

Case Report

Bilateral Herpes Simplex Keratitis Associated with Dengue Fever

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Abstract

We report a unique case of a 45-year-old female who presented with complaints of diminution of vision, redness, watering, photophobia and foreign body sensation in both eyes along with haemorrhagic crusts involving periocular skin on both sides. She had recently been diagnosed and treated for dengue fever. There was also history of administration of Covid vaccine 1 month back. There was no history of any other chronic systemic illness. Ocular examination showed congestion of conjunctiva, haziness of corneas and diminished corneal sensations in both eyes. Fluorescein stain revealed characteristic dendrites of herpes simplex keratitis in both eyes. Prompt and aggressive treatment for the ocular and skin lesions was started. She responded well to the treatment and recovered completely as observed on subsequent follow ups. Our case highlights the need for physicians or ophthalmologists treating patients with dengue fever to be aware of these complications.

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Keywords: Herpes Simplex Virus, Keratitis, Bilateral, Dengue Fever

Introduction

Dengue is a highly endemic vector borne viral disease occurring mostly in tropical and sub-tropical areas. It is caused by the 4 serotypes of Dengue virus and is transmitted within humans through female Aedes mosquitoes. Dengue disease varies from mild fever to severe conditions of dengue haemorrhagic fever and dengue shock syndrome which may be fatal.¹

Dengue fever may rarely be associated with ophthalmic complications. Various complications reported in literature include macular oedema with blot haemorrhages, cotton wool spots, retinal vasculitis, exudative retinal detachment, anterior uveitis, corneal ulceration and subconjunctival haemorrhage.²⁻⁴

Herpes simplex virus (HSV) keratitis is a rarely reported complication associated with dengue fever. Richardson et al. reported 6 cases of herpes keratitis among 20,000 cases of dengue clearly showing its rarity.¹ To the best of our knowledge, bilateral HSV keratitis in association with dengue fever has not been previously reported. Herein, we present a unique case of bilateral HSV keratitis along with bilateral periocular skin lesions associated with dengue fever.

Case Report

A 45-year-old female presented with complaints of diminution of vision, photophobia, irritation, foreign body sensation and redness in both eyes for last 7 days. It was associated with appearance of skin lesions in ocular adnexal area bilaterally 3 days after the onset of diminution of vision. The patient had been diagnosed with dengue fever 10 days back and was under treatment from a physician. She also reported to have been recently administered covid vaccine (Covishield) – first dose taken 2 months back and second dose 1 month back with no complications in the intervening period. There was no history of diabetes mellitus, hypertension, tuberculosis, epilepsy, atopy, malignancy or any other chronic illness.

On presentation in eye clinic, the best corrected visual acuity (BCVA) was 6/18 in right eye and 6/18P in left eye. Intraocular pressure was 13 mm of Hg in right eye and 11 mm of Hg in left eye. There were multiple erythematous, crusting skin lesions present in the periocular and maxillary area on both sides (Figure 1). On slit lamp examination conjunctiva showed congestion in both eyes. Corneas of both eyes showed irregular epithelium with mild loss of transparency. Fluorescein staining revealed a 7-8 mm horizontal, linear dendrite with characteristic branching and terminal buds overlying the pupillary area in right eye and two vertically placed dendrites measuring 2 mm and 4 mm involving nasal and temporal part of the cornea in the left eye (Figure 2). The corneal sensations in both eyes were diminished. Examination of anterior chamber, lens and fundus was unremarkable in both eyes. On dermatological consultation, she was reported to have multiple skin lesions characterized by cystic erosions with surrounding erythema superimposed with haemorrhagic crusts over some lesions on both eyelids and maxillary area, consistent with lesions characteristic of herpes simplex.

Laboratory investigations of the patient revealed that she was positive for dengue NS1 antigen and erythrocyte sedimentation rate was raised at 100 mm/hr. X-ray chest showed mild pleural effusion involving left lung more



Figure 1: On external examination, multiple periocular cystic lesions with haemorrhagic crusts and surrounding erythema seen around both eyes 1879

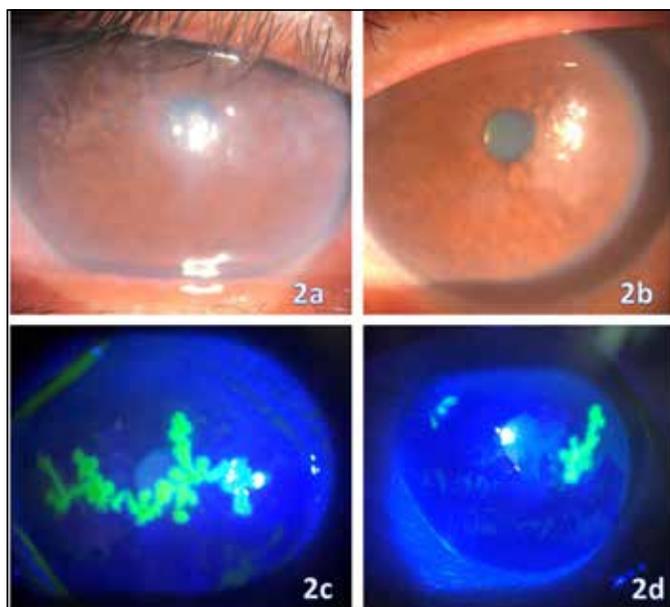


Figure 2: Slit lamp pictures showing irregular and hazy corneas on torch light examination in right eye (2a) and left eye (2b). Fluorescein staining revealed branching epithelial dendrites with terminal buds in right eye (2c) and left eye (2d) than the right. Other investigations such as Complete Blood Counts, Viral markers (HIV, HBsAg and HCV), Anti-Nuclear Antibody and Montoux test were within normal limits. Laboratory investigation for Herpes virus was not available and a clinical diagnosis of bilateral Herpes simplex keratitis along with periocular skin eruptions was made, and the patient was prescribed oral tablet acyclovir 400 mg five times a day for two weeks, tablet cefadroxil 500 mg twice daily for 1 week and tablet levocetirizine 5 mg twice daily for 1 week along with ointment mometasone-nadifloxacin (0.1%) twice daily for skin lesions by the dermatologist. Ocular treatment included ganciclovir eye ointment (0.15%) five times a day, moxifloxacin (0.5%) eye drops three times a day and homatropine (2%) eye drops twice daily in both eyes. The patient responded well to the treatment and there was gradual resolution of symptoms and recovery of vision. At follow up visit of 2 weeks the skin lesions had resolved with no residual scarring. Slit lamp examination showed clear corneas with negative fluorescein staining and BCVA of 6/6 in both eyes. Rest of the ocular examination was unremarkable.

Discussion

Bilateral HSV keratitis is a relatively uncommon entity which has been reported to be associated with underlying conditions of atopy and other immune deviations, and results in higher proportions of subsequent complications.^{5,6} Souza PM et al. reported 7 patients with bilateral keratitis out of 544 patients with herpes simplex eye disease; out of which 5 patients had systemic atopy and 2 patients had ocular rosacea.⁵ Welhismus et al. reported 30 bilateral cases in a population of 1000 patients with corneal involvement and found that patients with bilateral HSV keratitis were younger and had systemic atopy as compared to those with unilateral disease.⁶ Our patient reported no such history of atopy, rosacea or any chronic systemic illness and likely developed manifestations of HSV keratitis due to immune

deviation induced by dengue infection. All of the 6 cases of HSV keratitis among 20,000 cases of dengue reported by Richardson et al. had unilateral involvement.¹ In contrast, our patient presented with bilateral HSV keratitis along with periocular skin eruptions. The exact cause of this presentation could not be ascertained; however, we speculate it to be as a result of complex interplay of multiple factors including dengue infection, likely reactivation of herpes infection and recently administered covid vaccine.

Our patient reported administration of second dose of Covishield vaccine 1 month back. There have been a few reports of unilateral HSV keratitis after administration of covid vaccine;^{7,8} however, to the best of our knowledge there has been no report of bilateral HSV keratitis. There are also reports of development of herpes zoster ophthalmicus post covid vaccines, however our patient has corneal lesions characteristic of HSV keratitis and her skin lesions were consistent with those of herpes simplex.^{9,10} Also, the keratitis in the current case occurred one month after the administration of covishield vaccine, so a direct causal relationship is difficult to establish. However, an additive immune deviation effect along with subsequent dengue infection acting as trigger for fulminant HSV lesions cannot be ruled out and may be investigated in future studies. Our patient responded well to treatment with no residual skin or ocular sequelae. Bilateral HSV keratitis has been reported to be associated with higher proportion of subsequent complications including progressive ocular inflammation and corneal opacities, however, most of these patients had chronic underlying conditions like atopy or other immune deviations.⁶ Our patient did not have any of these underlying conditions and is likely to have developed it as a result of acute dengue virus infection. Also, prompt diagnosis and treatment for both ophthalmic and dermatological lesions might have been a factor in good clinical outcome in the current case.

In conclusion, we report a rare case of bilateral HSV keratitis associated with bilateral periocular skin herpetic lesions following dengue fever and administration of covid vaccine. Any physician or ophthalmologist treating a patient diagnosed with dengue fever should be aware of these complications. Prompt diagnosis and timely intervention helps in preventing any drastic visual complication.

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