Hellenic Journal of Cardiology 70 (2023) 91–92

Contents lists available at ScienceDirect

Hellenic Journal of Cardiology

journal homepage: http://www.journals.elsevier.com/hellenic-journal-of-cardiology/

Image of the Month

Multimodal imaging approach for the assessment of a complex, large left atrial lesion☆

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ARTICLE INFO

Article history:
Received 21 September 2022
Received in revised form
28 January 2023
Accepted 2 February 2023
Available online 6 February 2023

Keywords:
Cardiac tumor
Sarcoma
Multimodal imaging

Cardiac tumors represent a heterogeneous group that frequently involve heart structures. Primary cardiac tumors are very rare, showing an incidence of 0.02% in autopsy series, with 75% being benign. We present a case of a woman in her 50s presenting with acute heart failure. A transthoracic echocardiogram was performed initially, revealing a lobulated, mobile, broad-based mass of heterogeneous echogenicity attached to the posterior wall of the left atrium (LA), prolapsing into the left ventricle, causing significant dynamic *trans*-mitral inflow obstruction and moderate mitral regurgitation (Video 1 Suppl).

Contrast-enhanced computed tomography (CT) and cardiac magnetic resonance (CMR) imaging were performed. CMR confirmed the presence of a voluminous mass (98 × 48 × 48 mm) fixed to and partially obliterating the LA appendage ostium and the right superior pulmonary vein ostium. Polylobulated morphology with low signal intensity on T1-weighted images (Fig. 1A and B) and heterogeneous enhancement after gadolinium-contrast administration, alongside multiple necrotic and cystic-appearing areas, were noted (Fig. 1C Videos 2-4 suppl); heterogeneous enhancement on T2-STIR imaging was also observed (Fig. 1D). CT scan showed modest and inhomogeneous contrast enhancement of the mass (Fig. 1E). The patient eventually underwent surgical resection (Fig. 1F), along with the posterior wall of the LA and right superior pulmonary vein endarterectomy with subsequent reconstruction of the LA. Pathological diagnosis confirmed the development of a pleomorphic high-grade undifferentiated sarcoma (grade III according to FNCLCC classification).

Our case demonstrates how a multimodality approach was crucial for a thorough characterization of the cardiac mass, which led to the diagnosis of a malignant tumor while facilitating surgical treatment.

Conflict of interest

All authors have no disclosure and authorized the corresponding author.

☆ All authors take responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation.

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Peer review under responsibility of Hellenic Society of Cardiology.

https://doi.org/10.1016/j.hjc.2023.02.002

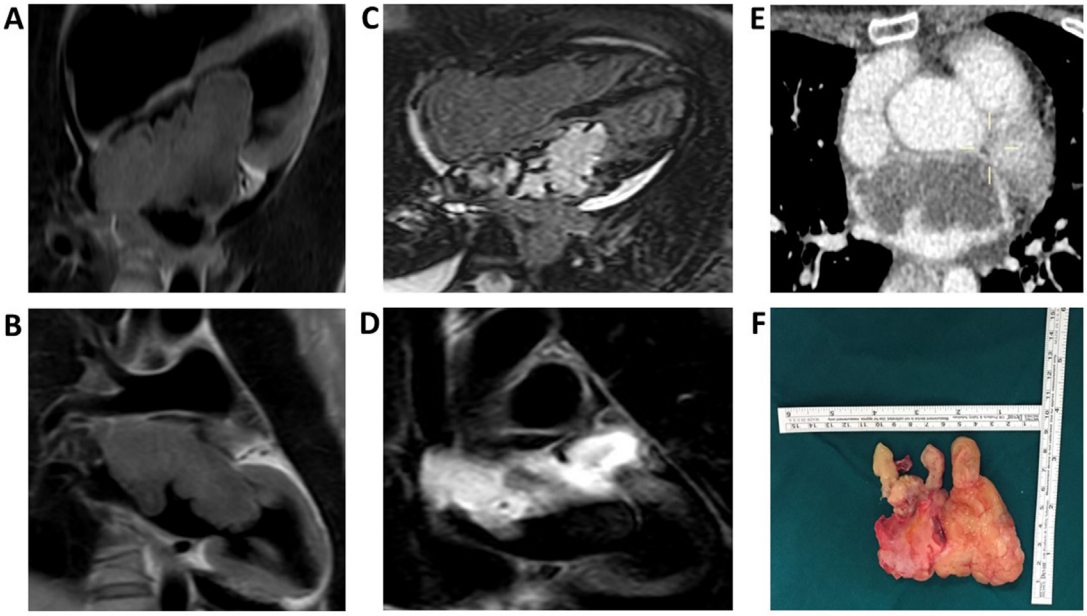

Figure 1. **(A)** T1-weighted (HLA) view of the mass. Involvement of the left atrial appendage ostium and right superior pulmonary vein ostium is shown. (**B)** T1-weighted (VLA) view of the mass. Involvement of the right superior pulmonary vein ostium is shown. (**C)** Late gadolinium enhancement images showing high signal intensity and heterogeneous enhancement after gadolinium-contrast administration. (**D)** T2-STIR imaging of the mass showing heterogeneous enhancement. (**E)** Contrast-enhanced CT scan showing modest and heterogeneous contrast enhancement of the mass. (**F)** Left atrial mass after surgical removal measuring about 10 × 9 cm.

Authors contribution

All authors read and approved the final version of the manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.hjc.2023.02.002.