



CASE REPORT

The other face of the seizure

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Abstract

Background: Epilepsy coexists with a variety of psychopathological phenomena and the association between psychotic episodes and several epileptic syndromes is long recognized. Epileptic psychotic states can be classified according to their temporal relationship with seizure occurrence into interictal and peri-ictal, and within these pre-ictal, ictal and postictal.

Case Report: We aim to present the case of a 52-year-old male with a temporal lobe epilepsy due to mesial temporal lobe sclerosis. As this is a refractory epilepsy, he was submitted to left hippocampectomy, being seizure free for about three years. Recently, given the stabilization of epilepsy, the antiepileptic drugs were reduced. Contrary to the expectations, the patient recurred to the emergency room presenting postictal psychosis, described by a lucid period followed by confusion, irritability and heteroaggressiveness, as well as sexual disinhibition and delusions. We received the patient in the hospital with no mention that he had had a seizure and that this could be the source of his psychosis.

Discussion: The reported case highlights the significance of the differentiation of the psychosis cases associated with epilepsy, which often remain underdiagnosed or wrongly diagnosed as psychosis not related to this organic pathology.

Keywords: Postictal psychosis, Seizures, Temporal Lobe Epilepsy, Violence.

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Background

The relationship between epilepsy and psychosis dates back to the nineteenth century, when Briquet [1] and Morel [2] acknowledged that psychological disorders can occur as part of the actual seizure (ictal) or as an interictal disturbance involving several behavioral and cognitive functions. Garcia-Morales et al. [3], concluded that the most common psychiatric comorbidity in epileptic patients was depression, followed by anxiety and psychotic disorders.

Psychosis in epilepsy can be classified according to their temporal relationship with seizure occurrence into interictal and peri-ictal, and within these pre-ictal (symptoms that precede the seizure), ictal (clinical manifestations of the seizure itself) and postictal (symptoms that follow the seizure directly) [4]. Amongst the patients with epilepsy, 19 to 80% exhibit at least one psychotic episode during the course of their disease [5].

Most studies suggest temporal lobe dysfunction in inter and postictal psychoses [6]. Postictal psychosis is the most common epileptic psychosis, occurring in 25% of the cases of psychosis in epilepsy, usually after a period of more than 10 years with epilepsy [5, 6] (Table 1).

Case Report

A 52-year-old single male, with a history of febrile seizures and epilepsy of the temporal lobe since he was 20 years old. He denies history of central nervous system infection and the only known epileptic risk factor is a traumatic brain injury when he was 3 years old. He was followed in the psychiatry consult between 2007 and 2013 for mild intellectual disability and adjustment disorder with two psychiatric

hospitalizations, with a diagnosis of persistent delusional disorder. He has interictal personality with traits of impulsivity, intolerance to frustration and latent aggression with an easy shift to action over an irritability background.

Due to the difficult control of his epilepsy, he was submitted to a left hippocampectomy, with histopathology consistent with mesial temporal lobe sclerosis. After surgery, he has been seizure-free for three years. He was treated with 1200mg/day of carbamazepine and 5 mg/day of escitalopram.

The patient was brought by the police to the emergency room due to behavior changes. He was disoriented in time and space and showed psychomotor retardation. The night before, he felt a chills-type malaise with discrete automation of the left hand, with loss of consciousness. He fell asleep and when he woke up he began to show an acute hyperactive confusional state, with psychomotor agitation and he pushed harshly his mother when she approached him. On the emergency room, he presented periods of agitation, with inadequate behavior, including masturbation, shouting and strange gestures (stereotypies/mannerisms), consequently he was administered haloperidol 5 mg intramuscular.

He was subjected to analytical and imaging study, which revealed no new changes, consequently he was admitted to the Psychiatry department. During the first hours of hospitalization, the patient showed inadequate behavior with sexual disinhibition, psychomotor restlessness, euphoric/dysphoric moods, and verbalized grandiose delusions. Hours later these changes had regressed, as he was treated with risperidone 3mg/day and carbamazepine 1200mg/day. After six days of hospitalization, he was aware of time and space, showing euthymic humor, without anomalies

Table 1. Risk factors and characteristics of postictal psychosis [5–7].

Postictal Psychosis	
Risk factors	Characteristics
Age > 30 years old	Happens in less than 7 days after an epileptic seizure
Cluster of convulsive seizures	Self-limited course, lasting more than 15 hours and less than 3 months which may be longer in patients with intellectual limitations
Secondary generalization	
EEG anomalies:	Variable lucid period (2.5 to 72 hours) between the seizure and the beginning of psychosis
Slowing	
Ictal, bilateral interictal, extratemporal, lateralized or not localized epileptiform activity	Followed by a confusional state
Surgical ablation of temporal focus (3 -28%)	Prevalence of affective disorders (depression, hypomania)
Surgery on the left side of the brain	Changes in behavior: aggression, sexual disinhibition
Two or more episodes of postictal psychosis in the preoperative period	Hallucinations (visual and auditory)
Personal history of traumatic brain injury or encephalitis	Anomalies of thought content: delusions, mysticism and religious concerns
Family history of affective disorder	

of thought content, without senso-perceptive changes and with no death thoughts, He was discharged with carbamazepine 1200mg/day, escitalopram 5 mg/day and risperidone 3mg/day until new consultation, with a diagnosis of Postictal Psychosis (Psychotic Disorder Due to Another Medical Condition, DSM-5).

Discussion

We report an episode of postictal psychosis, with a characteristic lucid period, as well as aggressive resistance. Amongst the known risk factors for postictal psychosis, our patient is over 30 years of age and presents history of traumatic brain injury, secondary generalization and surgery on the left side of the brain.

The patient states a change in treatment made in the last neurophysiology consultation around one year before, he suspended valproic acid, which may have contributed to the seizure.

In these situations it is important to inquire about the occurrence of seizures in the previous week and also consider the possibility of postictal psychotic episodes. The reported case highlights the importance of the distinction, often difficult, of the cases of psychosis associated with epilepsy, which usually remain underdiagnosed or wrongly diagnosed as psychoses that are independent from this organic pathology.

The postictal psychosis seems to be recurrent, often in a stereotypical way and may evolve to inter-ictal chronic psychosis in 25% of the cases [6].

The most effective way to prevent postictal psychosis is the elimination or reduction of seizures, with consequent reduction of postictal psychotic episodes. If it is not possible to control seizures, and in case of postictal states of aggressiveness, the best procedure would be to monitor and not interfere. However, it is necessary to consider the risks of aggressiveness [8].

There are two significant issues to consider when the use of psychiatric treatment is necessary [5, 8, 9]: (1) Benzodiazepines are considered 1st line treatment (e.g., diazepam, clonazepam, clobazam), and should be administered to abort a cluster of seizures or at first sign of psychopathology development; and (2) If using antiepileptic drugs combined with antipsychotics, it is important to note that almost all antipsychotics are slightly epileptogenic (Table 2); patients with epileptic psychosis generally require higher doses of antipsychotics because most antiepileptic drugs increase hepatic metabolism, reducing the effective levels of antipsychotics (Table 3); it is preferable to use antipsychotics associated with antiepileptic drugs with renal metabolism, like levetiracetam. One study [10] reported an increased risk of self-harm and suicidal behavior with the use of levetiracetam in patients with psychiatric comorbidity, however it was based on a small cohort and should be interpreted with caution.

In conclusion, a pharmacological intervention should always take into account the individual characteristics of psychotropic drugs, and in particular their epileptogenic potential, as well as the risks involved in the psychopathology changes presented.

Competing interests

The authors declare no conflict of interest.

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Table 2. Use of antipsychotics regarding its epileptogenic potential [9].

Choice of Antipsychotics According to the Epileptogenic Capacity	
Choose	Risperidone Olanzapine Quetiapine
Typical Antipsychotics with less convulsive risk / No cases reported	Haloperidol Pimozide
Average Risk (< 1-1,2%)	Fluphenazide Perphenazine
Avoid	Clozapine Loxapine Chlorpromazine

Table 3. Interaction between antiepileptic and antipsychotic drugs, adapted from Clinical Significance of Pharmacokinetic Interactions Between Antiepileptic and Psychotropic Drugs [11].

	CYP1A2	CYP2C9	CYP2C19	CYP2D6	CYP3A4
Substrates	Clozapine Olanzapine			Thioridazine Perphenazine Haloperidol Clozapine Olanzapine Risperidone Sertindole	Haloperidol Clozapine Risperidone Quetiapine Ziprasidone
		Phenytoin Phenobarbital	Phenytoin		Carbamazepine Felbamate Tiagabine Zonisamide
Inhibitors		Valproate	Felbamate	Thioridazine	
Inducers	Carbamazepine Phenytoin Phenobarbital Primidone				Carbamazepine Phenytoin Phenobarbital Primidone Oxcarbazepine Topiramate Felbamate

Oxcarbazepine, Topiramate, Felbamate are much weaker enzyme inducers compared to Carbamazepine, Phenytoin and barbiturates.

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