



Pan-uveitis - A rare ocular manifestation of dengue

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Abstract:

Dengue is an important arthropod vector-borne disease in the tropical region. Ocular manifestations in dengue are nowadays an important vision threatening condition. The ocular manifestations range from subconjunctival hemorrhage to pan-uveitis. The timely detection and intervention is important in these conditions for salvaging the vision of the patient. The ocular manifestation is believed to be immune mediated and hence timely treatment is essential. Here we report a rare and severe form of ocular manifestation of dengue.

Key words: Dengue, Aedes aegypti, Maculopathy, Neuroretinitis, Soft Exudates

Introduction:

Dengue is a mosquito-borne infection found in tropical and sub-tropical regions¹. Aedes aegypti is the major vector for human transmission in urban areas and Aedes albopictus is the major vector in the suburban and the rural areas.^{2,3} Ocular manifestations of dengue are not uncommon. Many case reports have been reported in past. Dengue related ocular complications range from 10% to 40%.^{3,4} The ocular manifestations range from subconjunctival hemorrhage to posterior segment manifestations.⁵ The ocular manifestations reported to be associated with dengue infections are mostly posterior segment manifestations like macular oedema, vascular occlusions, chorioretinitis, vasculitis with retinal bleeding or cotton wool spots.^{6,7} Anterior segment commonly manifests with subconjunctival hemorrhage due to thrombocytopenia.⁸

Case Report:

A 45-year old male patient presented to the ophthalmic OPD with sudden loss of vision from 5 days. The visual acuity at presentation was Counting finger at 1 meter in OD and Hand movement close to

face in OS. The near vision was unrecordable. The patient complained of pain and severe photophobia at presentation. On examination, both the eyes showed severe ciliary congestion and tenderness (**Figure I and II**). The cornea showed fine pigmented keratic precipitates in the Arlt's triangle. The anterior segment showed Flare + 2 and Cells +4 in 1mm × 1mm slit. There were organized exudates seen on the iris segment. The lens showed pigment deposits on the anterior lens capsule.

The vitreous cavity showed cells + 2 and the fundus examination with 90 diopter lens showed multiple soft exudates along the posterior pole with macular star and hard exudates along the macula (**Figure III and IV**). The intraocular pressure recorded was 12 mmHg with gold applanation tonometer for both eyes. There was tortuosity of the blood vessel with multiple superficial hemorrhages around the optic disc. The patient had a report dated two weeks back showing dengue antigen IgG positive with a platelet count of 1.1 lakhs.

The blood report done at presentation of visual loss showed complete blood count was within normal limits, with ESR report of 50 mg at the end of one hour and

platelet count of 4.16 lakhs. Considering dengue uveitis as the cause, the

Figure I: Anterior uveitis in Right Eye

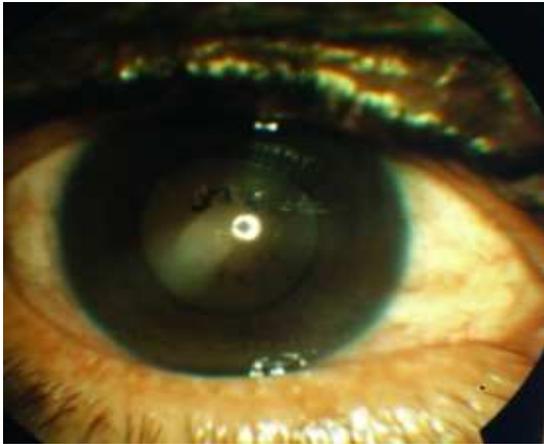


Figure II: Anterior uveitis in Left Eye

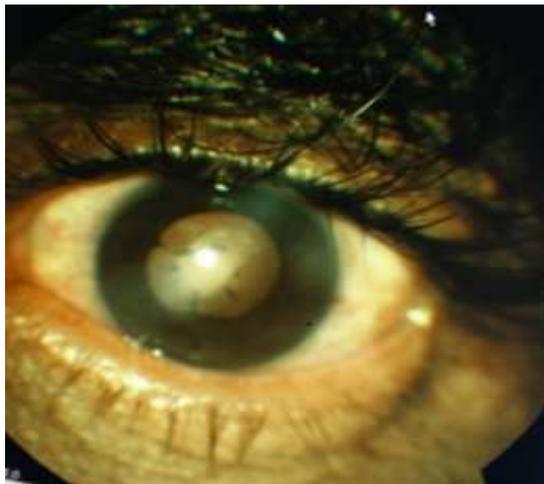


Figure III: Soft exudates and superficial haemorrhages



Figure IV: Soft exudates and macular star



patient was started on systemic steroids 1mg/kg body weight, along with topical steroids and cycloplegics.

The patient improved gradually over the next 15 days with visual improvement recorded to be slow upto 1 meter finger counting. The anterior uveitis improved rapidly with reduction in cells to +1 and Flare +1 and pupils attained good mydriasis and cyclopegia. The fundus picture remained the same.

The steroid were tapered by 10 mg every week till 4 weeks, but was maintained on 10 mg for next 3 weeks as the visual acuity recovery was gradual. By the end of 4 weeks, the best corrected visual acuity was ODupto6/9 on Snellens chart with +0.5 Dsp/-1.75cyl \times 70 $^{\circ}$ and near vision improving to N6 on Jagers chart with +1.5 Dsph., with colour vision recorded as normal on Ischiara chart. However, the vision in OS improved to 6/12 on Snellens chart with +0.5Dsp /-1.25 at 109 $^{\circ}$ and the near vision improved only upto N10 max with +1.50.

The foveal area of the left eye continued to manifest oedema and hard exudates. Considering dengue maculopathy, the patient was continued on 10 mg systemic steroids and Nepafenac eye drops for next 4 weeks. The patient was regularly followed up on Amslers chart for detection of scotomas.

Discussion:

Dengue is a common health problem especially affecting South East Asia population.⁶ The ocular manifestations of dengue has been reported in all age groups, but more commonly in early thirties^{3,6}

Vision threatening complications of dengue have been reported at the end of 1st week of dengue fever as this is the phase coinciding with nadir of thrombocytopenia.⁶ The presenting visual acuity in the patients can range from 6/6 in Snellen acuity chart to counting fingers as in our case^{4,6,8}. In a study by Kapoor et al, ocular involvement was present in 54% of dengue patients, severe visual impairment was not seen in any of them as the fundus was affected in only 7.5% of eyes, with sparing of macula in all eyes.⁷ Scotoma is also reported to be a common symptom, which usually corresponds to the macular oedema.⁶ However inspite of macular oedema, our patient didn't have scotoma, and similar findings are also by shown by Teoh et al⁹ in their Ocular complication report on dengue.

Our patient had no subconjunctival haemorrhage, though it is the most commonly reported symptom in patients.³ Anterior uveitis as reported by Bascal et al was seen in 17% of cases, vitritis in 31% of cases and together in 11% cases.¹⁰

Our patient presented with severe bilateral anterior uveitis, with exudative reaction in the anterior chamber.

In a study by Gupta et al, they found maximum patients had unilateral uveitis.¹¹ A immune mediated pathogenesis has been suggested for ocular manifestations.⁴ The possibility of production of specific autoantibodies against various tissues of eyes are suggested^{7,12}

Our patient had vitritis and posterior uveitis in form of multiple soft exudates and hard exudates in and around the disc. The predominant posterior segment finding in our patients was multiple cotton wool spots (soft exudates) and macular

Figure V: Resolving of soft exudates

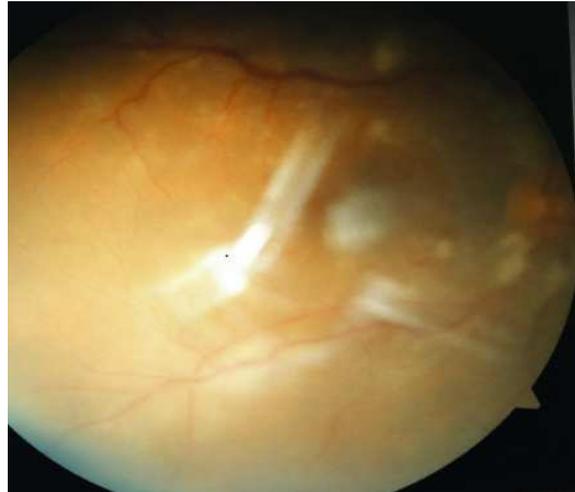
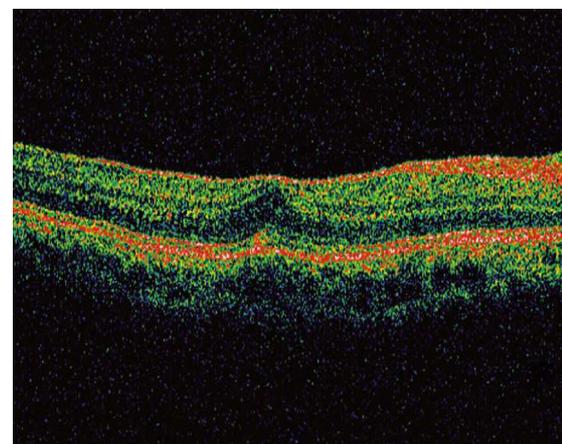


Figure VI: Resolved macular star



Figure VII: Persistence of Type -1 Foveolitis of LE in Ocular optical Coherence Tomography



thickening with hard exudates around the macula. Few superficial hemorrhages were also seen. As reported by we didn't find classical yellow spot of foveolitis, rather we found macular star appearance with disc hyperaemia and cotton wool spots around the disc resembling neuroretinitis. The cotton wool spots in our patient persisted till the third week of follow up, but decreased in size (**Figure V**). The macular star disappeared by the end of 4 weeks (**Figure VI**), however the visual acuity persisted to remain less in the left eye, due to macular thickening (**Figure VII**).

Studies in the past have reported dengue related maculopathy ranging from 7.5% to 80%.³ Macular oedema has been reported as most common finding by Teoh et al.⁶ Foveolitis was first described by Loh et al in 60% of cases¹³, which was also seen in study by Bascal et al.¹⁰ Disc oedema in 11% of cases and disc Hyperemia in 14% of cases was reported by Bacsal et al. Teoh et al reported optic neuritis in only 1.5% of cases⁹. Pan-uveitis is a uncommon complication, but has been reported.¹⁰ Panophthalmitis and exudative retinal detachment has also been reported in a study by Gupta et al¹¹ and Saranappa et al.¹²

Conclusion:

Nowadays, dengue related ocular complications are in resurgence especially in tropical countries. Though it commonly presents by 3-4 months as post-dengue infection, it can also present 1 to 2 weeks following the infection. Our case was unique compared to the other reported case reports as the presentation was severe bilateral anterior uveitis with severe vitritis and cotton wool spots in the retina, suggestive of neuroretinitis and pan-uveitis like picture.

We required longer treatment duration of steroids with slow tapering at 10mg/kg body weight weekly for 4 weeks and a maintenance dose of 10 mg/kg body

weight for another 2 weeks. The patient required longer steroids, but the retinal thickening persisted for 6 weeks. Though the visual acuity was very poor at presentation, timely suspicion of dengue was made and steroids were started after ruling out tuberculosis. The patient was hemo-dynamically stable on presentation and still presented with severe ocular manifestation of dengue. Complete recovery in symptoms and significant improvement in visual acuity was found inspite of severe ocular involvement.

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Conflict of interests: Nil
Source of funding: Nil

Date of submission: 07-12-2015
Date of acceptance: 29 -03-2016

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