CASE REPORTS

Tuberous sclerosis: A rare cause of seizure in Nigeria.

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Abstract

Background: *Tuberous sclerosis is a rare genetic multisystem disorder that is typically apparent shortly after birth. Dermatologic manifestations may be the only clues to the diagnosis of the disorder, which is also marked by childhood seizures and mental retardation. The aim of this report is to present a twelve year old boy with tuberous sclerosis.*

Methods: *A review of the case records of a child with angiofibromas of the face and neck and the relevant literature.*

Results: *An eleven year old primary two pupil of Ijaw tribe, southern Nigeria, presented with recurrent afebrile, generalized tonic- clonic seizures from nine months of age, hyperpigmented papulonodular eruptions on the face and neck with some hypo pigmented patches at the back for six years. He also had a growth on the right index finger of six years duration. There was associated learning disabilities and poor school performance, with sudden outburst of mood swings ranging from laughter to anger. Speech was delayed. He has been on Carbamazepine for the past two years and is seizure free. There was no history of similar illness in the family.*

Physical examination showed that he had labile mood with presence of hyperpigmented papulonodular (angiofibromas) eruptions on the malar area of the face and neck. There were also associated hypomelanotic macules on the back, bony cyst on the right index finger. He also had bilateral undescended testis. All other systems were essentially normal. Cranial computed tomography showed multiple hyperdense non enhancing nodules in the walls of the lateral ventricles with a hyperdense nodule in the subcortical area of the parietal lobe of the left cerebrum. Multiple areas of non enhancing hypodensities were also seen in the cortical white matter of the frontal and parietal lobes bilaterally with associated thickening of the adjacent gyri.

He is being managed by a team of a paediatric neurologist, surgeon, speech therapist and a dermatologist. He is regular at follow up clinic.

Conclusion: *Tuberous Sclerosis though a rare condition, once diagnosed needs multidisciplinary management to improve the quality of life of the patient.*

Key words: *Tuberous sclerosis, seizure, skin rashes.*

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Introduction

Tuberous sclerosis (TS) is a rare genetic multisystem disorder that is typically apparent shortly after birth.[1] It results from changes in a gene or genes that may occur spontaneously for unknown reasons or be inherited as an autosomal dominant trait.[2] The disorder affects about one in 10,000 persons in the general population and an estimated incidence of one case per 6,000 live births.[2] Thus, it is the second most common neurofibromatosis.[3] The disorder may be characterized by episodes of uncontrolled seizures; mental retardation; distinctive skin lesions; and benign, tumor-like nodules (hamartomas) of the brain, retina, the heart, the kidneys, the lungs, or other tissues or organs. [3] In addition, many affected individuals may have cyst-like areas within certain skeletal regions, particularly bones of the fingers and toes (phalanges).[3] Characteristic skin lesions include sharply defined areas of decreased skin coloration (hypopigmentation) that may develop during infancy and relatively small reddish nodules that may appear on the cheeks and nose beginning at approximately at the age of four years.[1] These reddish lesions eventually enlarge, coalesce, and develop a wart-like appearance (sebaceous adenomas). Additional skin lesions may also develop, including flat, "coffee-colored" areas of increased skin pigmentation (café-au-lait spots); benign, fibrous nodules (fibromas)

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arising around or beneath the nails; or rough, elevated, "knobby" lesions (shagreen patches) on the lower back.[3] This case report is aimed at evaluating the clinical features, investigations and management of a twelve year old boy with tuberous sclerosis.

Case report

T.J is an eleven year old primary two pupil of Ijaw ethnic group who was referred to the dermatology clinic from the paediatric neurology clinic of the University of Port-Harcourt Teaching Hospital, Nigeria with recurrent seizures with hyperpigmented papulonodular eruptions on the face and neck with hypo pigmented patches on the back of six years duration. He also had a growth on the right index finger of six years duration. He has been having recurrent seizures which were generalized, unprovoked, tonic-clonic, since the age of nine months, not related to febrile illness. There was associated learning disabilities and poor school performance, with sudden outburst of mood swings ranging from laughter to anger. Speech was delayed. Mother had uneventful antenatal care at the Braith- Waite Memorial Specialist Hospital (BMSH), Port Harcourt, Nigeria and delivered by spontaneous vertex at term at BSMH. He had a normal APGAR score (APGAR scores at 1, 5 and 10 minutes were 8, 10 and 10 respectively). Birth weight was 3.6kg. There was no history of jaundice in the neonatal period. Immunization was complete according to the National Program on Immunization (NPI) and had normal developmental milestones except for speech which was delayed for four years. He was the only child of mother, who is separated from the father for the past 7years. He lives with mother, a petty trader, in a one room apartment. There was no history of exposure to lead and similar illness in the family. He is a in a special school (primary 2 pupil) for the mentally challenged. He has been on carbamazepine (prescribed by paediatric neurologist) for the past two years and is seizure free.

Physical examination showed well nourished child with weight of 38Kg (121.3% of expected weight for age), height of 150cm (100% of expected for age) and occipito-frontal circumference of 53cm (normal for age). The mood was labile with presence of angiofibromas (hyperpigmented papulonodular eruptions) on the malar area of the face and neck. There were also associated hypomelanotic macules on the back, bony cyst on the right index finger. He also had bilateral undescended testis. All other systems were essentially normal. Cranial computed tomography showed multiple hyperdense non enhancing nodules in the walls of the lateral ventricles with a hyperdense nodule in the subcortical area of the parietal lobe of the left cerebrum. Multiple areas of non enhancing hypodensities were also seen in the cortical white matter of the frontal and parietal lobes bilaterally with associated thickening of the adjacent gyri .Abdominal scan, chest x-rays and echocardiography were normal. Full blood count showed haemoglobin concentration of 12.2g/dl with normochromic, normocytic cells.

He is being managed by the paediatric neurologist, surgeon, speech therapist and the dermatologist. He is regular at follow up clinic.

Discussion

Tuberous Sclerosis is an autosomal dominant disease with highly variable clinical manifestations and belongs to the neurocutaneous syndromes. Incidence has been cited to be 1 in 10,000 with 50 80% of cases being sporadic.[1] In our study, there was no family member with similar disorder. Therefore, it is possible that this was mutation.

Neurological manifestations of the tuberous sclerosis are important cause of morbidity and mortality.[4] This is because the characteristic cortical tubers, subependymal nodules and subependymal giant cell astrocytoma distort cerebral development resulting in seizure disorders, mental retardation, cognitive and behavioural impairment; and obstructive hydrocephalus.[1] Furthermore, up to 98% of patients with tuberous sclerosis complex have seizures, with 75% presenting within the first year of life.[5] Seizure disorder was a prominent neurological manifestation in our patient and was noticed during infancy. Other neurological manifestations were emotional lability and speech defect. Also our patient had the neuropathological features associated with TS- had subependymal nodules on CT scan.[6] It is worthy of note that subependymal giant cell astrocytoma can occur in 6-14% of individuals with TS and is more likely to occur in childhood.[7] These can enlarge and cause obstruction to the cerebrospinal fluid pathways, thereby resulting in raised intracranial pressure, focal neurological deficits and deterioration in seizure control. Neurological manifestations of TS in African children had been described by few studies [7,8,9], for instance Cisse et al [7] reviewed 18 cases of TS seen over a ten year period at the University Hospital Centre, Conakry, Guinea. A high incidence of epilepsy was found in the cases studied. Chalabi-Benabdallah [8] also reported a high incidence of epilepsy in the 22 Algerian families with TS studied. Pitche et al [9] reported 4 cases of TS from Togo; all showed features of neurological involvement, three had

associated epilepsy while the fourth case showed features of autism. Neuroimaging studies to precisely identify pathologies in the brain were however not carried out in the study. Severe neurological involvement appears to be a frequent finding in Africans with TS.

The dermatological manifestations of tuberous sclerosis tend to be the most common findings.[1] Sebaceous adenomas develop between 4 and 6 years of age. [1] They appear as tiny red nodules over the nose and cheeks are sometimes confused with acne. Angiofibromas of the lumbrosacral skin region (shagreen patches) usually appear before puberty. Cafe au lait macules, periungal fibromas (koene's tumors), forehead fibrous plaques, skin tags and confetti like macules can also be observed.[1] Our patient had facial angiofibromas, shagreen patches on the back and periungual fibromas.

Ocular manifestations include retinal harmatomas, translucent patch, mulberry lesion and retinal depigmentation spot. Retinal lesion in TS are of two types mulberry tumors that arise from nerve head and hakomas which are retinal hamartomas of astriocytic origin.[1] Our patient did not have these findings on fundus examination.

Approximately 50% of children with TS have rhabdomyomas of the heart. These may be numerous or located at the apex of the left ventricle, and although they can cause congestive heart failure and arrhythmias, they tend to slowly resolve spontaneously. [1]The echocardiogram done in our case was normal.

The lungs and the kidneys are also affeced in TS. Pulmonary lesions in tuberous sclerosis usuallyaffect women, suggesting that a hormonal component is involved in the development of the pulmonary sequelae.[10] Lymphangioleiomyomatosis of the lung is characterized by cystic distortion of the pulmonary architecture by hyperplastic smooth muscle cells. Renal involvement includes angiomyolipoma, renal cyst, renal cell carcinoma, oncocytoma, perirenal cysts and polycystic kidney. [11] In our case ultrosongraphy of kidneys was within normal limits.

Management was mainly symptomatic and multidisciplinary. Anticonvulsant in form of carbamazepine was prescribed. He has remained seizure-free for two years.

In conclusion, any child who presents with seizures should be carefully examined for skin lesions which can give some clue towards the causation of seizures. Tuberous sclerosis though a rare condition, once diagnosed needs multidisciplinary management due to the varied clinical manifestations. This is to improve the quality of life of the patient and ensure maximal survival.

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