32. Hausenloy DJ, Yellon DM. The second window of preconditioning (SWOP) where are we now? Cardiovasc Drugs Ther 2010;24:235–54. 

IMAGE FOCUS

Choosing the right cell: guidance with three-dimensional optical coherence tomography of bifurcational stenting

Eduardo Alegria-Barrero, Nicolas Foin, Pak Hei Chan, Alistair C. Lindsay, and Carlo Di Mario*

Cardiovascular Biomedical Research Unit, Royal Brompton Hospital, Sydney Street, London SW3 6NP, UK
*Corresponding author. Tel: +44 20 73516616; fax: +44 20 73518104; Email: c.dimario@rbht.nhs.uk

Upper panel. A 36-year-old male with progressive exertional angina, inducible anterolateral ischemia, and single-vessel disease involving the bifurcation left anterior descending coronary artery (LAD)/first diagonal branch (Panel 1A). Panel 1B shows the three-dimensional (3D)-optical coherence tomography (OCT) image of a 2.75 x 28 mm Integrity RESOLUTE® stent with a wire crossing the struts, demonstrating that the wire crossed through the most distal cell of the side-branch ostium. Panel 1C shows the 3D-OCT image after a 2.5 mm balloon has been dilated at 12 atm across the origin with a 3.0 mm balloon inflated in the LAD (kissing balloon). A perfect circular opening with no strut malapposition in the ostium is obtained.

Lower panel. A 72-year-old woman with exertional angina and a severe lesion in the bifurcation of LAD/first diagonal branch (Panel 2A). Three-dimensional OCT image (Panel 2B) shows the struts of a similar stent (3.0 x 24 mm Integrity RESOLUTE®) jailing the ostium of the side branch. OCT was not used to identify the position of wire crossing. Panel 2C indicates that despite dilatation of the diagonal ostium with a 2.5 mm balloon with a 3.0 mm balloon in the LAD, a gross malapposition of the main vessel stent struts persists at the origin of the diagonal. The wire is clearly positioned in the most proximal cell. The final angiographic images of the two lesions (Panels 1D and 2D) are remarkably similar, giving no clue of the fundamental difference in the result.

High-resolution intravascular imaging with OCT and 3D reconstruction has the unique ability to clearly identify the position of wire crossing during bifurcational stenting.

Published on behalf of the European Society of Cardiology. All rights reserved. © The Author 2012. For permissions please email: journals.permissions@oup.com