

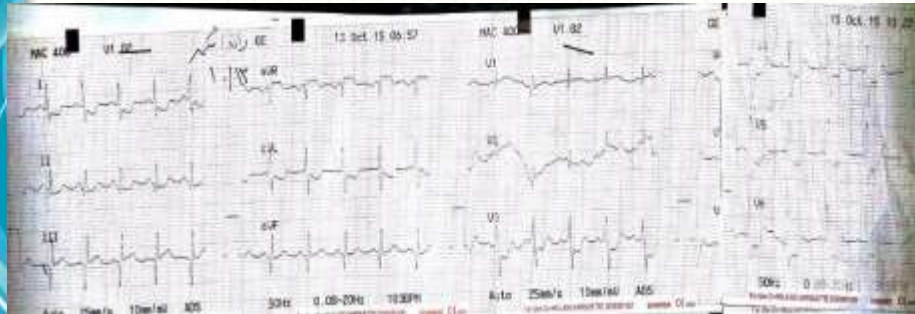
IVUS GUIDED LM INTERVENTION

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Airforce hospital

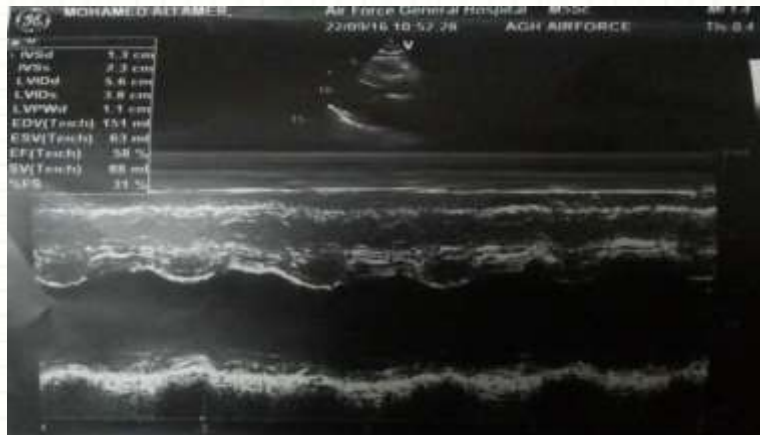
History

- A male patient aged 61 years old
- Heavy Smoker for 40 years.
- Past history of old inferior MI 5 years ago. Managed by medical treatment with no history of coronary angiography. Since then he didn't experience cardiac events.
- Past history of COPD with frequent attacks of asthmatic bronchitis.
- Past history of hematuria.

- Presented to our CCU with severe agonizing chest pain, sweating, dyspnea and orthopnea of 12 hours duration.
- Pulse: 110/min SR
- BP: 90/50
- Ht: MR, S3
- Chest: generalized expiratory rhonchi with basal rales.
- JVP: Elevated.
- No L.L oedema.
- Peripheral pulsations felt all over.
- Troponine: +ve
- Hb: 9
- Urea: 80
- Creatinine: 2.2
- RBS: 160

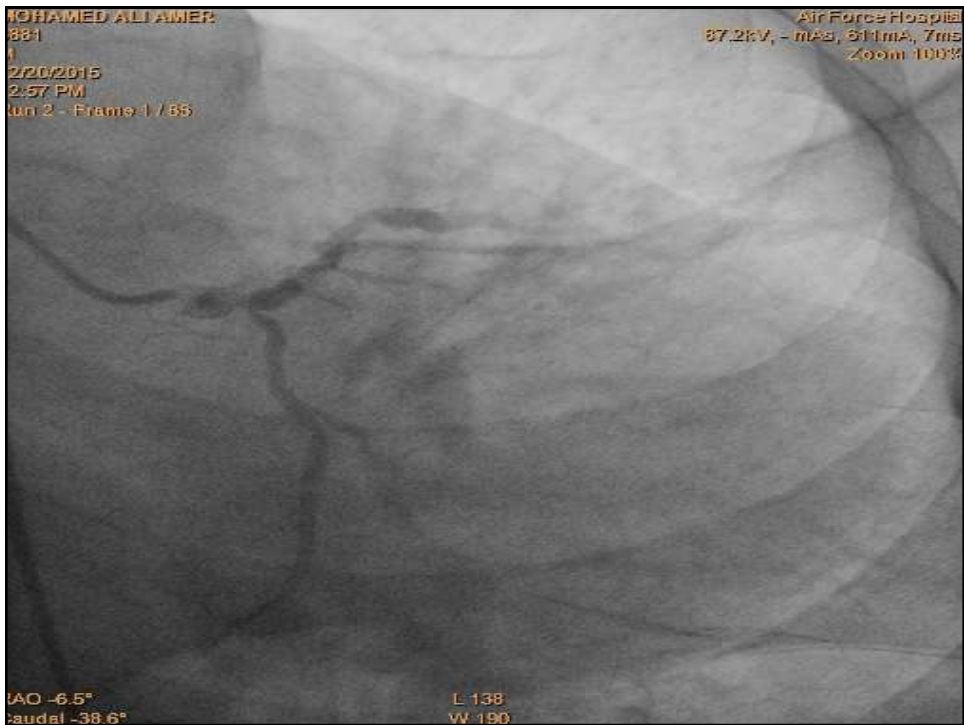
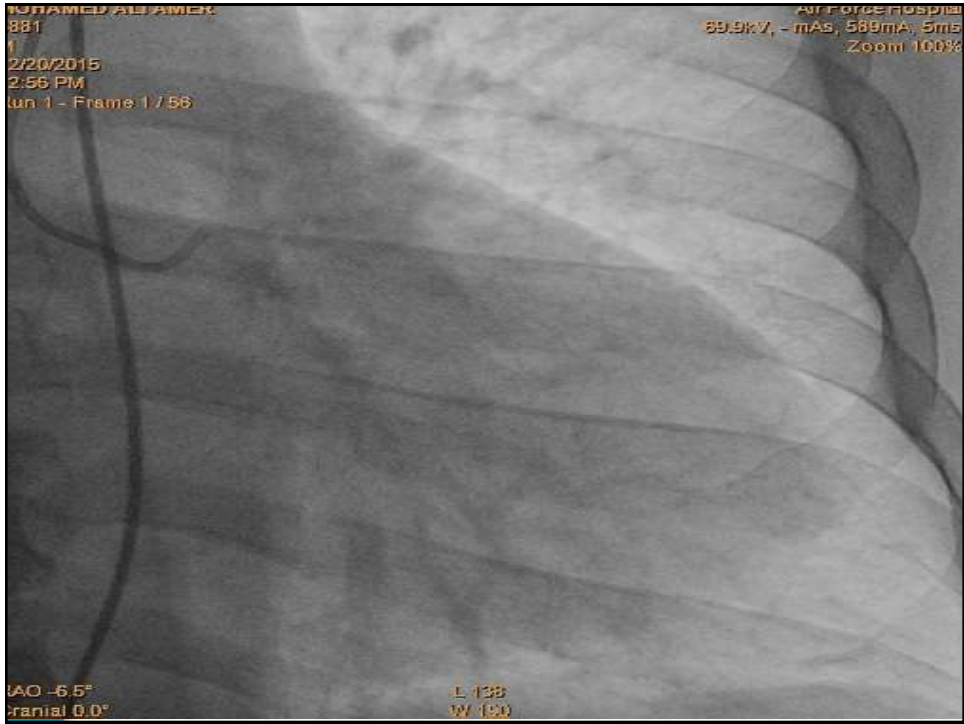


ECG: path Q wave in inferior leads, depressed S-T in Ant-lateral chest leads.

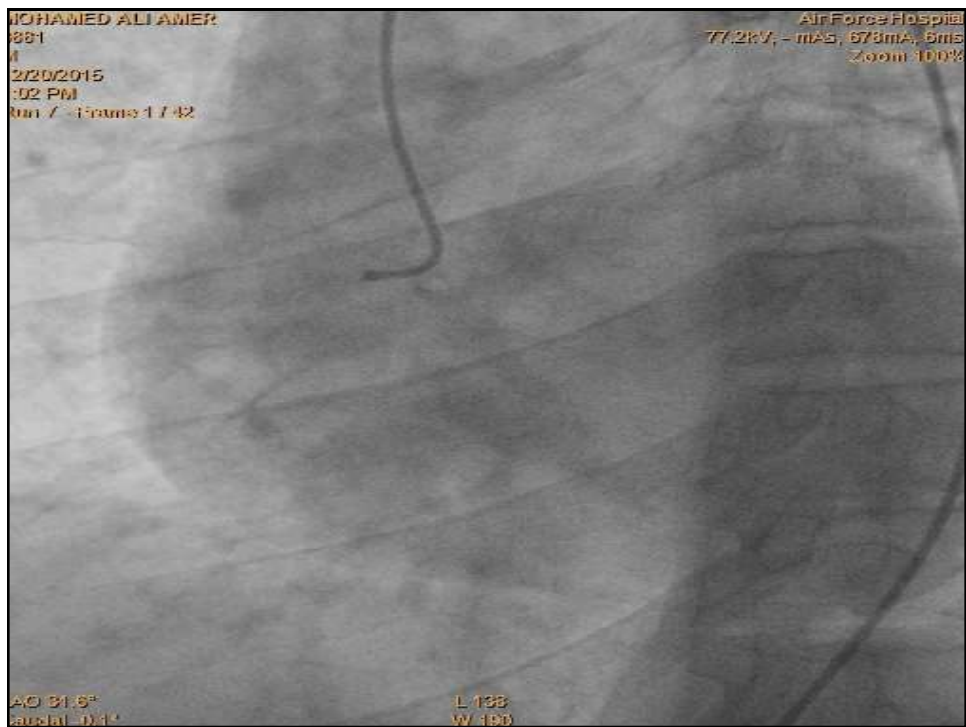
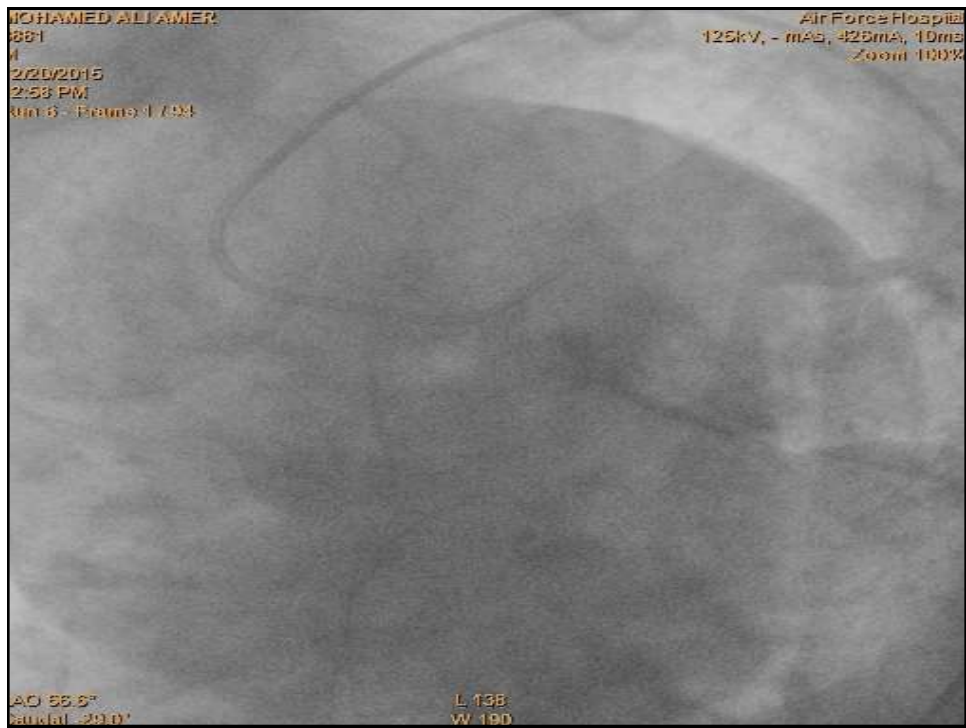


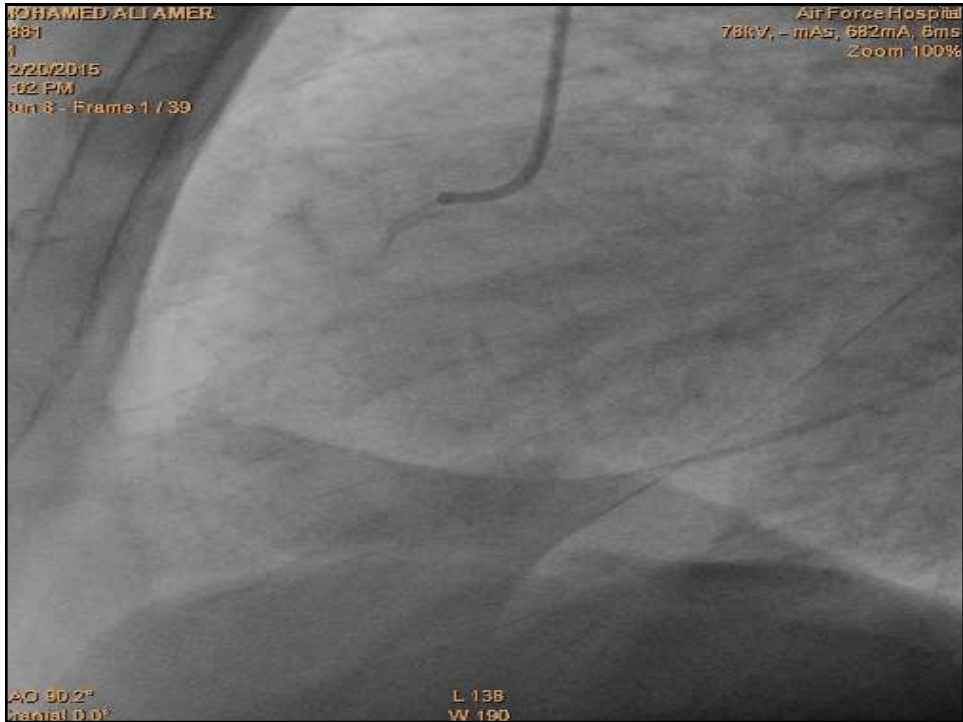
Echo: inferior hypokinesia, mid and apical posterior wall hypkinesia, EF: 50% , Moderate MR

- He received thrombolytic therapy with minimal improvement in his general condition, moderate improvement in chest pain, but he developed frank hematuria. His Hb was 7.5, he received 2 packs of packed RBCs.
- 24 hours later, we decided to perform coronary angiography.



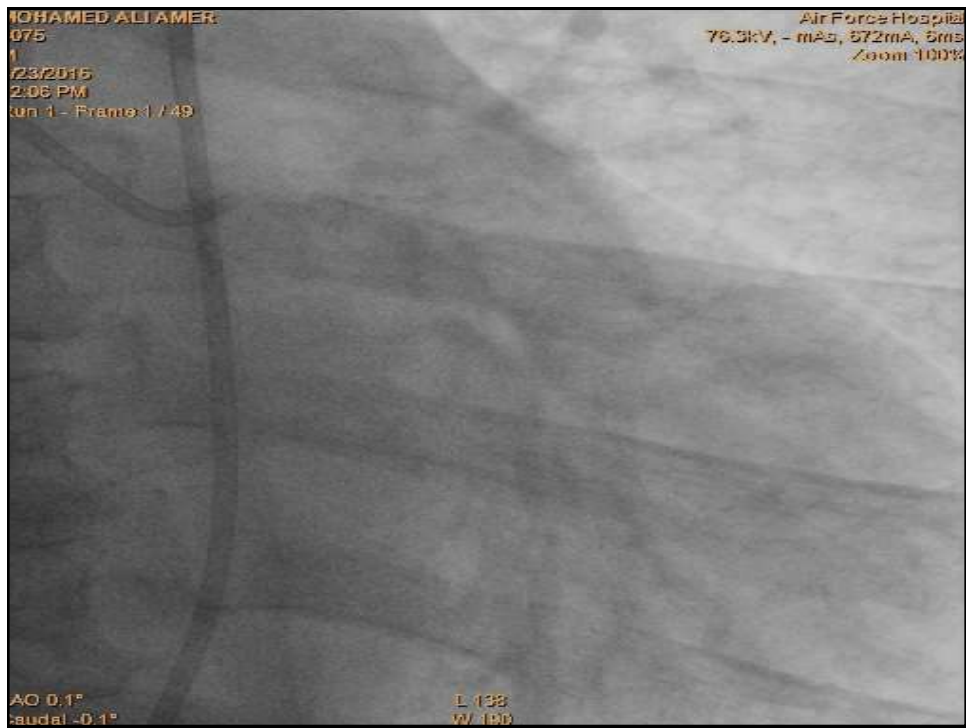






What's Next?

- After stabilizing his general condition and improvement of chest pain, blood pressure, Hb and renal function, we asked for urosurgical consultation for persistence hematuria, pelvi-abdominal CT was done which revealed bladder mass and cystoscopy was needed.
- We referred him to cardiosurgery for CABG as his calculated SYNTAX score was over 32 but they postponed him for 4 months because of his comorbidities, with EURO score was over 10.
- During this period patient suffered frequent attacks of severe chest pain persistent hematuria, asthmatic bronchitis and anemia which necessitate admission and blood transfusion.
- So we decided to carry on PCI for provisional one stent approach for distal left main with guidance of IVUS.



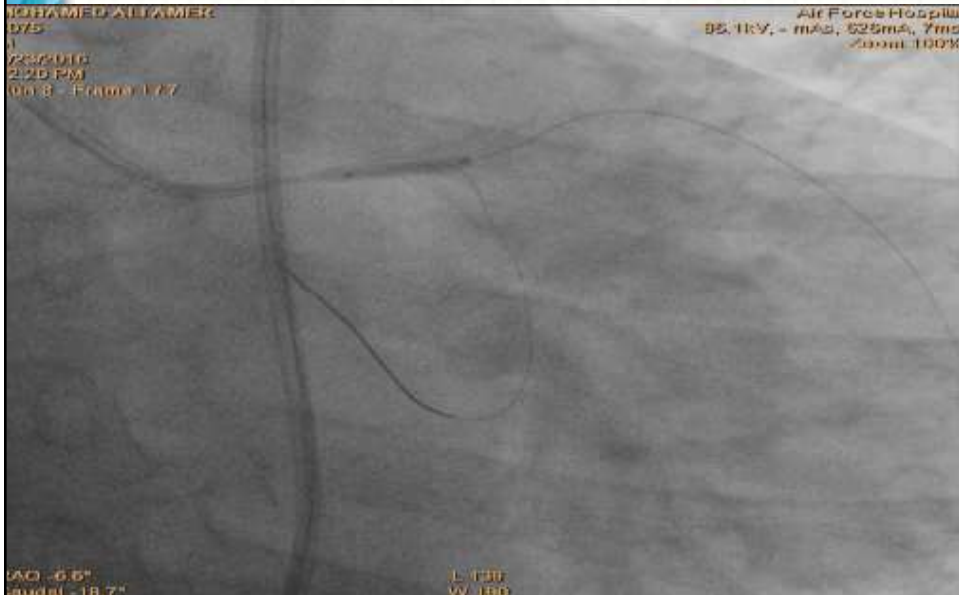




PT Choice wire in LAD and LCX a NC balloon Quantum 2.5x16 in LM-LCX



NC Quantum balloon 3x16 in LM-LAD



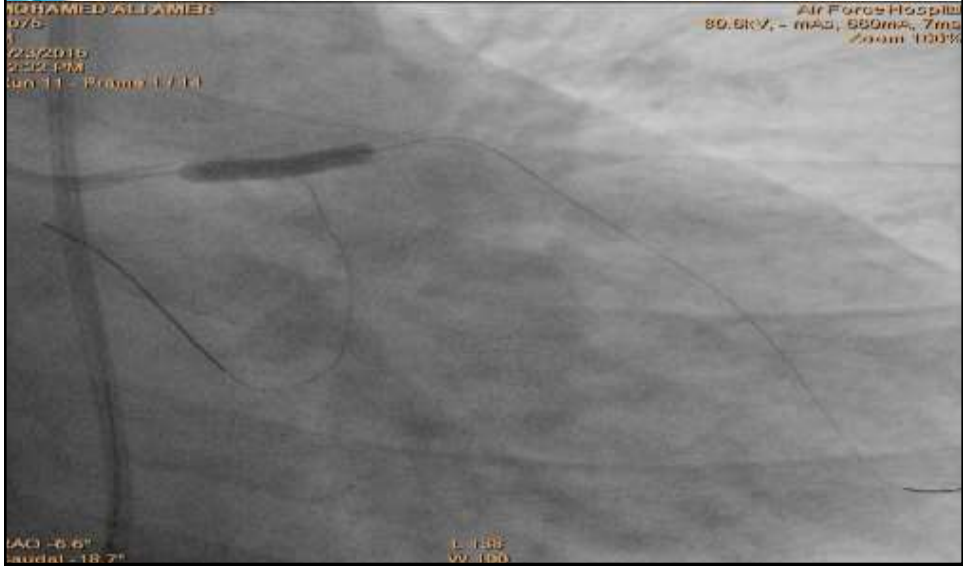
Results after balloon dilation of LAD and LCX



Xince (DES) 3.5x24 in LM-LAD



Deployed at 16 ATM



Results after provisional stenting



NC Quantum balloon 2.75x16 in sidebranch at 20 ATM



Final kissing balloon to LAD and LCX NC balloon 3x15, 2.5x15.

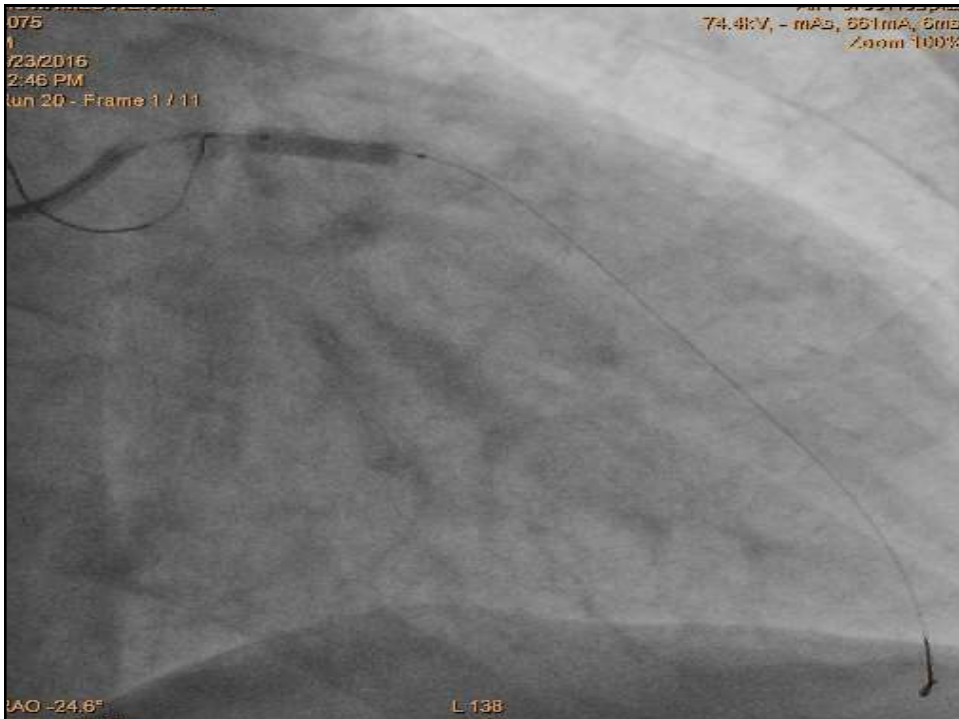


Results after provisional stenting of distal LM with sidebranch balloon optimization.



- IVUS was used to optimize the results and ensure stent apposition, expansion and ensure sidebranch patency.
- During pullback we noticed a dissecting flap in LAD just distal to the stent. The stent was well deployed, but not well expanded with minimally diseased ostium of LCX.

So we deployed another xience (DES) 3x18 with sufficient overlap.

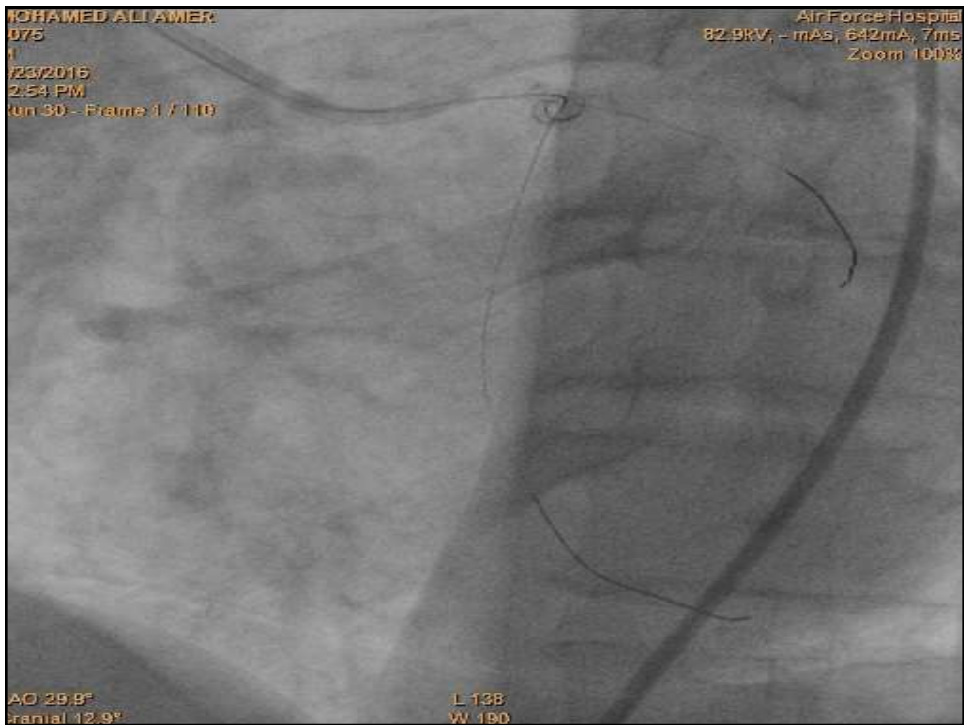


Results after the second stent in LAD



Proximal optimization technique (POT) was done using NC balloon 4.0x15





- So PCI is a potential alternative to bypass surgery for patients with unprotected left main lesions.
- The provisional approach is a single stent strategy that allows the positioning of a second stent; if required.
- Provisional one stent approach for distal LM bifurcation was associated with more favorable outcomes including lower risk of major adverse cardiac events: death, myocardial infarction and target vessel revascularization.

- Provisional one stent approach was found to reduce the risk of stent thrombosis.
- However all previous studies and observation suggest the need for randomized controlled studies to properly evaluate the superiority of the provisional approach over double stenting in patients with LM bifurcational disease.
- Fractional Flow Reserve (FFR) evolution for the side branch has provided valuable information on relation between physiological and angiographic severity, and correct choice of treatment strategy.

Selection criteria for the provisional one stent approach versus the planned two stent technique

Favors the Provisional Approach

1. Insignificant stenosis at the ostial LCX with MEDINA classification 1,1,0 or 1,0,0
2. Small LCX <2.5 mm in diameter
3. Diminutive LCX, right dominant coronary system
4. Wide angle between LAD and LCX
5. No concomitant disease or only focal disease in LCX

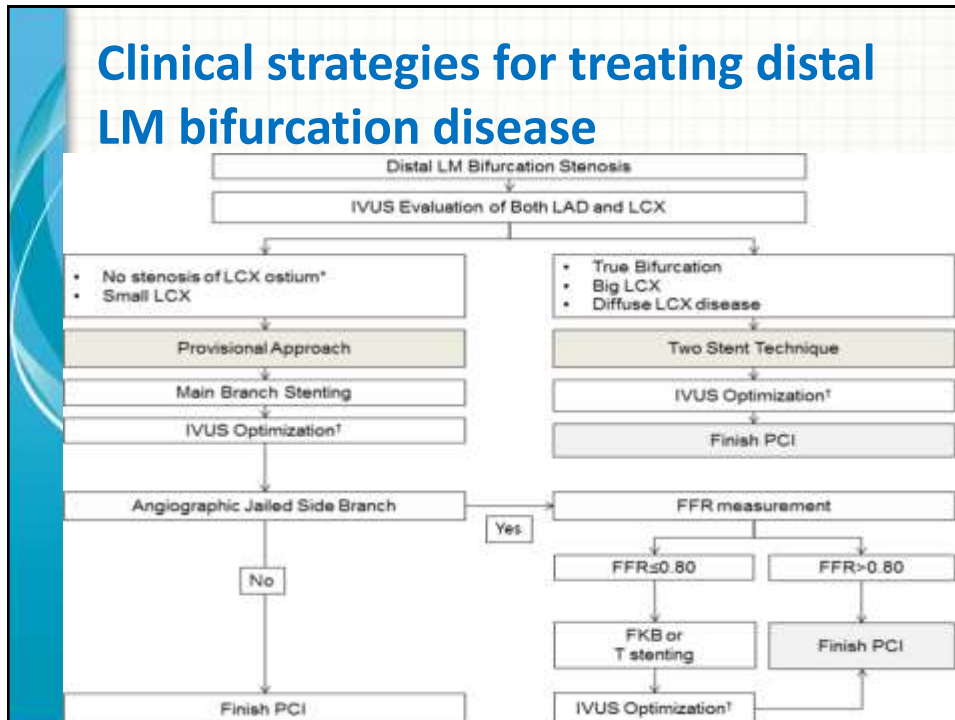
Favors the Two-Stent Technique

1. Significant stenosis at the ostial LCX with MEDINA classification 1,1,1 or 1,0,1 or 0,1,1
2. Large LCX \geq 2.5 mm in diameter
3. Diseased left dominant coronary system
4. Narrow angle between LAD and LCX
5. Concomitant diffuse disease in LCX

IVUS based LM intervention

In those patients considered likely candidates for LM PCI, IVUS remains crucial for assessing degree of lumen compromise and the extent, distribution and morphology of plaque as well as for the immediate post procedural quantification of the stent deployment.

Clinical strategies for treating distal LM bifurcation disease



So what's the message here?

- Provisional one stent approach is more favorable than two stent technique, in distal bifurcational LM lesions.
- Whenever possible IVUS is crucial in PCI of distal LM to identify the extent, morphology and nature of the plaque. Post-procedural stent optimization, expansion and apposition.
- Sometimes serious post-procedural complications that may cause no reflow, acute stent thrombosis like: dissection could be avoided by guidance of IVUS and might not be visualized by angiography.

