

Serial optical coherence tomography findings after drug-coated balloon treatment in de novo coronary bifurcation lesion

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A 55-year-old man with a background of current smoking and hypercholesterolemia was admitted with a non-ST-segment elevation myocardial infarction. His cardiac enzymes were raised with a creatine kinase-MB and troponin I of 16.2 ng/mL and 0.55 ng/mL, respectively. Coronary angiography showed a 90% stenosis at the bifurcation of the left anterior descending artery and first septal artery with Thrombolysis in Myocardial Infarction grade 3 flow in both branches (Fig. 1).

The culprit lesion in the left anterior descending artery was dilated with a non-compliant 3.5 × 10 mm balloon at 12 atm, followed by a 3.5 × 20 mm drug-coated balloon (DCB) inflated at 8 atm for 60 s. The ostium of the septal branch was not treated. The final angiographic result was good with no significant dissection. Post-intervention his symptoms resolved. Nine months

later, follow-up coronary angiography confirmed adequate patency of the DCB treated segment. Reassuringly the bifurcation looked better on serial optical coherence tomography with a late luminal loss of –0.10 mm (Fig. 1). He remains symptom free 7 years post-intervention.

Although DCBs have shown good safety and efficacy in inhibiting neointimal hyperplasia in coronary artery disease, their role in treating bifurcation lesions remains controversial. This case demonstrates that DCB treatment of the main vessel did not compromise the side branch, but in fact lead to an increase in the luminal area of the side branch ostium at 9-month follow-up optical coherence tomography. These findings suggest that treating the main branch of a bifurcation using a DCB rather than a stent may be an option to avoid compromising the side branch ostium.

Conflict of interest: None declared

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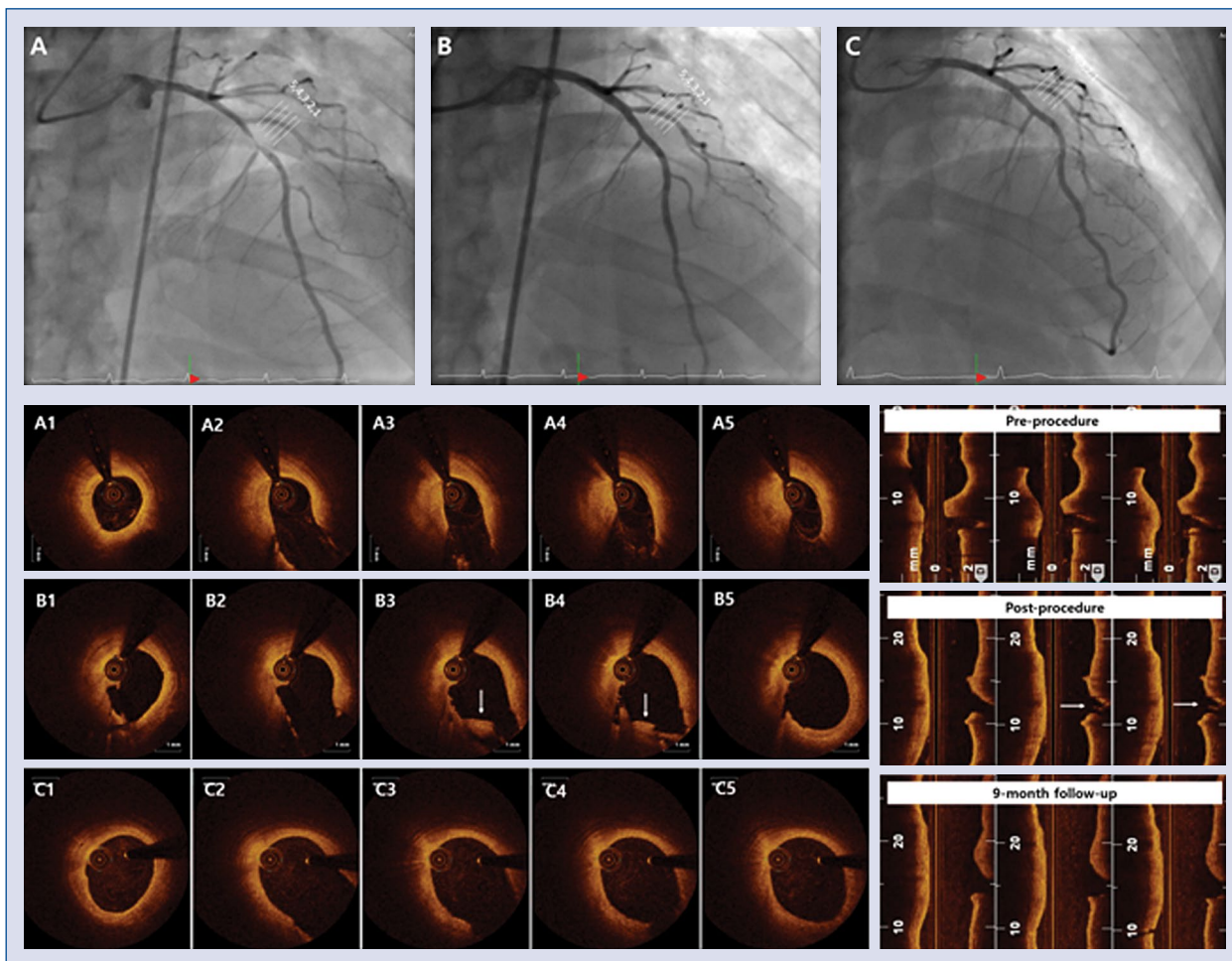


Figure 1. Pre-procedure (A), post-procedure (B) and 9-month follow-up angiographic images (C) coupled to corresponding optical coherence tomography (OCT) images. Pre-procedure angiographic image shows a true bifurcation lesion. After the procedure, the OCT image demonstrates dissection of the main vessel which protruded into the side branch ostium (white arrows). At OCT follow-up, however, the dissection has disappeared, and the lumen area of the main vessel and side branch ostium have increased due to the local drug effect.