Very late thrombosis observed on optical coherence tomography 22 months after the implantation of a polymer-based bioresorbable vascular scaffold

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A 47-year-old man was referred to our catheterization laboratory with an acute coronary syndrome. The patient received a bioresorbable vascular scaffold (BVS, Absorb) in the right coronary artery (RCA) (Panel A). The procedure was guided with intravascular ultrasound. Coronary angiography was performed at 22 months due to atypical symptoms and revealed haziness in the RCA (Panel B). Optical coherence tomography (OCT) showed homogeneous neointimal proliferation in the previously treated coronary segment with areas of OCT-derived macrophages and a mixed non-occlusive thrombus (Panel C–J). After BVS implantation, the patient was initially treated with a combination of antiplatelets and oral anticoagulation due to atrial fibrillation. Antiplatelet therapy was discontinued after 6 months. The INR value on admission was 1.8. A metallic drug-eluting stent was implanted at the affected segment (Panel K), and antiplatelet medication was resumed. The chief neointimal components in this case as assessed by OCT represent normal smooth muscle cells. However, the observed neointimal tissue appeared to possess some inflammatory activity because of the existence of OCT-derived macrophages. BVS studies have reported that the rate of material degradation affects the degree of inflammatory response. In the Absorb II trial, the rate of definite scaffold thrombosis at 1 year was 0.6%, but reports on very late thrombosis are scarce. In the present case, impairment of normal healing leading to endothelial dysfunction and complete cessation of antiplatelet drugs may have contributed to very late thrombosis. Patients treated with BVS should be followed up carefully until complete resorption and restoration of vascular function.

Panel (A) Final coronary angiogram after implantation of a bioresorbable vascular scaffold in the setting of an acute coronary syndrome (arrow head). (B) Follow-up coronary angiography showing haziness in the proximal segment of the right coronary artery (arrow head). (C–J) Serial optical coherence tomography (OCT) images of very late thrombosis from distal to proximal sites in the scaffold segment. Optical coherence tomography shows mixed thrombus (arrow head) and OCT-derived macrophages (arrow). (K) Final angiogram after implantation of a metallic drug-eluting stent in the culprit segment, resulting in thrombolysis in myocardial infarction flow grade 3.