

C024

Two bifurcations. One common stent.

[Background]

The patient is a 64-year-old lady with history of hypertension and hyperlipidaemia. She was admitted to hospital for unstable angina. CT coronary angiogram showed there was no Left main (LMN) disease; mixed plaque with mild and insignificant narrowing at proximal left anterior descending artery (LAD) and mixed plaque with severe narrowing (70–99%) at middle LAD; mixed plaque with moderate and significant narrowing (50–69%) at first diagonal branch (D1); mixed plaques with moderate and significant narrowing (50–69%) at proximal and middle left circumflex artery (LCX); mixed plaques with minimal and insignificant narrowing at proximal and middle right coronary artery (RCA). Thus, coronary angiogram ± percutaneous coronary intervention was arranged.

[Target Lesion]

Coronary angiogram showed distal LMN 30% narrowing; ostial LAD 50% narrowing; proximal LAD 90% narrowing; mid LAD 70% narrowing; ostial to proximal D1 80% narrowing; ostial to proximal LCX 80% narrowing; mid to distal LCX 90% narrowing; moderate disease at RCA. In summary, the coronary angiogram showed two vessels disease involving two bifurcation lesions dLMN–oLAD–oLCX and pLAD–oD1.

[Strategy]

Culotte stenting technique was decided to use in dLMN–oLAD–oLCX lesion and provisional stenting technique was decided to use in pLAD–oD1 lesion initially. Right radial approach was used. Arterial sheath was upsized to 7Fr slender sheath. 7Fr EBU 3.5 guiding catheter was engaged to oLMN. LAD, LCX and D1 were wired with 3 Runthrough NS Floppy guidewires respectively.

LAD and LCX lesions were predilated with Tazuna Semi-compliant PTCA balloon 2.0 x 15. Optical Frequency Domain Imaging (OFDI) was used to assess LAD, LCX and D1 (see attached OFDI runs LADPre_1, LCXPre_1 and OtherPre_1) respectively. OFDI showed significant stenosis at oD1 and oLCX while there was eccentric plaque at oLAD. LCX and LAD lesions were further predilated with Accuforce Non-compliant PTCA balloon 3.0 x 15. Severe impingement of oD1 was noted after balloon dilatation. Thus, it was decided to switch to two stents technique to pLAD–oD1 bifurcation by means of DK Crush stenting technique.

D1 was predilated with Tazuna Semi-compliant PTCA balloon 2.0 x 15. mLAD was stented with Ultimaster Drug eluting stent (DES) 2.5 x 28. mLAD distal to D1 bifurcation was stented with Ultimaster DES 3.0 x 28. o–pD1 was stented with Ultimaster DES 2.5 x 24 and then crushed with Accuforce Non-compliant PTCA balloon 3.0 x 15 in LAD. D1 was then proximally recrossed with Runthrough NS Floppy guidewire. D1 stent was then postdilated with Tazuna Semi-compliant PTCA balloon 2.0 x 15 and then Accuforce Non-compliant PTCA balloon 2.5 x 15. First kissing balloon inflation to LAD and D1 was done with Accuforce Non-compliant PTCA balloon 3.0 x 15

and 2.5 x 15 respectively. D1 guidewire was then removed after good angiographic result.

dLMN-pLCX was stented with Ultimaster DES 3.0 x 24 with distal overlapping with mLCX stent. Proximal optimization technique (POT) to LMN was done with Accuforce Non-compliant PTCA balloon 4.0 x 8. LAD was then recrossed with Runthrough NS Floppy guidewire and stent strut was opened with Tazuna Semi-compliant PTCA balloon 2.0 x 15. pLAD was predilated with NC Emerge PTCA Dilatation Catheter 3.0 x 15. OFDI done to LAD showed adequate stent expansion and apposition in mLAD (see attached OFDI run LADPost_2).

LMN-pLAD was then stented with Ultimaster DES 3.5 x 24 with distal overlapping with mLAD stent. Second POT to LMN was done with Accuforce Non-compliant PTCA balloon 4.0 x 8. LCX was recrossed distally with Runthrough NS Floppy guidewire and D1 was wired proximally with Runthrough NS Floppy guidewire. OFDI and 3D OFDI done to LAD did not demonstrate well the rewiring position relative to the stent cells because of guidewires artifact (see attached OFDI run LADPost_3). D1 stent was further postdilated with Accuforce Non-compliant PTCA balloon 2.5 x 15. Second kissing balloon inflation to LAD and D1 was done with Accuforce Non-compliant PTCA balloon 3.5 x 15 and 2.5 x 15 respectively.

o-pLCX stent was postdilated with Accuforce Non-compliant PTCA balloon 3.0 x 15 and then kissing balloon inflation to LAD and LCX was done with Accuforce Non-compliant PTCA balloon 3.5 x 15 and 3.0 x 15 respectively. Final POT to LMN was done with Accuforce Non-compliant PTCA balloon 4.0 x 8.

[Final Result]

Final OFDI to LAD, D1 and LCX (see attached OFDI runs LADPost_4, OtherPost_2, LCXPost_2 and LCXPost_3) showed satisfactory stents expansion and apposition. Final coronary angiogram showed satisfactory TIMI3 flow and no dissection or perforation.

Successful PCI to dLMN-oLAD-oLCX bifurcation with Culotte stenting technique and pLAD-oD1 bifurcation with DK Crush stenting technique was performed using single common stent in LMN-LAD.