Case Report: Platelet Transfusion Related Panophthalmitis and Endophthalmitis in Patients with Dengue Hemorrhagic Fever

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Abstract. Dengue is a vector-borne viral illness of major public health importance. It is endemic in many parts of India and also causes frequent epidemics. Platelet transfusions are given in severe cases of dengue fever to treat and prevent hemorrhagic complications. Here, we report three patients in North India with development of panophthalmitis and endophthalmitis shortly after receiving platelet transfusion.

Dengue is a vector-borne viral illness whose manifestations vary from asymptomatic illness to life-threatening forms such as dengue hemorrhagic fever (DHF) and dengue shock syndrome. It is an endemic disease in many parts of India with frequent epidemic episodes causing significant morbidity and mortality. Thrombocytopenia is a hallmark of dengue¹ and may require platelet transfusion in cases with bleeding. Often, platelets are transfused prophylactically in an attempt to prevent hemorrhagic complications. Here, we report three patients presenting to us with development of panophthalmitis and endophthalmitis immediately after receiving platelet transfusion.

CASE 1

A 10-year-old male child presented to our emergency services with the chief complaints of sudden onset of painful diminution of vision in both eyes since 2 days and painful outward protrusion of the right eye since 1 day. There was a history of receiving eight units of platelet transfusion over 48 hours starting 3 days before the presentation for a diagnosis of DHF. The recorded platelet count before starting platelet transfusion was 15,000 cells/cubic mm. The child developed blurring of vision in both the eyes within hours of starting the first platelet transfusion.

On presentation to us, the child was alert and conscious. He was febrile with a temperature of 101.4°F. His vitals were stable. He had multiple purpuric spots on the body. On ocular examination, he had no perception of light in both eyes. There was proptosis with restricted ocular movements, lagophthalmos, and corneal exposure in the right eye. The left eye had full range of ocular movements, 4+ cellular reaction, exudates in the anterior chamber, and an inflammatory membrane over the lens. Intraocular pressure was raised and the cornea was hazy in both the eyes and no fundal glow was seen. B-mode ocular ultrasonography revealed thickened coats of the right eye and vitreous exudates in both eyes. Based on the previous findings, a diagnosis of post platelet transfusion panophthalmitis in right eye and endogenous endophthalmitis in left eye was made. Blood cultured for aerobic, anaerobic, and fungal organisms was sterile. The left eye vitreous tap for gram stain, potassium hydroxide wet mount, bacterial culture, and fungal culture was negative.

Serum procalcitonin level was high. 2D Echocardiography was within normal limits. The child was treated conservatively with empirical meningitic doses of intravenous broad-spectrum antibiotics and topical broad-spectrum antibiotic drops, cycloplegic drops, and steroid drops. The left eye also received intra-vitreous antibiotics and antifungal agents. At the end of 2 weeks, there was improvement in proptosis and intraocular inflammation (Figure 1), but the child remained without perception of light in both eyes.

CASE 2

A 27-year-old man presented to our emergency services with the chief complaints of sudden onset painful loss of vision and forward protrusion of both eyes since 1 day. There was a history of diagnosis of DHF and two episodes of platelet transfusion. The first transfusion was given 8 days before presentation and the second transfusion 1 day before presentation. The patient developed blurring of vision in both eyes a few hours after the second transfusion.

On general examination, the patient was febrile with a temperature of 100.8°F. Vitals were stable. No signs of hemorrhagic complications were noted. On ocular examination, he had no perception of light in both eyes. Both eyes showed limitation of ocular movements in all gazes. The right eye showed a central corneal endothelial plaque with anterior chamber cellular reaction and hypopyon. The left eye showed 4+ cellular reaction in the anterior chamber with pupillary membrane and hypopyon. Both eyes had raised intraocular

FIGURE 1. Ten-year-old male (case 1) with right eye panophthalmitis and left eye endophthalmitis. This figure appears in color at www.ajtmh.org.

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FIGURE 2. Twenty-seven-year old male (case 2) with both eye resolving panophthalmitis. This figure appears in color at www.ajtmh.org.

pressures. B-mode ocular ultrasonography showed increased chorioretinal thickening and vitreous exudates in both eyes. Based on the previous findings, an ocular diagnosis of bilateral post platelet transfusion panophthalmitis was made. Total platelet count on presentation to us was 15,000 cells/cubic mm. Aerobic, anaerobic, and fungal blood cultures were sterile. The left eye vitreous biopsy was negative for Gram staining and potassium hydroxide wet mount, and sterile on bacterial (aerobic and anaerobic) and fungal culture. Serum procalcitonin was within normal limits. The patient was conservatively managed on similar lines as Case 1.

At discharge, the proptosis in both eyes had reduced, the intraocular inflammation was minimal, but the patient remained without perception of light in both eyes (Figure 2).

CASE 3

A 37-year-old male patient presented to us with history of sudden onset painful diminution of vision in his right eye since 5 days. He had a history of diagnosis of Dengue fever with thrombocytopenia for which he received platelet transfusion 8 days before presentation to us. He first developed redness and blurring a day after transfusion and had rapid deterioration to complete loss of vision in the right eye in the next 2 days. He was asymptomatic in his left eye. On examination, he had no perception of light in right eye and 6/6 in his left eye. The right eye also had lid swelling, chemosis, congestion, and anterior chamber and vitreous exudation. The left eye was essentially within normal limits. Based on the previous findings an ocular diagnosis of right eye post platelet transfusion endogenous endophthalmitis was made. This patient was subsequently

managed at an intensive care unit for dengue shock syndrome, acute kidney injury, and right-sided frontal bleed causing left hemiparesis.

Platelet transfusion is notoriously known for the transmission of bacterial contaminants.^{2,3} Platelet concentrates are stored at 22°C which is a likely cause of bacterial proliferation in this blood component.³ Systemic sepsis and mortality, especially in immunocompromised patients are well known.² Endogenous endophthalmitis after platelet transfusion has also been reported,^{4,5} but bilateral panophthalmitis leading to blindness due to platelet transfusion has not been reported before. In our cases, the ocular symptoms have strong temporal correlation with platelet transfusion, establishing a likely source of seeding. Also, vision could not be salvaged in any eye despite timely intervention. Therefore, caution should be exercised by medical fraternity while considering prophylactic platelet therapy in patients with dengue fever. That the available evidence does not support prophylactic transfusion¹ and that it carries several severe risks should encourage the medical community to revisit these practices and formulate evidence-based guidelines for the best practice in the interest of the public.

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