Subacute Cerebellar Ataxia in a Filipino Child: A Case of Overlap Syndrome of Anti-NMDAr Encephalitis and MOG-Associated Disease

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BACKGROUND

Anti-N-methyl-D-aspartate encephalitis (anti-NMDAr) encephalitis is an autoimmune disease of the nervous system with a polysymptomatic presentation that includes behavioral changes, psychosis, seizures, movement disorders, and autonomic instability.[1] Myelin oligodendrocyte glycoprotein -antibody associated disease (MOGAD) is an acquired demyelination entity with a spectrum that includes monophasic acute disseminated encephalomyelitis (ADEM), optic neuritis (ON), or transverse myelitis (TM).[2]

The co-existence of anti-N-methyl-D-aspartate receptor encephalitis and MOGAD or overlap syndrome has been reported increasingly in the past years, but the clinical, pathophysiological, diagnostic, and therapeutic implications of these entities have yet to be clarified.

To our knowledge, this is the **first report of overlap syndrome of anti-NMDAr encephalitis and MOG-associated disease in a Filipino child.**

CASE REPORT

We have M.B., a 9/F, presenting with a chief complaint of **gait instability**. Two weeks prior to consult, the patient was noted to have **generalized weakness and increased sleeping time**. The next day, there was onset of **unsteady gait, and scanning speech**. She was also noted to be **disinhibited in her actions and speech, occasionally disoriented but no perceptual disturbances**. Review of systems revealed no history of recent vaccination, travel, or other constitutional symptoms. Physical examination was essentially normal. Patient had **labile mood with crying spells, and scanning speech.**

CASE REPORT

On neurologic exam she had **hyperreflexia**, **ataxic gait** and **bilateral dysmetria and dysdiadochokinesia**.

The patient underwent laboratory work-up which were all normal. CSF obtained was colorless, clear, RBC 0, WBC 22, Glucose 58mg/dl: serum mg/dl (45.3%), total protein 83mg/dL, and was **positive for anti-NMDar antibody**, but negative for HSV1, HSV2, VZV, Adenovirus, CMV, EBV, Enterovirus, Human Parechovirus, HSV 6 and 7 and Parvovirus. Patient was diagnosed to have **anti-NMDAr encephalitis**, and started on **Methylprednisolone Pulse Therapy** at 30mg/kg/day for 5 days, with improvement of ataxia and encephalopathy.

Cranial computed tomography (CT) scan showed findings **not typically seen in anti-NMDA encephalitis** but more suggestive of a demyelinating process such as ADEM. Work up for **MOGAD** was thus performed which turned out to be **positive in serum**. She was discharged well with no residuals and no take home medications.

NEUROIMAGING

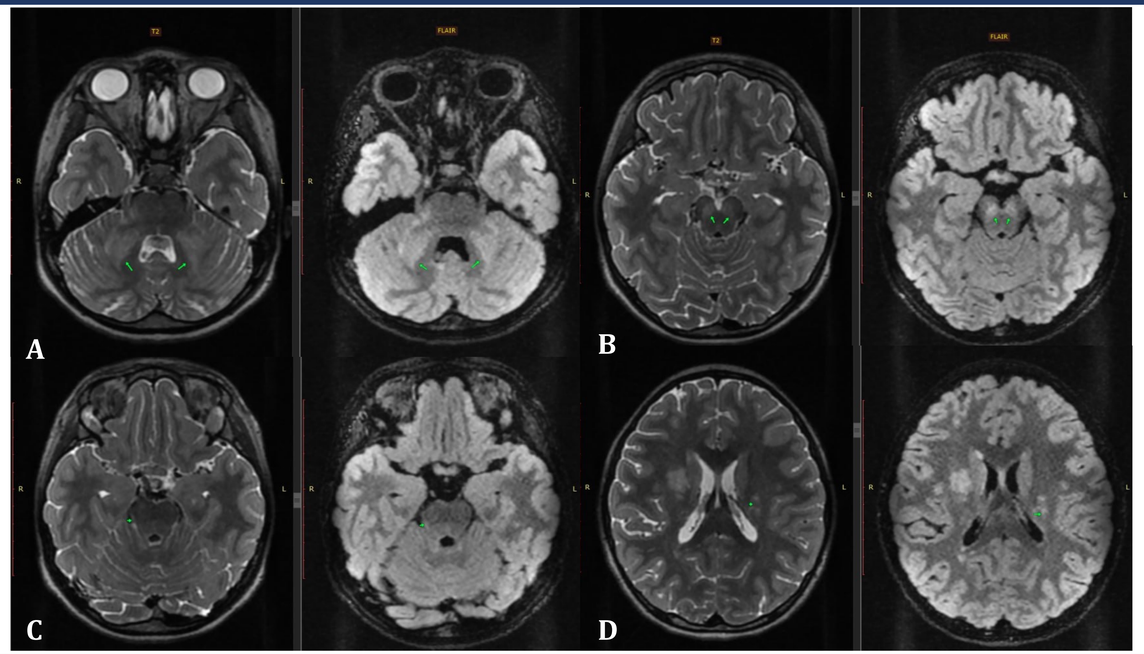

***Figure 1**. Cranial MRI: A-D . Multiple patchy T2W1/FLAIR -hyperintense signals are seen in the bilateral cerebral hemispheres involving the white matter, deep gray matter and the cerebellar white matter.*

DISCUSSION & CONCLUSION

Anti-NMDAr encephalitis is an autoimmune disorder of the central nervous system with a polysymptomatic presentation, with **cerebellar ataxia being an unusual presenting symptom.**[2] Myelin oligodendrocyte glycoprotein - associated disorders (MOGAD), are a recently identified subset of CNS demyelinating diseases with clinical manifestations including ADEM, TM, and ON.[3]

While our patient initially tested positive for anti-NMDAr antibody in her CSF, her **cerebellar ataxia** together with the **atypical neuroimaging findings** were **unusual for anti-NMDAr encephalitis,** prompting further investigation that showed **double positivity in MOG and anti-NMDAr**, entailing **therapeutic and prognostic significance.**

Our case highlights the need for evaluation of a demyelinating disorder in a patient with anti-NMDAr encephalitis presenting with atypical clinical and neuroimaging features, and vice versa.

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