

## Calcific left atrium: A rare consequence of endocarditis

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### Abstract

Usually, cardiac calcifications are observed in aortic and mitral valves, atrio-ventricular plane, mitral annulus, coronary arteries, pericardium (usually causing constrictive pericarditis) and cardiac masses. Calcifications of atrial walls are unusual findings that can be identified only using imaging with high spatial resolution, such as cardiac magnetic resonance and computed tomography. We report a case of a 43-year-old patient with no history of heart disease that underwent cardiac evaluation for mild dyspnoea. The echocardiogram showed a calcific aortic valve and a hyper-echogenic lesion located in atrio-ventricular plane. The patient was submitted to cardiac magnetic resonance and to computed tomography imaging to better characterize the localization of mass. The clinical features and location of calcified lesion suggest an infective aetiology causing an endocarditis involving the aortic valve, atrio-ventricular plane and left atrium. Although we haven't data to support a definite and clear diagnosis, the clinical features and location of the calcified lesion suggest

an infective aetiology causing an endocarditis involving the aortic valve, atrio-ventricular plane and left atrium. The patient was followed for 12 mo both clinically and by electrocardiogram and echocardiography without worsening of clinical, electrocardiographic and echocardiographic data. Cardiac magnetic resonance imaging and computed tomography are ideal methods for identifying and following over time patients with calcific degeneration in the heart.

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**Key words:** Endocarditis complications; Left atrium calcification; Cardiac magnetic resonance; Computed tomography

**Core tip:** A patient was submitted to echocardiography, cardiac magnetic resonance and to computed tomography imaging to better characterize a hyper-echogenic lesion located in the atrio-ventricular plane. The clinical features and location of the calcified lesion suggest an infective aetiology causing an endocarditis involving the aortic valve, atrio-ventricular plane and left atrium.

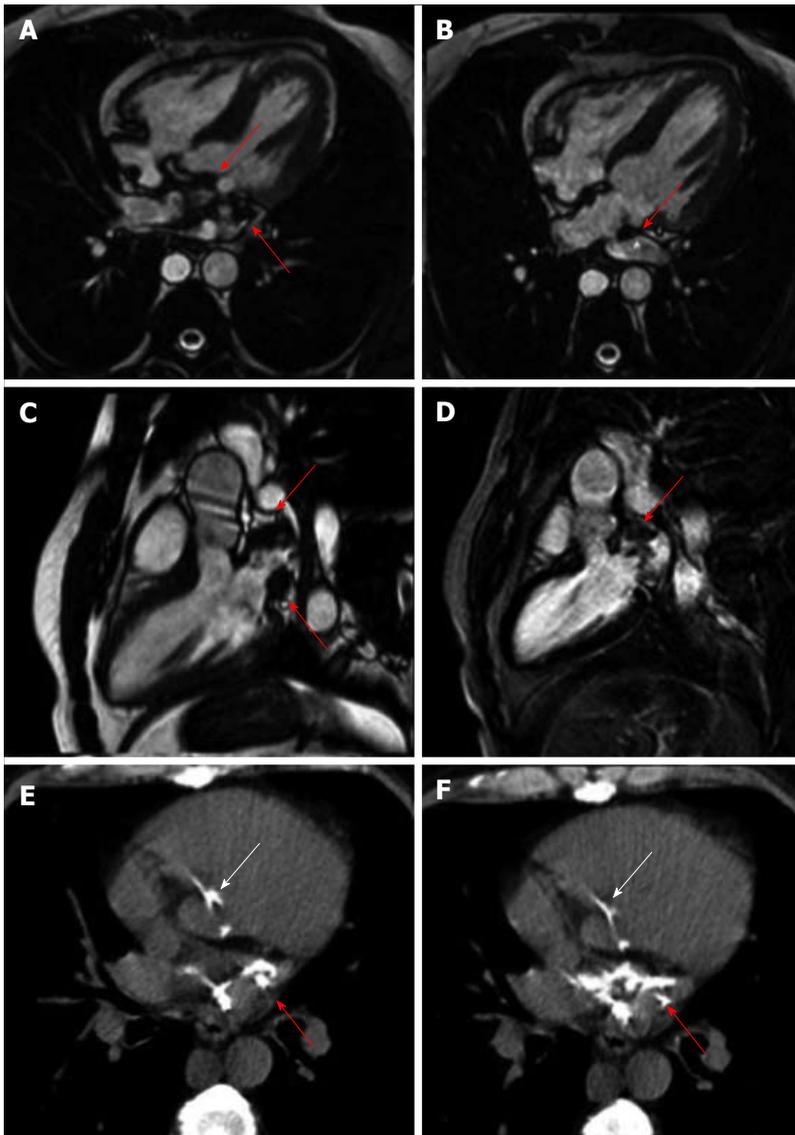
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### INTRODUCTION

Calcification can be observed in many cardiac localizations but is particularly rare as a lesion that involves the aortic valve, atrioventricular plane and left atrium.

### CASE REPORT

We report a case of a 43-year-old patient with no history



**Figure 1 Photograph.** A-D: Cardiac magnetic resonance showed hypointense areas located in left atrium and atrio-ventricular plane (red arrows); B: Partial obstruction of superior pulmonary vein; E and F: Cardiac computed tomography showed the presence of a mass suggestive of calcium in left atrium (red arrows), atrioventricular groove and aortic left ventricular outflow (white arrows).

of heart disease who underwent cardiac evaluation for mild dyspnoea. On physical examination he showed only a mild aortic systolic murmur. Blood pressure (130/65 mmHg) and electrocardiogram were normal. The echocardiogram showed an increase of left ventricular (LV) outflow aortic velocity (max velocity 2.2 m/s) due to calcific aortic valve and a hyper-echogenic lesion located in the atrio-ventricular plane. The patient was submitted to cardiac magnetic resonance (CMR) and to computed tomography imaging to better characterize the localization of mass.

CMR by steady-state free precession sequence showed normal atrial and ventricular dimensions; furthermore hypointense areas located in the left atrium and atrio-ventricular plane (Figure 1, red arrows on panel A-D) with a partial obstruction of superior pulmonary vein (Figure 1, on panel B) were found. A gradient echo T1-weighted image after 10 min of injection of contrast media (delayed

contrast enhancement technique) showed a hypointense area in left atrial (LA) suggesting calcium.

Axial images by cardiac computed tomography showed the presence of a mass suggestive of calcium in LA (Figure 1, red arrows on panel E-F), atrioventricular groove and aortic LV outflow (white arrows on panel E-F).

The patient was followed for 12 mo both clinically and by electrocardiogram and echocardiography without worsening of clinical, electrocardiographic and echocardiographic data.

## DISCUSSION

Calcification can be observed in many cardiac localizations<sup>[1-7]</sup>; particularly, they can be located: (1) valves (usually aortic and mitral valve); (2) atrio-ventricular plane; (3) mitral annulus (usually located in mitral posterior annulus as consequence of a degenerative disorders in the elderly,

osteoporosis women, kidney disease); (4) epicardial coronaries; (5) cardiac masses (caseous calcification of the posterior mitral annulus, soft tissue calcified sarcomas, calcified echinocococcus cysts, cardiac osteocondromas and cardiac calcified amorphous tumors); and (6) in pericardium (usually causing constrictive pericarditis).

The calcifications of atrial walls are unusual findings that can be identified only using imaging with high spatial resolution, such as cardiac magnetic resonance and computed tomography. Cardiac magnetic resonance imaging and computed tomography, having a high spatial resolution and tissue characterization, are ideal methods for identifying and following over time patients with unusual localization of calcific degeneration in the heart. This case report represents a very rare manifestation of extended endocarditis. Although we haven't data to support a definite and clear diagnosis, the clinical features and location of the calcified lesion suggest an infective aetiology causing an endocarditis involving the aortic valve, atrio-ventricular plane and left atrium.

## COMMENTS

### Case characteristics

A 43-year-old patient with no history of heart disease who underwent cardiac evaluation for mild dyspnoea.

### Clinical diagnosis

At physical examination there was only a mild aortic systolic murmur.

### Imaging diagnosis

Cardiac magnetic resonance (CMR) by steady-state free precession sequence showed hypointense areas located in the left atrium and atrio-ventricular plane with a partial obstruction of the superior pulmonary vein and the delayed contrast enhancement technique showed a hypointense area in left atrial (LA) suggesting the presence of calcium. Axial images by cardiac computed tomography showed the presence of a mass suggestive of calcium in LA, atrioventricular groove and aortic left ventricular outflow.

### Related reports

Endocarditis is a serious condition that can endanger patient life, showing itself in different ways.

### Term explanation

CMR delayed contrast enhancement technique is based on the use of gradient echo T1-weighted images 10 min after the injection of contrast medium and it

is very useful to evaluate the tissue characteristics, particularly in an organ in constant motion like the heart.

### Experiences and lessons

This case report not only represents one of the largest extensions of endocarditis described but also shows a lack of correlation between clinical manifestation and clinical symptoms.

### Peer review

The report is interesting, and it is an excellent work.

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