Role of Drug Eluting Balloons in Coronary Intervention

Sajid Dhakam MD; FACC; FCSCAI
American Board of Medicine, Cardiovascular Diseases and Interventional Cardiology
Associate Professor of Medicine
Aga Khan University, Pakistan
Karachi: Seaport and Financial Capital

Population: 20 million, One of the most populated city in the world
The Aga Khan University Hospital
Almost 650 coronary interventions/ year
Modest growth/year
DEB: A relatively new device
On the way to prove itself

SeQuent® Please (Paclitaxel coated balloon)
Case in Point

“A complex case of CTO, perforation and recurrent in-stent re-stenosis”
Case Summary

- A 65 years old man.
  - Very poor socioeconomic status.
  - HTN.
  - Dyslipidemia.

- CABG 1994 with:
  - SVG to RCA, Ramus and OM2.
  - No graft to LAD

- New CCS 111-1V angina, 15 years after CABG

- Coronary angiogram revealed
  - Patent SVG to RCA, Ramus and OM2.
- And-------
Severe Ostial and Proximal LM and Proximal LAD stenosis
PCI of Left Main done in September 2008

- XB (Cordis) 3.0 7F guiding catheter.
- LAD and CX wired with Cougar XT (Medtronic) wire.
- Predilated with Sprinter Legend (Medtronic) 1.5 x 10 at 4-20 atm.
A Bare Metal Stent, Chrono (Sorin) 3.0 x 16 mm deployed from ostial LM into LAD and another Chrono stent 2.5 x 25 mm deployed in proximal LAD overlapping the first stent.
Both stents were post dilated with 3.0 x 13 mm Power Sail (NC Balloon) at high pressure
POBA LCX with Mercury (Abbott) 2.0 x 14 mm AND
Final Kissing balloon in LAD with Power sail and LCX with Mercury at 12 atm.
Final Result
Recurrence of Symptoms

• Developed CCS IV angina 4 months later.

• Angiogram done showed.
  – Severe Type IV ISR of LM and LAD STENT.

• Decided to proceed with PCI once again.
LM was engaged with 7F AL 1.5 guide.
Tried to wire LM with Shinobi (Cordis), Miracle 12 (NEO’S Asahi) and Fielder FC (NEO’S Asahi) wires but could not cross the lesion. Finally LM wired with Conquest Pro (NEO’S Asahi) wire with great difficulty.
Wire noted in a some small branch with trickle of flow in LAD and LCX, therefore decided to pull back and redirect wire.
Patient started having severe chest pain but remained hemodynamically stable.
Management

A 2.5 x 14mm balloon was inflated inside the guide at 8 atm.

Emergent Transthoracic echocardiogram did not show any significant pericardial effusion or tamponade.

CTS team consulted and decided to take him to the OR.
Balloon intermittently deflated for 30 minutes and patient remained stable without symptoms

Next Step: Reattempt PCI Vs CABG?
While waiting for OR decided to re-attempt PCI and LAD Rewired with Fielder FC (Asahi) wire
LAD and LM POBA with sprinter legend (Medtronic) 1.25 x 6 mm at 20 atm.
POBA with 2.0x15 Balloon
Result after POBA
Stent Now or Wait

• Two options:
  – Do it immediately? Avoid chances of abrupt closure but theoretical issues regarding use of anticoagulation with sealed perforation.
  – Delay stenting for 24-48 hours and avoid any complications related to perforation and take risk of abrupt closure

• Decided to postpone stenting for 24 hours.
After 24 Hours LM was engaged with XB 3.0 7F guide.
No extravasations noted.
LAD wired with Fielder FC wire and Predilated with Score flex (Orbus Neich) 3.0 x 15 mm at 14-18 atm.
A 3.0x28mm Drug Eluting Stent, Intrepide (Clear Stream Tech.) was deployed at 12 atm.
Another DES 3.5x32 Intrepide Stent was deployed after taking multiple views in Ostial Left main
Post dilated both stents with NC Sapphire (Orbus Neich) 3.75 x 15 mm at high pressure
Final Result
• Three months later patient again started having chest pain (Class III-IV) Angina

• Considering recurrent left main restenosis a follow up coronary angiogram was done:
Severe ISR in LM stent
LM engaged with XB 3.0 6F guide. Wired with Fielder FC wire and POBA with Pro-PTCA (ALL-PRO) 2.0 x 15 mm at 18 atm.
Followed by POBA with Score flex 3.0 x 15 mm at 18-22 atm.
Finally POBA with Sequent Please, DEB (B-Braun) 3.5 x 30 mm at 16 atm for one minute in the proximal half
POBA with Sequent Please 3.5 x 30 mm at 14 atm for one minute distally
POST DEB Result
Final Result
Six Months after Last PCI
Patient has remained asymptomatic
Follow up Coronary Angiogram
No significant In-stent Restenosis
FFR > 0.86 in Distal LAD after adenosine infusion

IVUS: In-stent cross sectional area > 5.5 mm²
Conclusion of Case

• This case demonstrates multiple problems encountered during PCI and managed appropriately.

• A case of malignant recurrent restenosis treated successfully so far with the available options.

• A message for the interventionalists to be patient and persistent in their effort to do complex angioplasty.
Thank you