Sudden Blindness in a Victim of Snake Bite

Rudrajit Paul1, Indranil Thakur2, Asutosh Ghosh3, Manotosh Sutradhar4, Subinay Chhaule5, Rathindranath Sarkar6

1Consultant Physician, Ruby General Hospital; 2Assistant Professor, Department of Critical Care Medicine, Institute of Post-Graduate Medical Education and Research and Seth Sukhul Karnani Memorial Hospital; 3Professor, Department of Medicine, Medical College Kolkata; 4Ex-Assistant Professor; 5RMO, Department of Anaesthesia, CCM; 6Ex-HOD, Department of Medicine, Medical College Kolkata, Kolkata, West Bengal, India

Sir/Madam,

Snake bite is a common environmental hazard in tropical countries like India. Every year, millions of people in India are bitten by poisonous snakes and a substantial proportion of them suffer from systemic toxicity. Renal failure and neurological involvement are the two main complications of poisonous snake bite. But other systems can also be affected rarely. Ocular involvement is one such extremely rare consequence of snake envenomation. Ocular manifestation can be a harbinger of serious systemic toxicity; also the consequences of ocular lesions can be long-term.

A 42-year-old male patient was bitten in the foot by Russell’s viper snake in March (just after the hibernation season). He had intense local pain and edema, followed by oliguria and hematuria. He was given antisnake venom (ASV) in appropriate dose within 24 hours of the bite. However, his condition continued to deteriorate. There were also ana sarca and spontaneous ecchymoses in many parts of the body. On the 3rd day of snake bite, the patient complained of rapidly progressive painless dimness of vision in both eyes. On examination, pupils were bilaterally sluggishly reactive; ocular movements were normal. Visual acuity was FC (3 ft) for both eyes. Fundoscopy examination revealed bilateral vitreous hemorrhage. At this time, platelet count of the patient was 100,000/cmm. Prothrombin time was 18.6 seconds with INR = 1.6. The anuria persisted with progressive generalized volume overload. The patient was started on hemodialysis with other supportive treatment but unfortunately, he passed away after 2 days.

There is very scanty literature on ocular manifestations of venomous snake bite. Most data consist of isolated case reports or case series. Acute attack of glaucoma, optic neuritis, and retinal detachment are some of the reported manifestations of snake venom. Also, a form of irritant conjunctivitis may be caused by spitting snake venom. But such examples of spitting venom are more common in other continents.

The mechanism of ocular toxicity in snake envenomation is multifactorial. It not only depends on the species of snake, but also other technical factors like time interval between bite and ASV administration, adequacy of ASV dosage, and use of traditional medicines before medical intervention. Direct cytotoxic effect of the snake venom proteins is a major factor; but hypersensitivity reaction to the ASV may also be responsible. Pathophysiological mechanisms of posterior segment involvement include disseminated intravascular coagulation induced by the venom, ocular vasculitis, and hemorrhagins in snake venom increasing capillary permeability locally.

Most of the ocular complications (except extraocular muscle involvement) after snake bite are reported after viper envenomation. The present case is also Russell’s viper envenomation. Vitreous hemorrhage is very rarely reported after snake bite. Because of its rarity, the exact pathogenesis is not known. But systemic anticoagulant state is said to be a major contributing factor. In our case, blood tests did not reveal significant alteration in clotting parameters at the time of vitreous hemorrhage.

Besides vitreous hemorrhage, other causes of similar sudden visual loss after snake bite include central retinal artery and vein occlusion, macular infarction, and retinal hemorrhage. Treatment for the above conditions is based on ophthalmology guidelines. Antisnake venom does not help in treatment of ocular complications. Intraocular administration of ASV has no role in the management of ocular manifestations.

We present this case to sensitize clinicians to this rare but potentially serious complication of snake bite. Since snake bite occurs in the young adult age group in large numbers, such ocular toxicity would lead to substantial loss of economic productivity. Early ocular consultation is mandatory if a snake bite victim complains of visual dimness.

REFERENCES