A CASE OF STROKE IN YOUNG

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Abstract:
18 year old girl presented with complaints of inability to use left upper limb and lower limb for one day. History of deviation of angle of mouth to right side. History of headache present.No history suggestive of seizures, trauma, fever, vomiting. Her pulse rate is 80 per minute, regular in rhythm. Right carotid artery pulsation is felt feebly than the left carotid artery. Both sides posterior tibial artery and dorsalis pedis artery pulsations are felt feebly. Other peripheral pulses are normally felt. Her blood pressure examination showed right upper limb-106/78mmHg, left upper limb-118/84mmHg, right lower limb-124/86mmHg, left lower limb-126/86mmHg. Central nervous system examination showed UMN type of left facial nerve palsy. Motor system examination showed left hemiparesis. The patient was diagnosed as a case of stroke in young.

Her investigation showed HB-9.6gdl, ESR-54mm, CRP6, Rheumatoid factor-96, PT, APTT were with in normal limits, Lupus anti coagulant-La1La2 not significant, C-ANCA and P-ANCA were negative, ANA- negative, homocysteine-18.77mmoll, mantoux-6mm, HIV- negative, peripheral smear examination is normal. Chest x-ray showed cardiomegaly. ECG, Echocardiography were normal. CT-brain showed right gangliocapsular infarct. Carotid vertebral Doppler study showed diffuse intimal thickening noted in the proximal part of right common carotid artery causing 96 focal stenosis with decreased flow in right internal carotid artery. 64 slice CT-neck carotid angiogram showed short segment stenosis of right common carotid artery at its origin with narrowed right internal carotid artery, anterior cerebral artery, middle cerebral artery. Abdomen and lower limb CT angiogram showed occlusion of distal segments of both bilateral anterior and posterior tibial arteries. Patient was found to have stroke in young due to Takayasu arteritis. This case is presented because our patient had no past history of systemic manifestations of takayasu disease like fever, joint pains, and weight loss. Takayasu arteritis is a large vessel vasculitis, in our patient involvement of bl anterior posterior tibial arteries (medium sized) is a relatively rare presentation.
CASE REPORT:

16 yr old girl presented with complaints of inability to use left UL & LL for one day, sudden in onset, non progressive.

h/o deviation of angle of mouth to the right side

h/o head ache +

No h/o fever, seizures, trauma

Not a known DM/HT/PT/BA/Seizures/IHD

General examination of the patient showed no Pallor, Icterus, Cyanosis, Clubbing, Lymphadenopathy, Pedal edema, No neuro cutaneous markers, Jvp not elevated.

Pulse :

Rate - 80/min, regular rhythm

Right carotid is feebly felt. Left carotid is normal

Both sides posterior tibial and dorsalis pedis arteries feebly felt.

Other peripheral pulses normally felt. No radio femoral delay.

BP:

Right UL - 106/78 mm Hg, Left UL - 118/84 mm Hg.

Right LL - 124/84 mm Hg, Left LL – 126/86 mm Hg.

Examination of CNS:

Higher functions – normal, Cranial Nerve examination – UMN Lt facial palsy present, Motor system examination - left hemiparesis.
Cardiovascular system, Respiratory system and per abdomen examination were normal. Patient was provisionally diagnosed to have CVA/Ischemic stroke in young involving Right MCA territory. Her CT brain showed right gangliocapsular infarct. She was started on anti cerebral edema measures and antiplatelets. Complete hemogram, Renal function tests, Liver function tests, ECG in all leads, Echocardiogram, Peripheral smear study, BT, CT, PT, aPTT were found to be within normal limits. Chest x-ray showed cardiomegaly.

Carotid vertebral Doppler study showed diffuse intimal thickening noted in the proximal part of right common carotid artery causing 96% focal stenosis with decreased flow in right internal carotid artery. 64 slice CT-neck carotid angiogram showed short segment stenosis of right common carotid artery at its origin with narrowed right internal carotid artery, anterior cerebral artery, middle cerebral artery. Abdomen and lower limb CT angiogram showed occlusion of distal segments of both bilateral anterior and posterior tibial arteries. Patient was found to have stroke in young due to Takayasu arteritis, as she satisfied the criteria for diagnosis (Age of 40 years or younger at disease onset, difference of 10 mm Hg in systolic blood pressure between arms, Arteriographic narrowing of branches of Aorta, and arteries in the upper and lower extremities. Patient was treated with steroids and antiplatelets, she showed a good response, with return of limb power to grade 4+/5.

**DISCUSSION:**

WHO defines stroke as an even caused by the interruption of the blood supply to the brain, usually because of a blood vessel bursts or is blocked by a clot. This cuts off the supply of oxygen and nutrients, causing damage to the brain tissue [1]. The most common symptom of a stroke is sudden weakness or numbness of the face, arm, or leg, most often on one side of the body, occurring in 90% of the strokes [2].

**ISCHEMIC:**

Cardiac disease (including congenital, rheumatic valve disease, mitral valve prolapse, patent foramen ovale, endocarditis, atrial myxoma, arrhythmias, cardiac surgery). Large vessel disease Premature atherosclerosis, Dissection (spontaneous or traumatic), Inherited metabolic diseases (homocystinuria, Fabry’s, pseudooxanthoma elasticum, MELAS syndrome), Fibromuscular dysplasia, Infection (bacterial, fungal, tuberculosis, syphilis, Lyme), Vasculitis (collagen vascular diseases — systemic lupus erythematosus, rheumatoid arthritis, Sjögren’s syndrome, polyarteritis nodosa; Takayasu’s disease, Wegener’s syndrome, cryoglobulinemia, sarcoidosis, inflammatory bowel disease, isolated central nervous system angiitis), Moyamoya disease, Radiation, Toxic (illicit drugs — cocaine, heroin, phencyclidine; therapeutic drugs — L-asparaginase, cytosine arabinoside) Small vessel disease Vasculopathy

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Hematologic disease Sickle-cell disease, Leukemia, Hypercoagulable states (antiphospholipid antibody syndromes, deficiency of antithrombin III or protein S or C, resistance to activated protein C, increased factor VIII), Disseminated intravascular coagulation, Thrombocytosis, Polycythemia vera, Thrombotic thrombocytopenic purpura, Venous occlusion (dehydration, parameningeal infection, meningitis, neoplasm, polycythemia, leukemia, inflammatory bowel disease).

HEMORRHAGIC:
Subarachnoid hemorrhage (cerebral aneurysm) Intraparenchymal hemorrhage Arteriovenous malformation, Neoplasm (primary central nervous system, metastatic, leukemia), Hematologic (sickle-cell disease, neoplasm, thrombocytopenia, Moyamoya disease, Drug use (warfarin, amphetamines, cocaine, phenylpropanolamine), Iatrogenic (peri-procedural).

Takayasu’s nonspecific aortoarteritis and the “pulseless disease is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing affecting often young or middle-aged women of Asian descent. It mainly affects the aorta (the main blood vessel leaving the heart) and its branches, as well as the pulmonary arteries. Females are about 8-9 times more likely to be affected than males. Patients often notice the disease symptoms between 15 and 30 years of age. In the Western world, atherosclerosis is a more frequent cause of obstruction of the main branches of the aorta, including the left common carotid artery, the brachiocephalic artery, and the left subclavian artery. Takayasu’s arteritis can present as pulseless upper extremities (arms, hands, and wrists with weak or absent pulses on the physical examination) which may be why it is also commonly referred to as the “pulseless disease.”

Pathophysiology:
Although its etiology is unknown, the condition is characterized by segmental and patchy granulomatous inflammation of the aorta and its major derivative branches. This inflammation leads to arterial stenosis, thrombosis, and aneurysms. There is also irregular fibrosis of the blood vessels due to chronic vasculitis leading to sometimes massive intimal fibrosis (fibrosis of the inner section of the blood vessels). Prominent narrowing due to inflammation, granuloma, and fibrosis is often seen in arterial studies such as Magnetic resonance angiography (MRA), computed tomography angiography (CTA), or arterial angiography (DSA).

Symptoms:
Some patients develop an initial “inflammatory phase” characterized by systemic illness with symptoms of malaise, fever, night sweats, weight loss, arthralgia, and fatigue. There is also often anemia and marked elevation of the ESR or C-reactive protein (nonspecific markers of inflammation). The initial
"inflammatory phase" is often followed by a secondary "pulseless phase"[9]. The "pulseless phase" is characterized by vascular insufficiency from intimal narrowing of the vessels manifesting as arm or leg claudication, renal artery stenosis causing hypertension, and neurological manifestations due to decreased blood flow to the brain. Of note is the role of renal artery stenosis in causation of high blood pressure. Normally perfused kidneys produce proportionate amount of a substance called renin. Stenosis of the renal arteries, causes hypoperfusion (decreased blood flow) of the juxtaglomerular apparatus, resulting in exaggerated secretion of renin, and high blood levels of aldosterone, eventually leading to water and salt retention and high blood pressure. The neurological symptoms of the disease vary depending on the degree, and the nature of the blood vessel obstruction and can range from light-headedness, to seizures in severe cases. One rare but important feature of the Takayasu's arteritis is ocular involvement in form of visual field defects, vision loss, or retinal hemorrhage. Some patients with Takayasu's arteritis may present with only late vascular changes, without an antecedent systemic illness. In the late stage, weakness of the arterial walls may give rise to localized aneurysms. As with all aneurysms, possibility of rupture and vascular bleeding is existent and requires monitoring. Raynaud's phenomenon is commonly found in this disease, mainly due to decreased circulation of the blood to the arms.

American College of Rheumatology criteria for diagnosis of Takayasu's Arteritis; 1) Age of 40 years or younger at disease onset 2) Difference of at least 10 mm Hg in systolic blood pressure between arms 3) Arteriographic narrowing or occlusion of the entire aorta, its primary branches, or large arteries in the upper or lower extremities. 4) Claudication of the extremities 5) Decreased pulsation of one or both brachial arteries 6) Bruit over one or both subclavian arteries or the abdominal aorta.

At least 3 of the above 6 criteria are to be met for the diagnosis.

Treatment: The great majority of patients with Takayasu's arteritis respond to steroids such as prednisone. The usual starting dose is approximately 1 milligram per kilogram of the body weight per day (for most people, this is approximately 60 milligrams a day). Because of the significant side effects of long-term high-dose prednisone use, the starting dose is tapered over several weeks. Surgical options may need to be explored for patients who do not respond to steroids. Reperfusion of tissue can be achieved by large vessel reconstructive surgery such as bypass grafting. Grafting autologous tissue has the highest rates of success. Percutaneous transluminal coronary angioplasty (PTCA) is not as effective in the long term but has fewer risks.

REFERENCES:


