1036 **IVUS-Guided Tip Detection in a Case with Poor Backup Support: Successful Use of Subintimal Wire Techniques**

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【case】

A 76-year-old man with a history of PCI for old myocardial infarction (OMI) was referred to our department for a second opinion. Coronary angiography (CAG) performed at the previous hospital revealed an in-stent occlusion at the ostium of the right coronary artery (RCA), along with a severely calcified stenosis extending from the left main trunk (LMT) to the left anterior descending artery (LAD). Although the lesion involved a first-generation drug-eluting stent (DES), it was considered a DES failure. Given the high SYNTAX score, we also recommended coronary artery bypass grafting (CABG). However, the patient strongly preferred PCI, so we decided to proceed. Left ventricular function was significantly reduced (EF 30%). Although there was a critical stenotic lesion in the LMT?LAD, retrograde intervention would have required treating that lesion first, which was considered extremely high-risk. Therefore, we decided that antegrade PCI for the RCA was mandatory.

An 8 Fr IMA guiding catheter was used, as the SAL 1.0 could not be engaged. Initial attempts were made to cross the lesion with an Ultimate Bros 3 (UB3) wire and Corsair Pro microcatheter. However, IVUS revealed that the wire had advanced into the subintimal space outside the stent. Although we attempted to anchor in the conus branch, no balloon of sufficient diameter could cross the lesion, and backup support remained inadequate, making real-time IVUS-guided rewiring unfeasible. The subintimal wire track was identified by IVUS, and we attempted angiographically guided rewiring into the stent using a Gaia Next 4 (GN4) via a Sasuke double-lumen catheter, but this was unsuccessful. Eventually, the guiding catheter became disengaged. We recognized that successful wire passage would require improved backup support to perform the IVUS-guided tip detection (TD) technique; however, anchoring options were also limited, resulting in significant procedural difficulty.

We then advanced a SION wire into the subintimal space again and performed the Corsair Lock technique by placing a 2.0 mm balloon over the SION wire to fix the Corsair. This maneuver allowed UB3 to advance further distally, although it remained in the subintimal space. The distal advancement of UB3 enhanced support, enabling real-time IVUS-guided rewiring using a Conquest Pro ST (CPST) and Corsair. CPST successfully engaged the plaque, but the Corsair could not advance further due to limited backup. To overcome this, we performed a subintimal anchor balloon technique using a 2.0 mm balloon outside the stent, which enabled further advancement of the Corsair. We then exchanged CPST for an XT-R wire, which successfully crossed the lesion, resulting in successful revascularization

【conclusion】

The IVUS-guided Tip Detection method is a highly useful technique for the antegrade approach. However, insufficient backup support can be a limiting factor. In a case with poor backup support, we experienced that utilizing a subintimal wire not only as a guide for IVUS imaging but also as a means for Corsair locking or subintimal anchoring enabled us to successfully perform the IVUS-guided Tip Detection technique. After the procedure, PCI for the LMT?LAD lesion was attempted, but the patient became hemodynamically unstable and required catecholamines support. This case highlighted that, in CTO cases with severely reduced cardiac function, even when a retrograde approach is an option, an antegrade approach may be the only feasible strategy. It showed the importance of having various techniques to treat difficult cases.