Cortical Blindness After Snake Bite Envenomation

INTRODUCTION
Several ophthalmic effects may follow snake bite. This report describes an instance of cortical blindness that result from snake bite.

The ophthalmic effects of envenomation are varied and some of these effects include: ptosis, muscle palsies, hemorrhages into conjunctiva, anterior chamber, vitreous or retina, papillary changes, optic neuritis, optic atrophy and cataract1,2.

Cortical blindness resulting after snake bite is rare and was reported in 1993 from South Africa1 and only one case has been reported from India in past3.

CASE REPORT
Four year male child, 11 kg was brought to emergency department 6 hours after sustaining a snake bite on lateral aspect of left thigh. The bite was painful and child was unconscious soon after. He was taken to nearby PHC where antivenin was not available, he was transferred to RNT Medical College a tertiary hospital, Udaipur.

At our institution child was brought unconscious, occasional heart, respiratory rate nil, pupils dilated, sluggishly reacting. Bite mark was seen on left thigh. Patient was immediately intubated and CPR was started. Patient was put on mechanical ventilation. After 5 minutes, patient was in coma stage III, HR – 112, SpO2 94%, BP 70 mmHg SBP pupils reacting sluggishly. A antivenin 10 vials were administered in 300 ml of N.S. over 3 hours. Patient received injection tetanus toxide, inj. Ceftrixone 500 mg was given IV, B.D. to avoid secondary infection.

ABG analysis revealed pH 7.25. PO2 145 mmHg, PCO2 35 mmHg, 94%, BP 70 mmHg SBP, pupils reacting sluggishly. A antivenin 10 vials were administered in 300 ml of N.S. over 3 hours. Patient received injection tetanus toxide, inj. Ceftrixone 500 mg was given IV, B.D. to avoid secondary infection.

On day 2, Ptoxis was present, pupils normal size, normal reaction, patient was drowsy, BP 102/ 65 mmHg, SpO2 95%, GCS E3 M3 V3. On day 6 child improved. Ptoxis resolved and it was noticed that vision was lost. Perception of light was absent. C.T. scan of the brain was done and it showed infarction in right frontal, parietal and both occipital lobes. After 3 months child was responding to command. Cortical blindness persisted after 3 months.

DISCUSSION
The incidence of snake bite is probably underestimated. A large number of victims die unreported, particularly in rural areas. Morbidity and mortality are also related to the non availability of or delay in administration of antivenin. Antivenin is the only specific treatment for envenoming and often causes marked symptomatic improvement. Cobra venom is predominantly neurotoxic, resulting in flaccid paralysis, including respiratory paralysis4. Neurotoxicity may appear as early as 3 minutes after the bite5 but may be delayed for 19 hours6. Mild envenoming may cause no neurotoxic effects or only mild ones like ptosis or external ophthalmoplegia. Severe envenoming, however, results in death or disability. Most deaths after cobra bite are due to respiratory failure. If the patient has been well oxygenated, the neurotoxic effects may reverse completely in response to antivenin or anticholinesterase7 or they may wear off spontaneously in a week8.

Cobra venom can cause blindness by damaging the retinal cells, causing bilateral optic neuritis or it can cause cortical blindness3. Damage to the retina or optic nerve is due to the direct effect of the venom; or hypersensitivity reaction to antivenin, or extensive hemorrhage and capillary damage10. It causes derangement of the pupillary light reflex and ophthalmoscopically visible abnormalities. Cortical effects after neurotoxic snake bite are less well studied. Direct damage to the, central nervous system by venin may thus be minimized in victims who survive with no neurotoxic effects or only mild ones like ptosis or external ophthalmoplegia. Severe envenoming, however, results in death or disability. Most deaths after cobra bite are due to respiratory failure. If the patient has been well oxygenated, the neurotoxic effects may reverse completely in response to antivenin or anticholinesterase7 or they may wear off spontaneously in a week8.

REFERENCES