Retrograde long standing RCA CTO PCI

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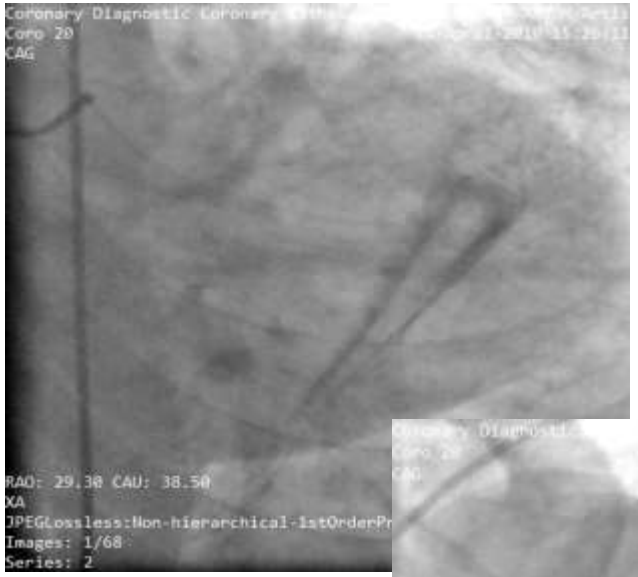
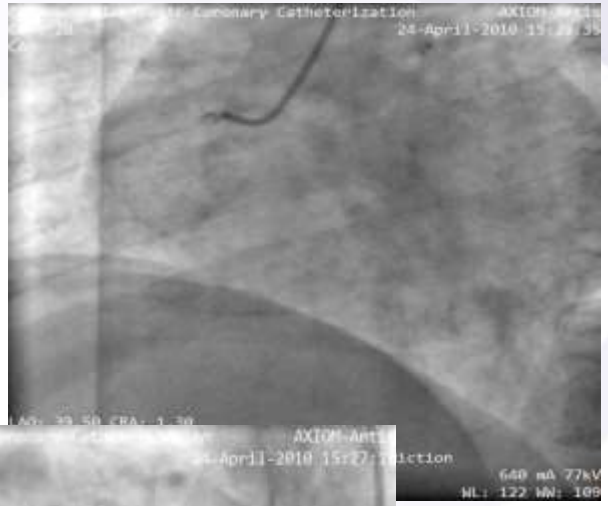
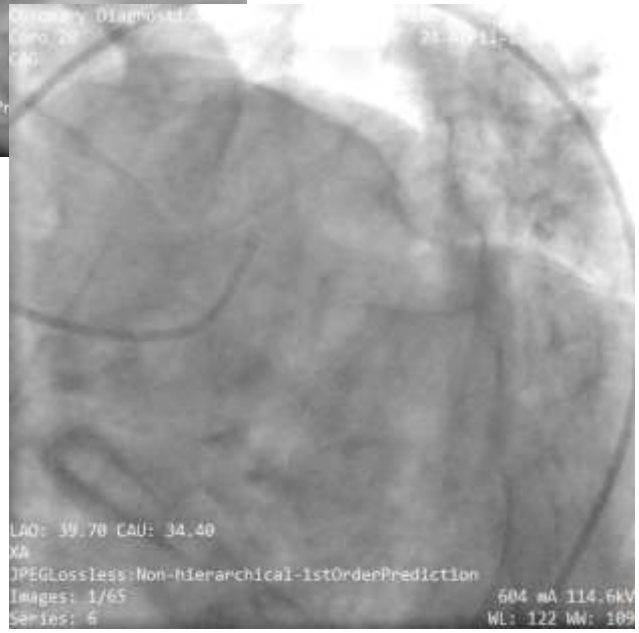
Clinical details

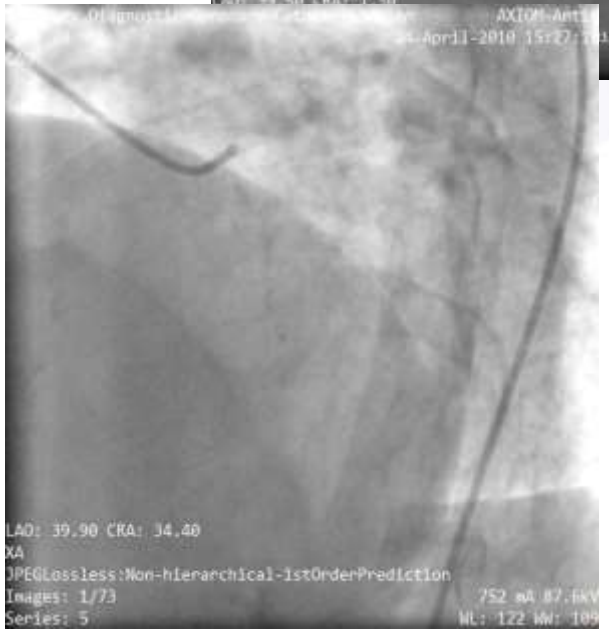
- 72 Year old male patient named Mr H S
- K/C/O Hypertension(10 years), Dyslipidemia(10 years)
- CAG done in 2010- Critical Stenosis of LAD, RCA CTO, Mild disease in LCX
- PCI to LAD done in 2010; Advised Medical Management for RCA CTO
- Patient had persistent angina since then; Increased frequency of angina(CCS class 3) for past 1-2 years; Has been on four antianginals for past 3 years
- Normal LV function

CAG in 2010 showing LAD proximal critical disease and RCA CTO with good collateral filling, LAD stented in 2010

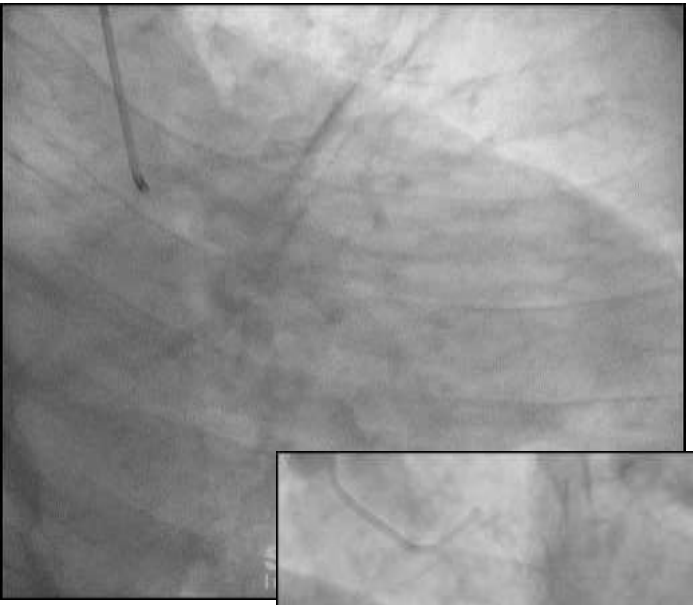


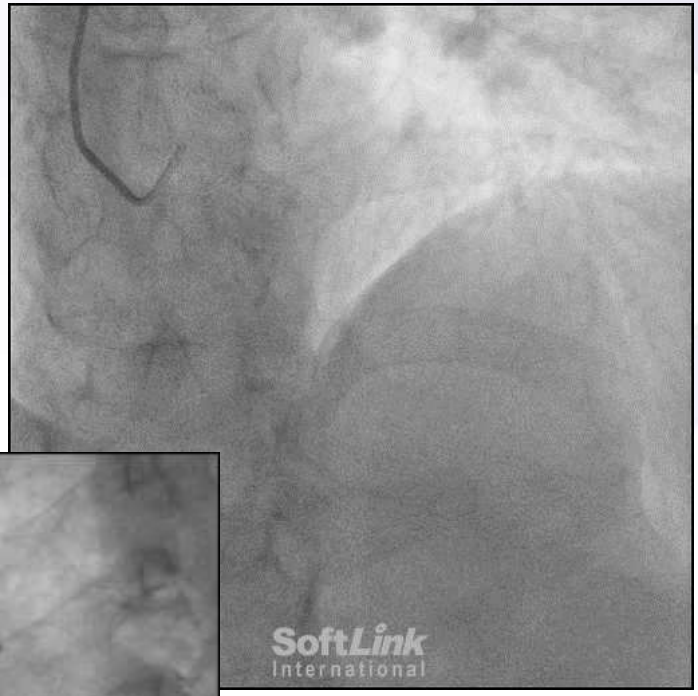


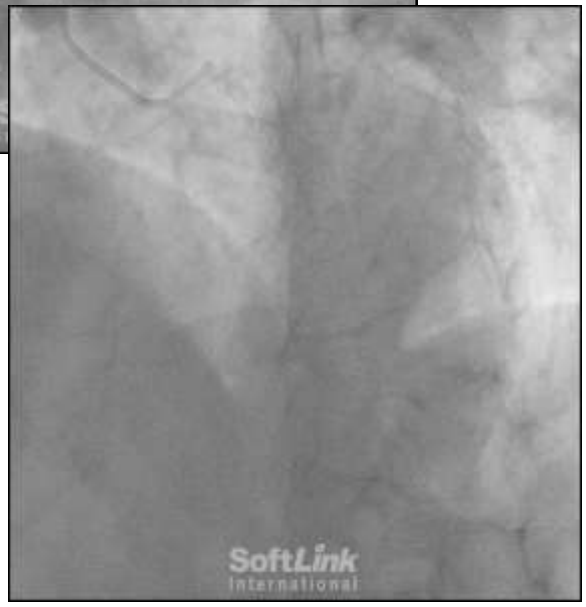


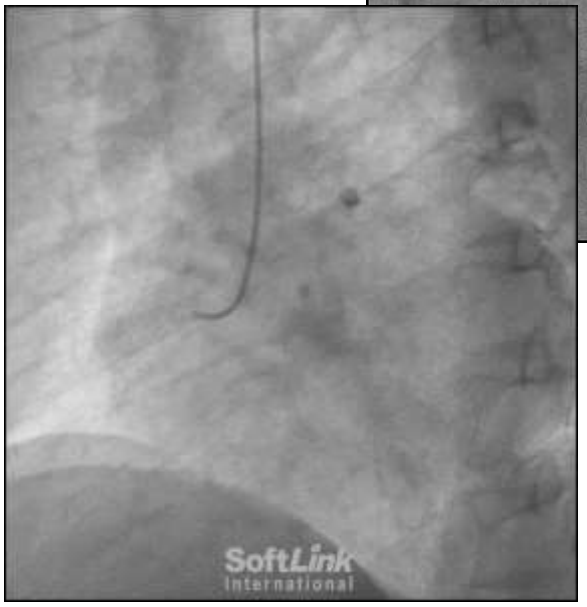


CAG in 2023: LAD stent patent with no ISR,
short segment LCX CTO, RCA long segment CTO, Reforming via collaterals, side branch at proximal cap, ambiguous cto segment course, diffuse disease in distal vessel, septal and epicardial collaterals from LAD





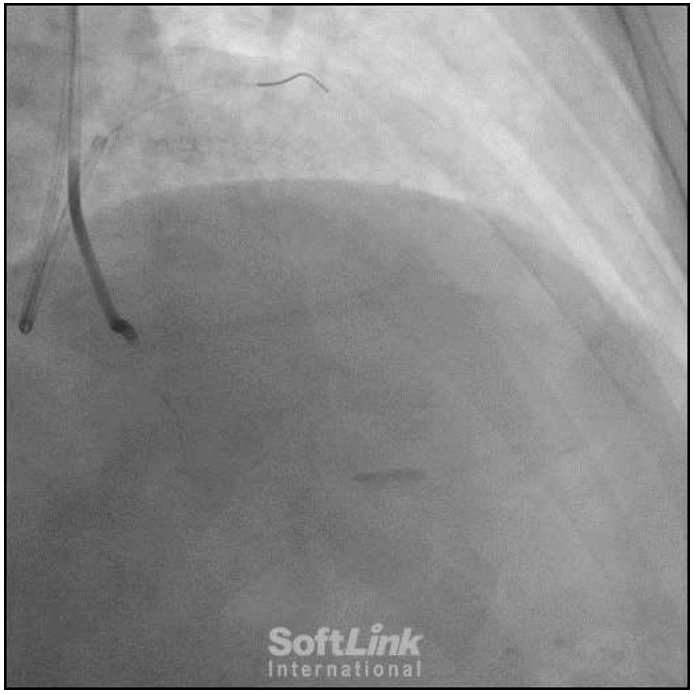


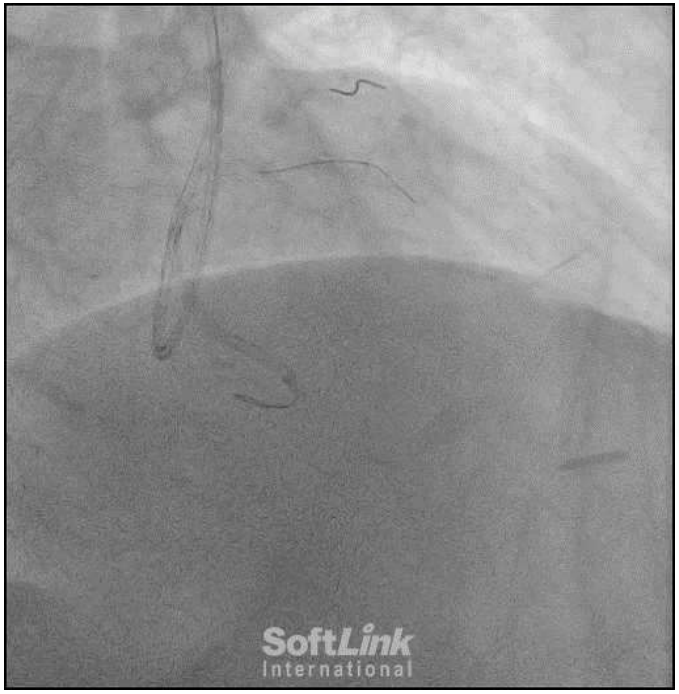


Procedure plan

- Target Vessel- RCA
- J CTO score : 1 or 2 (Long length, ? Tortuosity)
- Approach- Right Femoral 7F AL-1, Right Radial- 7F EBU(via slender sheath)
- Strategy:
  - Antegrade wire escalation
  - Retrograde (CC2 septal collaterals) wire escalation or Reverse CART

PTCA





Dual injections showing long segment CTO and septal and epicardial collateral channels, antegrade attempt revealed hard proximal cap, punctured with cross it 200 over finecross, wire repeatedly forayed outside the vessel architecture, switched to retrograde, septal entered with BMW wire

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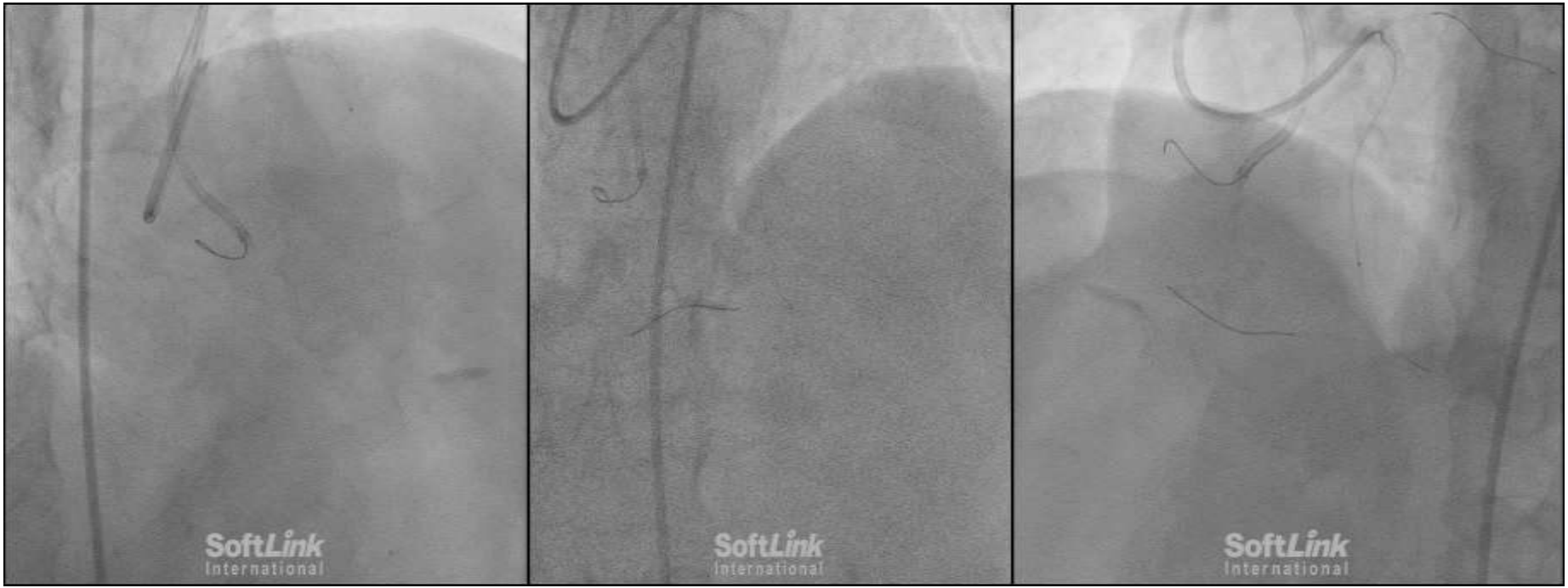
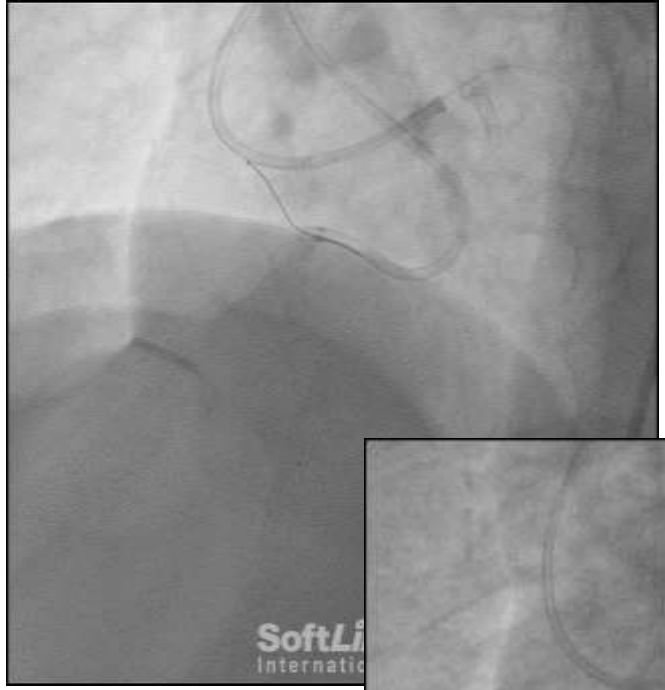
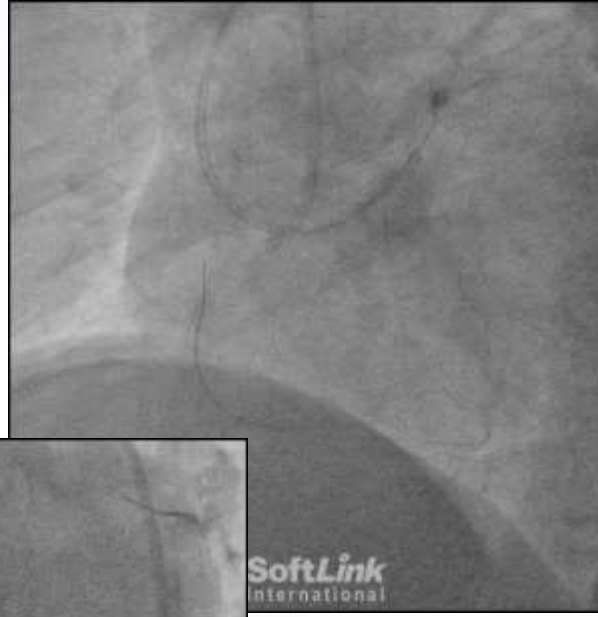
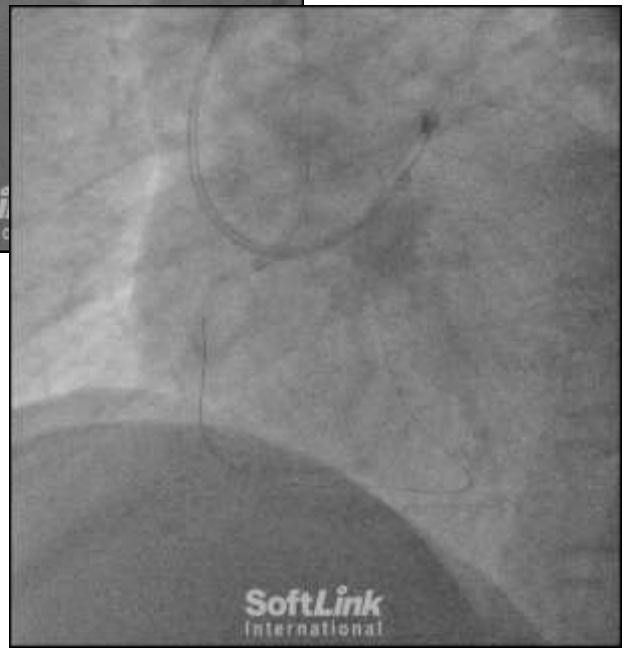


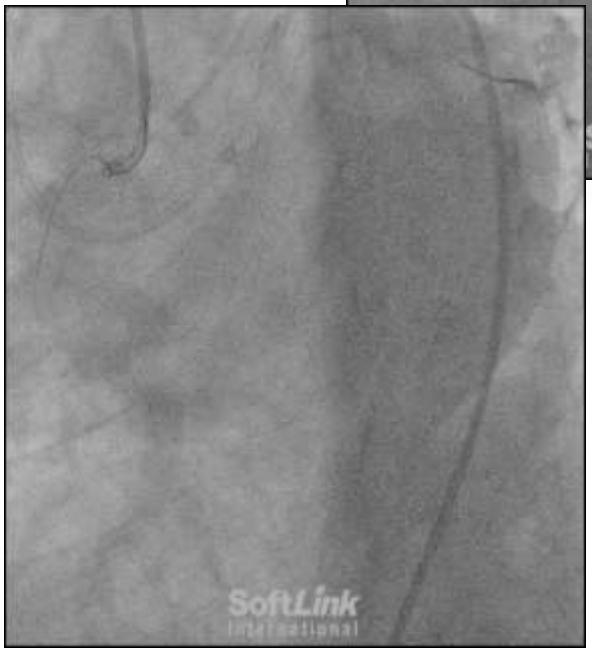
Selective septal injection showing connection, crossed with suoh 03 wire over finecross, position in distal RCA confirmed in two views

Selective microcatheter injection done to define distal cap, Direct retrograde crossing attempted with pilot 200 wire, repeated attempts unsuccessful with wire going subintimal and out of vessel architecture









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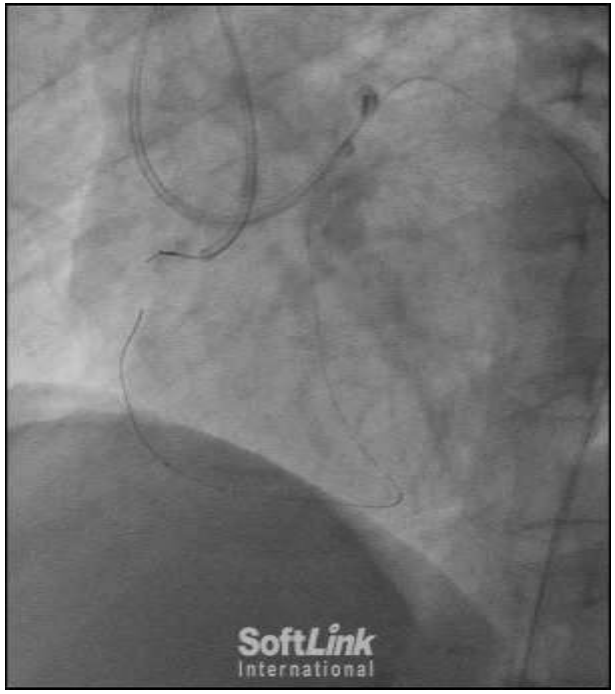

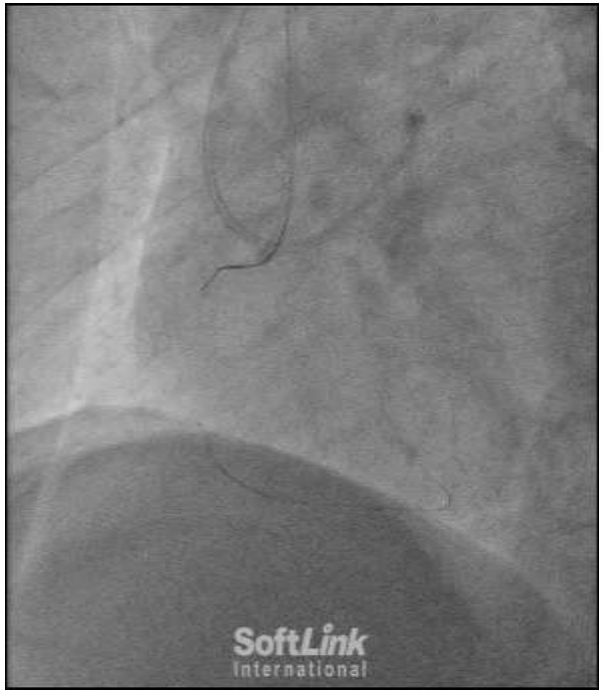

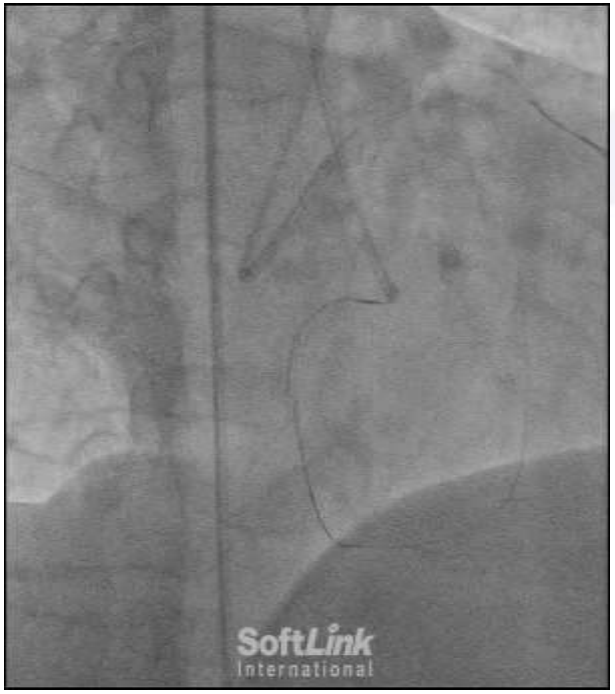

Antegrade preparation done with cap puncture with cross it 200 followed by wire redirection with pilot 200, antegrade wire crossing attempted with retrograde wire as marker wire, unsuccessful

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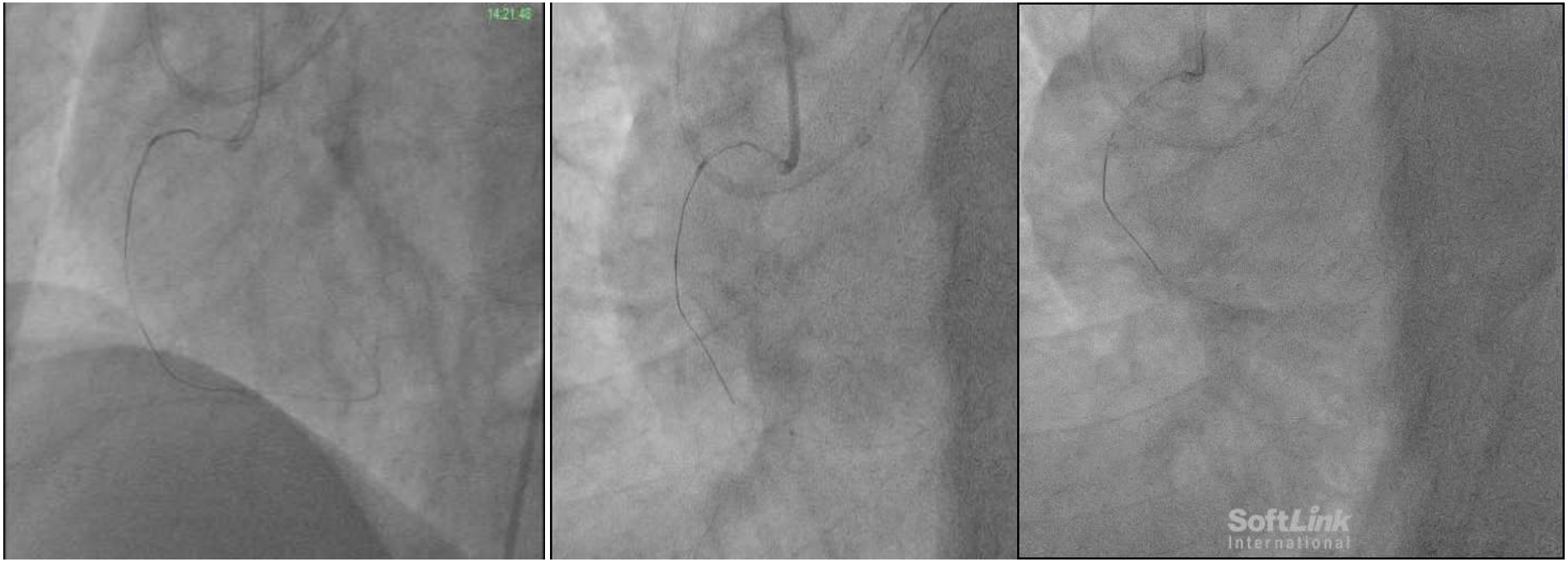

Retrograde crossing reattempted with pilot 200, successful this time, wire entered into antegrade guide

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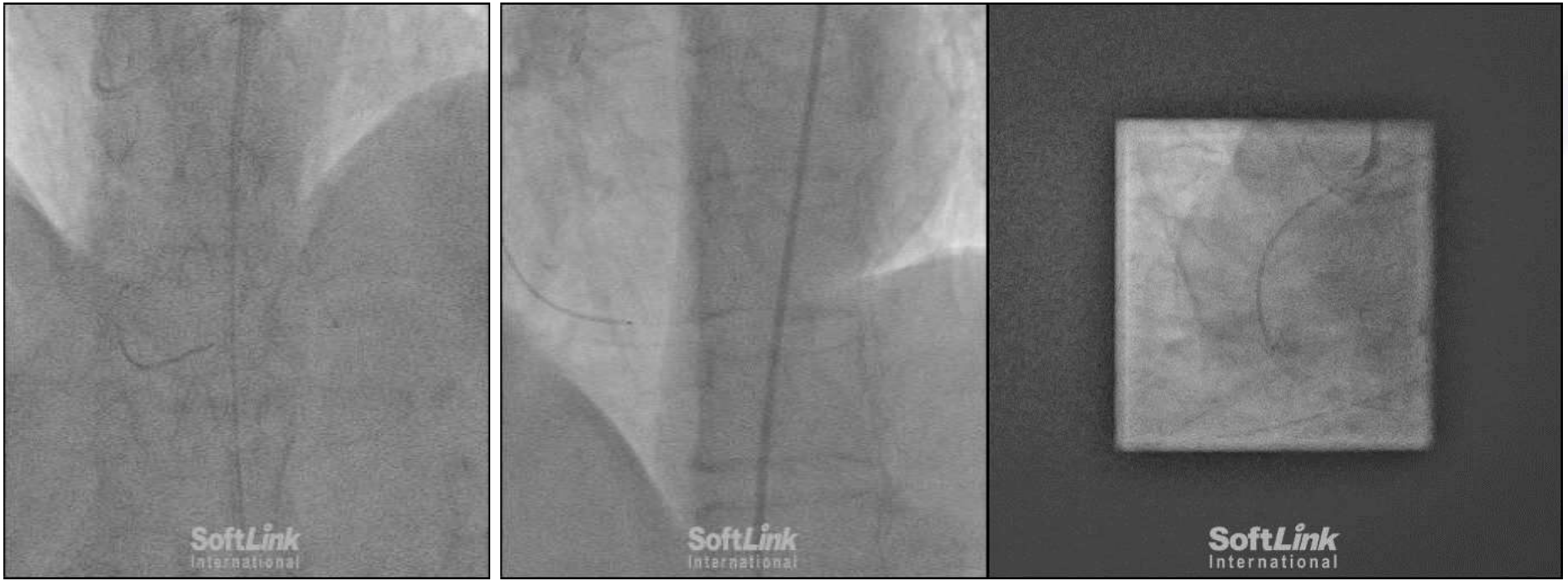
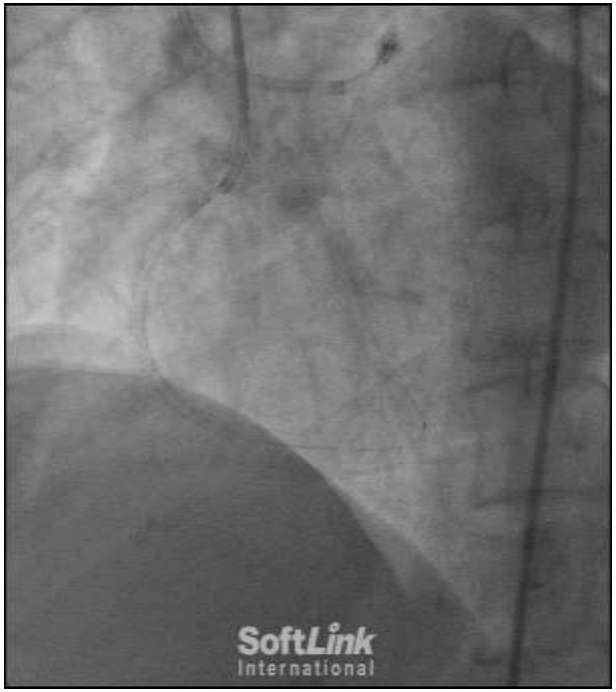
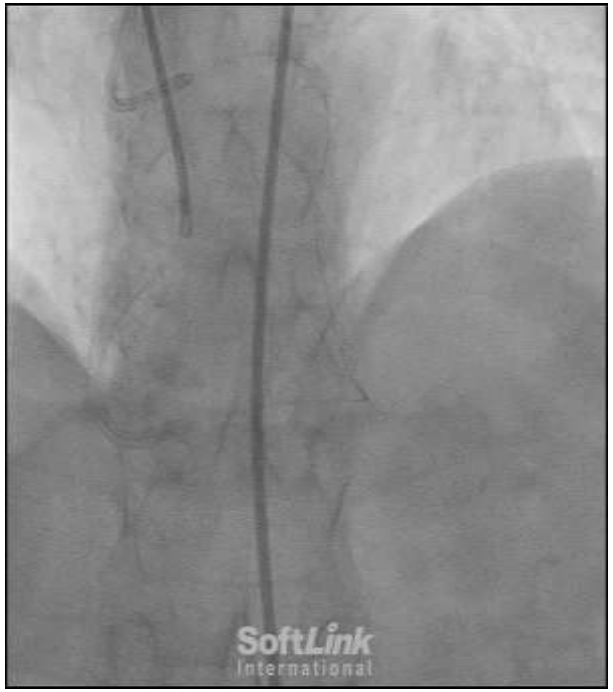
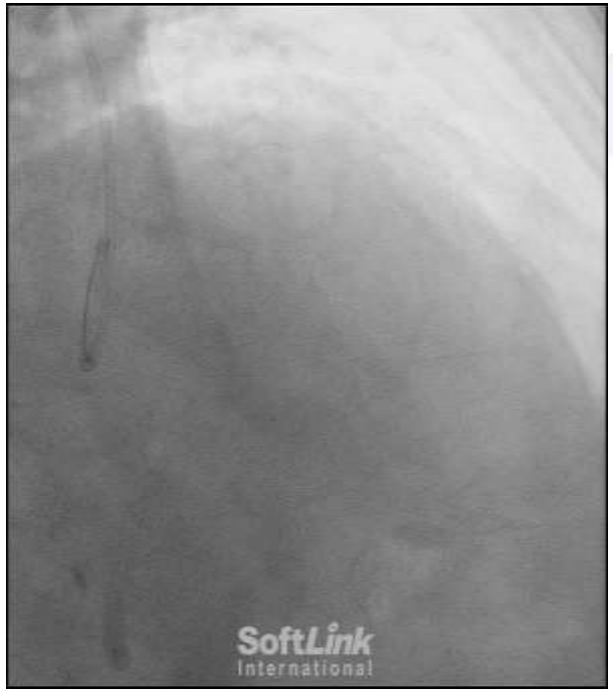


RG 3 wire externalised, vessel preparation and IVUS done, 2.75 and 3*38 stents implanted and optimized with 3 and 3.5 mm nc ballons

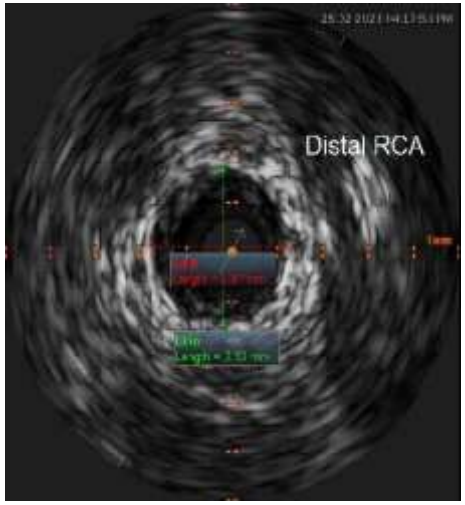
Final result

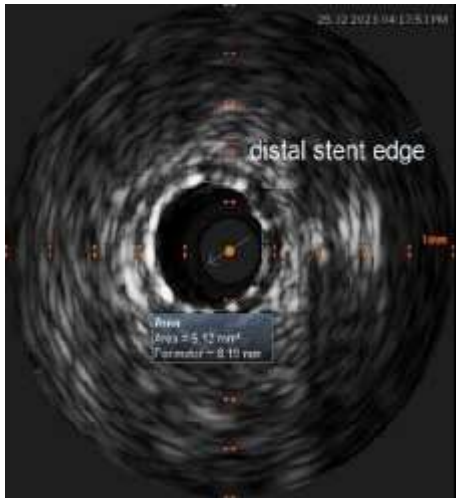


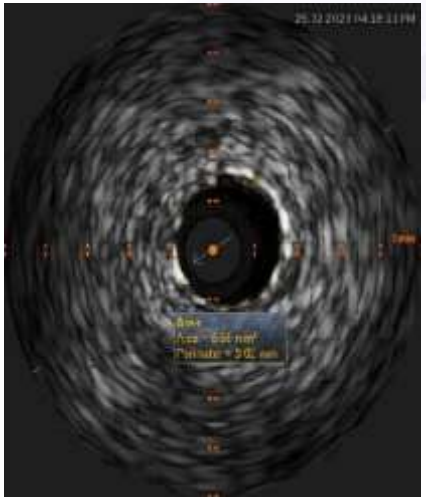


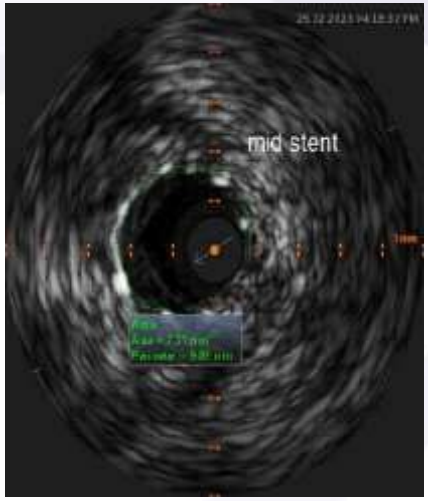


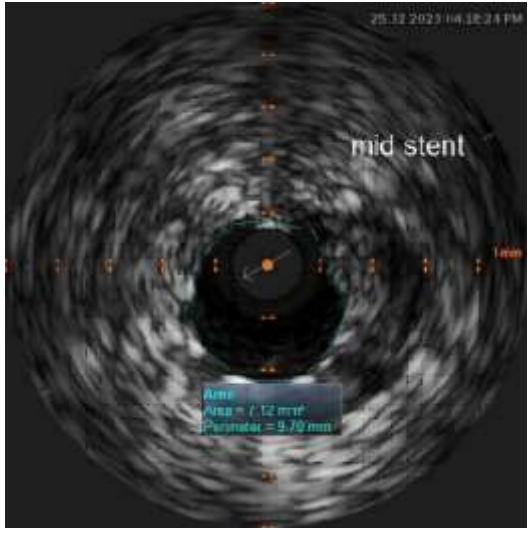
Final angiograms showing well expanded stents with timi 3 flow, left injection showing intact septals with no complications



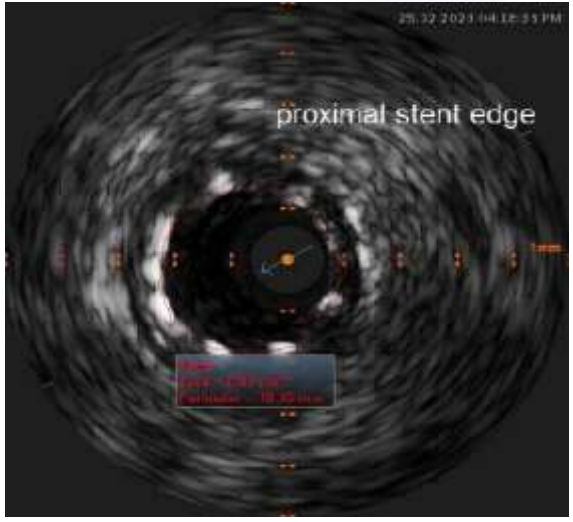








IVUS images showing good landing zones with no edge dissections and well expanded stents



Conclusion and take home message

- Procedure time : 2hours, contrast volume: 200 ml, Radiation: 3 gray
- Post procedure course uneventful, doing well at one month follow up
- The hybrid approach in CTO PCI increases the likelihood of success
- Retrograde CTO PCI requires meticulous planning and execution
- Proper knowledge of CTO hardware is needed for troubleshooting at every step
- Imaging helps in improving long term outcomes in CTO PCI

THANK YOU