

Bentall Operation with Saphenous Vein Graft for a Takayasu's Aortitis Patient

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Takayasu's aortitis patients present a variety of symptoms, including angina pectoris, aortic valve regurgitation, and aortic branch stenosis. The case described in this paper primarily presented with angina pectoris. Close investigation revealed a left coronary artery ostium lesion, an aortic root aneurysm, and a mild aortic regurgitation. The patient underwent a modified Bentall operation with saphenous vein graft (SVG) replacement of the left main trunk. The postoperative course was uneventful, and the patient received oral steroid therapy. SVG is a useful option in treating aortic root aneurysm with an ostium lesion. (Ann Thorac Cardiovasc Surg 2010; 16: 373–375)

Key words: Takayasu's aortitis, Bentall operation, saphenous vein graft

Introduction

Takayasu's aortitis patients who present aortic regurgitation (AR), aortic root aneurysm, and angina pectoris can have coronary arteries that are difficult to reconstruct in terms of graft selection.¹⁾

Our patient presented with angina pectoris and was later found to have an aortic root aneurysm and AR. The patient was treated with a modified Bentall's procedure incorporating coronary artery reconstruction using a saphenous vein graft (SVG).

Clinical Summary

A 56-year-old man complained of chest pain when he walked. The electrocardiogram showed an ST depression

of aVF, V3–V6. He was referred for a coronary artery angiography. The test revealed 75% stenosis of the left main trunk (LMT) ostium and an intact right coronary artery (Fig. 1). The chest computed tomography (CT) also revealed a 51-mm root aneurysm (Fig. 2). The patient was subsequently referred to our hospital for surgery. Preoperative chest magnetic resonance imaging (MRI) and CT showed that the image of the aortic wall was enhanced by the contrast medium (Fig. 3a and b). Although there was no stenosis of cervical arteries, the MRI findings seemed to indicate Takayasu's aortitis. Preoperative echocardiography showed mild AR with normal left ventricular (LV) function [left ventricular ejection fraction (LVEF) 65%]

The patient underwent a modified Bentall operation performed through median sternotomy. A cardiopulmonary bypass was established via the right femoral artery and right atrium under normothermia. The ascending aorta was not whitish, as reported previously, and aortic dilatation ended before the origin of the innominate artery. After aortic cross-clamping, blood cardioplegia was infused from the ascending aorta, and the aortic valve was inspected after resection of the dilated ascending aorta. Because free edges of the aortic leaflets were thick and of reduced mobility, an aortic valve sparing operation did not seem to be appropriate. The Bentall

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Fig. 1. Preoperative coronary angiography revealed 75% stenosis of the left main trunk.

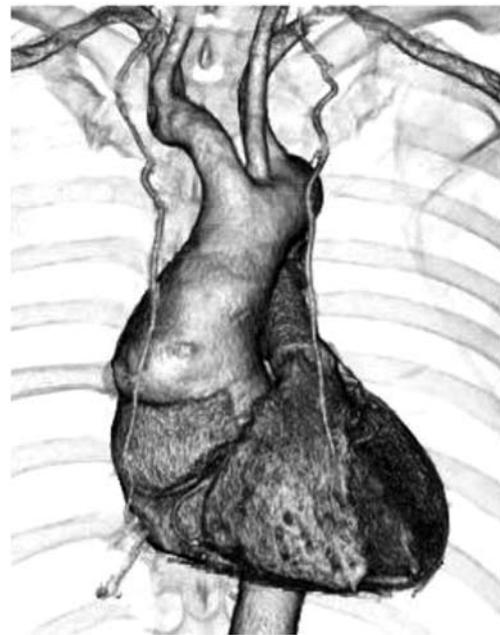


Fig. 2. Preoperative computed tomography revealed a 51-mm aortic root aneurysm and no cervical vessel stenosis.

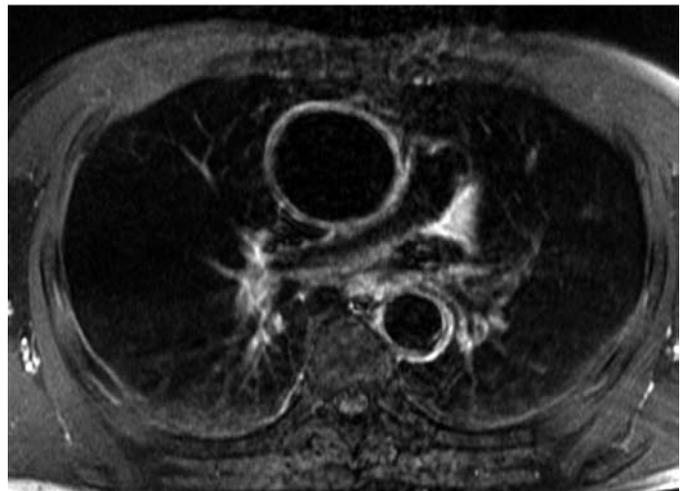
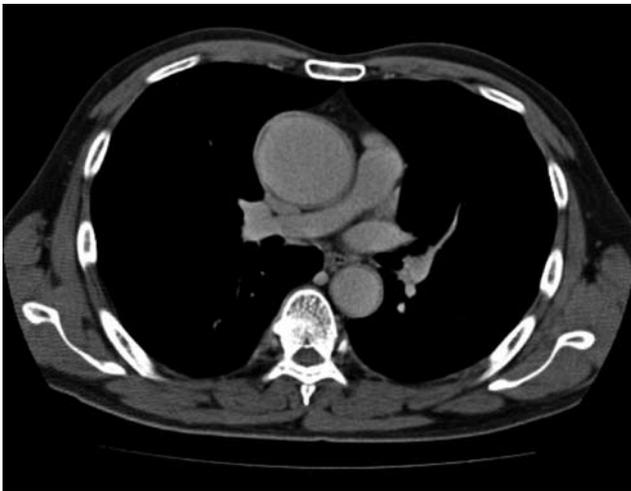


Fig. 3. The adventitia was thick around the entire circumference of both the ascending and descending aortas in the chest computed tomography. A double-ring configuration of the thick thoracic aortic wall is compatible with a diagnosis of Takayasu's aortitis (a). The adventitia was enhanced by the contrast dye. This finding was compatible with Takayasu's aortitis (b).

operation was performed with a composite graft, which consisted of 26-mm Gelweave graft (Vascutek Ltd, Inchinnan, UK) and 23-mm ATS. To reconstruct the LMT ostium, we used SVG as a graft conduit instead of the left internal thoracic artery (LITA). This is because the LITA occasionally fails to supply enough blood to the whole left coronary artery system in the acute phase. Although the SVG's long-term patency might be inferior

to the LITA's, in this case it seemed to be more suitable. The LMT was partially replaced with the SVG. The elapsed operating time was 450 min, cardiopulmonary bypass time 170 min, and aortic clamp time 137 min. The postoperative course was uneventful. Postoperative CT revealed that the ascending aorta and LMT were well reconstructed (Fig. 4). The patient was discharged from our hospital with a prescription for a steroid (predniso-

lone, 10 mg/day) to suppress his immune system. Postoperative histopathological results showed a presence of cells in the arterial medial layer and outer layer and in his aortic valve.

Comment

Takayasu's arteritis is a chronic disease with a reasonable prognosis for most patients when appropriate treatment is provided. About 12% of these patients are candidates for surgical intervention.²⁾ The surgery required to treat them is complicated and difficult because exposing the coronary arteries and aortic root, which are adhered to the surrounding tissues, requires careful attention and effort. Moreover, reoperations for valve detachments and pseudoaneurysm formations have been reported by some groups.³⁾ Although coronary artery disease and AR can be lethal if not discovered, patients can expect long survival with appropriate treatment.⁴⁾

Coronary artery lesions are frequently involved with coronary ostiums. Some reports suggest that patch repair of the ostium lesions is an effective method.⁵⁾ This method requires grafts to enlarge the ostium, but the optimal choice between graft and long-term patency is unknown. Another surgical option is transaortic endarterectomy.¹⁾ The graft selection for a coronary artery bypass graft has been the subject of much discussion. Because of one specific manifestation of the disease, first aortic branch stenosis, LITA is sometimes an inappropriate graft choice. SVG also has difficulty in long-term patency because of the inflammatory nature of the disease.⁴⁾ Our patient, whose ostium was stenosed, was treated with SVG replacement, which is expected to supply more blood to the entire left coronary artery system than LITA will, especially in the acute phase.

One of the surgical options for this patient was a valve-sparing operation. To our knowledge, there are no reports on the long-term results of a valve-sparing operation for Takayasu's aortitis. We believe that the aortic valve leaflets, which are thick and curly, might lead to aortic regurgitation in the future. On the other hand, the modified Bentall operation acts as a preventive measure of aortic valve detachment.

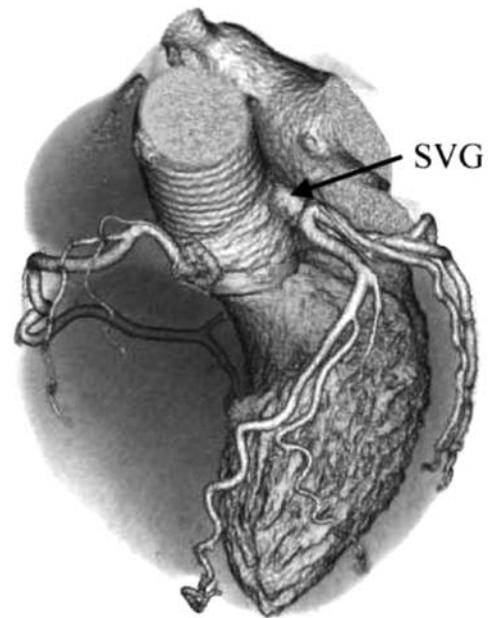


Fig. 4. SVG: saphenous vein graft; postoperative computed tomography showed that both the ascending aorta and the left coronary artery main trunk were replaced well.

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