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Right ventricular capillary hemangioma as a cause of congestive heart failure: case report and review of the literature

Hemangioma capilar del ventrículo derecho como causa de insuficiencia cardíaca congestiva: presentación de un caso y revisión de la bibliografía

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A 52-year-old woman presented with a history of hypothyroidism. She consulted for 8 days of atypical chest pain associated with decreased functional class (III/IV) and lower-limb edema, without syncope. She attended the emergency department where an echocardiogram was performed showing an image of a cardiac mass with regular borders, high mobility toward the pulmonary valvular plane, circular in appearance (2.9 × 2.2 cm), with areas of echo-lucencies in its interior located probable myxoma in the right ventricular outflow tract (RVOT) causing functional pulmonary stenosis and severe RV dilatation (Fig. 1). Cardiac magnetic resonance imaging shows a well-defined, pedunculated mass, arising from de RVOT, occupying 80% of the RVOT (36 × 32 × 20 mm), isointense on T1-weighted images (Fig. 2). CMR SSFP cine images show a well-defined, pedunculated mass, arising from de RVOT, occupying 80% of the RVOT, in contact with the inferior surface of the pulmonary valve. During images in systole, the mass moves through de valvular plane (Fig. 3), and the mass has heterogeneous enhancement during the perfusion images and T1-weighted images after gadolinium (Fig. 4).

The tumor was resected and removed by total resection surgery. Macroscopically, the tumor surface (3 × 2.5 × 1.5 cm) was dark red and covered with abundant capillaries (Fig. 5). Histologically, the abundant capillaries packed over a myxoid stroma (Fig. 6). Immunohistochemistry was performed with six tumor markers (calretinin, HHV8, CD 34, FLI1, CD31, and ERG) negative for malignancy, confirming the diagnosis of right ventricular capillary hemangioma.

During the post-operative period, the edema of the lower limbs and dyspnea improved. On discharge, she did not report symptoms of heart failure.

In conclusion, haemangiomas are rare benign cardiac tumours that occur most commonly on the right side of the heart. They are difficult to distinguish from malignant tumours such as angiosarcomas and haemangiosarcomas[1]. There

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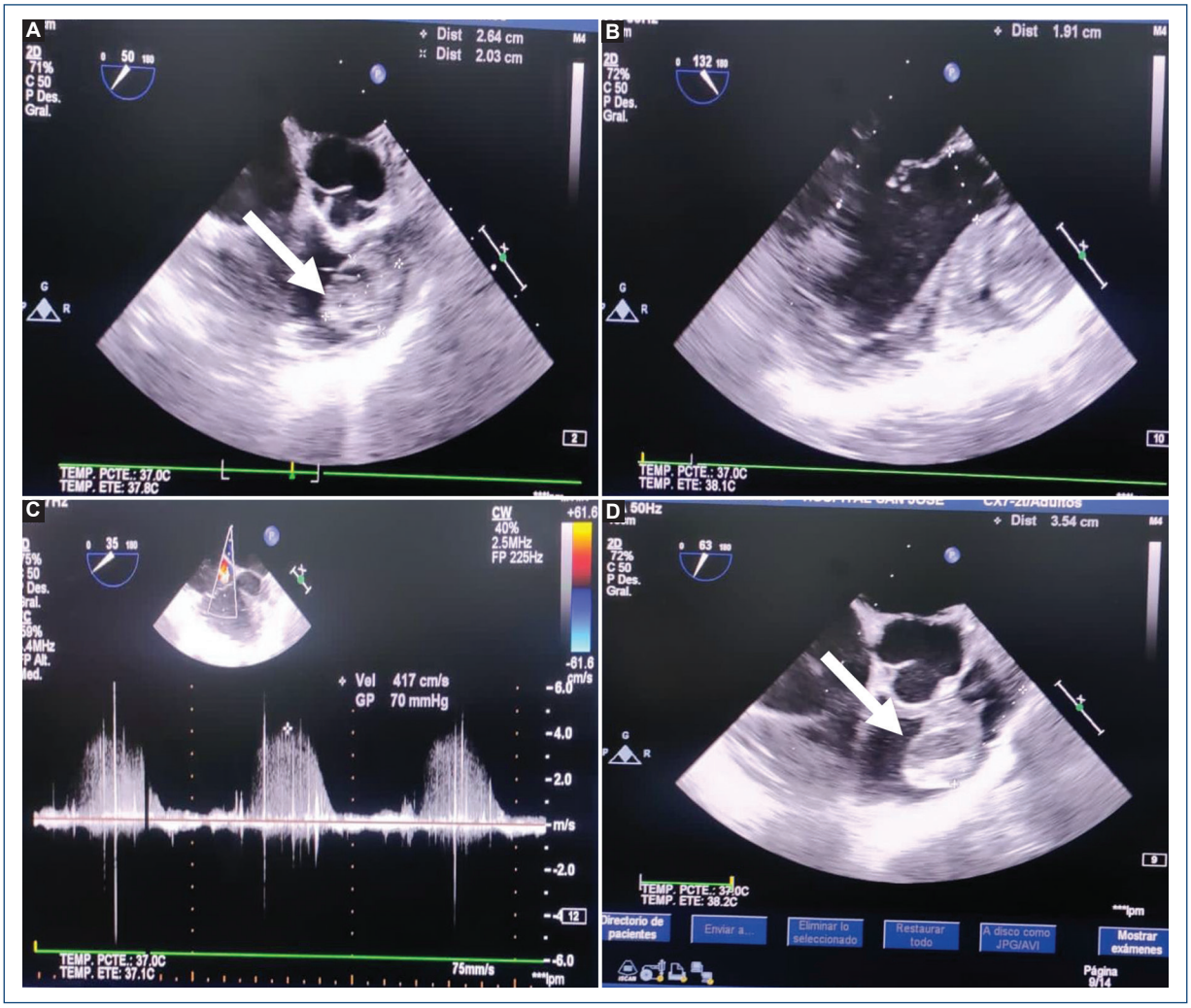

Figure 1. A-D: echocardiogram. Echocardiogram was performed showing an image of a cardiac mass with regular borders, high mobility toward the pulmonary valvular plane, circular in appearance (2.9 × 2.2 cm), with areas of echolucencies in its interior located (probable myxoma) in the right ventricular outflow tract causing functional pulmonary stenosis and severe right ventricle dilatation.

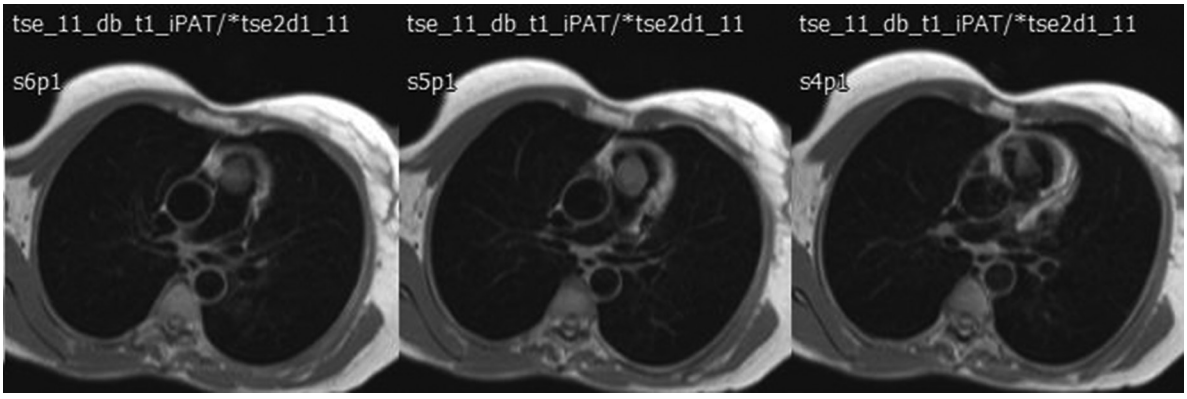

Figure 2. Cardiac magnetic resonance. CMR shows a well-defined, pedunculated mass, arising from de RVOT, occupying 80% of the RVOT (36 × 32 × 20 mm), isointense on T1-weighted images. RVOT: right ventricular outflow tract.

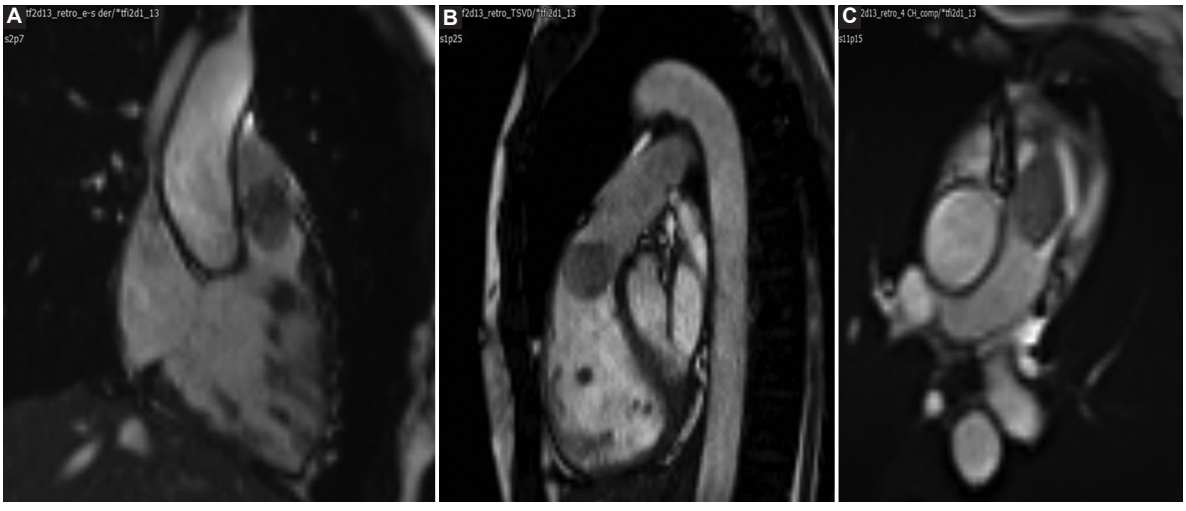

Figure 3. Cardiac magnetic resonance. CMR SSFP cine images. **A-C**: a well-defined, pedunculated mass, arising from de RVOT, occupying 80% of the RVOT, in contact with the inferior surface of the pulmonary valve. During images in systole, the mass moves through de valvular plane. RVOT: right ventricular outflow tract.

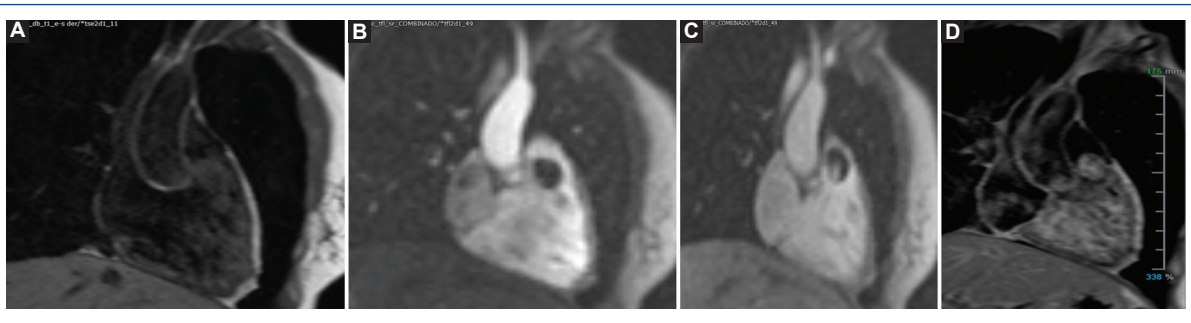

Figure 4. Cardiac magnetic resonance. CMR shows a well-defined, pedunculated mass, arising from de RVOT, occupying 80% of the RVOT, isointense on T1-weighted images. **A**: the mass has heterogeneous enhancement during the perfusion images. **B and C**: T1-weighted images after gadolinium. **D**: RVOT: right ventricular outflow tract.

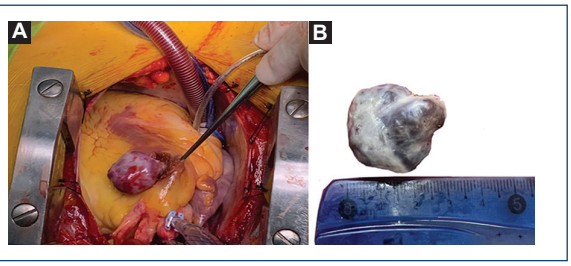

Figure 5. A and B: macroscopic sample. The tumor was resected and removed by total resection surgery. Macroscopically, the tumor surface (3 × 2.5 × 1.5 cm) was dark red and covered with abundant capillaries.

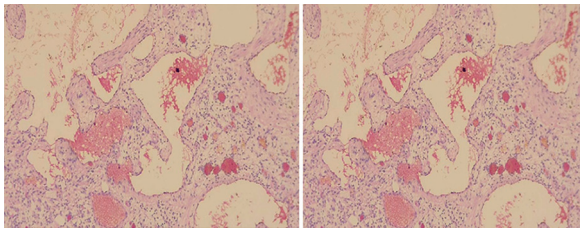

Figure 6. Microscopic sample. Histologically, the abundant capillaries packed over a myxoid stroma. Immunohistochemistry was performed with six tumor markers (calretinin, HHV8, CD34, FLI1, CD).

are many reports of cardiac haemangiomas, but less frequently when they present with obstruction to the RVOT[2]. Because the prognosis is favourable for most patients with haemangiomas, it is important to assess the characteristics of the mass as accurately as possible, especially since cardiac reconstruction, which is required for wide excision, presents an enormous challenge[3]. Our case successfully underwent complete surgical excision of the mass avoiding serious complications such as systemic embolisation and allowing a definitive diagnosis to be reached.

Funding

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Conflicts of interest

None.

Ethical disclosures

Protection of humans and animals. The authors declare that the procedures followed conformed to the ethical standards of the responsible human experimentation committee and in accordance with the World Medical Association and the Declaration of Helsinki.

Confidentiality of data. The authors declare that they have followed their center's protocols on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

Use of artificial intelligence to generate texts. The authors declare that they have not used any type of generative artificial intelligence in the writing of this manuscript or for the creation of figures, graphs, tables, or their corresponding captions or legends.

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