Early treatment of dengue foveolitis resulting in good visual outcome

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ABSTRACT

A 34-year-old lady presented with sudden onset of central blurring of vision of left eye on Day 7 of dengue fever confirmed by positive IgM serology. Visual acuity was 6/6 OD (right eye) and 6/18 OS (left eye). Relative afferent pupillary defect was absent. Anterior segment was unremarkable bilaterally. Fundus examination revealed an area of preretinal haemorrhage with surrounding cotton wool spot and exudation at the macula OS and a single dot hemorrhage at the superotemporal arcade OD. Optical coherence tomography showed bilateral macular oedema with extensive central foveal involvement of intraretinal and subretinal fluid OS. The central macular thickness was 408 µm. Fluorescein angiography showed late leakage at the macula with no capillary fall out OS. No obvious leak was seen OD. She was immediately treated with oral prednisolone 1 mg/kg/day with weekly tapering dose. Subsequently, her left eye showed remarkable improvement in visual acuity to 6/9 and reduction in central macular thickness to 207 µm. In conclusion, dengue foveolitis, although rare, can lead to vision-threatening complication if left untreated. Prompt diagnosis and treatment may result in promising visual outcome, as this case.

1. Introduction

Dengue fever is the commonest vector-borne viral disease in Malaysia and the reported cases are increasing each year[1]. However, there are limited reported cases on ocular manifestations of dengue fever. Ocular complications may involve the posterior and anterior segments[2]. The onset of ocular manifestations usually coincided with nadir of thrombocytopenia, around Day 5 to 7 of dengue fever. This may suggest an immune-mediated response rather than infective one[3]. However, the exact mechanism remains unclear.

In the present case report, we reported a case of dengue fever complicated by foveolitis resulting in visual impairment. Prompt diagnosis and treatment resulted in good visual and anatomical outcome.

2. Case history

A 34-year-old lady, with no known medical illness, presented with sudden onset of central blurring of vision OS (left eye) at Day 7 of dengue fever which was confirmed by positive IgM dengue serology. Visual acuity was 6/6 OD (right eye) and 6/18 OS. Relative afferent pupillary defect was absent. Result of anterior segment examination was unremarkable bilaterally. Fundus examination revealed an area of preretinal haemorrhage with surrounding cotton wool spot and exudation at the macula OS and a single dot hemorrhage at the superotemporal arcade OD. Optical coherence tomography showed bilateral macular oedema with extensive intraretinal and subretinal fluid OS. The central macular thickness was 408 µm. Fluorescein angiography showed late leakage at the macula with no capillary fall out OS. No obvious leak was seen OD. She was immediately treated with oral prednisolone 1 mg/kg/day with weekly tapering dose. Subsequently, her left eye showed remarkable improvement in visual acuity to 6/9 and reduction in central macular thickness to 207 µm. In conclusion, dengue foveolitis, although rare, can lead to vision-threatening complication if left untreated. Prompt diagnosis and treatment may result in promising visual outcome, as this case.

3. Discussion

Dengue fever is one of the most prevalent arthropod-borne viral diseases in terms of human morbidity and mortality. The incidence rate shows an escalating trend each year in Malaysia[1]. Ocular complications associated with dengue fever are rarely reported in the literature. However, since the year 2000, dengue-related ocular...
complications have been increasingly reported especially from Southeast Asian region[3]. Ocular manifestations of dengue fever are likely to mirror the sharp rise in cases of dengue fever.

There is no specific treatment for systemic dengue fever and usually supportive therapy is revolved. Most of the time, the course of the ocular complications, like systemic dengue fever, is generally self-limiting and resolves spontaneously even without treatment[4-6]. The improvement in visual signs and symptoms usually corresponds to improvement of platelet levels[7].

Despite being rare and self-limiting, there have been reported cases of ocular complications resulting in permanent visual impairment[8]. To date, there is no established treatment for ocular complications of dengue fever[8]. Because the underlying mechanism is likely to be an immune-mediated response, some researchers advocated the use of systemic steroid therapy, if not contraindicated, to patients with extensive involvement of retina, retinal pigmented epithelium and choroid[5,6,9]. Treatment is especially imperative in patients with poor initial visual acuity[9].

The reported use of systemic steroids is administered either orally or intravenously[6,7]. The dose suggested for oral prednisolone is 1 mg/kg/day for one week and slowly tapered over two months[7]. On the other hand, intravenous methylprednisolone dosage is given 1 g per day in divided doses for three days, followed by oral prednisolone at 1 mg/kg/day for one week and the dosage is tailed off over the next two months in a similar manner[7]. To date, there is no evidence as to which is the more superior mode of administration.

However, the outcome of treatment with systemic steroids in vision in both forms has been favourable[6,7].

We commenced treatment with oral prednisolone in our patient due to the extensive involvement of the retina on OCT and also significant reduction in the initial visual acuity. The dose of the oral prednisolone started was in accordance to the recommendations suggested by most researchers. We saw a dramatic improvement on OCT within three days of treatment. However, visual acuity was slowly improved over the course of three weeks while on treatment. It is unclear whether visual recovery was the result of treatment or part of the natural course of the disease. Hence, it is imperative that the effect of treatment on rate and amount of recovery be
addressed in future studies, since dengue maculopathy is a potentially disabling disease, particularly in patients with severe involvement\(^9\), as in this case. Furthermore, randomized control trials are needed to determine the best form of treatment for these patients.

In conclusion, it is crucial for early detection and treatment of dengue-related maculopathy for prevention of permanent visual impairment, as in this case.

**Conflict of interest statement**

We declare that we have no conflict of interest.

**References**


