

A STUDY ON SNAKE BITE IN BORDER BELT AREA OF DISTRICT GURDASPUR, PUNJAB

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ABSTRACT

Objective: Snake bite remains major public health problem worldwide. Snake bite is an important public health issue and an occupational hazard in India often faced by farmers and villagers. Most vulnerable are people in rural and tribal area but they are poorly informed about the snake bite. Therefore aim of the study was to assess clinical features and first aid practices and myths regarding snake bite among people of border belt district Gurdaspur. Methods: The quantitative descriptive research approach with cross sectional study design was used to assess the clinical features and first aid practices regarding snake bite among patients admitted to a secondary care hospital CHC Kalanaur from 2023 to 2024. Most of the patients came during the month of April to October. The close ended validated questionnaire translated to local language was used to interview 60 participants. The details regarding age, gender, first aid received or not, emergency care management and ASV (Anti Snake Venom) administration, site of snake bite, clinical features at the time of presentation, local examination findings at the site of bite, duration of hospital stay, need for elective ventilation, details of investigations and outcome was reviewed. Results: The result of the study shows that majority (60%) of the patient were from the age group 31-40 years. Majority (93.33) of them were male and only (6.66) of them were females. Majority (93.33%) of the patients were having occupation as farmer. All (100%) of the patients belong from rural habitat and majority (80%) of the patients were having snake bite at lower limb. None of them were having sign and symptoms like haemorrhage, pulse >100 and cellulites. Few (6.66%) of them was having symptoms like Ptosis and altered sensorium during emergency admission. Half (50%) of the patients have symptoms of nausea and vomiting. Only (6.66%) of the patients have undergone Anti Snake Venom (ASV) treatment. Conclusions: 100 % of the patients had used tourniquets as first aid practice. Awareness should be provided that tight tourniquets should not be applied as it may cause gangrenous limbs.

Keywords: Snake Bite, clinical features, First aid practices and Myths.

INTRODUCTION

Snakebite is an acute life threatening time limiting medical emergency. It is a preventable public health hazard often faced by rural population. According to WHO the exact number of snake bites is unknown, an estimated 5.4 million people are bitten each year with up to 2.7 million envenoming. Around 81 000 to 138 000 people die each year because of snake bites, and around three times as many amputations and other permanent disabilities are caused by snakebites annually. Bites by venomous snakes can cause paralysis that may prevent breathing, bleeding disorders that can lead to a fatal haemorrhage, irreversible kidney failure and tissue damage that can cause permanent disability and limb amputation.¹

There are around 2700 different known species of snakes, out of which only 500 are venomous². Agricultural workers and children are the most affected. Children often suffer more severe effects than adults, due to their smaller body mass.

The situation gets worse in the rural areas of developing countries because the patients do not have rapid access to life saving anti-snake venom^{3,4}. Similarly, studies reflect that a high proportion (80%) of snake bite victims, first consult the traditional healers before they get any proper medical treatment⁵⁻⁷. First aid management of snake bite is very important which is usually done by the relatives, friends or co-workers². If proper first aid is given at the time of bite it can even delay the life-threatening effects. As most bites are from non-venomous snakes, only reassurance can bring the victims out of their shocked phase^{4,5}. Misconceptions like incision at the site of bite and sucking dirty blood out, applying onion or other herbs, going to the snake charmers or using tourniquet etc. are still common practices in rural areas of India and Pakistan^{4,8,9}.

ASV is the only definitive treatment of snake bite to neutralize venom in circulation and in the tissue fluid. The primary indication of ASC is in coagulation of blood or neurological deficit at early period of snake bite. The polyvalent ASV acts against all 4 common poisonous snakes is preferred as difficulty identification of species of snakes.

Better knowledge of the rural communities can help in the reduction of snake bites as well as the deaths because of it. Specific treatment of snake bite is available in the hospitals in the form of anti-snake venom. Most of the people are unaware of available treatment

In this study, we present our experience with cases of snake bites managed in our primary care hospital of district Gurdaspur, Punjab, India.



MATERIALS AND METHODS

A cross sectional study was conducted on snake bite in border belt area of district Gurdaspur. The details of all patients with snake bite admitted to CHC hospital between 2023 to 2024 was taken by interview. Ethical clearance was obtained from the Senior Medical officer of CHC Kalanaur. The data was collected in a pre-designed proforma from the admission register and case records. The details regarding age, gender, first aid received or not, emergency care management and ASV administration, site of snake bite, clinical features at the time of presentation, local examination findings at the site of bite, duration of hospital stay, need of elective ventilation, details of investigations and outcome were collected. Laboratory investigations such as renal function tests, electrolytes, urine for hematuria, chest radiograph, bleeding and clotting time, arterial blood gas (ABG), and ECG were requested for and repeated when required. All patients received tetanus toxoid at the time of presentation to emergency room. All complicated snake bites were treated with polyvalent ASV. The anti-snake venom (ASV) was administered by the intravenous route after written and informed consent.

STATISTICAL ANALYSIS

RESULTS AND DISCUSSION:

Table 1: Demographic details of snake bite patients.

Sr.No	Demographic details	f (%)
1.	Gender	
	Male	56 (93.33%)
	Female	4(6.66%)
2.	Age	
	<10	0

	11-20	2 (3.33%)
	21-30	10 (16.66%)
	31-40	36(60)
	41-50	8 (13.33%)
	>50	4 (6.66%)
3.	Occupation	
	Farmer	56 (93.33%)
	Non Farmer (Housewife)	4 (6.66%)
4.	Habitat	
	Rural	60 (100%)
	Urban	0

Table 1 depicts that majority (60%) of the patient were from the age group 31-40 years. (16.66%) were from the age group of 21-30 years. Only few (13.33%) of them from the age group of 40-50 years. Majority (93.33) of them were male and Only (6.66) of them were females. Majority (93.33%) of the patients were having occupation as farmer and only (6.66%) of them were non farmers. All (100%) of the patients belong from rural habitat.

Table 2: Clinical parameters of snake bite patients.

Sr.No	Clinical parameters	f (%)
1.	Bite site	
	Head	0
	Lower Limb	48 (80%)
	Upper Limb	12(20%)
2.	Sign and symptoms during arrival in hospital	
	a. Consciousness	
	Altered sensorium	4 (6.66%)
	Conscious	56 (93.33%)
	b. Pulse	
	<100	60 (100%)
	>100	0

	<p>c. Hemorrhage</p> <p>No 60 (100%)</p> <p>Yes 0</p> <p>d. Ptosis</p> <p>Absent 56 (93.33%)</p> <p>Present 4 (6.66%)</p> <p>e. Local cellulites</p> <p>No 60 (100%)</p> <p>Yes 0</p> <p>f. Nausea and vomiting</p> <p>No 30 (50%)</p> <p>Yes 30 (50%)</p>	
3.	<p>Treatment given</p> <p>Anti Venom</p> <p>-Given 4(6.66%)</p> <p>(Mild envenomation was there. 8-10 vials of ASV was given. Each vial was of 10ml of reconstituted ASV.)</p> <p>-Not given 56 (9.33%)</p> <p>Note Inj.- Hydrocortisone, Diclofenac, Ondansetron and Ranitidine. (Given to patients according to the symptoms present)</p>	
4.	<p>Outcome of treatment given in CHC</p> <p>Survived 60</p> <p>Referred (If so name of referral centre)</p>	

Table2 depicts that majority (80%) of the patients were having snake bite at lower limb. Only

(20%) of them were having snake bite on upper limb.

None of them were having sign and symptoms like haemorrhage, pulse>100 and cellulitis.

Few (6.66%) of them was having symptoms like Ptosis and altered sensorium during emergency admission. Half (50%) of the patients have symptoms of nausea and vomiting.

Only (6.66%) of the patients have undergone Anti Snake Venom (ASV) treatment.



PROTOCOL OF SNAKE BITE DISPLAYED IN EMERGENCY DEPARTMENT OF CHC, KALANAUR, GURDASPUR.

Table 3: First aid practices given before arrival to hospital.

Sr.No	First aid Practices	f(%)
1.	Tourniquets	60 (100%)
2.	Volunteer suck the venom	1 (3.33%)
3.	Local incision or prick	5 (8.33%)
4.	Applied any herb	0
5.	Added ghee, imli and onion in diet.	0
6.	Others	-

Table 3 depicts that 100 % of the patients had used tourniquets as first aid practice while 8.33% of the patients have incision on bite site and 3.33% of them has volunteer to suck the venom.

Do not tie tourniquets as it may cause gangrenous limbs. If victim is expected to reach the hospital in more than 30 minutes but less than 3 hours crepe bandage may be applied by qualified medical personnel till the patient is shifted to the hospital. The bandage is wrapped over the bitten area as well as the entire limb with the limb placed in a splint. It should be capable of admitting a finger beneath it.

DISCUSSION: The result of the study shows that majority (60%) of the patient were from the age group 31-40 years. Majority (93.33) of them were male and Only (6.66) of them were females. Majority (93.33%) of the patients were having occupation as farmer. All (100%) of the patients belong from rural habitat. that majority (80%) of the patients were having snake bite at lower limb. None of them were having sign and symptoms like haemorrhage, pulse>100 and cellulites. Few (6.66%) of them was having symptoms like Ptosis and altered sensorium during emergency admission. Half (50%) of the patients have symptoms of nausea and vomiting. Only (6.66%) of the patients have undergone Anti Snake Venom (ASV) treatment.

CONCLUSION: There is myth that applying tourniquet will save the life of the patient instead it can cause great harm by making gangrene formation. Only few people have belief that voluntarily sucking the venom or pricking at the site of snake bite can prevent the risk, these are myths not fact. Most of the people believe in hospital management of snake bite. All of the cases studied, were recovered in CHC because of good management skills and facilities available at hospital. None of them was referred or died.

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