Subacute Sclerosing Panencephalits Mimicking Anti-NMDA Receptor Encephalitis

Sir,

Subacute sclerosing panencephalitis (SSPE) is a fatal chronic encephalitis occurring secondary to primary measles virus infection at an early age (less than 2 years). Primary infection is followed by a latent period of 6-8 years before the onset of neurological deterioration due to widespread demyelination of the central nervous system.[1] The typical clinical presentation includes behavioral and intellectual impairment followed by myoclonia and complete neurological obtundation.[2] Clinical presentation of atypical form can be variable, making its diagnosis challenging. A 5-year-old boy born of non-consanguinity with normal birth and development presented with complaints of fever, abnormal behavior and seizures since 1 month. Initially, the child had high grade fever for 4-5 days. Subsequently, he developed altered sensorium and behavioral abnormalities such as irrelevant talking, aggressiveness and impulsiveness. He was not able to recognize his parents and there was loss of bladder and bowel control. Gradually, the child lost ability to speak. Around 10 days later he developed multiple episodes of generalized tonic-clonic seizures and continuous abnormal movements of face and limbs. There was no history of dog bite, drug intake or any toxic metal exposure. Family history was unremarkable. He was an unimmunized child with no prior history of measles. On examination, he appeared agitated, continuous orofacial dyskinesias, dystonia, and choreoathetoid movements of upper limbs and trunk were noted. There were no myoclonias at admission or during the hospital course. Hypertonia was present in all limbs. Plantars were extensor. Cranial nerve examination and fundus was normal. Signs of meningeal irritation and autonomic dysfunction were absent.

A week prior to admission, he was admitted to an outside local hospital and diagnosed for viral encephalitis. The routine blood investigations there revealed no abnormality. Cerebrospinal fluid (CSF) analysis was normal and Electroencephalogram (EEG) showed diffuse slow background activity. MRI brain showed altered signal intensity in subcortical region of right

parietal lobe. As there was no clinical improvement, he was referred to our hospital.

At our hospital because of typical psychiatric symptoms and abnormal orofacial movements, we kept a strong possibility of anti-NMDAR encephalitis for which CSF and paired serum for NMDA ab, AMPA- R1 and R2 ab, GABA-B receptor ab, LGi ab and CASPR2 ab was sent. We need to resort using immunotherapy as the autoimmune panel reports takes about a week time. Intravenous methyprednisolone was started. However, the workup came out to be negative and steroids failed to improve his condition. As the child continued to have seizures an EEG was repeated which showed pseudoperiodic complexes. This prompted for a repeat Lumbar puncture for measles serology. The CSF was reported positive for measles antibody (1:4) ascertaining the diagnosis of SSPE. The child was started on isoprinosine, clonazepam and valparin. With some improvement in his general condition, he was discharged seizure free with follow-up ensured in our neurology clinic.

Classically anti-NMDAR encephalitis is described in young females with ovarian teratomas who developed symptoms resembling acute psychosis. Pediatric anti-NMDAR encephalitis is being increasingly identified. It manifest as behavioral change, aggression, temper tantrums and progressive speech decline followed by orolinguofacial dyskinesias, dystonic postures, choreoathethoid and complex stereotypical movements and autonomic dysfunction.[3] Diagnosis is made by detecting antibodies against NR1 subunit of NMDA receptors in CSF or serum. MRI brain shows nonspecific signal abnormalities in cortical and subcortical white matter. EEG may show nonspecific slow and disorganized activity sometimes with electrographic seizures.[3,4] As clinical profile of our patient was similar so initially possibility of anti-NMDAR encephalitis was kept. However, the workup came negative. Later, pseudoperiodic complexes in EEG and measles antibodies in CSF confirmed the diagnosis of SSPE.

Atypical manifestations have been reported in fulminant SSPE and unlike typical form there are no defined stages due to rapid clinical course. Atypical features such as early age of onset, acute vision loss, pseudotumor cerebri, dysarthria, ataxia, acute disseminated encephalomyelitis, focal deficit, and asymmetric myoclonus have been reported making diagnosis challenging.[5,6] Seizures can occur as the initial manifestation of SSPE before the onset of cognitive decline. These include focal and generalized seizures, atonic spells, atypical absences, infantile spasm, epilepsia partialis continua and intractable epilepsy.[7-9] Typical EEG pattern seen in myoclonic phase is diagnostic. It is characterized by periodic complexes consisting of bilaterally symmetrical, synchronous, high voltage bursts of polyphasic, stereotyped delta waves. These complexes repeat at regular 4-10 second intervals having 1:1 relationship with myoclonic jerks hence called periodic complexes. Periodic complexes are found in 65%-83% of individuals with SSPE.[10]

The awareness of the fulminant presentations of SSPE is essential in areas with higher prevalence of measles due to its myriad presentation, especially before contemplating empiric immunotherapy as immunotherapy could potentially precipitate a rapid downhill course in SSPE. Moreover, a simple test such as an EEG has a vital role in the setting of subacute neuroregression, seizures and movement disorders.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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