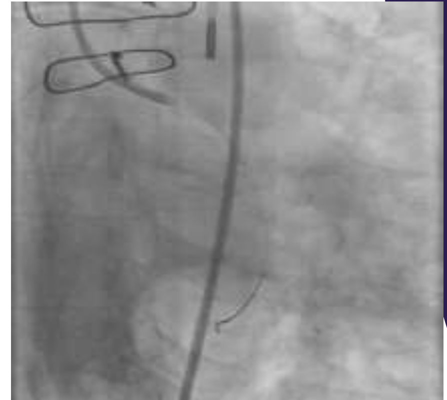
1ST HIT:

This is the angiogram on the day of procedure. The LCX was wired with a workhorse wire. Bilateral injections taken. We started of with a Finecross microcatheter and Pilot 50 guidewire. We were able to reach the distal LAD with Pilot 50 guidewire. Patient developed sudden onset dyspnea, angina and hypotension. There was slow flow in LCX. We tried to pass a 2.0 mm SC balloon into LCX but failed. We used the smallest 1.0 mm balloon to dilate the LCX

MLCTO ACADEMY
RESEARCH · EDUCATION

We dilated the lesion with 3.0 mm NC balloon. We placed a 3.5*23 stent from LMCA to LAD. Patient was in acute pulmonary edema and was put on BIPAP support. Echo was suggestive of severe LV Dysfunction with LCX territory hypokinesia and severe mitral regurgitation. IABP insertion was done from left femoral route. POT in LMCA done with 4.5*12 mm balloon. Final angiographic result showed TIMI 3 flow in LCX.

MLCTO ACADEMY
RESEARCH · EDUCATION

Further clinical course

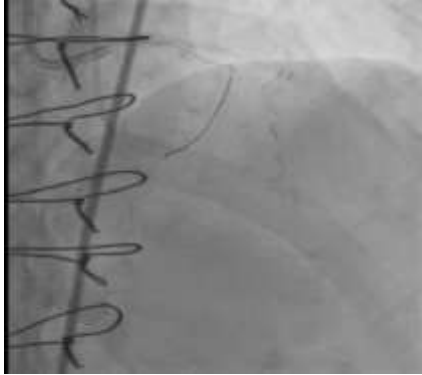
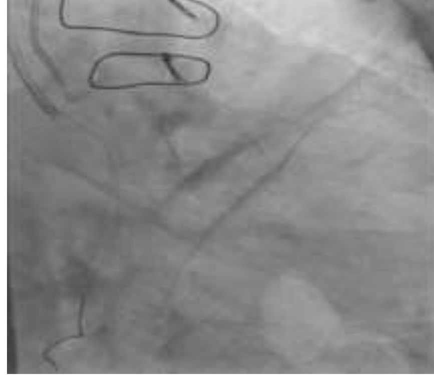
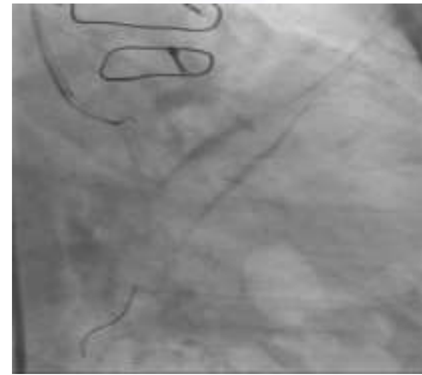
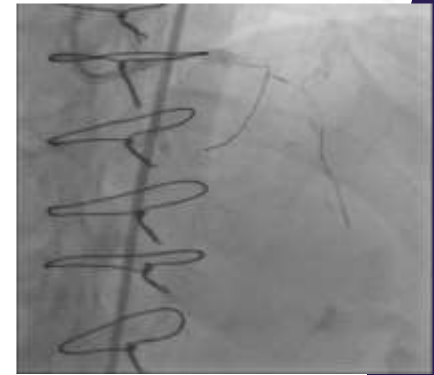
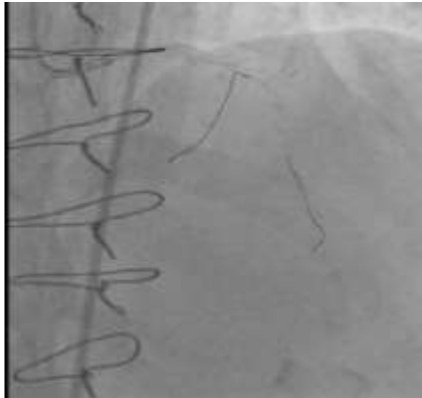
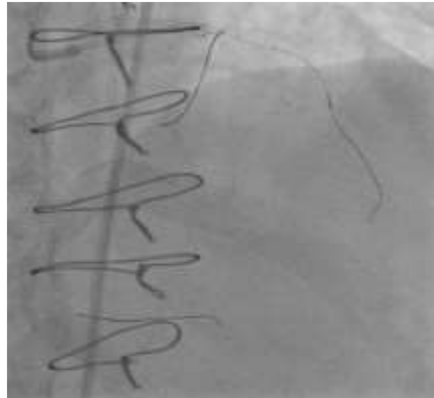
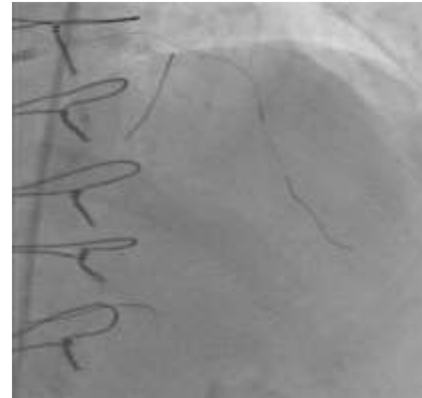
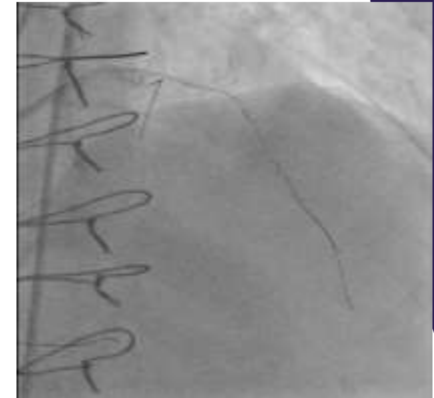
- Patient required Bilevel positive pressure ventilation for 24 hours.
- IABP weaned off on 3rd day.
- Echo showed improvement in LV function with Grade 2 Mitral regurgitation.
- Patient was discharged with stable hemodynamics on 5th day

Clinical scenario(1.5 months after index procedure)

- Current complaints- Occasional Angina on exertion
- ECG- No ST-T changes; ECHO-EF-50%, Mild Mitral regurgitation
- Patient was planned for staged reattempt PCI to LAD CTO

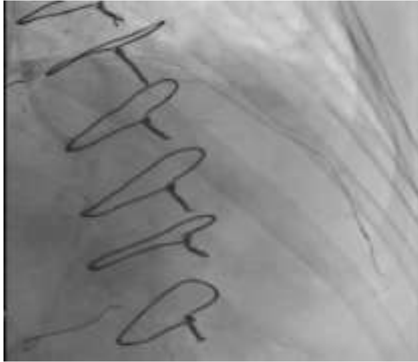
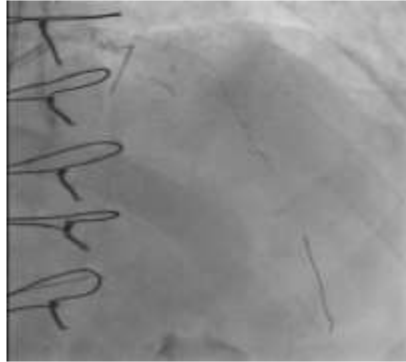
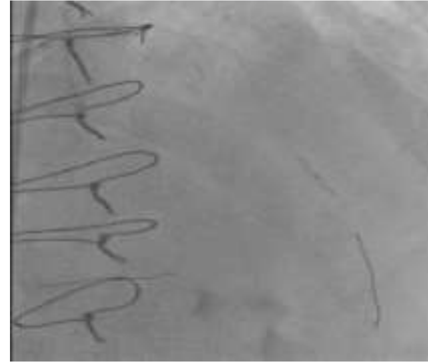
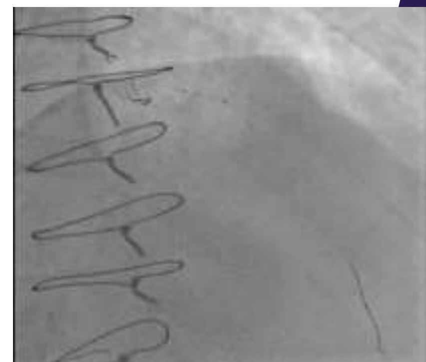
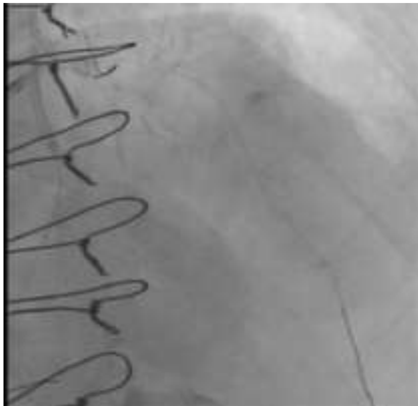
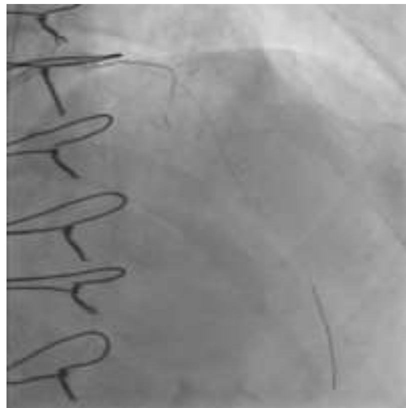
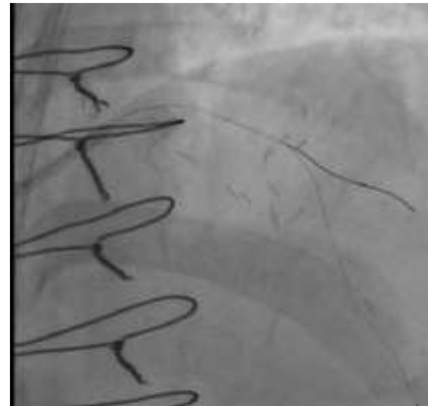
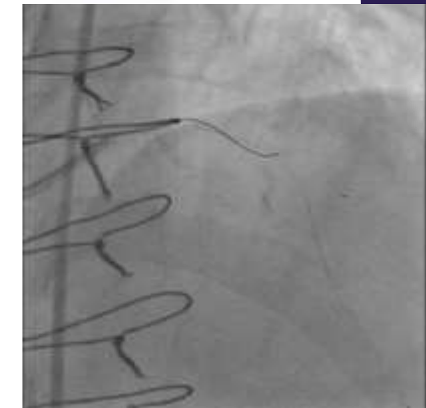
2ND HIT:

Bilateral injections were taken. We started off with a caravel microcatheter and Pilot 50 guidewire. We were able to reach the distal LAD. The Pilot 50 guidewire seemed to enter various branches and went extraplaque in distal LAD. We did parallel wiring with Pilot 150 guidewire.

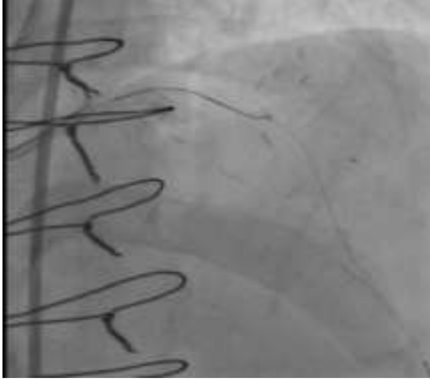
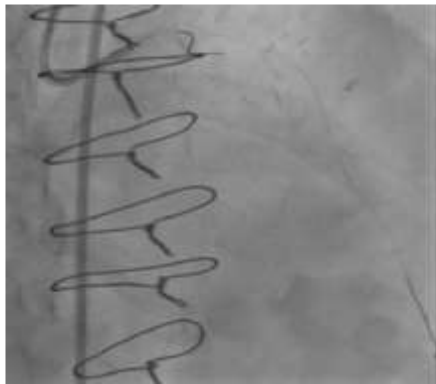
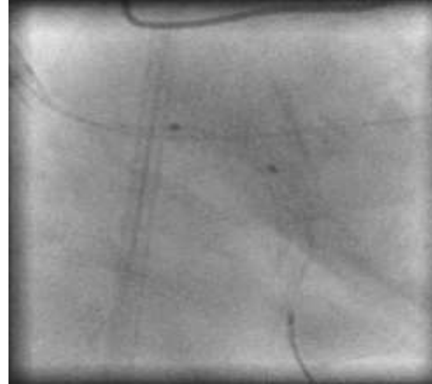
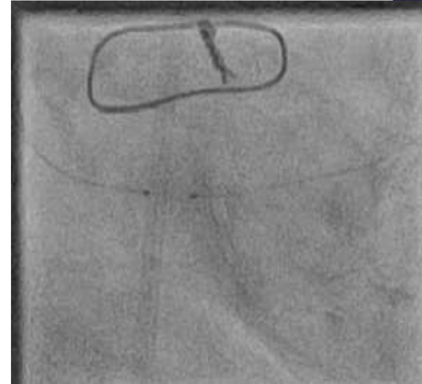
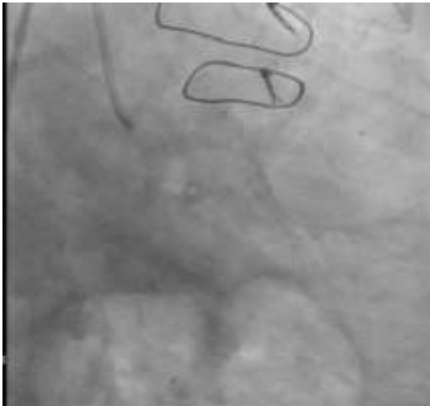
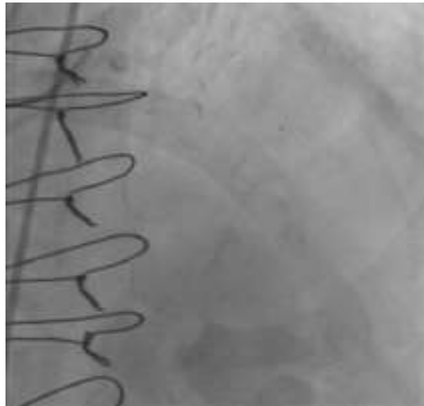
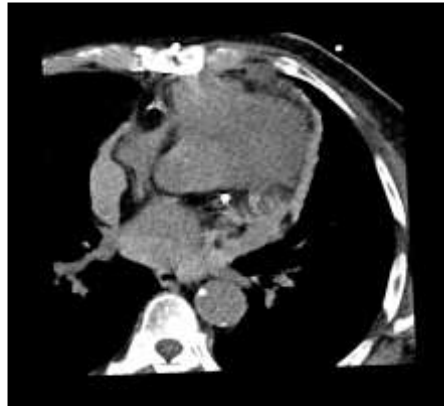
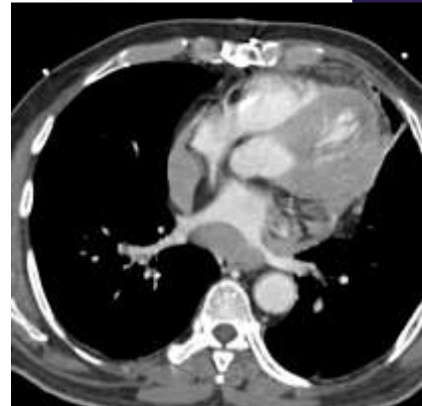
MLCTO ACADEMY
RESEARCH - EDUCATION

The Pilot 150 entered the distal true lumen as confirmed in two orthogonal views. We dilated the lesion with 1.5 mm and 2.5 mm NC balloons. The angiogram showed wire based perforation in diagonal branch and septal branch. Balloon tamponade was done with 2.5 mm NC balloon. We tried to negotiate a covered stent into mid LAD but failed. We tried to negotiate a DES into LAD but failed. We crossed into diagonal and pushed a small part of cut balloon over the guidewire to seal the perforation.

MLCTO ACADEMY
RESEARCH - EDUCATION

The angiogram showed persistent extravasation. Prolonged balloon tamponade was done which sealed the perforation imperfectly. The LCX stent was optimized with 4.5 mm and 3.5 mm balloon. Final angiographic result after prolonged balloon tamponade. Cardiac CT was done immediately. It showed a moderate collection behind the left atrium causing left atrial compression

Further clinical course

- Patient was monitored for pericardial effusion. Surgical call was sent and was advised conservative management.
- Echocardiogram was followed at regular intervals. There was no increase in size of the collection over the next 48 hours.
- Patient remained hemodynamically stable and was discharged on 5th post operative day.
- Patient is doing well on 10 months of follow up.

MLCTO ACADEMY
RESEARCH - EDUCATION

Take home messages

- Post CABG CTO PCI can be challenging.
- Abrupt vessel closure of non CTO vessel can be catastrophic.
- Delivery of Covered stents can be challenging through a previously placed stent.
- Dry Tamponade is a frequent occurrence in post CABG patients and requires constant monitoring and vigilance.