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Clinical case presentation on complex partial seizures diagnosis and treatment care services and outcomes in an adult patient

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Abstract

Complex partial seizure are often associated with impaired or loss of consciousness clinically proved to have an impact on masial temporal sclerosis (Hippocampus) region of brain. Seizures admits several etiopathophysiological events leading to several neuro functional changes in the reticulothalamocortical circuitry zones of the CNS .This paves the episodes of complex partial seizures events. A clinical case report of clinical partial seizures in a 47 years age adult patient came to the hospital with impaired consciousness. The brainmagnetic resonance imaging scanning of the patient detected a spectrum of findings more in favour of idiopathic intracranial hypertension and T_1 ,T_2 isointense lesion in the posterial mid line falx-2.falcine meningioma, focal area of glosis in the left high parietal lobe and age approximate bilateral cerebral atrophy it grade-1 fazellas white matter changes. The patient was conformed with Complex partial seizures, and she was treated with benzodiazepines twice a day. The patient was recovered from loss of impaired consciousness and she was called for follow up examination once in 1-month period.

Keywords: Masial Temporal Sclerosis; Magnetic Resonance Imagine; Idiopathic Intra Cranial Hypertension; Falcine Menigoma; Bilateral Cerebral Atrophy

1. Introduction

Abnormal, causing seizures or periods of unusual behavior, sensations and sometimes loss of awareness Epilepsy is a central nervous system (neurological) disorder in which brain activity becomes.

Epilepsy has numerous causes, each reflecting underlying brain dysfunction [(1)].

Epilepsy is one of the most common neurologic conditions, with an incidence of approximately 50 new cases per year per 100,000 populations. [(2)]

- Epilepsy is a chronic non communicable disease of the brain that affects people of all ages.
- Around 50 million people worldwide have epilepsy, making it one of the most common neurological diseases globally.
- Nearly 80% of people with epilepsy live in low- and middle-income countries.
- It is estimated that up to 70% of people living with epilepsy could live seizure- free if properly diagnosed and treated.
- The risk of premature death in people with epilepsy is up to three times higher than for the general population.
- Three quarters of people with epilepsy living in low-income countries do not get the treatment they need.

In many parts of the world, people with epilepsy and their families suffer from stigma and discrimination

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A seizure is an unexpected, uncontrolled electrical aggravation in the mind. It can cause changes in your way of behaving, developments or sentiments, and in degrees of awareness. Having at least two seizures no less than 24 hours separated that aren't welcomed on by a recognizable reason is by and large viewed as epilepsy.

A seizure is an explosion of uncontrolled electrical action between synapses (likewise called neurons or nerve cells) that causes transitory irregularities in muscle tone or developments (firmness, twitchfyging or flaccidness), ways of behaving, sensations or conditions of mindfulness. Jacksonian march seizure can be mistaken for a transient ischemic attack, migraine, or other condition [3, 4].

Brain tumors are the most common etiology of seizures in middle-aged adults, and vascular dementia and encephalopathies are the most common etiology in older adults [5, 6].

Occipital lobe seizures usually have visual manifestations like scotoma, amaurosis, or flashing lights. They also can have visual hallucinations and perceptive illusions in which objects appear distorted [7, 8].

There are two fundamental kinds of seizures:focal/partial seizures, generalized seizures. An individual's seizure type figures out what sort of epilepsy they have.

The two types of primary seizures are:

- Generalized seizures.
- Focal seizures/Partial seizures.

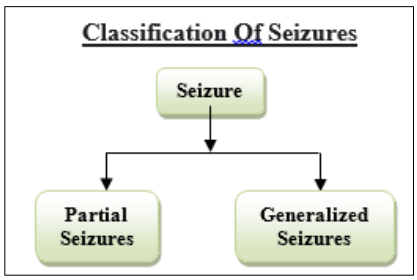


Figure 1 Classification of Seizures

2. Generalized seizures

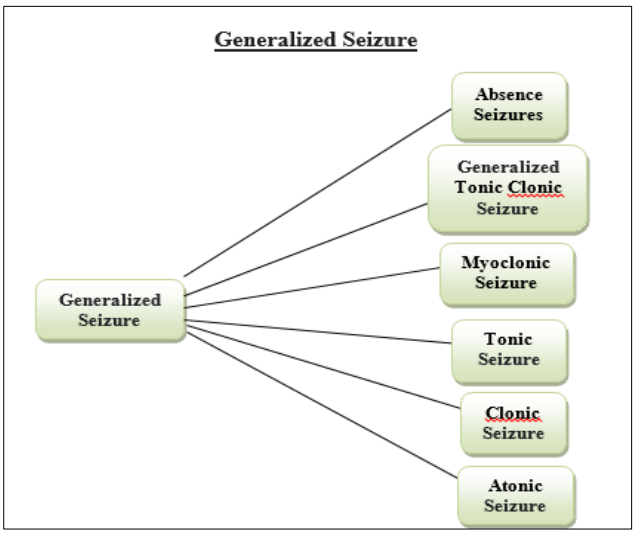


Figure 2 Types of Generalized Seizures

Summed up seizures might have a hereditary part, yet just few individuals with summed up seizures have relatives with a similar condition. There is a slight expansion in risk for summed up seizures in the kids or other relatives of an

impacted individual with summed up seizures, but the severity of the seizures can vary from person to person. Genetic testing may reveal a cause for generalized seizures.

2.1. Types of generalized seizures

2.1.1. Absence Seizures ("Petit Mal Seizures")

Childhood absence epilepsy shows up as brief staring episodes in children, usually starting between ages four and six. Children usually outgrow these. Juvenile absence epilepsy starts slightly later and can persist into adulthood; people with these kinds of seizures may develop tonic-clonic seizures in addition to absence of seizures in adulthood.

2.1.2. Myoclonic seizures

Myoclonic seizures comprise of unexpected body or appendage yanks that can include the arms, head and neck. The fits happen on the two sides of the body in bunches, particularly toward the beginning of the day. At the point when these seizures foster in puberty alongside tonic-clonic seizures, they are essential for a condition called adolescent myoclonic epilepsy. Individuals can likewise have myoclonic seizures as a feature of other epilepsy related-conditions.

2.1.3. Tonic and Atonic Seizures ("Drop Attacks")

Some people, usually those with multiple brain injuries and intellectual disability, have tonic seizures consisting of sudden stiffness in the arms and body, which can cause falls and injuries.

2.1.4. Tonic, Clonic and Tonic-Clonic (Formerly called Grand Mal) Seizures

Tonic-clonic seizures can evolve from any of the focal or generalized seizure types. For example, a focal seizure can spread to both sides of the brain and cause tonic-clonic seizures. A cluster of myoclonic seizures can become continuous and evolve into a tonic-clonic seizure. Generalized onset tonic-clonic seizures can occur alone or as part of another syndrome such as juvenile myoclonic epilepsy (JME) or juvenile absence epilepsy during adulthood.

3. Focal seizures/partial seizures

Focal seizures can begin in one piece of the mind and spread to different regions, causing side effects that are gentle or extreme, contingent upon the amount of the cerebrum becomes involved. Right away, the individual might see minor side effects, which is alluded to as an air. The individual might have modified sentiments or sense that something is going to occur (hunch). Certain individuals encountering a quality depict a rising sensation in the stomach like riding on a roller coaster. As the seizure spreads across the cerebrum, more side effects show up. In the event that the unusual electrical action includes an enormous region of the mind, the individual might feel confounded or bewildered, or experience minor shaking, muscle solidifying, or bumbling or biting movements. focal seizures that cause adjusted mindfulness are called focal unaware seizures or complex partial seizures.

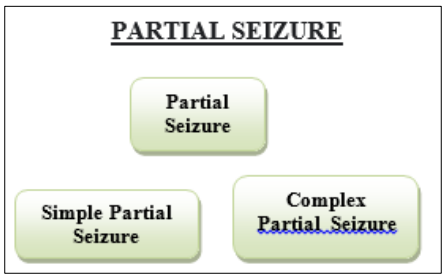


Figure 3 Partial Seizure

The electrical activity of the seizure can remain in one sensory or motor area of the brain, resulting in **a focal aware seizure (**also called **simple partial seizure**). The person is aware of what is happening, and may notice unusual sensations and movements.

Focal seizures can evolve into major events that spread to the entire brain and cause tonic-clonic seizures. These seizures are important to treat and prevent since they can cause respiratory problems and injuries.

"New terminology for a simple partial seizure is "focal onset aware seizure [(9),(10)].

Auras that are not followed by seizure should be considered focal aware seizures or simple partial seizures [11].

3.1. Simple partial seizures

A partial (focal) seizure happens when surprising electrical movement influences a little region of the cerebrum. At the point when the seizure doesn't influence mindfulness, it is known as a simple partial seizure.

3.2. Complex partial seizures

Complex partial seizures allude to focal seizures that beginning in one side of the hemisphere of the mind and are related with debilitation in awareness. Complex partial seizures are presently ideally called "focal impaired awareness seizure" or "focal onset impaired awareness seizure. Is an epileptic seizure that is associated with unilateral cerebral hemisphere involvement and causes impairement of consciousness, it occurs in all age groups.

This type of seizures was previously known as psychomotor epilepsy or temporal lobe epilepsy. It is due to a lesion or disturbance in the limbic system usually in the temporal lobe, and sometimes in the frontal lobe.

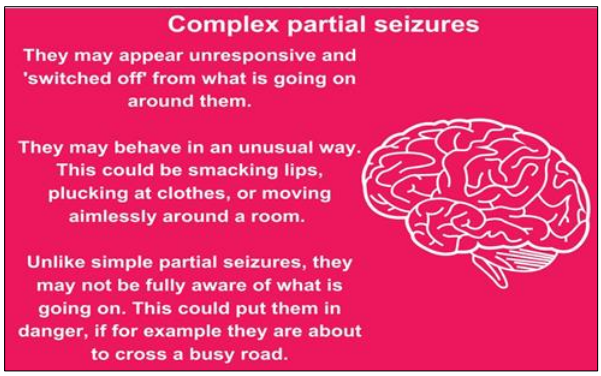


Figure 4 Complex Partial Seizures

4. Mechanism of benzodiazepine

Benzodiazepine anticonvulsants are a class of medications that are utilized to treat seizures (spasms). They predominantly work by influencing the gamma amino-butyric corrosive (GABA) synapses in the mind. Synapses are synthetics that nerves delivery to speak with other close by nerves. Studies have shown that individuals with seizures have broken GABA synapses in the cerebrum. GABA, a significant inhibitory synapse, restrains the action of nerves that would start the seizure. In particular, benzodiazepine anticonvulsants upgrade the action of GABA by restricting to it and opening the chloride direct in the GABA synapse, in this manner improving their anticonvulsant movement.

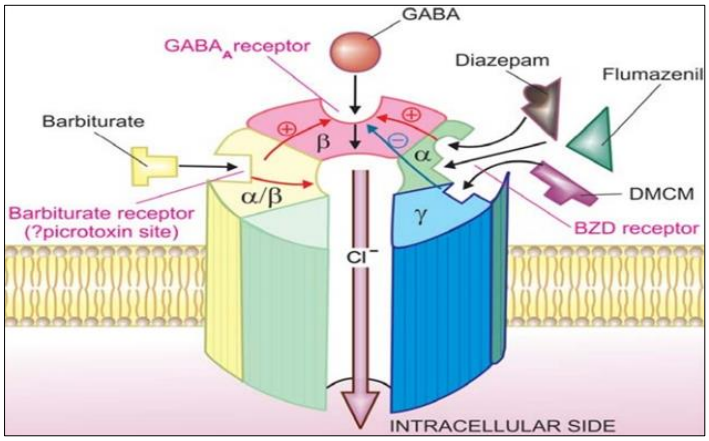


Figure 5 Mechanism Of Benzodiazepine

5. Patient details

5.1. Case report

Mrs. X, a 47 year old female patient, her weightand blood pressure is 91 kgs and s110/80 mm/hg respectively with an episode of complex partial seizures, was presented to the general medicine with loss of consciousness lasted for2-4 min. The patient reported that the she regained from his loss of consciousness after few minutes. The patient having no vomiting and other involuntary movements.

5.2. Past medical history details

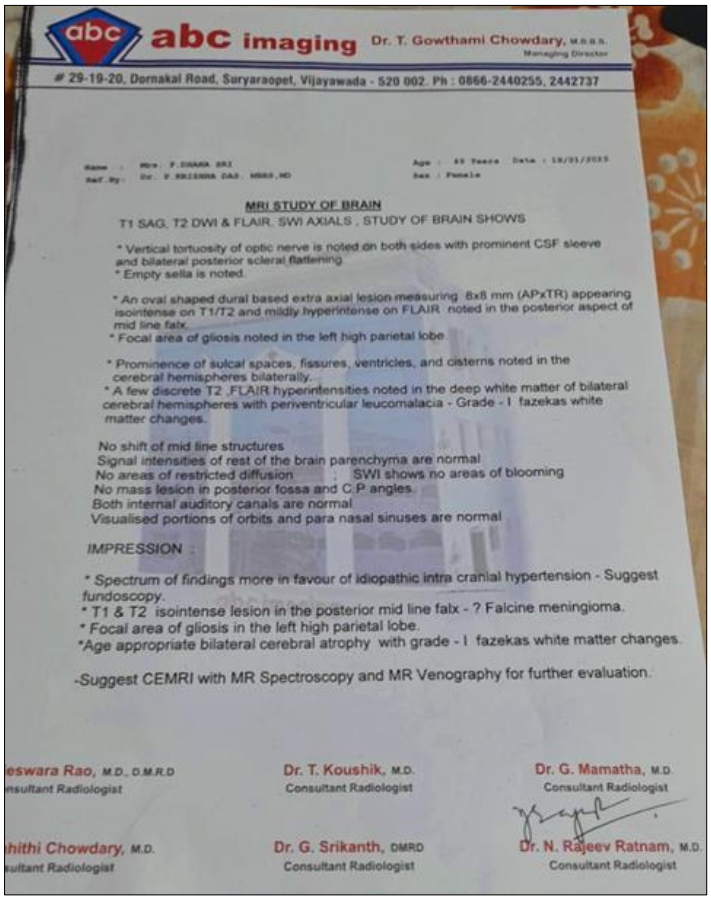
Mrs. X is a house wife with no history of head injury, but she have neurological illness from pregnancy stage .She experienced the loss of consciousness and impaired memory quite sometime in the past 3 years. She said that she remained unresponsive and unable to recall his events after retrieved from the episode and experienced base line memory disturbances. The patient's past medical history showed chronic disorders include diabetes an a hypertension and cardiovascular problems.

She consulted a neuro psychiatrist at the age of 49 years she was diagnosed with complex partial seizures. Diagnosis is confirmed by MRI reports. She was treated with benzodiazepines.

At the age of 50 years old she was suffered from stomach pain so she consult a physician he diagnosed that pain occur by hernia minor surgery is attained.

At the age of 51 years she again consulted a neuro psychiatrist with complaints of neck pain he suggest a X-ray and MRI scan. In the X –ray reports spondylitis is diagnosed and in MRI reports no improvement is observed when compare to the previous reports.

5.2.1. Neuorological investigation reports



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MRI STUDY OF BRAIN

T1 SAG, T2 DWI & FLAIR, SWI AXIALS , STUDY OF BRAIN SHOWS

* Vertical tortuosity of optic nerve is noted on both sides with prominent CSF sleeve and bilateral posterior scleral flattening.
* Empty sella is noted.

* An oval shaped dural based extra axial lesion measuring 8x8 mm (APxTR) appearing isointense on T1/T2 and mildly hyperintense on FLAIR noted in the posterior aspect of mid line falx.
* Focal area of gliosis noted in the left high parietal lobe.

* Prominence of sulcal spaces, fissures, ventricles, and cisterns noted in the cerebral hemispheres bilaterally.
* A few discrete T2 ,FLAIR hyperintensities noted in the deep white matter of bilateral cerebral hemispheres with periventricular leucomalacia - Grade - I fazekas white matter changes.

No shift of mid line structures
Signal intensities of rest of the brain parenchyma are normal
No areas of restricted diffusion . SWI shows no areas of blooming
No mass lesion in posterior fossa and C.P angles.
Both internal auditory canals are normal
Visualised portions of orbits and para nasal sinuses are normal

IMPRESSION :

* Spectrum of findings more in favour of idiopathic intra cranial hypertension - Suggest fundoscopy.
* T1 & T2 isointense lesion in the posterior mid line falx - ? Falcine meningioma.
* Focal area of gliosis in the left high parietal lobe.
*Age appropriate bilateral cerebral atrophy with grade - I fazekas white matter changes.

-Suggest CEMRI with MR Spectroscopy and MR Venography for further evaluation.

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Figure 6 MRI Report

The paitent's MRI scan revelead the spectrum of findings more favour of idiopathic intra cranial hypertension (suggest fundosopy).The MRI scan also revealed T_1 and T_2 isointense lesion in the posterior mid line falx?- (Falcine meningioma). And Focal area of gliosis in the left high partial lobe, age appropriate bilateral cerebral atrophy with grade – I fazekas white matter changes were noted.

6. Discussion

The above clinical findings and laboratory tests reported that the patient was detected with the complex partial seizures. In this case, the patient was presented with complex partial seizures which temporary loss of consciousness progressively. The etiology represented that there was an condition that occurs when pressure inside the skull increases for no obvious reason (Idipathic intracranial hypertension) which ultimately provokes the development of seizures. The patient was conformed with Complex partial seizures, and she was treated with benzodiazepines two times per day. The patient was recovered from loss of impaired consciousness and she was called for follow up assessment once in 1-month time.

7. Conclusion

Final conclusion is the patient was recovered from loss of impaired consciousness and she was called for follow up examination once in 1-month period.

Compliance with ethical standards

Acknowledgments

We would like to thank Dr. G. Usha Kiran, NRI college of pharmacy, for her encouragement and support.

Disclosure of conflict of interest

The authors declare that they have no conflicts of interest.

Statement of informed consent

The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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