

1133      **Vascular Dissection Dynamics and Healing Following the Use of Two Different Modified Balloons in the Same Coronary Artery: A Case Report**

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### Background

Drug-coated balloon (DCB) angioplasty is an attractive stentless treatment strategy; however, vessel dissection during lesion preparation remains a major concern. We report a case in which two different modified balloons were used in the same coronary artery, producing distinct dissection patterns and acute procedural outcomes while achieving favorable long-term vessel healing.

### Case Presentation

A 61-year-old man presented with exertional dyspnea. Coronary angiography demonstrated severe stenosis in the left anterior descending artery (LAD #6, 90%; #7, 75%), with a fractional flow reserve of 0.71. Intravascular ultrasound (IVUS) revealed predominantly fibro-fatty plaque with minimal calcification. To preserve the major diagonal branch originating from LAD #6, a DCB-based strategy was selected.

For the LAD #7 lesion, pre-dilation with a Wolverine cutting balloon produced an NHLBI Type B dissection with preserved TIMI 3 flow. Subsequent DCB angioplasty achieved satisfactory luminal expansion.

For the LAD #6 lesion, pre-dilation with an NSE Aperta scoring balloon initially resulted in a Type B dissection. However, following DCB inflation, the dissection progressed to Type C, causing severe narrowing at the ostium of the diagonal branch. To seal the dissection entry and prevent further propagation, a drug-eluting stent (Ultimaster Nagomi) was implanted as bailout treatment. The diagonal branch was subsequently rewired and dilated. IVUS demonstrated an extensive intramural hematoma extending into the side branch without impaired coronary flow. Therefore, conservative management was chosen without additional stenting or fenestration.

### Follow-up and Results

At 6-month follow-up angiography, the LAD remained widely patent, and the diagonal branch stenosis had spontaneously resolved. Optical frequency domain imaging (OFDI) demonstrated favorable vessel healing at the Wolverine-treated lesion. At the bailout-stented segment, a localized medial dissection was observed without evidence of extramural extension.

### Conclusion

This case demonstrates that different modified balloons can produce distinct dissection morphologies even within the same coronary artery. Timely bailout stenting to seal progressive DCB-related dissection resulted in favorable long-term anatomical and clinical outcomes.