Surgical treatment of middle aortic syndrome due to Takayasu arteritis

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A 35-year-old Korean female patient presented with symptoms of postprandial pain and claudication in both lower extremities, with increasing serum creatinine. Her blood pressure at presentation was 170/91 mm Hg on antihypertensive medications, and blood tests showed elevated serum creatinine (2.07 mg/dL) and erythrocyte sedimentation rate (39 mm/dL), and anemia (10.0 g/dL). The C-reactive protein level was within the normal reference range (0.2 mg/dL).

A three-dimensional volume-rendered image of a posterior view thoracoabdominal computed tomography (CT) scan showed a heavily calcified distal thoracic and abdominal aorta and a contracted left kidney (A). The axial CT view showed the paravisceral aortic diameter was narrowed to 5.5 mm (B).

On a diagnosis of middle aortic syndrome (MAS) due to Takayasu arteritis (TA), we performed an aortic bypass from the ascending aorta to the aortic bifurcation in conjunction with revascularization of the right renal and superior mesenteric arteries.

On postoperative day 1, the patient’s serum creatinine level recovered to a normal range and her postprandial abdominal pain subsided. A postoperative CT angiogram showed patent aortic, renal, and mesenteric bypass grafts (C/Cover).

DISCUSSION

TA often affects the thoracic or abdominal aorta, or both, and their primary branches. According to the classification of International TA Conference in Tokyo in 1994, lesions confined to the distal thoracic and abdominal aorta on angiogram, with or without renal artery, involvement are classified as type III. Our previous review of 208 TA patients found 3.8% of patients corresponded to type III.

Aortic coarctation located in the distal thoracic aorta or abdominal aorta, or both, is called MAS or “middle aortic dysplastic syndrome.” MAS patients clinically present with renovascular hypertension, chronic renal insufficiency, and chronic mesenteric or leg ischemia. Endovascular treatment can be attempted for the treatment of this condition; however, the severe aortic wall calcification or acute inflammation of the involved vessel wall, or both, usually precludes the use of endovascular treatment. Before deciding a treatment strategy for patient with MAS due to TA, disease progression, durability of the treatment, particularly in younger patients, comorbidities, and risks related with the treatment should be considered. After open reconstructions of the aorta, renal, and mesenteric artery, we found improved renal function, postprandial pain, and leg claudication.