

A study on clinical profile and outcome of snake bite at a tertiary care centre of Western Maharashtra

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Abstract

Background: Snake bite is a life threatening emergency and a high incidence of snake bite envenomation is reported from rural India but due to inadequate epidemiological data the incidence is underestimated. The World Health Organization (WHO) recognizes snakebite as a neglected tropical disease and aimed to eradicate it. **Objectives:** To determine the clinical profile and outcome of snake bite patients admitted at a tertiary care centre of western Maharashtra for treatment. **Material and Method:** Present hospital based observational longitudinal study carried out in the department of Medicine of tertiary care medical teaching hospital. The study was conducted over period of 03 Years. Total 150 cases included in present study and non-consented patients, discharged against medical advice and brought death patients were excluded. After obtaining consent, data was collected on predesigned, pretested, and structured questionnaire. **Results:** A total of 150 patients were studied in our hospital. Out of 150, 34.66% patients were of poisonous snake bite and 65.33% patients were of non-poisonous snake bite. Majority snake bite victims were male and farmers by occupation. **Conclusion:** Snakebite is one of the common occupational hazards associated with agricultural business. Snake bite can present with various local, neurotoxic and hematotoxic manifestations. Public awareness about snake bite, first aid, and rapid transport to health facilities would be the key to success in reducing morbidity and mortality.

Keywords: Snake bite, envenomation; clinical profile; outcome

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Received Date: 03/01/2019 Revised Date: 25/02/2019 Accepted Date: 12/03/2019

DOI: <https://doi.org/10.26611/10219319>

Access this article online

Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 30 March 2019

INTRODUCTION

Snake bite is a public health problem having considerable morbidity and mortality.¹ The World Health Organization (WHO) recognizes snakebite as a neglected tropical disease and aimed to eradicate it.² A large number of snake bites occur every year all over the world.³ According to worldwide statistics, 5% of snake bite victims die.⁴ The

highest number of snake bites is recorded from Asia, Southeast Asia and Sub-Saharan Africa⁵ and the burden of snake bite is highest in developing countries⁶. Mortality due to poisonous snakebites in India is the highest in the world. In India; around 250,000 incidents of snake bite are reported annually with 50,000 deaths.⁷ There are about 236 species of snakes in India, most of which are non-poisonous.² However, the true scale of mortality and morbidity in India remains uncertain.⁸ Maharashtra, Uttar Pradesh (UP), Tamil Nadu, Bihar and Bengal have the highest number of snakebite deaths in India.⁹ Social, cultural, and economic reasons contribute immensely to the death toll. Lack of knowledge among rural people leads to use of inappropriate first aid measures, increasing mortality, and complications in snake bite victims.⁷ The majority of bite occur in rural areas, primary care physicians should be well versed with management of snake bite patients to decrease morbidity and mortality associated with snake bite envenomation.^{10, 11} with this

background present study was conducted with an objectives to determine the clinical profile and outcome of snake bite patients admitted at a tertiary care centre of western Maharashtra for treatment.

MATERIAL AND METHODS

Present hospital based observational longitudinal study carried out in the Department of Medicine of tertiary care medical teaching hospital of Western Maharashtra. Institutional Ethics Committee (IEC) approval was sought prior to initiation of the study. The study was conducted over period of 02 Years from 2016. Total 150 cases included in present study and non-consented patients, discharged against medical advice and brought death patients were excluded. After obtaining consent, data was collected on predesigned, pretested, and structured questionnaire. First part of data tool content questions regarding demographic parameters such as age, sex, residence, occupation etc. and in second part questions on snake bite viz. site of bite ,type of snake, time interval to reach the health facility etc. were present. Thorough clinical examination was carried out in each case. Data tools were checked for their completeness and data entry and coding was done in Microsoft Excel. The raw data was compiled, classified and presented in a tabulated and graphical manner to bring out important details. Chi square test was used for categorical data to determine the association between variables. Level of significance ≤ 5% considered significant.

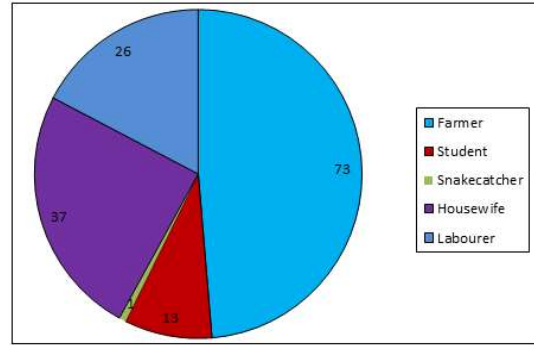
RESULTS

In present study 150 cases of snake bite were studied. Out of 150 patients, 65.33% (98) patients had non-poisonous snake bites and 34.66% (52) patients had poisonous snake bites. The commonest age of group of patients was 31 to 40 years old. Incidence of snake bite found to be more among males (67.33%) than females (32.66%) but the age and gender distribution found to be non-significant (Table 01).

Table 1: Age and Gender wise distribution of patients (n-150)

Sr. No.	Age Groups	Gender		Frequency (%)
		Male	Female	
1	< 18 Years	09	04	13 (08.66%)
2	21 Yr. to 30 Yr.	25	13	38 (25.33%)
3	31 Yr. to 40 Yr.	40	11	51 (34.00%)
4	41 Yr. to 50 Yr.	21	16	37 (24.66%)
5	≥ 51 Yrs.	06	05	11 (07.33%)
Total		101	49	150 (100%)
		(67.33%)	(32.66%)	

Chi-Square (χ²): 5.61 df:04 P:0.22 Ns



Graph 1: Occupational wise distribution of patients

Farmer’s (73) occupation was most commonly affected as compared to others (Graph 01). Bites were most commonly seen on the lower extremities (84.66%) than upper extremities (14.66%). Hand fingers and feet were the most common bite site of upper and lower extremities respectively. (Table 02)

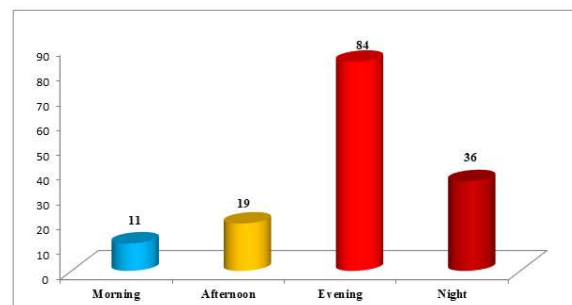
Table 2: Distribution according to site of bite (n-150)

Sr. No	Bite site	Frequency (%)
1	Upper extremities	22 (14.66%)
	Arm	02 (01.33%)
	Hands	07 (04.66%)
	Fingers	13 (08.66%)
2	Lower extremities	127 (84.66%)
	Lower leg	21 (14.00%)
	Ankle	49 (32.66%)
	Feet	57 (38.00%)
3	Trunk	01 (0.66%)
4	Total	150 (100%)

Table 3: Distribution of timing of bite (n-150)

Sr.no.	Bite time	Frequency (%)
1	Morning (6.00 AM-12.00 PM)	11 (07.33%)
2	Afternoon (12.00 PM-4.00 PM)	19 (12.66%)
3	Evening (4.00 PM-8.00 PM)	84 (56.00%)
4	Night (8.00 PM -6.00 AM)	36 (24.00%)
Total		150 (100%)

Maxium bites were during evening time (56%) and night time (24%) compared to other time of the day Table 03). Sanke bites were found to be more prevalent in masoon season than winter and summer season (Graph 02).



Graph 2: Distribution of timing of bite

Table 4: Seasonal distribution of snake bite (n-150)

Sr.no.	Seasons	Frequency (%)
1	Monson	116 (77.33%)
2	Winter	11 (07.33%)
3	Summer	23 (15.33%)
Total		150 (100%)

Majority time (105, 70%) snake was seen by victims during or after bite but not able to distinguish. After bite 82% patients immediately rush to nearest doctor for the primary treatment and were referred to tertiary care for specialised care. The time interval from the time of bite till the admission in tertiary care centre for treatment depicted in table 05

Table 5: Distribution Time interval snake bite and admission

Sr.no.	Time interval	Frequency (%)
1	< 6 hours	132 (88.0%)
2	06 to 24 hours	17 (11.33%)
3	> 24 hours	01 (0.66%)
4	Total	150 (100%)

Table 6: Distribution of local symptoms (n-150) [multiple response]

Sr.no.	Local symptoms	Frequency
1	Pain	140
2	Swelling	110
3	Tenderness	148
4	Blister	11
5	Lymphadenopathy	04

Table 7: Distribution of systemic manifestation [multiple response]

Sr.no.	Neurotoxic manifestation	Frequency (%)
1	Ptosis	148 (98.66%)
2	Dysphagia	78 (52.00%)
3	Ophthalmoplegia	129 (86.00%)
4	Unconsciousness	27 (18.00%)
5	Flaccid limb paralysis	32 (21.33%)
6	Respiratory paralysis	138 (92.0%)
Haematotoxic manifestation		
1	Bleeding from bite site	141 (94%)
2	Ecchymosis	126 (84%)
3	Haemoptysis/Hematemesis	97 (64.66%)
4	Intra-cerebral hem.	11 (07.33%)
5	Gum bleed/Malena/Haematuria	81 (54.00%)

Tenderness (148), Pain (140) and swelling (110) at the bite site were most common local symptoms. On other hand Ptosis (98.66%) and bleeding from bite site (94%) were most common neurotoxic and haematotoxic manifestation respectively. Out of 98 non-poisonous bites completes recovery was seen all patients other hand 90.38% (47) poisonous bite patients were recovered while 9.61% (5) succumbed to snake bite.

DISCUSSION

In this study total 150 cases were included as per inclusion and exclusion criteria. The proportion of non-poisonous snake bite was more common than poisonous bite. Study conducted by Bhalla *et al.*¹² 76 patients were of poisonous snake bite and 74 patients were of non-poisonous snake bite. In the present study, the incidence of snakebite was seen more commonly in males and the age group of 41 to 50 years is found to be more commonly affected. Singh A *et al.*¹³ reported that out of the 92 cases, 62 (58.42%) were male and 46 (41.58%) were female and age group 31 to 45 years (49.44%) most commonly affected. In present study farmer's (73) occupation was most commonly affected as compared to others and snake bites were most commonly seen on the lower extremities (84.66%) than upper extremities (14.66%). Bhalla *et al.*¹² reported same findings. In his study maximum incidence of snake bite was found in farmers (81.33%) than in any other occupation and snake bites were also commonly seen on the lower extremities (88.6%) than upper (11.33%). Kasturiratne A *et al.*¹⁵ reported similar findings. In our study maximum bites were occur during the evening time (56%) and night time (24%) and Sanke bites were found to be more prevalent in masoon season. . In Singh A *et al.*¹⁴ study reported that most (63.29%) of the snake bites occurred during day time (6 am to 6 pm) in his study. In present study 88% victims reached for tertiary care within 6 hour of snake bite. In Singh A¹³ study within 4 hour 55.69% patients reached for treatment. Tenderness (148), Pain (140) at the bite site were most common local symptoms seen in present study and ptosis (98.66%) and bleeding from bite site (94%) were most common neurotoxic and haematotoxic manifestation respectively. Singh A *et al.*¹³ reported somewhat similar findings. In out study out of 98 non-poisonous bites completes recovery was seen all patients other hand 90.38% (47) poisonous bite patients were recovered while 9.61% (5) succumbed to snake bite. In Singh A¹³ reported 16.46% mortality of snake bite patients.

CONCLUSION

Snakebite is one of the common occupational hazards associated with agricultural business. Snake bite can present with various local, neurotoxic and hematotoxic manifestations. Public awareness about snake bite, first aid, and rapid transport to health facilities would be the key to success in reducing morbidity and mortality.

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Source of Support: None Declared
Conflict of Interest: None Declared