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IMAGES IN CARDIOLOGY

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“Crush” and “reverse crush” technique to treat a complex left main stenosis

An 82-year-old man presented for elective coronary angiography. He had recent onset exertional dyspnoea and nitrate-responsive chest pain. ECG showed left bundle branch block; systolic function was preserved at echocardiography.

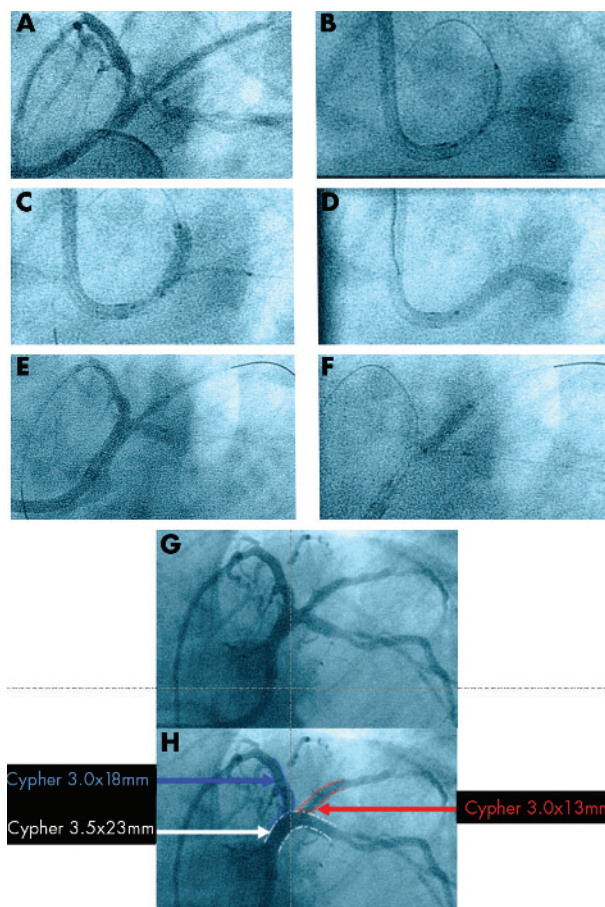
The left anterior descending coronary artery (LAD) had significant ostial stenosis with calcification; the left circumflex (LCX) had critical ostial disease of the predominant atrioventricular vessel, with a severe stenosis of an early marginal branch (panel A). Coronary surgery was discussed but the patient elected to have percutaneous intervention.

An 8 French JL 4.0 guide catheter, 5000 iu of heparin, and abciximab bolus were used. The LAD and LCX were wired using BMW wires. Predilatation was performed in both branches using a 2.5 × 12 mm Maverick balloon. Modified T-stenting with “crushing” to LCX-LAD was performed. The co-dominant LCX was treated as the main vessel. A 3.5 × 23 mm Cypher was placed in the LCX and a 3.0 × 18 mm Cypher in the LAD, with the LCX stent covering the entire left main stem (panel B).

The LAD stent was inflated first at 12 atm (panel C). The stent balloon and wire were removed and the LCX stent was deployed at 18 atm, crushing the proximal part of the LAD stent (panel D). The LAD was then re-accessed using a Wizard wire and the struts were opened with a 2.5 mm Maverick balloon. The first obtuse marginal branch (OM1) was then wired using a Wizard wire and predilated with the 2.5 balloon.

Dr Colombo’s “reverse crushing” technique was used to treat the LCX-OM1 bifurcation. A further 3.0 × 13 mm Cypher was placed in OM1, the proximal 2 mm protruding into the proximal LCX, and a 3.5 × 20 Quantum balloon was placed in the LCX (panel E). The OM1 stent was deployed first at 12 atm, pinning the LCX balloon in position (panel F), then the wire and balloon were removed. The Quantum balloon was then inflated at 16 atm, crushing the proximal part of the OM1 stent (not shown). The LAD wire was removed and the vessel was rewired and predilated, to make sure no struts were protruding into its lumen. The final result is shown in panel G. Panel H depicts the final position of the three stents used.

A combination of “crush” and “reverse crush” techniques was used to ensure complete coverage of a very complex, trifurcating LM lesion in an elderly patient. By treating the



LCX as the main vessel and inflating the LAD stent first, we ensured that the crushed part of the stent was not restricting access to the OM1.

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