

C082

Successful PCI for multiple CTOs by complex hybrid procedures

Relevant clinical history and physical exam. A 70-year-old man, Indonesian Chinese, with hypertension and hyperlipidemia presented with progressive dyspnea and left shoulder pain during exercise for months. CAD was impressed according to positive treadmill exercise test. Coronary arteriography in other hospital showed severe triple vessel disease with CTO at both m-LAD and p-RCA, as well as critical stenosis at LCx, OM and PDA. PCI attempt for LAD-CTO failed in other hospital and patient refused CABG.

Relevant test results prior to catheterization. Treadmill exercise test: prominent ST-T depression at exercise stage; positive with high risk for CAD.

Relevant catheterization findings

LMCA: normal

LAD: heavy calcification,

pLAD: segmental 60% stenosis,

mLAD: chronic total occlusion, receiving collateral flow from OM3

LCX: dominant vessel supplying PDA,

pLCx: 60% stenosis;

pOM3:70% stenosis; pPDA: 80% stenosis

RCA:

pRCA: chronic total occlusion, receiving collateral flow from distal LCx-Atrioventricular artery

??[INTERVENTIONAL MANAGEMENT]

Procedural step.

1st procedure (RCA-CTO) Antegrade approach

AL1 6Fr SH GC engaged RCA via RRA; EBU 3.5 6Fr GC engaged LMCA via RFA.

GAIA-I loaded in 130cm FineCross MC crossed CTO to RV branch.

Anchoring balloon technique using a 1.5mm balloon in SA nodal branch facilitated 1.5mm balloon crossing and opening CTO.

Another Sion wire to dRCA. Dilatation of p-mRCA by 2.0, 2.5mm balloon.

IVUS confirmed true lumen wire.

6Fr Guide-liner catheter advanced deeply in mRCA facilitated 2.75x36mm DES advancing and deploying at os-mRCA.

Good final angiographic and IVUS results after post-dilation by 3.0mm NC balloon.

2nd procedure (LAD-CTO) Antegrade & Retrograde approach

EBU 4.0 6Fr engaged LMCA via RFA.

Antegrade approach by Fielder-XT, GAIA-I, GAIA-II all failed.

Retrograde approach with GAIA-II GW, loaded in Corsair 150MC, crossed LAD-CTO via OM3 epicardial collateral channel.

IVUS confirmed the true lumen tracking of wire in osLAD and LM.

Ipsilateral double guiding catheters technique:

Another EBU 3.5 6Fr GC partially engaged LMCA via RRA approach.

Amplatz GooseNeck microsnare caught retrograde GAIA-II GW into EBU 3.5 6Fr.

The externalization technique with RG-3 was completed.

LAD CTO and lesions were dilated: 1.5, 2.0, 2.5mm balloons at dLAD, 3.0mm NC balloon at mLAD.

Stenting dLAD with 2.5x36mm DES and mLAD with 3.5x36mm DES. Post-dilation with 3.0mm NC balloon at mLAD and 3.75mm NC balloon at pLAD.

Completed PCI to other stenotic lesions at LCx-OM.

Good Final angiographic and IVUS results without immediate complication.

Case Summary.

- * Multiple CTO PCI in single stage by using "Hybrid Approach" appears feasible and safe.
- * Good angiography by dual injection is fundamental for CTO PCI, especially multiple CTOs.
- * CTO lesion characteristics, micro-channels and collateral channels suitable for retrograde approach should be clarified.
- * Changes in crossing strategy are based on angiographic characteristics of the CTOs.
- * An alternative crossing strategy should be considered earlier if the initial approach failed.