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CASE REPORT

Dengue Fever Leading To Unilateral Panophthalmitis Resulting In Corneal Perforation

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ABSTRACT

Dengue Fever is a viral disease caused by the flavivirus family and is usually self-limiting; however, in some cases, it may lead to complications such as dengue hemorrhagic fever or dengue shock syndrome, including hepatic, neurologic, cardiac, and ocular manifestations. Here we present a case of 19 years old female who presented to ED with complaints of fever for ten days and worsening right eye pain, vision blurring, and redness for the preceding two days. She was diagnosed with right-sided panophthalmitis, periorbital, and retro-orbital cellulitis on MRI. Her hospital course was complicated by posterior vitreous hemorrhage and detachment, leading to corneal perforation and complete visual loss. Unfortunately, evisceration was done, followed by the dermis implant. In light of the above case, performing a thorough ocular examination of such patients is highly recommended. Even minor complaints should be taken into account earnestly to avoid disastrous complications.

INTRODUCTION

Dengue fever is one of the most prevalent flavivirus infections in humans, commonly occurring in tropical and subtropical areas. [1, 2] It is transmitted via mosquito vectors, predominantly Aedes Aegypti and Aedes albopictus.[3] The viral illness is characterized by the acute onset of fever, arthralgia, myalgia, headache, periorbital pain, maculopapular rashes, sore throat, rhinitis, and bleeding diathesis[4]. Usually, the viral is self-limiting with minimum systemic manifestations. However, in a few cases, it can be potentially life-threatening due to the development of Dengue hemorrhagic fever or Dengue Shock Syndrome, whereas the following complications may also occur, i.e., severe bleeding (epistaxis, gum bleed, gastrointestinal bleeding), plasma leakage causing pleural effusion, ascites or hepatic, neurologic, cardiac and ophthalmic involvement.[1]

Ocular manifestations are infrequent, prevailing in 16% to 40.3% of the patients' [5, 6], with only 20% having ocular pain, [7] primarily includes the anterior or posterior segment, periorbital ecchymosis, and panophthalmitis. The latter occurs in a few cases and can be sight-threatening, apart from poor visual prognosis.[8]

Therefore, we present this case of sterile unilateral panophthalmitis in a young female secondary to dengue fever leading to evisceration.

CASE PRESENTATION

A 19-year-old female came to the Emergency Department (ED) complaining of fever for ten days and blurring of vision in the right eye associated with conjunctival erythema and peri-ocular pain for two days, which worsened and hence came to our hospital. Initially, the patient was treated in another hospital on the lines of Dengue viral fever as Dengue Antigen was positive. Treatment was symptomatic only. On arrival, the patient was vitally stable; a general physical examination revealed multiple purpuric rashes on the upper and lower limbs. The right eye examination revealed a non-reactive pupil, corneal haziness, chemosis, hyphemia, conjunctival congestion, and dim light perception (Image 1) with restricted extraocular movement. An attempt at fundoscopy failed because of the hazy cornea. Bedside ultrasound was done on which optic nerve diameter was within normal range, excluding the suspicion of optic neuritis. Once the patient's pain subsided, a slit lamp examination was performed by the ophthalmology Team, which revealed: RAPD (Relevant Afferent Pupillary Defect), hypopyon, and stromal ring infiltration raising the suspicion of Acanthamoeba / fungal or hepatic keratosis, chemosis, and lid swelling.

Later MRI brain with orbital cuts was done, revealing post-contrast enhancement and

Image I: Showing the hazy cornea and congested conjunctiva with purulent discharge on day 1.

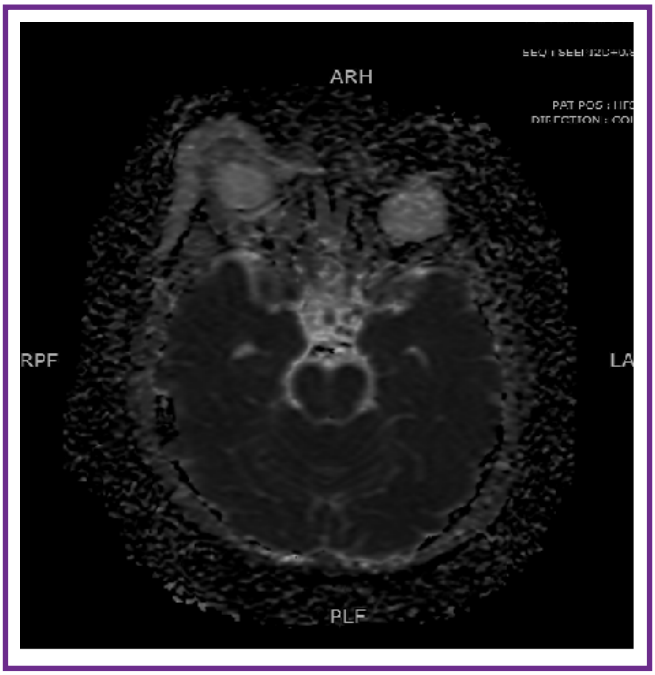

Image II: MRI Brain showing Right right-sided panophthalmitis with periorbital and retro-bulbar cellulitis.

thickening of the lining surrounding the right eye globe reaching the orbital axis representing panophthalmitis, proptosis, with periorbital and retro-bulbar

Cellulitis. (Image 3) Initially, the patient was given IV ceftriaxone and clindamycin, which was broadened after an Infectious Disease consult to IV meropenem, IV Amphotericin, IV Vancomycin, Tab Acyclovir, IV Steroid, followed by ophthalmic suspensions of Tobramycin, Moxifloxacin and nepafenac with oral anti-allergic.

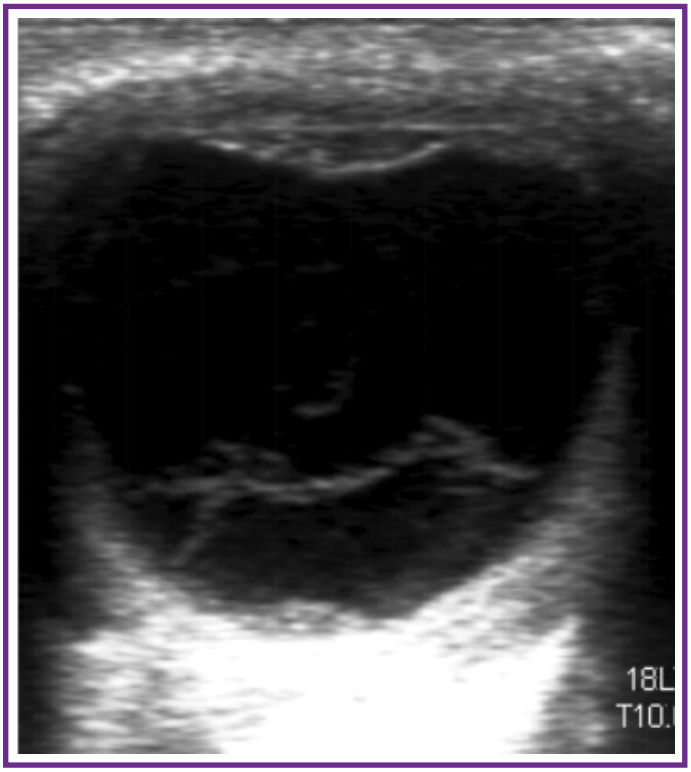

Image III: B-Scan of right eye suggestive of posterior vitreous hemorrhage and detachment with minimal subretinal fluid collection suggestive of vitreoretinal traction

On the 5th Day, the patient developed complete loss of vision for which an urgent B-Scan was performed (Image 3), reported as right globe pan-ophthalmitis with posterior vitreous hemorrhage and detachment along with minimal sub-retinal fluid suggesting vitreoretinal traction with edematous changes in the right optic nerve. A guarded prognosis was explained to the family. Unfortunately, the following day patient had corneal perforation for which complete evisceration was done, and a dermis implant was planned.

Also, during the hospital stay, the patient developed left basilic vein thrombus secondary to thrombophlebitis, which was initially managed conservatively with left arm elevation and icing every 4 hours. However, once thrombocytopenia resolved, oral Rivaroxaban was started for anticoagulation.

DISCUSSION

Panophthalmitis is defined as inflammation of all the layers of the eye and the ocular muscles; it is a rare complication of dengue fever. However, if not treated promptly, it can be sight-threatening. The exact mechanism

of Panophthalmitis in dengue is postulated as either an immune-mediated response or inflammatory. [9-11]

The pathogenesis of ocular involvement associated with dengue fever is so far ambiguous. [12] Bacsal et al. believed it to be an immune-mediated process. [10] At the same time, Seet et al. weighted hypoalbuminemia and leukopenia as the risk factors. [13] Antibodies against dengue virus cross-react with the endothelial cells resulting in disintegration and facilitating the bacterial entrance into the bloodstream, causing septicemia. [14] Henceforth, the blood-ocular barrier is broken, and micro-organisms enter the uveal tract or retinal circulation and accumulate in the small vessels, establishing the septic focus which resides near the retinal vessels. If the septic focus passes to the retina via the central retinal artery, the consequences could be retinal necrosis or ischemia, allowing the invasion to the vitreous, ultimately to the anterior segment of the eye.

Anterior segment complications are periorbital ecchymosis, subconjunctival hemorrhage, bilateral punctate corneal erosions/perforations, and anterior and intermediate uveitis. [15] Moreover, Posterior segment complications include maculopathy, retinal vasculitis, retrobulbar hemorrhage, isolated peripheral hemorrhages, vitreous hemorrhage, sub hyaloid hemorrhages, and Roth spots.[11]

To our best knowledge, only 3 cases have been reported of panophthalmitis to date. Out of which, only one patient showed culture positive for B. Cereus, suggesting secondary infection can be responsible for panophthalmitis. [4, 16] In our case, the cultures came out negative.

The treatment includes (topical/systemic) antibiotics and steroids depending on the pathology, the severity of the condition, and pain management.

CONCLUSION

Most systemic manifestations, including ocular signs/symptoms, are self-resolving as platelet count improves, though auto evisceration has been reported in a few cases. [17] Therefore, thorough visual examination, timely referral, and prompt initiation of therapy should be mandatory in such patients.

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