The Heart Surgery Forum #2004-1124
8 (1), 2005 [Epub January 2005]
doi:10.1532/HSF98.20041124

Online address: www.hsforum.com/vol8/issue1/2004-1124.html

Cavernous Hemangioma in the Junction between the Left Atrium and the Aorta: Case Report

Dr. Gersak

B. Gersak, MD, PhD,[1] M. Sostaric, MD,[2] Z. Dolenc-Strazar,[3] MD, F. Staric, MD,[4] M. Kozelj, MD, PhD[5]

Departments of [1]Cardiovascular Surgery and [2]Anaesthesiology, University Medical Center, Ljubljana; [3]Institute of Pathology, Medical Faculty of Ljubljana, Ljubljana; [4]General Hospital, Novo Mesto; [5]Department of Cardiology, University Medical Center, Ljubljana, Slovenia

ABSTRACT

We present a case of an asymptomatic cavernous hemangioma, located in the junction area between the left atrium and aorta, and our experience of diagnosis and surgical treatment of the tumor.

INTRODUCTION

Primary cardiac tumors of the heart are rare [Gersak 1999]. The large majority are benign, and the myxomas represent 70% to 80% of all cardiac neoplasms. Among benign cardiac tumors, hemangiomas are extremely rare, with an incidence of 0.8% to 1.6%. Symptoms result from compression of surrounding structures or embolization [Brizard 1993]. We report a case of surgical removal of an asymptomatic cavernous hemangioma of the left atrium.

CASE REPORT

A 46-year-old man had been medically treated for arterial hypertension for some months. He was asymptomatic for dyspnea, palpitations, and angina on exertion. He was a regularly physically active man. The physical examination did not reveal any abnormality.

Transthoracic echocardiogram, which had been performed among routine examinations for arterial hypertension, revealed a tumor in the left atrium (Figure 1). Transesophageal echocardiography was performed for better visualization of the tumor and description of its relation to the adjacent structures. Transesophageal echocardiography revealed a wide based, isoechogenic tumor, measuring 3.1 × 2.2 cm, located in the left atrium wall adjacent to the mitral valve annulus, attached to the interatrial septum and the anterior wall of the left atrium, lying in a position adjoining the posterior aortic wall. The demarcation to the posterior aortic wall was not clear (Figure 2). The tumor spared the fossa ovalis. It showed minimal mobility, and it did not cause any blood flow obstruction or mitral regurgitation. The left atrium was moderately enlarged. The rest of the echocardiographic examination results were normal. The coronary arteriography demonstrated blood supply to the mass from branches of the right coronary artery, in addition to a discrete tumor blush.

Additional examinations of peripheral blood samples, bone marrow, and urine analysis did not show any abnormalities. Tumor markers were negative. electrocardiogram showed regular sinus rhythm. No apparent abnormality was found in chest x-ray films. Computed tomography of brain was normal, without signs of embolism.

A decision for surgical removal was made after discussion with the patient and his family. Surgery was performed under general anesthesia, with complete peripheral cannulation for cardiopulmonary bypass (CPB). The right jugular vein was cannulated with a 17-Fr cannula under transesophageal (TEE) guidance. The same TEE guidance was used for cannulation from the right groin region, where a 28-Fr cannula was introduced directly to the level of the junction between the right atrium and the inferior vena cava. The right femoral artery was cannulated with a 21-Fr cannula, similar to the

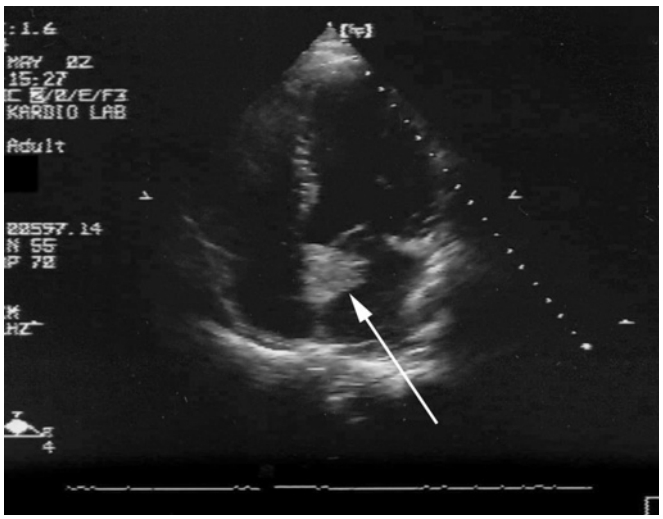

Figure 1. Transthoracic apical 4-chamber view echocardiogram showing a wide-based isoechogenic tumor located in the left atrium attached to the interatrial septum adjacent to the mitral valve annulus (arrow).

Received September 14, 2004; accepted October 31, 2004.

Address correspondence and reprint requests to: Borut Gersak, Department of Cardiovascular Surgery, Zaloska 7, Ljubljana, SLO-1000, Slovenia; 381-1-5224941; fax: 386-1-5222583 (e-mail: bgersak@maat.si).

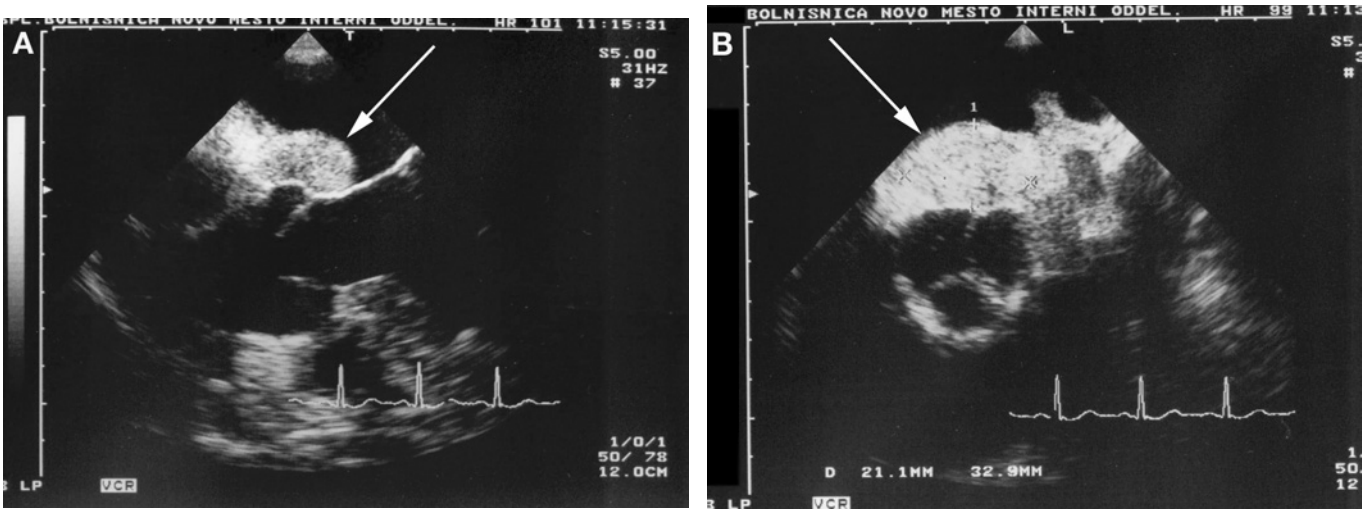

Figure 2. Transesophageal longitudinal view (A) and transversal view (B) show the tumor (arrow) located in the left atrium adjacent to the mitral valve annulus, lying adjoining the posterior aortic wall.

cannulation for port-access surgery. Normothermic CPB was established, and negative pressure was used for venous drainage. Immediately after the pericardium was opened, we noticed the large mass lying in the junction between left atrial dome and acoronary part of the aorta. The heart was stopped with antegrade cold blood cardioplegia and the tumor was excised. It was noted that there was no infiltrative growth into the aortic wall, so this part was completely debrided. The left atrial dome, where the majority of the tumor was present, was broadly excised, and the tumor was sent to the pathology lab for frozen section, to determine its histological diagnosis and potential malignancy. During waiting time the heart was arrested and no reconstructive surgery was performed. When the pathological diagnosis revealed that the tumor was a cavernous hemangioma (a nonmalignant tumor), the left atrial patch was sutured to the defect in the atrial dome. At the end of surgery the heart was deaired and the aorta unclamped. The heart resumed normal sinus rhythm immediately. The rest of the operation was uneventful, and the patient was discharged from the hospital 6 days after surgery.

On macroscopic examination the surgically removed tissue was spongy and partly hemorrhagic. Histopathological examination revealed typical cavernous venous structures, filled with blood and focally thrombosed (Figure 3). Focally, a few smaller capillary channels were found. There was no endothelial atypia or papillary hyperplasia.

The patient made an uneventful recovery and was discharged 6 days later in sinus rhythm. After 2 years follow-up, the patient was in New York Heart Association class I, in sinus rhythm, and echocardiogram results showed no recurrence of the tumor. Mitral and aortic valves were competent.

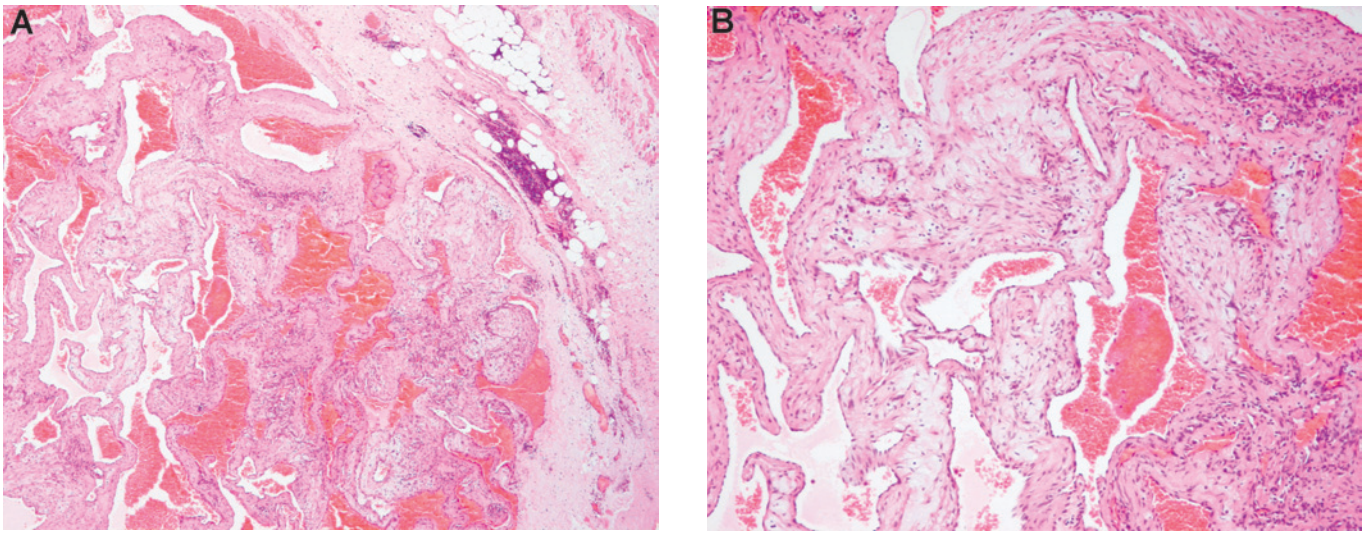

Figure 3. A, Cardiac hemangioma, cavernous type (hematoxylin -eosin, original magnification ×100). B, Cavernous venous structures filled with blood, lined with flattened endothelial cells, with abundant connective tissue between the channels (hematoxylin -eosin, original magnification ×100).

DISCUSSION

Histologically, hemangioma of the heart has 2 major differential diagnostic possibilities. In case of a myxoid background, misdiagnosis as a myxoma is possible, but in hemangioma there are no myxoma cells and no ring structures. Grossly, in contrast to myxomas, hemangiomas are rarely attached to the oval fossa. Papillary hyperplasia, which is reactive endothelial proliferation in hemangioma, may lead to misdiagnosis of angiosarcoma. Angiosarcoma can be excluded only when the whole tumor is examined and no marked endothelial atypia, cellular areas of spindle cells with poorly formed vascular channels, or necrosis are found.

Compression, obstruction, effusion, and bleeding are the mechanisms responsible for the clinical picture of the cardiac hemangioma. Symptoms depend also on the location, size, and invasiveness of the tumor. The natural history is unpredictable; for this reason surgical intervention is mandatory [Manase 1999]. When technically feasible, surgery is indicated to both confirm the diagnosis and excise the tumor [Kann 2000].

In the case of primary cardiac tumors for which the diagnosis is not certain (especially for malignancy), we believe surgery is mandatory and should be performed immediately. The risk of elective operation is minimal in comparison with the deleterious and destructive effect of a possible malignant tumor [Gersak 2002]. Peripheral cannulation (as for port-access surgery) is an excellent choice because it makes it possible to perform even cardiac autotransplantation in cases in which successful tumor removal from the chest cavity is not possible or not feasible. In those cases tumor removal and cardiac reconstruction are possible on the surgical table.

REFERENCES

Brizard C, Latremoullis C, Jebara A, Acar C, Fabiani JN, Carpentier AF. 1993. Cardiac haemangiomas. Ann Thorac Surg 56:390-4.

Kann BR, Kim WJ, Ciley JH, Marra AW, Del Rossi AJ. Hemangioma of the right ventricular outflow tract. Ann Thorac Surg 70:975-7.

Gersak B, Lakic N, Gorjup V, et al. 2002. Right ventricular metastatic choriocarcinoma obstructing inflow and outflow tract. Ann Thorac Surg 73:1631-3.

Gersak B, Mikek M, Smrkolj V, et al. 1999. Results of treatment of 17 patients with heart tumour. Eur J Surg Oncol 25:302-5.

Manase E, Nicolini F, Canzini R, Gallotti R. 1999. Left ventricular hemangioma. Eur J Cardio-Thorac Surgery 15:864-6.