

# Complete healing of a bifurcation lesion treated with the implantation of 2 bioresorbable vascular scaffolds with the T and small protrusion technique

Magdalena Łanocha, Maciej Lesiak

Department of Cardiology, Poznań University of Medical Sciences, Poznań, Poland

Data concerning the long-term efficacy and safety of bioresorbable vascular scaffolds (BVSs) for coronary bifurcation lesions are still limited. The side branch (SB) compromise or even occlusion may occur during a bioresorption process, especially in patients treated with 2-scaffold techniques. Serial optical frequency domain imaging (OFDI) provides a unique illustration of the vascular healing response after complex bifurcation treatment with 2 everolimus-eluting BVSs.

A 60-year-old woman with stable angina underwent coronary angiography that revealed a significant lesion, Medina 0,1,1, at the bifurcation of the left anterior descending coronary artery and the first diagonal branch coronary artery. Following predilation, a 3.0 × 18-mm BVS (Absorb, Abbott Vascular, Santa Clara, California, United States) was implanted in the left anterior descending coronary artery. The implantation of BVS was followed by postdilatation and subsequent opening of struts to the SB with a 2.5-mm balloon inflation. A 2.5 × 18-mm BVS was implanted in the first diagonal branch using the T-stenting with small protrusion technique (TAP) followed by “mini kissing” and proximal optimization within the main branch scaffold.

A postprocedural angiography showed an excellent result, and OFDI revealed a 1.9 mm-length neocarina, consisting of 2 layers of BVS struts with perfect apposition and no evidence of scaffold disruption (FIGURE 1A–1C; Supplementary material, Figure S1A–S1E). Control angiography at 18 months demonstrated non-significant, asymptomatic SB ostial stenosis

(Supplementary material, Figure S2A), caused by neointima growth, as revealed by OFDI (Supplementary material, Figure S2B–S2E). Angiography performed at 38 months showed an excellent long-term outcome, whereas OFDI presented homogeneous hyperplasia of the neointima covering the neocarina. The quantitative measurements confirmed an enlargement of the SB ostium area due to partial scaffold bioresorption (Supplementary material, Figure S3A–S3E). The final assessment at 54 months revealed complete bioresorption of BVS struts, with further enlargement of the SB ostium area and perfect restoration of the whole bifurcation area (FIGURE 1D–1F; Supplementary material, Figure S4A–S4E).

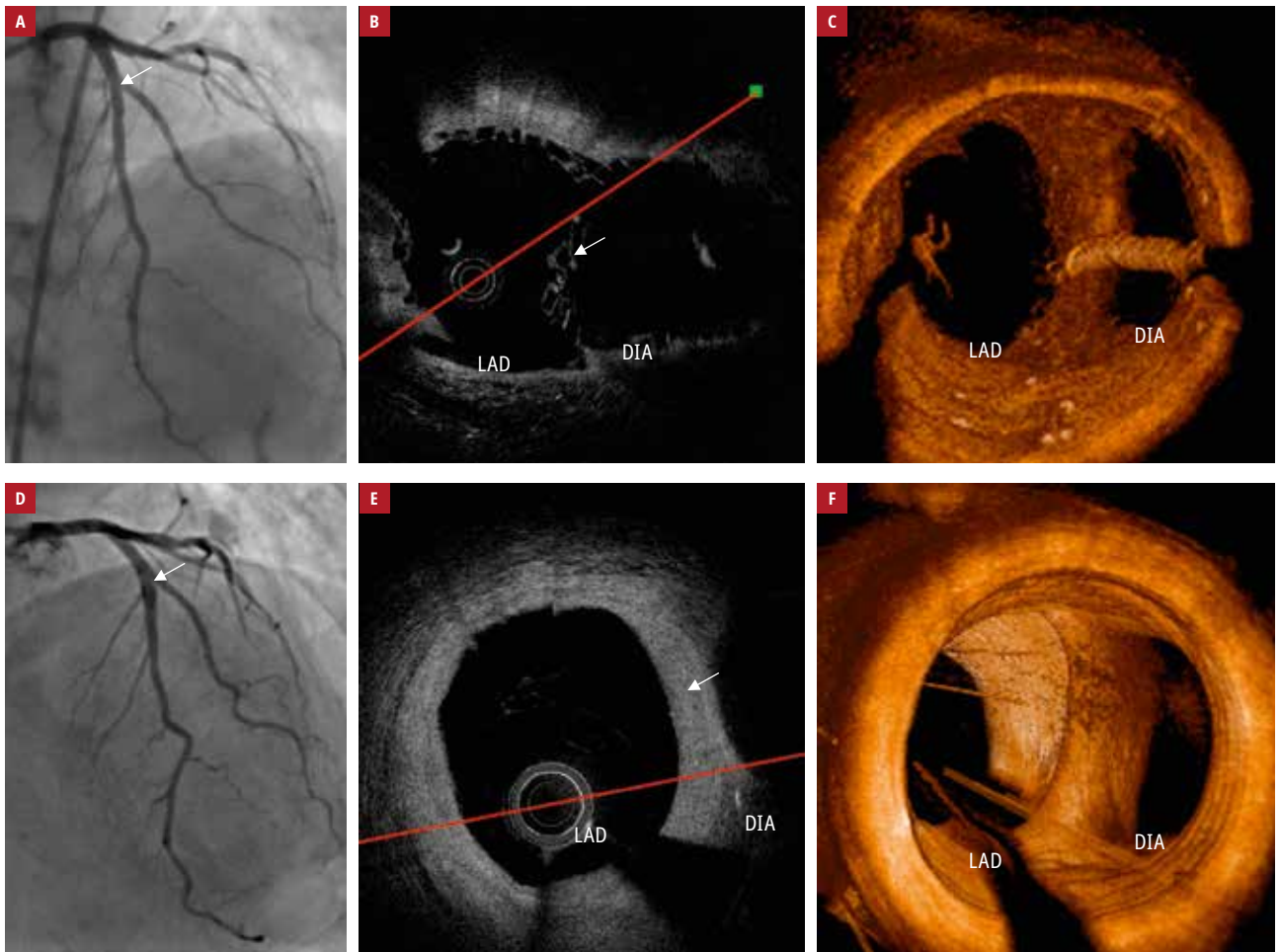
Presented OFDI images provide a unique opportunity to study the long-term vascular response to bifurcation lesion treatment with the implantation of 2 scaffolds. Absorb scaffolds are no longer commercially available but cardiologists still deal with hundreds of thousands of patients who had been treated with the first-generation bioresorbable technology. Based on a few years of experience, it is currently not recommended to treat true bifurcation lesions with the 2-scaffold technique. We recommend that additional imaging examination (preferably OFDI) should be performed to confirm the bioresorption process, and based on the results, dual antiplatelet therapy should be continued or restarted until a full coverage of struts is achieved. Due to the increased risk of late and very late thrombosis in patients with low risk of bleeding, we propose to continue dual antiplatelet therapy until complete resorption.

#### Correspondence to:

Magdalena Łanocha, MD, PhD,  
Department of Cardiology, Poznań  
University of Medical Sciences,  
ul. Długa 1/2, 61-848 Poznań,  
Poland, phone: +48 61 854 9146,  
email: mlanocha@hotmail.com  
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**FIGURE 1** Coronary angiogram after bifurcation stenting (arrow) at baseline (A) and at 54-month follow-up (D); optical frequency domain imaging (OFDI), a selected cross-section view showing the neocarina composition (arrow) at baseline (B) and at 54-month follow-up (E); OFDI, a 3-dimensional view at the neocarina level at baseline (C) and at 54-month follow-up (F)  
Abbreviations: DIA, diagonal branch coronary artery; LAD, left anterior descending coronary artery

#### SUPPLEMENTARY MATERIAL

Supplementary material is available at [www.mp.pl/kardiologiapolska](http://www.mp.pl/kardiologiapolska).

#### ARTICLE INFORMATION

**CONFLICT OF INTEREST** M. Lesiak and M. Łanocha have received speaker's honoraria from Abbott Vascular and Terumo.

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