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IMAGES IN INTERVENTION

New-Onset Coronary Aneurism and Late-Acquired Incomplete Scaffold Apposition After Full Polymer Jacket of a Chronic Total Occlusion With Bioresorbable Scaffolds

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A 60-year-old man with a chronic total occlusion of the left anterior descending coronary artery (LAD) (**Figure 1A**) and evidence of myocardium viability was successfully treated with percutaneous coronary intervention. Four overlapping bioresorbable vascular scaffolds (BVS; Abbott Vascular, Santa Clara, California) were implanted: 2.5 × 28 mm, 3.0 × 28 mm, 3.5 × 28 mm, and 3.5 × 28 mm from distal to proximal, respectively ("full polymer jacket") (**Figure 1B**) (1). Optical coherence tomography (OCT; Ilumien, St. Jude Medical, St. Paul, Minnesota) showed good expansion of the scaffolds and good apposition of the struts (**Figures 1a to 1g**). At 8 months, elective angiographic follow-up documented a focal coronary artery aneurysm (CAA) at the mid-segment of the LAD (**Figure 1C**) (2). OCT revealed a CAA maximal lumen area of 16.4 mm^2 with a longitudinal length of 8.4 mm in the absence of thrombus. At the CAA site, most of the BVS struts were embedded in the aneurysmal wall and covered by neointima, whereas late-acquired incomplete scaffold apposition (ISA) was noted in some cross sections (**Figures 1a′ to 1g′**). To our knowledge, this is the first described case of new-onset CAA and late-acquired ISA after BVS implantation. Potential mechanisms of late-acquired ISA after chronic total occlusion percutaneous coronary intervention include guidewire injury to the adventitial layer, creation of a false lumen, or subintimal stenting (3). With BVS, the management is uncertain, not automatically resembling that of CAA developed after metallic stenting (2). The potential consequences of balloon angioplasty or stent implantation inside a BVS that has lost its integrity as a result of the bioresorption process are unknown. A "watchful waiting" strategy with long-term dual antiplatelet therapy and early follow-up was adopted.

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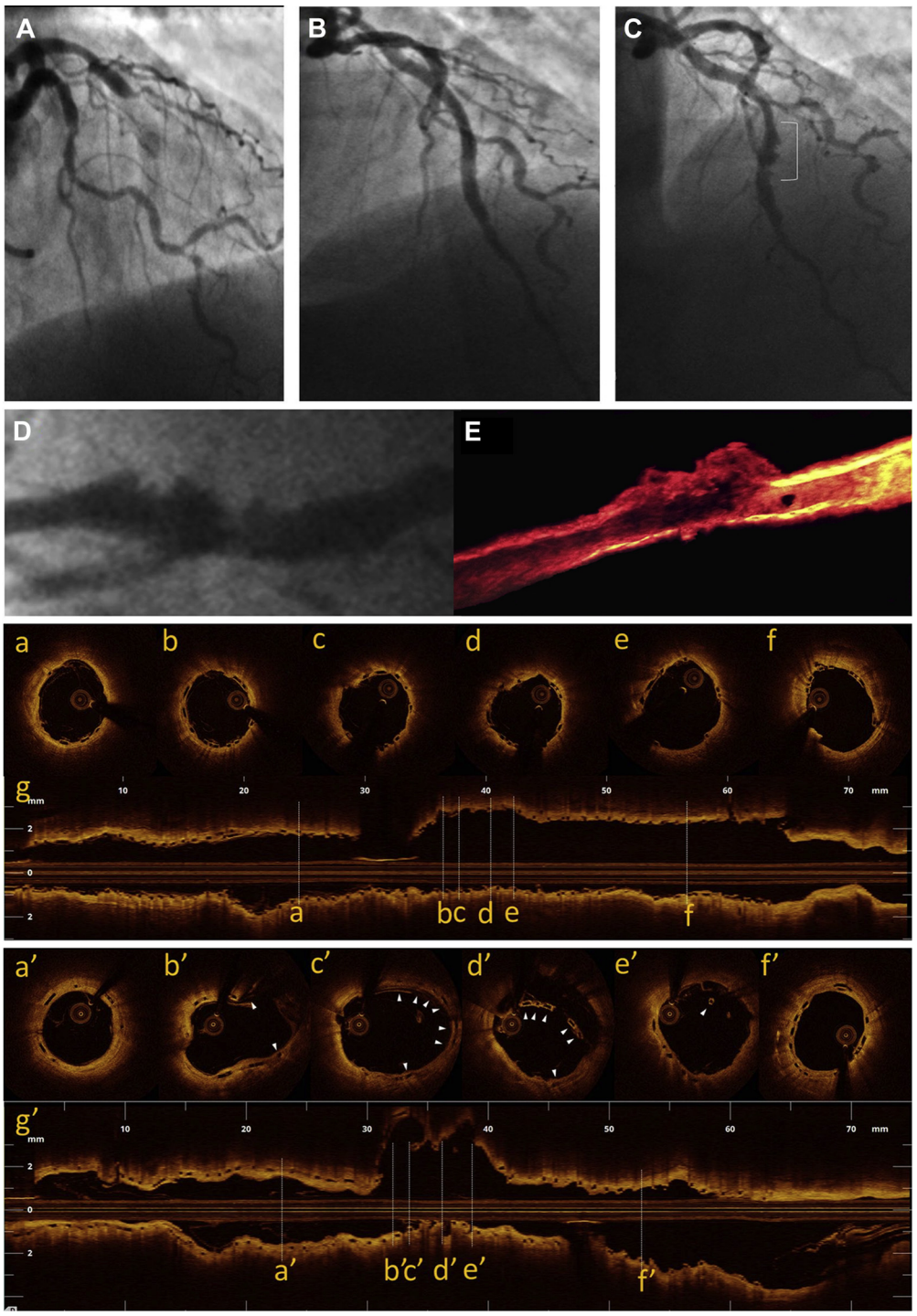
FIGURE 1 Coronary Angiography and Optical Coherence Tomography Findings



(A) Angiogram with chronic total occlusion of proximal left anterior descending coronary artery (LAD). **(B)** LAD angiogram after "full polymer jacket" with bioresorbable vascular scaffolds (BVS). **(C)** LAD angiogram at 8-month revealing a coronary artery aneurysm (CAA) at the mid-segment **(white bracket)**. **(D)** Magnification of CAA at angiography. **(E)** Magnification of CAA at optical coherence tomography (OCT) 3-dimensional reconstruction. **(a–g)** OCT cross sections and longitudinal view after the index procedure show good expansion and apposition of the scaffold struts. **(a′–f′)** Corresponding cross sections at 8-month angiographic follow-up showing normal vessel with good scaffold apposition **(a′ and f′)**, CAA with scaffold struts **(white arrowheads)** embedded in the aneurysmal vessel wall **(b′ and c′)**, and late ISA with BVS struts **(white arrowheads)** floating in the lumen vessel **(d′ and e′)**. The luminal surface of CAA is homogenous with no evidence of thrombus. **(g′)** Longitudinal view of the CAA.

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