Dengue Maculopathy: A Rare Retinopathy in the United Arab Emirates

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Abstract

Dengue fever is rare in the United Arab Emirates; the disease can get imported by individuals travelling from endemic areas. Dengue maculopathy is a common cause of visual disturbance, and optical coherence tomography plays a valuable tool in its diagnosis. Dengue-related maculopathy can lead to persistent central or paracentral scotoma in the absence of any other clinical ocular signs. Herein, we report a case of young British female who developed ocular complications of dengue fever following a recent travel to South Asian country.

Keywords: Dengue fever, foveolitis, Humphrey visual field, maculopathy, optical coherence tomography

INTRODUCTION

Dengue fever is the most common mosquito-borne viral disease in humans in many tropical areas. It is transmitted to humans through the bite of *Aedes* mosquitoes caused by *Flavivirus*. Dengue is usually a self-limiting, multisystemic infection. Visually, symptomatic complication is seen in 5%–7% of the cases. Dengue fever is rare in the United Arab Emirates (UAE), but the large number of expatriates coming from endemic areas can bring the disease with them. As the vector is currently not found in the UAE, no local transmission can happen, and only sporadic cases can occur.[3] Herein, we report a case of dengue maculopathy in an expatriate with a recent history of travel to a South Asian country.

CASE REPORT

A 32-year-old British woman was admitted to the emergency a week after her return from Sri Lanka. She had a high fever and headache for 4 days before the admission. She also had a sore throat with cough and pruritis with rashes on presentation. She underwent a series of laboratory tests. She tested positive (IgM) for dengue fever with very low (36 × 10⁹/L) platelet counts and neutropenia.

Three days after admission, she developed blurring of vision in both the eyes (OU). Best-corrected visual acuity (BCVA) was 0.4 in the right eye (OD) and 0.7 in the left eye (OS). Colour vision was altered, anterior segment examination was unremarkable, and the vitreous had no cells. Fundus examination of OU showed pale retinal oedema of the posterior pole (more evident in OD), superficial flame-shaped haemorrhages, blot haemorrhages, soft exudates and diffuse macular oedema, but the vessels were normal [Figure 1a and b]. Optical coherence tomography (TOPCON 3D spectralDomain OCT, Japan) OD showed, cystoid changes involving the outer retinal layers and localized foveal retinal detachment (RD). These changes were suggestive of outer maculopathy. OS showed few outer retinal cysts [Figure 2a and b]. A fundus fluorescein angiography study showed normal retinal vascular perfusion. There was an obscuration of choroidal perfusion in the macula, more evident in the OD, with focal areas of blocked fluorescence in the areas of retinal haemorrhages and exudates [Figure 3a-d]. After 2 days, the BCVA improved to 0.6 in OD and 1.0 P in OS. Although there was an improvement in vision, the patient complained of central scotomas, more so in the OD. On fundus examination, the pale retinal oedema decreased. There was an increase in retinal haemorrhages and soft exudates and a pale yellowish-orange foveal lesion in both eyes suggestive of foveolitis.[4] Within 2 weeks, the macular oedema resolved, and the retinal haemorrhages cleared without

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How to cite this article: Pai SA, Saxena AK. Dengue maculopathy: A rare retinopathy in the United Arab Emirates. Hamdan Med J 2020;13:52-4.
any treatment [Figure 1c and d]. The OCT showed resolution of outer macular cystoid oedema with hyperreflective shadows. There was a tenting of the subfoveal RD with a thickening of the retinal pigment epithelium (RPE). In OS, the outer macular layer cysts regressed with hyperreflective shadow in the outer retina [Figure 2c and d]. Humphrey visual field (VF) -2010 Carl Zeiss Meditec, Germany. Central 242 threshold test showed centrocecal scotoma in OU (more evident in OD), 1 week after the onset of ocular symptoms [Figure 4a and b]. There was a gradual improvement in vision after 1 month without any treatment, BCVA improved to 0.8 P in OD and 1.0 P in OS. She still complained of seeing central scotoma more in OD. On examination, the fundus appeared unremarkable. OCT in OD showed, localized central outer retinal layer disruption and RPE thickening. OS showed disturbances in the outer retinal layer [Figure 2e and f]. After 3 months, the vision remained 0.8 in OD and 1.0 in OS, and she still complained of central scotoma (more in OD). The anterior segment and fundus examinations were unremarkable. OCT: OU showed flattening of the foveal contour and subtle outer retinal layer disturbances in the macula [Figure 2g and h]. VF test showed improving centrocecal scotoma OU (more in OD) [Figure 4c and d]. On her last visit (two years after the onset of ocular symptoms), the BCVA remained 0.8 in OD and 1.0 P in OS. She still complained of seeing central scotoma [Figure 4e and f]. Despite having no apparent signs of retinal pathology after 2 weeks, the patient continued to have disturbances in vision and complained of central scotomas (more in OD). OCT showed focal disruption of outer neurosensory retina and RPE thickening at the centre (more in OD). OS showed disturbances in the outer retina [Figure 2e and f].

**DISCUSSION**

Dengue fever is a common mosquito-borne viral disease in the tropical countries, but rare in UAE. Our patient presented with blurred vision secondary to macular oedema 7 days following...
complex deposition or production of autoantibodies.\(^5\) OCT demonstrated macular involvement. There are three known patterns of maculopathy: (1) diffuse retinal thickening; (2) cystoid macular oedema and (3) foveolitis.\(^6\) Our patient presented with a diffuse outer retinal oedema with a discrete, well-defined yellowish-orange lesion in the fovea, which is described as foveolitis.\(^3\) On OCT, it appeared to be a localised disruption in the outer retina, showing persistent central scotoma at 1 week, 3 months and 2 years after onset of ocular symptoms. Ophthalmic involvement secondary to dengue fever carries a good prognosis without any treatment. Systemic steroids are recommended in cases of severe ocular involvement.\(^7\) However, a significant number of patients have persistent scotoma despite clinical resolution of dengue ophthalmic complications. In a study, dengue-related maculopathy had persistent central or paracentral scotoma in 59.5% of cases.\(^7\) With many nationalities living in UAE, ophthalmologists should be aware of dengue-related ocular complications. Dengue maculopathy is a common cause of visual disturbance and OCT plays a valuable tool in its diagnosis. Foveolitis and typical outer retinal maculopathy can cause persisting central and paracentral scotoma years after dengue fever in the absence of any other clinical ocular signs.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be published, and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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