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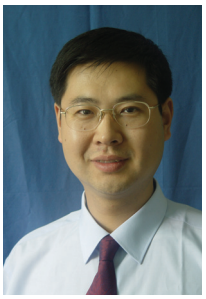
Large-Sized Bilateral Axillary Artery Aneurysms in a Patient with Marfan Syndrome: A Case Report



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ABSTRACT

A 46-year-old man presented with large bilateral aneurysm of the axillary arteries combined with Marfan syndrome. Treatment consisted of axillary aneurysm resection and vessel replacement. Postoperative computed tomographic angiography confirmed good flow in the bilateral axillary artery, and the patient recovered without complication.

INTRODUCTION

Marfan syndrome (MFS), the most common inherited disorder of connective tissue, affects multiple organ systems, including the skeletal, ophthalmic, and cardiovascular systems. Although mitral valve prolapse and ascending aorta dilatation are common, bilateral large-sized aneurysms of the axillary arteries are rare. We report a case of MFS presenting axillary artery aneurysm on both sides.

CASE REPORT

A 46-year-old man with known MFS presented with progressively enlarging swelling in the right axilla (2-month history) and in the left axilla (2-week history). An examination confirmed the presence of a fist-sized mass in the right axilla and an egg-sized mass in the left axilla. The large mass had a clear boundary, was not mobile, and was not tender. There was nonpulsatile forward flow. The patient's fingers and toes were slender, which is consistent with arachnodactyly syndrome.

A computed tomographic angiography examination revealed large, well-circumscribed masses, measuring approximately 10.0 × 8.0 cm in the right axilla and 6.0 × 5.0 cm in the left axilla (Figure 1). Both aneurysms were located in the first part of the axillary artery. A cardiac ultrasound evaluation revealed an aneurysm of the aortic sinus (55 mm), a small amount of aortic valve regurgitation, atrial septal aneurysm bulging, and an increased size of the left and right ventricular cavities.

In October 2006, we resected the bilateral axillary aneurysms and replaced vessels with the patient under general anesthesia. During the operation, a large mass was found in each axillary cavity (10 × 8 × 6 cm on the right side and 6 × 5 × 4 cm on the left side; Figure 2). After blocking both ends of the aneurysm and completely resecting the axillary artery aneurysms, we performed an anastomosis with a polytetrafluoroethylene graft (10 mm in diameter) on both sides of the vascular stump. After treatment, a computed tomographic angiography evaluation showed smooth flow in the bilateral artificial blood vessels (Figure 3). In addition, the brachial artery blood pressure and the radial artery pulsatility were normal bilaterally. A pathologic examination of the excised artery showed aneurysmal dilatation associated with mucous degeneration in the muscle layer of the vessel wall.

The diagnosis of MFS was made according to clinical criteria, such as cardiovascular disease including an aneurysm of the aortic sinus, a small amount of aortic valve regurgitation, atrial septal aneurysm bulging, increased size of the left and right ventricular cavities, large-sized bilateral axillary artery aneurysms, spinal scoliosis, and a ratio of the length of the upper span to height of >1.05. The patient had a family or genetic history of MFS. His grandfather had received a diagnosis of MFS.

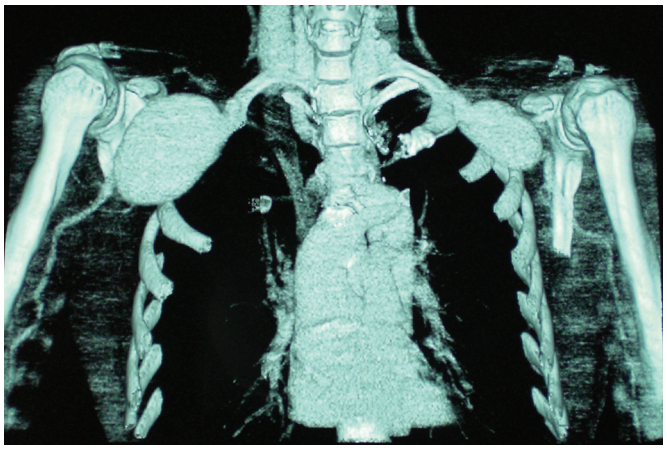

Figure 1. Preoperative computed tomography angiography image showing bilateral axillary artery aneurysms (anterior view).

F. Jun and Z. Y. Shun contributed equally to this study.

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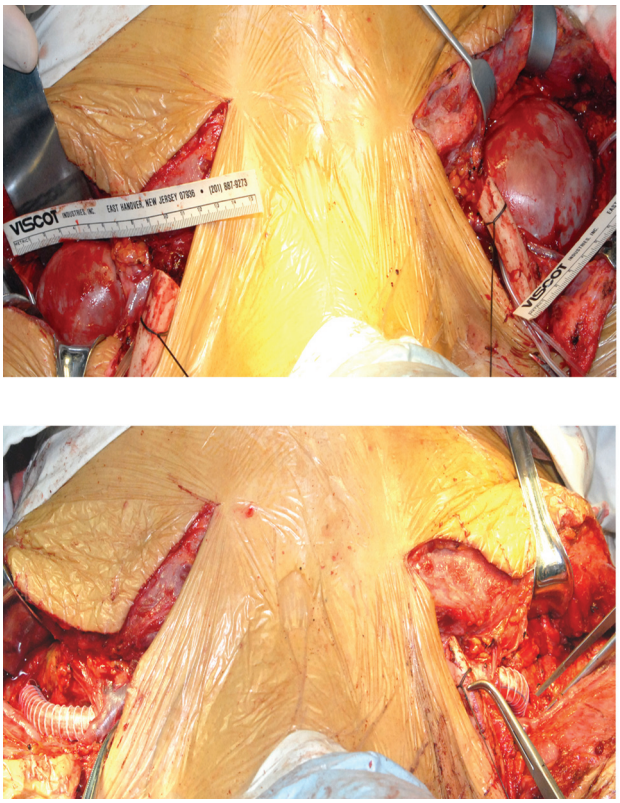

Figure 2. Intraoperative images of bilateral axilla: the aneurysm during repair (A) and with a polytetrafluoroethylene graft in situ (B).

DISCUSSION

Axillary artery aneurysms are uncommon. The singular features of this case include the bilateral involvement, large size, the etiology, and resolution by procedures combining endovascular treatment and conventional surgery [Gray 1998; Vijayvergiya 2005].

Axillary artery aneurysm is a rare peripheral aneurysm that accounts for approximately 0.5% to 1% of peripheral artery aneurysms [Gupta 2005; Tetik 2005]. The current literature on axillary artery aneurysm consists of only small series or sporadic cases; hence, the natural history of this condition is uncertain. The most common causes are arteriosclerosis and traumatic injury. Connective tissue disorders such as MFS are among the less frequent etiologies [Nawa 2003]. Although aneurysms of the axillary artery are rare, patients run the risk of rupture and secondary ischemic complications; therefore, surgical therapy is recommended.

An axillary aneurysm can be asymptomatic, presenting as a pulsatile supraclavicular mass, or it can become complicated. Usually, there is pain, numbness, and other neurologic compression symptoms. In our case, the patient was asymptomatic, and the aneurysms were found inadvertently. The correct diagnosis of axillary aneurysm is not difficult and is made from clinical symptoms in combination with imaging results [Nawa 2003; Nelson 2006].

The classic treatment consists of resection of the aneurysm and insertion of a reversed autogenous vein graft or a direct end-to-end anastomosis [Arya 2003]. The associated morbidity and mortality

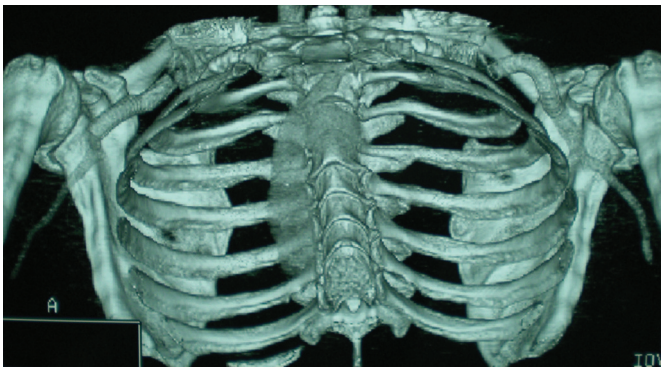

Figure 3. Postoperative computed tomographic reconstruction showing the excluded subclavian aneurysm (anterior view).

for this surgery is not negligible in MFS patients, although the rates are difficult to establish because the condition is uncommon and the published series are limited. The introduction of endovascular surgery in this field has opened the possibility for a less aggressive treatment with lower morbidity and mortality and for a good outcome with respect to patency [Vijayvergiya 2005].

One study in the related literature proposed treatment of bilateral subclavian artery aneurysms with the origins of both vertebral arteries in the aneurysmal sacs in MFS [González 2007]. To our knowledge, combined treatment for a giant bilateral axillary artery aneurysm in MFS has not previously been reported.

ACKNOWLEDGMENTS

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