Ascending Aortic Aneurysm In Giant Cell Arteritis


Citation

Abstract
Giant cell arteritis(GCA) is a relatively common form of systemic vasculitis. GCA is a systemic vasculitis which involves large and medium sized vessels,and it increases the risk of developing a thoracic aortic aneurysm and it is a rare cause.We describe a case of ascending aortic aneurysm in giant cell arteritis. The treating physician should be vigilant in assessing the patient with GCA for thoracic and abdominal aortic aneurysms that are feared complications of GCA.

INTRODUCTION
Giant cell arteritis(GCA) is a medium- and large-vessel vasculitis, the most prevalent systemic vasculitis in subjects over age 60. Clinical features are miscellaneous and sometimes misleading. Elevated acute-phase responses, such as a high erythrocyte sedimentation rate and increased levels of C-reactive protein, are important clues to the diagnosis, which is ensured by a positive temporal artery biopsy[1]. Additional vascular manifestations include stroke, aortic aneurysm or dissection, and even aortic rupture[2].

CASE PRESENTATION
Our case was a 59-year-old female. Her past medical history was significant for hypertension for 10 years. Moreover, she had been diagnosed as having GCA confirmed with biopsy of superficial temporal artery a year ago. Therefore she had been under steroid therapy since then. She also had an aneurysmal dilation of the ascending aorta (54 mm) which was revealed 3 years ago during investigations for palpitation.In transthoracic echocardiogram ascending aortic aneurysm size was 55mm and she had moderate aortic regurgitation. Cardiac catheterization was performed. Ascending aortic dilation was investigated(Figure 1). Coronary arteries were normal. Department of Rheumatology was consulted for pre- and postoperative recommendations.

She was operated under endotracheal general anesthesia and in supine position.Following a median sternotomy,pericardium was opened longitudinally. Ascending aorta was dilated. Since there was a suitable neck just proximal to brachiocephalic trunk, neither axillary nor femoral cannulation was needed. After heparinization, extracorporeal circulation was established between the venae cavae and the ascending aorta. A cross clamp was placed on aorta and by retrograde continuous isothermic blood...
cardioplegia from coronary sinus, cardiac arrest was established. Hypothermia was moderate (28°C). A vent was placed via the right superior pulmonary vein. Standard aortotomy was made.

There was an aortic segment right proximal to the cross-clamp, suitable for distal anastomosis. Aortic valve was explored. There was a calcified verrucous structure of 0.5x0.5 cm on the ventricular aspect of the free edge of the right coronary cusp (Figure 2).

**Figure 2**
Figure 2

Since normal leaflet structure was evident for all 3 leaflets all 3 commissures were resuspended (Figure 3).

**Figure 3**
Figure 3

Aortic valve was spared and a supraannular 30 mm polyethylene terephthalate (Dacron) tube graft was interposed (Figure 4).

**Figure 4**
Figure 4

Histologically, we diagnosed intimal thickening, intimal and medial fibrosis and destruction of internal elastic lamina in the wall of the aorta. This diagnosis correlated with a healed of giant cell arteritis pathology (Figures 5 and 6).

**Figure 5**
Figure 5
No additional problem was seen postoperatively and he was discharged on 7th postoperative day with surgical cure and outpatient clinic follow was recommended. She is still symptom-free and the valve functions are good in control TTE. Aortic root was measured as 36 mm; where aortic valve orifice as 16 mm and diameter of ascending aorta as 30 mm. aortic insufficiency was detected as regressed to a mild degree (Figure 7).

DISCUSSION

Noninfectious aortitis typically involves the ascending aorta and causes aneurysms that result in aortic root repair. Aortitis is clinically categorized into groups that include Takayasu disease, giant cell aortitis, and isolated aortitis.

Giant cell arteritis (GCA) is a chronic granulomatous vasculitis of unknown etiology occurring in the elderly. As GCA is characterized by a wide spectrum of clinical manifestations, it is important to recognize the different onset patterns of the disease and related diagnostic steps. Corticosteroids remain the therapy of choice.

The mortality rate in patients with giant cell arteritis (GCA) is similar to the standard populations of similar age and sex. Where there is excess mortality, it may be due to aortic aneurysms, especially thoracic aortic dissection as complications of GCA disease. Aneurysms may develop years after cessation of treatment.

Inadequate treatment of giant-cell arteritis and underlying hypertension (treated or untreated) are potential factors leading to aortic aneurysm or dissection in these patients.

In the study of Homme et al.; a review of medical records and microscopic slides was performed on 513 consecutive patients with surgical resection of ascending aortic tissue (1985 to 1999). Among 57 patients with aortitis (giant cell in 39), ages ranged from 16 to 85 years (mean 64 y), and 42 (74%) were women. Giant cell aortitis occurred predominantly in women, usually without systemic disease.

In conclusion; these patients can often become free of treatment, in 2 to 3 years in average, but are prone to develop late vascular complications such as ischemic heart disease or aortic aneurysm so that a close follow-up far beyond the clinical recovery is needed. Ascending aortic aneurysms caused by giant cell aortitis can involve the aorta from the aortic root through the aortic arch, thus requiring a tailored operative approach. The aortic valve tissue is spared from the pathologic process. Frequent surveillance of the remaining aorta is mandatory.

References


Author Information

Cengiz Özbek
Clinic Deputy Chief in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Ufuk Yetkin
Clinic Deputy Chief in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Kazım Ergüne
Specialist in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Muhammet Akyüz
Resident in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

İsmail Yürekli
Specialist in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Nursen Postaoğlu
Clinic Deputy Chief in I.Cardiology, İzmir Atatürk Training and Research Hospital

Aylin Orgen Çalbaykanlı
Chief Resident in Clinical Pathology, İzmir Atatürk Training and Research Hospital

Murat Aksun
Chief Resident in Anesthesiology, İzmir Atatürk Training and Research Hospital

Ali Gürbüz
Clinic Chief in Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital