CASE REPORT

MRI FINDINGS IN DENGUE ENCEPHALITIS: A CASE REPORT

Ravikanth Reddy[1], Partha Sarathi Sarkar[2], Dedatta Hajari[3], Babu Phillip[4]

Author's Affiliations: [1]Post Graduate Resident, [2]Senior Resident, [4]Professor and Head, Dept. of Radiology; [3]Senior Resident, Dept. of Medicine, St. John's Hospital, Banglore
Correspondence: Dr Partha Sarathi Sarkar Email: drparthasarathisarkar@gmail.com

ABSTRACT

Dengue viralinfection is common worldwide associated with high morbidity and mortality. Encephalitis has been well reported and is thought to occur with severe dengue infection leading to liver failure, shock, coagulopathy and leading to cerebral insult. Dengue encephalitis patients usually present with fever, altered sensorium, thrombocytopenia and high antibodytitresat the time of admission.Currently, neurological manifestations related to dengue infections are increasingly being observed. Dengue fever associated with encephalitis has high morbidity and mortality and only few studies have been published regarding Dengue encephalitis. Here, we present MRI findings in a case of Dengue encephalitis focusing on a better understanding of the disease for the clinical practice.

Keywords: Dengue,encephalitis, flavivirus, viral, MRI

CASE HISTORY

A 22 year old pregnant woman at 34 weeks of gestation with viral fever, erythema multiforme and myocarditis who presented with complaints of acute onset weakness in right lower limb and hyper-reflexia. Lab investigations showed thrombocytopenia and dengue positive serology.

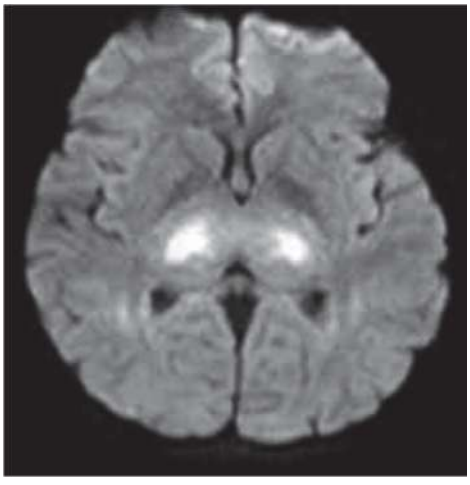

Figure 1: Axial DWI image showing diffusion restriction in bilateral thalami.

MRI with DWI was performed with a 1.5 T scanner. MRI images showedhyperintensity in bilateral thalami, pons and bilateralperirolandicpost central gyri. DWI imagesshowed diffusion restriction in bilateral thalami (Figure 1) and pons (Figure 3).Blooming wasnoted on GRE in bilateral perirolandic post central gyri (Figure 2).

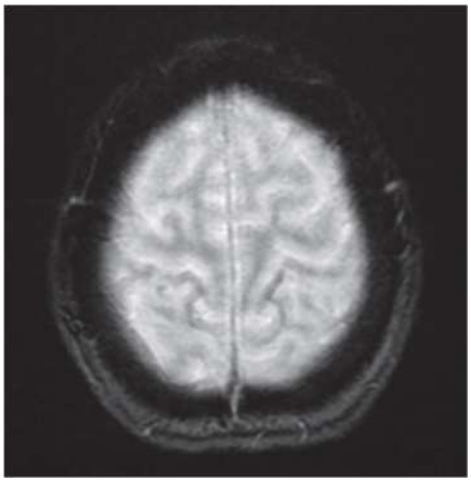

Figure 2: Subtle bilateral perirolandic post-central gyralblooming on GRE

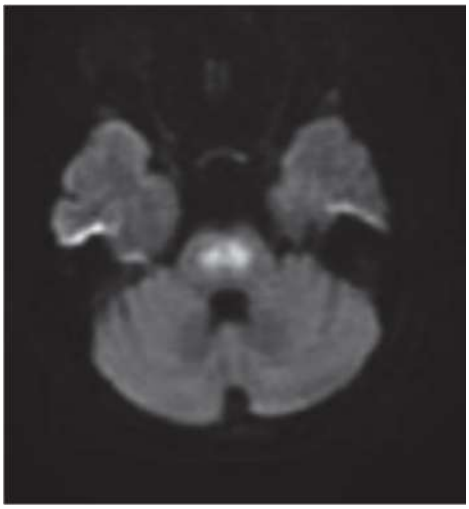

Figure 3: Axial DWI image showing restricted diffusion in pons

DIAGNOSIS: Dengue Encephalitis.

The diagnosis of dengue was confirmed by positive serology for IgM antibodies and NS-1 antigen positivity.

DISCUSSION

Dengue virus is a single-stranded RNA virus belonging to Flaviviridae family.Dengue viral infections are very common in Southeast Asia and all 4 serotypes are found.It is known to cause dengue fever and dengue haemorrhagic fever. Headache, alteration of consciousness, irritability, insomnia, seizures, focal neurological deficits associated with encephalitis, encephlalopathy and stroke pictures are the most common symptoms observed during acute dengue.Encephalitis is a very common neurological complication with dengue fever and is due to direct neuronalinfiltration by the virus. Furthermore, the cases may be underestimated.

Neuropathogenesis of DENV infection is still poorly understood. Viral and host factors may play an important role in the neurological disorders associated with Dengue. In this context, direct viral infection of central nervous infection, autoimmune reaction, metabolic and haemorrhagic disturbances may be involved in the pathogenesis. [1]

MRI is preferred over CT for better visualization of white matter changes and posterior fossa region.It also excludes other differential diagnoses. In acute viral encephalitis, findings include white matter signal intensity changes, cerebral edema which may progress in later stages to infarction, haemorrhage and brain atrophy. MRI findings of Dengue encephalitis are not very well described in literature. Encephalitis features in brain can be seen in globus pallidus, temporal lobes, thalamus, hippocampus, pons and spinal cord.[2,3,4]

The WHOsurveillance shows that global incidence is rising.[5]Numerous neurological manifestations like transverse myelitis,[6] myositis [7]and Guillian-Barre syndrome [8]have been reported.Dengue encephalitis is a well-recognized and common entity with incidence ranging from 0.5 to 6.2%.[7] It may be due to intracranial bleeding due to thrombocytopenia, cerebral hypoperfusion or cerebral edema.[9] Dengue virus and IgM antibody in the CSF has been reported in patients with dengue encephalitis.

On admission, our patient had a diagnosis suggestive of encephalitis with thrombocytopenia, metabolic acidosis, deranged liver functions and dengue positive serology. The MRI findings in our case are not commonly seen in association with dengue fever.Bilateral thalamic involvement with foci of haemorrhageand involvement of the brain stem is very uncommon with dengue. There is only one similar case report byKambleet al., with similar MRI findings.[10]

The outcome in dengue encephalitis depends upon how early the diagnosis is made and managed aggressively in due course of time because we can anticipate the course of encephalitis and its complications. Misra et al, proposed that encephalitis lies in the severe end of the spectrum of dengue infection.

CONCLUSION

Increasing incidence of dengue fever with encephalitis is associated with high morbidity and mortality. Diffusion weighted MRI is more likely to show changesin comparisonto conventional MRI with bilateral thalami showing signal changes commonly. We are presenting this case report to show the extensive involvement of brain by dengue virus.

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