



CASE REPORT

Bioresorbable vascular scaffold for very late stent thrombosis resulting from ruptured neoatherosclerosis



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Optical coherence tomography;
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Abstract Very late stent thrombosis is a rare but devastating complication after percutaneous coronary revascularization. Pathological studies have demonstrated that neoatherosclerosis plays a major role in certain patients with very late stent thrombosis. Optical coherence tomography is able to unravel the underlying pathophysiology and may be used to select the best treatment option. This case report describes the use of a bioresorbable vascular scaffold (BVS) in a patient suffering from very late stent thrombosis due to a complicated plaque in the setting of intrastent neoatherosclerosis. To our knowledge, this therapeutic strategy has not been previously reported in patients suffering from very late stent thrombosis. In this scenario, BVS implantation might represent an attractive strategy in selected patients.

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PALAVRAS-CHAVE

Tomografia de coerência ótica;
Suportes vasculares biorreabsorbíveis;
Trombose de *stent*;
Neoateroasclerose

Plataformas biorreabsorbíveis no tratamento da trombose de *stent* muito tardia resultante de rotura de neoaterosclerose

A trombose de *stent* muito tardia é uma complicação rara mas preocupante após a revascularização coronária percutânea. Estudos patológicos têm demonstrado que a neoaterosclerose desempenha um papel importante em doentes selecionados com trombose de *stent* muito tardia. A tomografia de coerência ótica contribui para a compreensão da fisiopatologia subjacente, permitindo selecionar a melhor opção de tratamento. No presente caso descrevemos a utilização de um *stent* vascular bioabsorvível num doente que apresentava trombose de *stent* muito tardia devido a placa complexa no contexto de neoaterosclerose intrastent. De acordo com a nossa experiência, esta estratégia terapêutica não tem sido apresentada em

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doentes com trombose de *stent* muito avançada. Neste cenário, a implantação de suportes vasculares bioabsorvíveis pode representar uma estratégia atrativa em doentes selecionados. © 2015 Sociedade Portuguesa de Cardiologia. Publicado por Elsevier España, S.L.U. Todos os direitos reservados.

Case report

A 52-year-old man with hyperlipidemia was admitted for an episode of prolonged chest pain. The electrocardiogram showed anterior ST-segment elevation from V1 to V3. Eight years before he had suffered an anterior myocardial infarction and a paclitaxel-eluting *stent* was implanted in the proximal left anterior descending coronary artery. Since then, the patient had been on aspirin and atorvastatin with adequate lipid control. Emergent coronary angiography revealed a complete occlusion (100%, TIMI 0) of the most proximal segment of the *stent* (Figure 1A). Thromboaspiration was successful in retrieving some red thrombus and in obtaining TIMI 3 coronary flow. Optical coherence tomography (OCT) (St. Jude Medical, St. Paul, MN, USA) disclosed complicated in-*stent* neoatherosclerosis characterized by a large and heterogeneous intrastent plaque with

a large lipid pool. Near the area showing the minimal lumen diameter a ruptured fibrous cap associated with white and red thrombi was identified (Figure 1C). In some segments the *stent* struts could hardly be visualized as the result of significant shadowing caused by the red thrombus or the attenuation induced by lipid plaque. In addition, relatively large, residual red thrombi were also detected in other segments of the *stent* (Figure 1D and E). The rest of the *stent* was well covered by homogeneous and bright neointima. There was moderate *stent* underexpansion but no evidence of uncovered struts or malapposition was detected along the *stent*. Multiple high-pressure dilatations were performed with a 3 mm non-compliant balloon, with clear lumen improvement but still with a suboptimal angiographic result (intrastent haziness with residual stenosis). A 3.0 mm bioresorbable vascular scaffold (BVS) (Abbott Vascular, Santa Clara, CA, USA) was implanted and subsequently

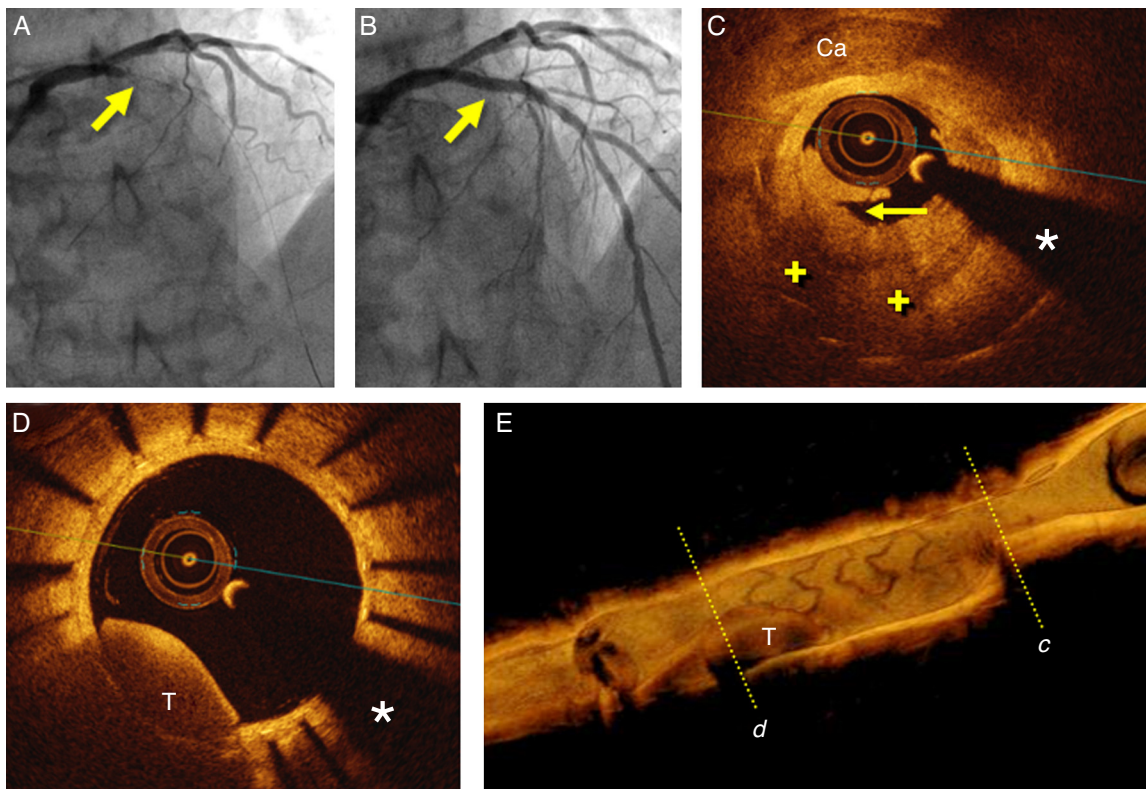


Figure 1 (A) Coronary angiography in cranial view showing the occluded left anterior descending coronary artery (arrow); (B) final angiographic result after bioresorbable vascular scaffold deployment; (C) optical coherence tomography (OCT) image after thrombus aspiration showing heterogeneous intrastent tissue with large lipid pools (+). Some *stent* struts are poorly detected due to attenuation. There is also calcified tissue (Ca) surrounding some struts. Note plaque rupture (arrow); (D) OCT image after thrombus aspiration showing residual red thrombus (T) in an area with complete neointimal coverage. (*) denotes wire artifact; (E) 3D reconstruction of OCT image after thrombus aspiration with severe stenosis due to intrastent tissue (c) and residual red thrombus (T) (d).

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