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Post-Infarction Lipomatous Metaplasia and Ventricular Arrhythmia

We report the case of a 58-year-old man with the following cardiovascular risk factors: hypertension, dyslipidemia, type 1 diabetes, ex-smoker, and history of myocardial infarction in 2003. Since then, the patient had given up treatment and had undergone few medical controls. The patient was admitted to the Emergency Department (ED) of our clinic for two syncope episodes preceded by trepidation. At the ED, the patient had cardiopulmonary arrest with ventricular fibrillation. Cardiopulmonary resuscitation (CPR) and defibrillation with 300 J was performed, recovering pulse and consciousness. The ECG showed sinus rhythm, left anterior hemiblock, and septal sequelae, without dynamic changes in repolarization.

A Doppler echocardiography revealed mild left ventricular enlargement (LVDD: 62 mm) with severe impairment of systolic function (LVEF: 30%), secondary to anterior akinesia and anterior and septal apical aneurysm, grade-II diastolic dysfunction, mild to moderate left atrial enlargement and no significant valve diseases. During hospitalization, a new coronary angiography (CAG) showed a patent stent in the mid segment of the ADA with mild, diffuse restenosis and good distal bed.

An implantable cardioverter defibrillator (ICD) was used as secondary prevention of sudden death. A cardiac magnetic resonance imaging scan with gadolinium (Magnetom Essenza, Siemens; Erlangen, Germany) was previously performed (See videos 1 and 2) showing severe systolic function impairment (LVEF: 31%), secondary to transmural anteromedial, septal-apical, anterior apical, mid-septal and cardiac apex infarction. It also showed a linear image in the akinetic segments, hyperintense in T1-weighted sequences (Figure 1), and hypointense in those acquired with fat suppressed sequences (Figure 2), consistent with adipose tissue. The cine-sequences showed the so-called india ink artifact (See videos 1 and 2), consistent with adipose tissue and water in that region. (1) These findings were consistent with lipomatous metaplasia.

Adipose metaplasia was first described in 1997 by Baroldi et al. in excised hearts, and it is a common histopathological finding in myocardial scarring tissue observed in ischemic, heart valve and dilated cardiomyopathies (68%, 37% and 26%, respectively). (2) However, in recent years it has also been identified in vivo as a result of the development of new diagnostic

imaging techniques such as computed tomography and, particularly, cardiac magnetic resonance imaging, which can differentiate tissues (myocardium, fat, fibrosis) in the infarcted site. The etiology of lipomatous metaplasia is unknown and its presence is associated with greater infarct age and larger transmural extent. (1) Recent studies have associated lipomatous metaplasia with ventricular arrhythmia and death. (3, 4)

Pharmacological treatment was adjusted and ICD was implanted prior to hospital discharge. The patient has been asymptomatic on the 6-month control and has not presented with further episodes of ventricular arrhythmia.

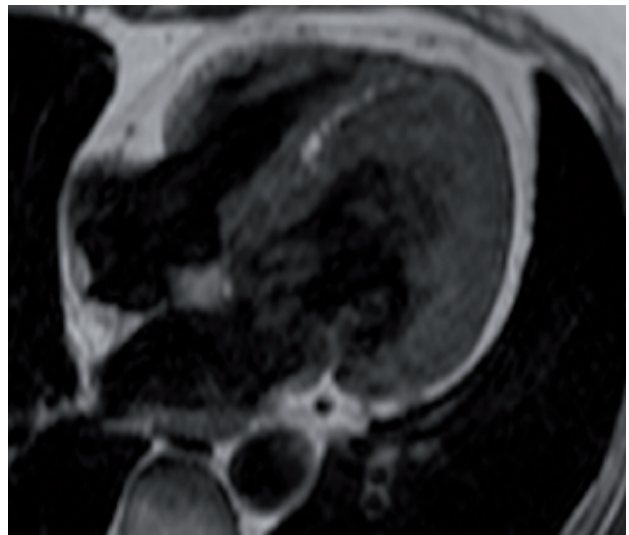


Fig. 1. Cardiac magnetic resonance imaging, T1-weighted sequences. See explanation in the text.

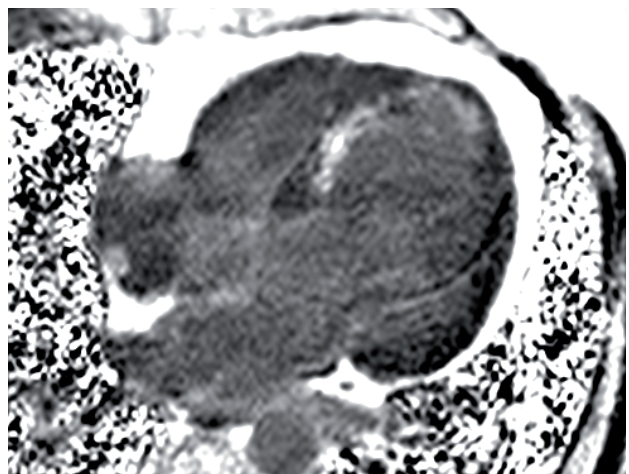


Fig. 2. Cardiac magnetic resonance imaging. Image obtained with fat suppression. See explanation in the text.

See videos 1 and 2 on the website

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/Supplementary material)

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