

Acute Disseminated Encephalomyelitis Presenting as Acute Psychotic Disorder

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ABSTRACT

A 5 year old boy and a 10 year old girl presented with acute onset of psychotic disorder, which occurred one week after an upper respiratory infection. MRI images of brain were consistent with the diagnosis of acute disseminated encephalomyelitis (ADEM) in both cases. ADEM is one of the differential diagnoses to be considered when acute psychotic disorder occurs during childhood.

Key words: *Acute psychosis.*

Acute disseminated encephalomyelitis (ADEM) is an acute demyelinating disorder of the central nervous system (CNS) which follows an infection or vaccination(1). The hallmark of ADEM is the rapid development of a focal or multifocal neurological disorder with peak dysfunction occurring in several days(2,3,4). The diagnosis is based on the acute onset of neurologic signs and symptoms together with magnetic resonance imaging (MRI) evidence of multifocal, hyperintense lesions on fluid-attenuated inversion recovery (FLAIR) and T2-weighted images(2,4). The differential diagnoses of ADEM

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include first episode of multiple sclerosis, macrophage activation syndrome and vasculitis of the CNS(5).

CASE REPORTS

Case 1: A 5 year old boy was admitted with history of abnormal behavior, which started abruptly 3 days prior to admission. While watching television at home, he suddenly complained that some people were pursuing him. After this episode he was always frightened and clung to his mother throughout the day. He became very restless, irritable and developed violent tendencies. His speech was irrelevant and often repetitive. He exhibited bizarre behavior like running around and going up and down the stairs repeatedly. He refused to go to sleep and frequently woke up crying. He refused to go to school saying that unknown persons were pursuing him. He did not say whether he could see the people or hear their voices.

One week prior to the onset of the symptoms he had upper respiratory infection, which was relieved by oral medications. There was history of recurrent otitis media up to the age of two years. The parents did not notice any obvious hearing defect in the past. It was reported that the child preferred right ear to listen to telephone and sometimes gave inconsistent or irrelevant answers to questions, which the parents attributed to carelessness.

He was an only child, born by normal delivery to nonconsanguineous parents. His developmental milestones were normal. He was studying in the UKG and was performing well at school. There was no family history of mental illness.

On mental status examination he was conscious and oriented. He was very anxious and was always clinging to his mother. His speech was coherent but he cried frequently and answered questions after repeated cajoling and sometimes gave irrelevant answers. His mood varied from anxious to irritable. There were no perceptual abnormalities. Although he had persecutory ideas they were inconsistent and

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their delusional nature could not be ascertained due to his age. Since the child was not cooperative, detailed hearing assessment could not be done. There was no other cranial nerve involvement or focal neurological defect. Deep tendon reflexes were normal and plantar reflex was bilaterally flexor.

His routine blood and urine examinations and CSF analysis were normal. Brainstem auditory evoked response (BAER) evaluation was suggestive of mild sensorineural hearing loss on the right side and severe sensorineural hearing loss on the left side. Transient otoacoustic emission (TOAE) test results indicated abnormal cochlear function on both sides. MRI brain scan showed hyperintense lesions in both posterior temporoparietal and parietal sub cortical areas on T2 and FLAIR images which were iso-intense on T1 weighted images and were suggestive of ADEM.

He was treated with intravenous methylprednisolone 30mg/kg/day for three days. Haloperidol 0.125mg twice daily for four weeks was given to control the behavior. He improved gradually and complete recovery occurred within a month. On follow up at six months he was using a hearing aid on the left side and had average academic performance.

Case 2: A 10 year old girl was admitted with 3 day history of excessive and irrelevant speech. She also complained of people trying to attack her and her mood fluctuated rapidly. She refused to go to school and became aggressive on minor provocations. Her sleep was disturbed, but appetite was normal. One week prior to these symptoms she had mild upper respiratory infection. She was born of third degree consanguineous marriage and her developmental milestones were normal. She was studying in the fifth standard and had good academic performance. She was the youngest of four siblings. Her mother had psychotic illness immediately after the second delivery, which subsided with treatment.

On examination she was conscious and oriented to time, place and person. Her speech was coherent. Although she answered questions relevantly, there was pressure of speech and flight of ideas. The reaction time was shortened. Her mood was predominantly elated and occasionally irritable.

There were no definite delusions or hallucinations. Physical examination including nervous system examination was normal.

Routine blood investigations, liver function tests, CSF study and EEG were normal. The MRI images of brain showed focal hyperintense areas of varying sizes in the bilateral centrum semiovale, frontoparietal and occipital white matter in T2 and FLAIR sequences which were hypointense in T1 sequences (*Fig.1*).

She was treated with intravenous methylprednisolone 30mg/kg/day for three days and then switched on to oral prednisolone for four weeks. Risperidone 0.5mg twice daily was given to control the behavior. Her symptoms improved within two days and complete recovery occurred after two to three weeks.

DISCUSSION

The first child had acute onset of behavior change characterized by excessive anxiety, restlessness, irritability, excitement, irrelevant talk and variable

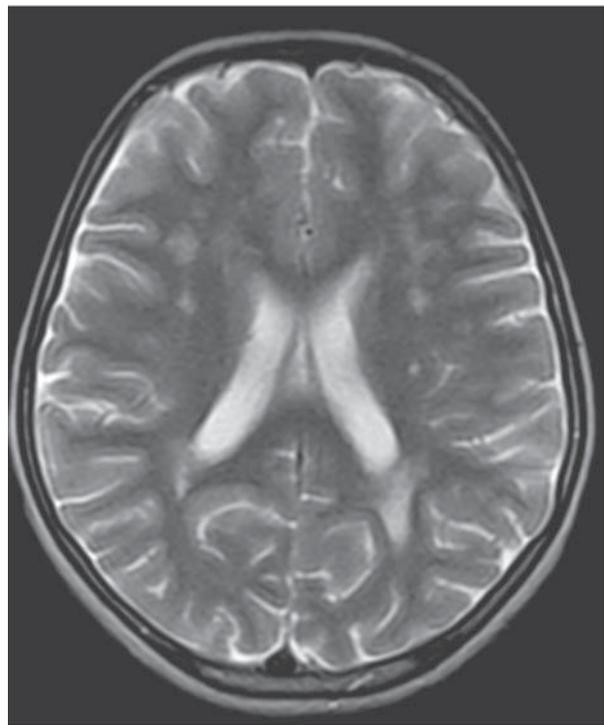


Fig.1. MRI Image: T2 axial section shows white matter hyperintensities.

mood. The persecutory delusions were present for only brief periods. The clinical features were consistent with a diagnosis of acute and transient psychotic disorder (F23.8) as per the ICD-10 diagnostic criteria(6). The second child had predominantly mood symptoms. Although she had pressure of speech and flight of ideas, the criteria for manic episode could not be satisfied. The unstable clinical picture favored the diagnosis of acute and transient psychotic disorder (F23.8). The MRI findings in both cases were diagnostic of ADEM. The hearing defect in the first child was present before the illness and hence could not be attributed to ADEM.

Psychosis is an uncommon presentation of ADEM. A Medline database search from 1965 to 1999 identified 9 patients who presented with acute psychosis(7). After 1999, few more cases of ADEM presenting with psychiatric manifestations have been reported (8,9). To the best of our knowledge, ADEM in children presenting as acute psychotic episode has not been reported from India.

Onset of psychotic disorder during childhood is very rare and organic causes should be ruled out in these cases. ADEM is one possibility to be considered in such situations and MRI scan can be helpful.

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