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IMAGES IN CARDIOLOGY

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Percutaneous coronary intervention for chronic total occlusions: value of preprocedural multislice CT guidance

A 50-year-old man with increasing anginal complaints was referred for percutaneous coronary intervention (PCI) of an occluded right coronary artery (RCA) (panel A, white arrows show distal filling of the vessels through collaterals from the left coronary artery). He had had an inferior myocardial infarction in 1998 and two previous attempts to open the RCA percutaneously had been unsuccessful. To appreciate fully the length and composition of the occlusion a preprocedural 64-slice CT coronary angiogram was performed. This showed a long occlusion (panel E, 82.4 mm) up to the crux of the RCA (panel C, arrow), which mainly consisted of non-calcified tissue, except for the entry point that disclosed a dense but relatively short rim of calcium (panels B and C, arrowhead). With this information, we used a different strategic approach: after ablation of the calcified initial part of the occlusion using a therapeutic ultrasound device, we were easily able to cross the remainder of the lesion with a conventional guidewire and revascularise the vessel using three overlapping drug-eluting stents. The angiographic result at 6 months' follow-up remained perfect (panel D).

Chronic total occlusions are a common reason for referral to bypass surgery because of the relatively high failure rates when attempting a PCI. Unlike conventional coronary angiography, cardiac

multislice CT provides an accurate assessment of the length and composition of the occluded segment, which are important predictors of procedural success. Preprocedural multislice CT guidance therefore has the potential to identify

which patients are most likely to benefit from attempted PCI.

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