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Difficult Stent Retrieval

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History and Risk Factors

- Male patient 56 yr
- Complaint: Chronic stable angina, increasing frequency in last month
- Risk factor: Hypertensive and Diabetic on OHG
- ECHO: No SWMA, EF=66%



Coronary angiography



LAD: calcific 90%
LCX: dominant, 90% stenosis
OM1: 80% long prox. lesion



PCI to LAD... Quantum 3*12mm pre & post dilate Eukalimus DES 3 *28 mm at 16 atm



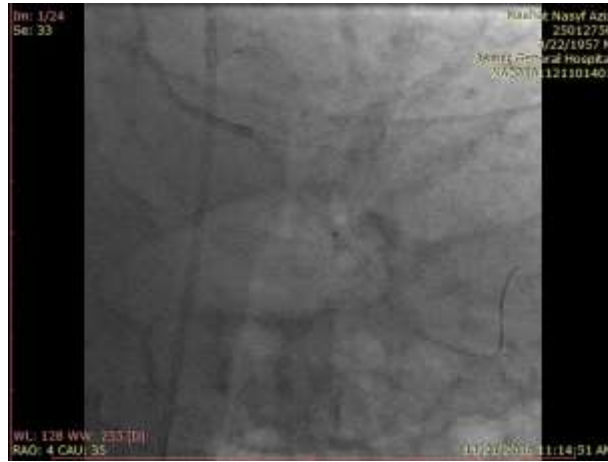
PCI to LCX... Direct stenting
Eukalimus DES 2.75 *16 mm at 14 atm



PCI to OM1... BMW passed with resistance



PCI to OM 1--- Predilate with 1.5*20 mm balloon



PCI to OM 1---failed to pass the Eukalimus 2.75*33 mm stent



PCI to OM 1--- another Predilate with 2.5*13 mm Quantum balloon which passed only with the support of a buddy wire



PCI to OM 1---Still difficult to deploy the stent




PCI to OM 1--- 3rd time Predilate with Quantum NC 2.5*13 mm balloon at 20 (3 X)



PCI to OM 1--- With more pushing and pulling... we lost the STENT in LCX-LM





Stent Loss and Retrieval During Percutaneous Coronary Interventions: A Systematic Review and Meta-Analysis

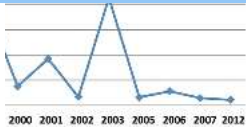
Issued: 11/2013 | 1120-1126

Author(s): Mohammed E. Alomar, MD, Tesfaldet T. Michael, MD, MPH, Vishal G. Patel, MD, Clara G. Altomare, Bavana V. Rangan, BDS, MPH, Dasna Cipher, PhD, Subhash Banerjee, MD, Emmanouil S. Brilakis, MD, PhD


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Conclusions. The incidence of stent loss during PCI is low and has been decreasing (5% 2002 –0.3% 2012). Although the lost stents were successfully retrieved in 66% cases, stent loss was associated with high rates of complications (~20%), such as CABG, MI, and death

Stent Loss	919 / 71655	1.3	0.8-2.1
MACE	162 / 919	17.6	10.6-27.1
CABG	98 / 919	10.6	5.7-15.5
MI	71 / 919	7.7	3.6-17.1
Death	33 / 919	3.6	1.1-8.2
Bleeding	10 / 919	1.1	0.2-5.5
Vascular complications	5 / 919	0.5	0.6-6.4



by study publication year.





The most common angiographic characteristics associated with stent loss

- Calcification with tortuosity (36%),
- Failure to retract the stent shaft to the guide (28%),
- Failure to cross the lesion (10%).

Alomar ME, et al. J Invasive Cardiol 2013;25(12):637–41.



The techniques used in achieving the successful retrieval

- 1-The most commonly utilized retrieval technique involved using a **snare** (124 cases, 33%).
- 2-the **small balloon technique**, in which a small balloon is advanced through the displaced stent, inflated distal to the stent, and withdrawn, thereby pulling the stent into the retrieval catheter (96 cases, 26%).
- 3-Other used techniques included using
 - a **Forceps** (17 cases),
 - a **Basket** (14 cases),
 - **Two wires** technique (4 cases)
 - **The balloon wire trapping** (4 cases)

Alomar ME, et al. J Invasive Cardiol 2013;25(12):637–41.



At this point what to do?

- Stent in LM-LCX
- We have to retrieve it
- **No Sair available**
- Patient was haemodynamically stable,
- No chest pain
- But hematoma at the groin prevent using GP2b/3a



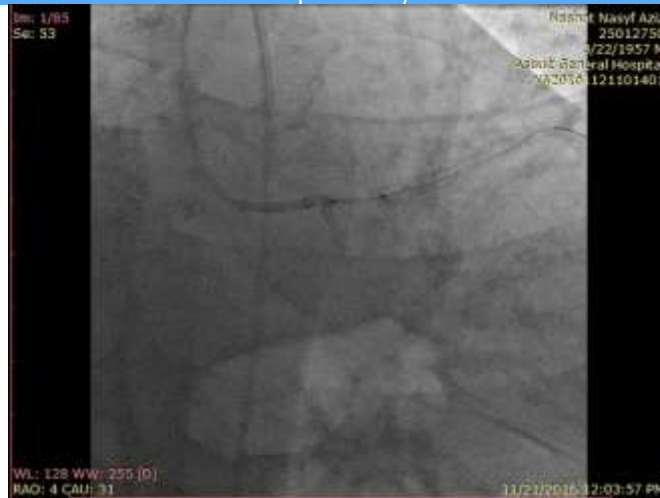
1st trial by using the 2.0mm balloon (8atm)+ trapped wire tip (home made snare) technique




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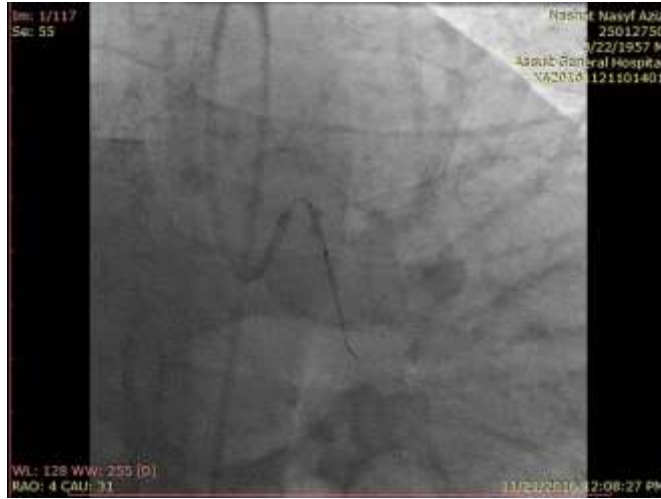
2nd trial .. Try to push the stent form LAD outside LM (NC balloon 3.0mm at 8atm distal in LAD and pull back)



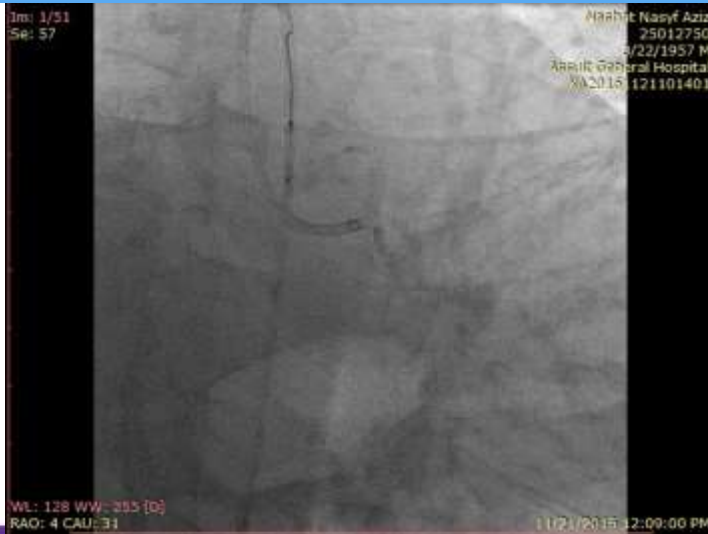

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3rd trail--- try disparity to push the stent from LCX out



Now we are completely exhausted ..



We need a Snair

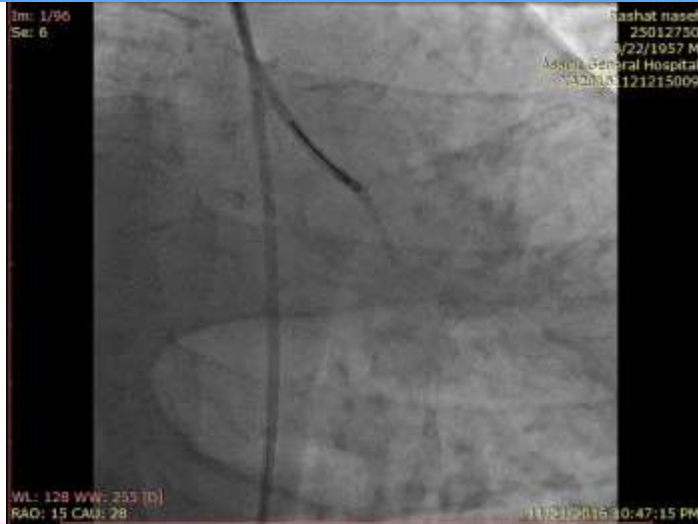
- The stent is deep into the LCX and spasm make it impossible to dislodge or Snare without grasping effect.
- Patient is exhausted also .. Sedated
- The groin hematoma stopped by using 7F sheath
- Fluid IV and monitoring for 6 hr till arrival of the Snare from Cairo.



4th trial at 10 pm.. Using the newly arrived Snare....but!!!!!!



5th trial .. Finally we succeeded to get it out .. But !!!!!



5th trial .. Finally we succeeded to get it out .. But !!!!!

- Patient arrested with bradycardia
- Good CPR..3 min
- Mostly vagal
- We removed all the system including the sheath??



Final results .. New sheath, GC



FINAL RESULTS

- Patient maintained on GP2B/3A for 24 hr
- Discharged safely 3rd day with (cr=1.2)
- Patient is doing well at 3 month clinical follow up



CONCLUSION

- Be prepared for problems with calcific lesion
- Ask for long coronary Snair to be present in your cath.
- Retrograde techniques are useful



Thanks

Welcome to our new
Heart center at
Assiut university Hospitals

