CASE REPORT

Multimodality imaging assessment of a caseous calcification of the mitral valve annulus

Imen Hamdi [a,*], Chadia Chourabi [a], Younes Arous [b], Mehdi Ghommidh [a], Khalil Houissa [a], Abdeddayem Haggui [a], Nadhem Hajlaoui [a], Dhaker Lahidheb [a], Nejmeddine Ben Abdallah [a], Wafa Fehri [a], Habib Haouala [a]

[a] Department of Cardiology, Military Hospital of Tunis, Tunis
[b] Department of Radiology, Military Hospital of Tunis, Tunis
[a,b]Tunisia

Caseous calcification of the mitral annulus (CCMA) is a rare echocardiographic finding. It is commonly misdiagnosed as an abscess, tumor or infective vegetation on the mitral valve. Since it is a benign process, differentiating it from malignant intra-cardiac mass is primordial to avoid unnecessary surgery. Various imaging modalities can be complimentary for definitive diagnosis. We present a case of CCMA in a 71-year-old female patient. Her medical history revealed hypertension, diabetes mellitus, hyperlipidaemia and coronary artery disease. She was referred to our department for coronary catheterization because of angina symptoms upon minimal exertion. The lesion was detected during echocardiography and was defined as a mass of heterogeneous content with calcification points, located at the posterior side of the mitral valve annulus. Restricted motion of the posterior leaflet and the mass effect caused only minimal mitral regurgitation. To establish the correct diagnosis, we performed the full spectrum of noninvasive cardiac imaging modalities. Transesophageal echocardiography identified well-organized, composite lesion with regular edges, markedly calcified margins and more echolucent central portion. A computed tomography (CT) was performed, showing a hyperdense mass with hypodense center and a calcified peripheral rim located at the posterior mitral ring. Cardiac magnetic resonance imaging (MRI) showed that the mass was hypointense with respect to the myocardium in the T1 and T2-weighted sequences and only presented late-phase enhancement in the surrounding capsule. Based on the CT and MRI findings, the diagnosis of CCMA was established. The patient was managed conservatively.

Keywords: Mitral valve, Imaging, Echocardiograpgy, CMR, Calcification

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* Corresponding author at: Department of Cardiology, Military Hospital of Tunis, 12 Rue Samerkend, Cité Ennasser I, Ariana 2037, Tunisia.
E-mail address: imen_hamdi83@hotmail.com (I. Hamdi).

P.O. Box 2925 Riyadh – 11461KSA
Tel: +966 1 2520088 ext 40151
Fax: +966 1 2520718
Email: sha@sha.org.sa
URL: www.sha.org.sa

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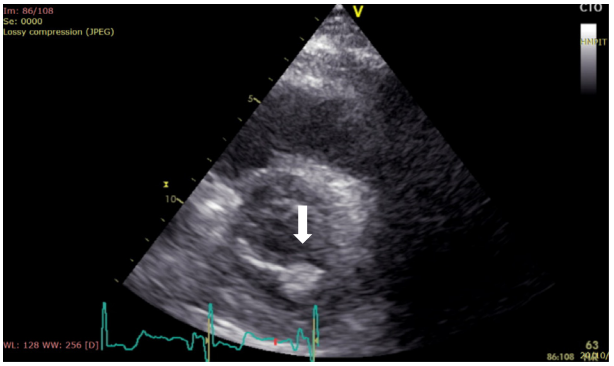
Introduction

Caseous calcification of the mitral annulus (CCMA) is a rare variant of mitral annular calcification that may be easily misdiagnosed or confused with an abscess, tumor, or infective vegetation. Multiple imaging modalities can be complementary to establish the correct diagnosis in suspicious cases. Due to it asymptomatic course, only monitoring of the patient's progress is recommended in most cases of CCMA. Surgery should be reserved for patients with significant valvular dysfunction or an uncertain diagnosis.

Case report

We present a case of CCMA in a 71-year-old female patient. Her medical history revealed hypertension, diabetes mellitus, hyperlipidemia, and coronary artery disease. She was referred to our department for coronary catheterization because of angina symptoms upon minimal exertion. She did not show any signs of infective endocarditis (fever, anorexia, weight loss, or night sweats). Physical examination was unremarkable. Laboratory tests showed no significant abnormalities, especially markers of inflammation (erythrocyte sedimentation rate and C-reactive protein were within normal limits). Transthoracic echocardiography revealed a mass of heterogeneous content with calcification points, located at the posterior side of the mitral valve annulus, not exerting a significant effect on mitral valve function (Fig. 1A and B). Transesophageal echocardiography (TEE) was performed to better delineate the mass, and identified a rounded immobile mass (17 mm × 16 mm) with regular edges, markedly calcified margins, and a more echolucent central portion, localized in the posterior part of the mitral annulus (Fig. 2). The valve geometry was distorted with an anteriorly displaced posterior leaflet resulting in mild regurgitation. Stenosis was absent. TEE did not show any thrombus or relevant spontaneous echo contrast in the left atrium and atrial appendage. No images suggestive of vegetations were observed in the aortic, tricuspid, or pulmonary valves. In computed tomography (CT), the entity appeared as a round mass with a hyperdense center and calcified peripheral rim. Cardiac magnetic resonance (CMR) cine and dark blood images demonstrated a hypointense mass involving a mitral valve annulus. Perfusion images revealed no enhancement of the mass compared with normal myocardium,

A



B

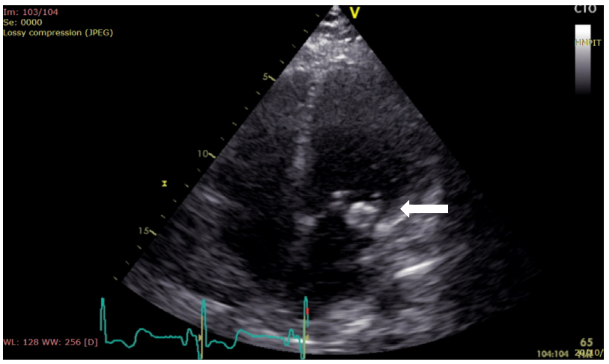


Figure 1. Transthoracic two-dimensional visualization of the mass. (A) Parasternal short axis view and (B) apical four-chamber view.

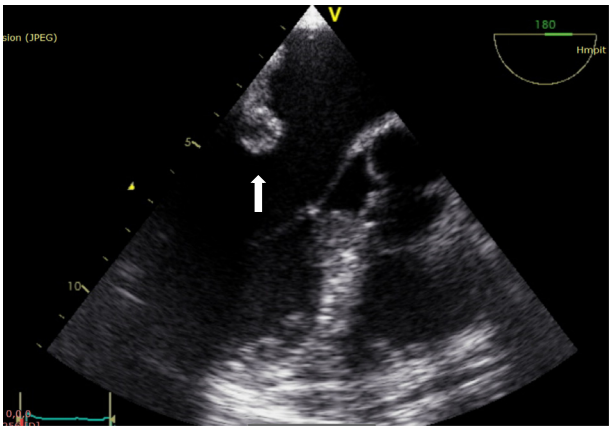


Figure 2. Transesophageal echocardiography showing a rounded, calcified mass with interior content of lower echogenicity.

consistent with an avascular mass. Additionally, a thin rim of peripheral late enhancement surrounding the hypointense mass was present (Fig. 3). Given the CT and CMR imaging findings and the absence of mitral valve dysfunction, surgery was deferred and conservative management was chosen. The echocardiographic follow up at 6 months showed no significant changes.

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