Left main stem trifurcation PCI using a ‘ping-pong’ technique in ACS

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Potential conflicts of interest

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☑ I have no potential conflicts of interest to report
Background

- 64 year old gentleman
- Known hypertension, hyperlipidaemia, ex-smoker and family history of ischaemic heart disease

- Myocardial infarction 1998 – medical management
- NSTEMI 07/2016 – PCI to LAD (3.5 x 32mm and 3.5 x 12mm Xience Pro overlapped, back to the ostium). Moderate lesion in IM (FFR 0.88). Diffusely diseased Cx (medical management)

- CMR 08/2016 – Moderate left ventricular systolic dysfunction. Previous inferolateral infarction with 4 non-viable segments. No stress induced perfusion defects.
November 2017

- Direct Heart Attack Centre admission with acute chest pain
- ECG - Posterior STEMI

- Loaded with 300mg aspirin and 180mg ticagrelor
- Urgent Primary PCI
Coronary Angiogram

RCA – 6F JR 4

LCA – 6F EBU 3.5 Guide
Restoring flow

LCx – Sion blue wire; 2 x 15mm Emerge balloon

IM – Choice Floppy wire; 2 x 15mm Emerge balloon

Transient TIMI 3 flow in the LCA
Decision making

Technical factors

• Thrombotic appearance of distal LMS
• Complex trifurcation anatomy. We felt that PCI is required to treat LCx and IM vessels back to the LMS and balloon dilatation of LAD.
• Triple kissing required for optimal expansion of stent struts in the LAD, LCx and IM

Patient factor

• Recurrent thrombotic occlusion of LMS leading to VT/VF arrests requiring DC shocks and need for recurrent balloon dilatations of LMS

‘Ping-Pong’ technique
Original 6Fr guide catheter used to balloon the thrombotic occlusion of LMS while a new 8Fr guide catheter was taken to facilitate the delivery of stents and PCI
‘Ping-Pong’ technique

- 8F Right femoral artery access -> 8F EBU 4 Guide Catheter
- ACT > 250
- Eptifibatide bolus and infusion
- Sion blue to distal LAD
- Choice floppy to distal Cx
- Sion blue to distal IM
- Serial pre-dilatations of LAD, IM and Cx with 2mm balloon

IM-LMS: 3.5 x 28mm Xience Alpine DES

LAD: 3.5 x 15mm balloon

T-stenting of LCx: 2.5 x 15mm Xience Alpine DES

Post LCx, IM stent and LAD balloon
Triple kiss, POT and final result

Triple kiss: 3.5mm LAD; 3.5mm IM; 2.5mm Cx

LMS POT – 5 x 8mm balloon

Final result

- 8F Angioseal to RFA
- Helix to RRA
- 400mls contrast
- LVEF 25-30%
- Elective LMS IVUS and ? PCI to mid IM lesion
Restudy

Plaque burden 55% at the IM stent outflow – decision made for PCI

Prox LMS: MLA > 8 mm²
Distal LMS: MLA > 7 mm²
Prox LCx: MLA > 5 mm²

Prox LAD: MLA > 6 mm²

PCI to mid IM – 3 x 12mm Promus DES
Take home messages

• LMS PCI in the context of ACS is a high risk procedure

• Optimal LMS PCI has significant impact on patients long term outcomes

• The ‘Ping-Pong’ technique enabled intervention in the thrombotic LMS lesion while a new guide catheter/stents were prepared for a more definitive treatment

• IVUS should be considered for all LMS and complex PCI procedures to optimise stent deployment