COBRA BITES and their management

Naja naja (Linnaeus, 1758)

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The Spectacled cobra, *Naja naja* (Linnaeus, 1758), is the only recognised species of cobra in Sri Lanka. Earlier it was thought that a subspecies (*N. naja naja*) inhabited the Island, but now the one species is known to be distributed in many Asian countries including Sri Lanka, India, Pakistan, Southern Nepal and Bangladesh.

It is a hooded, easily recognisable elapid snake widely distributed in all peneplains of Sri Lanka, except at the highest altitude where the ambient temperature is low. By its nature, the spectacled cobra bites less frequently than the Russell's viper on the island, but causes significant morbidity and mortality. There is a dearth of authentic epidemiological and clinical data regarding cobra bites in Sri Lanka. A description of two cases was published in 1990 (Theakston et al, 1990), but there was still need for a detailed account of the clinical profile and management of cobra bite. This article is based on a study performed to describe the epidemiology, clinical features, management and outcome of cobra bite over a period of many years (Kularatne et al, 2009).

Adult patients (>12 yrs) with a proven history of cobra bite (n=25) admitted to two hospitals—in Anuradhapura, in the dry zone, and Peradeniya, in the up county wet zone—were studied. Twenty victims who were envenomed were analysed.

> "The striking epidemiological features were exclusively daytime biting, female preponderance, fatal upper limb bites and the majority of bites taking place at or near human dwellings"

Demography and epidemiology:

More females than males were bitten, the ages ranging from 13 to 70 years. Most of the bites were in the daytime (6 am to 6 pm) and half of the bites were within the victim's home compound or nearby. There were more bites to the lower limbs than the upper.

Clinical manifestations:

Five patients had 'dry bites' with no local or systemic envenoming, despite the presence of fang marks. The majority (20) had local reactions, a few (9) developed neurotoxicity and a minority (3) had transient coagulopathy with positive 20WBCT but no spontaneous bleeding manifestations.

In 8 patients the local reaction was severe with extension of the swelling and development of tissue necrosis—in the upper limbs and the lower, four each. Two of the upper limb bites were complicated by compartment syndrome; in the other two cases the necrosis involved the entire upper limb and within 36 hours it had spread to the chest wall.

Nearly half the patients with neurotoxicity developed rapid-onset respiratory muscle paralysis

and required intermittent positive pressure ventilation (IPPV). One patient developed both respiratory paralysis and necrotic local envenoming.

Management:

All envenomed patients received Indian polyvalent antivenom in doses ranging from 8 to 20 vials. Those with tissue necrosis received surgical treatment for de-sloughing and those with compartment effects had decompression of affected compartments. Four patients with respiratory failure were managed with IPPV in the ICU.

Recommendations:

Dry bites will be encountered but a majority will develop local reactions that may progress to tissue necrosis and compartment syndrome: disproportionately severe pain and tenderness in the swollen limb, weakness of intra-compartmental muscles, hypoesthesia of respective dermatomes of intra-compartmental nerves, and weak or absent distal arterial pulsation. Surgical treatment should be provided for these patients: necrotic tissue needs to be de-sloughed and subsequently skin grafted, and compartments affected need to be de-compressed.

Patients with symptoms of neurotoxicity should be closely observed as they may develop rapid-onset respiratory paralysis. They should be managed with intermittent positive pressure ventilation. The respiratory paralysis is likely to be of short duration (18-24 hrs).

Antivenom should be started as soon as local reactions (envenoming) are detected, as if left untreated much tissue destruction may ensue. The standard dose is 10 vials of the Indian polyvalent antivenom available in hospitals. In most instances one dose will suffice. However, if the local reaction is not arrested and shows progressive extension, the dose may be repeated.

The 20WBCT may be positive (incoagulable blood) with no signs of bleeding and it will resolve spontaneously.

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