An Unusual Case of Epileptic Postictal Violence: Implication for Criminal Responsibility

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Abstract: This article presents a case of postictal aggression and assault that led to criminal charges and forensic psychological assessment. A systematic review of epilepsy and its association with acts of aggression and criminality is provided to place the particulars of the instant case in context. Loss of consciousness and volitional control in relation to epileptoid phenomena is reviewed, and practical suggestions for forensic psychologists dealing with such cases are provided.

Keywords: postictal, epilepsy, violence, volition, temporal

The relationship among seizure disorders, violence, and criminal responsibility has a history of controversy in forensic mental health. As Borum and Applelbaum (1996) have pointed out, seizure-related phenomena have been raised as potentially exculpating defenses in a number of high-profile criminal cases over the years. These authors differentiate between three types of seizure-related violence; ictal violence, in which the violence occurs during the seizure (ictus) itself; interictal violence that occurs between the seizure and the postictal period; and postictal violence that takes place during the period of confusion immediately subsequent to the seizure.

White, Krengel, and Thompson (2009) note that seizures are common symptoms of a wide range of neurological conditions, but are most commonly associated with epilepsy. They define a seizure as occurring when an over-active group of neurons produces an excessive discharge of cortical neurons, which can spread to adjacent areas of the brain. This electrical disruption can lead to widespread dysrythmias in the brain, leading to loss of consciousness and convulsions. Other manifestations of seizure activity have also been identified. Seizures have been described as falling into a number of general categories:

1) Generalized seizures affect both cerebral hemispheres (sides of the brain) from the beginning of the seizure. They produce loss of consciousness, either briefly or for a longer period of time, and are sub-categorized into several major types including absence, atonic, myoclonic, and generalized tonic-clonic.

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a. Absence seizures (also called petit-mal seizures) are lapses of awareness that begin and end abruptly, last only a few seconds, and may accompany staring. There is no warning and no after-effect.

b. Atonic seizures produce an abrupt loss of muscle tone. Other names for this type of seizure include drop attacks, and astatic or akinetic seizures. They produce head drops, loss of posture, or sudden collapse. Because they are so abrupt, and because the people who experience them fall with force, atonic seizures can result in injuries to the head and face.

c. Myoclonic seizures are rapid, brief contractions of bodily muscles, which usually occur at the same time on both sides of the body. Occasionally, they involve one arm or a foot. People usually think of them as sudden jerks or clumsiness. A variant of the experience, common to many people who do not have epilepsy, is the sudden jerk of a foot during sleep.

d. Generalized tonic-clonic seizures (grand mal seizures) are the most common and best-known type of generalized seizure. They begin with stiffening of the limbs (the tonic phase), followed by jerking of the limbs and face (the clonic phase) (Seizures and syndromes).

2) In partial seizures, the electrical disturbance is limited to a specific area of one cerebral hemisphere. Partial seizures are subdivided into simple partial seizures (in which consciousness is retained); and complex partial seizures (in which consciousness is impaired or lost). Partial seizures may spread to cause a generalized seizure, in which case the classification category is partial seizures secondarily generalized.

a. People who have simple partial seizures do not lose consciousness during the seizure. However, some people, although fully aware of what's going on, find that they cannot speak or move until the seizure is over. They remain awake and aware throughout. Sometimes they can talk quite normally to other people during the seizure. Additionally, they can usually remember exactly what happened to them while the seizure was occurring. However, simple partial seizures can affect movement, emotion, sensations, and feelings in unusual and sometimes even frightening ways (Seizures and syndromes).

b. Complex partial seizures affect a larger area of the brain than simple partial seizures as well as affecting consciousness. During a complex partial seizure, a person cannot interact normally with other people, is not in control of his or her movements, speech or actions; does not know what he or she is doing; and cannot remember afterwards what happened during the seizure. Although someone may appear to be conscious because he or she remains standing with eyes open and moving about, it will be an altered consciousness, a dreamlike, almost trancelike, state. A person may even be able to speak, but the words are unlikely to make sense and he or she will not be able to respond to others in an appropriate way. Although complex partial seizures can affect any area of the brain, they

> often take place in one of the brain's two temporal lobes. Because of this, the condition is sometimes called "temporal-lobe epilepsy." "Psychomotor epilepsy" is another term doctors may use to describe complex partial seizures (Seizures and syndromes).
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> Typically, a complex partial seizure starts with a blank stare and loss of contact with surroundings. Chewing movements with the mouth, picking at or fumbling with clothing, mumbling, and performing simple, unorganized movements over and over again, often follow this. Sometimes people wander around their environment during complex partial seizures. For example, a person might leave a room and go downstairs and out into the street, completely unaware of what he or she was doing. In rare cases, a person might try to undress during a seizure, or become very agitated, screaming, running, or making flailing movements with the arms or bicycling movements with the legs. Other complex partial seizures may cause a person to run in apparent fear, cry out, or repeat the same phrase over and over again. Actions and movements are typically unorganized, confused, and unfocused during a complex partial seizure. However, if a complex partial seizure suddenly begins while someone is in the middle of a repetitive action such as dealing cards or stirring a cup of coffee, the person may stare for a moment then continue with the action during the seizure, but in a mechanical, unorganized manner.

The different varieties of seizures have effects on consciousness and volition. Although some types of seizures result in postictal states and alterations of consciousness, others are not generally associated with such aftereffects. The following tables[1] provide an overview of the different types of seizures and their effects on consciousness and associated postictal states.

[1] From Monahan, F. D. (2006). Adapted with permission from the publisher.

Table 1
Partial Seizures (Focal)

Type of Seizure	Effect on Consciousness	Signs and Symptoms	Postictal State
Simple partial	Not Impaired	Focal twitching of extremity Speech arrest Special visual sensations (e.g., seeing lights) Feeling of fear or doom	No
Complex partial (formerly psychomotor or temporal lobe seizures)	Impaired	May begin as simple partial and progress to complex Automatic Behavior (e.g., lip smacking, chewing, or picking at clothes)	Yes
Complex partial progressing to generalized tonic-clonic	Impaired	Begins as complex partial as above, then progresses to tonic-clonic as described below	Yes

Table 2
Generalized Seizures

Type of Seizure	Effect on Consciousness	Signs and Symptoms	Postictal State
Absence (formerly petite mal)	Impaired	Brief loss of consciousness, star-ing, unresponsive	No
Tonic-clonic (formerly grand mal)	Impaired	Tonic phase involving rigidity of all muscles, followed by clonic phase involving rhythmic jerking of mus-cles, and possibly tongue biting and urinary and fecal incontinence	Yes
Atonic	Impaired for only a few seconds	Brief loss of muscle tone, which may cause some patients to fall or drop something; referred to as drop attacks	No
Myoclonic	Impaired for only a few seconds	Brief jerking of a muscle group, which may cause patient to fall	No

In addition to the various forms of epilepsy noted above, reference has also been made to an associated *interictal behavioral syndrome* that has been associated with an array of psychiatric/behavioral problems including difficulties with the control of anger and, in

rare cases, violence. This syndrome has been observed to co-occur with temporal-lobe epilepsy (Waxman & Geschwind, 1975).

In his monograph, Fenwick (1990) discussed epilepsy-related violence. He notes that true epileptoid violence can be seen as an automatism. Automatisms are defined as involuntary behaviors that result from an impaired mental status (McSherry, 2004). Examples of conditions that have been linked to automatisms include sleep walking disorders, hypoglycemia, atypical reactions to alcohol and medication, and in some cases, Dissociative Identity Disorder. It should be noted that these conditions can be very difficult to associate with behavior and intent in a forensic context for several reasons.

First, many jurisdictions preclude the defense of automatism if the behaviors in question were caused by actions of the subject in which a volitional act created the altered state of consciousness. For example, a diabetic who neglects to control his or her blood sugar has made a conscious decision prior to the hypoglycemia episode that results. In addition, it can be very difficult to demonstrate that there is a causal nexus between these conditions and the criminal acts committed; for example, many people drink to excess, but few commit violent acts. In the same way, the vast majority of persons with seizure disorders do not commit crimes before, during, or after a seizure. In the context of epileptoid automatism, Fenwick (1990) states that, in bona fide cases, there should be no evidence of premeditation or attempts at concealment and that the subject should appear confused and disoriented and have no memory for the event, while memory for the period before the seizure should be intact.

Reuber and Mackay (2008) reviewed 13 cases of alleged epileptoid criminality that were tried in England and Wales between 1975 and 2001. They developed a number of typical indicia for bona fide epileptoid automatism divided into three domains for use in criminal proceedings: evidence of epilepsy, offense characteristics, and the actual nature of the seizure associated with the offense.

Evidence of Epilepsy

1. History of epileptic seizures prior to offense
2. History of epilepsy-related automatism prior to offense
3. EEG abnormalities supportive of diagnosis

Offense Characteristics

1. No obvious motives
2. No planning or premeditation
3. Apparent senselessness
4. No attempts at concealment
5. Clearly out of character of defendant's usual behavior

Characteristics of Seizure Associated with Offense

1. Abnormal behavior should last minutes rather than hours
2. Observation of typical seizure features
3. Amnesia for occurrence
4. No anteriograde amnesia after resumption of conscious awareness.

The authors also note that these episodes occur in individuals with a history of temporal-lobe epilepsy as well as generalized tonic-clonic seizures, and that the offenses generally occurred in postictal rather than ictal or inter-ictal states.

It should be noted that there is controversy regarding the extent to which seizures and epilepsy are associated with violence generally. Brower and Price (2000) described this controversy and summarized the arguments on both sides of this issue. They note that some neurological formulations of violence emphasize the role of dysfunction within the limbic system during episodic rage attacks. The similarity of these attacks can be associated with clinical features of a seizure disorder. This "limbic-dysfunction hypothesis" can be supported clinically by the positive correlation between anticonvulsants and decreased aggression in neuropsychiatric disorders. The frontal cortex has been implicated in the aggression connected to limbic function; this introduces many factors in the attempt to target episodic violence. The complex mix of individual factors (psychological, sociological, and neurobiological) can make each episodic attack original and understandably different (Bower & Price, 2000).

Case Description: Mr. V was referred for assessment by his attorney to provide information about his mental state at the time of an alleged assault. At the time of the assessment, he was 26 years of age. Mr. V is a college graduate with a degree in English Literature. Before attending college, he served several years in the United States Marine Corps. He saw extensive action in Iraq and reports that he may have been briefly rendered unconscious when roadside bombs exploded next to vehicles in which he was riding, but he did not seek medical attention after these incidents. Mr. V was wounded in street-to-street fighting in the Second Battle of Fallujah in 2004. Mr. V and his squad entered a courtyard and were attacked by a hidden machine-gun emplacement. He and his comrades had no option but to lie prone and "play dead" until help arrived. Mr. V was shot in the arm and leg and struck by shrapnel on other exposed parts of his body. A fellow Marine was killed next to Mr. V. Mr. V was evacuated to a medical center and then to a hospital in Europe, where he was eventually discharged home.

On the night of the assault, Mr. V had spent the night with his girlfriend and she had slept over. He reported that he has no memory whatsoever for the incident, but his girlfriend and witnesses were able to supply details. She reports that she was awakened at about 2:00 the following morning when Mr. V began to gasp and jerk in his sleep. After a few moments, he rolled out of bed and lacerated his scalp when he struck a guitar next to his nightstand. His girlfriend states that he was unresponsive to her and began punching the walls and a bureau; it was later discovered that he had broken his hand. The girlfriend left the room and called for assistance, and a paramedic was on the scene within 15 minutes. The paramedic entered Mr. V's bedroom and observed him sitting cross-legged in front of his bed. When Mr. V did not respond to her inquiries, she entered the room and touched him on the shoulder. According to the paramedic, Mr. V then jumped up and punched her in the face, breaking her nose. She fled the room and Mr. V briefly pursued her, but she was able to elude him and left the house.

During the assessment, Mr. V stated that his next recollection after going to sleep that night was finding himself approximately 50 yards from his house, naked, looking up at the stars. He initially thought he was having a dream but eventually realized he was not. At this time, Mr. V noticed that he was bleeding from the head. He returned to his house and dressed, feeling tired and "out of it." Mr. V called his girlfriend to ask what had happened and was greeted by a police officer on the other end of the phone. Mr. V was directed to stay where he was and told an officer would arrive shortly. Mr. V complied and waited outside in the yard where he found himself confronted by a S.W.A.T. team. He was arrested and taken to a local hospital.

Notes from his treatment at the emergency room state that Mr. V presented with symptoms of intermittent chills, flushing, and fatigue but told doctors that he no longer felt confused or dizzy, as he had immediately upon regaining consciousness that morning. A drug screen was positive for marijuana but negative for other substances including alcohol. Since marijuana does not lower seizure threshold, his use of the drug was not considered an issue in the case. One of the ER physicians accessed Mr. V's medical records and discovered the following from a neurological consultation that took place in 2001. At that time, Mr. V was having episodes that included a sensation that he was about to have a strange spell, followed by having a phrase or part of a song running through his head for approximately 45 seconds. After this, he would feel very tired. He was administered an EEG and an MRI for symptom analysis in 2001. The EEG showed scattered high-amplitude activity and isolated runs of sharp waves and sharp activity. The MRI showed an arachnoid cyst in the left temporal fossa. The neurologist was suspicious that these episodes were manifestations of simple or complex partial seizures and wanted to perform further testing, but Mr. V did not return for his next appointment, most likely due to concerns that a finding of a seizure disorder would prevent him from driving and joining the military.

The ER physicians had Mr. V undergo a new MRI as part of their examination. No obvious source for the seizure, such as a mass or lesion, was found. However, based on her review of Mr. V's actions, presentation and history, the attending physician provi-

sionally diagnosed Mr. V with temporal-lobe epilepsy and ordered a follow-up appointment for an ambulatory EEG. The findings from the ambulatory EEG confirmed the diagnosis of temporal-lobe epilepsy and Mr. V was started on anticonvulsant medication.

The psychological assessment consisted of a mental-status examination, clinical interview, record review, and administration of the Personality Assessment Inventory (PAI) (Morey, 2007) and the MicroCog Assessment (Powell et al., 1993), which is a computerized neuropsychological screening instrument. Mr. V's presentation during the mental-status examination was unremarkable, with the exception of a degree of fidgeting and restlessness suggestive of possible mild residual Attention-Deficit/Hyperactivity Disorder. His account of the events leading up to his arrest were consistent with his previous statements to law-enforcement officers and emergency-room staff on the night of his arrest, including complete retrograde amnesia for the event without any indication of anterograde amnesia. Mr. V's PAI was valid; there were no clinical elevations. There were indications of some trauma-related symptoms, but no sign of Posttraumatic Stress Disorder, which was consistent with his self-report. His results on the MicroCog were unusual in that he had a number of areas of deficiency; problems were seen in short-term and immediate memory which were surprising given his recent graduation from college. Despite these findings, there was no evidence of clinically significant impact on his functioning as a result of neuropsychological deficits.

The results of the psychological evaluation revealed that facts surrounding Mr. V's assault on the EMT were extremely suggestive of epileptoid automatism, specifically postictal combativeness. The circumstances almost completely matched the Reuber and Mackay (2008) criteria. There was no obvious motive for the assault, which occurred immediately after a seizure. The whole episode took minutes rather than hours and Mr. V had retrograde amnesia but no report of anterograde memory problems. There was a history of probable seizures and automatism and there were no indications of either premeditation or attempts at evasion or concealment. The evaluating psychologist concluded that it is highly probable that Mr. V's actions were unconscious, and as a result he could not form the requisite criminal intent so as to be criminally responsible for his actions under the controlling state statute.

The results of the present evaluation, along with the notes from the neurological consultations were presented to the prosecutor who brought the case to local superior court. As a result of this information, the assault charges were dropped.

Conclusion: The issue of automatism (non-volitional actions carried out in an unconscious state) sometimes arises in assessments of mental state at the time of offense. Epileptoid automatism has been observed in the medical and forensic literature. Forensic psychologists should consider the possibility of epileptoid automatism when presented with a defendant who has committed a seemingly senseless crime, especially for defendants with a history of seizure disorder, head injury, or other neurological insult. Crimes that require planning, take place over a more extended period, and have an obvious motive are unlikely to be caused by epilepsy. Should the description of the

crime match the Reuber and Mackay (2008) criteria listed in the body of this article, the defendant should be referred for neurological consultation. Clearly, any individual presenting with any signs or symptoms that might be caused by a neurological or other medical condition should be referred to a physician immediately, regardless of the forensic issue that prompted the initial contact.

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