

C045

A complex Case with Chronic Total Occlusion, Bifurcation, and Left Main Lesions

The 48-year-old man, with dyslipidemia and obesity (BMI>33 kg/m²), had smoked 1PPD for 20 years. This time, he presented with dyspnea on exertion for three months. The thallium scan showed reversible perfusion defects at LAD/LCX territory, post-stress LVEF 37%, resting LVEF 63%.

The coronary angiography showed

LM: distal bifurcation 50% stenosis with an ulcerative plaque

LAD: mid chronic total occlusion, D1 90% stenosis

LCX: ostium 90% stenosis, distal diffuse 80% stenosis

RCA: proximal 50% stenosis, distal collateral to LAD

[Planning]

1. For the LAD CTO lesion behind the bifurcation: Use one MC+GW, and another GW could be necessary. If the procedure fails, CABG should be considered.
2. For the bifurcation lesion with a “must preserve” diagonal branch: GW protection, and if 2-stents technique is considered after POBA, culotte technique is favored.
3. For the LCX diffuse lesion: GW for Dx would be switch to LCX after fixing the LAD/Dx and CTO lesions.
4. For the LCX ostium and LM bifurcation lesion: Try one-stent because LCX ostial lesion is short. If 2-stents are inevitable, TAP technique is favored. If emergent stenting for LCX ostium before LM stenting is happening, mini-crush technique would be the alternative.
5. Use IVUS to check the lumen, vessel size, apposition, expansion, edge dissection, stent deformity, etc.

[Procedural step]

The LCA was engaged with EBU 3.5 SH 6F and successfully antegrade wiring across the LAD CTO lesion with the guidewire Fielder FC and microcatheter Corsair 135cm. After wiring into diagonal branch with Runthrough Floppy before predilatation, the flow of LCX was compromised, so the third GW Fielder FC was wired to distal LCX. Balloon angioplasty was performed with 2.0x20mm and 2.5x15mm balloon to LCX, LAD, and Dx. Then IVUS imaging of LAD, diagonal, and LM were checked. For the LAD and diagonal bifurcation, we performed Culotte technique. Before bifurcation stenting, a BVS 2.5x28mm was deployed to distal LAD and another EES 2.5x33mm to mid LAD. An EES 2.5x32mm was deployed to diagonal by the aid of Guideliner, followed by strut dilatation and an EES 3.0x28mm to proximal LAD. After switching the guidewires, KBT was performed. The diagonal GW was then switched to LCX. An EES 2.5x33mm was deployed to distal LCX. For LM bifurcation, we applied TAP technique. An EES 3.5x24mm was deployed to LM-LAD and another EES 3x12mm was deployed to LCX ostium, followed by KBT. POT was performed with NC balloon 3.75x12mm. The IVUS imaging showed well opposition and expansion of LM-LAD, LAD, and LCX stents. The final angiography was good.

[Conclusions]

In a case involving multiple LM and non-LM bifurcation lesions, the size of the side branch, lesion

burden, and the angulation of the bifurcation should be assessed carefully. This determines the whole planning for intervention and the preferred management of bifurcations.