

## First-Onset Psychotic Disorder Concurrent With a First-Onset Seizure Disorder

*To the Editor:* We present the case of a 19-year-old woman presenting with new-onset seizures and psychotic symptoms. An unremarkable EEG challenged the diagnosis as the time course of symptomatology indicated psychosis due to seizure disorder. Also indicative of seizure involvement are the phenomena "forced normalization" and "kindling," which explain why seizures cannot be ruled out. These phenomena suggest the diagnosis psychotic disorder due to seizure disorder with hallucinations. Specific imaging studies such as an MRI should be the next approach in finding the source of neuropsychiatric manifestations. We also propose the importance of further research comparing developmental processes of psychosis and seizures.

### Case Report

This case presents a 19-year-old Hispanic woman with a history of bipolar I disorder and conduct disorder diagnosed at age 13, with 6 previous psychiatric inpatient hospitalizations. The patient presented to the emergency room with agitation, irritability, and flat affect that began 3 hours after a new-onset seizure episode. The patient was discharged home; however, 2 days later, she experienced her second seizure, along with disorganized behavior, walking barefoot down the street, as well as visual hallucinations and selective mutism. The patient returned to the emergency room and was admitted to an inpa-

tient psychiatric unit. An EEG exam was unremarkable; however, on the basis of clinical presentation, she was diagnosed with Generalized Seizure Disorder, Tonic-Clonic Type. She was treated with the antiepileptic levetiracetam and was given risperidone for psychotic symptoms, as well as valproic acid, which improved her assaultive behavior. Upon discharge, she continued to have residual negative symptoms, which could suggest the diagnosis of schizophrenia. However, because of the time-course of symptomatology and considering the link between seizure disorder and psychosis, we propose that the patient meets DSM-IV-TR criteria for the diagnosis of Psychotic Disorder Due to Seizure Disorder With Hallucinations.

### Discussion

There is a longstanding belief that a connection exists between epilepsy and psychotic disorders. Psychosis is found in about 7% of patients with epilepsy;<sup>1</sup> in fact, there are many cases of psychotic episodes with hallucinations and delusions that were first diagnosed as psychiatric disorders but shown later to be due to recurrent partial seizures.<sup>1</sup> A particular association exists between psychosis and temporal-lobe epilepsy. One study performed EEG exams on 51 patients with temporal-lobe epilepsy who experienced hallucinatory episodes, revealing no worsening of epileptic discharges.<sup>2</sup> Instead, each subsequent EEG improved because of "forced normalization," meaning that abnormal EEGs improved during psychotic episodes. An etiological explanation for a negative EEG in epilepsy could be animal

model "kindling," in which recurrent low-intensity electrical stimulation is delivered at intervals to certain brain sites, resulting in a gradual lowering of an animal's seizure threshold until generalized convulsions occur at a level that originally had no effect.<sup>3</sup> The phenomena of "forced normalization" and "kindling" theoretically explain why our patient has seizure disorder despite the negative EEG. We propose that a kindling-like phenomenon may be the neurophysiological explanation to the patient's long-term psychosis, since it has the capacity to induce prolonged neuro transmitter changes and produce long-lasting behavioral disturbances. For further study, we suggest performing an MRI imaging study to find the source of neuropsychiatric symptomatology. Also, further investigation comparing the developmental processes of seizures versus short-term and long-term psychosis would be valuable to advancements in neuropsychiatry.

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