

## Case Report

# ANTI NMDA RECEPTOR ENCEPHALITIS PRESENTING WITH MIXED PSYCHIATRIC SYMPTOMS - CASE REPORT

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Submitted on: 24/4/2020

Published online: 16/5/2020

### ABSTRACT

Anti NMDA receptor encephalitis is an autoimmune reaction against neuronal cell surface antigens. The prevalence of this condition is about 0.6 per lakh. Here, we present the case of an 18-year-old female, who presented with seizures along with both dissociative and psychotic symptoms. Later, she turned out to be a case of Anti-NMDA receptor encephalitis. Anti NMDA receptor encephalitis presents with behavioural, cognitive, psychiatric and neurological symptoms progressing to coma and death if untreated. The patient did not show improvement with first-line therapy like IVIG. Hence, the second-line agent, Rituximab, had to be used. She needed three anti-epileptic drugs for seizure control. There is evidence that delay in treatment can adversely affect the prognosis. There should be increased awareness among psychiatrists and other relevant medical professionals about this under-diagnosed disorder.

**Keywords:** anti NMDA encephalitis, psychiatric manifestation, limbic encephalitis

### INTRODUCTION

Anti N-methyl-d-aspartate (NMDA) receptor encephalitis is an autoimmune reaction against neuronal cell surface antigens. It was described initially as a paraneoplastic syndrome in women.<sup>1</sup> The prevalence of this condition is about 0.6 per lakh population.<sup>2</sup> The usual clinical presentation consists of confusion, agitation and catatonic or psychotic features

resulting in admission in psychiatric units. This often progresses to the development of seizures, dyskinesia, autonomic instability and need for mechanical ventilation.<sup>1,2</sup> Initial presentation to a psychiatry setting may result in a delay in diagnosis and treatment, which can often lead to adverse outcome. Cerebrospinal fluid (CSF) findings are pleocytosis, raised proteins and positivity for

Please cite the article as: Swathy S S, Gayatri R, Arathi J S, Vidyadharan V, Tharayil H M. Anti NMDA encephalitis presenting with mixed psychiatric symptoms - case Report. Kerala Journal of Psychiatry 2020;33(1): 56-59.doi: 10.30834/KJP.33.1.2020.190

Anti NMDA antibody.<sup>3</sup> Here, we present a case of anti-NMDA encephalitis in an 18-year-old female. She presented initially with seizures along with both dissociative and psychotic symptoms.

#### CASE REPORT

A female aged 18 years presented to our Emergency Department with a history of two episodes of recent onset seizures with features suggestive of right focal seizures with secondary generalisation. The department of medicine evaluated her. There was a history of low-grade fever, vomiting and poor appetite, two days back, which they managed with home remedies. A psychiatric evaluation was requested as there was a history suggestive of associated psychiatric symptoms. Her mother, who was the primary informant reported that in the past week, at home, she behaved as if possessed by her dead father. She would enact her father's mannerisms and address her mother and brother like her father used to do. These episodes would continue for hours, despite her relatives calling her by name and telling that her father is no more. Patient's mother also gave a history of the patient, saying that her boyfriend hanged himself and that she was being blamed by his family for the same. She was significantly distressed by this belief, and her sleep decreased. In between, she would cry aloud and then lie unresponsive for a few minutes. Her mother thought that she was acting, and hence didn't seek any treatment for this behaviour.

There was a family history of seizure disorder in a first-degree relative and no significant past psychiatric illness. Pre-morbidly she was impulsive, reported a feeling of abandonment, mood swings and unstable relationships. In the initial evaluation, she appeared grossly in

touch with surroundings but had a labile affect and was not cooperative for detailed assessment. Physical examination was within normal limits except for tachycardia.

Differential diagnosis of dissociative possession state with emotionally unstable personality traits was considered on initial evaluation because she had features suggestive of possession on the background of significant stressors. There were no psychotic symptoms at that time.

Since she presented with seizures, she was admitted under the medicine department for further evaluation. However, she developed recurrence of seizures, severe vomiting, altered sensorium and perioral dyskinesia following admission. On subsequent mental status examination during the review as an inpatient, she was disoriented and expressed fears that her boyfriend's and father's spirits are trying to kill her. It was diagnosed as delirium. Clarification with relatives and friends revealed that her boyfriend was alive and that her belief was irrational.

She was evaluated for meningoencephalitis. Routine blood counts and biochemistry were normal. CSF study showed lymphocytosis with normal protein and sugar. CSF viral panel was negative. MRI brain plain and contrast were normal. EEG showed generalised slowing and delta brush. Both serum and CSF were positive for Anti-NMDA Receptor Antibody by cell-based assay. She was managed in the intensive care unit, given intravenous immunoglobulin, ceftriaxone, acyclovir and dexamethasone. Risperidone one mg per day was also prescribed for delirium and behavioural problems. Multiple oral/intravenous anti-epileptics (levetiracetam, oxcarbazepine, phenytoin)

were needed to control seizures. As she continued to have emotional lability and worsening of sensorium after one week of IVIG, she was started on intravenous Rituximab weekly for four weeks. Contrast-enhanced CT thorax and abdomen was done to rule out paraneoplastic syndrome and were normal. She improved gradually with these medications and got discharged in six weeks. Now she is on outpatient follow up and maintaining well on Tab Levetiracetam 500mg and Tab Risperidone 1mg.

## DISCUSSION

In Anti NMDA receptor encephalitis, the antibodies are directed against neuronal cell surface antigens which are highly expressed in the hippocampus and temporal lobe. There is a multi-staged presentation with behavioural, cognitive, psychiatric and neurological symptoms progressing to coma and death if untreated. There may be a nonspecific prodrome characterised by low-grade fever, headache, respiratory or gastrointestinal symptoms. The purely psychiatric presentation can occur in about 4% of the cases leading to initial presentation to a psychiatrist.<sup>3</sup> The psychiatric presentation is often polymorphic consisting of agitation, aggression, hallucinations, delusions, mutism, irritability or mood instability, and depressed mood. The acute onset, rapid progression and accompanying features such as movement disorders (dystonia, stereotypies, and chorea) seizures and fever can be important clues pointing to Anti NMDA encephalitis.<sup>1</sup> In this case, the patient had dissociative and psychotic symptoms at the onset, but the family didn't seek consultation. They came to the hospital only after the patient developed seizures.

Psychiatry consultation was sought for the symptoms suggestive of dissociative disorder. Previous studies recommend that first episode atypical presentation of psychiatric illness, especially in young females, should be evaluated for autoimmune pathology.<sup>4,5</sup> Around 70% of Anti-NMDA encephalitis would be associated with malignancy; interestingly in our case, neoplastic workup was negative<sup>6</sup>, MRI brain was also normal. The patient did not show improvement with first-line therapy like IVIG. Hence, the second-line agent, Rituximab, had to be used. She needed three anti-epileptic drugs for seizure control. There is evidence that delay in treatment can adversely affect the prognosis.<sup>7</sup> Psychiatrists and other relevant medical professionals should have a high index of suspicion for the earliest manifestations of this under-diagnosed disorder as prompt initiation of immunotherapy and tumour removal, as appropriate, could dramatically improve outcome. The first episode of psychiatric illness of short duration should be evaluated for anti NMDA receptor and related neuropsychiatric conditions, especially if atypical symptoms are present.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest

## REFERENCES

1. Al-Diwani A, Handel A, Townsend L, Pollak T, Leite MI, Harrison PJ, et al. The psychopathology of NMDAR-antibody encephalitis in adults: a systematic review and phenotypic analysis of individual patient data. *Lancet Psychiatry*. 2019;6(3):235–46.

2. Mythri S, Mathew V. Catatonic syndrome in anti-nmda receptor encephalitis. *Indian J Psychol Med.* 2016;38(2):152.
3. Kayser MS, Titulaer MJ, Gresa-Arribas N, Dalmau J. Frequency and characteristics of isolated psychiatric episodes in anti-N-methyl-d-aspartate receptor encephalitis. *JAMA Neurol.* 2013 Sep 1;70(9):1133–9.
4. Zandi MS, Irani SR, Lang B, Waters P, Jones PB, McKenna P, et al. Disease-relevant autoantibodies in first episode schizophrenia. *J Neurol.* 2011 Apr;258(4):686–8.
5. Steiner J, Walter M, Glanz W, Sarnyai Z, Bernstein H-G, Vielhaber S, et al. Increased Prevalence of Diverse N -Methyl-D-Aspartate Glutamate Receptor Antibodies in Patients With an Initial Diagnosis of Schizophrenia: Specific relevance of IgG NR1a Antibodies for Distinction From N -Methyl-D-Aspartate Glutamate Receptor Encephalitis. *JAMA Psychiatry.* 2013 Mar 1;70(3):271.
6. Dalmau J, Lancaster E, Martinez-Hernandez E, Rosenfeld MR, Balice-Gordon R. Clinical experience and laboratory investigations in patients with anti-NMDAR encephalitis. *Lancet Neurol.* 2011 Jan;10(1):63–74.
7. Finke C, Kopp UA, Prüss H, Dalmau J, Wandinger K-P, Ploner CJ. Cognitive deficits following anti-NMDA receptor encephalitis. *J Neurol Neurosurg Psychiatry.* 2012 Feb;83(2):195–8.