

# Double-barrel lumen during recanalisation of a chronically occluded stent in a saphenous vein graft

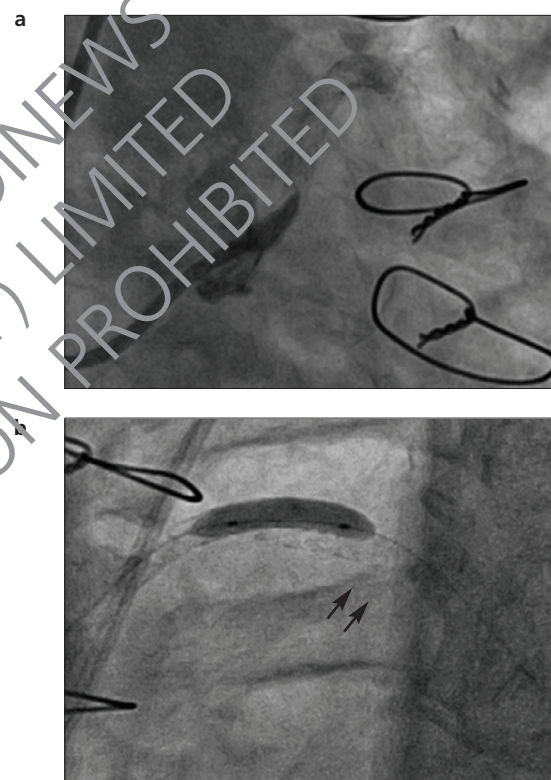
JUN TANIGAWA, OMER GOKTEKIN, CARLO DI MARIO

## Case report

**A** 73-year-old man who had had a coronary bypass operation 15 years before presented with refractory angina despite full medication seven months after implantation of a 3.0 x 20 mm non drug-eluting stent in a saphenous vein graft (SVG) to the left circumflex artery. Angiography showed total occlusion from the ostium (figure 1a). Using a 6Fr AL1.0 guiding catheter, a polymer-coated hydrophilic wire (Pilot 50, Guidant) easily crossed the occlusion. A 3.5 x 15 mm balloon was easily passed and inflated through the occlusion. However, the angiographic image acquired to document balloon expansion (figure 1b) showed that the balloon was being dilated outside the previously implanted stent.

In order to bail out this unexpected situation, a second guidewire with a sharp bend was advanced, with attention paid to avoid entering the same lumen outside the stent. After gentle dilatation with a 2.5 mm balloon (figure 2a), intravascular ultrasound (IVUS) confirmed the position of the second wire fully inside the stent with a double-barrel lumen in the graft (figure 2 IVUS, position 1), which had a total vessel diameter greater than 6 mm with massive plaque accumulation throughout (figure 2 IVUS, position 2). Based on these images, all the proximal and mid segments of the SVG were covered from the ostium with two long stents (4.0 x 32 and 5.0 x 32 mm) post-dilated to 5.0 mm at 12 atm. A third 4.0 x 28 mm stent was implanted at the distal end. The patient had no symptoms during or after the procedure, his ECG remained unchanged, his

**Figure 1.** Coronary angiograms showing; **a**: proximal occlusion of a vein graft to the left circumflex; and **b**: the balloon easily inflates with no indentation at 8 atm but is clearly positioned outside the stent



First Department of Internal Medicine, Osaka Medical College, Takatsuki, Osaka, Japan.

Jun Tanigawa, Research Fellow, Cardiology, Royal Brompton Hospital, London

Faculty of Medicine, Osmangazi University, Eskisehir, Turkey.

Omer Goktekin, Associate Professor in Cardiology; and Research Fellow, Cardiology, Royal Brompton Hospital, London

Imperial College, London.

Carlo Di Mario, Professor of Clinical Cardiology; and Consultant in Interventional Cardiology, Royal Brompton Hospital, London

Correspondence to: Professor C Di Mario  
Royal Brompton Hospital, Sydney Street, London, SW3 6NP.  
(email: c.dimario@rbht.nhs.uk)

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cardiac troponin I level rose to 0.12 mg/ml and he had normal total creatine kinase.

The patient became totally asymptomatic after treatment, confirming that the occluded graft was responsible for the disabling angina.

When treating reocclusion of a stent that is likely to be grossly underexpanded, meticulous attention should be paid to documentation of the wire passage through the stent in multiple angiographic views or, if still in doubt, with IVUS before dilatation.

## Conflict of interest

None declared.

**Figure 2.** Coronary angiograms and intravascular ultrasound (IVUS), showing; **a:** angiographic appearance after dilatation of a balloon outside the stent, rewiring of the true lumen inside the stent and stent expansion with a 2.5 mm balloon; **b:** at position 1, the intravascular ultrasound image clearly shows that the catheter, advanced on the second guidewire, is inside the stent which is grossly underexpanded compared with the diameter of the vein graft. The two small arrows indicate hyperplasia inside the stent. The single larger arrowhead marks the position of the second lumen created by the previous dilatation outside the stent; **c:** at position 2, 2 cm distal to the stent, IVUS indicates a large eccentric non-calcific plaque with a vessel diameter of 6.7 mm; **d:** shows the final result after implantation of three stents

