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PCI for left main (LM) bifurcation lesions remains challenging due to their complex anatomy. In particular, PCI for ostial left circumflex (LCX) lesions is associated with a high rate of adverse events after stenting. We report a stent-less treatment strategy using three debulking devices for a calcified ostial LCX lesion.

A 75-year-old man with hypertension, diabetes, and dyslipidemia, and a history of PCI to the left anterior descending artery (LAD) and RCA, presented with effort angina. Diagnostic angiography revealed severe stenosis due to a calcified lesion at the LCX ostium. As the fractional flow reserve (FFR) of the LCX was 0.75, he underwent PCI to the LCX. Intravascular ultrasound (IVUS) demonstrated a fibrous and calcified plaque at the LCX ostium. Directional coronary atherectomy (DCA) was attempted first, but the DCA catheter could not cross the lesion. An orbital atherectomy system (OAS) was therefore used, given the steep angulation of the LCX lesion. Following OAS, rotational atherectomy was performed with a 2.0-mm burr, as residual superficial calcification remained in the ostial LCX lesion. DCA was then performed on the residual fibro-calcific plaque at the LCX ostium using an M-size 6-mm DCA catheter. Final angiography and IVUS showed excellent results after adjunctive scoring balloon dilatation and drug-coated balloon treatment. A combination of debulking devices may facilitate a stent-less treatment strategy for ostial LCX lesions.