

Apical left ventricular pseudoaneurysm: Diagnosis by multimodal cardiac imaging

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A 63-year-old woman with a history of permanent atrial fibrillation and mitral valve replacement with a mechanical prosthesis underwent outpatient cardiac catheterization due to repeated atypical chest pain. Coronary angiography showed no coronary stenosis, but ventriculography showed focal dilatation of the ventricular wall at the apical level (Fig. 1, A: Systole, B: Diastole), not described in previous imaging studies. Transthoracic echocardiography showed a short-necked, non-contractile saccular image, located at the apex of the left ventricle (Fig. 1C, D). No wall motion abnormalities were observed. The observed wide neck suggested the diagnosis of aneurysm, but a cardiac magnetic resonance showed a lack of continuity in the muscular layer, and a late gadolinium uptake circumscribed to the adjacent epicardial region (Fig. 1E, F). Thus, a diagnosis of ventricular pseudoaneurysm

was established, confirmed by the findings of a cardiac computed tomography (Fig. 1G, H).

The interest of this case lies on the differentiation between true ventricular aneurysm and pseudoaneurysm, and about their etiology. Among the causes of pseudoaneurysm, the most frequent is a contained cardiac rupture in acute myocardial infarction. This was ruled out in the present case by the absence of coronary artery disease or myocardial contractility defects. Other more uncommon causes are infective endocarditis, thoracic trauma, congenital diverticula, cardiac surgery (for instance, the use of a transapical dilator for mitral valve commissurotomy) or an embolic myocardial infarction involving the most apical segments of left anterior descending artery. The latter being a plausible hypothesis in a patient with a mechanical mitral prosthesis.

Conflict of interest: None declared

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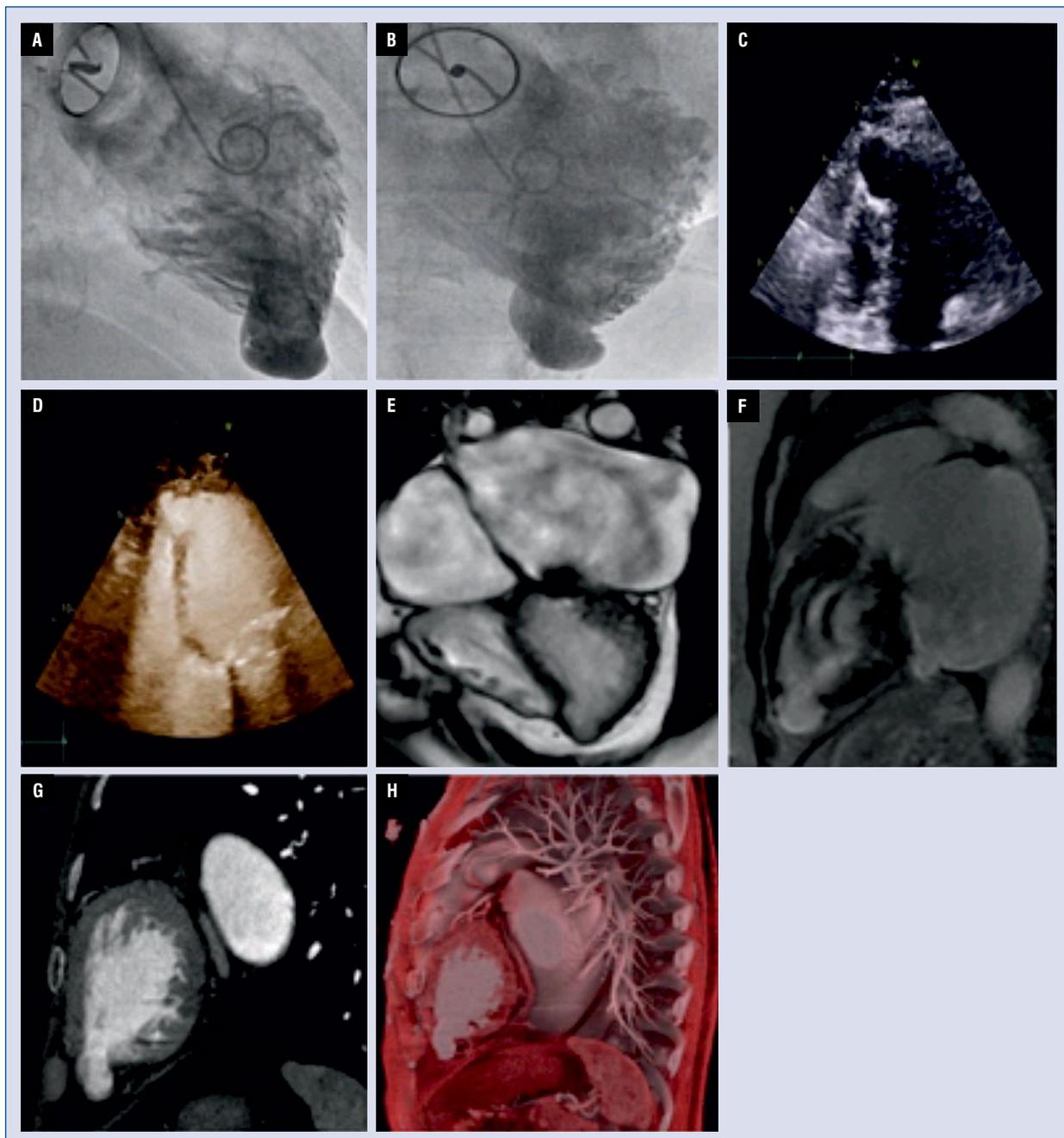


Figure 1. Multimodality cardiovascular imaging showing apical left ventricular pseudoaneurysm in the patient; **A, B.** Contrast invasive ventriculography: left (**A**) and right (**B**) anterior oblique views, revealing a small protrusion in the apical segment of myocardial wall. Mitral prosthetic valve was also noticed; **C, D.** Two-dimensional transthoracic echocardiogram without (**C**) and with contrast (**D**) showing the apical protrusion; **E, F.** Cardiac magnetic resonance: massive left atrial dilatation with a ventricular wall-defect at the apex of the left ventricle (**E**), and epicardial late gadolinium enhancement (**F**); **G, H.** Gated computed cardiac tomography in sagittal view (**G**) and after three-dimensional reconstruction (**H**) showing the same findings.