

Dengue Encephalitis - A Diagnostic Dilemma

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ABSTRACT

Introduction: Dengue is most important arthropod-borne viral disease worldwide, with approximately 390 million infection occurring per year, of which approximately 96 million cause sign of disease. Dengue virus is single stranded RNA virus belonging to flaviviridae family having four serotypes.

Case report: We are thus reporting a case of Dengue fever which presented as encephalitis. Very few cases of dengue encephalitis has been reported worldwide and the literature available on the illness is limited.

Conclusion: Dengue is classically thought to be a non-neurotropic virus. Most common dengue serotype causing neurological complication are DEN 2 and DEN 3. Neurological complication are rare in dengue.

Keywords: Dengue Encephalitis, Diagnostic Dilemma

INTRODUCTION

Dengue is most important arthropod-borne viral disease worldwide, with approximately 390 million infection occurring per year, of which approximately 96 million cause sign of disease. Year-round transmission of dengue virus occur between latitude 25° N and 25° S. Dengue virus is single stranded RNA virus belonging to flaviviridae family having four serotypes¹. Dengue is highly prevalent in India causing high morbidity and mortality. So it is important to focus on all deleterious effect of dengue. Neurological complication are rare in dengue. Very few cases of dengue encephalitis has been reported worldwide and the literature available on the illness is limited. We are thus reporting a case of Dengue fever which presented as encephalitis.

CASE REPORT

A 25-year-old man came to medicine emergency in PBM hospital BIKANER having a history of fever with altered sensorium from last 6 days. Fever was high grade and continuous. Patient also had headache which was moderate to severe in intensity. Patient then started developing symptoms of photophobia with blurring of vision and severe vomiting. Then later his condition deteriorated and then he started developing altered sensorium. Patient had also had one episode of generalized tonic clonic seizure 1 day before admission. On admission his vital parameters were taken and it was found that he was febrile, with a temperature of 101°F, pulse of 92 / minute, blood pressure of 100 / 60 mmHg. There were no signs of respiratory distress. Edema, icterus, and clubbing were absent. There was no evidence of mucosal bleeding. The neurological examination revealed neck stiffness and extensor plantars. The rest of the systemic examination was also within normal limits.

Investigation profile of the patient revealed hemoglobin 11.6 g / dl, Packed Cell Volume of 37.9%, White Blood Cell count of 8900 / cumm. The platelet count was 312 thousand / cumm. Malaria antigen rapid test was negative. The liver enzymes were raised SGOT-315 U / L, SGPT- 357.2 U / L. Serum albumin was 3.08 gm / dl, Blood urea nitrogen was 53.4 gm / dl with creatinine of 1.3 mg / dl. The electrolytes sodium-137 mEq/L, potassium 3.9 mEq/l, serum calcium 8.97mg and Chest xray were within normal limits. Dengue-IgM by ELISA was positive. Cerebrospinal fluid (CSF) analysis showed clear watery CSF with cell count of 06cells/ cumm and all were lymphocytes. CSF proteins-91.41 mg/ dL, CSF glucose-53.73 mg/dl. All these CSF findings were suggestive of a probable Viral etiology. The CSF fluid was later found reactive DENGUE for IgM ANTIBODY.

MRI brain (fig-1,2,3) showed that there is altered signal intensity area in bilateral fronto-parietal periventricular white matter and splenium of corpus callosum appearing hyperintense on T2W and FLAIR while hypointense on T1W images. He was treated with intravenous fluids, antipyretic drugs, antiepileptic drugs. His condition improved and

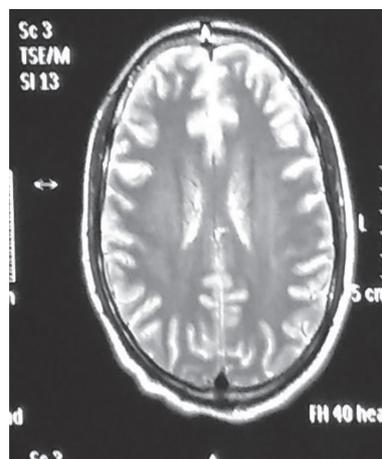


Figure-1: t2 weightd axial section of brain at corona radiata level showing periventricular white matter hyperintensity bilaterall

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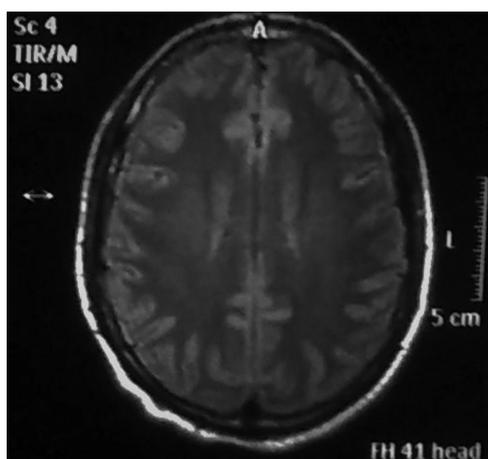


Figure-2: Flair sequence of brain at corona radiata level showing periventricular white matter hyperintensity

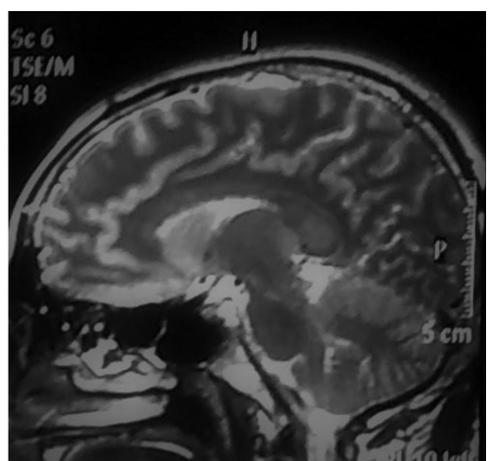


Figure-3: t2 weighted mid saggital section showing hyperintensity involving corpus callosum

he gained normal consciousness after treatment. He was discharged from the hospital after 12 days. He has no residual deficits. Subsequent follow up did not reveal any abnormality

DISCUSSION

Dengue fever is caused by a flavivirus with four serotypes, DEN-1 to DEN-4. Dengue usually presents with fever, headache, rashes and hemorrhagic manifestations. Dengue is classically thought to be a non-neurotropic virus². Most common dengues serotype causing neurological complication are dengue DEN 2 and DEN 3.³ The spectrum of neurological manifestations seen in dengue has been classified by Murthy into 3 categories⁴. Those related to neurotropic effect of the virus like encephalitis, meningitis, myositis and myelitis. Those due to the systemic complications of infection like encephalopathy, stroke and hypokalemic paralysis. Finally, post-infectious complications like encephalomyelitis, optic neuritis and Guillain Barré syndrome.

The criteria for dengue encephalitis are ⁵

1. Fever
2. Signs of cerebral involvement;
3. Presence of anti-dengue IgM antibodies or dengue antigen material in the serum and/or cerebrospinal fluid;

Our patient presented to us with fever, seizures and altered sensorium from 6 days and we could demonstrate dengue-IgM in his blood, IgG in CSF. So our patient fulfill the criteria for dengue encephalitis.

Previously Few Cases of dengue encephalitis has been reported by Solomon et al. 2000⁵ and recently by Borawake et al. 2011.⁷

MRI findings in dengue vary from either a normal scan or to a variety of findings like mild hemorrhages, cerebral edema, and focal abnormalities involving the basal ganglia, hippocampus and thalamus ⁸. In our patient MRI brain show altered signal intensity area in bilateral fronto-parieto periventricular white matter and splenium of corpus callosum appearing hyperintense on T2W and FLAIR image while hypointense on T1W images, restricted diffusion is seen which is suggestive of encephalitis.

CONCLUSION

Dengue impose a high burden on health budget of our country. It is important to be aware of and detect uncommon presentations of dengue. Dengue encephalopathy, though a rare diagnosis, should be considered a differential in cases of fever with altered sensorium, especially at the times of a dengue epidemic. Physicians must have a high index of suspicion to rule out and diagnose dengue encephalitis in fever encephalopathies patient.

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