*Review Article*

# Pseudoseizures

**M.S. Bhatia**

*Pseudoseizures are paroxysmal alterations in behavior that resemble seizures but are without any organic cause. They are recognized by various terms. Pseudoseizures are found in about one fourth of all patients seen with hysteria and 20% of those referred to epilepsy clinic. Pseudoseizures are often difficult to differentiate because there are client based or clinician based factors leading to misdiagnosis. Detailed history, observation, psychological testing and laboratory investigations are used for correct diagnosis. Pseudoseizures are not only to be differentiated from various forms of epilepsy but also from disorders like malingering, somatization disorder, hyperventilation, migraine, syncope etc. Management consists of making the patient and relatives aware about the causation and diagnosis. Psychotherapy (supportive and psycho-dynamic), behavior therapy (biofeedback, relaxation), drugs (anxiolytic and anti-depressants), hypnosis and placebo are used for treatment. The correct recognition is helpful in avoiding physical tests and the unnecessary use of antiepileptic drugs.*

**Key words:** *Epilepsy, Pseudoseizures.*

Term 'Hysteria' has been derived from Greek word 'Hystera' (uterus). In simple non-Freudian terms, hysteria is an unconscious expression of emotional conflicts in the form of physical symptoms(1). It is this unconscious expression that differentiates hysteria from malingering or hypochondriasis. An alternative hypothesis suggested by some workers(2) observe that the children with hysteria are at least partly conscious of their actions and learn through experience to use their physical symptoms as a maladaptive defense against anxiety. Contrary to hysterical disorders, childhood hysteria has not been accorded due recognition as pointed out by some workers. Some of the presentations of hysteria have not been studied in detail. They include pseudoseizures or hysterical fits.

Because of few studies on childhood pseudo seizures, a certain amount of extrapolation from observations of adults is inevitable, but it does not undermine the general principles suggested, especially when applied to older children and adolescents(3).

## Terminology

Pseudoseizures are paroxysmal alterations in behavior that resemble epileptic seizures but are without any organic cause. Out of various terms used for pseudoseizures (*Table I*), the term "Non-Epileptic Seizures" (NES) is considered as most favored because it is non-judgemental, often used, acceptable to patients and best describes problem without implying causation.

## Epidemiology

The incidence has been reported to be 6.5 to 10.6% in various studies probably because of variations in the diagnostic criteria used by different workers(4-7). Pseudoseizures constitute about 25% of total patients of hysteria(3,5-8) and 20% of patients referred to epilepsy centers. In a community

*From Department of Psychiatry, University College of Medical Sciences & Guru Teg Bahadur Hospital, Dilshad Garden, Delhi 110 095, India.*

*Correspondence to: Professor M.S. Bhatia, Head, Department of Psychiatry,, University College of Medical Sciences & Guru Teg Bahadur Hospital, Dilshad Garden, Delhi 110 095, India. E-Mail: manbhatia1@rediffmail.com*

**TABLE I –** *Synonyms of Pseudoseizures.*

- Nonepileptic seizures (NES)
- Nonepileptic psychogenic seizures
- Hysterical seizures
- Psychogenic seizures
- Hysteroepilepsy
- Nonepileptic attack disorder (NEAD)
- Nonepileptic events (NEE)
- Nonepileptic conversion seizures (NECS)
- Psychogenic attacks
- Hysterical attacks
- Functional seizures
- Pseudoepilepsy
- Hysterical epilepsy
- Pseudoepileptic attacks
- P sycho seizures
- Hysterical fit
- Pseudoepileptic seizures
- Convulsive pseudoseizures

survey of rural India(8), the prevalence of pseudoseizures has been found to be 2.9 per 1,000 population. Furthermore, among patients with epilepsy (1% of general population) up to 10% may develop pseudoseizures.

## Clinical Presentation

Pseudoseizures can present in various forms *e.g.*, (*a*) convulsive type of pseudoseizures; (*b*) hysteroepilepsy (including classical 'arc de cercle' opisthotonic posture); (*c*) loss of tone; (*d*) loss of awareness; (*e*) unresponsiveness accompanied by complicated behavior where the risk of confusion with complex partial seizures is greatest and; (*f*) myoclonus(9,10).

## Diagnosis

*Table II* may help to differentiate a pseudoseizure from a true seizure. The common precipitants of pseudoseizures are often related to family (parental discord, separation, death, chronic illness in a parent, overprotection or neglect, financial problems, alcoholism in father *etc*.) or school (pressure of performance, forthcoming exams, peer-pressure, abuse or any recent change in school, class or friends). The psychiatric comorbidity of pseudoseizures must also be considered as underlying predisposing or precipitating factors.

Various important causes of misdiagnosis (9-15) are summarized in *Table III*. Pseudoseizures have to be differentiated from epilepsy. Nonepileptic attacks are not always pseudoseizures. They may reflect the symptoms of malingering, somatization disorder (Briquet's syndrome), dissociative trances, factitious disorder, hyperventilation syndrome, panic attacks, post-traumatic stress disorder, startle disease, migraine, syncope, narcolepsy, Tourette's syndrome or cardiac arrythmias(16,17). Organic lesions such as mesial temporal sclerosis, low grade gliomas, cavernous angiomas, dysplasia, arachnoid cysts and midline brain tumors may present with symptoms of pseudoseizures. Keeping in view the differential diagnosis in mind, relevant investigations are done(18).

## Management

The acceptance of diagnosis of pseudoseizures both by clinician and patient is must. Pseudoseizures must be correctly recognized because a misdiagnosis can be harmful and patients who have psychogenic status epilepticus may develop respiratory arrests caused by treatment, and intubation(19). Unnecessary investigations and anti-convulsants may add to wastage of resources and side effects. The recognition of pseudoseizures is important even in epileptic patients otherwise one will go for unneeded

**TABLE II**–*Differences between Pseudoseizure and True Seizure.*

| | Pseudoseizure | True Seizure |
|---|---|---|
| I. HISTORY | | |
| (*a*) | Pattern<br>No neurophysiological pattern | Same pattern |
| (*b*) | Precipitant<br>Obvious emotional precipitant and occurrence in presence of others | May be there but less obvious and presence of others not associated |
| (*c*) | Occurrence in sleep Not there | May occur |
| (*d*) | Treatment<br>Intractable despite adequate medication | Often responds |
| (*e*) | Other features<br>History of sexual or other abuse | History of incontinence or self-injury |
| II. OBSERVATIONS | | |
| (*a*) | Onset<br>Gradual | Abrupt |
| (*b*) | Duration<br>Time variable but longer (10-15 min) | Short duration upto 1-2 minutes |
| (*c*) | Consciousness<br>Usually preserved with bilateral motor activity. May be fluctuating but some response to pain | Lost and unresponsive to pain |
| (*d*) | Aura<br>Aura unusual except for symptoms of hyperventilation | Aura usual |
| (*e*) | Moaning<br>Swoon or faint, may have moan, cry, scream or weep | Monotonous epileptic cry |
| (*f*) | Movements | |
| | • Nonsynchronous out of phase movements (may be mild, jerky, side to side head movements, pelvic thrusting, limping, motionless, unresponsive) | Generalized tonic clonic movements starting with fast small amplitude movements to slower larger movements. |
| | • Opisthotonic posturing or rigidity for extended periods | Briefer rigidity, supplementary movements (*e.g.* arms in abduction) |
| (*g*) | During sleep<br>Uncommon during physiologic sleep | May occur |
| (*h*) | Injury<br>Self protection before fall, seldom self injury | Frequent self-injury, bite tongue, hit head, hurt limb |
| (*i*) | Reflexes<br>No pathological reflexes | Babinski reflex and pupillary constriction after seizure |

(Contd...)

**TABLE II (contd.)**–*Differences between Pseudoseizure and True Seizure.*

| | Pseudoseizure | True Seizure |
|---|---|---|
| (*j*) | Postictal confusion<br>Little and patient unconcerned | Postictal confusion or transient paralysis |
| (*k*) | Amnesia<br>Better memory for event; Non-organic amnesia | Amnesia |
| (*l*) | In front of significant others<br>usually occur | Unconcerned |
| (*m*) | Independent witness<br>Absent | Present |
| (*n*) | Induction by suggestion<br>Readily induced or stopped | Not |
| (*o*) | Induction by sleep, Photic stimuli, sleep deprivation, hyperventilation not readily | Often precipitated |
| (*p*) | Others<br>Avoidance behavior, arm drop, eye openings genotropic movement | Seeking help, tiredness, look blank, pupillary reflexes |
| III. | TESTING | |
| (*a*) | pH immediately after attack<br>Normal | May change |
| (*b*) | Creatinine kinase after attack<br>Normal | Rises (significant if positive) |
| (*c*) | Prolactin after attack<br>Normal | Rises (significant if positive)(16) |
| (*d*) | EEG<br>• No epileptic form discharge, maintenance of alpha rhythm with only discontinuous muscle activity record during attack and absence of slowing with immediate reappearance of previous occurred alpha rhythm<br>• EEG may be abnormal in 10-53%(14) and prompt clinical and EEG recovery from a generalized convulsive episode. | • Epileptic changes in majority (VEEG preferred)<br>Takes time to recovery (VEEG useful) |
| (*e*) | Provocative methods<br>Psychiatric interview, suggestion, placebo medication or hypnosis(14) | Hyperventilation, photic stimuli or sleep deprivation |

**TABLE III**–*Causes of Misdiagnosis of Pseudoseizures*

| Patient-based Factors | Clinician-based factors |
|---|---|
| • Lack of reliable history<br>• Close imitation of all types of epilepsy<br>• Symptoms of epilepsy seen in Pseudoseizures patients<br>• Absence of classical hysterical symptoms<br>• Conversion symptoms in epileptic patients<br>• EEG abnormalities (in upto 53% patients (19,20))<br>• Cooccurence of pseudoseizures and epilepsy<br>• Lack of acceptance. Denial of psychological basis and insistence on investigations and medications (because of primary or secondary gain).<br>• Threat by patients to clinician for malpractice suit or discontinuation of therapeutic alliance on being diagnosed as pseudoseizures<br>• Threat by patients to relatives for exposing their interpersonal or family conflicts | • Ignorance and misconceptions (*e.g.* clinical observation is sufficient to distinguish epilepsy; that epileptics can not have pseudoseizures; presence of organicity rules out conversion disorder; seizures in absence of stressor are epileptic; Pseudoseizure always occur in histrionic personality)<br>• Narrow cognitive focus<br>(Clinician does not think psychogenic origin in differential diagnosis; Pre-existing diagnosis of epilepsy)<br>• Counter transferance barriers<br>Discomfort with making a psychiatric diagnosis; biased attitude (identifying with patients and denigrating psychosomatic illness); over-confidence or denial of being missing diagnosis of pseudoseizure<br>• Shame and Guilt<br>A diagnosis of pseudoseizure after years of treating a patient for epilepsy can be embarrassing.<br>• Lack of reliable laboratory investigations |

investigations or increase in dose of anticonvulsant medication. Relatives are taken into confidence by telling about underlying psychopathology, diagnosis and treatment so that doctor-patient relationship is not harmed.

The patient is educated about the illness, its causation (*i.e.*, role of unconscious) and outcome. Supportive psychotherapy and confrontation has been found useful in over 75% patients(20). In psychodynamic model, a repressed, unconscious intrapsychic conflict is expressed symbolically through the symptom such as pseudoseizure. From the symptom, patient gets primary gain (relief from stress or conflict) or avoidance of unpleasant situations and secondary gain (attention from relatives or doctors). Psychodynamic psychotherapy is useful in selected cases. Patients with lack of motivation or introspection capabilities, borderline intelligence, important secondary gains or a tendency for behavioral acting-out are poor candidates for insight-oriented psychotherapy. If there is an acute loss or adolescent sexual conflict or physical assault, short- term crisis intervention is needed.

Behavior therapists believe that pseudo-seizures or other hysterical features are a behavioral response to a variety of emotional stresses or as a chronic maladaptive behavior symptomatic of a variety of psychiatric disorders, reinforced by environment (advise on 'time-out' from reinforcement of such

## Key Messages

- Pseudoseizures are fairly common not only in nonepileptic children and adolescents but also in those with seizure disorders.
- Professionals like pediatricians, neurologists, general physicians are needed to develop adequate clinical skills to recognise pseudoseizures correctly.
- Correct diagnosis and timely management can prevent future complications.

behavior is very useful). The secondary gain (attention received from surroundings) should be immediately stopped. Behavior therapy is useful for those who are not good candidates for psychodynamic therapy (as neither motivation or normal intelligence or insight are necessary)(18). Relaxation methods and biofeedback as adjunctive techniques may be beneficial in some(18). In those patients in which pseudoseizure act as a coping mechanism, new coping skills are taught. A combination of psychodynamic and behavior therapy are useful in some patients.

Family therapy is useful in some cases because pseudoseizures may largely result from problems related to the dysfunctional family(21). Physical and sexual abuse are important family related etiological factors. Overprotection and rigidity are important attitudes which tend to perpetuate conflict.

Anxiolytic or antidepressants and hypnosis(22) play adjunctive role to psychotherapy. Aversion methods are also sometimes helpful but care should be taken so as not to physically or psychologically harm the patient. Problem arises when physicians working in casualty believe pseudoseizures as malingering and give unwarranted physical aversion (abusive talk, beating, giving ammonia inhalation to patient) which may further create physical or psychological or legal problems.

The psychiatric comorbid disorders (21,23,24) such as depression, factitious disorders, somatization, generalized anxiety disorder, personality disorders or schizophrenia and associated organic disorders (epilepsy, space occupying lesion or any medical problem) also need specific treatment.

Provocative testing with suggestion is an important diagnostic and therapeutic tool. Suggestion that a specific maneuver is likely to stop a seizure is useful. The use of placebo for diagnosis and therapy is debatable as it may at times become confrontational and make the patient more resistant to further treatment.

Acute onset, short duration of symptoms, healthy premorbid functioning, absence of coexisting organic psychopathology, presence of an identifiable and removable stressor and good family support and cooperation are related to better prognosis(24,25).

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