KRAIT BITE REQUIRING HIGH DOSE ANTIVENOM : A CASE REPORT

Sanjib Kumar Sharma[1], Shekhar Koirala[1] and Gaheraj Dahal[2]

[1]Department of Medicine, BP Koirala Institute of Health Science, Dharan, Nepal;
[2]Damak Red Cross Sub-Center, Damak, Jhapa, Nepal

Abstract. Anti snake venom (ASV) is the most specific therapy available for treatment of snakebite envenomation. The ASV available in Nepal are polyvalent ASV produced in India and are effective against envenomation by cobra and krait, the two most common species found in Eastern Nepal. Neurotoxic signs respond slowly and unconvincingly and continuous absorption of venom may cause recurrent neurotoxicity. Therefore, close observation and continuous administration of ASV is essential to save the victim. We report a case of neurotoxic envenomation due to bite by common krait (Bangarus caeruleus). The victim required very high dose of polyvalent ASV for reversal of neurological manifestations.

The profiles of venomous snake species vary from one geographical location to another. Cobras and kraits are two dreaded species commonly encountered in the *terai* region of Nepal (Bhetwal *et al*, 1998). Kraits rarely bite man in the daytime, although this has been known in unusual circumstances, such as when a Kraite enters human dewelling at night in search of food. The prompt identification of the signs and symptoms of and treatment with adequate doses of ASV systemic envenoming have key role in ensuring the survival of the patient. This paper is a case report of common krait *(Buangarus caeruleus)* bite featuring respiratory involvement and opthalmoplegia; the patient responded to treatment with a very high dose of polyvalent ASV.

A 24-year-old woman, a resident of Jhapa in Eastern Nepal, presented at the BP Koirala Institute of Health Sciences complaining of a snakebite to her left leg: she had been bitten 48 hours prior to presentation and had sustained the bite while sleeping. In keeping with local convention, a tourniquet had been applied at home and the wound had been thoroughly washed with water. The next morning, six hours after the bite, the patient was taken to the nearby snakebite treatment center with complaints of abdominal pain, nausea, vomiting, difficulty in opening her eyes, blurred vision, double vision, and dizziness. A dead snake was brought with the patient and was identified as a common krait.

At the local snakebite treatment center examination of the patient had revealed definite fang marks without swelling on the lateral aspect of left leg. The patient had bilateral external ophthalmoplegia and respiratory distress; cyanosis, weakness of the limb muscles and hemodynamic disturbance had not been found. One hundred ml of polyvalent ASV (Haffkine Bio-pharmaceutical) had been given as an IV bolus dose; a further dose of 100 ml ASV given after one hour. Following six hours of observation, 100 ml of ASV had been given at six-hourly intervals by IV infusion: a total of 700 ml of ASV had been administered. The patient had received four injections of neostigmine 0.5 mg half-hourly. Whereas her respiratory distress and external ophthalmoplegia had improved, her blurred vision and bilateral ptosis had persisted. As the response to treatment at the snakebite center had been unsatisfactory, the patient was referred to the BP Koirala Institute of Health Sciences, Dharan, a tertiary care hospital where the patient was admitted for further management. A dose of

Correspondence: Sanjib Kumar Sharma, Department of Medicine, BP Koirala Institue of Health Sciences, Dharan, Nepal.
Fax: 977-25-20251; E-mail: drsanjib@yahoo.com

50 ml of ASV was given and the patient was observed for six hours; as no improvement was observed, ASV at the rate of 50 ml every six hours was given until the disappearance of ptosis. In all, 1,150 ml (115 vials) of ASV was needed for the reversal of the patient's neurological syns and symptoms.

Snakebite is a medical emergency and the survival of the victim depends on appropriate first-aid, rapid transportation to the nearest health center and the administration of ASV along with supportive measures. Although ASV remains the cornerstone of the management of snakebite with systemic envenoming, its optimal dose, duration and frequency of administration remain unclear (Reid and Theakston, 1983). Polyvalent ASV was administered in line with the current guidelines for treatment (Reid and Theakston, 1983; Seiler *et al*, 1994; Warrel, 1999). The average dose of ASV ranges from 90 to 430 ml, as reported previously (Theakston *et al*, 1990); the use of 1,150 ml of ASV in the treatment of a king cobra bite was described in an earlier study (Ganthavorn, 1971).

Snakebite is an occupational hazard affecting the rural population of Nepal and is associated with high mortality (Hansdak *et al*, 1998; Warrel, 1999). Many snakebite-related deaths are due to delayed arrival in hospital, sometimes after traditional (herbal) treatments, have been tried. Death may follow respiratory failure or the complications of prolonged mechanical ventilation (Looareesuwan *et al*, 1988). A report on the fatal outcomes of 46 cases of snakebite in Thailand showed that 15 of 46 cases proved fatal because of inadequate doses of ASV (Looareesuwan *et al*, 1988) and this indeed, could be one of the reasons for the high mortality rates associated with snakebites in Nepal. In view of paucity of literature regarding the use of high-dose ASV in krait bite, the close observation of the patient and the continued administration ASV is essential. It is recommended that dose-modifying trials be carried out in patients with neurotoxic envenoming who have no life-threatening features (*eg* respiratory failure, bulbar palsy).

REFERENCES

Bhetwall BB, O'Shea M, Warrel DA. Snakes and snakebite in Nepal. *Trop Doct* 1998; 28: 193-5.

Ganthavorn, S. A case of king cobra bite. *Toxicon* 1971; 9: 293- 4.

Hansdak SG, Lallar KS, Pokharel P, Shyangwa P, Karki P, Koirala S. A clinico-epidemiological study of snake bite in Nepal. *Trop Doc* 1998; 28: 223-6.

Looareesuwan S, Viravan C, Warrel DA. Factors contributing to fatal snakebite in the rural tropics: analysis of 46 cases in Thailand. *Trans R Soc Trop Med Hyg* 1988; 82: 930-4.

Reid HA, Theakston RD. The management of snakebite. *Bull WHO* 1983; 61: 885- 95.

Seiler JG, Sagerman SD, Geller RJ, Eldridge JC, Fleming LL. Venomous snakebite; current concept of treatment. *Orthopaedics* 1994; 17: 707-4.

Theakston RD, Philips RE, Warrell DA, *et al*. Envenoming by the common krait (*Bangarus caeruleus*) and Sri Lankan cobra (*Naja naja naja*): efficacy and complication of therapy with Haffkine antivenom. *Trans R Soc Trop Med Hyg* 1990; 84: 301-8

Warrell DA. WHO/ SEARO Guidelines for The clinical management of snake bites in the Southeast Asian region. *Southeast Asian J Trop Med Public Health* 1999; 30 (supp): 1-85.