CASE REPORT

An Unprotected Distal Left Main Disease Treated with Stenting- A Maiden Experience at a Tertiary Care Center

Nisar A. Tramboo, Iqbal K, Suresh Koul, Vicar Jan, Hilal Rather, Nazir Lone, Kaiser Habib, Ajaz Lone, Manzoor Ali, Neelam Kaul and Asrar Ahmed

Department of Medical Cardiology, Sher-i-Kashmir Institute of Medical Sciences, Srinagar

ABSTRACT

Unprotected left main disease which till recently was considered a class III indication for PCI has been accepted as a IIb indication in the last updated AHA/ACC guidelines. Now world over, UPLM stenting is being increasingly taken up, especially after the entry of drug eluting stents in the coronary interventional arena. The distal left main disease is considered the technically most challenging. We present here a case of distal left main disease with critical ostial LAD and LCX disease, successfully managed with stenting via the double barrel technique. *J Med Sci* 2010;13(1): 25-27

Key Words: UPLM (unprotected left main), PCI (percutaneous coronary intervention).

Introduction

There has been a paradigm shift in approach towards treating left main coronary artery disease. In 1970s CABG was found to be better than medical treatment for left main stenosis.¹ With the advent of the balloon angioplasty era, UPLM treatment with PCI was crippled by poor early outcomes owing to higher rates of dissections, abrupt closures and restenoses, with one year mortality closing to near about 30%.² The introduction of bare metal stents were limited by increased rates of repeat revascularization mainly because of restenosis, in tune to 20-30%.³ The main thrust to UPLM stenting has been given by introduction of drug eluting stents (DES), and now more and more interventionalists world over are approaching this challenging subgroup with a lot more confidence.

Our case: Approach and technique

Ghulam Mohiuddin (name change), a 65 years old male, smoker, hypertensive was admitted for diagnostic coronary angiography to evaluate CAD. He had angina (CCS III) for over 4 months, a strongly positive TMT (Bruce protocol) with global ST depression and a hypotensive response, indicating multivessel or left main disease on exercise testing. His CAG revealed 90% ostial LAD disease, 80% ostial LCX accompanied by 70% distal left main stenosis (Fig. 1). He had a SYNTAX score of 36 and Euro score of less than 6 and was thus offered CABGS as a treatment strategy, which he denied. So he was taken up for UPLM stenting. His echocardiography demonstrated normal LV functions without RWMA (LVEF 65%) and had a normal biochemical profile.

We planned the patient after prior discussions and deliberations in the department. On the day of intervention patient was preloaded with 300 mg of soluble aspirin, 600 mg of clopidogrel and 80 mg of atorvastatin 4 hours before the procedure. Inside the cath lab emergency cart was activated, anaesthetists and cardiac surgeons were informed and IABP (Intra aortic balloon pump) was put in the stand by mode. The

Reprint Request:

Dr. Nisar Ahmad Tramboo

Professor & Head

Unit-2, Department of Cardiology

SKIMS, P. Box: 27, Srinagar-190 011.

Figure 1: Distal left main, ostial LAD and LCX disease as seen in RAO caudal view

left main was hooked with a 7F EBU 3.5 guiding catheter and both the LAD and LCX vessels were wired with the 0.014" BMW guidewires. Predilatation of the LAD lesion was done with a 2×10mm Firestar (Cordis) balloon @ 10atms. Another 2×12mm balloon was used for the LCX. A kissing balloon inflation was carried out at 10atms and no complications were encountered. At this moment, an SKS (simultaneous kissing stent strategy) was planned. Two CYPHER 3×15 and 2.75×13mm stents were deployed simultaneously in the LAD and LCX respectively with a 3-4 mm overhang in the left main (double barrel technique) @ 8atms. Then individually, each stent was inflated to a final pressure of 20atms. Finally another kissing balloon inflation was done at 14atms. The procedure was successful (Fig. 2) and patient was sent home after 48 hours.

Figure 2: Distal left main stenting via the SKS strategy as seen in RAO caudal view

Discussion

The treatment of UPLM disease has come a long way. Protected left main implies that it is protected by at least one patent bypass graft to the left anterior descending or left circumflex artery. The last updated AHA/ACC guidelines which were published in November 2009 describe PCI of left main as a class IIb indication.⁴ Left main disease can be ostial, midshaft or distal and the latter is the most challenging to treat via PCI. Coronary interventionalists have now started taking up this difficult coronary subset in increasing numbers. Amongst the most straightforward UPLM lesions, are the midshaft ones and are associated with excellent outcomes on stenting. A recent multicenter registry of 147 patients undergoing UPLM stenting of ostial/ midshaft lesions with sirolimus eluting stents (SES n=107) or paclitaxel eluting stents (PES n= 40), found excellent results at midterm follow up.⁵ Mortality in this study was affected by Euroscore. A score of less than 6 had a 0% mortality but it increased to 6.7% with higher scores.⁶ Results from some more trials are awaited.

In contrast to the above observations, patients with distal bifurcation disease are more challenging to treat and have less favourable long term outcomes. In a small 50 patient registry, the major area of concern was a high 38% rate of repeat revascularization.⁷ Some UPLM registries have reported a higher incidence of restenosis at LCX ostium. The cause of this restenosis predilection has been attributed to a sharp bend taken by the LCX, resulting in poor apposition at this site.⁸

IVUS (Intravascular ultrasound) is commonly used for assessing Left main disease. One commonly used IVUS threshold^{9,10} for significant LM disease is a minimal luminal area of less than 6 mm² and another being 7.5 mm². From the available registry data it seems that restenosis and repeat revascularization rates are lower when only one stent is used.¹¹ So if the risk of closure of the side branch is low, the current favoured strategy is the provisional approach of stenting the side branch. Two stents should be deployed in the left main only when the operator feels that there is a high probability of closure of the side branch. Various techniques used are the double barrel, T-stenting, Crush and the TAP stenting which is a modified T stenting with intentional protrusion of the side branch stent into the main vessel. A final kissing balloon inflation of both stents should be done at high (e" 16atms) pressure.⁸ Surveillance angiography at 3 to 6 months which was previously recommended for all left main interventions (Class I AHA/ ACC) is now considered a Class III indication, that is it's no more recommended.⁴

Conclusion

Unprotected left main stenting is gaining widespread acceptance world over. Through this c

intend to highlight the importance of a proper preplanning, reviewing evidence and technical strategies, pre-empting complications and good teamwork in order to achieve a successful result in as complex a procedure as distal left main disease.

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