

CASE REPORT

Pseudoseizures and dissociative disorders: a common mechanism involving traumatic experiences

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Patients with psychogenic non-epileptic seizures (pseudoseizures) have been diagnosed as having conversion disorder or dissociative disorder. Pseudoseizure patients frequently report a history of physical and sexual abuse, and traumatic experience is considered part of the mechanism for producing dissociation. Pseudoseizures may be a manifestation of dissociative disorder, especially when a history of sexual or physical abuse is documented. A common mechanism involving traumatic experience may be present in both pseudoseizures and dissociative disorders. A complete neurodiagnostic evaluation along with an awareness of this relationship is needed to provide appropriate care for this patient population.

Key words: epilepsy; pseudoseizures; dissociative disorders.

Are pseudoseizures best classified as a conversion or a dissociative disorder? The question implies that the range of psychiatric disorders producing seizure-like behaviors needs clarification. Further insight into this difficult area is necessary for purposes of making an accurate diagnosis and properly directing treatment, from both neurologic and psychiatric perspectives. In this article, the term 'pseudoseizures' will be used to indicate epileptic-like spells not due to a medical cause, after Nash, 1992¹. Pseudoseizures can therefore be differentiated from 'non-epileptic seizures' the term used by Trimble², which includes epileptic-like spells that are not epilepsy but may be due to a psychiatric or medical cause such as migraine, hypoglycemia, cataplexy or cardiogenic illnesses.

Patients with dissociative disorders manifesting as paroxysmal alterations of awareness are at particular risk for being interpreted as having epilepsy by health professionals. Although patients with dissociative disorders as a cause of nonepileptic seizures have been reported in the

psychiatric literature^{1,3}, this has not been widely recognized by neurologists, who bear the responsibility for clearly distinguishing between epileptic and non-epileptic events. The frequent history of trauma and abuse often present in both dissociative disorder patients and pseudoseizure patients may reflect a shared psychodynamic cause; the pseudoseizure may be a manifestation of a dissociative state. A history of trauma or abuse uncovered during the evaluation of a possible seizure disorder patient may provide strong evidence that the events in question are pseudoseizures, and that the psychiatric illness causing the events is a dissociative disorder. Two illustrative cases are presented.

CASE 1

The patient is a 48-year-old woman with a history of seizures since the age of 39. She described a

typical episode as preceded by a headache lasting several hours, followed by palpitations and a sensation of anxiety. She then would lose awareness, stare and typically would 'clean up the apartment'. She stated that the episodes were brief, lasting 1–2 minutes, but at times last as long as 30 minutes. She reported feeling confused and agitated afterwards. Magnetic resonance imaging (MRI) of the brain and an electroencephalogram (EEG) were normal. She continued to have approximately four episodes per month on sequential trials of phenytoin, carbamazepine and gabapentin.

She had a history of depression and was being treated with amitriptyline 25 mg per day. She also had multiple psychiatric admissions for depression and agitation, at times associated with paranoia. She continued to carry a diagnosis of epilepsy during these multiple hospitalizations, and it was thought that some of her hospitalizations were due to postictal paranoid psychosis.

Her recent admission to the psychiatric unit was prompted by an exacerbation of depression, agitated behaviour and paranoia. She was started on perphenazine and benztropine which improved her thought processes and paranoia. She had several possible seizures witnessed by the psychiatry staff, and was transferred to the neurology unit to undergo video-EEG monitoring. The patient reported several typical events during 2 weeks of recording, during which no epileptiform or otherwise abnormal EEG changes occurred, and no specific behavioral alterations were noted by the staff. In addition, an episode lasting 12 minutes (described by the patient as similar to her usual episodes) was produced by intravenous saline injection, again with no epileptiform change on the EEG. No interictal EEG abnormalities were found, and the EEG was interpreted as normal. The patient was diagnosed as having pseudoseizures and was transferred back to the psychiatry unit having had her antiepileptic medicines discontinued.

Upon returning to the psychiatric unit, her mood was euthymic, and she had no paranoia, delusions or hallucinations. Her thinking was mildly tangential. Further history corroborated by her sister revealed that she had suffered extensive, sustained, at times bizarre, childhood sexual and physical abuse at the hands of her mother and step-father. Her diagnoses on discharge were dissociative disorder with psychogenic fugue states and amnesias, post-traumatic stress disorder, and borderline personality disorder. Her prescribed treatment was to continue her current medicines prescribed by her psychia-

trist and to continue group and individual psychotherapy.

CASE 2

The patient is a 38-year-old woman with a history of abnormal 'spells' for the past 7 months. Her episodes lasted 5–10 minutes and consisted of her being suddenly unable to speak or to move, associated with a decrease in awareness. At times, she reported hand trembling during the spells, but had no other associated movements. She denied an aura or prodrome to the episodes, and did not have incontinence during the episodes. She stated that her spells were brought on by stress or anger, and that she felt extremely anxious around the time of the spells. They occurred 2–3 times per week.

Her previous medical history is remarkable only for uterine fibroids. She has a history of alcohol abuse and intranasal cocaine use, stopped 12 years prior to the onset of her current problem.

On psychiatric examination she had a pervasive sad and anxious mood, and reported insomnia and decreased enjoyment of daily activities. She was slightly suspicious, but did not have evidence of thought disorder. She did have passive suicidal ideation. It was further revealed that she was physically and sexually abused as a child. She was recently evaluated by an outside psychiatrist in her neighborhood and it was recommended that she start respiridone 1 mg per day, which she would not take before having further neurological evaluation. Her neurological exam was normal.

An EEG was performed during which an alcohol pad test⁴ was performed on the patient. An alcohol swab gently applied to one side of her neck quickly precipitated a typical event as described lasting 10 minutes, without an epileptiform EEG change. The EEG was otherwise normal.

The patient was diagnosed by the psychiatric staff as having a dissociative disorder with amnesic episodes and possible depression. She was relieved when she was told that her episodes were not epileptic and were a result of emotional conflict best treated with psychotherapy.

DISCUSSION

Video-EEG recording during which the patient exhibits a typical event with no epileptiform EEG change is a valuable finding in support of a pseudoseizure diagnosis^{5–8}. Typical events which

are precipitated or manipulated by provocative techniques such as intravenous saline injection or alcohol pad application are very likely to be pseudoseizures. Intravenous saline injection has been shown to be a sensitive tool in revealing pseudoseizures⁹ and both procedures are highly specific for pseudoseizures^{4,9}. However, the presence of any EEG interictal epileptiform abnormalities should raise doubt that all abnormal episodes can be explained as pseudoseizures.

Differentiating pseudoseizure patients from seizure patients has been attempted by observing the semiology of the attacks. Seizures originating from the frontal lobe are particularly difficult to distinguish from pseudoseizures. In a study by Kanner¹⁰, differentiating supplementary motor seizures from pseudoseizures, in which epileptic events were confirmed by the use of prolonged video-subdural electrocorticography, several reliable differentiating clinical features emerged. Pseudoseizures were much longer than epileptic seizures; all supplementary motor seizures lasted less than 38 seconds while the pseudoseizures lasted an average of 173 seconds, with almost no overlap between the two groups. Pseudoseizures occurred during wakefulness, whereas supplementary motor seizures occurred predominantly during sleep. In a recent videotape analysis of secondary generalized tonic-clonic seizures, the mean duration was 69.9 ± 12 seconds¹¹. Therefore, the prolonged events often observed in patients with pseudoseizures, including in the cases reported here, are atypical of secondarily generalized tonic-clonic seizures.

Prolactin levels are clearly elevated for 30–60 minutes following a seizure that produces a loss or alteration of consciousness. However, a low prolactin level is not specifically diagnostic for a pseudoseizure¹². Additionally, elevated prolactin levels have been reported with syncopal attacks¹³. Another confounding factor in interpreting prolactin levels in this setting is that repetitive seizures may reduce the amount of prolactin released per seizure event¹⁴.

There is little scientific support at this time for the hypothesis that dissociative disorders are caused by an epileptic mechanism. In evaluating this relationship, the dissociative experiences scale (DES) has been used, which is a self-administered, 28-item questionnaire that can reliably differentiate patients with the dissociative disorders of multipole personality and post-traumatic stress from normal subjects and from patients with other psychiatric illnesses^{5,16}. In a study comparing the DES in 12 male chronic severe partial epilepsy patients, and 45 male

patients with dissociative disorders, nine of whom had multiple personality disorder and 36 were combat veterans with post-traumatic stress disorder, the epilepsy patients' scores were significantly different from the other two groups. The dissociative disorder patients with multiple personality and post-traumatic stress disorder had similar scores. This significant difference was present on all subsets of the scale¹⁷.

In a similar study, the DES again clearly differentiated chronic partial epilepsy patients from multiple personality patients; however, the epilepsy patients showed more dissociative features than normal controls. Video EEG monitoring of six multiple personality patients in this study did not show an epileptiform change during dissociation¹⁸. Further neurophysiological study of dissociative states using electrocorticography or depth electrodes has not been performed. However, these studies suggest that for patients who have a clear diagnosis of dissociative disorder, an additional diagnosis of epilepsy should be carefully scrutinized.

Pseudoseizures have been thought to have a psychiatric cause in most cases, involving mechanisms of conversion and dissociation. However, the specific psychiatric diagnoses associated with non-epileptic seizures have been incompletely studied, and available results are inconsistent. A high incidence of depressive symptoms were found in three studies^{19–21} and a background of personality disorder was found in another study²². In a study of the psychological profile of group of pseudoseizure patients differentiated from epilepsy patients by video-EEG evaluation, the pseudoseizure patients exhibited significantly higher scores on the hysteria, hypochondriasis and schizophrenia sections of the Minnesota Multiphasic Personality Profile than the epilepsy patients²³.

When using the *Diagnostic and Statistical Manual of Mental Disorders*³² in evaluating a consecutive series of 92 nonepileptic seizure patients, Alper *et al*²⁴ found that 71 patients had conversion disorder, and the remaining 21 patients were diagnosed with anxiety or psychotic disorders, or impaired impulse control. The incidence of claimed childhood physical and sexual abuse in the 71 conversion patients was 32%, compared to 8.6% in the complex partial seizure patient group²⁵. Bowman in 1993¹ reported the aetiology and course of 27 patients with video-EEG documented pseudoseizures. Structured Clinical Interviews for DSM-III-R (SCIDs)²⁶ specifically for evaluating Axis I

disorders which include mood, somatoform and conversion disorders, post-traumatic stress and dissociative disorders, were used. Twenty-three patients have affective disorder, most with major depression, and 23 had dissociative disorders with six having multiple personality disorder. Nine of the 27 patients had post-traumatic stress disorder. Twenty-four patients claimed a history of physical and sexual abuse; 16 claimed a history of childhood rape.

Although arriving at exact psychiatric diagnosis or set of diagnoses appears to be problematic in pseudoseizure patients, the idea of 'seizures' resulting from an inappropriate sexual experience has been put forth since antiquity and remains validated by modern reports. The second-century C.E. Greek physician, Galen, taught that seizures were a result of premature intercourse in childhood²⁷. In Navajo folklore, a person who has a seizure is assumed to have experienced incest and has also gained magical powers²⁸. Several authors have noted incest and sexual abuse as historical features of pseudoseizure patients, further demonstrating what may be a powerful psychodynamic cause and effect relationship^{21,29,30}.

The mechanism of a prior traumatic experience resulting in a pseudoseizure is unknown. A Freudian interpretation would be that the hysterical seizure repeats or recreates the traumatic event³¹. Neurologists have generally thought of pseudoseizures as a form of conversion disorder. Traditionally, a conversion disorder provides a mechanism from which the afflicted patient specifically derives a primary and/or secondary gain. The primary gain may serve to put conflict out of awareness and reduce anxiety, for example by the onset of 'aphonia' after an argument. The secondary gain is obtained by getting support from the environment which would not be forthcoming if the symptom was not present. A temporal relationship between a precipitating stressful event and the symptom is evident³². A dissociative disorder has as a necessary feature a disruption of consciousness, memory, identity or perception. The dissociation may be sudden and transient, or gradual and chronic. The spectrum of dissociative disorders includes dissociation that is so severe and complete that the patient assumes another personality, called dissociative identity disorder (formerly multiple personality disorder). Additionally, dissociative states are often post-traumatic, with patients claiming a history of combat experience, sexual or physical abuse or other traumatic experience³³.

Although in both conversion and dissociation

disorders the patient does not have voluntary control over the episodes, distinguishing them malingering, conversion disorder is often an acute reactive problem, while dissociation disorder may be a manifestation of a need to dissociate from a remote traumatic experience, which is triggered by stress and learned during prolonged abuse. Pseudoseizure patients may have features of both conversion and dissociation; however, dissociation provides a better diagnostic 'fit' in those patients in whom a history of trauma and abuse can be uncovered. The documented historical relationship between abuse and dissociation and between abuse and pseudoseizures is compelling evidence that a similar mechanism is involved. A pseudoseizure may be a specific form of dissociation which involves a conversion-like trigger in its manifestation.

The cases presented in this report illustrate the neurologic and psychiatric diagnostic difficulty of patients with pseudoseizures. A history of trauma and abuse may not be forthcoming on an initial interview, and if reported, it is advisable to obtain independent corroboration that the events actually occurred. From review of the literature and the case reports above, the possibility of pseudoseizures related to a dissociative disorder should be considered in patients being evaluated for epilepsy when one or more of the following features are present in the history: (1) episodic disturbances of memory and perception with associated minor motor phenomena, which are temporally prolonged, occur during wakefulness only and are intractable to antiseizure treatment. (2) Combat experience or other severe traumatic experience, and claims of physical or sexual abuse. (3) Previously diagnosed or concurrent psychiatric illness particularly personality disorder, post-traumatic stress disorder (a form of dissociative disorder) and affective disorder.

Patients with these historical features should be considered for video-EEG monitoring to evaluate the possibility of possibility of pseudoseizures and for a psychiatric evaluation that specifically includes exploration of dissociative features. Early awareness of the possibility of dissociative disorder will facilitate accurate diagnosis and treatment of the patient, and therefore will increase understanding of mechanisms that produce pseudoseizures.

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