

A case of blow-out-type coronary artery rupture in using orbital atherectomy system for left circumflex lesions with a severely calcified nodules

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We present the case of a patient who underwent percutaneous coronary intervention (PCI) for left circumflex (LCx) with calcified nodule (CN). A 70-year-old man was transferred with chest pain. An electrocardiogram showed ST elevation in inferior leads. Emergent coronary angiography revealed occlusion of LCx, and PCI was performed. Because of severe stenosis with CN, the acute treatment was completed only by plain old balloon angioplasty. He was later referred for retreatment. Because optical coherence tomography (OCT) could not cross, rotational atherectomy (RA) was carried out using the Rotablator system with 1.5mm burr at a rate of 180,000 rpm. OCT revealed that #11 was a non-ruptured CN at lesser curvature and #13 was ruptured CNs remaining at approximately 15 mm. Orbital atherectomy system (OAS) was utilized for lesion modification, and #11 was ablated 4 times using a pull-back motion. However, when attempting to ablate #13, OAS was jumped and entrapped in #15AV. After retrieval of the entrapped OAS, guidewire fracture and blow-out-type coronary artery rupture was observed. Hemostasis using a perfusion balloon or covered stent was deemed difficult, because #15AV was a small vessel. A Graftmaster 2.8 × 19 mm was deployed from #13 distal to #15PD occluded #15AV, and hemostasis was achieved by post dilatation with a HiryuPlus 3.5 × 8 mm. Echocardiography revealed a small amount of pericardial effusion, but no cardiac tamponade, and the patient was discharged on the ninth day.

Blow-out-type coronary artery rupture can be fatal, and as noted in the consensus document, appropriate management is necessary. This report includes a literature review, including differences in covered stents.