Vascular Healing of a False Lumen After Bioresorbable Scaffold Implantation

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Bioresorbable scaffolds (BRS) are promising devices for the treatment of coronary artery disease by virtue of their resorption properties allowing positive vascular remodeling.1,2 This case report illustrates the vascular healing process after Absorb BRS (Abbott Vascular, Santa Clara, CA) implantation in a false lumen during the treatment of a chronic total occlusion.

A 62-year-old male with stable angina underwent coronary angiography revealing a chronic total occlusion of the left anterior descending artery. Percutaneous coronary intervention was attempted via the anterograde approach. A hydrophilic Fielder FC wire (ASAHI Intecc, Tokyo, Japan) entered the subintimal space (Figure [1]) supported by a 1.25 mm over-the-wire semi-compliant balloon. The wire reentered the true lumen distally and after predilation, 4 minimally overlapping Absorb (Abbott Vascular) BRS were implanted in the left anterior descending artery (Figure [1 and 2]). Although, there was a remaining dissection distal to the implanted BRS, further scaffold/stent implantation was not performed because of small vessel size and good distal flow. Intravascular imaging was not performed because of these concerns.

Optical frequency domain imaging (LUNAWAVE, Terumo Corporation, Tokyo, Japan) performed at 13-month follow-up demonstrated a healed false lumen smoothly covered with neointima. The compressed true lumen was also patent and supplied by collateral flow (Figure [B–E]). Furthermore, optical frequency domain imaging revealed smooth neointimal growth over the distal edge of the BRS (Figure [A]; Movie I in the Data Supplement). This case demonstrates the vascular healing process of a false lumen after a chronic total occlusion percutaneous coronary intervention with current BRS.

Disclosures
Dr Latib has served on the advisory board of Medtronic. The other authors report no conflicts.

References

Key Words: coronary occlusion ♦ neointima ♦ tomography, optical coherence
Vascular healing of false lumen after bioresorbable scaffold implantation. 1. Angiogram image of wire advancing into subintimal space. 2. After bioresorbable scaffold (BRS) implantation, the distal dissection (red arrows) was not covered by another BRS/metallic stent because of the small vessel size and good distal flow. 3. Follow-up angiogram at 13-month demonstrating the vascular healing of the distal dissection observed at the index procedure. Optical frequency domain imaging (OFDI) demonstrating concentric neointimal hyperplasia (A) extending into the false lumen distally. B–E, OFDI image of vascular healing in the false lumen covered by neointimal hyperplasia, and compressed true lumen supplied by collateral flow (orange arrows; small branch). CTO indicates chronic total occlusion.
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