

There`s no shortcut to success

Introduction

Coronary bifurcation lesions are common and account for up to one fifth of percutaneous coronary interventions.

Bifurcation stenting is still considered a complex procedure and associated with a high risk of stent thrombosis and re-stenosis even in the era of drug-eluting stent (DES).

History

- 55 year old male patient presented to us with extensive anterior ST segment myocardial infarction (STEMI) complicated with cardiogenic shock
- Ex-smoker
- History of percutaneous coronary intervention (PCI) left anterior descending artery (LAD) and diagonal since 1 month in another center (elective basis)
- Patient was compliant on Clopidogrel
- We decided to revise his previous angiogram and PCI before proceeding to primary PCI

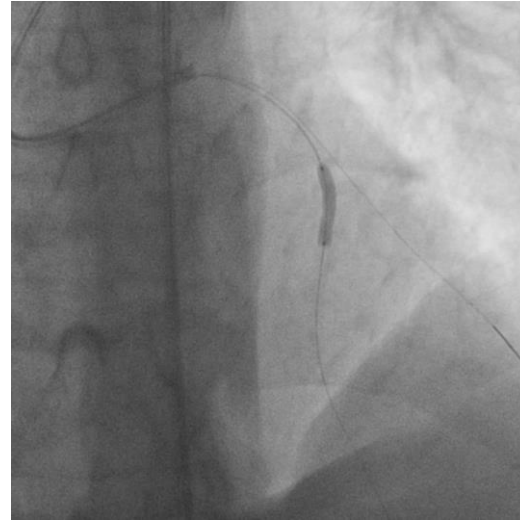
Coronary angiography and PCI 1 month ago



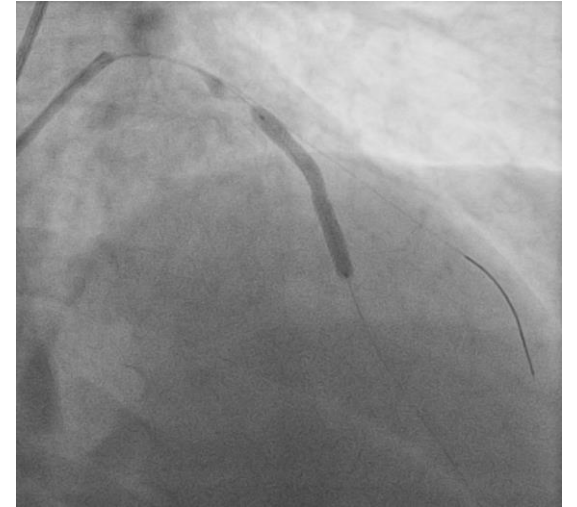
Chronic total occlusion LAD distal to a large diagonal branch



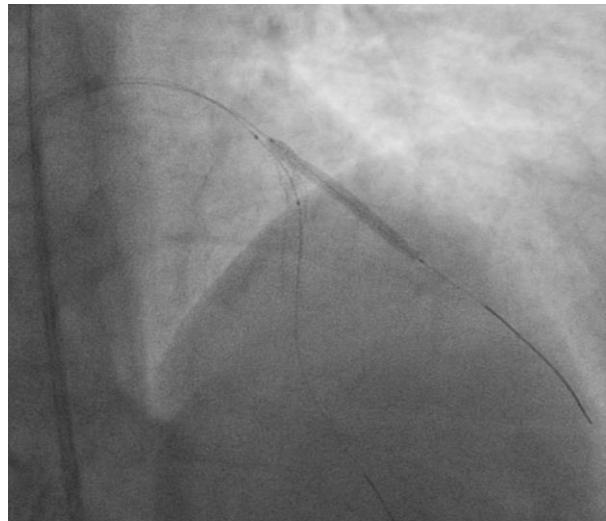
Fielder XT crossed the LAD lesion. Another BMW wire was secured to the distal diagonal



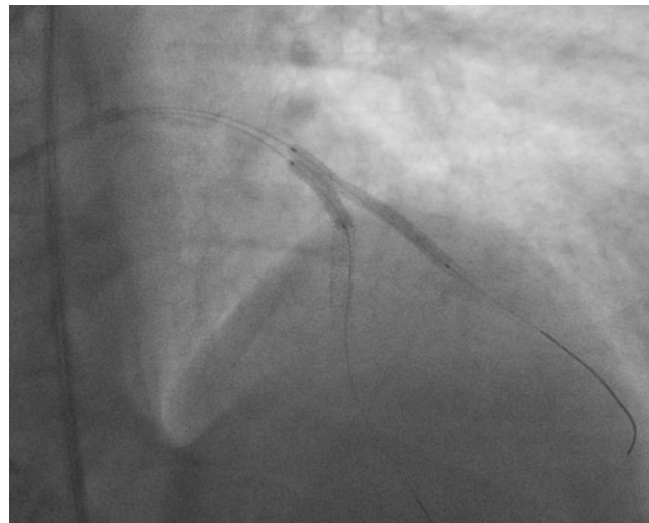
Balloon dilatation using semi-compliant balloon 2.5x15mm



Provisional LAD stenting using DES 3.5x38mm



Wire recrossing to the diagonal branch. Stenting the diagonal branch with minimal protrusion

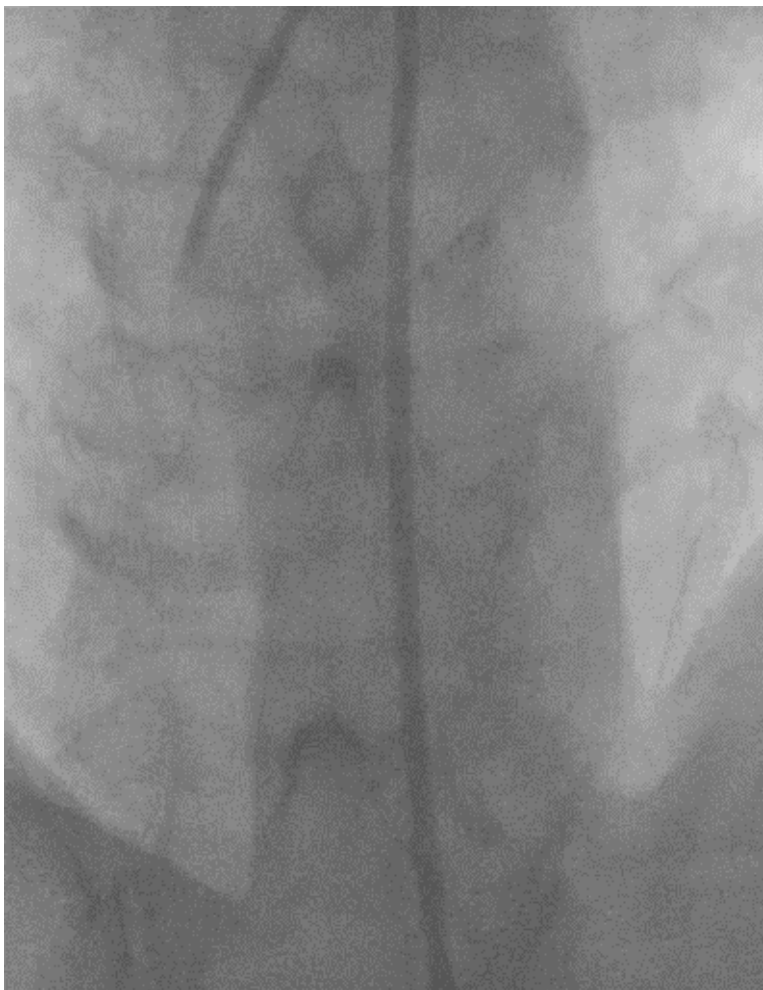


Kissing balloon dilatation using the balloon of the diagonal stent and non-compliant balloon

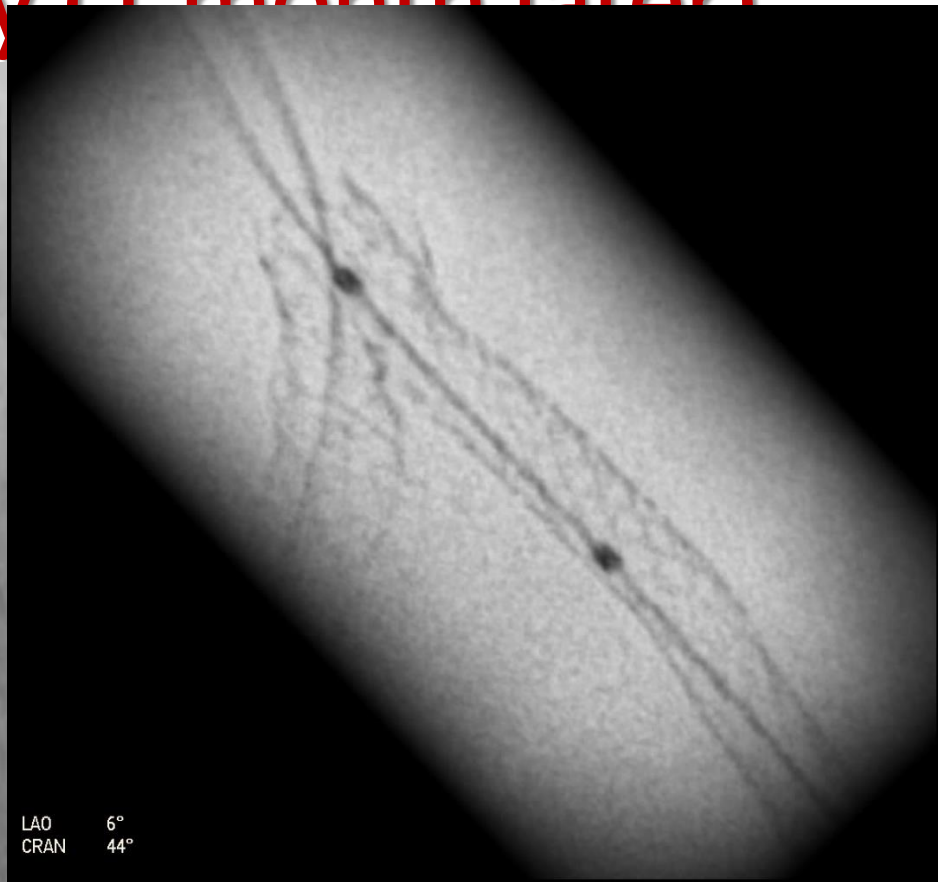


TIMI III flow in both the LAD and diagonal branch

Current coronary angiography (1 month later)



In-stent thrombosis of both stents

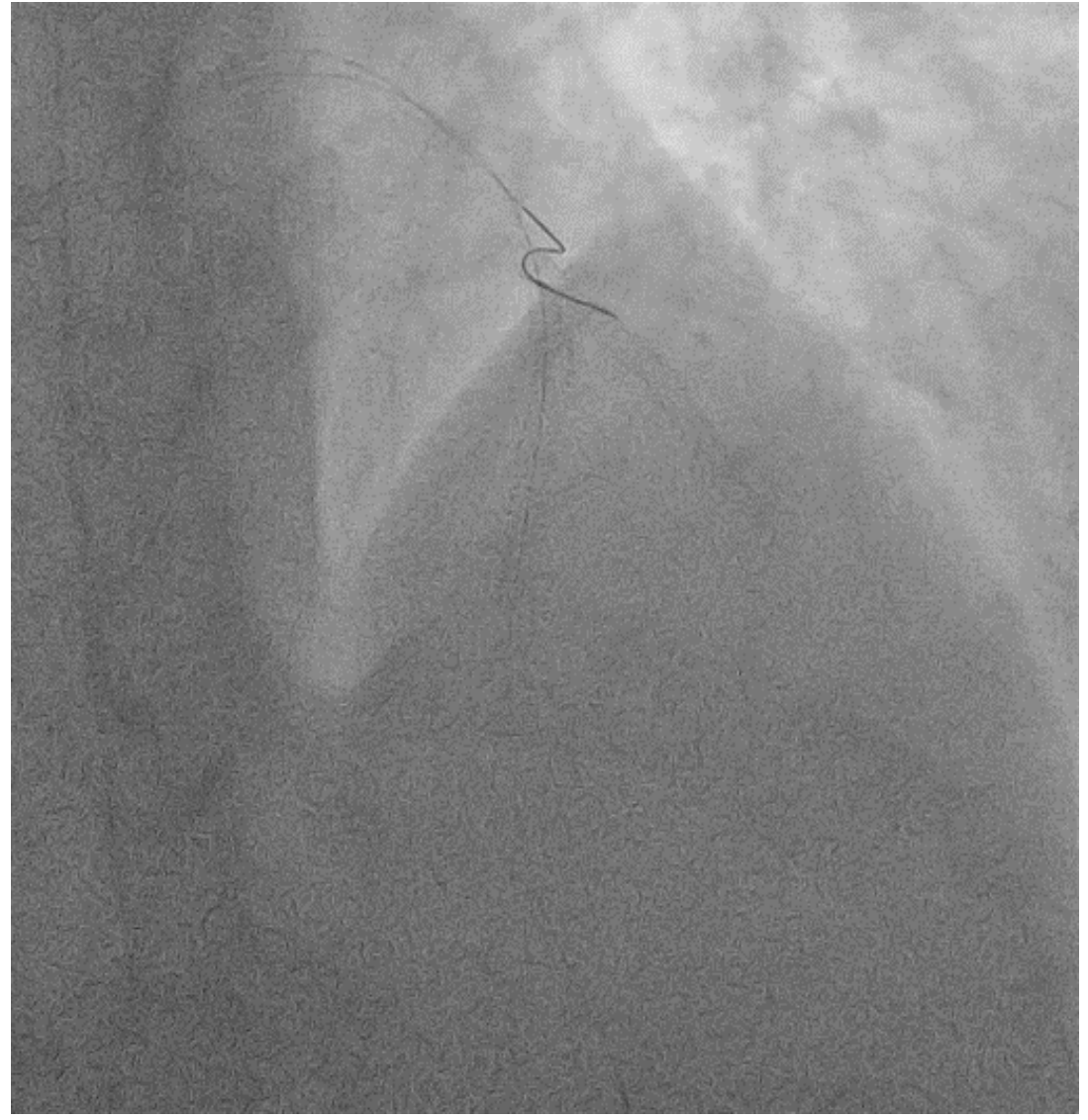
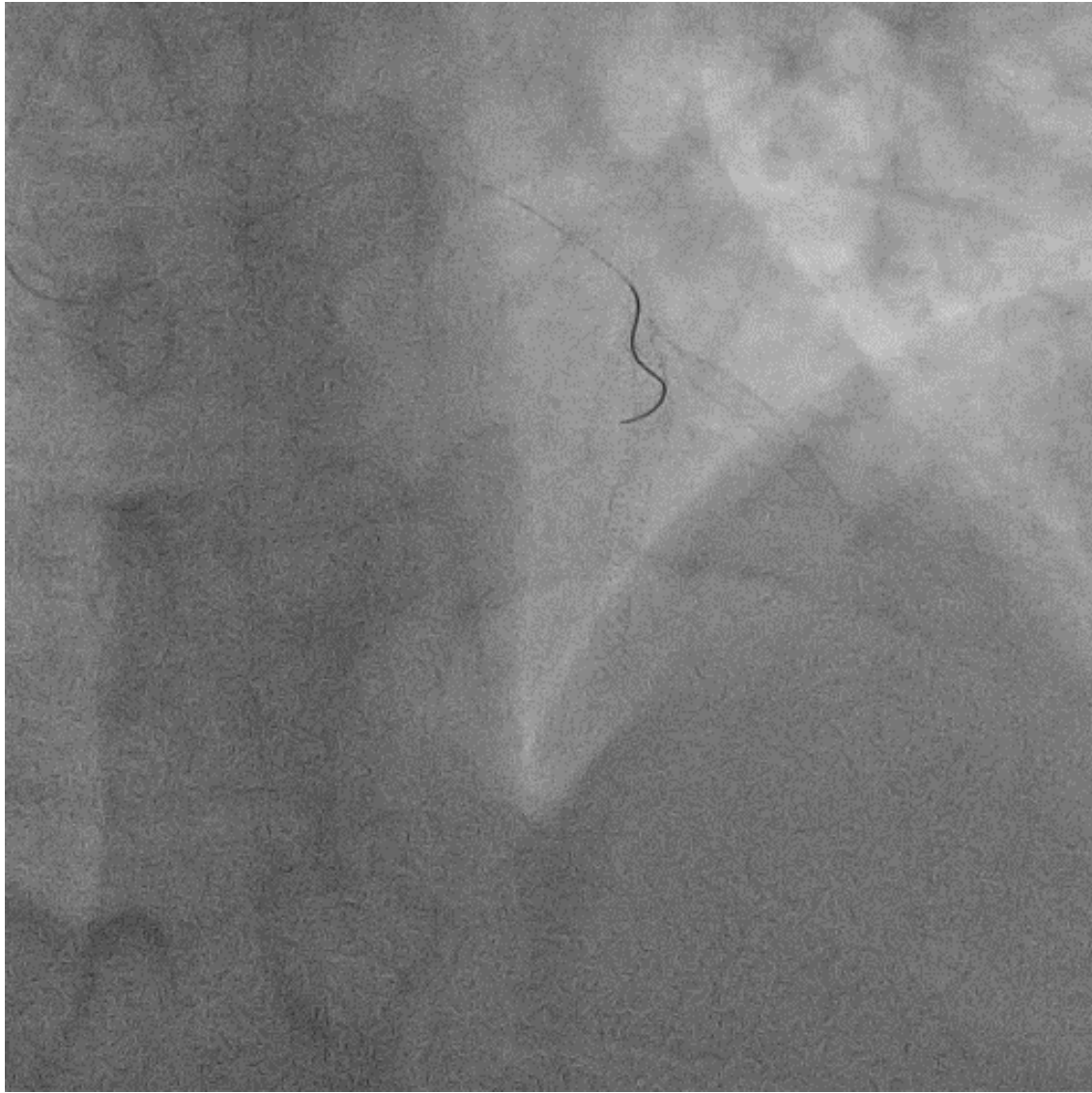


Totally occluded LAD and diagonal branch with extensive in-stent thrombosis

Management plan

- Patient was loaded with 180mg ticagrelor.
- IV noradrenaline infusion was started
- Convert the previously performed T and small protrusion (TAP) technique into Culotte technique.

Primary PCI (7Fr femoral access and XB 3.5)



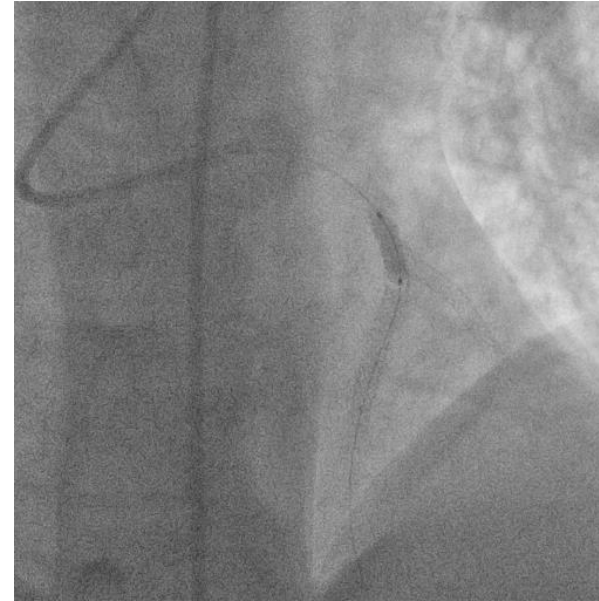
Primary PCI (7Fr femoral access and XB 3.5)



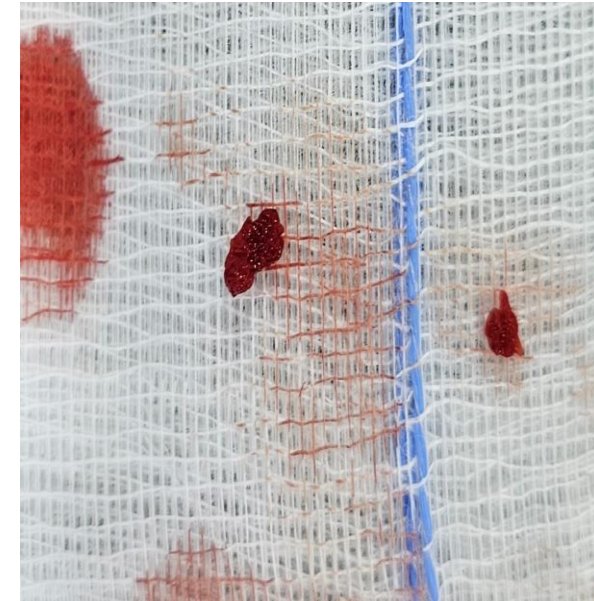
The first PT2-LS wire was crossed from the diagonal stent to the LAD stent with great difficulty followed by balloon dilatation using 1.25x15mm semi-compliant balloon. Another PT2-LS wire was crossed to the distal diagonal branch after several manipulations followed by balloon dilatation using 1.25x15mm semi-compliant balloon.



Kissing balloon dilatation using 3.5x15mm and 3.0x15mm non-compliant balloons after performing proper balloon dilatations in both stents.



Proper balloon dilatation using non-compliant balloon



While removing the non-compliant balloon a fresh red thrombus was extracted with it

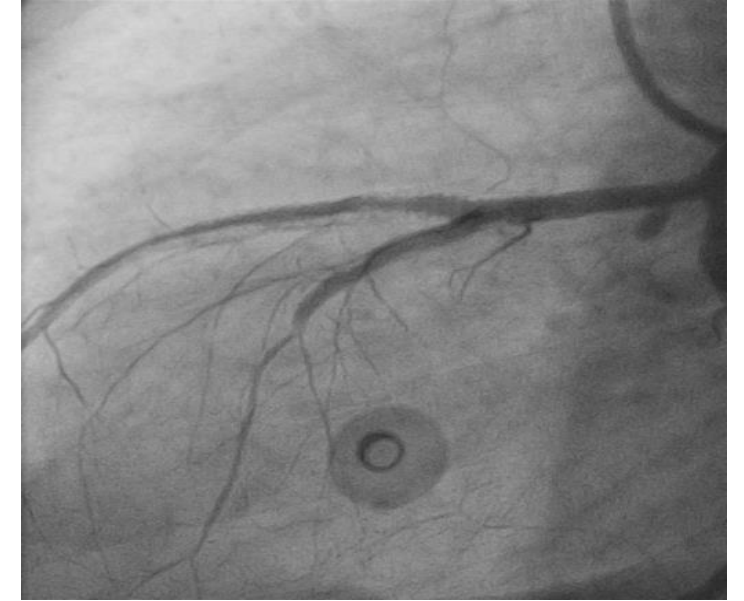
Primary PCI (cont.)



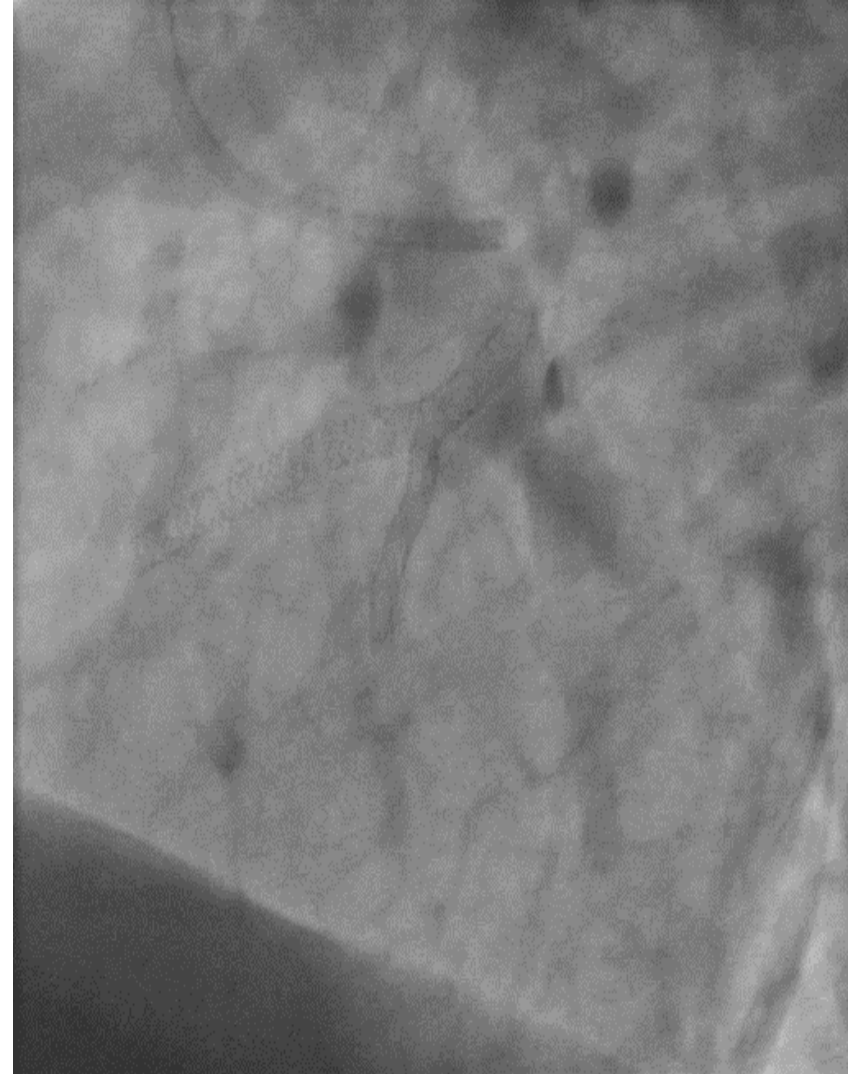
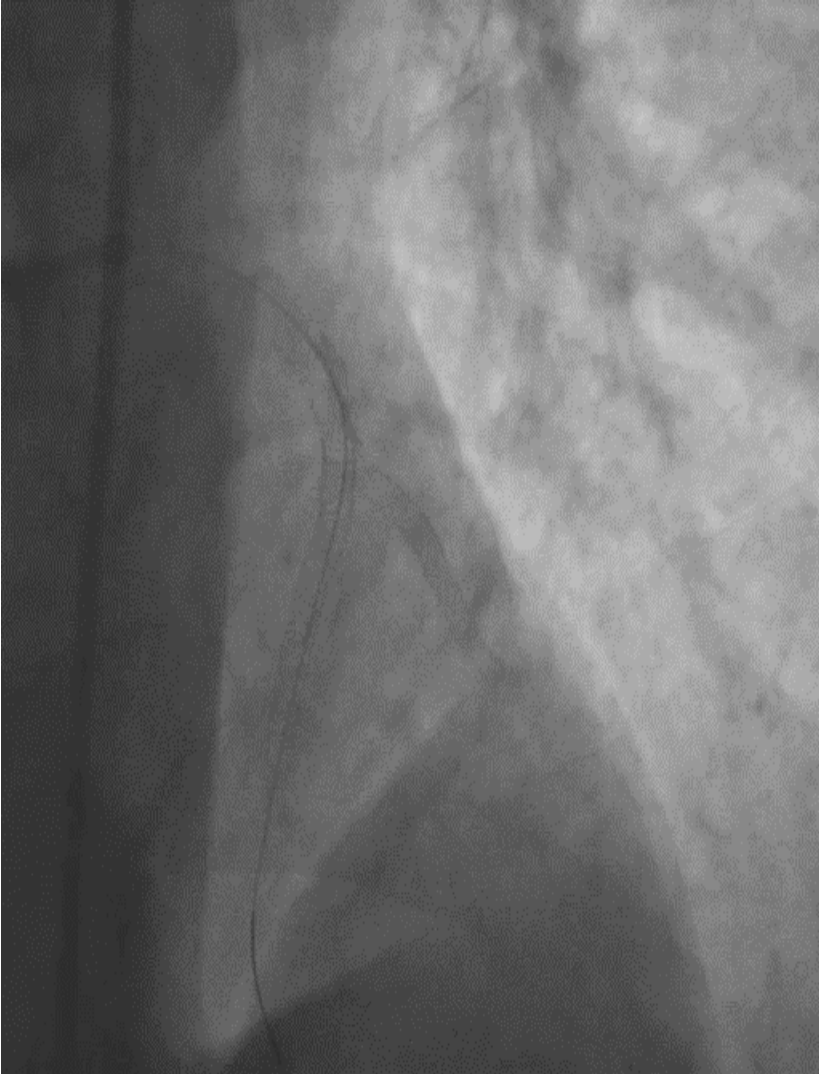
Stenting of the proximal LAD using 3.5x16mm DES followed by post stent balloon dilatation using non-compliant balloon



Distal flow was restored in both the LAD and diagonal branch with TIMI II-III flow with multiple small intracoronary thrombi



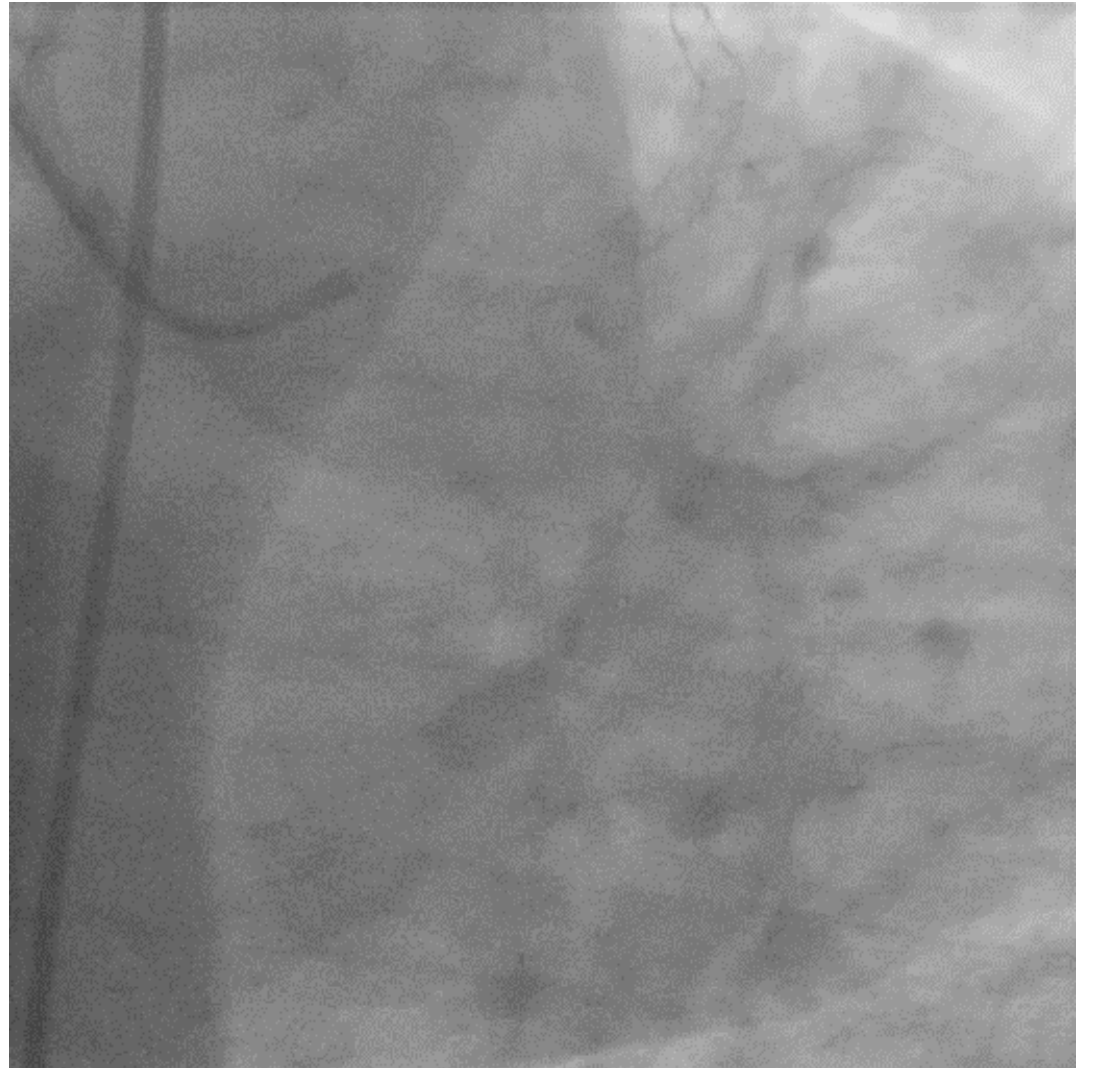
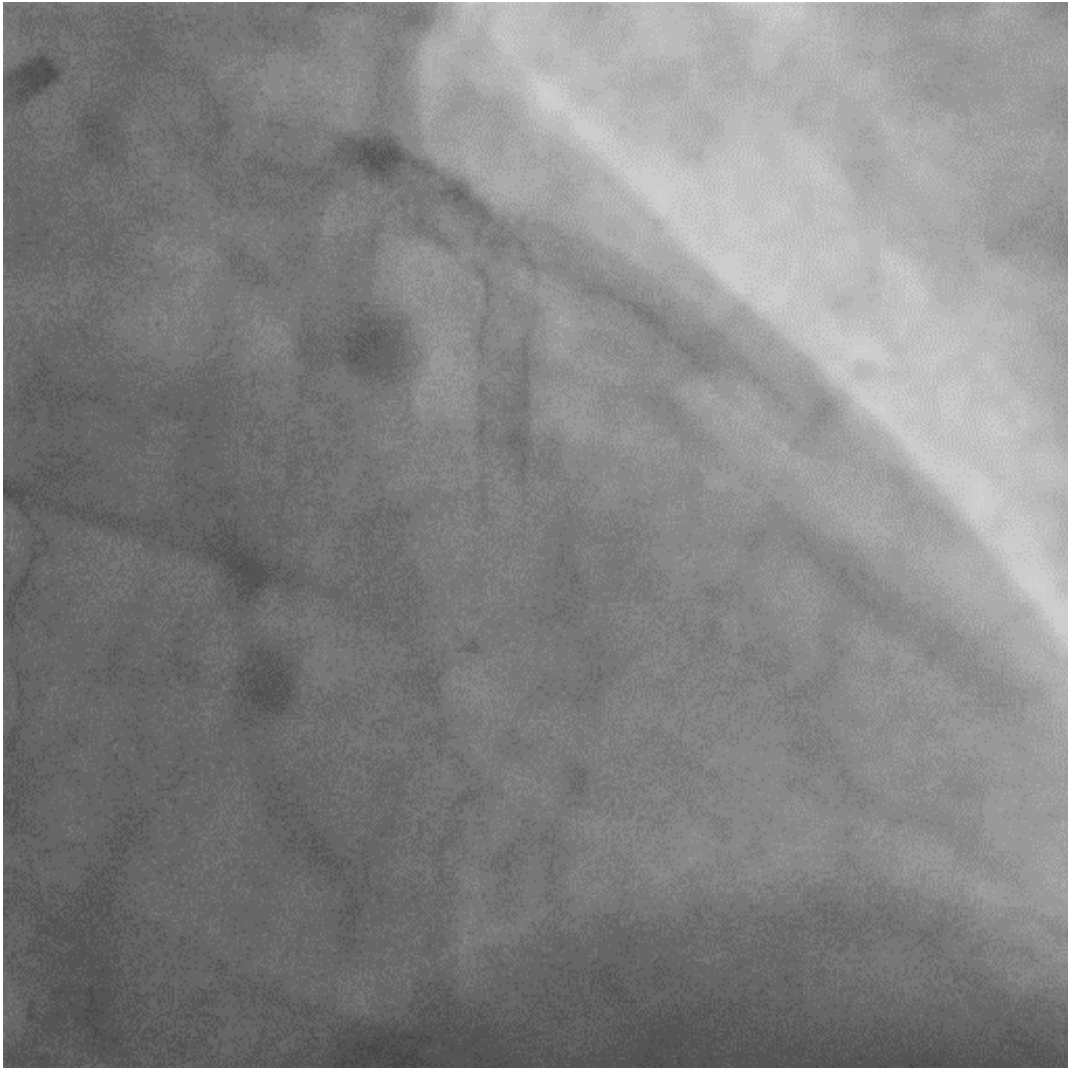
Primary PCI (7Fr femoral access and XB 3.5)



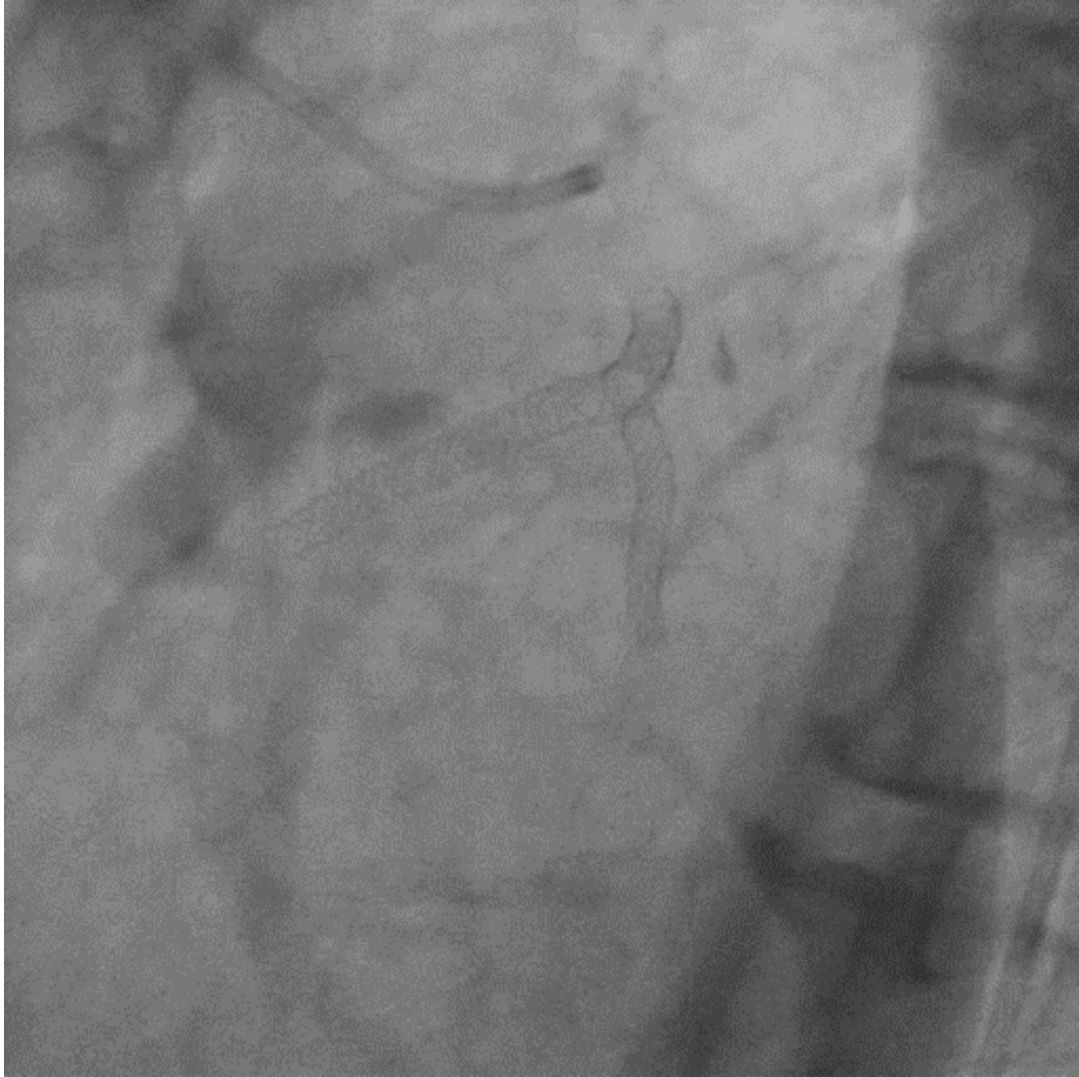
Management plan

- Patient was transferred back to the ICU.
- Tirofiban and heparin infusion were started and continued for 48 hours.
- Gradual weaning of the norepinephrine infusion.
- After 4 days, patient was completely stable with-out any vasopressors.
- Patient was discharged on ticagrelor, aspirin and enoxaparin (40mg once daily) in addition to the rest of anti-ischemic and anti-failure measures.
- Planned for control angiography after 1 week.

Control angiography (after 1 week)



Control angiography (after 1 week)



Take home message

- In stent thrombosis is one of the fatal complications of PCI.
- Various factors have been incriminated in the etiology of in-stent thrombosis.
- Although TAP technique is a valuable technique for both “bail-out” side-branch stenting during the provisional approach and for PCI in bifurcating lesions with an initial double stenting plan, however, it should not be implemented in every coronary bifurcating lesions.
- Always know how to troubleshoot, when complications happen.

