# Epilepsy and Concomittant Pseudoseizures: The Diagnostic Dilemma

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**Citation**

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**Abstract**

Epilepsy is a chronic medical condition affecting millions of people in the United States. It is characterized by uncontrolled seizures. Epilepsy has a huge social and economic impact on patients and their caregivers. Management of uncontrolled epilepsy is done under the supervision of a neurologist. However, it has been shown in the literature that chronic epilepsy patients also develop “seizure like episodes,” referred to as “pseudoseizures” or “psychogenic non-epileptic spells”. This condition is a form of conversion disorder. The gold standard for adequate treatment is referral to a specialized epilepsy center for adequate diagnosis. Once the diagnosis is made, the input from the psychiatrist and psychologist is crucial for appropriate management.

## INTRODUCTION

Epileptic seizures are classified into different types based on the characterization of the events. Careful history is the first step in the diagnosis of epileptic and non-epileptic events. Seizures are due to hyperactivity of the cortical neurons or synchronous neuronal activity in the brain [1].Seizures are commonly described as partial seizures and generalized seizures. Partial seizures are further classified into simple partial and complex partial seizures.

Simple partial seizures are not associated with impairment of consciousness and complex partial seizures result in altered awareness. Patients do get an aura, the term that has now been replaced with simple partial seizure. These are preceded by complex partial seizures. Symptoms include visual hallucinations, metallic taste, déjà vu and jamais vu sensation, intense fear or auditory hallucinations. During complex partial seizures, patients do exhibit automatisms or abnormal body movements. These include intermittent blinking, picking hand movements, fumbling of the fingers, chewing mouth movements or lip smacking. Complex partial seizures can secondarily generalize which is exhibited by generalized convulsion and tongue bite. The other common type is generalized seizures, which include absence and generalized tonic clonic seizures. Absence seizures commonly seen in children and are often referred to as “petit mal seizures”. Primary generalized seizures are characterized by a convulsion and a step-wise progression. The diagnostic tool is electroencephalogram. Complex partial seizures involve “one cerebral hemisphere which results in altered awareness. When the abnormal electrical activity moves over to the other hemisphere of the brain, it causes a secondary generalized convulsion. In primary generalized seizures, the abnormal electrical activity starts simultaneously from both the right and the left cerebral hemispheres [2]. The diagnosis of epilepsy includes careful history and the EEG findings.

However, a diagnostic dilemma arises when patients with established diagnoses of epilepsy develop “pseudoseizures”. Pseudoseizures are a form of conversion disorder during which patient’s exhibit seizure like activity but the brain waves are normal. Patients with pseudoseizures often have history of an abusive past and/or other psychiatric disorders. This paper addresses the challenges that physicians and psychologists deal with when true epileptic patients develop pseudoseizures. A careful history is important to detect nonstereotypical spells. If the patients have non-stereotypical events, intensive video EEG monitoring in an epilepsy-monitoring unit is the gold standard to capture new spells for definitive diagnosis to rule out pseudoseizures.The rationale of our study is to adequately diagnose all the spells in order to make the right management decisions.

## METHODS

A retrospective chart review was conducted on epilepsy patients admitted to our epilepsy monitoring unit from 2008

to 2011. The epilepsy monitoring unit is a specialized inpatient unit where patients undergo video EEG monitoring for 4 to 5 days. The idea is to get simultaneous brain wave and video data of the spells in order to make the correct diagnosis. Subject data were acquired from electronic medical records. Approval for this retrospective analysis of patient records was given by the hospital's Institutional Review Board.

## RESULTS

We retrospectively analyzed 14 patients who were admitted to our epilepsy monitoring unit because of an increased frequency of seizures and the development of new kinds of spells—despite the fact that no compliance issues prompted the epilepsy monitoring unit stay. Variables taken into account include change in the character, frequency and duration of the spells. These patients were followed at our institution's epilepsy clinic and all have a well established diagnosis of epilepsy. The duration of follow up in our epilepsy clinic ranges from 9 months to 9 years. The study population consisted of 14 patients (mean age: 43 years, range: 21 – 67 years). There were 10 females (71.5 %) and four males (28.5 %). Eleven patients had partial epilepsy (78.6 %) and 3 (28.4%) had generalized epilepsy. Twelve of 14 patients had concurrent psychological disorders including depression (64%), anxiety (50%), and physical or sexual abuse (29%). Study patients suffered from an average of 2.8 psychological disorders (range of 1-5). Study patients had a history of use of tobacco, alcohol, and illicit drugs of 35%, 21%, and 7% respectively. The study patients were on an average of 2.6 (range 1-5) AEDs, had failed an average of 2.1 (range 0-9) AEDs, and 2 patients (14%) had VNS stimulators. Most of the patients have failed more than 2 anticonvulsant medications.

The length of stay in the unit was 4 days. Activation procedures were employed in order to provoke the new spells which included sleep deprivation, photic stimulation and hyperventilation. The new events were without any EEG correlate and a diagnosis of pseudoseizures was made. Care was established with the psychiatrist helping them to understand the diagnosis. Regular counseling resulted in improvement in 11(78.6 %) patients. However, three (28.5 %) patients with mental retardation did not show improvement likely due to lack of active participation in the counseling sessions.

## DISCUSSION

Epilepsy is a chronic medical condition that poses a huge economic burden and affects the quality of life of both patients and caregivers. The diagnostic dilemma arises when chronic epilepsy patients develop atypical spells that are unresponsive to anti-seizure medications. The literature has shown that the 20-30 % of patients seen at epilepsy centers not responding to treatment are misdiagnosed [3] Most of these patients are found to have psychogenic non-epileptic spells also referred as pseudoseizures. The prevalence of pseudoseizures is 33 per 100,000 [4]. It affects mostly women but men and the elderly are also affected as shown by Behrouz and colleagues Our study specifically deals with patients with co-existent epilepsy. There is evidence that between 9 -15% of the epilepsy patients have concomitant pseudoseizures [5].

The diagnosis requires admission in a specialized unit at an established center referred to as the "epilepsy monitoring unit." Epilepsy monitoring unit is a hardwired room where patients are monitored continuously by simultaneous video and brainwave "EEG" recording for 4 to 5 days. The idea is to capture the atypical spells in these epilepsy patients for definitive diagnosis. The activation procedures can also be used to capture the spells. The activation procedures include photic stimulation, hyperventilation, sleep deprivation and at some centers the use of intravenous normal saline [5,6]. Diagnosis of psychogenic non-epiletic spells requires demonstration of a negative EEG, meaning absence of " seizure activity" during the entire episode. The other requirement is the careful review of the clinical presentation of the episode since some seizure types, including simple partial seizures, is difficult to capture on the scalp recording.

The clinical presentation is extremely important in the diagnosis of psychogenic non-epileptic spells or pseudoseizures. The characteristics of pseudoseizures include abrupt onset and termination, asynchronous or thrashing movements of the body, side-to-side head shaking, pelvic thrusting, back arching, emotional outbursts, and eye closure during the entire event and preserved awareness during the jerking episodes [7,8, 9].

Pseudoseizures fall under the somatoform disorders according to the Diagnostic and Statistical Manual of Mental Diseases. Somatoform disorders involve unconscious production of the physical symptoms due to the internal conflicts, which the patient is unable to express. These symptoms are not under the patient's voluntary control and there is no element of intentional faking of the symptoms. The DSM, Fourth edition came up with the new category of conversion disorder for pseudoseizures described as

"conversion disorder with seizures".

These epilepsy patients with concomitant pseudoseizures require referral to the psychiatrist and psychologist for counseling once the diagnosis is established after the epilepsy monitoring unit stay.

## CONCLUSION

A multidisciplinary team approach between the neurologist, epileptologist, psychiatrist and psychologist is required for the appropriate management of this difficult set of patients.

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