Congenital ‘bifid’ left ventricular apex masquerading as pseudo-aneurysm following acute myocardial infarction

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A 68-year-old diabetic man with persisting chest pain presented to the emergency department. The electrocardiogram (ECG) showed inferior and lateral ST-segment depression. Coronary angiography demonstrated complete occlusion of the left circumflex artery (Panel A) and severe stenosis of the proximal right coronary artery, which were treated successfully using drug-eluting stents.

Hand-held echocardiography revealed an unusual appearance of the inferior wall of the left ventricle (LV). Echocardiography using intravenous transpulmonary contrast identified a narrow-neck, finger-like cavity running parallel to the interventricular septum raising the possibility of an LV pseudo-aneurysm (Panel B, Supplementary material online, Video 1). ECG-gated computed tomogram of the chest demonstrated that the wall of the cavity was of similar thickness to the normal myocardium and thickened in systole (Panel C). Cardiovascular magnetic resonance showed subendocardial late gadolinium enhancement in the circumflex territory but not in the wall of the cavity (Panel D). Bifid LV apex is a rare congenital abnormality usually associated with other defects such as atrial or ventricular septal defect (VSD) and more rarely as an isolated abnormality.

In our patient, it is likely that a previous muscular VSD closed spontaneously on the right ventricular side creating an ‘additional’ septation and sealing off the shunt, in the region of what must have been right ventricular muscle bands, giving the appearance of a ‘bifid’ LV apex.

The recent myocardial infarction made the diagnosis more challenging, raising the possibility of a pseudoaneurysm, which would have required urgent surgery. Multimodality imaging was instrumental in making the correct diagnosis and management decision.

Supplementary material is available at European Heart Journal online.