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IMAGES IN CARDIOLOGY

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Anomalous origin of the left main coronary artery from the main pulmonary artery (ALCAPA) illustrated before and after surgical correction on ECG-gated 40-slice computed tomography

A 39-year-old man was admitted in another institution for diagnostic work-up of stable exercise induced angina pectoris. Clinical examination was unremarkable. Exercise SestaMIBI single photon emission computed tomography (SPECT) revealed a large perfusion defect in the anterior territory, normalising at rest (panel A). Cardiac catheterisation revealed a large right coronary artery (panel B) in orthotopic location. However, catheterisation of the left main coronary artery (LMCA) was not possible. Therefore the patient was referred to our institution for multislice computed tomography (CT), to document the location and origin of the LMCA.

Enhanced multi-slice CT (MX Brilliance 40, Philips Medical Systems, Cleveland, Ohio, USA) was performed with retrospective ECG-gating, 40 × 0.625 mm collimation, 120 kV and 600 mAs. Globe view reconstructed CT images revealed a large right coronary artery arising from the aorta (Ao) (panel C, straight arrow) and an aberrant LMCA (curved

arrow) originating from the main pulmonary artery (PA). A retrospective review of the catheter lab images showed the LMCA perfused by collaterals developed from the right coronary artery (panel D, curved arrow) and directly connected to the pulmonary artery. The patient underwent surgical reimplantation of the LMCA on the ascending aorta. A follow-up enhanced multi-slice CT demonstrated the patency of the reimplanted LMCA (panel E) (straight arrow) in the left coronary sinus (AO).

To our knowledge this is the first reported case of anomalous origin of the left main coronary artery from the main pulmonary artery (ALCAPA) documented before and after surgery correction in an adult patient.

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