INTRODUCTION

Pseudoseizures are “mimic - seizures” are episodic behavioral events that mimic epileptic seizures. These episodes are not credited with abnormal cortical electrical epileptic discharges. They are otherwise called Psychogenic Non Epileptic Seizures (PNES). There used to be an underlying psychological stress phenomenon or psychological conflict. Many of synonyms have been used in the literature to describe these events, including hysterical epilepsy, hysteroepilepsy, psychogenic seizures, pseudoepileptic seizures, pseudoseizures, and nonphysiologic or functional seizures. The term psychogenic nonepileptic seizure is preferred because it is non pejorative and neutral. The aim of this article is to distinguish pseudoseizures (PNES) from real organic seizures, which are also paroxysmal. It becomes so mandatory to recognize the antecedent stressors in the psychological background, especially in Children. The term “Hysterical” is derived from the Greek word “Hysteria” which means “Uterus” in the view of Non Freudian language. Hysterical disorders are an expression which is “unconscious” Physical expression of emotional conflicts. The term “unconscious expression” differentiates hysterical seizures from malingering which is a willful conscious act. (Hypochondriasis) Table 1.

Epidemiology & Incidence

With reference to a community survey in rural India, pseudo seizures has been found to be 2.9 per 1,000 population. Moreover many studies have reported an incidence of 6.5 to 10.6 in various studies. Although population data are limited, one report suggested a prevalence of 2 to 33 per 100,000 almost quashing the estimated on an assumption that 10-20% of patients seen in an center would be found as Pseudoseizures. Reviewing video-electroencephalography (Video EEG) monitoring records, Patel and associates and Wyllie and colleagues found that 3.5% and 7% of children, respectively, seen in clinic for assessment of persistent seizures had PNES. PNES occur in both elementary-age children and in adolescents as well as in all age groups of adults. Female preponderance has been suggested. 3-7

Psychopathology

It is observed that the common etiologies which drop or precipitates the pseudoseizures are most often related to personal emotional conflicts, which are usually parental misbehavior, personal strained relationships between couples, sudden death of a loved ones, school pressure in studies and exam phobias etc. Change in the environment like new school, new classes where the old class mates are missing, friendship betrayal, and in short there is always psychiatric co morbidity in all the cases with pseudoseizures. Some authors report that PNES, with organic brain disorder, which is playing role may contribute PNES. New onset psychogenic seizures after resective surgery for organic epilepsy have been observed. Recent studies found psychogenic seizure disorders associated with brain pathology in the right hemisphere, non specific inter ictal electroencephalography abnormalities, magnetic resonance imaging changes and neuropsychological deficits. However, complex partial seizures of frontal origin might present similar characteristics with PNES and could be confused with the latter. It is important however to distinguish between hysteria in the sense of a particular personality style, and hysteria in the sense of manifestation of any emotional disturbance. The first is a disorder
characterized by exaggerated emotional expression, a need to draw attention to oneself, craving for activity and excitement, a tendency to over react or become irrational or angry coupled with characteristic disturbances in interpersonal relationship. (DSMIII American Psychiatric Association 1980) A frequent stress factor implicated in patients with psychogenic seizures has been incest or sexual promiscuity indeed a relationship between sexual feeling and seizures has been suggested for centuries.8

Clinical Presentation

Usually pseudoseizures present in the form of seizures whose morphology may be single or multiple or mixed. The classical convulsive type, atonic variety, complete loss of awareness, complicated behavior, confusion, like complex partial seizures are common. Bizarre twitching movements which are usually described as “Arc de cercle”, ophisthotonic postures. Rarely some cases have been reported to present seizures resembling “Myoclonus”.9-12 In one of the studies where in the 35 children were diagnosed to have pseudoseizures, a good prognosis was observed, compared to adults population. The good reasoning and venting the feelings of the children against phobia appear to have better response with adequate medications management and prognosis. Some important clinical findings help one to differentiate from real organic seizures from pseudoseizures.13,14

The presence of the following findings, often points out pseudoseizures often present with such findings.

1. Absence of Tongue bite
2. Absence of Urinary incontinence
3. Occurrence in all times, especially when the patient is awake among all the relatives, or persons related to the issue
4. Never occur during sleep
5. On clinical examination the following findings are suggestive of pseudoseizures.
   a. Normal pupillary reflex
   b. Resistance on an attempt to open the eye lids, and induced blepharospasm
   c. Suggestible production of seizure like movements either motor or other types
   d. Normal pupil size, in contrast to the pupil which is dilated during organic seizures with subsequent persistent constriction for a while
   e. Mono morphological paroxysmal movements and no significant pattern change in the limbs or body parts involved (rarely vary)
   f. Uncommon self inflicted injuries
   g. Plantar reflex is always flexor
   h. Hyperventilation occasional precipitates seizures

There are always exceptions to the above findings, but they are seldom expressed. But one should keep in view of various differential diagnosis of pseudoseizures, in the mind relevant investigations are mandatory to exclude organic seizures.15

Vocalizations

Vocalizations are sometimes part of psychogenic seizures. Silent screams, sometimes vulgar language as it occur in complex partial seizures, some times dramatic mystical vocalizations have been reported in some cases.16,17,18

Tonic Motor Movements

Muscle tone increase, ophisthotonus, “arc de cercle” phenomenon, are common in pseudo seizures, occasional jerking, and features resembling myoclonic epilepsy has been observed in most of the studies. One should be careful to evaluate this situation, especially drug induced movement disorders, which do resemble pseudoseizures. Suggestive onset, polymorphic movements, favors pseudoseizures rather than real seizures.19,20

Repetitive Motor Movements

Jerking of both arms and legs, regular and irregular. Semi coordinated intermittent movements of limbs have been observed. Tonic movements, tonic clonic movements, arrhythmic and rhythmic co ordinate movements, pelvic thrusting, which can be side to side or forward and backward have movement of head been reported in many studies. (Total body rolling side to side, trembling movements). These can be semi automotive or automotive movements.21,22

Automated Movements

In some cases, goal directed behaviors like kicking, striking, biting, slapping, pushing, holding of the hands to the head, use of obscene gestures observed. Picking and moving objects, undressing, clawing the face observed in some cases. In some incidences it has been reported behaviors which are aggressive to self and others, bite their lips (not tongue), their hands, and of other people, including some objects. It is observed, that in all such cases they never get themselves seriously injured. It is to be pointed out that self inflicted injuries are not common in psychogenic seizures, but it is observed in patients who have psychogenic illness as background of the episodes. Avoidance of testing during forced eye lid opening, response to dropping of hands towards the face, or dropping of heel on the opposite shin observed in many situations. There are the usual findings, but in some cases, they may allow the injury to occur.23,24,25

Autonomic Changes

It is rare to observe autonomic and alimentary symptoms in Pseudo seizures. But in some older studies, it is reported that
choking, bradycardia, swallowing movements, and grunting may be present.\textsuperscript{26,27}

\textit{Ophthamological Findings}

Pupillary dilatation is not commonly observed. In older studies it has been observed mild pupillary dilatation with intact light reflex. It may be due to preexisting psychogenic drive accompanied with persistent sympathetic drive or due to drugs which the patient may be taking. Upward gaze, convergence has been observed. Bells phenomena is a constant finding.\textsuperscript{28}

\textit{Incontinence of Bladder and Bowel}

Bladder, Bowel incontinence is quite rare in Pseudoseizures. Rare cases have been reported in the literature, which draw low significance.\textsuperscript{29}

\textit{Reflexes}

Plantar is most often and almost always is flexor. But healthy adults had learnt to dorsiflex their big toe to a response of plantar stroke, by learning the repeated examination procedures.\textsuperscript{30}

\textit{Duration and Termination of ‘seizure’ Episodes}

The mean duration of time of episodes out of several studies had been estimated to 4 seconds to 19 mts. Duration may simulate epileptic seizures. In some studies it has been reported to have duration for several hours. Termination of episodes is often gradual in psychogenic seizures. Occasionally it can be abrupt. Postictal confusion and somnolence are rare phenomenon. Subsequent recall of an episode can be retrieved most by hypnosis.\textsuperscript{31}

\textit{Diagnosis}

The diagnosis of Pseudoseizures is extremely difficult even with an experienced Neurologist, especially whenever one observes an overlap syndromes of real epilepsy with Pseudoepilepsy. Anyhow, there are detailed informations available as per \textbf{TABLE 3}, to differentiate, which are accurate to the tune of 90%. A balanced view of clinical and electrophysiological approach approaches greater accuracy. In general ictal quivering, uncontrolled flaying, thrashing of extremities, or non synchronous rhythmic movements are not typical of epileptic movements.\textsuperscript{32} Ophisthotonus, side to side head movement, asynchronous rhythmic movement of extremities and pelvic thrusting were particularly helpful to identify the episodes as psychogenic. Using behavioral technique to precipitate a psychogenic seizures have attained great success, reported by many neurologists.\textsuperscript{33,34} Pressing several pressure painful spots, like pressing the mastoid etc., tuning fork induction, with vibration, stroking the shin of tibia, or compressing the ulnar nerve in cubital fossa, cause precipitation of seizure like movements and as well these techniques are used to terminate the events also. Some workers have documented complete absence of optokinetic nystagmus, visual threat, corneal and auditory startle reflexes, as well as lack of response to deep pain during a complex episodes, clinically observed as complete unresponsiveness, as well as by a psychogenic seizures.\textsuperscript{35} It is to be consumed that differential diagnosis also includes especially various forms of syncope, vasovagal attacks, hyperventilation syndromes and should be differentiated from pseudoseizures.\textsuperscript{36} To summarize, psychogenic seizures occurs spontaneously or in response to suggestion, it is important for the physician, to be certain that these duplicate the patient’s hysterical episodes. It is advised for the clinicians that real seizures may prop up randomly during an episode of pseudoseizures.

\textit{Investigations}

EEG and VIDEO EEG are mandatory investigations which are going to prove the existence of organic epileptic syndromes. The fact that underlying organic architectural change in the brain parenchyma do not vouch for the presence of organic seizures, when the presentation in clinical, more certifies the Pseudoseizures. The ictal phenomenon in the EEG and coexisting abnormal motor movements carries real correlation. There may be co existing ictal discharges, even in pseudoseizures, but the presence of post ictal slowing, recruitment in the EEG may be significantly absent. The morphology of the motor movements or seizures also should fairly coincide with the type of seizure discharges in EEG. For example myoclonic morphology should fairly coincide with the EEG pattern of myoclonus and so on. In situations where pseudoseizures overlaps a patient who is already suffering from organic seizures, it is highly valuable to take a Video EEG and correlate the findings both clinical and electrophysiologically. Serum CPK, Prolactin both in Serum and Cerebro Spinal fluid, would required in cases, where in the pseudoseizures are refractory to management of psychotherapy and drugs.\textsuperscript{37}

\textit{Imaging Studies}

Imaging studies like MRI, fMRI, PET studies do not contribute to an exact pinpointing findings, but there are some vague changes like hyperperfusion area in PET scan over frontal areas, which are not diagnostic of pseudoseizures.

\textit{EEG findings in Pseudoseizures}

The misdiagnosis of epilepsy may occur from the misinterpretation of a routine scalp EEG. Typically, interictal epileptiform discharges are misidentified on EEGs because of the over interpretation of normal variants or variations in normal electro cerebral activity. Most reports of misinterpretation have arisen from patients diagnosed with psychogenic non epileptic attacks using in-patient video-EEG monitoring. However, because seizures are rarely captured in the routine performance of EEG in the outpatient setting, ictal over interpretation is much less likely to occur. However,
some physiologic conditions may also occur with paroxysmal hyper synchronous patterns on EEG and lead to a misdiagnosis of epilepsy. We report an adult woman with untreated obstructive sleep apnea and major depressive disorder that was self referred for the evaluation of seizures. Brief episodes of delayed responsiveness associated with prolonged reading demonstrated the “generalized paroxysmal pattern” that was misinterpreted as a seizure during routine EEG at an outside institution. Subsequently, in-patient video-EEG monitoring reproduced multiple nonepileptic physiologic paroxysmal hyper synchronous arousals after prolonged reading.

Prognosis and Treatment

There is actually no clear agreement as the best treatment plan for PNES patients. The PNES diagnosis has to be clearly communicated to the patient. Nevertheless, even after a correct diagnosis is made a high proportion of PNES patients continue to have seizures, serious disability and bad self-reported quality of life. Furthermore, seizure remission cannot be considered a comprehensive measure of medical or psychosocial outcome. Nearly half of the patients who become seizure free remain unproductive and many of these patients continue to have symptoms of psychopathology including other somatoform, depressive, and anxiety disorders. Even if psychiatric co morbidities have to be treated by a psychiatrist, who could also suggest psychotherapy, in all cases the importance of a neurologist continuing to follow post-diagnosis PNES patients is essential. Pharmacotherapy, in the form of anxiolytic agents, and mild hypnotics would suffice to control the abnormal movements. Chlordiaipoxide 10 to 25 mg (Librium) at bed time or twice daily combination therapy of (Flupentixol 0.5 /Melitracen 10 mg) (Deanxit) one tablet twice daily and occasionally if the patient is over reactive may be administered with chlorpromazine 100 to 250 mg depending on the severity and high pitched motor dysfunction accompanied by insomnia, in rare cases. The management may be continued for some time, till the patient attains good improvement with psychotherapy which is the major sheet anchor of the management. Once the primary underlying psychological disturbance is cleared, the abnormal motor movements disappear in due course.

CONCLUSION

Over haul, it appears that a spectrum of patients develop psychogenic seizures at one end, patients who have hysterical personalities or depressive disorders, with a tendency to manifest their disorder physically, with conversion symptoms. Their seizures occur in response to specific or non specific environmental stresses. At the other end of the spectrum, are patients who are anti social, whose episodes are tools with which they consciously attempt to manipulate their environment. In the middle are patients with borderline personality disorder whose seizures may be unconsciously generated and reactive on the one hand or of conscious origin and manipulate on the other. Management careful examination, with the aid of the diagnostic tools, like EEG, and VIDEO EEG, spinal fluid examination in refractory cases, would suffice to come to a conclusion regarding the etiology of the situation, rather than treating them with anti epileptic drugs, in a wrong way. Proper psychic support by way of good counseling, understanding their problems, evaluating