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CARDIOVASCULAR FLASHLIGHT

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Allograft vasculopathy vs. coronary artery disease: comparison by optical coherence tomography

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This paper was guest edited by Prof. Brahmajee K. Nallamothu, Department of Internal Medicine, University of Michigan, MI, USA

Optical coherence tomography (OCT) is a novel high-resolution intravascular imaging technique allowing characterization of coronary artery plaques and evaluation of stent strut coverage. As a new application, OCT can be also used in allograft vasculopathy as demonstrated by the following images.

Comparison of OCT and coronary angiography in a cardiac transplant recipient vs. a patient with coronary artery disease: OCT image of the left anterior descending coronary artery in a 72-year-old patient 14 years after heart transplantation and current immunosuppressive treatment with tacrolimus, azathioprine, and prednisone shows a well-defined signal-rich layer indicating concentric intimal hyperproliferation, which is pathognomonic for allograft vasculopathy (Panel A; see Supplementary material online, Video S1).

Optical coherence tomography image in a 70-year-old patient with coronary artery disease demonstrates a lipid-rich plaque with a large, homogeneous, poorly delineated and signal-poor region with alternating signal-rich spots reflecting single calcifications (Panel B). A signal-rich band mirrors a thin fibrous cap extending from 6 to 9 o'clock. Moreover, non-covered stent struts are well visualized (Panel B; see Supplementary material online, Video S2).

Sole coronary angiography does not allow assessing intraluminal tissue morphology such as allograft vasculopathy (Panel C) and plaque characterization (Panel D) which both may have important prognostic implication on patient outcome.

Supplementary material is available at *European Heart Journal* online.

