Surgical Treatment of Papillary Fibroelastoma in the Aortic Valve: A Case Report

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With the exception of myxomas, primary tumors of the heart are very rare. We present here our experience with papillary fibroelastoma in the aortic valve. We could not preserve the aortic valve because of the wide attachment of the tumor to the valve and aortic regurgitation. (Ann Thorac Cardiovasc Surg 2010; 16: 297–300)

Key words: aortic valve tumor, papillary fibroelastoma, intracranial aneurysm

Introduction

Primary tumors of the heart are very rare. Myxomas, however, are an exception. We report our surgical experience of papillary fibroelastoma in the aortic valve.

Case

A 60-year-old man complained of chest discomfort. He had undergone right adrenalectomy for primary aldosteronism 3 years ago. Transthoracic echocardiography revealed a hyperechoic mass in the aortic valve and aortic regurgitation (Fig. 1) (LVDd 53.3 mm, LVDs 32.5 mm, EF 69%). Therefore he was referred to our hospital. He was afebrile and had no sign suggestive of infection. His blood pressure was 121/72 mmHg, and his pulse was 69/min, regular. A Levine II/VI diastolic murmur was heard at the 3rd intercostals space of the left sternal border. Transesophageal echocardiogram (TEE) detected a tumor measuring 10 mm in diameter adherent to the left coronary cusp of the aortic valve (Fig. 2) and moderate aortic regurgitation. A multidetector computed tomographic scan of the heart also revealed the aortic mass (Fig. 3) and no coronary artery disease. A brain-computed tomogram, which was performed as a routine investigation for preoperative assessment, detected an intracranial aneurysm in the anterior communicating artery. It was judged to be an incidental finding with no causal relationship with infection or the aortic valve tumor.

Operation

Through median sternotomy, a cardiopulmonary bypass was established in the usual fashion, and the ascending aorta was opened. The tumor was found to have a wide attachment to the surface of the ventricular aspect of the left coronary cusp extending from the aortic annulus to the edge of the cusp (Fig. 4). From outside, the mass had a villous and jellylike appearance. Aortic valve replacement was performed with a 23-mm Carpenter-Edwards bioprosthesis. The bioprosthetic valve was selected because of the intracranial aneurysm, which should be treated soon. The postoperative course was uneventful.

Upon histopathological examination, the papillary surface was found to be covered by a layer of endothelial cells and had fibrous stroma, including hyaline material and elastic fibers (Fig. 5). These findings led to a diagnosis of fibroelastoma.

Discussion

Papillary fibroelastoma is the second most common car-
Fig. 1. Ultrasound cardiogram (UCG).
Moderate aortic regurgitation was detected.

Fig. 2. Transesophageal echocardiogram (TEE).
A hyperechoic mass measuring 10 mm in diameter was detected on the left coronary cusp.

Fig. 3. Multidetector computed tomograms of the aortic root.
An arrow shows the tumor that is detected on the ventricular aspect of the aortic valve around the commissure between the left and right cusps.
Often found on the valvular endocardium, it is the most common valve tumor, though only 132 cases, most of which were incidental autopsy cases, have been reported by 1991, and the reports have been increasing since the advent of echocardiography. In 2003, Gowda et al. published a very informative article with a comprehensive analysis of 725 cases. Mean age at detection was about 60 years, and males comprised 55% of the total patient population. The tumors were mainly located on the aortic valve (44%), the mitral valve (35%), and the tricuspid valve (15%). Symptoms associated with papillary fibroelastomas were a transient ischemic attack or stroke in 17%, angina in 7%, myocardial infarction in 4%, and sudden death in 3%. As for the surgical procedure for papillary fibroelastoma, a simple excision was selected in 81% of all 425 surgical cases, excision with valve repair in 9%, and valve replacement in 10%. Even when the tumors were located on the aortic...
valve, a simple excision with or without valve repair was the most usual procedure,\textsuperscript{3–6} and there have been no reports of tumor recurrence with this strategy. In our case, because aortic regurgitation might be caused by traction of the left coronary cusp by the tumor, a simple tumor excision might improve the aortic regurgitation if it was possible. However, a simple excision in this case might have left part of the tumor because it was widely attached to the left coronary cusp and had no stalk. Hirota et al. also reported that aortic valve replacement was performed for a sessile tumor on the noncoronary cusp.\textsuperscript{7} Although a preoperative TEE was the most beneficial diagnostic tool, it was difficult to evaluate whether there was a stalk in this case.

Endocarditis must be ruled out in patients having mobile mass in the cardiac valve, though clinical features of endocarditis were not found in the present case. With the presence of fever, the diagnosis can be more complicated in such patients.

In conclusion, we report our experience in a patient with an aortic valve tumor in whom we performed aortic valve replacement instead of valve-sparing procedure because of the wide attachment of the tumor to the valve and preoperative aortic regurgitation.

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References