

A Case of Unusual Manifestation of Dengue Fever

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Abstract

Dengue retinopathy is a spectrum of ophthalmologic manifestations resulting from Dengue fever. The disease is considered to be one of the most important arthropod vector-borne diseases in the tropical and subtropical regions in terms of morbidity and mortality. Dengue virus can cause a wide spectrum of disease, ranging from mild febrile illness to life-threatening disease, such as Dengue hemorrhagic fever and Dengue shock syndrome. One of the complication in Dengue disease that is being observed more frequently in recent times is the Dengue retinopathy. However, only a few isolated case reports have been published. Here we report an isolated case of dengue retinopathy in a rural medical college.

Keywords: Aedes mosquito, Dengue retinopathy, Flavivirus

INTRODUCTION

Dengue fever is a mosquito borne disease that is commonly found in the tropics. Dengue virus belongs to the Flavivirus genus of the family Flaviviridae and its members include the four antigenically-related serotypes of dengue virus (DENV 1-4). It is transmitted to humans by the bite of an infected female Aedes mosquito, usually the Aedes aegyptimosquito. Dengue fever is the most prevalent form of flavivirus infection in humans. The highest incidence occurs in Southeast Asia, India and the American tropics.^{1,2} Worldwide cases of illness exceed 100 million per year.² Dengue hemorrhagic fever (DHF) is a severe and potentially fatal form of the disease. Twenty-five thousand deaths are reported annually to the World Health Organization (WHO).

Ophthalmic complications associated with DF and DHF have not been classically described. This complication is being observed more frequently in recent times. However, only a few isolated case reports have been published. Here we report an unusual manifestation of dengue fever presenting bilaterally with extensive panretinal vasculitis and severe macular oedema.

CASE PRESENTATION

A male patient aged 23 years from South India presented with sudden bilateral loss of vision, one week back he

was diagnosed to be suffering from Dengue fever, his Dengue NSI Ag was positive, which was confirmed by ELISA. His platelet count at the time of presentation was 24000/cmm, the visual acuity was right eye 6/36 and left eye was counting finger 3 m, on funduscopy there was retinochoroiditis with macular edema, neuroretinitis and flame shaped hemorrhages. He was transfused with 6 units of platelet and was also started on steroids and other supportive therapy. His platelet count gradually increased and at the time of discharge was 142000/cmm. By 3 weeks the macular edema had decreased and the visual acuity improved to 6/24 RE and 6/60 LE, although the patient was started on steroids by the end of 3 months the visual acuity remained at right eye 6/18 and 6/36 left eye, with no residual macular edema (Figures 1 and 2).

DISCUSSION

Dengue is the most common mosquito borne viral disease in humans. Globally, 2.5 billion people live in areas where dengue viruses can be transmitted.¹⁻³ Ophthalmic complications associated with DF and DHF have not been classically described, with only a few isolated case reports that have been published. Ocular involvement, usually bilateral, is common in patients with Dengue fever and symptoms may include sudden decrease in vision, central scotoma, floaters and subconjunctival hemorrhage (most commonly petechial in type). These findings are more common in patients with a platelet count of less than

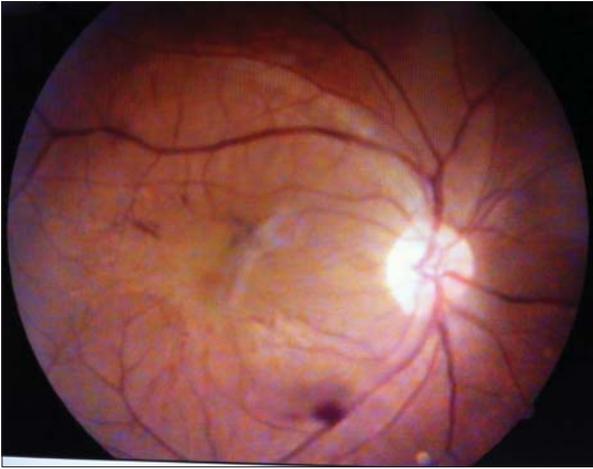


Figure 1: Neurorinitis seen in dengue retinopathy



Figure 2: Retinochoroiditis seen in dengue retinopathy

50,000/ μ l. Other ocular findings may include anterior uveitis, vitritis, retinal hemorrhages, retinal vascular sheathing, yellow subretinal dots, RPE (retinal pigment epithelium) mottling, foveolitis, retinochoroiditis, choroidal effusion, optic disc swelling, optic neuritis, neuroretinitis, panophthalmitis and oculomotor nerve palsy.^{4,5} The spectrum of ophthalmologic complications due to dengue fever may be due to thrombocytopenic state, with its resultant bleeding tendency, which gives rise to increased incidence of hemorrhage. These hemorrhages manifest as retinal blot hemorrhages in the macula and retinal periphery. A hypothesis about the pathogenesis of DHF, though proven true in vivo, involves immune clearance by way of induction of cross-reactive T-cell memory, T-cell proliferation, and recognition of dengue viral antigens on infected monocytes by sensitized CD4+CD8- and CD4-CD8+ cytotoxic T cells. This results in the release of cytokines with vasoactive and procoagulant properties (interleukins, tumor necrosis factor, platelet-activating factor, and urokinase).^{6,7} Vasoactive and inflammatory mediators cause capillary leakage, which may form the

basis for macular edema and breakdown of the aqueous blood barrier, resulting in anterior uveitis and periphlebitis. OCT is useful in detecting and monitoring the progress of foveolitis, showing a focal outer neurosensory RPE thickening corresponding to the round foveal yellowish lesion seen clinically, and in the detection and evaluation of Serous Retinal detachment and macular edema.⁸ The most common fluorescein angiography findings include blocked fluorescence due to retinal hemorrhages and retinal vascular leakage and occlusion. Indocyanine Green angiography shows hypofluorescent spots corresponding to the subretinal lesions seen clinically and additional spots in areas without clinically evident dots and a large choroidal vasculopathy with hyperfluorescence and leakage.⁹ Dengue-associated maculopathy was found to be more common with the virus serotype 1 compared to the serotype 2.¹⁰ Management of Dengue fever systemic disease is mostly supportive. There is no established treatment for ocular manifestations of Dengue fever. Topical, periocular, oral and intravenous steroids and immunoglobulins have been advocated for the management of Dengue-associated uveitis and optic neuritis.^{11,12} Visual prognosis is good in most patients, but Dengue-associated maculopathy and neuropathy may result in permanent visual impairment.^{13,8}

CONCLUSION

The onset of visual symptoms usually occurs at the lowest platelet level, blurring of vision typically coincides with the nadir of thrombocytopenia and occurs close to one week after onset of fever. Hence a very careful observation by fundus examination may be required during this period. The clinical features of dengue retinopathy includes any one or all of the following such as retinal edema, blot hemorrhages, cotton wool spots, anterior uveitis, exudative retinal detachment.⁸ Even though the disease is self-limiting and has a good prognosis, Topical, periocular, oral, intravenous steroids and immunoglobulins have been advocated for the management of dengue-associated uveitis and optic neuritis. The visual prognosis is good but some patients may experience mild relative central scotoma that may persist for month, but till now no statistical conclusion have been drawn about the efficacy of steroids in treating dengue retinopathy. The inference is that the clinicians should have heightened awareness of dengue-related ophthalmic complications and should facilitate prompt referral for ophthalmic assessment and management.

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