Successful Stenting With Optical Frequency Domain Imaging Guidance For Spontaneous Coronary Artery Dissection

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A 51-year-old woman was urgently admitted because of chest pain. Emergent coronary angiography revealed diffuse stenosis from the proximal to distal portion of the right coronary artery (RCA) with Thrombolysis In Myocardial Infarction (TIMI) flow grade 2 (Figure 1). No stenosis was seen in the left coronary artery. Intravascular ultrasound (IVUS) images revealed an intracoronary hematoma from the posterior descending artery (PDA) to the ostium of the RCA, but could not demonstrate the entry point of the hematoma (Figures 1A2 to 1D2). Optical frequency domain imaging (OFDI) (Terumo, Tokyo, Japan) images clearly demonstrated, not only intracoronary hematoma from the PDA to the ostium of RCA, but also the entry point of the hematoma (Figures 1A1 to 1D1). A 4.0 x 12-mm Multilink 8 stent (Abbott Vascular, Santa Clara, California) was deployed in the ostium of the RCA to close the entry.
of the hematoma, and TIMI flow grade 3 was obtained (Figure 2). The patient had no elevation of cardiac enzymes and no chest pain after the procedure. Three-week follow-up coronary angiography revealed no significant stenosis, and OFDI revealed that the vessel lumen size became larger compared with immediately after the procedure, and the entry of the hematoma resolved despite intracoronary hematoma remaining (Figures 2A to 2D).

Diagnosis and management of spontaneous coronary artery dissection is very challenging. Previous reports have suggested the value of optical coherence tomography (OCT) in this situation (1-3). Although a forceful, power injection of contrast medium necessary to clear the artery of blood has a possibility of hydraulic propagation of a dissection in a dissected artery, OCT can visualize the double-lumen morphology and identify the entry tear, as well as the circumferential and longitudinal extent of the hematoma. Furthermore, OCT was useful to confirm that the guidewire was located in the true lumen and that adequate stent coverage for the entry tear, expansion, and apposition were achieved. In this case, IVUS could not detect the entry tear. Therefore, long stenting, which has the potential risk of stent thrombosis, might be required for revascularization with IVUS or angiography guidance. OFDI/OCT is useful to diagnose and determine the strategy of percutaneous coronary intervention in spontaneous coronary artery dissection.

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