

Management of Iatrogenic Dissection and Intramural Hematoma After DCB Angioplasty

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Introduction. Drug-coated balloon (DCB) angioplasty is a “leave-nothing-behind” strategy for selected coronary lesions, avoiding permanent metallic implantation. However, extensive lesion preparation and balloon oversizing may cause vessel-wall injury, including dissection and intramural hematoma. This report describes the successful management of acute coronary occlusion caused by an intramural hematoma during DCB angioplasty, highlighting cutting-balloon fenestration as a bailout strategy.

Methods. A significant right coronary artery lesion was prepared using a 3.0 × 12 mm non-compliant balloon inflated to 12 atm, followed by a 3.5 × 15 mm paclitaxel-coated DCB inflated to 8 atm. Optical coherence tomography (OCT) was performed to assess vessel-wall response.

Results. Pre-DCB OCT showed no vessel-wall injury. Following DCB inflation, OCT revealed an evolving intramural hematoma with associated dissection and progressive true-lumen compression, ultimately causing complete coronary occlusion. DCB inflation and possible oversizing were considered contributing factors. A 3.0 × 12 mm cutting balloon inflated to 12 atm created controlled fenestrations, decompressing the hematoma and immediately restoring coronary flow. Given the extent of vessel-wall injury, a 3.0 × 18 mm drug-eluting stent was subsequently implanted at 12 atm, achieving final TIMI 3 flow.

Discussion. Meticulous lesion preparation and appropriate balloon sizing are essential for safe DCB angioplasty. In cases of occlusive intramural hematoma, conventional balloon dilatation may be insufficient to achieve decompression. Cutting-balloon fenestration may restore coronary flow and facilitate definitive stent implantation.

Keywords: Drug-Coated Balloon, Coronary Dissection, Intramural Hematoma, Cutting Balloon, Percutaneous Coronary Interventions

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