ESC European Society of Cardiology

European Heart Journal - Case Reports (2022) **6**, 1–2
https://doi.org/10.1093/ehjcr/ytac206

Recurrent acute pulmonary oedema in a patient with a calcified cardiac tumour and mitral regurgitation: a new frontier for percutaneous mitral valve repair

Mariana Brandão *, Pedro Gonçalves-Teixeira, Bruno Melica, and Ricardo Fontes-Carvalho

Department of Cardiology, Centro Hospitalar Vila Nova de Gaia/Espinho, Vila Nova de Gaia, Portugal

Received 16 March 2022; first decision 20 April 2022; accepted 13 May 2022; online publish-ahead-of-print 16 May 2022

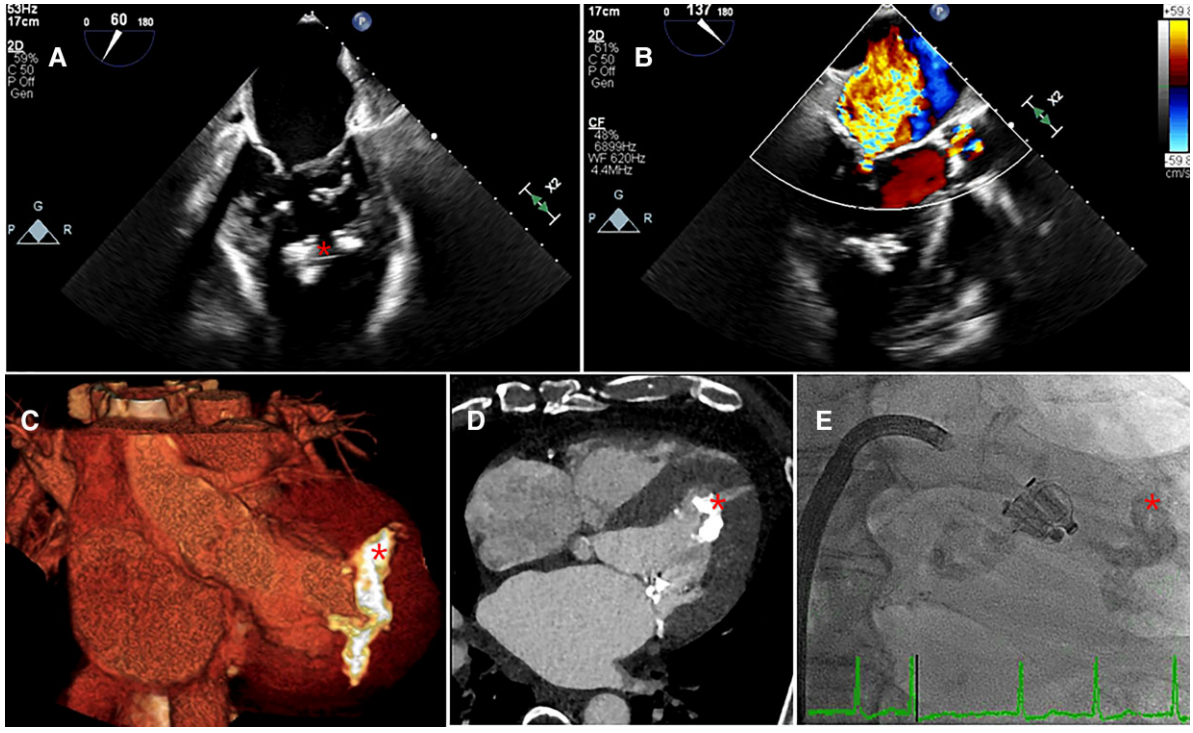

Figure 1 (*A*) TEE, 2-chamber mid-esophageal view. (*B*) Color-Doppler TEE, 3-chamber mid-esophageal view. (*C*) ECG-gated 3D volume-rendered CT scan. (*D*) Axial ECG-gated contrast-enhanced CT scan. (*E*) Fluoroscopic image captured during PASCAL implantation. Asterisk (*): calcified tumour.

* Corresponding author. Tel: +351910671519, Email: mariana_brandao@msn.com
Handling Editor: Christoph Jensen
Peer-reviewers: Paraj Bawaskar; Yusuf Ziya Sener

A 76-year-old male with a history of cardiovascular risk factors and atrial fibrillation was repeatedly admitted for heart failure, with recurrent episodes of acute pulmonary oedema, causing severe respiratory acidosis and coma. Coronary artery disease was ruled out with invasive coronary angiography. Transthoracic echocardiogram revealed preserved biventricular function, moderate mitral regurgitation (MR), and a voluminous intraventricular mass.

A transesophageal echocardiogram (TEE) was performed and revealed a heterogeneous, diffusely calcified mass (asterisk), which involved the papillary muscles and caused tethering of the mitral subvalvular apparatus (*Figure 1A*). TEE disclosed moderate to severe MR (*Figure 1B*), at rest, mainly due to restricted leaflet motion (Carpentier type IIIb), with a central, holosystolic, regurgitant jet; effective regurgitant orifice area—0.3 cm2, regurgitant volume—69 ml, quantified by proximal isovelocity surface area method.

Cardiac computed tomography (CT) displayed a large, oval-shaped, calcified tumour, located in the midventricular region, involving both papillary muscles (the posteromedial to a greater extent) and permeating the subendocardial layer of the mid-segments of the anterolateral and inferior walls (*Figure 1C and D*). These findings suggested a calcified amorphous tumour.

During Heart Team discussion, surgical mass excision was deemed of prohibitive risk and was not considered mandatory, due to its presumed benignity; however, given the recurrent admissions for heart failure despite optimal medical therapy, percutaneous treatment of MR was planned. The patient underwent mitral valve transcatheter edge-to-edge repair with PASCAL system (*Figure 1E*), with a final result of mild MR and a mean transvalvular gradient of 1.5 mmHg. After 1-year of follow-up, the patient remains asymptomatic, without readmissions. Mass dimensions and characteristics remain stable.

In this case, MR was probably responsible for recurrent episodes of flash pulmonary oedema, despite being underestimated by resting echocardiography, illustrating the clinical challenge posed by the dynamic nature of MR. The patient's rare cardiac calcified tumour involved the mitral subvalvular apparatus, likely contributing to the regurgitant lesion. Despite the anatomical challenge imposed by the mass, the patient was successfully managed with a percutaneous solution. The contribution of multimodality imaging for valvular disease evaluation and management is highlighted, including the role of CT for planning complex Interventional Cardiology procedures.

Consent: This is a submission under the EHJ Case Reports promotion for International Women's Day. This submission is a result of our original work and was not previously published nor is under consideration for publication elsewhere.

Data availability

This submission is a result of our original work and was not previously published nor is under consideration for publication elsewhere.

Conflict of interest: None declared.

Funding: None declared.