C-14

A case of rotational atherectomy and intravascular lithotripsy assisted PCI for severely calcified stenosis

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A 91-year-old male with atrial fibrillation and hypertension was admitted to the hospital to undergo posterior decompression fusion for cervical dislocation fracture. After surgery, the patient developed heart failure and was started drug therapy. Echocardiography revealed apical aneurysm. Coronary angiography performed after heart failure improved showed heavily calcified stenosis of the left anterior descending artery (LAD) and middle left circumflex coronary artery chronical total occlusion with collateral flow from right coronary artery. A few days after discharge, we performed PCI for LAD. The left coronary artery was cannulated by a 6Fr LJ3.5 guide catheter via the right distal radial artery approach. 0.014-inch guidewire was advanced into the distal LAD. Intervascular ultrasound (IVUS) imaging demonstrated significant fibrocalcific plaque with deep and superficial calcium deposits the affected vessels. Considering the severe calcific burden, rotational atherectomy was conducted on LAD to modify the plaque. This was followed by intravascular lithotripsy (IVL) to further modify the heavily calcified plaque. Post-IVL IVUS demonstrated the improvement of the stenosis lesion with the multiple fracture in almost circumferential thick calcified plaques. Finally, drug-eluting stent was deployed. Final IVUS confirmed favorable stent apposition and an acceptable luminal diameter in the treated segments. We experienced a case of a severe calcified coronary artery lesion successfully treated with hybrid of rotational atherectomy and IVL.