Case Report

Cardiac hemangioma with epicardial infiltration

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Submitted May 28, 2018. Accepted for publication Aug 08, 2018.
doi: 10.21037/jtd.2018.08.142
View this article at: http://dx.doi.org/10.21037/jtd.2018.08.142

Introduction

Cardiac hemangioma is a rare primary cardiac tumor which accounts for only 2–3% of all benign primary tumors of the heart (1). It is usually well circumscribed with apparent surgical margins (2). However, the characteristics of cardiac hemangioma remain unknown owing to its rarity. Here, we report the case of a cardiac hemangioma invading the right atrium and the right ventricle and presenting with characteristics similar to a malignant tumor. This hemangioma was treated with surgical resection.

Case presentation

A 73-year-old woman presented with chest tightness and lethargy. Chest radiography revealed increased heart size. Transthoracic echocardiography demonstrated an echo-dense mass markedly compressing the right atrium. Additionally, contrast computed tomography (CT) showed that the right coronary artery was running through and embedded in the tumor. On T1-weighted contrast-enhanced magnetic resonance imaging, a large high-intensity tumor with a septum and partial lobulation on the periphery was identified. Biopsy via right mini-thoracotomy (*Figure S1*) indicated that the tumor was a cardiac hemangioma, without evidence of malignancy.

The patient underwent surgery via median sternotomy. Trans-tumor echocardiography was performed before resection; however, the right coronary artery could not be identified. During the resection of the tumor from the right atrium and the right ventricle, the mid-right coronary artery was unintentionally transected. Cardiopulmonary bypass was initiated via cannulas that had been inserted in advance in the distal ascending aorta, superior vena cava, and at the biopsy site in the right atrium. After cross-clamping of the aorta, antegrade cardioplegia was performed through an aortic root needle, and a cannula was inserted into the mid-right coronary artery. Tumor resection was then resumed, and the right coronary artery was identified outside the tumor. Although the surgical margin was not apparent, the tumor was macroscopically resected. The right coronary artery was bypassed using a saphenous vein graft (*Figures 1* and *S2*). The postoperative course was uneventful, and the patient was discharged from the hospital 22 days post-surgery. Histopathological examination post-surgery revealed dilated and tortuous capillary vessels, which were consistent with cardiac hemangioma of the mixed capillary and cavernous type. Furthermore, the tumor was positive for endothelial markers CD31 and CD34 and factor VIII, negative for tumor protein p53, and demonstrated a low MIB-1 labeling index (*Figure 2*), which differentiated it from a cardiac hemangiosarcoma. Chest tightness was relieved, and follow-up CT performed at 12 months showed no tumor recurrence.

Discussion

Cardiac hemangioma is a rare benign heart tumor which is usually well circumscribed. Reportedly, approximately 50% of cardiac hemangiomas are pedunculated (1), and non-pedunculated hemangiomas loosely adhere to the surrounding tissues and can be completely resected during surgery (3). In our case, the tumor infiltrated the right atrium and the right ventricle, and it was not readily distinguishable from the adjacent cardiac structures.

The tumor was speculated to have originated from the outflow tract of the right ventricle because it could barely be differentiated from the surrounding cardiac structures. The tumor appeared to have grown from its location to infiltrate

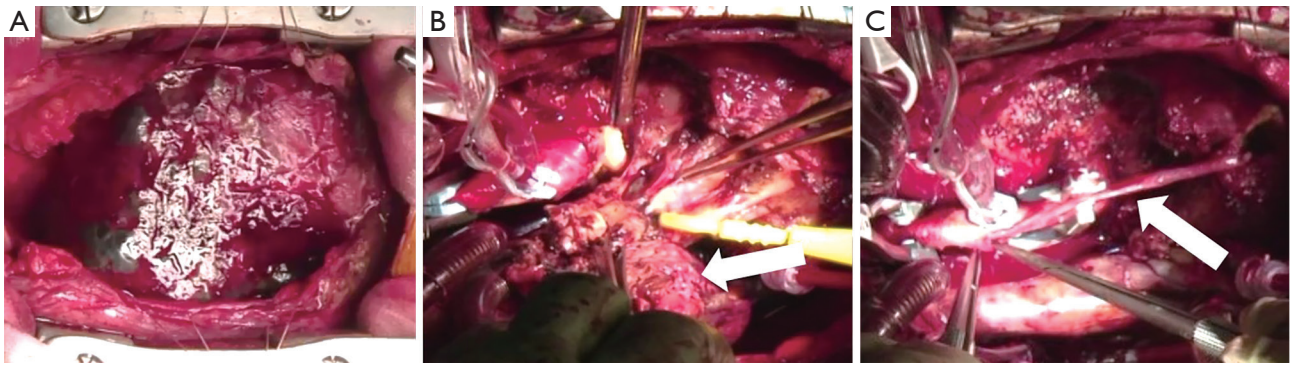

Figure 1 Intraoperative photographs. (A) A giant cardiac hemangioma was revealed through median sternotomy; (B) the tumor infiltrated the right atrium and the right ventricle. Arrow indicates the tumor; (C) the right coronary artery was bypassed using a saphenous vein graft (arrow).

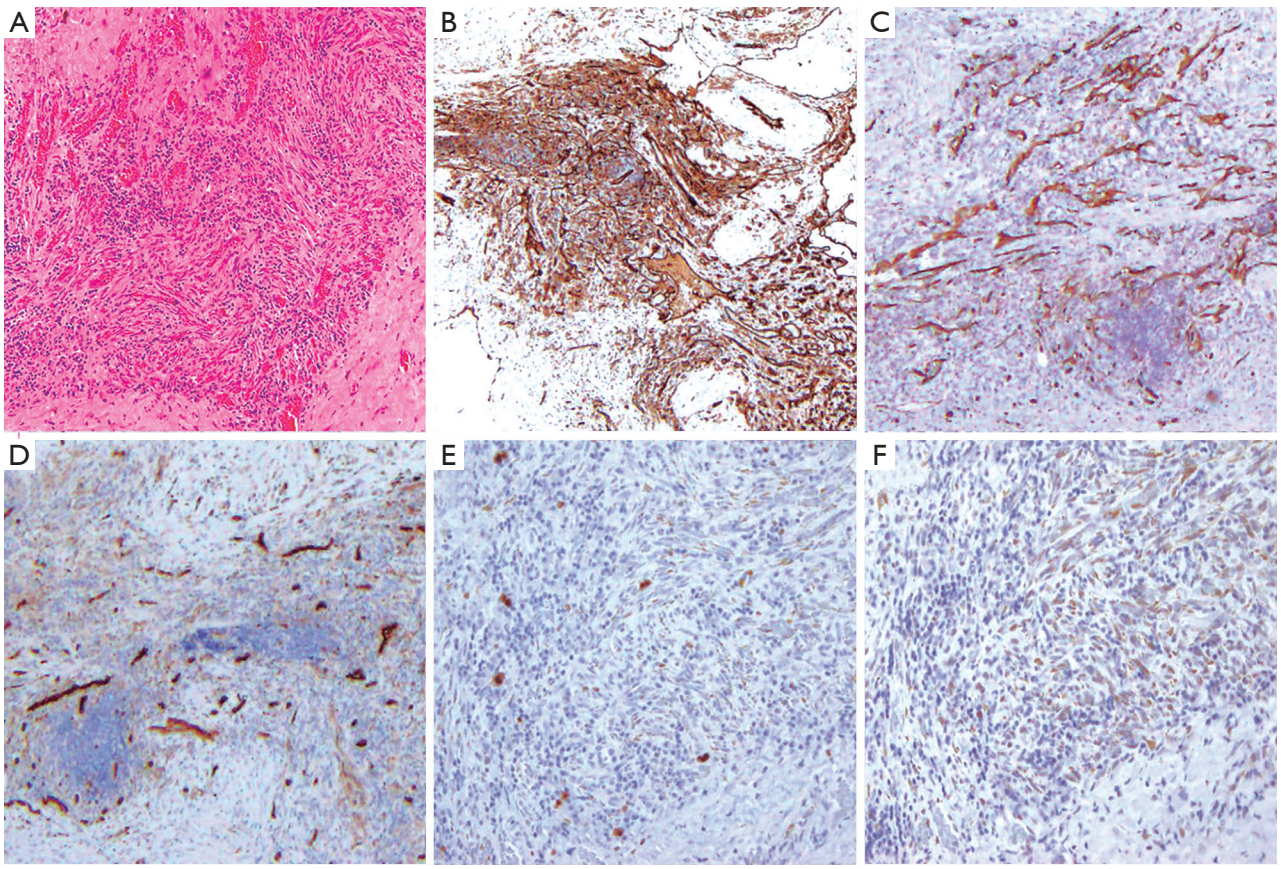

Figure 2 Histopathologic slides from the resected tumor. (A) Hematoxylin-eosin staining, 100×; (B) CD31 staining, 100×; (C) CD34 staining, 100×; (D) factor VIII staining, 100×; (E) low MIB-1 staining, 100×; (F) p53 staining, 100×.

the epicardium, which is a rather unusual manner of hemangioma growth. Few cases of cavernous hemangiomas with epicardial infiltration (4,5), as observed in our case, have been reported.

Our patient remained stable without tumor recurrence during the 12-month follow-up. Due to the lack of effective treatment alternatives (1), surgical resection is highly recommended for cardiac hemangiomas in symptomatic patients after carefully considering the risks and benefits of surgery. In cases in which a cardiac hemangioma cannot be completely resected, debulking should be considered because this approach has been shown to be effective for benign tumors (4).

Acknowledgements

We thank Dr. Masashi Akiya, Department of Pathology, Kitasato University School of Medicine, for his assistance in the interpretation of the pathological findings.

Footnote

Conflicts of interest: The authors have no conflicts of interest to declare.

Informed consent: Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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Cite this article as: Inoue T, Kitamura T, Torii S, Miyaji K. Cardiac hemangioma with epicardial infiltration. J Thorac Dis 2018;10(9):E704-E706. doi: 10.21037/jtd.2018.08.142

Supplementary

Figure S1 Biopsy was performed via right mini-thoracotomy (6). Available online: http://www.asvide.com/article/view/27404

Figure S2 The tumor was macroscopically resected, and the right coronary artery was bypassed using a saphenous vein graft (7). Available online: http://www.asvide.com/article/view/27405

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