Successful Combined Operation for Takayasu’s Arteritis

Kazuhiko Kuwahara, MD, Hitoshi Ohteki, MD, Tsuyoshi Itoh, MD, Kouzou Naitoh, MD, Koujirou Furukawa, MD, and Masafumi Natsuaki, MD
Department of Thoracic and Cardiovascular Surgery, Saga Medical School, Saga, Japan

We report a case of Takayasu’s arteritis complicated with aortic regurgitation and severe stenosis of the left coronary ostium and the innominate artery. Simultaneous surgical treatment of aortic valve replacement, coronary ostium endarterectomy, and aortosubclavian artery bypass using saphenous vein were performed. We discuss the choice of simultaneous operation and the option of surgical treatment for coronary ostium lesion due to Takayasu’s arteritis.


A 51-year-old woman was admitted to our hospital because of heart murmur, vertigo, and loss of visual acuity. In 1972, Takayasu’s arteritis was diagnosed in her at another hospital. Cardiac catheterization was also performed, although the result was not known.

On admission in October 1988, the patient was well nourished and had frequent vertigo during walking. The temperature was 36.2°C. Blood pressure was 90/20 mm Hg in the right upper arm and 140/20 mm Hg in the left upper arm. Whole peripheral pulsations were well palpable. Ophthalmological examination showed no abnormalities except bilateral hyperopia. Bilateral neck bruit was heard, and there was no jugular vein engorgement. Grade 3 systolic murmur and grade 2 diastolic murmur at the upper right sternal border were audible. The abdomen was normal. No peripheral edema was found.

The hematological and biochemical studies were within normal limits except that the level of C-reactive protein was 41 mg/L. Electrocardiogram revealed mild left ventricular hypertrophy and depression of ST segment at leads I, II, aVF, and V₅ to V₆. The chest x-ray film showed mild cardiomegaly and normal vascular marking. The echocardiography showed mild left ventricular hypertrophy and fluttering of the mitral valve, and the left ventricular ejection fraction was 0.74. Aortography revealed third-degree aortic regurgitation, and coronary arteriography showed severe stenosis (95%) in the left coronary ostium (Fig 1). Systemic angiography showed severe stenosis in the innominate artery, marked dilatation of the right vertebral artery, complete occlusion in the origin of the bilateral common carotid artery, and long segmental stenosis of the right pulmonary artery. Surgical treatment was planned for aortic regurgitation, stenosis of the left coronary ostium, and stenosis of the innominate artery on November 8, 1988.

Excision of the intima of the left coronary ostium was carefully done with a knife and scissors by inserting a No. 3 Fogarty balloon catheter. Initially, only 1.0-mm probes could be inserted through the ostium, and finally a 5-mm probe could be passed after additional endarterectomy. The aortic valve was somewhat elongated and thickened. Aortic valve replacement was performed with a 19-mm St. Jude Medical prosthesis. Proximal anastomosis of the saphenous vein graft was done during clamping of the ascending aorta, and the distal anastomosis was performed after declamping. Rewarming was done after the completion of proximal anastomosis of the saphenous vein graft. The weaning from cardiopulmonary bypass was smooth.

The patient’s postoperative course was good except for poor control of inflammation due to Takayasu’s arteritis.
Fig 2. Postoperative angiogram shows that the aortosubclavian bypass graft is patent (A) and that severe stenosis of the left coronary ostium is improved (B).

Three months were necessary for the control of inflammation and the recovery from hepatitis. She is now doing well 26 months postoperatively with no complaints.

Comment

Takayasu’s arteritis was first reported by Takayasu, a Japanese ophthalmologist, in 1908 [1]. It had been understood as a nonspecific vasculitis, but its etiology is still not clear. The incidence of coronary arterial lesion is relatively low, about 10% [2], and 80% to 90% of the coronary lesions are observed in the coronary ostia or in the proximal vessels [3].

The surgical treatment options for coronary ostial stenosis due to Takayasu’s arteritis have been reported to be coronary artery bypass grafting [4, 5] and ostium endarterectomy. Ohara and associates [6] reported 18 cases of surgical treatment for coronary ostial stenosis due to Takayasu’s arteritis, and they concluded that ostium endarterectomy was superior to coronary artery bypass grafting in terms of long-term patency at 4-month to 6-year follow-up. The proximal anastomotic portion of the ascending aorta would be stenosed or occluded if inflammation extended in case of coronary artery bypass grafting [7], although the same condition at the coronary ostium could occur in case of endarterectomy. Recently, some groups have reported that arterial grafts, for example, internal mammary artery and gastroepiploic artery [8], were effective in treating the ostium lesion due to Takayasu’s arteritis. But internal mammary artery and gastroepiploic artery cannot be used as grafts when the inflammation extends to the aortic arch and the descending aorta, respectively. Every kind of surgical treatment for coronary stenosis has demerits and pitfalls.

We chose ostium endarterectomy for this patient because of localized stenosis in the left coronary ostium and because no active inflammation was found preoperatively. We also performed aortosubclavian bypass in this patient because cerebral blood flow was supplied by only the right vertebral artery. Postoperatively, ocular symptoms including vertigo and loss of visual acuity were improved. Finally, the reasons that we chose the simultaneous operation are mainly summarized in the following two points: First, we estimated that the simultaneous operation in this case could be safely done in one visual field. Second, we had to prevent the occurrence of cranial nerve disturbance intraoperatively and postoperatively.

References


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The American Board of Thoracic Surgery began its recertification process in 1984. Diplomates interested in participating in this examination should maintain a documented list of the operations they performed during the year prior to application for recertification. This practice review should consist of 1 year's consecutive major operative experiences. (If more than 100 cases occur in 1 year, only 100 need to be listed.) They should also keep a record of their attendance at approved postgraduate medical education activities for the 2 years prior to application. A minimum of 100 hours of approved CME activity is required.

In place of a cognitive examination, candidates for recertification will be required to complete both the general thoracic and cardiac portions of the SESATS IV syllabus (Self-Education/Self-Assessment in Thoracic Surgery). It is not necessary for candidates to purchase SESATS IV booklets prior to applying for recertification. SESATS IV booklets will be forwarded to candidates after their applications have been accepted.

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