



Very early in-stent neoatherosclerosis assessed by optical coherence tomography

Armando Vergara-Martel¹ · Patricia Ely Pizzato¹ · Luis Augusto P. Dallan¹ · Gabriel Tensol Rodrigues Pereira¹ · Henry Charles Tyler Richmond² · Guilherme Ferragut Attizzani¹ · Michael R. Jones²

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A 66-year-old man presented with unstable angina 54 days following the implantation of a second-generation drug-eluting stent (DES) (3.0×23 mm) in the mid segment of the first obtuse marginal branch. Coronary angiography showed a new sub-occlusive lesion in the same segment (white arrow).

To better characterize the lesion, optical coherence tomography (OCT) was subsequently performed and showed red thrombus (cross-section B) flanked by regions of lipid plaque distinguished by strong OCT signal attenuation (cross-section A and C, crosses). Healthy neointimal stent coverage was also visualized (cross-section A and C, asterisks). Due to the impeded visualization of stent struts undoubtedly present in the region, we concluded that the lipid plaque had developed over the stent and was therefore neoatherosclerosis. Two second-generation DES

(3.0×23 mm and 3.0×12 mm) were implanted, followed by post-dilation with excellent angiographic results (black arrow).

Although neoatherosclerosis has been described to occur more frequent and earlier in DES relative to BMS [1], this instance highlights the range of how early it may develop. Stent thrombosis was a consideration given the timeline. However, due to the high resolution of OCT allowing detailed assessment of vessel morphology [2] we accurately diagnosed neoatherosclerosis with plaque rupture.

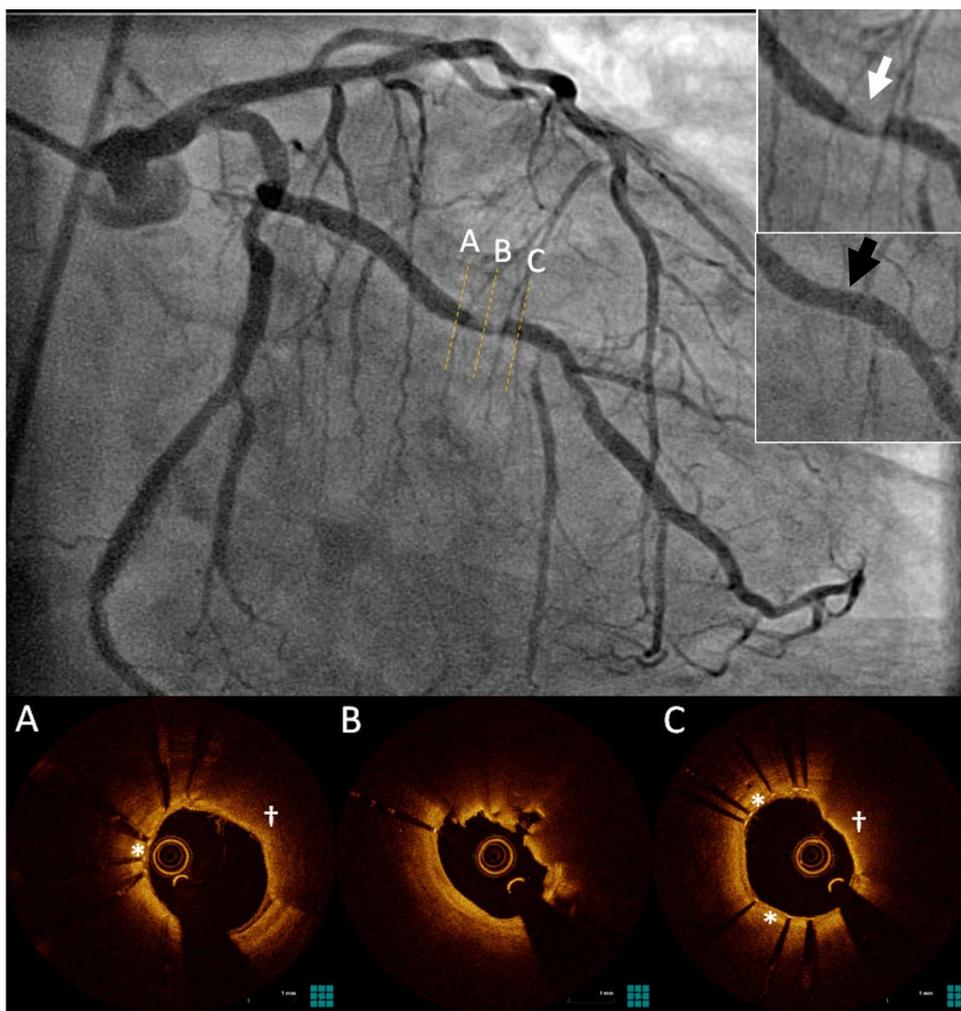
Thus the details acquired through an OCT pullback can, as in this case, provide a breadth of information to accurately diagnose and understand the temporal development of neoatherosclerosis, a mechanism related to late stent failure.

✉ Luis Augusto P. Dallan
luisdallan@yahoo.com

¹ University Hospitals Cleveland Medical Center, Cleveland, USA

² Lexington Cardiology, Lexington, USA

Pre- and post-treatment angiography and OCT of current intervention. Coronary angiography showing a new sub-occlusive lesion in the first obtuse marginal branch (white arrow). Optical coherence tomography cross sections corresponding to angiographic location (A–C). Plaque rupture with red thrombus (cross-section B), fibroatheroma (cross-section A and C, cross), regions of neointimal coverage on struts (cross-section A and C, asterisk). Excellent angiographic results following the implantation of two DES (3.0×23 mm and 3.0×12 mm), with post-dilation (black arrow)



Compliance with ethical standards

Conflict of interest None of the other authors have conflicts of interest.

References

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