CASE REPORT

Anti-NMDA Receptor Encephalitis: A Case of Atypical Acute Psychosis With Absence of Neurological Symptoms

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Abstract

Anti-N-methyl-D-aspartate (NMDA) receptor encephalitis is an autoimmune disorder in which antibodies attack NMDA receptors at central neuronal synapses. Common symptoms include thought and perceptual disturbances, mood lability, disorganized behaviours, and personality change which can be overlooked and often entail psychiatrist as the primary team. The psychiatric manifestation is then accompanied by neurological symptoms which include abnormal movements and followed by autonomic instability. Misdiagnosis is frequent given the overlap of symptoms with psychiatric manifestations.

Keywords: Anti-NMDA Receptor Encephalitis, Psychosis, Behavioural Changes, Neurological Symptoms

Introduction

Anti-NMDA receptor encephalitis was first described by Dalmau et al where 12 patients were identified presenting with neuropsychiatric manifestations with positive serum and cerebrospinal fluid (CSF) to NMDA receptor antibodies. Symptoms include a highly characteristic set of neurologic deficits and also prominent psychiatric manifestations. It is now known that there are 4 phases of this illness [1]. The syndrome is frequently associated with ovarian teratomes [1, 11]. It is now appreciated to occur without a tumour, and can present in children and young adults, both genders [1]. Approximately 70% of all patients diagnosed with anti-NMDAR encephalitis exhibit psychiatric symptoms of serious and rapid evolution [2]. As the disease progresses, these episodes are usually followed by subtle neurological symptoms including seizures, abnormal movements, decreased level of consciousness, or dysautonomic features. However, there is a small group of patients who only develop psychosis as manifestation of anti-NMDAR encephalitis [3].

There have been a multitude of studies suggesting a series of warning signs in identifying anti-NMDAR encephalitis in patients with psychotic symptoms, [4, 5] however many of these signs are based on the identification of clinical neurological features or abnormal tests (eg EEG, CSF). In order to facilitate an early and accurate diagnosis of anti NMDAR encephalitis in patients with isolated psychiatric symptoms,

a high index of suspicion is warranted especially when they exhibit distinct and atypical psychosis.
Here, we report a case of an anti NMDAR encephalitis patient who presented with primarily atypical psychosis and mood symptoms in the absence of neurological features.

Case Report

This is a case of a healthy 26 year old man with history of polysubstance abuse. In December 2018, he complained of intermittent dizziness, fatiguability & myalgia. He also experienced elementary in nature auditory hallucinations which were transient and resolve spontaneously. He was still able to function well.

He presented to the Emergency Department (ED) in January 2019 for the 4th time in a span of 2 weeks with complains of having disorganised behaviour, aggressive & talking to himself. CT brain showed no significant abnormalities.

He was admitted to the psychiatry ward for further management. Throughout his detention in the ward he was restrained & isolated due to provocative behaviour. Despite optimizing antipsychotics, mood stabilizer & adding benzodiazepines, he did not show any improvement.
At week 2, he exhibited sexual disinhibition & also presented with echolalia, loosening of association in speech & preservation of speech. Frequent sedation was required due to his disruptive behaviour. Due to worsening of behaviour, infective screening was done & serum NMDA was sent.

In view of poor response to optimised poly psychotropics he was referred the medical team & MRI brain was suggested. MRI Brain results came back in week 5 of admission, showed multiple T2/FLAIR hyperintense foci in both centrum semiovale, right parietal lobe, right frontal lobe & left temporal lobe (Figure 1&2). He was treated as old infarct secondary to previous illicit drug abuse.

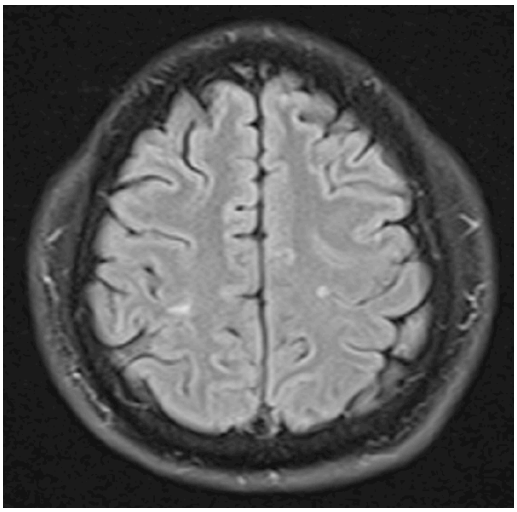

Figure 1.

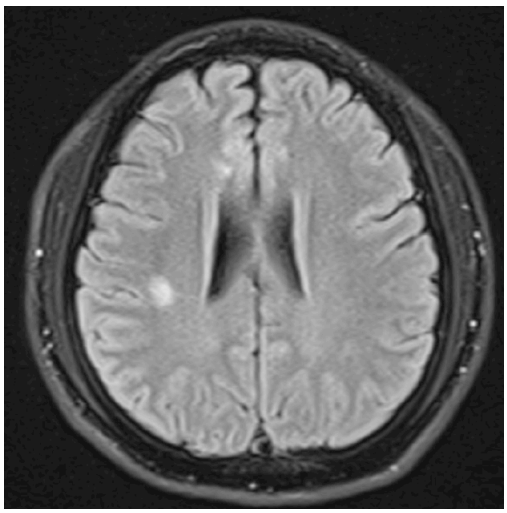

Figure 2.

Figure 1&2; MRI finding showed multiple T2 hyperintense foci in both centrum semiovale, right parietal lobe, right frontal lobe and left temporal lobe.

He was started on another atypical antipsychotic drug due to worsening behaviour. Improvement in his behaviour with some residual mood symptoms & auditory hallucination were noted after 9 days of commencement of the psychotropic drug. He was discharged under the care of his family. Serum NMDA was pending whereas other investigations were unremarkable.

However, within a week later, he was rehospitalised in the psychiatric ward for worsening of disorganised behaviours & sexual disinhibition despite being compliant to treatment. Serum NMDA from the previous hospitalisation showed positive result. A diagnosis of anti NMDAR encephalitis was therefore concluded and treatment with IVIG was initiated in the medical ward. Upon initiation of IVIG, his psychosis showed drastic improvement & he was soon discharged under the care of his family. Although he maintained relatively well, the regressive personality changes still persisted.

Discussion

Epidemiological studies suggest that anti-NMDA receptor encephalitis may be the 2nd common cause of autoimmune encephalitis [12, 13]. CSF and/or serum containing antibodies against NMDA receptors are diagnostic [1, 6-8]. In a study, antibodies were present in 100% of CSF and only 85% of serum samples [14].

Recent imaging study showed that normal brain MRI findings were observed 50 % of patients [1, 10]. T2 or FLAIR hyperintensities in cortical or subcortical brain regions are observed [1, 10]. EEG is usually abnormal, showing slow and disorganized activity in the delta/theta range [1].

The differential diagnosis often focuses initially on viral encephalitis. 75 % of patients first present to a psychiatrist [1, 9]. Following treatment of psychotic symptoms with an antipsychotic, onset of altered mental status, rigidity, hyperthermia, and autonomic instability may be suggestive of neuroleptic malignant syndrome (NMS) [1, 7] hence making the diagnosis of anti-NMDA Receptor encephalitis difficult.

Atypical antipsychotics have demonstrated efficacy in reducing severity of psychotic & mood disorders. [15] Despite being on optimized multiple psychotropic drugs for almost 5 weeks, patient did not exhibit any improvement. This raised the suspicion of possible anti-NMDA receptor encephalitis due to the acute, episodic and atypical presentation of the psychiatric manifestations. The challenge faced in the management of this patient is the absence of neurological features resulting in misdiagnosis of his psychosis and delay in treatment.

Prognosis is guarded & disease can often be lethal with irreversible damage to cortical regions in those who experience delay in identification & treatment [11, 16]. In this case, after treatment with IVIG there was significant improvement in his behaviour & psychotic symptoms although regressive personality changes still persisted.

This case highlights the dire need for a high index of suspicion of this illness and the importance of including serum NMDA as part of screening for organic causes in patients who present with psychiatric symptoms with or without other neurological symptoms.

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