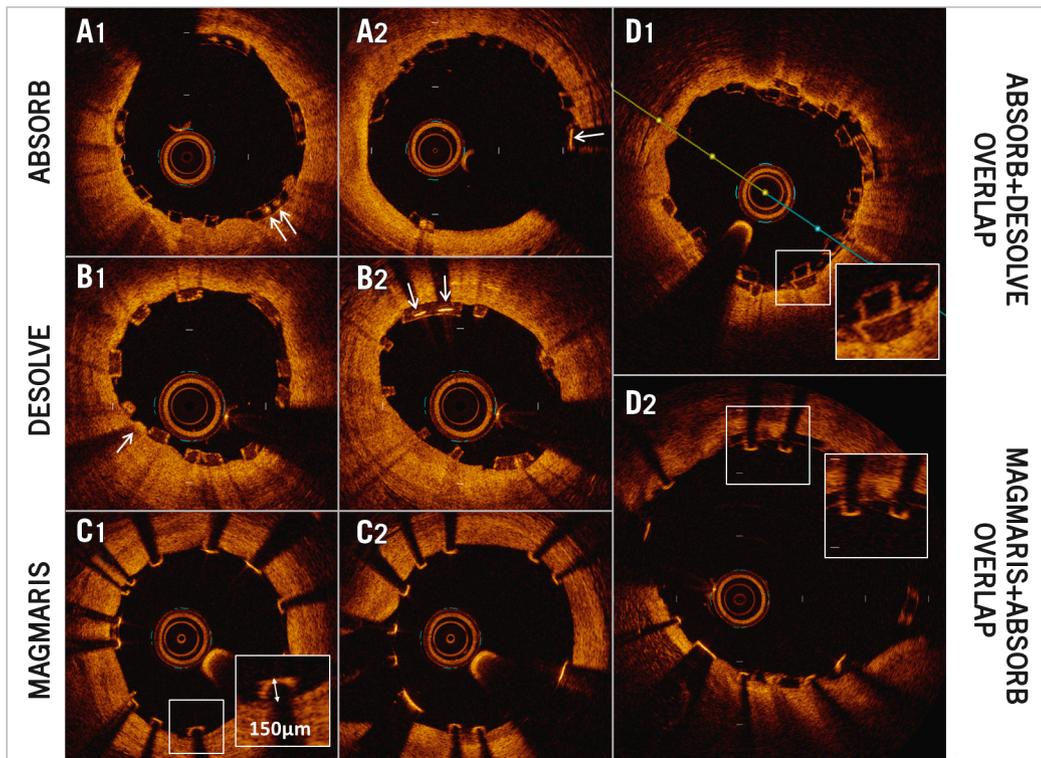


Imaging comparisons of bioresorbable scaffolds as seen by optical coherence tomography



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Intracoronary imaging is recommended to guide bioresorbable scaffold (BRS) deployment. Here, we describe the distinguishing features of three CE-marked BRS – Absorb™ (Abbott Vascular, Santa Clara, CA, USA), DESolve® (Elixir Medical, Sunnyvale, CA, USA) and Magmaris™ (Biotronik, Berlin, Germany) – as imaged by optical coherence tomography (OCT) immediately post implantation.

Absorb (poly[L-lactide], PLLA) and DESolve (PLLA-based) scaffolds have characteristic box-shaped struts with minimal attenuation. Absorb struts (**Panel A1, Panel A2**) exhibit very low backscatter (appearing almost black), whereas DESolve struts (**Panel B1, Panel B2**) exhibit slight backscatter (appearing lightly shaded), reflecting proprietary differences in the polymer constituents. The Magmaris (magnesium-based) scaffold appears on OCT similar to a metallic stent (**Panel C1, Panel C2**). All three BRS have struts 150 µm thick. As opposed to Absorb and DESolve, only the luminal surface of Magmaris can be seen, potentially giving a false impression of malapposition – measurement is helpful in uncertain cases (**Panel C1**). Absorb has numerous “flare spots” throughout the length of the scaffold (**Panel A1**, arrows), located at hinge points of high strain and thought to

represent micro-gaps in the polymer. DESolve has fewer and less apparent flare spots (**Panel B1**, arrow). Absorb and DESolve scaffold edge markers are visible (**Panel A2, Panel B2**, arrows) – these are located 0.9 mm and 0.3 mm from the proximal and distal edges, respectively, for Absorb, and 1 mm from either edge for DESolve. Identifying markers on OCT and co-registering them angiographically guides implantation of overlapping scaffolds in cases where markers are poorly seen on fluoroscopy. Magmaris edge markers are difficult to distinguish from the scaffold. The appearance of overlapped BRS scaffolds can be clearly appreciated on OCT (**Panel D1, Panel D2**). With the current uncertainty regarding the long-term results of BRS, a clear understanding of their imaging features is of the utmost utility.

Conflict of interest statement

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