A Case of Undetected Seizure Disorder That Exacerbated Catatonia and Treatment-Resistant Schizophrenia:
Comprehensive Evaluation Is Key

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Catatonia is commonly associated with psychiatric disorders but can occur in organic brain conditions.[1] Kahlbaum first emphasized the association between catatonia and epilepsy,[2] and up to 13.8% of patients with acute catatonia were found to have seizures.[3] Psychotic symptoms are present in 7%–11% of patients with epilepsy,[4] and they are 6–12 times more likely to develop schizophrenia-like psychosis than the general population.[5] Moreover, untreated seizures can mimic and exacerbate the symptoms of schizophrenia[6,7] and catatonia.[8] Overlapping clinical presentations make accurate diagnosis challenging. We describe a patient with treatment-resistant schizophrenia and catatonia who experienced worsening neuropsychiatric and motor symptoms that improved with antiepileptic drugs after a seizure disorder was diagnosed.

Case Report

Mr A, a 20-year-old man, had normal development until age 13 when he was hospitalized due to restricted food intake, social withdrawal, and mutism followed by a functional decline accompanied by anxiety, depression, slowed gait, micrographia, language disintegration, and cognitive decline. At age 15, aggression and psychosis triggered multiple psychiatric hospitalizations. At age 17, he was prescribed clozapine, which controlled his aggression but had minimal effect on auditory hallucinations, paranoia, and internal preoccupation. Lumber puncture results were normal, including an autoimmune encephalopathy panel with anti–*N*-methyl-D-aspartate (NMDA) receptor antibodies.

At age 18, Mr A presented with frequent episodic grimacing and intermittent psychomotor catatonic excitation and withdrawal. These observations and his history of psychomotor symptoms led to a diagnosis of catatonia in addition to treatment-resistant schizophrenia. Clonazepam and electroconvulsive therapy (ECT) significantly reduced psychotic and motor symptoms, leading to a 1-year period of stability.

Then, over 4 months, he lost 40 pounds due to diminished appetite. He experienced worsening auditory hallucinations, paranoia, internal preoccupation, and memory impairment despite adherence to medications that included clozapine (600 mg/d, plasma level of 471 ng/mL). He developed stereotyped episodes of facial grimacing, hand clasping, and marching gait with impaired awareness. Exacerbation of catatonia was suspected, but his symptoms did not respond to ECT or benzodiazepines. Medical evaluation, including serologic studies (ie, complete metabolic panel, complete blood count, magnesium, phosphorus, ammonia, C-reactive protein, erythrocyte sedimentation rate, thyroid function tests, serum toxicology screen, antinuclear antibody, autoimmune encephalopathy panel), routine electroencephalogram (EEG), and brain magnetic resonance imaging (MRI), was unremarkable. After being admitted, continuous video-EEG monitoring (with standard 10–20 electrode placement) captured multiple focal independent bilateral temporal electroclinical seizures, as frequently as 2 per hour, associated with impaired awareness, facial grimacing, and marching gait. A second brain MRI revealed prominence and T2 hyperintensity of the bilateral amygdalae. This brain MRI was not technically different from the prior study; the interval radiologic change was presumed sequelae from ongoing seizure activity. The second lumbar puncture including autoimmune encephalopathy panel with anti-NMDA receptor antibodies was unremarkable. Mr A was started on valproate and lacosamide and showed clinical and electrographic improvement in the bitemporal seizures. He remained on clozapine. Within 3 weeks of treatment, his gait normalized, his appetite returned, his grimacing stopped, and his auditory hallucinations, paranoia, and internal preoccupation resolved.

Discussion

Catatonia and psychosis can be due to schizophrenia or organic causes, including seizures, or both. It is unknown how long this patient was experiencing seizures and to what extent they contributed to his chronic neuropsychiatric symptoms. It is possible that underlying seizures were initially controlled with clonazepam, but then worsened, resulting in neuropsychiatric decompensation. Clozapine, the highest risk

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antipsychotic for lowering the seizure threshold, may also have contributed to seizures. However, clozapine-induced seizures are dose dependent, and Mr A remained on the same clozapine dosage with stable plasma levels since age 17. In addition, the risk for antipsychotic-induced seizures increases with brain vulnerability, as in organic brain diseases.[9]

Stereotyped movements like grimacing and marching may be movement abnormalities due to catatonia; however, they may also be caused by seizures.[10] Benzodiazepines are antiepileptic drugs that are effective for both etiologies. It is not clear how frequently catatonic phenomena have underlying seizure activity pathophysiologically.[11] Regardless, given the therapeutic implications, identifying seizures is essential. This case highlights the value of maintaining a broad differential diagnosis when symptoms are unresponsive to standard interventions. Admission and pursuing an extensive neurologic workup including continuous video-EEG monitoring was critical for diagnosis and successful treatment. Atypical age at onset, catatonic symptoms, and treatment-resistant schizophrenia should raise red flags for possible organic contributions to psychiatric presentations, including underlying seizures, tumors, or autoimmune encephalitis.[7] Atypical presentations warrant thorough investigations, including using long-term video EEG.[8]

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