Bilateral proptosis after snakebite: A case report

Sabah Eric, Fariha S Wali, Khalid I Talpur

Snake envenomation is a major public health challenge in the interior Sindh region of Pakistan. Ocular complications ensuing snake envenomation are comparatively scarce. A case report of bilateral proptosis and blindness in a 3-year-old girl presenting 5 days after a snakebite is a rare manifestation. Even antivenom and other medical/surgical management could neither reverse her visual loss nor save her life. This report has enlightened the eminence of problems related to snake envenomation in the interior Sindh, Pakistan, and highlights the need for early referral and that ocular manifestations must be treated as an emergency.

Key words: Proptosis, snake envenomation

Snake envenomation is a major public health problem in the interior Sindh region of Pakistan. Notwithstanding, there are no dependable insights with respect to snakebite occurrences, morbidity, and mortality apart from virtual measurements dependent on emergency clinic cases.[1] Ocular complications ensuing snake envenomation are comparatively scarce.[2] Nonetheless, a few cases with ocular complications caused by neurotoxic cobras or hemotoxic vipers have been documented in some parts of the world.[3] We report a rare case of bilateral proptosis followed by bilateral blindness in a 3-year-old girl due to snakebite, presumed to be a viper bite and to the authors' knowledge, the first in interior Sindh, Pakistan.

Case Report

A 3-year-old girl presented to the emergency department of a tertiary care hospital in Hyderabad, Pakistan. She was a resident of Thar. According to her parents, she was playing outside her house when suddenly she was bitten by a snake over her forehead. Her parents rushed her to the hospital within 5 hours after the snakebite in an altered sensorium. The girl developed hematoma over her forehead at the alleged site of the bite accompanied by mild bleeding from her left eye as well as protrusion of both eyes.

The investigations revealed the following: complete blood count showed low hemoglobin (Hb) 9.2 g/dL; clotting time was >10 minutes; bleeding time was 1.30 seconds; PT (prothrombin time) and APTT (activated partial thromboplastin time) were markedly raised, that is, >120 s and >60 s, respectively; and INR (international normalized ratio) was >6.0.

She had been treated in the tertiary care hospital with antivenom serum (AVS), intravenous (I/V) systemic antibiotics, I/V transamine, analgesics, FFP (fresh frozen plasma), and copious amounts of topical antibiotic eye ointment with no significant improvement in her ocular symptoms.

The tertiary care hospital referred this young girl to the Sindh Institute of Ophthalmology and Visual Sciences (SIOVS), Hyderabad, Pakistan, for further management of her ophthalmic manifestations after 5 days of the incident.

The patient when received in the OPD (outpatient department) of SIOVS was conscious but irritable moving all four limbs spontaneously.

Bilateral protrusion was evident and associated with loss of vision in both the eyes [Fig. 1]. The child complained of headache, which was not associated with vomiting or convulsions; however, she had two episodes of epistaxis as mentioned by her parents.

On examination, visual acuity in both eyes was no perception of light and bilateral nonaxial proptosis, worse on the left eye with severe conjunctival chemosis. There was corneal haziness in the left eye due to exposure keratopathy. Both pupils were fixed, dilated, and nonreactive to light. Periorbital edema, complete ophthalmoplegia, and ecchymosis were present bilaterally.

Figure 1: Bilateral periocular bruising and proptosis more on the left side

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Ocular ultrasonography of both eyes revealed layered retrobulbar collection predominantly in the left eye, presumably due to hemorrhage.

Cranial CT (computed tomography) scan to detect intracranial bleeds was not performed due to the unstable condition of the child.

Examination under anesthesia revealed increased proptosis, 27 mm (moderate) proptosis in right eye and 29 mm (severe) proptosis in left eye with positive Nafzeiger’s sign [Fig. 2a and b].

Left eye cantholysis and right eye tarsorrhaphy were performed. An attempt for left eye tarsorrhaphy failed due to paucity of approximation of both eyelids. From the retroorbital space, 5cc blood was drained, which refilled instantaneously causing the progression of proptosis in left eye [Fig. 3].

The patient was shifted back to the medical unit for continuation of her medical treatment. Unfortunately, she never returned for ophthalmic follow-up. After repeated attempts to enquire about her condition, we received the information of her demise.

Discussion

The four venomous species of snake responsible for most cases of snakebites and deaths in Pakistan are collectively termed as the “Big Four.” This includes saw-scaled viper, Russell’s viper, Indian cobra (Naja naja), and common krait.

However, the carpet viper, epitomized as the most dangerous snake in the world, is the major cause of morbidity and mortality. Viper snakebites are typically associated with marked hemorrhage, local swelling, and necrosis.

All these occurred in this girl, which upheld the assumption of viper being the culprit. The procoagulant enzymes in the venom of the carpet viper activate the blood-clotting cascade instigating consumptive coagulopathy. Hemorrhagins present in the venom also induce damage to the vascular endothelium. The combination of incoagulable blood and vessel wall damage results in substantial bleeding. The ocular effects of envenomation that have been reported before include ptosis, conjunctival hemorrhages, hyphema, ophthalmoplegia, glaucoma, vitreous or retinal hemorrhage, optic neuritis, and optic atrophy. In this case, the main cause of visual loss and morbidity was due to severe proptosis caused by retrobulbar hemorrhage, which progressed to an extent where it was not manageable by surgical approach; exposure keratopathy and optic nerve compression were also determined. Neuroimaging, particularly MRI (magnetic resonance imaging), is valuable to preclude intracranial hemorrhage in addition to better visualize the orbits. It is significant in differentiating neuropathy from infarction due to good perception of cranial and intraorbital nerves.

Presumably due to indigent documentation or high fatality, blindness and proptosis following snakebite have not emerged as a common dilemma in Pakistan.

This report has enlightened the eminence of problems related with snake envenomation in the interior Sindh, Pakistan.

Conclusion

This case elucidates the permanent morbidity that might emerge following snakebites if not properly and timely managed. Although ocular involvement succeeding snakebites is rare, it must be treated as an emergency. Thus, immediate attention is mandatory to prevent blindness. Delayed presentation, traditional eye medication, poverty causing hindrance to investigations and management might worsen the visual prognosis. Despite the fact that ASV was administered, the life of this child could not be spared.

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Conflicts of interest
There are no conflicts of interest.
References


