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When Epilepsy Takes Center Stage in Tuberous Sclerosis Complex: A Case Report from the Dermatology Hospital of Bamako

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Abstract **Case Report**

Tuberous Sclerosis Complex (TSC) is a multi-organ genetic disorder characterized by numerous hamartomas found in several organs, including the brain, heart, skin, eyes, kidneys, lungs, and liver. The responsible genes are TSC1 and TSC2, encoding hamartin and tuberin, respectively. The hamartin-tuberin complex inhibits the mammalian target of rapamycin pathway, which controls cell growth and proliferation. Variations in the distribution, number, size, and location of lesions lead to variations in the clinical syndrome, even among family members. Most features of Tuberous Sclerosis Complex become evident only in childhood, after the age of 3, limiting their usefulness for early diagnosis. Identifying patients at risk of severe manifestations is crucial. We report a case of Tuberous Sclerosis Complex inaugurated by epilepsy. It is a 10-year-old girl, a student, who came for consultation for a black spot on her left cheek evolving continuously for seven years. Two months later, this spot, asymptomatic solid lesions appeared on her face, gradually increasing in size and number. In her medical history, she has had convulsive seizures since the age of three, occurring at least five times a year, confirmed by an electroencephalogram. There is an oblong-shaped skin plaque measuring approximately 7x3 cm, erythematous, on the left cheek. Additionally, there are multiple normochromic angiofibromas affecting the nasal pyramid, nasolabial folds, and cheeks. The rest of the dermatological examination is unremarkable. The diagnosis of Tuberous Sclerosis Complex was made. In the presence or absence of cutaneous lesions, when faced with epilepsy in young children, we must always consider Tuberous Sclerosis Complex before ruling out other causes.

Keywords: Epilepsy, forefront, Tuberous Sclerosis Complex, Bamako.

INTRODUCTION

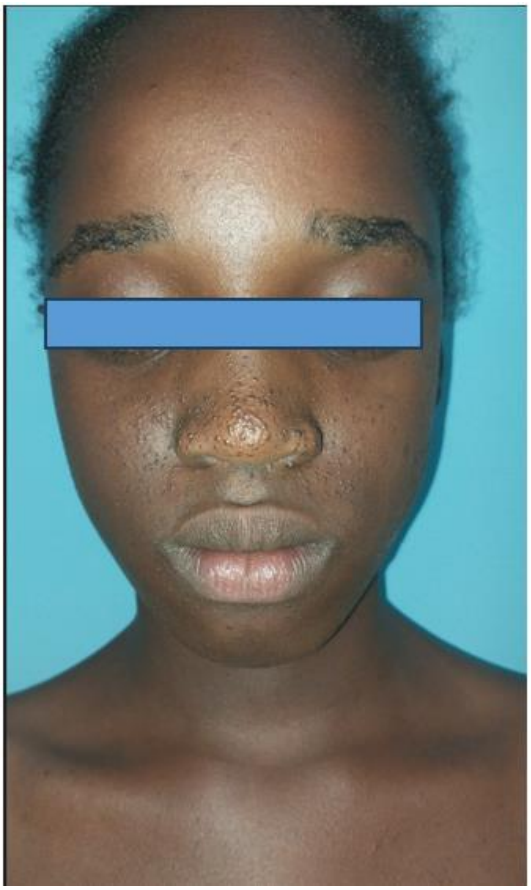
Tuberous Sclerosis Complex (TSC) is a multi-organ genetic disorder characterized by numerous hamartomas found in several organs, including the brain, heart, skin, eyes, kidneys, lungs, and liver. The responsible genes are TSC1 and TSC2, encoding hamartin and tuberin, respectively. The hamartin-tuberin complex inhibits the mammalian target of rapamycin pathway, which controls cell growth and proliferation. Variations in the distribution, number, size, and location of lesions lead to variations in the clinical syndrome, even among family members. Most features of Tuberous Sclerosis Complex become evident only in childhood, after the age of 3, limiting their usefulness for early diagnosis. Identifying patients at risk of severe manifestations is crucial. About 85% of children and adolescents with TSC experience complications of the central nervous system, including epilepsy, cognitive impairments, challenging behavioral issues, and symptoms resembling autism. Epilepsy typically begins during the first year of life, with focal seizures and spasms [1–6]. We report a case of Tuberous Sclerosis Complex inaugurated by epilepsy.

OBSERVATION

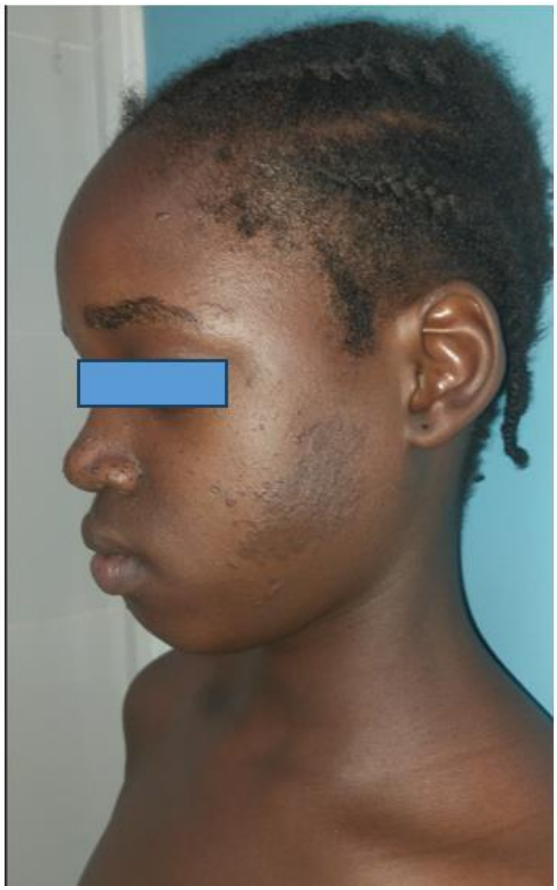
It is a 10-year-old girl, a student, who came for consultation for a black spot on her left cheek evolving continuously for seven years. Two months later, this spot, asymptomatic solid lesions appeared on her face, gradually increasing in size and number. In her medical history, she has had convulsive seizures since the age of three, occurring at least five times a year, confirmed by

an electroencephalogram. She is also experiencing academic difficulties. Her paternal aunt had similar solid lesions and also had epilepsy, but she died by drowning in a river.

On physical examination, there is an oblong-shaped skin plaque measuring approximately 7x3 cm, erythematous, on the left cheek. Additionally, there are multiple normochromic angiofibromas affecting the nasal pyramid, nasolabial folds, and cheeks. The rest of the dermatological examination is unremarkable (Figures 1 and 2).



Face 1: Facial angiofibromas



Face 2: Shagreen patch on the left cheek

The diagnosis of Tuberous Sclerosis Complex was made. No further investigations were performed. The patient was referred to neurology for ongoing management, and a bi-annual follow-up appointment was scheduled for monitoring.

Argument

Epileptogenesis in infants with Tuberous Sclerosis Complex (TSC) is a gradual and dynamic process, leading to early-onset seizures that are difficult to treat. Several cellular, molecular, and pathophysiological mechanisms, including dysregulation of the mammalian target of rapamycin (mTOR) pathway, GABAergic dysfunction, and abnormal connectivity, may play a role in this epileptogenic process and may also contribute to associated developmental encephalopathy. Disease-specific antiepileptic medications or drugs targeting the mTOR pathway have shown efficacy in TSC-associated epilepsy. Presymptomatic administration of vigabatrin, a GABAergic drug, delays the onset of seizures and reduces the risk of subsequent epileptic encephalopathy, such as infantile spasms syndrome or Lennox-Gastaut syndrome [7–9]. The mTOR cascade may be a potentially major cause of epilepsy and neurodevelopmental disability associated with TSC. Further research should determine if early suppression of abnormal mTOR signaling with mTOR inhibitors before the onset of seizures can be a more effective approach [3].

For our patient, the inaugural nature of epilepsy was observed very early, leading to the child being placed on carbamazepine already in early childhood with its side effects. Additionally, the presence of these angiofibromas, often mistaken for acne lesions by the child's surroundings, often led the mother to consult doctor after doctor. The psychological aspect is very important for patients like these and their parents.

CONCLUSION

In the presence or absence of cutaneous lesions, when faced with epilepsy in young children, we must always consider Tuberous Sclerosis Complex before ruling out other causes.

Conflict of Interest: None

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