Case Report

Dengue Fever Associated Foveolitis

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Abstract

Purpose: To report a case of foveolitis associated with dengue fever.

Methods: Retrospective, observational case report.

Case description: A 12-year-old male child, presented to the retina department with complaints of sudden blurring of vision in left eye since 1 week following dengue fever. His presenting visual acuity in left eye was 20/60, N8. Fundus showed well-circumscribed, pale yellow-orange lesion at the foveal center in LE. Retinal imaging findings were consistent with the diagnosis of foveolitis.

Results: Foveolitis and macular swelling were found to resolve over time on serial OCT, with visual acuity improving to 20/20,N6 with a resolution of scotoma.

Conclusion: Infection with dengue virus might be associated with foveolitis. We suggest that serial OCT be performed to monitor maculopathy.

Keywords: Dengue fever, Maculopathy, Disruption of outer retina, Foveolitis, Y split in outer plexiform layer.

Introduction

Dengue fever is the most common mosquito-borne viral disease in humans that is transmitted through the bite of an infected female *Aedes aegypti/albopictus* mosquitoes and is commonly found in the tropics.[1]

With the recent outbreak of dengue, India recorded 110473 dengue cases in 2022, according to data shared by the National Center for vector-borne Diseases Control.[2]

Dengue fever is a multisystemic disease with known complications. It may cause maculopathy with a wide spectrum of manifestations. Ocular findings were mostly seen in the posterior pole of the fundus, manifesting as retinal hemorrhages, macular edema, foveolitis, vasculitis, and optic neuropathy.[3,4]

In this case report, we report a case of foveolitis following dengue fever which showed spontaneous recovery through the follow-up visits

Case Description

A 12-year-old male child presented to the retina department with complaints of sudden blurring of vision in left eye since one week following dengue fever. His presenting visual acuity in right eye was 20/20 and left eye was 20/60, N8. RE fundus looked grossly normal at presentation (Figure 1). OCT line scan through fovea showed "Y split" in outer plexiform layer (Figure 2A). Although at 1 week followup. RE started showing parafoveal photoreceptor layer changes suggestive of photoreceptoritis. There was focal discontinuity in the ellipsoid zone and the external limiting membrane just above the intact retinal pigment epithelium (Figure 2B).

At presentation, LE fundus showed a well-circumscribed, pale yellow-orange lesion at the foveal center (Figure 1). The corresponding area of the focal outer neurosensory retina–RPE thickening at the foveal center was identified on OCT, suggestive of foveolitis. A hyperreflective conical lesion was noted arising beneath the ELM. Associated "Y-shaped" split can be seen in outer plexiform layer (Figure 3A). Amsler's grid charting revealed a central scotoma in the LE. At day 7 post-

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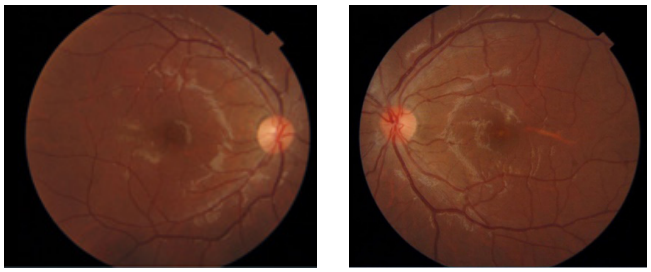

Figure 1: Fundus picture of RE was grossly Normal and LE shows well-circumscribed, pale yellow-orange lesion at the foveal center

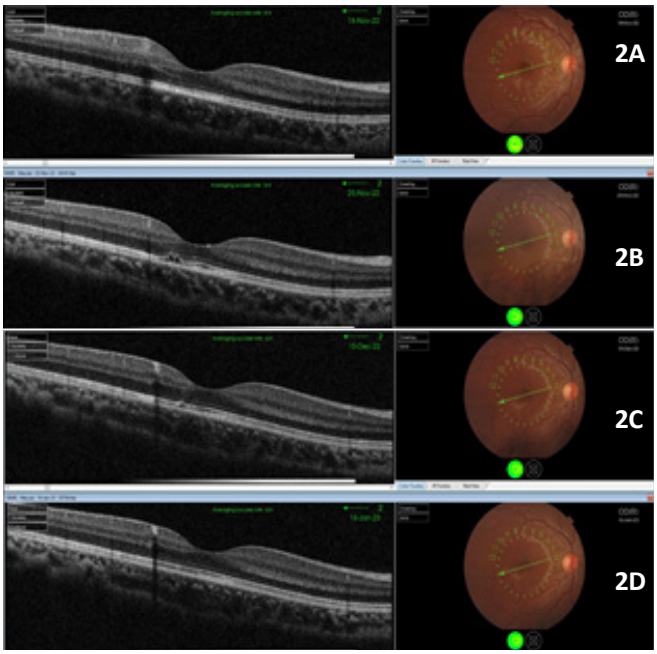

Figure 2: (A) At presentation – OCT line scan through fovea shows "Y split" in outer plexiform layer, (B) Comparative scan shows changes at photoreceptor layer at 1 week (Photoreceptoritis). There is focal discontinuity in the ellipsoid zone and the external limiting membrane just above the intact retinal pigment epithelium, (C) Shows 1 month follow-up scan, photoreceptoritis almost resolved, (D) Complete resolution seen at 2 month follow-up.

presentation, the imaging findings showed improvement in LE with resolution of conical foveal lesion with improvement in vision to 20/30, N6 (Figure 3 B).

At 1 month follow up, photoreceptoritis almost resolved with some focal disruption of ellipsoid zone in RE (Figure 2C) and LE (Figure 3C), respectively. At final visit (2 months post presentation), complete recovery with restoration of photoreceptor and outer retinal layers were seen in both eyes (Figure 2D and Figure 3D) with visual acuity improving to 20/20, N6 in both eyes with a resolution of scotoma.

Discussion

This case highlights the occurrence of foveolitis following infection with dengue. A dengue foveolitis corresponds to a disruption of the outer neurosensory retina in OCT, which

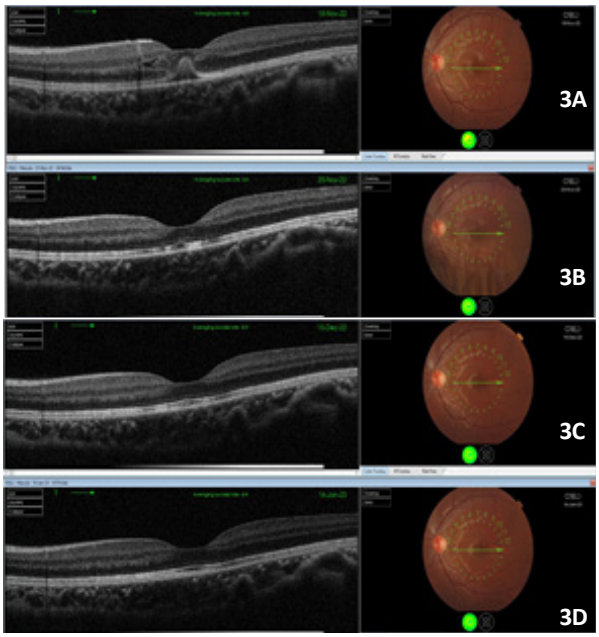

Figure 3: (A) At presentation - OCT horizontal line scan through the foveal lesion shows "Conical foveal lesion", focal outer neurosensory retina–RPE thickening. Y' shaped split can be seen on outer plexiform layer, (B) At 1 week, comparative scan shows resolution of conical foveal lesion but photoreceptoritis still present, (C) At 1 month photoreceptoritis resolving, (D) Complete resolution seen at 2 month follow-up.

is seen clinically as yellow– orange lesions in the foveal region.[5] Teoh *et al.* described three OCT patterns in dengue maculopathy: Type 1 (diffuse retinal thickening; 44.6%), type 2 (cystoid macular edema; 21.6%), and type 3 (foveolitis; 33.8%).[6] Foveolitis can present with BCVA ranging from 20/20 to counting fingers. They usually present on day 7 after the onset of dengue fever.[6] An immune-mediated mechanism may play an important role in foveolitis, similar to dengue maculopathy.[7,8] 'Y' shaped split can be seen on OCT in outer plexiform layer when central macula is elevated either due to serous or solid elevation.[9] Ophthalmologists should be aware of foveolitis associated with dengue fever which may present with acute bilateral severe visual loss. Serial OCT is useful for the diagnosis and monitoring of the disease.

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