

C010

Difficult chronic total occlusion approach; which way is better?

A 56-year-old man experienced intermittent chest tightness with shortness of breath during heavy work for 5 months. The symptoms progressed gradually. He did not have systemic disease before. He was noted high cardiac biomarker (troponin-I: 1.006 mg/dL), and inferior leads ST-T segment depression. He was diagnosed as non ST-segment elevation myocardial infarction. He was arranged coronary angiography (CAG) due to progressive symptoms.

CAG showed one critical lesion at distal right coronary artery (RCA), and chronic total occlusion (CTO) since proximal left anterior descending artery (LAD) and distal left circumflex artery (LCX) after first big obtuse marginal (OM) branch. The collateral of left coronary artery (LCA) was from RCA. Therefore, we performed percutaneous coronary intervention (PCI) with stenting with one drug-eluting stent (DES; Xience Xpedition 3.0x23 mm) at distal RCA. Stage PCI was arranged for LCA CTO, and retrograde approach was performed because J-CTO score was 3 points. Contralateral injection showed good result of previous stented segment of RCA and good collateral to LCA. Bilateral sheathless radial approach with 7 Fr. Short AL1 guiding catheter and 7 Fr. EBU 3.5 guiding catheter were chosen. First a 0.014" Pilot 50 wire with microcatheter was used, but could not pass through from posterior descending artery to OM branch. We shifted to right ventricular branch to septal branch of LAD with a 0.014" Sion wire with microcatheter. Then, a 0.014" Ultimate Bros 3 wire was used for retrograde puncture, but went into subintimal space. Therefore, we changed to antegrade approach.

A 0.014" Conquest Pro 12 wire with microcatheter also puncture into subintimal space, and another 0.014" Miracle 12 wire was got into distal LAD by parallel wire technique. Then, microcatheter was advanced to distal LAD, and proved in the true lumen, and the wire was changed to a 0.014" Runthrough Floppy wire. Several size balloons were used for pre-dilatation, and IVUS was performed to visualize vessel diameter and vessel size. Two DESs (Xience Xpedition 2.75x38mm and 3.5x33mm) were deployed at mid LAD to ostial left main (LM) artery up to 14 atm, and followed post-dilatation by high-pressure balloon (Hiryu 3.0x20mm) up to 24 atm. POT (proximal optimizing technique) was done with another high-pressure balloon (NC Euphora 4.0x12mm) at LM-LAD up to 24 atm. After POT technique, a 0.014" Runthrough Floppy wire was passed stent struct to distal OM branch. A Mini-Trek 2.0x20mm balloon was inflated up to 20 atm to open stent struct. A 0.014" Pilot 50 wire with a Crusade catheter was used and pass to distal LCX. Then, several different sized balloons were inflated at proximal-to-mid LCX at 24 atm. After IVUS was performed to evaluate the vessel size, a DES (Xience Xpedition 3.0x48mm) was deployed at ostial LAD up to 12 atm with T and Protruding technique (TAP technique). A Hiryu 3.5x15mm was prepositioned at LM-LAD, and first kissing technique was done at LM-LAD (Hiryu 3.5x15mm) and LM-LCX (Stent balloon 3.0x48mm) up to 10-12 atm. Then, a Hiryu 3.0x20mm balloon inflated up to 28 atm at in-stent portion of LCX. Final kissing technique with a Hiryu 3.5x15mm and a Hiryu 3.0x20mm) were performed at LM-LAD-LCX up to 12 atm. Final IVUS showed stent well deployed and well expansion. Final angiography showed good result without complication. At one-year follow-up period, the patient presented symptom-free and follow-up angiography showed good result without in-stent restenosis.