Diagnosis of Coronary Artery Bypass Graft In-Stent Restenosis with 64-Row Detector Tomography

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Male patient, aged 57, ex-smoker and hyperlipidemic, with surgical revascularization in 1995 (two bypasses): Saphenous vein graft to the left anterior descending (LDA) artery and to the right coronary artery (RCA). In March 2007, this patient was admitted due to typical angina; he was performed invasive coronary angiography, and was diagnosed with graft occlusion in RCA, and significant graft stenosis in LDA, in which he was implanted a non-drug-coated stent of 3.5 × 3 mm, resulting in successful outcome with TIMI 3 flow. A month later, he presented atypical chest pain with no changes in ECG; he was performed coronary angiography by multislice computed tomography (MSCT) with a 64-slice Somatom Sensation Cardiac, Siemens, and it revealed a permeable stent and very good flow. Six months later, he is attended in the emergency room with angina at moderate efforts (functional class II-III of NYHA). An angiography by MSCT was performed, which revealed focal in-stent restenosis of saphenous vein graft to LDA (Figure 1 A, B and C); an invasive angiography confirmed the diagnosis (Figure 1 D) and he was immediately performed balloon angioplasty (4 × 20 mm) (Figure 1 E), resulting in successful outcome with TIMI 3 flow (Figure 1 F). Further evolution was satisfactory and patient was discharged with medical treatment and outpatient follow-up.

Fig. 1. Invasive (IA) and minimally-invasive (MSCT) angiography. A. MSCT. Curved multiplanar reconstruction. Coronary artery bypass graft with focal in-stent restenosis (arrow) in its middle portion. B. MSCT. Curved multiplanar reconstruction. Coronary artery bypass graft with in-stent focal restenosis (arrow) in its middle portion. C. MSCT. Multiplanar reconstruction. In-stent restenosis: cross-section (arrows). D. IA. Focal in-stent restenosis in coronary artery bypass graft (arrow). E. IA. Balloon dilation of restenosis (arrow). F. IA. Post-interventional final outcome. Without residual restenosis and with TIMI 3 flow.

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