Silent Left Ventricular Hemangioma

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Cardiac hemangiomas are extremely rare, and account for 5-10% of benign cardiac tumors. Most clinical presentations involve patient dyspnea on exertion and arrhythmia; asymptomatic patients are uncommon. A 45-year-old man had an asymptomatic left ventricular mass that was found incidentally during an echocardiogram. Magnetic resonance images showed an isointense protruding mass attached to the lateral wall of the left ventricle. The patient underwent a complete surgical resection with a good outcome. Histopathological examination revealed a cavernous hemangioma. The natural course of cardiac hemangiomas varies, and total resection is the favored treatment.

Key Words: Asymptomatic • Cardiac hemangioma • Resection

INTRODUCTION

Primary cardiac tumors have an estimated incidence of 0.001-0.03% at autopsy, and 75% of these are found to be benign. Cardiac hemangiomas are extremely rare, accounting for just 5-10% of benign cardiac tumors.[1] To the best of our knowledge, fewer than 100 cases have been reported in the literature.[2] Because an echocardiogram is a popular examination tool, the frequency of positive diagnosis of cardiac tumors has increased. Notably, magnetic resonance imaging (MRI) is an effective tool for demonstration of the hypervascular nature of hemangioma.[3] We present a case of asymptomatic left ventricular mass that was found incidentally during an echocardiogram. Coronary angiography demonstrated a tumor blush from the septal branches, and a heart MRI showed an isointense mass in the left ventricle. Complete resection of the left ventricular tumor via right lateral left atriotomy was performed using cardiopulmonary bypass. After the operation, the patient was followed up at the outpatient department without evidence of recurrence.

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CASE REPORT

A 45-year-old male laborer became fatigued easily in recent weeks. He had a healthy history and denied any systemic disease or family history of cardiovascular illness. However, he smoked 2 packs of cigarettes per day for 20 years, and had a 10 year habit of alcohol consumption. Because he fatigued easily, the patient came to the outpatient department of a medical center.

Hypertension was noted in a routine physical checkup, and further physical examination revealed normal heart sounds without murmurs. Neither cardiomegaly nor pulmonary vascular redistribution was demonstrated in a chest X-ray film. An electrocardiogram showed a sinus rhythm with left axis deviation. A transthoracic echocardiogram demonstrated a hyperechoic lesion in the left ventricle; the left ventricular ejection fraction was 77%. MRI of the heart and great vessel showed an isointense round mass with a diameter of 1.4 cm in both T1-weighted and T2-weighted images (Figure 1A). The mass was suspected to be a hypervascular tumor, although fibroelastoma, myxoma, or melanoma were

considered as differential diagnoses. Tumor markers such as carcinoembryonic antigen (CEA), squamous cell carcinoma-related antigen (SCC), alpha-fetoprotein (AFP), prostate-specific antigen (PSA), carbohydrate antigen 19-9 (CA 19-9) are typically lower in a healthy population where metastatic tumor is less likely.

After initial studies, the patient was admitted to an ordinary ward for further intervention. Coronary intervention was performed with transradial procedure using of 5 French guiding catheter.[4] Coronary angiography showed that septal branches were feeding the tumor as a characteristic "tumor blush" (Figure 1B). Preoperative transesophageal echocardiogram revealed a homogenous round mass with a pedicle that originated in the lateral wall of the left ventricle (Figure 1C).

A median sternotomy procedure was completed under general anesthesia. Using cardiopulmonary bypass and under cardioplegic rest with cooling, the right lateral left atriotomy was performed. After the left atrium was explored, the mass with pedicle attached to the left ventricle lateral wall could be seen directly. Subsequently, complete resection of the left ventricular tumor was done. The soft encapsulated mass measured $1.4 \times 1.0 \times 1.2$ cm^3 (Figure 2). Pathologic diagnosis was a cavernous hemangioma, and the patient was discharged without complication on postoperative day 6.

DISCUSSION

Brizard et al. reviewed 24 cardiac hemangioma cases.[5] The most frequent symptom for 10 patients was dyspnea on exertion; arrhythmia presented in 4 patients, and only 2 patients were totally asymptomatic. Surgery was performed on 23 of 24 patients. Eleven patients received total tumor resection; 4 patients received incomplete resection. In 8 patients, biopsy was performed because of unresectable tumor. In the series of cases, 13 patients were followed up for surgical outcome. Although one patient died on postoperative day 1, the remaining 12 patients were alive and well after follow-up that ranged from between 2 months and 6 years. The authors concluded that complete resection can result in a good surgical outcome and prevent tumor progression, which may result in compression of the cardiac structure.

Given the increasing number of cardiac tumors found, echocardiography is a feasible tool for diagnosis

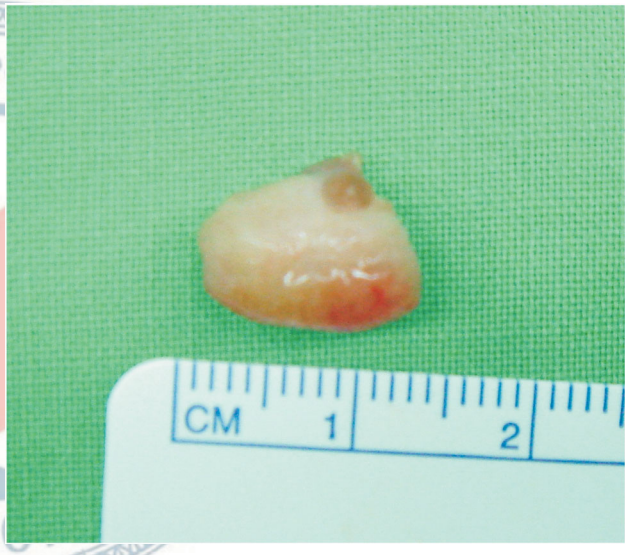

Figure 2. *The well-defined soft encapsulated mass measured 1.4 × 1.0 × 1.2 cm^3.*

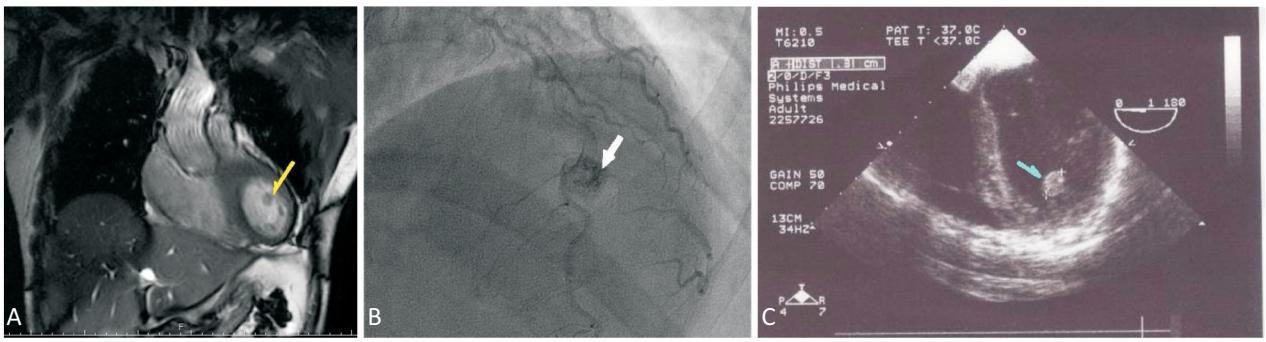

Figure 1. *(A) A round mass on the lateral wall of the left ventricle showed isointense signal in T1-weighted image (arrow). (B) Coronary angiography showed that septal branches feed the tumor as a characteristic "tumor blush" (arrow). (C) Preoperative transesophageal echocardiogram revealed a homogenous round mass (arrow) with a pedicle that originated from the lateral wall of the left ventricle.*

of cardiac tumor in modern society. Although the location of a cardiac tumor can be detected through echocardiography, coronary angiography and MRI can reveal the characteristics of cardiac hemangioma. In this case, the tumor showed isointense signal in both T1-weighted and T2-weighted images. The mass was suspected to be a hypervascular tumor, and fibroelastoma, myxoma, or melanoma were considered as differential diagnoses. Tumor markers are low in a healthy population that metastatic tumor is less likely. The specific finding on coronary angiography was tumor blush, and MRI showed a hypervascular lesion, thereby suggesting a diagnosis of cardiac hemangioma.[6]

A cardiac hemangioma can result in outflow tract obstruction, coronary insufficiency, congestive heart failure, or sudden death.[7] In the literature, sudden death resulting from a primary cardiac tumor occurred in 120 cases; of those cases, 6 patients had hemangiomas. The literature further shows that outcome with these tumors is unpredictable — some may involute, others can stop growing after a certain time, and others proliferate indefinitely.[8] However, patients with a resectable cardiac hemangioma can have good prognosis, whereas patients with an unresectable tumor can have poor prognosis.[9] Since the natural course of a cardiac hemangioma is variable, total resection is a favored treatment choice.[5]

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