

Original Article

Analysis of Deaths due to Snake Bites- A Forensic Study

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ABSTRACT:

Background: Human snake encounters with negative results such as animal death, habitat destruction, injuries to people, injuries to wildlife and the like are common. The present study was conducted to assess the cases of deaths due to snake bite. **Materials & Methods:** The present study was conducted in the department of forensic medicine. It comprised of 112 deaths. Information such as name, age, gender, marital status, occupation, residential status etc. was obtained from deceased relatives. **Results:** Out of 112 victims, males were 80 and females were 42. In 75 cases, deaths were due to poisonous snakes and in 47 cases, it was due to non-poisonous snakes. Workers were 40, farmers were 60 and students were 12, 74 were rural and 47 were urban, 88 were married and 34 were unmarried. Cellulitis was seen in 100, swelling in 98 and bleeding/ blisters in 67. **Conclusion:** In most of cases, deaths were due to poisonous snakes and maximum males were involved. Maximum deaths occurred in farmers and married.

Key words: Cellulitis, farmer, Snake.

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INTRODUCTION

Snake bites represent a significant health issue worldwide, estimated to affect several million people each year and has been estimated to result in 95,000–150,000 deaths annually. Despite this it has only recently been officially recognized as a neglected tropical disease by the World Health Organization.¹

Though humans generally try to avoid interaction with reptiles like snakes, they occasionally bear an importance that extends beyond survival and into the realm of culture. Human - snake interactions has always been associated with different outcomes. Human snake encounters with negative results such as animal death, habitat destruction, injuries to people, injuries to wildlife and the like are common. Generally, there are more than 3000 species of snakes in the world and they live in both terrestrial and aquatic ecosystems and are predatory carnivores with wide range of prey species.²

Snake bite millions of people annually creating 'one of the neglected health problems of the tropics' due to a lack of antivenoms. Contributing to this in developing nations,

there is also deficiencies in the management of complications, transportation, hospital equipments and public knowledge of appropriate first aid, which result in a mortality rate one hundred fold higher than in developed countries. The victims of snake bites are mainly of the rural population, who are bitten during field work and when sleeping outdoors.³

Much remains unknown about snakebites in India. Knowledge about the snakes responsible is still developing: the major snakes of medical importance in India have historically been considered to be: the Russell's viper (*Daboia russelii*), the saw-scaled viper (*Echis carinatus*), the Indian cobra (*Naja naja*) and the common krait (*Bungarus caeruleus*), which together are known as the 'Big Four'.⁴ The present study was conducted to assess the cases of deaths due to snake bite.

MATERIALS & METHODS

The present study was conducted in the department of forensic medicine. It comprised of 112 deaths that occurred

in last 1 year due to snake bites. The study was approved from institutional ethical committee. Information such as name, age, gender, marital status, occupation, residential status etc. was obtained from deceased relatives. Presence of fang marks and presence of

swelling, cellulites, bleeding or blister formation at local site was also recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

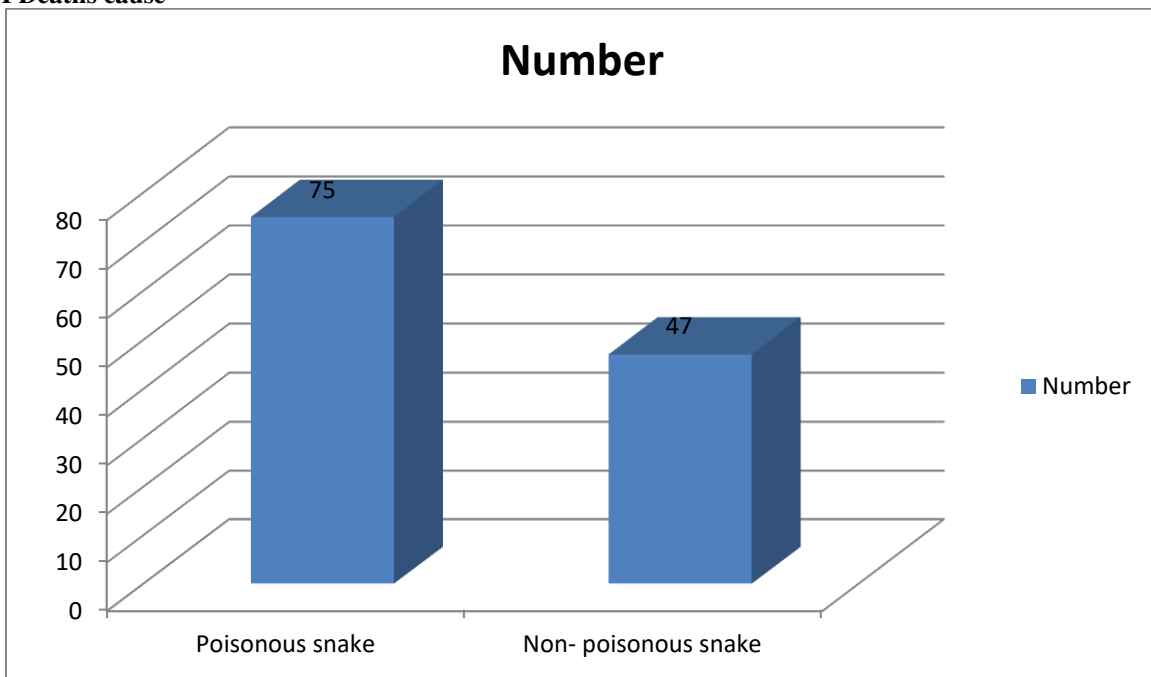
RESULTS

Table I Distribution of deceased

		Total- 112	
Gender		Males	Females
Number		80	42

Table I shows that out of 112 victims, males were 80 and females were 42.

Graph I Deaths cause



Graph I shows that in 75 cases, deaths were due to poisonous snakes and in 47 cases, it was due to non- poisonous snakes.

Table II Parameters in deaths

Parameters		Number
Occupation	Worker	40
	Farmer	60
	Student	12
Residential status	Rural	74
	Urban	48
Marital status	Married	88
	Unmarried	34
Symptoms	Cellulitis	100
	Swelling	98
	Bleeding/ Blisters	67

Table II shows that worker were 40, farmers were 60 and students were 12, 74 were rural and 47 were urban, 88 were married and 34 were unmarried. Cellulitis was seen in 100, swelling in 98 and bleeding/ blisters in 67.

DISCUSSION

Snakes co-exist with humans in homes, gardens and outhouses but their presence usually goes unnoticed. Snakes are beneficial to humans by killing unwanted insects and rodents in food stores and crops. Snake-skins are used as tourism attractions as with cases of snake parks, used to make shoes, handbags, and other articles. The venom is used for producing life-saving antivenin, biomedical research and for other medicinal products. In India, China and Africa, some species of snakes are used as sources of meat. In Asian countries such as Thailand, Indonesia, and Cambodia, drinking the blood of snakes like cobra is believed to increase sexual virility.⁵

In present study, out of 112 victims, males were 80 and females were 42. We found that in 75 cases, deaths were due to poisonous snakes and in 47 cases, it was due to non-poisonous snakes.

De Haro⁶ in their study one hundred (100) cases from both genders, from 8 to 55 years age were reviewed. There were 57 (95%) viper bites (haemotoxic) having haemostatic abnormalities and 3 (5%) elapid (neurotoxic) bites presented with neuromuscular symptoms. Most cases were from Tando Mohammad Khan and Hyderabad (rural) districts of Sindh. All victims had localized oedema at the site of bite. Fang/teeth marks were noted in (90%) cases. Majority (80%) were bitten on the legs below knee. Some 40% of the cases of snakebite occurred when the patient was asleep. Urban to rural ratio was 1:4.5 and male to female ratio was 4:1. Mean time to arrival at our hospital after the bite was 3 hours and mean duration of hospital stay was 4 days. One patient had acute renal failure (ARF) and disseminated intravascular coagulation (DIC), 3% cases of elapid bites were shifted to ICU for assisted ventilation, 4 patients (5.5%) had adverse effects after anti-venom administration and needed intravenous hydrocortisone, promethazine and subcutaneous adrenaline. The average dose of anti-venom was 60 vials for viper bites and 10 vials for elapid bites. Overall mortality rate was 4%. We found that worker were 40, farmers were 60 and students were 12, 74 were rural and 47 were urban, 88 were married and 34 were unmarried. Cellulitis was seen in 100, swelling in 98 and bleeding/ blisters in 67.

Rahman et al⁷ found that the total number of snakebites experienced within the villages surveyed was 1409. 1115 people (3.9% of the sample) had been bitten by a snake and 20% of these had been bitten more than once. The rate was higher among men than women: 4.8% of the males sampled had been affected compared with 3.0% of the females. Nine per cent (127 people) of the total bites resulted in death. The number of deaths recorded corresponds to 0.45% of the population of sampled villages. The prevalence rate per 1000 was calculated as 90.

The current treatment in rural India remains polyvalent antivenom raised against venom from the Big Four snakes only. The effectiveness of this against bites from snakes not in the Big Four group, and even against snakes from different geographical regions is unclear. Furthermore, use of antivenom in cases where it is not effective or not needed is both expensive and potentially dangerous to the victim because of the possibility of anaphylactic reactions.⁸

CONCLUSION

In most of cases, deaths were due to poisonous snakes and maximum males were involved. Maximum deaths occurred in farmers and married.

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