



# A Rare Case of Dengue Fever with Abducens Nerve Palsy

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Study**

## **ABSTRACT**

Dengue fever is one of the most common vector borne disease which is a viral infection transmitted by aedes mosquito. Most common in the tropical countries. Neurological manifestations are not commonly seen in dengue, it can present as encephalitis, encephalopathy, neuromuscular disorders and neuro-ocular disorders. Cranial mononeuropathy is a very exceptional manifestation. A 48-year-old Indian male was diagnosed with dengue, complicated with isolated unilateral sixth cranial nerve palsy. The patient was managed conservatively. Patient made a fast and full ocular recovery following treatment with methyl prednisolone. Hence, dengue can present with a cranial nerve palsy and the recovery process can be hasten with the use of corticosteroids.

**Keywords:** *Dengue; cranial mononeuropathy; abducens nerve.*

## **1. INTRODUCTION**

In tropical countries like India, dengue is an epidemic and one of the most common

mosquitoes borne disease. Ocular presentation in dengue are mostly due posterior segment involvements like retinal oedema or haemorrhage, maculopathy, optic neuropathy

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and vitritis. But ocular manifestation due to cranial mononeuropathy in a case of dengue is very rare [1]. Ocular manifestations include reduced vision, restricted extra ocular movements, diplopia and metamorphopsia. This article presents a case of abducens nerve palsy as a rare complication of dengue and role of corticosteroids in recovery of such patients.

## 2. BACKGROUND

This case report focus on the unusual presentation of dengue. It is important to know all rare manifestations of dengue, as the patient can recover completely recover with proper and appropriate treatment.

## 3. CASE REPORT

A 48-year-old man came to the casualty with complaints of binocular diplopia for 1 days which was acute in onset and complaints of fever for 3 days. The patient also complained of vomiting for 2 days, abdominal pain and maculopapular rash. No neurological symptoms or bleeding tendency was observed. No significant past history and personal history.

His vitals were stable. On examination, he had maculopapular rashes over his thorax and bilateral upper and lower limbs. He had left-sided convergent squint and lateral gaze and abduction of the left eye was restricted. Neurological examination of other cranial nerves, motor system and sensory system were normal. Visual acuity (6/6) and fundoscopy examination were normal. No signs of bleeding diathesis were observed.

Investigations showed low platelet levels, LFT showed elevated enzymes (SGOT and SGPT). His chest radiograph was normal. Both dengue non-structural protein 1 (NS-1) antigen and dengue-specific immunoglobulin (IgM) results were positive. Fasting blood sugar, human immunodeficiency virus (HIV), anti-nuclear antibody (ANA), anti-neutrophil cytoplasmic antibody (ANCA), and complement C3 and C4 test results were negative. Lumbar puncture was not done due to the risk of bleeding in the presence of severe thrombocytopenia. Neuroimaging were done showed no abnormality.

He was diagnosed with dengue fever complicated with isolated left sixth cranial nerve palsy (abducens nerve) due to inflammatory changes. He was treated conservatively with

intravenous methylprednisolone 500 mg daily for 3 days in order to fasten the neurological recovery. Following the start of treatment, the patient's convergent squint completely resolved within a week, steroids were tapered and stopped, then the patient was discharged and followed up. This study concludes that dengue should be considered as a differential diagnosis of patients presenting with fever and cranial nerve pathology and corticosteroids can hasten the recovery process.

## 4. DISCUSSION

Mononeuropathy in dengue might occur due to cell mediated immune reactions [2], the pathophysiology is not well understood but in this case early manifestation of nerve palsy in a case of dengue might be due to direct viral invasion and inflammatory reactions. Neurological manifestations are mostly associated with DENV2 and DENV3 serotypes of dengue virus, but ocular manifestations did not occur [2]. Hence one theory is that, cranial mononeuropathy tends to occur in isolation. Dengue virus causes increased cytokine production leading to immune mediated endothelial dysfunction thus causing demyelinating types of conduction defects. So, use of corticosteroids not only hastens the recovery but also prevents the worsening of the condition. High dose of corticosteroids must be in caution in case of dengue haemorrhagic and dengue shock syndrome, as the immunosuppression caused due to steroids might worsen the condition[3]. Hence corticosteroids can be used in case dengue with cranial mononeuropathy until otherwise it is contraindicated.

## 5. CONCLUSION

One of the rare neurological complication of dengue is abducens nerve palsy. Cranial mononeuropathy has a good prognosis [4] and the recovery process can be speeded with the use of corticosteroids and regular disease monitoring is important.

## CONSENT

It is not applicable.

## ETHICAL APPROVAL

As per international standard or university standard ethical approval has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Shivanthan MC, Ratnayake EC, Wijesiriwardena BC, Somaratna KC, Gamagedara LK. Paralytic squint due to abducens nerve palsy: a rare consequence of dengue fever. BMC Infect Dis. 2012;12:156.
2. Carod-Artal FJ, Wichmann O, Farrar J, Gascón J. Neurological complications of dengue virus infection. Lancet Neurol. 2013;12(9):906-919
3. Kularatne SA, Walathara C, Mahindawansa SI, et al. Efficacy of low dose dexamethasone in severe thrombocytopenia caused by dengue fever: a placebo controlled study. Postgrad Med J. 2009;85(1008):525-529.
4. Bacsal KE, Chee SP, Cheng CL, Flores JV. Dengue-associated maculopathy. Arch Ophthalmol. 2007;125(4):501-510.

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