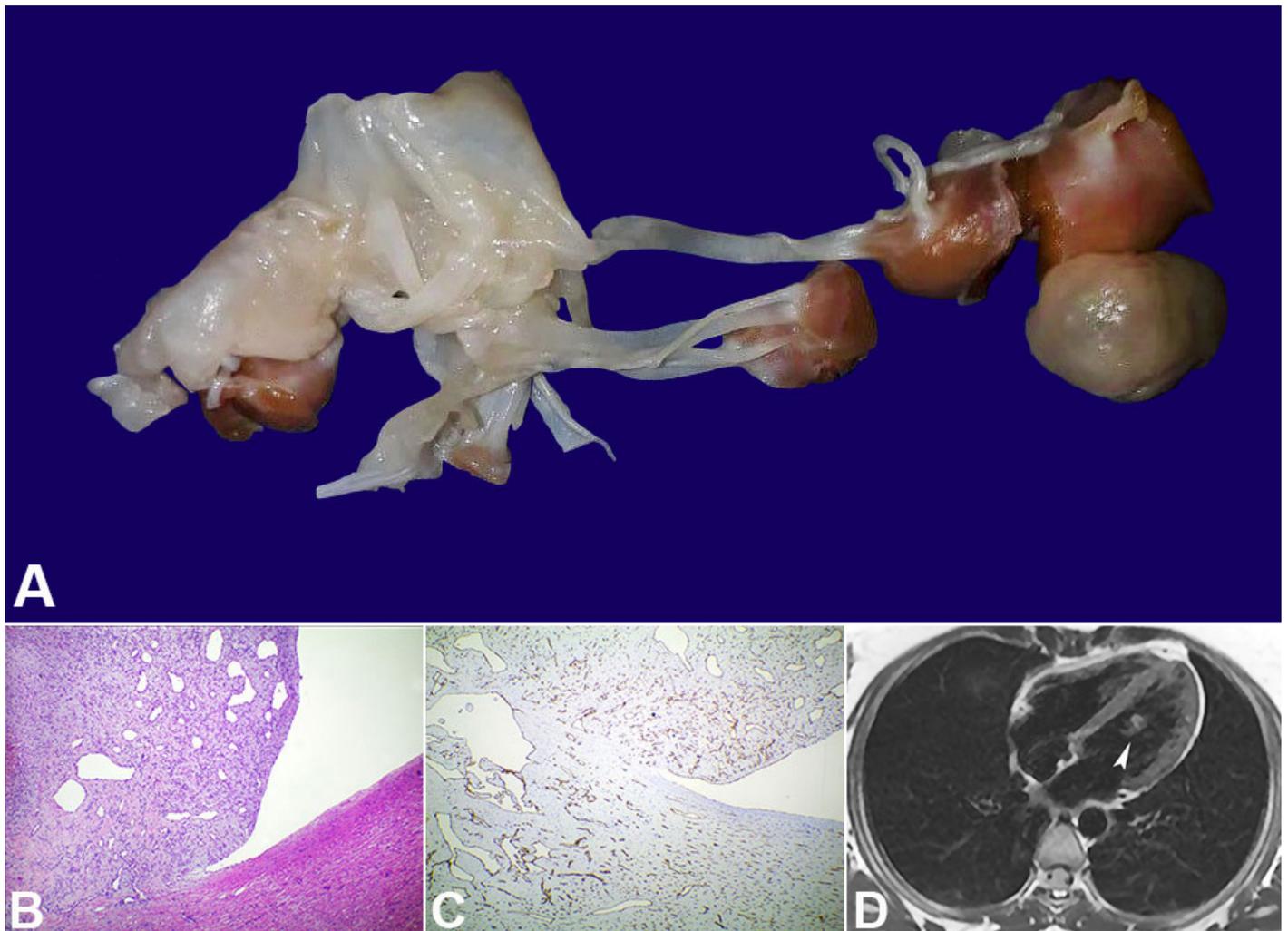


## Cardiac papillary muscle hemangioma

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**Figure 1.** **A** – Cardiac papillary muscle hemangioma, represented by an exophytic/polypoid lesion; **B** – The photomicrograph shows mixed capillary and cavernous patterns (H&E, x40); **C** – Immunohistochemical shows the expression of CD31; **D** – Magnetic Resonance - T2-weighted image - showing a small, well-defined nodule attached to the papillary muscle measuring 7 x 7 mm (arrowhead).

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Primary tumors of the heart are rare, with an estimated frequency of 0.0017-0.33%.<sup>1</sup> Approximately 75% of these tumors are benign, with myxoma being the most common type.<sup>2</sup> Usually, the heart neoplasms do not cause any symptom and are mostly diagnosed incidentally. However, some may cause symptoms due to the size of the tumor and its anatomic location.<sup>1,2</sup> Compression, growth rate, infiltration, rupture, friability are important factors that can determine clinical symptoms and complications, such as exertional dyspnea, arrhythmias, embolic events, chest pain, coronary insufficiency, pericardial effusions, pulmonary outflow tract obstruction, and congestive heart failure.<sup>1-3</sup>

Cardiac hemangiomas are benign vascular tumors originating from the proliferation of endothelial cells of the blood vessels.<sup>1,4</sup> They are quite rare and account for 5-10% of benign cardiac tumors.<sup>2</sup> They may present at any age, and there is a slight male preponderance. A congenital cardiac hemangioma may also occur.<sup>5</sup> Most cardiac hemangiomas are asymptomatic and discovered incidentally on echocardiography, computed tomography (CT), cardiac magnetic resonance image (MRI), or at autopsy. In symptomatic patients, a cardiac hemangioma may lead to dyspnea, arrhythmias, heart failure, pericarditis, pericardial effusion, systemic embolism,<sup>1,4,6</sup> and the patients may have associated vascular syndromes, such as Kasabach-Merritt syndrome.<sup>1</sup> While the cardiac hemangioma may be found in any cardiac layer and any chamber, the most frequent locations are the lateral wall of the right ventricle, the anterior wall of the right ventricle, interventricular septum and, occasionally, the right ventricular outflow tract.<sup>1</sup> Less frequently involved sites comprise the cardiac valve, due to the poor vascularization, and the papillary muscles.<sup>6,7</sup>

On macroscopy, cardiac hemangiomas may be presented as a sessile or polypoid nodular formation.<sup>1</sup> The histologic classification of hemangiomas includes the cavernous type (composed of multiple dilated thin-walled vessels), the capillary type (smaller vessels resembling capillaries), and the arteriovenous hemangioma (dysplastic malformed arteries and veins). The cardiac hemangiomas often have combined features of those three types and may also contain fat and fibrous tissue. In addition, they may present other histological differences that classify them in

cardiac hemangioma with epithelioid cells or cardiac hemangioma with papillary endothelial hyperplasia.<sup>8</sup>

Figure 1 refers to the mitral valve received for analysis from a surgery performed in a 34-year-old female. She did not present any symptom, and the physical examination of the cardiovascular system was normal. The patient was incidentally diagnosed with an image consistent with a cardiac tumor during echocardiography, which failed to show contractile neither valvular dysfunction. An MRI was performed in order to better characterize the echocardiographic image (Figure 1D). The patient was submitted to an open-heart mitral valve replacement, and the valve apparatus and part of the papillary muscles were sent to histological examination. Figure 1A represents the macroscopic aspect of a mitral valve and correspondent papillary muscles. It can be observed a brownish nodular mass measuring 9x7x6 mm adhered to one of the papillary muscles. The cut-section showed a grayish tissue with an elastic consistency. The histopathological evaluation was consistent with mixed papillary muscle hemangioma with capillary and cavernous patterns (Figure 1B). The immunohistochemical examination for CD31 highlights the vascular channels (Figure 1C). T2-weighted four chamber (Figure 1D) depicted a well-defined nodule attached to the papillary muscle measuring 7x7 mm. The lesion demonstrated mild hyper signal on T2WI and an enhancement pattern similar to the myocardium on perfusion sequences.

### Keywords

Heart Neoplasms; Papillary Muscles; Hemangioma

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