

6. Hartmann M, von Birgelen C, Mintz GS, Verhorst PMJ, Erbel R. Relation between baseline plaque burden and subsequent remodelling of atherosclerotic left main coronary arteries: a serial intravascular ultrasound study with long-term ( $\geq 12$  months) follow-up. *Eur Heart J* 2006;27:1778–1784. First published on May 22, 2006, doi:10.1093/eurheartj/ehl034.
7. Sipahi I, Tuzcu EM, Schoenhagen P, Nicholls SJ, Ozduran V, Kapadia S, Nissen SE. Compensatory enlargement of human coronary arteries during progression of atherosclerosis is unrelated to atheroma burden: serial intravascular ultrasound observations from the REVERSAL trial. *Eur Heart J* doi:10.1093/eurheartj/ehi796. Published online ahead of print March 8, 2006.
8. Prati F, Arbustini E, Labellarte A, Sommariva L, Pawlowski T, Manzoli A, Pagano A, Motolese M, Boccanelli A. Eccentric atherosclerotic plaques with positive remodelling have a pericardial distribution: a permissive role of epicardial fat? A three-dimensional intravascular ultrasound study of left anterior descending artery lesions. *Eur Heart J* 2003;24:329–336.
9. Nissen SE, Tuzcu EM, Schoenhagen P, Brown BG, Ganz P, Vogel RA, Crowe T, Howard G, Cooper CJ, Brodie B, Grines CL, DeMaria AN. Effect of intensive compared with moderate lipid-lowering therapy on progression of coronary atherosclerosis: a randomized controlled trial. *JAMA* 2004;291:1071–1080.
10. Nissen SE, Nicholls SJ, Sipahi I, Libby P, Raichlen JS, Ballantyne CM, Davignon J, Erbel R, Fruchart JC, Tardif JC, Schoenhagen P, Crowe T, Cain V, Wolski K, Goormastic M, Tuzcu EM. Effect of very high-intensity statin therapy on regression of coronary atherosclerosis: the ASTEROID trial. *JAMA* 2006;295:1556–1565.
11. Rodriguez-Granillo GA, Garcia-Garcia HM, Mc Fadden EP, Valgimigli M, Aoki J, de Feyter P, Serruys PW. *In vivo* intravascular ultrasound-derived thin-cap fibroatheroma detection using ultrasound radiofrequency data analysis. *J Am Coll Cardiol* 2005;46:2038–2042.
12. Schaar JA, Regar E, Mastik F, McFadden EP, Saia F, Disco C, de Korte CL, de Feyter PJ, van der Steen AF, Serruys PW. Incidence of high-strain patterns in human coronary arteries: assessment with three-dimensional intravascular palpography and correlation with clinical presentation. *Circulation* 2004;109:2716–2719.
13. Jang IK, Bouma BE, Kang DH, Park SJ, Park SW, Seung KB, Choi KB, Shishkov M, Schlendorf K, Pomerantsev E, Houser SL, Aretz HT, Tearney GJ. Visualization of coronary atherosclerotic plaques in patients using optical coherence tomography: comparison with intravascular ultrasound. *J Am Coll Cardiol* 2002;39:604–609.

## Clinical vignette

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### 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 angiogram 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-eluting stent.

