Clinical vignette

Neointimal proliferation around malapposed struts of a sirolimus-eluting stent: optical coherence tomography findings

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A 65-year-old man with hypercholesterolaemia and hypertension underwent elective percutaneous coronary intervention (PCI) because of exertional angina. Three sirolimus-eluting stents (Cypher; 3.0 × 33, 3.0 × 13, and 2.5 × 28 mm) were deployed in the left anterior descending artery. Three months after the PCI, follow-up studies were performed. An angiogram showed no in-stent restenosis. A coronary angiography showed the struts with a glimmer were detached from the vessel wall (black arrowhead in Panel A). Neither neointima nor intracoronary thrombi around this strut were visible. Both longitudinal and cross-sectional images by optical coherence tomography (OCT) clearly demonstrated protrusion of stent struts into the lumen (white arrowheads in Panels B-D) and existence of a lumen behind the struts (white arrows in Panels B-D). Surprisingly, neointimal proliferation around these malapposed struts (red arrows in Panels C and D) extended from the vessel wall to the strut like a polyp with a stalk (Panel D). Thin neointimal layer on the struts of drug-eluting stents is often difficult to detect, even with an intravascular ultrasound. Our images suggest that angiography also appears to have limitations in detecting very thin layer of neointima. OCT, with its high resolution, provides detailed information on intracoronary structure. OCT may be a useful tool to evaluate the process of neointimal proliferation after drug-eluting stents implantation.

Angioscopic and OCT findings of malapposed struts of a sirolimus-eating stent.