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A CASE REPORT OF ACUTE DEMYELINATING ENCEPHALOMYELITIS IN AN ADOLESCENT BOY AFTER MUMPS

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ABSTRACT Acute disseminated encephalomyelitis (ADEM) is a rare, immune-mediated demyelinating disorder of the central nervous system that typically follows viral infections or immunizations. We report a case of an 11-year-old male who developed ADEM following a mumps infection. The child presented with acute onset motor weakness, cranial nerve involvement, and sphincter disturbances. MRI findings were consistent with demyelinating lesions in the brain and spinal cord. The patient responded favourably to intravenous immunoglobulin and corticosteroid therapy. This case emphasizes the importance of early recognition and treatment of ADEM and highlights the need for sustained immunization coverage against mumps to prevent such complications.

KEYWORDS : Acute Demyelinating Encephalomyelitis (ADEM), Mumps, Demyelinating disorder Autoimmune-mediated inflammatory disease, Neuromyelitis Optica

INTRODUCTION:

Acute demyelinating encephalomyelitis is a rare autoimmune-mediated inflammatory disease affecting 0.1–0.6 per lakh population worldwide [1]. The etiology varies between post-infectious and post-immunization causes [2]. Neuroimaging is the primary diagnostic modality [3]. We hereby report a case of acute demyelinating encephalomyelitis in an adolescent boy following mumps infection.

CASE REPORT:

An 11-year-old male child was brought to a tertiary care centre with complaints of inability to move the lower limbs for 3 days, inability to control voiding of urine for 3 days, fever for 2 days, difficulty in swallowing for 2 days, difficulty in speech for 1 day, and inability to move the right upper limb for 1 day. He had a past history of bilateral cheek swelling 15 days prior, associated with fever lasting for 3 days, suggestive of mumps.

On examination, muscle tone was diminished in both lower limbs and the right upper limb, with brisk reflexes and extensor plantar responses. GCS was 11/15 (E4V1M6). Left oculomotor nerve involvement was noted. Bowel and bladder incontinence was present. The patient was started on IV Ceftriaxone and IV Acyclovir with supportive management. CBC revealed Hb 11.3 g/dL, TLC 10,200/mm³, and platelet count 1.7 lakh/mm³. RFT, LFT, and serum electrolytes were within normal limits.

MRI Brain T2 FLAIR showed hyperintense lesions in pericallosal and periventricular regions of bilateral frontal and parietal lobes, midbrain, and pons appearing hyperintense on diffusion with no ADC drop. MRI spine showed T2 hyperintense lesions in the cervical cord (C2–C4), and central cord lesions from C6–D3 and D5–conus medullaris, suggestive of ADEM [3, 4].

He was treated with intravenous immunoglobulin (2 g/kg) and intravenous methylprednisolone pulse therapy [5]. Antibiotics were escalated to Meropenem and Vancomycin due to persistent fever after 48 hours. Tests for malaria, dengue, and Weil–Felix were negative. CSF analysis revealed protein 68 mg/dL, glucose 98 mg/dL, and no pus cells. Fundus examination was normal. The patient showed good response to treatment with improvement in upper limb power and speech, and fever subsided. Oral feeds were resumed by day 7. Gradual improvement in lower limb power and sphincter control occurred over the following weeks.

DISCUSSION:

Mumps is a vaccine-preventable disease caused by the Rubulavirus, transmitted via respiratory droplets [6]. The global incidence has declined with widespread vaccination, but sporadic outbreaks continue in under-immunized regions [6]. Complications include meningitis, orchitis, pancreatitis, myocarditis, and, rarely, acute disseminated encephalomyelitis (ADEM) [7].

ADEM is an immune-mediated demyelinating disorder characterized by monophasic inflammation of the CNS following infection or vaccination [4]. The mean age of presentation is 5–8 years, with a slight male predominance [3]. ADEM typically manifests within 6 days to 6 weeks post-infection [2]. Clinical features include multifocal neurological deficits, altered sensorium, seizures, cranial nerve involvement, and ataxia [4].

Our patient developed ADEM two weeks after mumps, consistent with the post-infectious form [2]. CSF findings in ADEM are often normal or may show mild protein elevation [4]. MRI remains the cornerstone for diagnosis, demonstrating multifocal white matter lesions in both cerebral hemispheres and the spinal cord [3].

Treatment includes high-dose corticosteroids as first-line therapy [5]. Intravenous immunoglobulin or plasmapheresis may be used in steroid-resistant cases [5]. The prognosis is generally favourable, with most children showing full or near-complete recovery, although relapses may occur [8].

This case underscores the critical role of MRI in early diagnosis and management [3]. Moreover, it highlights the importance of maintaining high immunization coverage, particularly with the MMR vaccine, to prevent post-infectious neurological complications like ADEM [7].

CONCLUSION:

Acute disseminated encephalomyelitis is a rare but serious post-infectious neurological complication of mumps [7]. Early recognition and prompt treatment with corticosteroids and immunoglobulins can lead to good recovery outcomes [5]. This case reinforces the importance of mumps immunization to prevent such preventable yet potentially disabling neurological sequelae in the pediatric and adolescent population [7].

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