CASE REPORT

MRI FINDINGS IN DENGUE ENCEPHALITIS: A CASE REPORT

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ABSTRACT

Dengue viral infection 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 antibody titres at 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.

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

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

Figure 2: Subtle bilateral perirolandic post-central gyral blooming 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, encephalopathy 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 neuronal infiltration 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. (2-5)

The WHO surveillance shows that global incidence is rising. (5) Numerous neurological manifestations like transverse myelitis, (6) myositis (7) and Guillain-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 haemorrhage and involvement of the brain stem is very uncommon with dengue. There is only one similar case report by Kamble et 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 changes in comparison to 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.

REFERENCES