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Tiny Tremors: A Case of Pediatric Focal Seizures Unraveled

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Abstract

Introduction:

Simple focal seizures, also known as auras, occur in one area on one side of the brain, but may spread from there (1). The person does not lose consciousness during a simple focal seizure. Physicians typically break simple focal seizures down into the following four areas, depending on the location in the brain and parts of the body affected:

Motor: A simple focal seizure with motor symptoms will affect muscle activity, causing jerking movements of a foot, the face, an arm or another part of the body(2). Physicians can diagnose which side of the brain is affected by observing which side of the body experiences symptoms, since the left brain controls the right side of the body and the right brain controls the left.

Sensory: A simple focal seizure may cause sensory symptoms affecting the senses, such as: hearing problems, hallucinations and olfactory or other distortions.(3)

Autonomic: A simple focal seizure with autonomic symptoms affects the part of the brain responsible for involuntary functions (4). These seizures may cause changes in blood pressure, heart rhythm, or bowel or bladder function.

Psychic: Some simple focal seizures strike parts of the brain that trigger emotions or memories of previous experiences, causing feelings of fear, anxiety, or déjà vu (the illusory feeling that something has been experienced before).

Complex focal seizures are often preceded by a simple focal seizure (aura). Patients experiencing a complex focal seizure may stare blankly into space, or experience automatisms (non-purposeful, repetitive movements such as lip smacking, blinking, grunting, gulping or shouting).

Keywords: Focal Seizures, Heart Rhythm, Automatisms

Case Report

A 3 and a half year old boy was brought to the casualty with history of seizures. The child was normal the day before, after which the child had developed dry cough associated with 4 to 5 episodes of post tussive vomiting which contained food particles after which the child had developed uprolling of eyes and jerky movements of the fingers of the right upperlimb and lower limb lasting for

about 10 minutes for which the child was taken to a nearby hospital and given Inj. Lorazepam 1mg IM stat followed by 1mg IV Lorazepam as the seizure had not aborted.

No history of head injury, dog bite, accidental drug or toxin ingestion or fever. No history of similar complaints in the past. The child was born via LSCS, term, AGA, with no history of NICU admission. There was no family history of seizures. There were no significant findings on examination. Blood investigations like CBC, sgot, sgpt, serum calcium and electrolytes were done and was normal except for moderate anemia. CT Brain was taken and showed prominent left ventricle. A neurologist opinion was obtained who suggested an EEG and MRI Brain. EEG showed evidence of epileptiform activity and the MRI showed mild gliosis with encephalomalacia in the left gangliocapsular region and corona radiation. The Opthalmologist confirmed the absence of papilledema. T. Frisium and Valparin was started as per the advice of the neurologist and child was asked to follow up a week later.

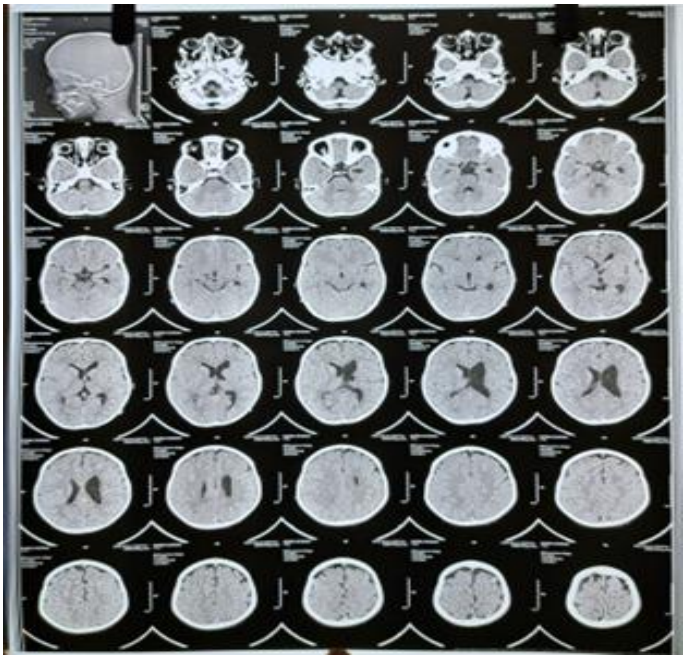

Figure 1:

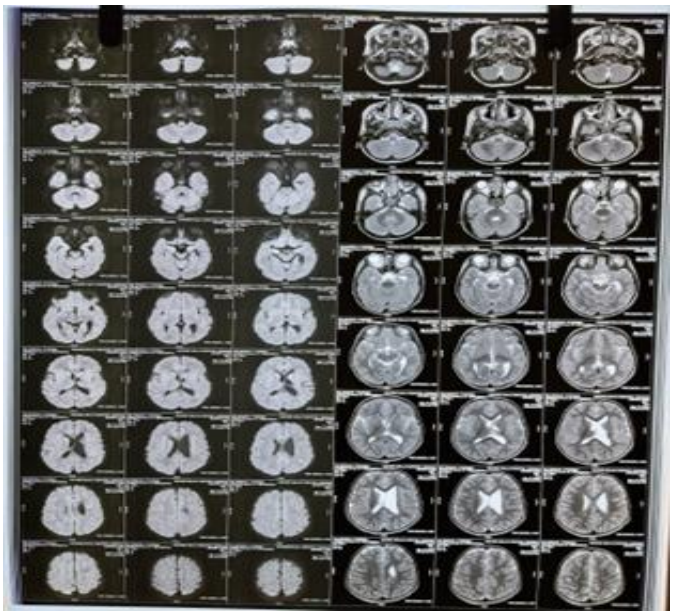

Figure 2:

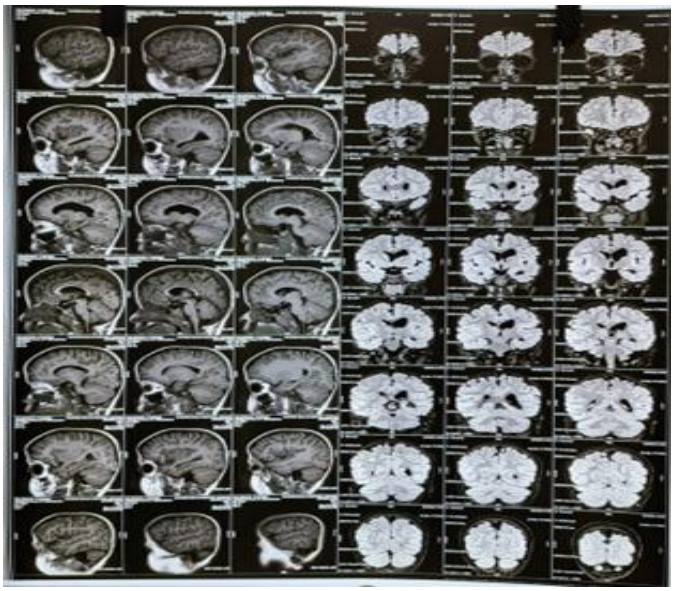

Figure 3:

Discussion

Focal Seizures

Pediatric focal seizures take place when abnormal electrical brain function occurs in one or more areas of one side of the brain (5). Focal seizures may also be called partial seizures. With focal seizures, particularly with complex focal seizures, the child may experience an aura before the seizure occurs. An aura is a strange feeling, either consisting of visual changes, hearing

abnormalities, or changes in the sense of smell. There are two sub-types of focal seizures to be aware of.

Simple focal seizures

Simple focal seizures in children typically last less than one minute. The child may show different symptoms depending upon which area of the brain is involved. If the abnormal electrical brain function is in the occipital lobe (the back part of the brain that is involved with vision), the child's sight may be altered. The child's muscles are typically more commonly affected. The seizure activity is limited to an isolated muscle group, such as fingers or to larger muscles in the arms and legs (6). Consciousness is not lost in this type of seizure. The child may also experience sweating, nausea, or become pale.

Complex focal seizures

Complex focal seizures in children commonly occur in the temporal lobe of the brain, the area of the brain that controls emotion and memory function. This seizure usually lasts between one to two minutes. Consciousness is usually lost during these seizures and a variety of behaviors can occur in the child. These behaviors may range from gagging, lip smacking, running, screaming, crying, and/or laughing. When the child regains consciousness, the child may complain of being tired or sleepy after the seizure. This is called the postictal period.

Generalized Seizures

Generalized pediatric seizures involve both sides of the brain. There is loss of consciousness and a postictal state after the seizure occurs. There are multiple sub-types of generalized seizures, each common during different ages of adolescence and occurring with different symptoms.

Absence seizures

Pediatric absence seizures (also called petit mal seizures) are characterized by a brief altered state of consciousness and staring episodes. Typically the child's posture is maintained during the seizure. The mouth or face may move or the eyes may blink. The seizure usually lasts no longer than 30 seconds. When the seizure is over, the child may not recall what just occurred and may go on with his/her activities, acting as though nothing happened. These seizures may occur several times a day. This type of seizure is sometimes mistaken for a learning problem or behavioral problem. Absence seizures almost always start between ages 4 to 12 years.

Atonic Seizures

With atonic seizures in children (also called drop attacks) there is a sudden loss of muscle tone and the child may fall from a standing position or suddenly drop his/her head. During the seizure, the child is limp and unresponsive.

Generalized tonic-clonic seizures

This seizure (GTC or also called grand mal seizures) is characterized by five distinct phases that occur in the child. The body, arms, and legs will flex (contract), extend (straighten out), tremor (shake), a clonic period (contraction and relaxation of the muscles), followed by the postictal period. During the postictal period, the child may be sleepy, have problems with vision or speech, and may have a bad headache, fatigue, or body aches.

Myoclonic seizures

This type of seizure refers to quick movements or sudden jerking of a group of muscles (7). These seizures tend to occur in clusters, meaning that they may occur several times a day, or for several days in a row.

Infantile spasms

This rare type of seizure disorder occurs in infants from before six months of age (8). There is a high occurrence rate of this seizure when the child is awakening, or when they are trying to go to sleep. The infant usually has brief periods of movement of the neck, trunk, or legs that lasts

for a few seconds. Infants may have hundreds of these seizures a day. This can be a serious problem, and can have long-term complications.

Febrile seizures

Pediatric febrile seizures are associated with fever. These seizures are more commonly seen in children between 6 months and 5 years of age and there may be a family history of this type of seizure. Febrile seizures that last less than 15 minutes are called "simple," and typically do not have long-term neurological effects. Seizures lasting more than 15 minutes are called "complex" and there may be long-term neurological changes in the child.

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