

A Case of Dengue Encephalitis

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Abstract: Dengue is a viral febrile illness caused by one of the dengue virus serotypes. The disease has a wide variable spectrum of presentation ranging from asymptomatic to life threatening condition like dengue hemorrhagic fever. Dengue virus is a non-neurotropic virus. Neurological complications are rarely seen. We present a case of 18years old boy presented in altered sensorium with high grade fever and generalized tonic clonic seizures. Dengue NS1 antigen positive. He became conscious and oriented on Day 6 of the admission. MRI brain revealed extensive lesions involving bilaterally midbrain, thalamus, pons, cerebellum. Patients was treated symptomatically and discharged with minimal neurological deficits.

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I. Introduction

The dengue virus, a member of the genus Flavivirus of the family Flaviviridae, is an arthropode-borne virus that includes four different serotypes (DEN-1, DEN-2, DEN-3, and DEN-4)^{1,2}. Incidence of encephalitis, the most common neurological complications of dengue, has been found to vary between 0.5%-6.2%.^{3,4} Findings of magnetic resonance imaging (MRI) of the brain have been reported in several case reports and studies, with a variable spectrum of findings^{5,6,7,8,9}.

II. Case Report

An 18-year old male presented to the emergency department in altered sensorium with history of high grade fever of 3 days duration and generalized tonic clonic seizures of 1 day duration. No history of any bleeding manifestations. His vitals were pulse - 103/min, temperature - 101⁰ F and blood pressure - 110/70mm Hg. On examination, pallor and icterus were absent. No skin rash. CNS examination revealed Glasgow Coma Scale (GCS) of E2V1M4 (7/15), bilateral plantars mute and neck stiffness present. On day 6 of admission patient regained complete consciousness. On examination he had horizontal gaze palsy, scanning speech, and cerebellar signs present. Power was reduced in all limbs (MMRC grade 4-/5).

Investigations

Hb -11.5 gm%

Total leukocyte count – 9840/cumm

MCV - 79.9fL

MCH - 24.7pg

MCHC - 30.9 g/dL

Platelet count - 95000 cells/cumm

LFT and RFT - Normal

Dengue serology - NS1 antigen positive, IgM negative

Chikungunya - IgM Negative

Smear for malarial parasite - Negative

Rapid antigen test for PV/PF - Negative

Widal serology - Negative

Serum electrolytes – Na⁺ - 141 mEq/L, K⁺ – 4.1 mEq/L, Cl⁻ – 111 mEq/L

Viral markers - Negative.

CSF analysis - Protein - 36 mg/dl; Sugar - 44 mg/dl; Cell count - 25/cumm, all lymphocytes;

Culture- negative.

Serology for Herpes simplex virus and CMV IgM Elisa was negative.

Chest X-ray and ECG – Normal

CT brain revealed symmetrical hypodensities in bilateral thalami.

MRI brain was done on the next day which revealed T2 and FLAIR hyperintensities involving bilateral cerebellar white matter, dorsal pons, dorsal midbrain, bilateral thalami, bilateral temporal, frontal and parietal subcortical white matter.

Course of illness and Treatment

On day 6 of illness patient regained consciousness and was fully oriented. Examination revealed horizontal gaze palsy, scanning speech and cerebellar signs. Power in all limbs reduced of MMRC grade 4-/5. No further seizures occurred after admission. He was treated symptomatically. Repeat platelet count on Day 3 was 2.1lakhs/cumm. Patient was discharged with stable vitals and minimal neurological deficits.

III. Discussion

Dengue fever is caused by flavivirus of four serotypes DENV1 -4. Vector borne transmitted by *Aedes aegypti*^{1,2}. Neurological manifestations occurring are encephalitis, encephalopathy, meningitis, myelitis, Guillain-barre syndrome, polyneuropathy and optic neuritis. Clinically encephalitis and encephalopathy are difficult to distinguish¹⁰. MRI predominantly reports diffuse cerebral edema, bilateral symmetrical FLAIR and T2 hyperintensities in thalami, pons, and medulla with heterogenous or peripheral enhancement on contrast administration, with few of these areas showed restriction on diffusion and petechial hemorrhages⁹. However, MRI findings are not specific as similar findings may be seen in Japanese encephalitis and herpes encephalitis. Treatment is symptomatic and supportive.

IV. Conclusion

High index of suspicion to be maintained when a dengue fever case presents with neurological manifestations as seizures and altered sensorium. MRI features are contributory to diagnosis.

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