Multirow Detector Computed Tomography Assessment of Intraseptal Dissection and Ventricular Pseudoaneurysm in Postinfarction Ventricular Septal Defect

Jean-François Paul, MD; Loïc Macé, MD; Christophe Caussin, MD; Abdelhamid Fsihi, MD; Xavier Berthaux, MD; Philippe Brenot, MD; Claude Angel, MD

A 46-year-old man had an acute inferior myocardial infarction after physical exercise. There was no evidence of heart failure. The ECG showed a 3-mm ST-T segment elevation with Q waves in leads D2, D3, and VF and a 3-mm depression in leads V2 to V4. Immediate coronary angiography evidenced a tight stenosis with distal slow flow that was located in the right coronary artery. Percutaneous transluminal coronary angioplasty, with implantation of 2 stents, was successfully performed. A normal flow was restored. Post-procedure ECG showed an isoelectric ST-T segment in leads D2, D3, and VF. Maximal creatine kinase elevation was 500 IU at 12 hours after the onset of clinical symptoms. Subsequent cardiac auscultation uncovered a loud holosystolic murmur. Color-coded Doppler echocardiography demonstrated a ventricular septal defect with a left to right shunt.

A multirow-detector computed tomography (CT, Volume Zoom, Siemens) scan procedure was performed with 4 iodine-enhanced, ECG-triggered, 1-mm slice acquisitions. Rotation time was 500 ms, accounting for a total breath-hold of 37 seconds. Diastolic gated and 3D reconstructions were performed at 70% RR intervals, with 0.6 mm increments of reconstruction. Three-dimensional reconstructions with volume rendering showed both complex posterior ventricular septal rupture (Figure 1) and contiguous unsuspected pseudoaneurysm of the posteroinferior wall of the left ventricle (Figure 2).

A biventricular endocardial patch was used for surgical repair with infarct exclusion. Recovery was uneventful. A postoperative CT scan showed that there was no residual septal defect or left ventricular aneurysm.
Figure 2. Coronal view in the plane of the aorta (Ao) showing a contiguous pseudoaneurysm (An) of the inferior septal segment of the left ventricle (LV). RV indicates right ventricle.
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