

Visual Loss Resulting from Dengue Maculopathy

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Received: January 05, 2021; **Published:** February 16, 2021

Abstract

Dengue fever is a disease caused by the mosquito-borne dengue virus, that occurs epidemically in tropical and subtropical regions. Clinical presentation is variable ranging from asymptomatic illness to life threatening dengue shock syndrome. Ocular manifestations from dengue remain a rare entity. This paper describes the case of a 28-year-old gentleman admitted to a hospital in Pakistan with fever, maculopapular rash and right sided visual loss. Polymerase chain reaction testing returned positive for dengue virus, and ophthalmic examination showed visual acuity of 20/40 in the right eye and multiple retinal haemorrhages and possible macular oedema on fundoscopy. The patient was treated conservatively and after 20 days his vision returned to normal. Although visual symptoms in dengue fever are rare, this case highlights the potential ocular effects of the virus and demonstrates that dengue patients complaining of eye symptoms should be examined for maculopathy. There remains no evidence-based definitive treatment for dengue maculopathy, however most patients' symptoms will resolve without treatment.

Keywords: *Dengue Virus; Maculopathy; Pakistan*

Introduction

Dengue fever is a disease caused by the mosquito-borne dengue virus, that occurs epidemically in tropical and subtropical regions.

Case Report

A normally fit and well 28-year-old gentleman with a no past medical history presented to a tertiary care centre in Lahore, Pakistan with history of fever for the past 5 days, right sided visual loss and a maculopapular eruption over his palms and soles. The patient was noted to have a fever of 38.5 degrees, however other observations were normal. Bloods revealed a lymphopaenia, neutropaenia and a thrombocytopenia. A polymerase chain reaction (PCR) test to check for dengue virus returned positive for dengue virus type 1. The patient was commenced on supportive management and once stabilised an ophthalmic review for his visual symptoms was arranged.

Ophthalmic examination revealed reduced visual acuity in the right eye at 20/40, with visual acuity in the left being 20/20. Visual fields examination using an Amsler grid showed a mild central scotoma in the right eye. There was no RAPD or impaired color vision. Intraocular pressures were 15 mmHg in the right eye and 17mmHg in the left. Fundoscopy showed multiple retinal haemorrhages and possible macular oedema.

An OCT was subsequently performed to determine the retinal thickness and investigate for macular involvement. This showed retinal thickening as expected at the points of retinal haemorrhage. No foveolitis was identified. There was some debate as to the optimal man-

agement for the patient with glucocorticoids being strongly considered. However, given the patient's leucopenia and personal reluctance to take any medications a conservative approach was decided. The patient was reviewed weekly by the ophthalmology team and gradually his vision improved. And by around 20 days after symptom onset his vision had returned completely back to normal.

Discussion and Conclusion

This case reports highlights a rare complication of Dengue fever, a condition which regularly produces epidemics in Pakistan [1]. The pathophysiology of visual disturbances in Dengue fever has not yet been elucidated however it is thought to be due to a combination of viral factors, immune stress and increased capillary permeability [2]. Indeed, eye involvement tends to occur when platelet count is lowest and also when platelet counts begins to rise. Although ocular complications of dengue fever are rare, the classic scenarios which do occur are reduced visual acuity, scotomas and maculopathy. Symptoms, most commonly blurred visual, ocular pain, redness, disturbed color vision and flashes and floaters, are usually bilateral and occur 1 week after the onset of fever. The patient usually notices their visual symptoms when the macula becomes affected. It is important to perform fundoscopic examination and OCT, as well as delineate any visual field defects with an Amsler grid or ideally a Humphrey field analyzer. Occasionally infrared fundus photography (IFG) is used to better visualize lesions that were not fully explained by OCT. Treatment of Dengue fever's ocular manifestations remains a debated subject. Currently there is no evidence based anti-viral medication or vaccine and thus the mainstay of treatment for Dengue fever and its ocular manifestations remains supportive [3]. Ocular symptoms are therefore usually managed with close observation, and it has been shown in the literature than a spontaneous and complete resolution can occur this way. This does however take time, with studies showing resolution of ocular symptoms occurring later than other symptoms such as fever, by around 1 week - which was what occurred in this case. Moreover full resolution has been reported to take up to 4 months in the literature [4]. In certain such situations where there is severe eye involvement, medical management can be considered. This can include steroid therapy given intravenously, orally, topically or as a peri-bulbar injection. Moreover, the use of immunosuppressive therapy as adjuncts such as intravenous immunoglobulin, especially when steroid therapy alone has failed, has been shown in some reports to be beneficial [5].

Learning Points

1. Ocular manifestations of dengue fever, most notably dengue maculopathy are rare.
2. Most cases of dengue maculopathy can be managed conservatively, although prognosis is variable.
3. Education about preventative measures is key in reducing the burden of Dengue fever epidemics.

Conflicts of Interest

The author declares no conflicts of interest.

Funding

Nil received.

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Volume 12 Issue 3 March 2021

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