AN INTERESTING CASE OF SEIZURE

VIJAY SHEKAR

Department of General Medicine,
MADRAS MEDICAL COLLEGE AND GOVERNMENT GENERAL HOSPITAL

Abstract:
A 15 year old female presented to us with history of seizures and altered sensorium. On examination patient was found to have hypertension and abdominal bruit. On evaluation of the patient, narrowing of abdominal aorta and right renal artery was evident on CT angiography. Patient was diagnosed with hypertensive encephalopathy secondary to renal artery stenosis. Involvement of the abdominal aorta raised the possibility of large vessel vasculitis and a final diagnosis of Type IV Takayasu's arteritis was made. Its association with tuberculosis was also considered as the patient had associated phlyctenular conjunctivitis.

Keyword: 
Takayasu's arteritis, renal artery stenosis

Presentation:
15 year old girl, diagnosed as phlyctenular conjunctivitis 2 months back, developed seizures and was referred as TB meningoencephalitis. Patient presented with headache of severe intensity of 1 day duration and generalized tonic clonic seizures with 3 episodes in the past 6 hours. Patient also had history of vomiting. Patient had no history suggestive of motor weakness, sensory symptoms or autonomic dysfunction. Patient had no episodes of fever. History of loss of appetite and loss of weight was present for the past 2 months. In the past, patient had complaints of redness of eye 2 months back for which she was evaluated and in view of positive Mantoux (18 mm) and raised ESR, patient was diagnosed as phlyctenular conjunctivitis. Her family history and personal history were insignificant.

Examination:
Patient was drowsy at the time of admission. On clinical examination, there was no focal neurological deficit. No signs of meningitis were present. Pupils were equal and reacting to light with intact brainstem reflexes. Cardiovascular and respiratory system examination was normal. Patient’s blood pressure was 210/120 mm Hg at the time of admission. After stabilising the patient with antiepileptics and supportive measures, blood pressure and pulse recordings were taken in all 4 limbs. Surprisingly, blood pressure recordings in the lower limb differed from that of upper limb. (Right and left upper limb: 210/120 mm Hg; right and left lower limb: 130/100 mm Hg). Lower limb pulses were weak compared with the upper limb. Patient additionally had a systolic bruit predominantly over the umbilical and right iliac region. No other bruits were made out.

Investigations:
Complete hemogram was within normal limits except for a mild thrombocytosis. Renal function tests were normal with low serum potassium. Liver function tests were normal. CT brain (Fig 1) was performed which showed diffuse cerebral edema. ASO titres were normal. CRP was elevated (>6 mg/dl). Antinuclear antibodies were negative. HIV status was negative and thyroid profile was normal. Lipid profile showed total cholesterol of 189 mg/dl, triglycerides of 192 mg/dl, HDL of 40 mg/dl and LDL of 100mg/dl. Chest X ray, electrocardiogram and echocardiography were normal. USG KUB and CT abdomen (Fig 2) showed asymmetry of kidneys with contracted right kidney (Left kidney: 9.7*4.7 cm Right kidney: 7.3 *2.2 cm). CT angiography of aorta and its major branches was done. Ascending aorta, aortic arch and descending thoracic aorta were normal (Fig 3). CT angiography of abdominal aorta showed stenosis of infrarenal portion of abdominal aorta and stenosis at the origin of right renal artery suggestive of medium and large vessel involvement.(Fig 4,5,6)

Fig 1. CT brain of the patient showing diffuse cerebral edema
Course in the hospital:
Patient presented with hypertensive encephalopathy, secondary to renal artery stenosis (renovascular hypertension). Hypokalemia and asymmetric kidneys support the diagnosis of renal artery stenosis. CT angiography confirmed the presence of right renal artery stenosis. Infrarenal stenosis of aorta accounted for lower blood pressure and weaker pulses in the lower limb. Involvement of aorta ruled out the possibility of fibromuscular dysplasia. Elevated CRP was indirect evidence for an underlying vasculitis. With available data, possibility of large and medium vessel vasculitis was considered and a final diagnosis of Takayasu's arteritis Type IV was made. Its association with tuberculosis was considered in view of the associated phylctenular conjunctivitis which had resolved completely at the time of admission. Patient was treated with intravenous anti epileptics, intravenous anti hypertensives along with other supportive measures. Seizure frequency reduced and patient remained seizure free after 2 days. Patient's blood pressure was also stabilised over a period of 2 days and then switched over to oral drugs. As patient recovered completely with anti hypertensives and anti epileptics alone, meningoencephalitis was ruled out and hence CSF analysis was deferred. There was no evidence to suggest active TB at present; hence ATT was not started. Steroids were initiated in view of active vasculitis. Patient was discharged with antiepileptics, anti hypertensives, steroids and statins. Patient was advised to periodically follow up for renal status assessment and planning of surgery.

Discussion: Takayasu’s arteritis is an idiopathic, inflammatory disease which involves large and medium-sized arteries, specially the aorta, its major branches and the pulmonary arteries. It was first described by Dr. Mikito Takayasu, a Japanese ophthalmologist. It is popularly known by other names such as non specific aorto arteritis, pulseless disease, stenosing arteritis, Martorell disease, reversed coarctation, aortic arch syndrome.\(^1\) It commonly presents in the second and third decades with a female preponderance(10:1). It is most commonly seen in Asian population. Pokrowskii et al.\(^2\) described the three stages of the disease as acute, subacute recurrent and chronic with three morphologic types (stenosing, deforming and aneurysmic). Histologically characterised by panarteritis of large vessels, the disease shows features of granulomatous inflammation during active phase and adventitial and intimal scarring, thickening and fibrosis in the chronic phase. Takayasu’s arteritis is classified on the basis of involvement of arteries by Numano et al.\(^3\) The most common artery to be involved is the subclavian (>90%) followed by common carotid (58%).
abdominal aorta (47%) and renal artery (38%). Coronary arteries are the least common arteries.

Diagnosis is established using American College of Rheumatology (ACR) diagnostic criteria which carries a sensitivity of 90.5% and specificity of 97.8%. American College of Rheumatology in 1990 has proposed a set of six criteria for the diagnosis of Takayasu’s arteritis:[4,5]:

(a) age <40 years,

(b) claudication of an extremity,

(c) decreased brachial artery pulse,

(d) > 10 mmHg difference in systolic pressure between the left and right arm,

(e) bruit over subclavian arteries or aorta

(f) angiographic evidence of narrowing or occlusion of the aorta or its primary or proximal branches At least three out of these six criteria should be met for a diagnosis of aorto-arteritis to be reached. However, Indian aorto arteritis behaves differently and has the following distinguishing features [1]

It is common in male

Acute phase is not commonly seen

It has a chronic progression phase

Is frequently association with TB

It often presents as inflammation, obstruction and aneurysm. A possible relationship between Takayasu’s arteritis with both latent and active tuberculosis, and improvement of arteritis after antituberculous treatment have been occasionally described. Finally, there are studies showing increased humoral and cellular immune responses directed toward mycobacterial 65 kDa heat shock protein (HSP) and its human homolog 60 kDa HSP. All these indirect evidences support that Mycobacterium tuberculosis and probably other mycobacteria may play a role in the immunopathogenesis of Takayasu's arteritis, possibly through molecular mimicry mechanisms; however, results of several recent studies are challenging this old but still valid etiopathogenetic hypothesis of association.[7,8] The disease is treated with steroids and immunosuppressants during the active phase. Treatment of cardiovascular risk factors is essential. Surgical intervention in the form of bypass grafting and transluminal angioplasty is also recommended.

References:
2 Pokrovskii AV. [Nonspecific aortoarteritis (classification and surgical treatment)]. Kardiologiia. 1986; 26: 5–12