



## AN UNUSUAL PRESENTATION OF DENGUE FEVER AS RHOMBENCEPHALITIS

**Dr. Sameena Farheen M. A**

Post Graduate Student, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation

**Dr. Pasam Snigdha**

Post Graduate Student, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation

**Dr. Kotagiri Vamsi Krishna**

Associate Professor, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation

**Dr. Gogineni Sujana\***

Assistant Professor, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation \*Corresponding Author

**ABSTRACT** Dengue fever, a common arboviral infection, is recognized to precipitate several neurological conditions, including encephalitis and myelitis. Rhombencephalitis, an inflammatory disorder affecting the hindbrain (pons, cerebellum and medulla oblongata) typically arises from infective or immune-mediated causes. We now offer a unique instance of rhombencephalitis caused by dengue fever in a 30-year-old female who had been well before. Despite prompt medical intervention, including intravenous antibiotics and steroids, the patient's condition rapidly deteriorated, leading to mortality within three days of hospitalization. This case underscores the importance of recognizing and managing unusual neurological manifestations of dengue fever promptly to avert adverse outcomes. To better comprehend and treat such uncommon dengue fever presentations, further education and research are necessary.

**KEYWORDS :** Dengue Fever, Rhombencephalitis, Rare Presentation of Dengue, Poor Prognosis

### INTRODUCTION

Dengue, a prevalent arboviral infection in areas that are tropical and sub-tropical worldwide, is caused by infection from one among the four serotypes of the virus responsible for dengue fever, which is spread by *Aedes* mosquitoes. While the precise incidence remains uncertain, there is growing acknowledgment of neurological manifestations associated with the disease. Dengue infection encompasses a broad range of neurological complications, including but not limited to Guillain-Barré syndrome (GBS), encephalitis, myositis, myelitis, and mononeuropathies.<sup>[1]</sup> The term "rhombencephalitis" describes an inflammatory disease that affects the hindbrain, which includes the cerebellum and brainstem. Infectious, immune-mediated, and post-infectious illnesses are all included in the pathogenesis. Here, we describe a case of dengue fever-related rhombencephalitis. There aren't many accounts of it being present in dengue fever literature.<sup>[2]</sup>

### Case Report

A 30-year-old female with no medical comorbidities, came with complaints of fever for 1 day. It was associated with myalgias and headache. Patient suddenly developed altered sensorium and was brought to our hospital. There is no history of vomiting/s/seizures/head trauma/intoxication of any drugs/substance.

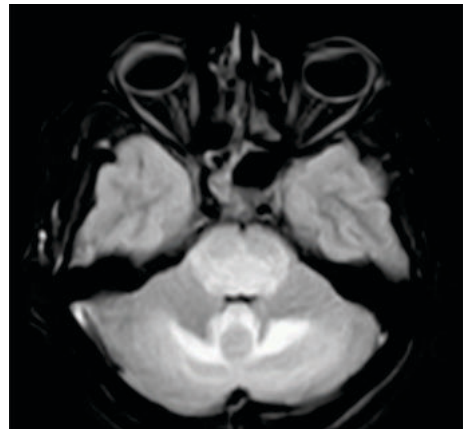
On examination, the patient was drowsy, incoherent, and not obeying commands. Bilateral pupils were pin-point with no reaction to light. Deep tendon reflexes were brisk and plantars were extensors. Meningeal signs were negative.

There were no anomalies in any of the hematological or biochemical measures, such as the platelet count, total blood count, renal function tests, liver parameters, or thyroid investigations. Her CSF analysis showed cell count of 6 (80% lymphocytes and 20% neutrophils), Glucose was 114 mg/dl (Serum : 125 mg/dl), proteins was 126.2 mg/dl, ADA was negative. Dengue NS1 antigen test was positive.

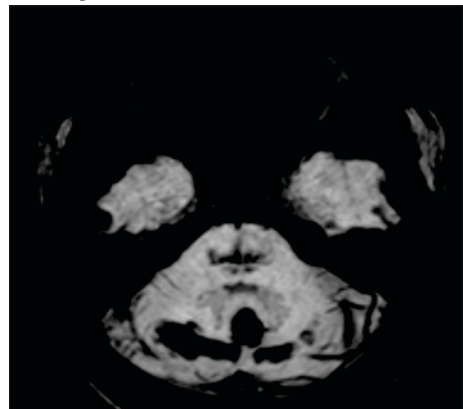
There were no anomalies in any of the hematological or biochemical measures, such as the platelet count, total blood count, renal function tests, liver parameters, or thyroid investigations. Her CSF analysis showed cell count of 6 (80% lymphocytes and 20% neutrophils), Glucose was 114 mg/dl (Serum : 125 mg/dl), proteins was 126.2 mg/dl, ADA was negative. Dengue NS1 antigen test was positive.

In view of altered sensorium and poor Glasgow coma score, she was intubated and kept on mechanical ventilation. She was treated with intravenous antibiotics, steroids and other supportive care. Despite all

efforts, patient condition deteriorated, and she expired after 3 days of hospitalization.



**Figure 1:** T2 showing hyperintensities involving the pons and bilateral cerebellar hemispheres



**Figure 2:** FLAIR showing hyperintensities involving bilateral thalami.

### DISCUSSION

Rhombencephalitis encompasses inflammatory conditions affecting the hindbrain, which includes the brainstem and cerebellum. Its causes

are numerous and include autoimmune disorders, infections, and paraneoplastic syndromes. Notably, the most frequent cause of rhombencephalitis is infections with bacteria belonging to the genus *Listeria*. In young adults in good health, *Listeria* spp. infections usually cause primary rhombencephalitis. It frequently progresses in two stages, starting with a flu-like illness and ending with brainstem impairment. About 75% of those affected have pleocytosis in their cerebrospinal fluid, whereas almost all demonstrate abnormalities on brain magnetic resonance imaging scans.<sup>[2]</sup>

Enterovirus 71, Herpes simplex virus, Epstein-Barr virus, West Nile virus, Japanese encephalitis virus, and human herpesvirus 6 are among the viruses that are frequently linked to rhombencephalitis<sup>[3]</sup>. An iconic case of immune-mediated rhombencephalitis is Behçet's illness.<sup>[4]</sup>

Dengue infection is recognized for its propensity to lead to a range of neurological complications. Encephalitis, encephalopathy, myelitis, peripheral neuropathy, myositis along with hypokalemic paralysis are among the most common conditions. Immune-mediated reactions, metabolic abnormalities, and an immediate involvement of the nervous system (neurotropism) are the pathophysiological pathways generating neurological problems in dengue fever.<sup>[5]</sup>

In our case study, the patient was suffering from dengue rhombencephalitis, which is a very unusual presentation of dengue fever. Also, its early presentation and mortality expresses a concern regarding its early diagnosis and treatment. Physicians should be aware of this rare manifestation and treat patient as early as possible to prevent its complications.

This is very rare presentation of dengue fever and only few reports are available as per our knowledge.

#### REFERENCES

1. Verma R, Sahu R, Holla V. Neurological manifestations of dengue infection: A review. *Journal of the Neurological Sciences*. 2014 Nov;346(1-2):26-34.
2. Verma, Rajesh, et al. "Rhombencephalitis Associated with Dengue Fever." *Journal of Clinical Virology*, vol. 78, 1 May 2016, pp. 99-101
3. Johnson RT. Emerging viral infections of the nervous system. *J Neurovirool*. 2003;9(2):140-7.
4. Koçer N, Islak C, Siva A, Saip S, Akman C, Kantarci O, et al. CNS involvement in neuro-Behçet syndrome: an MR study. *AJNR Am J Neuroradiol*. 1999;20(6):1015-24.
5. Verma R, Sharma P, Garg RK, Atam V, Singh MK, Mehrotra HS. Neurological complications of dengue fever: experience from a tertiary center of north India. *Ann Indian Acad Neurol*. 2011;14(4):272-8.