The etiology of this rupture remained unclear. Traditionally, the mechanisms of aortic dissection or rupture can be categorized into three groups based on suspected causality [5]: (1) chronic diseases or conditions (e.g., hypertension, atherosclerosis), (2) diseases based on a specific congenital pathological background (e.g., Marfan syndrome), and (3) trauma. A patient presenting without any such predisposition can be easily misdiagnosed. If left surgically untreated, the mortality rate can be as high as 50% at 4 d, 75% at 2 weeks, and 90% at 3 months, as documented by Hirst et al. [6] in a study that reviewed 505 cases over a period of 21 years.

In conclusion, we describe a rare form of acute aortic emergency involving the ascending aorta. Although the findings were subtle, the treatment should be planned similarly to repair of an acute ascending aortic dissection. (Fig 3).

References

Successful Detection and Surgical Treatment of Cardiac Hemangioma With Right Ventricular Invasion
Yasunori Iida, MD, Tsutomu Ito, MD, Hiroto Kitahara, MD, Motojiro Takebe, MD, Atsushi Nemoto, MD, Reiko Shimokawa, MD, Akihiro Yoshitake, MD, and Takahiko Misumi, MD

Department of Cardiovascular Surgery and Department of Pathology, Saiseikai Yokohamashi Tobu Hospital, Kanagawa, and Department of Cardiovascular Surgery, Keio University, Tokyo, Japan

Cardiac hemangiomas are extremely rare benign tumors. These tumors are usually asymptomatic but they can present symptoms such as palpitations, shortness of breath, and arrythmia. We report the case of a 73-year-old man who presented with an abnormal shadow on chest computed tomography during follow-up for lung metastatic tumor after resection of his rectal cancer. A cardiac tumor was detected, and surgical resection and right ventricular plasty were successfully performed with the patient under cardiopulmonary bypass. Histopathologic
examination revealed a benign cardiac hemangioma, which was categorized as a hemangioma of the mixed cavernous and capillary type.


Cardiac tumors are classified into two groups: primary and secondary. Most primary and secondary cardiac tumors are rare, with a reported incidence rate of 0.0017% to 0.27% [1, 2]. In particular, cardiac hemangiomas are benign tumors representing fewer than 2% of all heart neoplasms [3, 4]. Patients with cardiac hemangiomas have diverse symptoms, the development of which depends on the position or extent of invasion of the tumor. Definitive diagnosis of cardiac tumors is difficult and usually requires time because of their nonspecific clinical features.

We report a rare case of cardiac hemangioma with right ventricular invasion in a 73-year-old man who underwent successful resection of the cardiac tumor with right ventricular plasty while under cardiopulmonary bypass.

A 73-year-old man had previously had rectal cancer with lung metastasis and had undergone laparoscopic low anterior resection and adjuvant chemotherapy in our institution. His previous follow-up computed tomography (CT) scan for lung metastatic tumor revealed an abnormal shadow. He was referred to our department for suspected pericardial metastasis from his rectal cancer.

A contrast medium—enhanced CT scan revealed a bulky and infiltrating mass on the surface of the right ventricle (Fig 1A). Physical examination revealed no heart murmur, arrhythmia, hepatomegaly, pedal edema, or respiratory discomfort. A preoperative echocardiogram showed a continuous bilocular mass (2.82 × 2.28 cm and 2.38 × 2.57 cm) on the surface of the right ventricle (Fig 1B).

After performing a median sternotomy and opening the pericardium, we identified a reddish, smooth, bulky tumor on the surface of the right ventricle without any adhesion to the surrounding tissue (Fig 2). Cardiopulmonary bypass was established with bicaval cannulation, and cardiac asystole was achieved by inducing cardioplegia after aortic clamping. Because the border between the tumor and the right ventricular tissue was not distinct, we resected the tumor maximally, using a harmonic scalpel (Ethicon, Inc., Somerville, NJ) and ligated all feeding vessels meticulously. The defect in the right ventricle was then closed and enforced with a pair of linear felt strips along the incision line. The postoperative course was uneventful, and the patient was discharged with no complications.

Histopathologic examination of tumor tissue sections stained with hematoxylin and eosin demonstrated large vessels containing considerable amounts of blood enclosed in the vascular endothelium, which was categorized as a hemangioma of the cavernous and capillary type.
type pattern (Fig 3A). Immunohistochemical analysis of CD31 showed positively stained vascular endothelial cells, indicating strongly activated angiogenesis (Fig 3B).

Comment

Primary cardiac tumors are rare; 75% of them are benign neoplasms, which may occur at any age and in any part of the heart [4]. In particular, hemangiomas account for 5% to 10% of these benign tumors [5].

In the patient described here, the cardiac tumor was initially thought to be a malignant metastatic tumor because of his history of lung metastasis from rectal cancer, which was treated by surgical resection. However, we definitively diagnosed the cardiac tumor as a benign cardiac hemangioma by histopathologic examination. Most hemangiomas are relatively small subendocardial nodules (2.0 to 3.5 cm), which may be mostly solitary [6]. In our patient, however, the tumor was a continuous bilocular mass whose length reached up to 4.85 cm. The definitive diagnosis of hemangiomas is difficult because they are usually asymptomatic. Hemangiomas cause coronary ischemia, dyspnea on effort, arrhythmia, pericardial effusion, congestive heart failure, and outflow tract obstruction [4]. In the present case, the patient had a regular follow-up visit to a doctor after the resection of his rectal cancer, which led to the detection of an abnormal shadow on chest CT scan. During the surgical removal of a cardiac hemangioma, meticulous ligation of all feeding vessels and hemostasis induction with an ultrasound scalpel are required to prevent recurrence, which although rare has been reported [7]. Cardiac hemangioma is categorized pathologically as either cavernous, capillary, or arteriovenous. In the present case, staining with hematoxylin and eosin and with CD31 revealed histopathologically a hemangioma of the cavernous type coexisting with the capillary type.

In conclusion, we report the successful detection and surgical resection of a right ventricular cardiac hemangioma with the patient under cardiopulmonary bypass. Although the definitive diagnosis of primary cardiac tumors is difficult, the regular follow-up CT scan in this patient after the resection of his rectal cancer with lung metastasis led to the detection and treatment of a cardiac hemangioma. Meticulous follow-up is required for this benign tumor after its resection because of the possibility of recurrence.

The authors thank Dr. Edward F. Barroga, Associate Professor and Senior Medical Editor of the Department of International Medical Communications of Tokyo Medical University, for his editorial review of the English manuscript.

References