Coronary artery bypass grafting for the occlusion of left main trunk and right coronary artery guided by computed tomographic angiography

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A 65-year-old man, with a history of diabetes, hypertension, and dyslipidaemia, complained dyspnoea and was transferred to our hospital. We diagnosed the case as congestive heart failure and performed diagnostic coronary angiography (CAG). As shown in (Panel A), the left main trunk was occluded. In addition, the right coronary artery (RCA) was also occluded (Panel B). CAG did not bring any information about the distal segments of all coronary arteries and we evaluated them with computed tomographic angiography (CTA). The heart was mainly perfused with collateral circulation through the conus branch via the septal perforator (Panel C). CTA showed diffuse calcification in the proximal segments of triple vessels, but not in the distal except the left circumflex artery (LCx), and clarified the graftability of the distal segment of each artery. Referring from CTA, coronary artery bypass grafting (CABG) was performed. The left internal thoracic artery graft was anastomosed to the left anterior descending artery and the saphenous vein graft to the RCA. Anastomosing to the distal segment of LCx was difficult for its calcification. After CABG, we confirmed the patency of two grafting arteries with CTA (Panels D–F). Segmental left ventricular wall motion abnormality was improved except the LCx lesion and ejection fraction also increased from 22 to 38% evaluated by transthoracic echocardiography. Furthermore, the status of heart failure was improved from New York Heart Association functional class III to I. CTA is well known to bring the information of coronary artery non-invasively. In this case, CTA provided us indispensable information for CABG, the graftability of distal coronary arteries which CAG did not clarify.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.