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AS PANOPHTHALMITIS IS POTENTIALLY SIGHT THREATENING AND A DEVASTATING COMPLICATION, THE OPHTHALMOLOGISTS NEED TO BE AWARE OF THIS RARE COMPLICATION FOR PROMPT RECOGNITION AND EARLY TREATMENT.

Ophthalmology

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ABSTRACT

Ocular manifestations due to dengue fever are relatively rare but of great significance. The mechanisms responsible for the dengue eye disease are direct viral infection and the immunological phenomenon.

A 23 year old male patient presented to the emergency department with the complaints of loss of vision in both the eyes. He gave history of fever 14 days prior. Diagnosis of bilateral panophthalmitis was made after detailed examination.

Discussion: Development of bilateral panophthalmitis in a setting of dengue fever is a rare complication. Panophthalmitis in dengue could be a part of immunologic and inflammatory reaction. The onset of ocular findings coincide with the drop in the platelet count. Thrombophilia, from the time the fever had subsided and very high ESR demonstrates severe inflammation.

Conclusion: Bilateral Panophthalmitis in a case of serology positive dengue fever – A Case report

Dengue fever is caused by members of flaviviridae. It is transmitted by the mosquito Aedes aegypti. It is widely distributed in southeast asia, particularly in India1. Ocular manifestations due to dengue fever are relatively rare but of great significance. The mechanisms responsible for the dengue eye disease are direct viral infection and the immunological phenomenon. Ocular manifestations can involve both the anterior and posterior segments. Common manifestations include sub conjunctival hemorrhage, vitreous hemorrhage, retinal hemorrhages, macular oedema, posterior uveitis, optic neuropathy etc2… However development of bilateral panophthalmitis in a setting of dengue fever is a rare complication which has been reported in very few case reports. We report the first case of bilateral panophthalmitis in a serology positive dengue fever in our setting.

KEYWORDS

CASE REPORT

A 23 year old male patient presented to the emergency department with the complaints of loss of vision in both the eyes. He gave history of fever 14 days prior, which lasted for 7 days. He was admitted at a local hospital for the above complaints, investigations revealed thrombocytopenia and he was transfused 2 pints of platelets. The patient's general condition had worsened and he had 2 episodes of seizures. Therefore he was taken to a tertiary care center and MRI Brain and MR venogram was done which didn't reveal any abnormality. On the 5th day, he had developed bilateral axial proptosis with lid oedema and complained of decrease in vision in both the eyes, followed by conjunctival chemosis and restriction of extraocular movements over next two days. He was transfused another 2 pints of platelets in view of thrombocytopenia. Post transfusion platelets increased to 1.7 lakhs/cumm. He was shifted to another hospital in view of deteriorating general condition. He was tested positive for dengue IgG and IgM. However Dengue NS1 was negative. Other investigations i.e., widal test, HIV, HBsAg, HCV, leptospira IgG & IgM, test for malarial parasite were negative. CBC, BT,CT, blood urea, serum creatinine, serum electrolytes, RBS were within normal limits. The condition of the eyes gradually worsened. CT scan of the orbits showed bilateral thickening of the retinochoroidal complex with bilateral periorbital soft tissue swelling. MRI of Orbits done subsequently demonstrated periorbital soft tissue swelling and thickening of the vitreochoroidal complex. The patient was treated on intravenous antibiotics, intravitreal injections and topical antibiotic drops. 5 days post transfusion, platelets were 4.1 lakhs/cumm and 7 days post transfusion 8 lakhs/cumm. Once the general condition is stabilized the patient had presented to our center for management of the ocular condition.

On presentation, perception of light was negative in both the eyes, there was mild restriction of extraocular movements, bilateral diffuse conjunctival congestion, cornea was hazy with corneal oedema,anterior chamber was shallow with organized hypopyon, pupil was hazily seen and not reacting to light. Lens details could not be made out (Figure:1). IOP was digitally high in both the eyes. Posterior segment view is compromised due to corneal oedema. B-Scan showed both eyes vitreous hemorrhage and orbital hemorrhage, thickened retinochoroidal complex (Figure 2). Complete blood picture was repeated and platelets were 12.17 lakhs, ESR was 80mm at the end of one hour, rest of the parameters being normal. Provisional diagnosis of bilateral panophthalmitis was made and he was started on systemic and topical antibiotics.

Figure: 1 - Bilateral poptosis with chemosis, corneal oedema and organized hypopyon

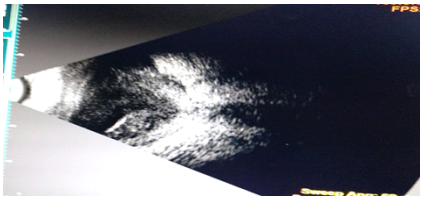

Figure: 2 – thickening of retinochoroidal complex

DISCUSSION

Dengue fever is a mosquito-borne viral illness which is endemic in India and causes epidemics frequently. It presents with fever, rash, arthralgia, myalgia and headache. Dengue hemorrhagic fever and dengue shock syndrome can occur in severe cases[3]. However ophthalmic manifestations are uncommon and are usually seen in young adults, due to thrombocytopenia and complications related to it[4]. Both the anterior and the posterior segment of the eye can be involved. Anterior segment manifestations can be periorbital oedema, ecchymosis, subconjunctival hemorrhage, corneal punctate erosions and anterior uveitis. Posterior segment manifestations include vitreous hemorrhage, retinal hemorrhages, RPE mottliting, maculopathy, foveolitis, retinal vasculitis, retinochoroiditis, choroidal effusion, optic neuritis, retro bulbar hemorrhage, oculomotor nerve palsies etc…[5] Panophthalmitis though rare, is potentially devastating complications, which has been reported in very few cases. It is the inflammation of all the coats of the eyeball[2]. Nearly 66 years after the ocular manifestations in dengue were first reported, the pathogenesis

of the panophthalmitis in dengue fever has not been clearly established[3]. Panophthalmitis is the inflammation of the all the coats of the eye along with the intraocular structures. It clinically presents with pain, blurring of vision,lid oedema, limitation of extraocular movements, diffuse congestion. In severe cases the patients develop, chemosis, proptosis, corneal oedema and hypopyon. If the inflammation is not controlled it eventually ends up in orbital cellulitis[1].

Panophthalmitis in dengue could be a part of immunologic and inflammatory reaction. Undernormal circumstances the eye is protected from the systemic infections by the presence of blood ocular barrier. The antibodies against NS1 antigen present in dengue patients is found to cross-react with the endothelial cells, resulting in its disintegration. This can facilitate secondary bacterial infection in to the eye through the blood stream. There are no reports of dengue virus isolated from the aspirate or the eviscerated sample in panophthalmitis occurring in dengue fever. The microorganisms enter the eye and lodge in the smaller capillaries and form a septic focus, which ultimately break in to the vitreous causing endophthalmitis and panophthalmitis. Another possible theory is, if the microorganisms form an embolus and causes central retinal artery occlusion, it results in retinal necrosis, which facilitates rapid spread of the organism in to the vitreous[4]

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It is also proposed that the onset of ocular findings coincide with the drop in the platelet count. Sight threatening complications usually occur when the platelet level is critically low. It may also lead to spontaneous globe rupture at the weakest areas. In our case, given the bad prognosis patient denied the aqueous/ vitreous aspirate for culture and sensitivity to rule out the infection. Since there is no evidence of any other infection throughout the illness, only the thrombophilia, from the time the fever had subsided and very high ESR demonstrates severe inflammation. The pathogenesis of this inflammation occurring only in the eye shortly after the platelet transfusion, may be related to immunologic transfusion reactions. Recently it has been demonstrated that the platelets function in innate and adaptive immunity and possess proinflammatory in addition to prothrombotic properties[5]. These platelets react with the other platelets, endothelial cells, lymphocytes and dendritic cells. Platelets contain cell membrane, cytoplasmic and secreted forms of CD 40 ligand. If the soluble form of CD 40 ligand is more in the transfused blood it may initiate inflammation. More amount of sCD 40 L is found to induce transfusion related immune reactions[5].

These transfusion reactions depend on the recipient immune function and are altered by the transfusion of allogenic transfused blood. We suppose the occurrence of panophthalmitis in dengue, may be related to the altered immune condition induced by the transfusion of the stored platelets.

CONCLUSION:

Though dengue fever is a common infectious disease, complications such as panophthalmitis occurring in dengue fever are rare. As panophthalmitis is potentially sight threatening and a devastating complication, the general physicians and the ophthalmologists need to be aware of this rare complication for prompt recognition and early treatment, which helps in prevention or minimizing the visual damage.

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