Ischemic stroke at first presentation of Takayasu arteritis in a young African male from Kenya, East Africa: Case report and brief literature review.

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Abstract

We present a case of a young, previously asymptomatic East-African black male presenting with large territory ischemic infarct at first diagnosis of Takayasu arteritis (TA). To our knowledge, this is the first published report of a male patient in East Africa with a stroke at the first presentation of TA.

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Informed written consent was sought and obtained from patient's sister and is available upon request from the journal.

ABSTRACT

We present a case of a young, previously asymptomatic East-African black male presenting with large territory ischemic infarct at first diagnosis of Takayasu arteritis (TA). To our knowledge, this is the first published report of a male patient in East Africa with a stroke at the first presentation of TA.

KEY CLINICAL MESSAGE

This case highlights the need for thorough clinical exam to rule out Takayasu arteritis (TA) as a cause of stroke in a young asymptomatic East-African male. Available clinical management guidelines should guide management of TA patients.

INTRODUCTIONTakayasu arteritis, a large vessel vasculitis characterized by inflammation of the aorta or its branches was first described by Japanese Ophthalmologist Mikito Takayasu in 1908.(1) Despite initial case reports and series highlighting most cases in young females of Asian origin it has since been shown to have a worldwide occurrence affecting those under the age of 40 years.(2) Clinical presentation in Takayasu

arteritis can be non-specific with protean symptoms that are potentially difficult to pick. Here, we present a case of a young African male presenting with a catastrophic cerebrovascular event at first presentation. We describe his pattern of vascular involvement compared to other published cases and his management in a resource limited.

CASE REPORT

We present a case of a 25-year-old black African male who presented to our hospital with a 2-day history of sudden onset right sided weakness and inability to talk. He denied any history of headache, fever, prior trauma or chest pain. Additionally, he had no history of chronic illness, intravenous drug use, cigarette smoking, alcohol use or any personal or family history of hypertension, diabetes or cardiovascular disease. Our patient had been working as a commercial motorcycle rider. General exam revealed a young man who was awake and responsive, not in any respiratory distress with no conjunctival pallor. He had a blood pressure reading of 130/79 mmHg on his right arm and 80/47 mmHg on the left arm revealing an obvious discrepancy between the two arms. Our patient had motor aphasia with right sided cranial nerve 7,9,10,11 and 12 palsy. Motor power of 0/5 on the right upper and lower limb on all muscle groups was noted with normal power on the left. Additionally, we noted hyperreflexia and increased tone on the right limbs with normal global sensation. No cerebellar signs were present. On cardiovascular exam our patient had absent pulses on the left arm, an audible carotid bruit on the left with normal heart sounds without any murmur. A distended bladder with urine retention was present on abdominal exam. Further systemic exam was non-revealing. Working with a diagnosis of a cerebrovascular accident likely due to a large vessel vasculitis, a CT scan of the head was ordered and showed a left sided fronto-temporal hypodensity consistent with an ischemic infarct. (See figure 1.) Carotid doppler ultrasound revealed bilateral carotid artery stenosis with 50% occlusion on the right and complete occlusion on the left. Further, a CT angiogram showed left subclavian artery occlusion and bilateral carotid artery stenosis with complete occlusion on the left. (See figure 2 and 3.) A 2D transthoracic echocardiogram and ECG were normal. His screen for syphilis with VDRL was negative. A CSF GeneXpert and BioFire® meningo-encephalitis panel were negative. Of note, ESR and CRP were high with values of 85mm/hr. and 30.4mg/L respectively. Additionally, lipid profile results returned normal with a negative HIV test by ELISA and antinuclear antibody test. His full hemogram and kidney function tests were normal with a hemoglobin level of 15.4 g/dl. Based on the above clinical findings and tests, a diagnosis of Takayasu Arteritis was made. Management was initiated with aspirin 75mg and our patient pulsed with high dose methyl prednisone at one gram once daily for 3 days. Thereafter a maintenance dose of azathioprine 100mg twice daily, deflazacort 6mg twice daily and physiotherapy was initiated. At 3 months post discharge, he is doing well and has a power of 3/5 on the right lower limb, is able to talk with a slurred speech with no other organ involvement noted.

DISCUSSION

Takayasu arteritis, a chronic disorder characterized by inflammation of the aorta or its branches is also referred to as pulseless disease.(1) It has been more commonly reported among young female patients of Asian origin. However, a more diverse global occurrence has been described in recent decades mostly among individuals under the age of 40 years.(2)

Clinical presentation is commonly non-specific underscoring the need for a high index of suspicion to clinch the correct diagnosis. The highly variable symptoms include fever, malaise, headaches, limb claudication and hypertension with a classical triphasic pattern of presentation characterized by an initial period of constitutional symptoms such as fever and night sweats in phase I, followed by pain over arteries in phase II and finally a fibrotic phase leading to ischemic symptoms due to critical stenosis of large arteries has been described.(3) However, literature seems to suggest that this picture is hardly seen in routine clinical practice or in recent studies reports.(3,4). Due to extensive vascular involvement, Takayasu arteritis patients can also present with 20mmHg systolic blood pressure measurement discrepancy between arms with impalpable pulses on affected limb.(1) Thus, a through history and clinical exam remain a crucial tool in teasing out Takayasu arteritis as a possible diagnosis among patients in the at-risk age group.

Based on the deep-seated nature of the vessel inflammation affecting large, high-pressure arteries such as the thoracic and abdominal aorta or its branches, a tissue biopsy to confirm diagnosis is rarely feasible outside autopsy. Therefore, clinical and radiological findings have been considered the standard for routine diagnosis. Several diagnostic criteria have been described.(5,6). One of the most widely used is the American College of Rheumatology (ACR) criteria which has 6 criteria. (See Table 1) Based on the ACR criteria, a diagnosis can be made with a sensitivity of 90.5% and specificity of 97.8% when a patient meets at least 3 of the 6 criteria.(5) Our patient met four of the 6 criteria.

Table 1: The 1990 American College of Rheumatology Criteria for classification of Takayasu arteritis. (5)

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Our case highlights an unfortunate occurrence where the patient had already developed a cerebrovascular event at diagnosis, seen in up to 6-8% of patients at presentation and up to 20% in the course of the illness.(7,8)

Also, important to note is the pattern of vascular involvement which can be identified both clinically but more accurately radiologically (9). Takayasu arteritis can affect several large arteries. The pattern of vascular involvement appears to vary with geographical region; patients in Japan and India have predominant aortic arch and abdominal aorta lesions respectively on imaging. (10). Whereas patients with Takayasu arteritis in Tunisia and Morocco in North Africa, tend to present with mostly aortic arch and/or subclavian artery involvement as described by several authors. (11–13) Conversely, in South Africa, two case series including the largest case series in Africa on Takayasu arteritis with two hundred and seventy two patients by Mwipatayi et al describe more patients with hypertension as the presenting feature and predominant abdominal aorta involvement compared to the aortic arch and its branches.(14,15)

The cases in literature describing patients from East Africa show a mixed pattern at initial presentation with diffuse aortic and retinal involvement respectively in two cases in Tanzania. (16,17) Elsewhere in Uganda, a case report describes autopsy findings of fibrosis in several branches of the arch of aorta. (18) In Kenya, two cases have been reported, one presenting as chronic headache with carotid artery stenosis and thoracic aorta involvement with another describing femoral involvement from biopsy of amputated limb in a set up with limited angiography capabilities at the time. (19,20) Our patient had predominantly subclavian and carotid artery involvement and no clear aortic localization which is similar to a case series description in Tunisia. (13) Inflammatory markers such as erythrocyte sedimentation rate and C reactive protein are frequently elevated as was the case in our patient but there are non-specific.

Generally, treatment is multidisciplinary with both medical and surgical interventions needed. Systemic glucocorticoids form the backbone of medical treatment of Takayasu arteritis patients. Additionally, disease modifying antirheumatic drugs (DMARDS) such as azathioprine and methotrexate are concomitantly used to allow for tapering of steroids and minimize glucocorticoid associated side effects. Lastly, biologic agents such as Tocilizumab and ant—Tumor Necrosis Factor inhibitors can be used. Surgery on the other hand is usually indicated in critical vessel stenosis or to repair arterial aneurysms.

Two major rheumatology organizations namely EULAR and ACR have published guidelines on management of Takayasu arteritis. However, the quality of evidence available to support these recommendations has remained low. (21,22)

The European League Against Rheumatism (EULAR) 2018 guidelines offer several recommendations to guide management of patients with Takayasu Arteritis. Acutely, EULAR supports initiation of glucocorticoids plus disease modifying antirheumatic drug as initial treatment with tapering off of steroids as tolerated. In refractory disease or major relapse, adjunctive therapy with Anti-IL6 agent tocilizumab and Anti- TNF agents are recommended. More specifically, for minor relapses, a trial of re-institution of higher glucocorticoid doses is advised before initiating Tocilizumab or anti-TNF agents. Additionally, for recurrent relapses adjunctive therapy with biologic agents is advised. Antiplatelet agents are also not routinely recommended and should only be considered on a case-by-case basis based on degree of stenosis and other risk factors. Further, the EULAR guidelines recommend for vascular surgical interventions to be done electively during stable remission since interventions during flares are associated with poor patency rates of repaired vessels. However, whenever critical stenosis causing ischemia or dissecting aneurysms is present surgical intervention should be pursued emergently. Finally, despite there being no research evidence to support follow up process, initial close follow up of 1-3 monthly visits in the first year followed by 3-6 monthly visits afterwards is advised due to high relapse rates. If relapse-free remission is achieved, then annual follow-ups can be scheduled thereafter. During follow ups, clinical assessment including ESR and CRP measurements are advised with imaging being ordered on a case-by-case basis. (21)

On the other hand, the American College of Rheumatology (ACR) guidelines are largely similar to the EULAR guidelines except for a few subtle differences. Some of the most notable ones are recommendation for use of ant-TNF inhibitors over Tocilizumab as initial addition in refractory disease and addition of aspirin therapy in patients with active disease and critical cranial or vertebrobasilar involvement. Additionally, despite recommending oral over intravenous glucocorticoids, the ACR guidelines give leeway for use of intravenous pulse steroids in cases of organ or life threatening disease like in our patient's case. (22)

Despite advances in diagnostic and treatment of Takayasu arteritis, the rate of complications prevails with reported rates as high as 50%. Some of these complications include ischemic cerebrovascular incidences as experienced by our patient, as well as aortic regurgitation and associated heart failure, end stage renal disease in cases where renal vasculature has been involved. As expected, patients with more extensive disease at the time of diagnosis have higher complication rates. (23,24) Similarly, patients with a more progressive course, i.e., with few or no event free periods also experience higher rates of complications.(25)

Takayasu Arteritis has been described as a chronic condition with a relapsing pattern and this contributes significantly to the morbidity of the patients.(26) Recent studies have found that the male sex, presence of ongoing inflammation with elevated CRP levels and those carotidynia are more likely to experience relapses.(27,28)

Although limited data is available, it should be noted that Takayasu Arteritis is associated with reduced patient reported quality of life with patients with the disease also reported to have higher rates of clinical depression and anxiety compared to the general population particularly during active disease.(29) It is therefore important to ensure the evaluation of patients includes these aspects to ensure all concurrent morbidities are appropriately evaluated and managed.

CONCLUSION

Although T.A remains an uncommon diagnosis, it is one to consider in patients presenting with physical signs in keeping with its presentation including cerebrovascular vascular accidents even in African patients where the disease is not highly prevalent. Early diagnosis and appropriate management will be essential in reducing complication rates and improving outcomes.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

All authors were involved in drafting the article or revising it, and all authors approved the final version to

be published.

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