1107 **IVUS-Assisted Success in Chronic Total Occlusion of LAD Involving Trifurcation with Unavailable Retrograde Approach**

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[Target Lesion]

Coronary angiography showed chronic total occlusion (CTO) of proximal to middle LAD, which was our target lesion, with faint collateral flow to the distal LAD and the first diagonal branch (D1). The CTO body was considered short but heavily calcified with involvement of the bifurcation of proximal to middle LAD and D1.

There were also diffuse disease with critical stenosis over LCX, and CTO of proximal to middle RCA with strong bridging collateral via the conus branch provided collateral flows to the distal LAD and D1.

[Strategy]

Though the proximal cap was ambiguous with no significant side branch feasible to IVUS, the retrograde approach was not our primary strategy due to the CTO of proximal to middle RCA.

We engaged the left coronary artery with a 7 Fr EBU guide catheter and the RCA with a 6 Fr JR guide catheter. Antegrade approach to the critical stenosis of LCX was successful with a Caravel microcatheter (ASAHI INTECC) and a Gaia First guidewire (ASAHI INTECC). IVUS after serial inflation of small balloons showed the guidewire all within the true lumen of LCX. After adequate lesion preparation, a 2.25X38mm DES (Resolute Onyx, Medtronic) was deployed over the distal LCX, and a 3.0X38mm DES (DESyne X2, Elixir) was deployed over the proximal to distal LCX. Post-dilatation was performed with a 3.5X20mm NC Raiden3 Balloon (KANEKA).

Then, we started the antegrade attempts to CTO of LAD with the Caravel microcatheter and guidewires escalating from Gaia First, Gaia Second to Gaia Third guidewire (ASAHI INTECC). We failed to directly wire into the middle LAD even with parallel wiring technique using a SASUKE dual lumen catheter (ASAHI INTECC) and another Gaia Third guidewire.

However, we then successfully wired into the first septal branch (S1) involved within the CTO body, checked by the retrograde angiogram. Due to the heavy calcification over the carina and still ambiguous entry to the main branch, we could not wire to the distal LAD with parallel wiring technique but to the D1. Therefore, IVUS was performed over D1 to the proximal LAD after angioplasty with small balloons, and confirmed the guidewire within the true lumen and the location of entry to the main vessel.

Using parallel wiring technique via the D1 using the SASUKE dual lumen catheter and Judo 6 guidewire, we succefully wired to the distal LAD and changed the Judo 6 guidewire to a Runthrough guidewire (Terumo) after angioplasty with small balloons. IVUS showed the guidewire all within the true lumen. After adequate lesion preparation, a 2.5X32mm DESyne X2 Stent was deployed over the proximal to distal LAD with jail balloon technique, and a 3.0X15mm Resolute Onyx Stent was deployed over ostial to proximal LAD. Post-dilatation was performed with a 3.5X15mm NC Mozec Balloon (Meril) smoothly.

[Final Result]

Final angiogram showed an optimal results of LAD and LCX after stenting, and IVUS showed no significant malapposition. The patient was admitted to ICU for close monitor, transferred to general ward on the next day, and then discharged due to his stable condition.