

Case History

A 69-year-old woman with a history of diabetes mellitus and hypertension presented with progressive exertional breathlessness of one week's duration. Electrocardiography demonstrated features suggestive of anterolateral ischemia. Cardiac biomarkers were consistent with a diagnosis of non-ST-elevation myocardial infarction (NSTEMI). Transthoracic echocardiography revealed regional wall motion abnormalities (RWMA) with mildly reduced left ventricular systolic function.

Coronary angiography demonstrated double-vessel coronary artery disease, with a 70% stenosis in the proximal left anterior descending artery (LAD) and a critical, heavily calcified 90% lesion in the distal LAD. The proximal left circumflex artery (LCX) showed a discrete 70% stenosis.

Given the patient's NSTEMI presentation, ongoing ischemia, and critical LAD disease identified as the culprit lesion, percutaneous coronary intervention (PCI) to the LAD was planned.

Procedure Strategy

The procedure was performed via right femoral arterial access. The left coronary artery was engaged using a 6 Fr EBU 3.5 guiding catheter. The LAD lesion was crossed with a SION Blue guidewire and predilated using a 1.5×10 mm balloon. During lesion preparation, the patient developed a no-reflow phenomenon secondary to a heavy thrombus burden, which was managed with intracoronary vasodilator therapy. Further lesion preparation was performed sequentially with a 2.0×10 mm balloon.

After restoration of adequate coronary flow, a 2.25×44 mm Ultimaster Tansei drug-eluting stent was advanced toward the distal LAD. However, the stent could not be tracked across the distal LAD lesion and was therefore withdrawn. During retrieval into the guiding catheter, the stent was dislodged from the delivery balloon and remained suspended in the aorta over the LAD guidewire, while the guiding catheter had disengaged and was floating in the ascending aorta.

With considerable difficulty, both the guide catheter and the dislodged stent were re-engaged, and the stent was carefully advanced into the proximal LAD. At this stage, the stent exhibited longitudinal deformation with shortening. Once positioned within the proximal LAD, neither further advancement nor retrieval was possible. Therefore, a decision was made to deploy the stent in its current position.

The deformed stent was serially dilated using 1.0 mm, 2.0 mm, and 2.5 mm non-compliant (NC) balloons. During post-dilatation, the stent regained its original length and elongated proximally toward the left main coronary artery, with a portion protruding into the aorta. The extent of stent elongation could not be controlled.

Subsequently, the distal LAD lesion was further prepared using a 2.0×10 mm NC balloon inflated at high pressures, followed by implantation of a 2.25×38 mm Ultimaster Tansei drug-eluting stent in the distal LAD. Post-dilatation was performed, and proximal optimization of the left main segment was carried out.

Final intravascular ultrasound (IVUS) interrogation demonstrated adequate minimum stent area (MSA) with well-expanded and well-apposed stents. The final angiogram showed satisfactory stent deployment with TIMI III flow in the distal vessel.