

IMAGES IN INTERVENTION

# Optical Coherence Tomography Assessment of Late Intra-Scaffold Dissection



## A New Challenge of Bioresorbable Scaffolds

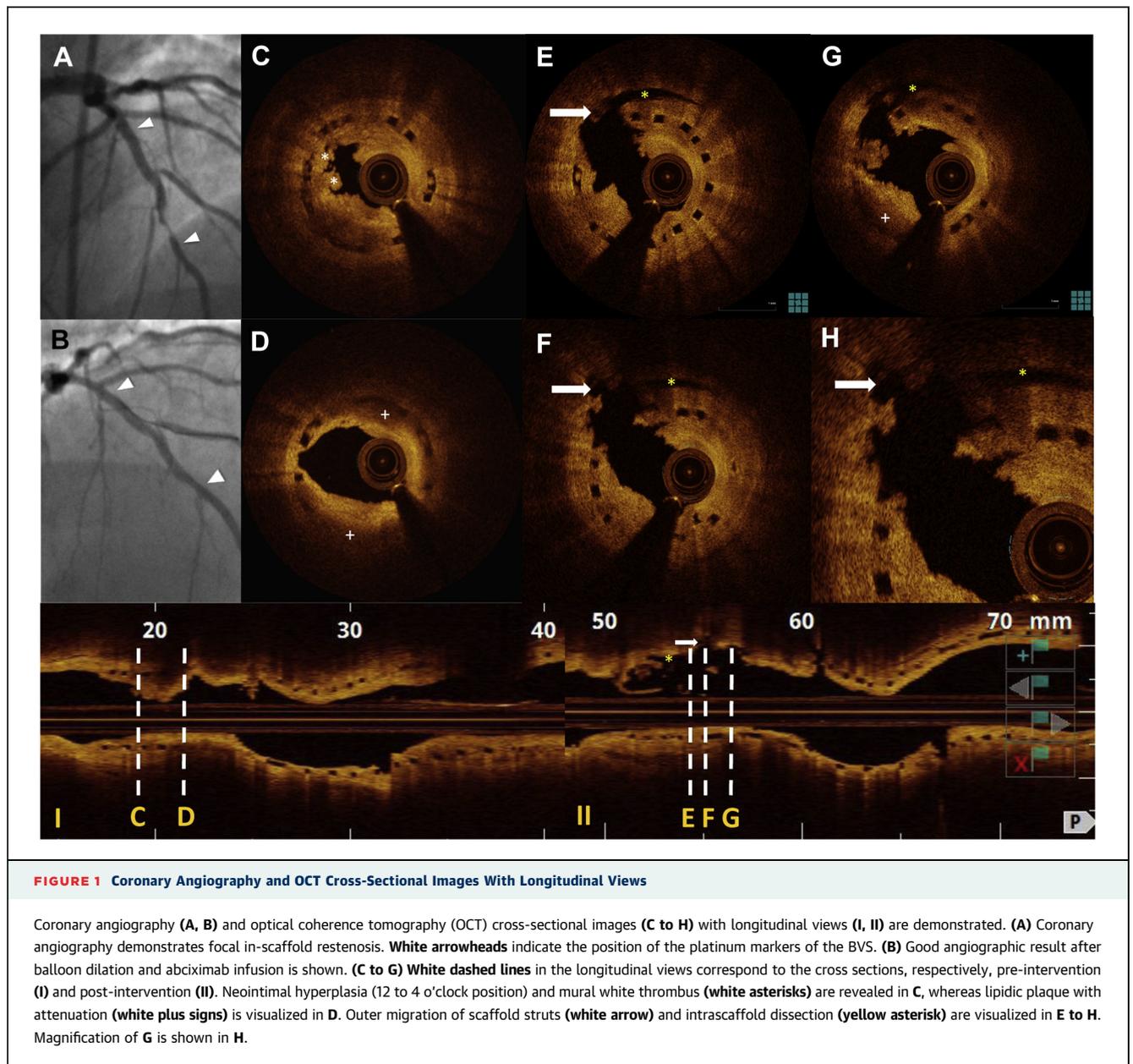
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A 48-year-old man was admitted because of a non-ST-segment elevation myocardial infarction. Fifteen months previously, he had received a 3.0 × 28-mm bioresorbable vascular scaffold (BVS) (Absorb, Abbott Vascular, Santa Clara, California) in the mid-left 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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## REFERENCES

1. Serruys PW, Onuma Y, Garcia-Garcia HM, et al. Dynamics of vessel wall changes following the implantation of the absorb everolimus-eluting bioresorbable vascular scaffold: a multi-imaging modality study at 6, 12, 24 and 36 months. *EuroIntervention* 2014;9:1271-84.
2. Oberhauser JP, Hossainy S, Rapoza RJ. Design principles and performance of bioresorbable polymeric vascular scaffolds. *EuroIntervention* 2009;5 Suppl F:F15-22.

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