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IMAGES IN INTERVENTION

Optical Coherence Tomography Assessment of Late Intra-Scaffold Dissection

A New Challenge of Bioresorbable Scaffolds

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A 48-year-old man was admitted because of a non-ST-segment elevation myocardial infarction. Fifteen months previously, he had received a 3.0 × 28-mm bioresorbable vascular scaffold (BVS) (Absorb, Abbott Vascular, Santa Clara, California) in the mid-left anterior descending coronary artery for stable angina. Coronary angiography showed a focal in-scaffold restenosis (**Figure 1A**). Optical coherence tomography (OCT) (Ilumien, St. Jude Medical, Saint Paul, Minnesota) revealed a heterogeneous pattern consisting of neointimal hyperplasia (**Figure 1C**), mural white thrombus (**Figure 1C**), and lipidic plaque with attenuation (**Figure 1D**). OCT after pre-dilation with a 2.0 × 15-mm semicompliant balloon showed outer migration of scaffold struts (**Figures 1E, 1G, and 1H**) visible in several frames leading to intra-scaffold dissection (**Figures 1E to 1H**) extending behind the disrupted scaffolds. Good angiographic result was obtained after 3.0 × 15-mm noncompliant balloon and abciximab infusion (**Figure 1B**); no further intervention was performed.

Although BVS promotes acute vessel scaffolding similar to metallic stents, it carries a unique feature of complete resorption approximately 3 years after implantation (1). It is known that 6 months after the implantation, BVS loses radial strength and structural continuity; therefore, it no longer functions as a scaffold (2), which was likely the potential mechanism that favored in-scaffold dissection after balloon dilation in the present case. Although clinicians should be aware that in-scaffold dissections might occur after performing in-BVS balloon dilation for late BVS failure (i.e., theoretically after 6 months), as herewith presented, the best management of BVS restenosis (i.e., implanting another BVS-in-BVS or balloon dilation only) remains to be determined.

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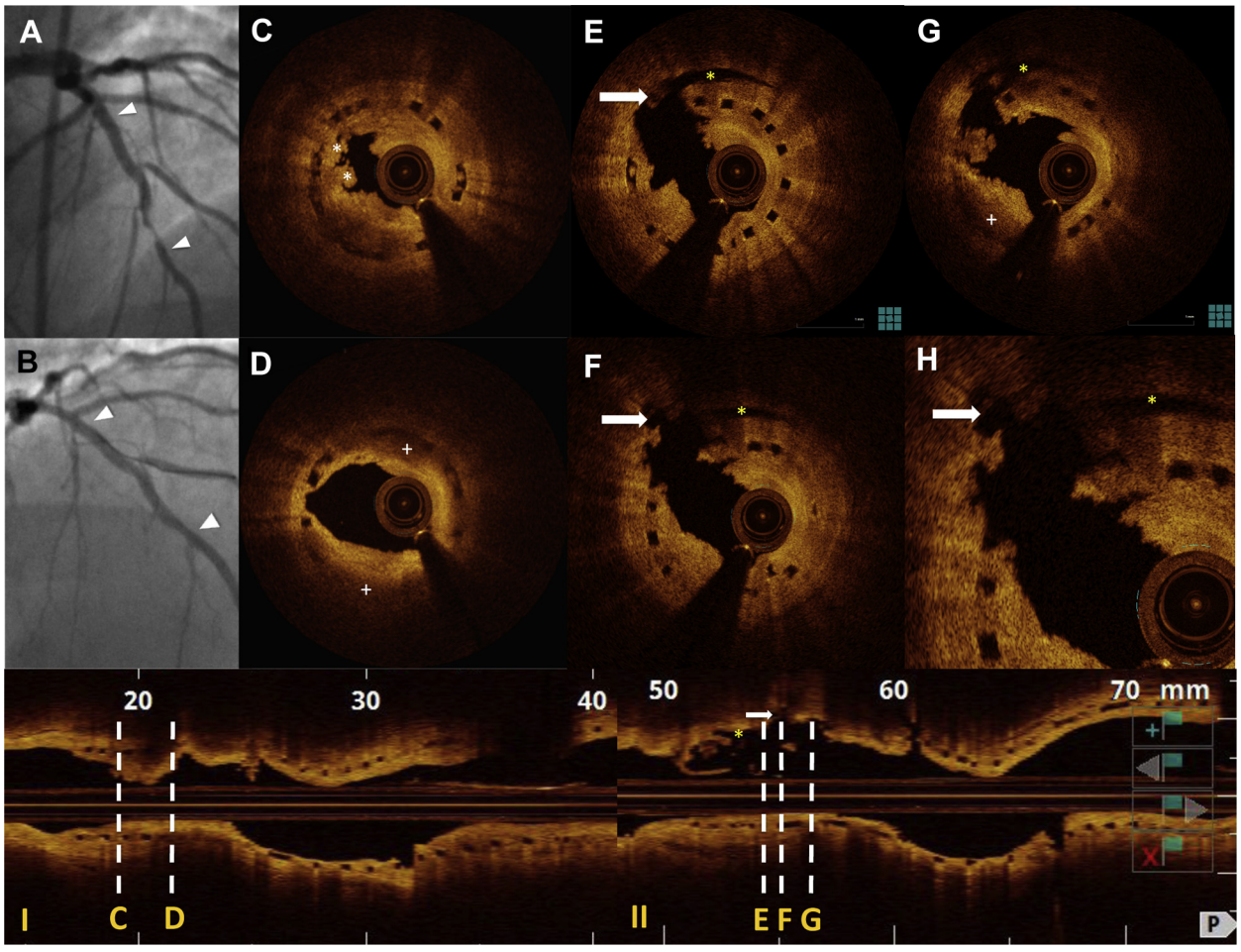

FIGURE 1 **Coronary Angiography and OCT Cross-Sectional Images With Longitudinal Views**

Coronary angiography **(A, B)** and optical coherence tomography (OCT) cross-sectional images **(C to H)** with longitudinal views **(I, II)** are demonstrated. **(A)** Coronary angiography demonstrates focal in-scaffold restenosis. **White arrowheads** indicate the position of the platinum markers of the BVS. **(B)** Good angiographic result after balloon dilation and abciximab infusion is shown. **(C to G) White dashed lines** in the longitudinal views correspond to the cross sections, respectively, pre-intervention **(I)** and post-intervention **(II)**. Neointimal hyperplasia (12 to 4 o'clock position) and mural white thrombus **(white asterisks)** are revealed in **C**, whereas lipidic plaque with attenuation **(white plus signs)** is visualized in **D**. Outer migration of scaffold struts **(white arrow)** and intrascaffold dissection **(yellow asterisk)** are visualized in **E to H**. Magnification of **G** is shown in **H**.

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