



## SURGICAL COMPLICATIONS IN SNAKE BITE PATIENTS : A TRAGIC PROBLEM IN RURAL INDIA.

### Surgery

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### ABSTRACT

Snake bite and its complications are cause of significant morbidity and mortality ultimately leading to a huge loss of man power and affecting young male of more often in rural agricultural and farm workers . Immediate proper surgical intervention is required to prevent loss of limb or life. Suspected snakebite should get prompt immediate first aid in field and early transportation to nearest medical facility.

### KEYWORDS

Snake Bite, Cellulitis , Morbidity.

### INTRODUCTION:

With rapid urbanization and deforestation, snake bite cases form a significant group of hospital admission. No systemic study has been done to detect the extent of surgical problem. Unlike many of these other public health risks, however, the burden of human suffering caused by snake bite remains unrecognized, invisible, and unheard by the global public health community, forgotten by development agencies and governments alike. The problem is so underrated that it was only added to WHO's list of neglected tropical diseases in April, 2009<sup>1</sup>.

### MATERIAL AND METHODS:

This is a hospital based Observational Descriptive and prospective study. The purpose of the study was to collect the personal data of the snake bite cases & to detect the surgical complications arising due to snake bite. Patients with history of snake bite and fulfilling the inclusion criteria were chosen as study subjects and were subjected to detailed history taking and clinical examination which included the place of snake bite & anatomical site of bite & The study subjects were observed for the surgical complications.

Methods for Data Collection and Analysis, Table, Charts, Graphs and Texts. Software Package (SPSS) will be applied for Statistical Analysis

### RESULTS:

**Table- 1: Age distribution of the study population (n=93): Frequency Distribution**

AGE GROUP (YEARS)	FREQUENCY (NO. OF CASES)	% OF TOTAL
0 - 10	6	6.4
11 - 20	15	16.1
21 - 30	23	24.7
31 - 40	26	27.9
41 - 50	13	13.9
≥ 51	10	10.7
TOTAL	93	100

**Table-2. Distribution of the study population (n = 93) according to occupation.**

OCCUPATION	FREQUENCY	% OF TOTAL
Farmer	36	38.7
Labourer	22	23.6
Fisherman	2	2.1
Housewife	13	13.9
Student	10	10.2
Others	8	8.6
None	2	2.1
TOTAL	93	100

**Table-3. Distribution of study population (n=93) according to the surgical complications of snake bite.**

Surgical complication	Frequency	% of total
No complication	29	31.1
Cellulitis	49	52.6
Skin necrosis	9	9.6
Skin blisters	13	13.9
Ulceration	14	15.0
Gangrene	2	2.1
Lymphadenopathy	18	19.3
Abscess	3	3.22
Compartment syndrome	1	1.0
Venous thrombosis	0	0
Thrombophlebitis	0	0
Arterial Occlusion	1	1.0
Ptosis	26	27.9
Dysphagia	5	5.3
Ophthalmoplegia	1	1.0
Death	1	1.0

A total of 93 patients were included in the study. Out of which, 57 were male & 36 were female. majority of cases (52.6%) fall under age group 21 - 40 years. 62.3% of study population belonged to farmers & labourers with farmer as the most common occupation.

On further analysis, 45 patients were bitten in farm & 27 at the home. On clinical examination, 97% of study population were bitten at extremities.

Cellulitis was the most common complication affecting 49 study subjects. However, 29 patients did not develop any complication. Cellulitis was accompanied with skin necrosis (9.6%), skin blisters (13.9%) & ulceration (15%). Regional lymphadenopathy was seen in 19.3% of cases but none progressed to suppuration. There were only 2 cases which developed gangrene & 3 cases had abscess formation. There was a single case which developed compartment syndrome & was subjected to fasciotomy. There was a single case of arterial occlusion which led to gangrene of the rt index finger. Neurological complications ptosis was the next most common (27.9%). Death occurred in 1 patient of cellulitis who had developed sepsis & multiorgan failure.

### DISCUSSIONS

The most common age group presented with snake bite was 21 - 40 which is active age group involved in various outdoor activities .The mean age was found to be  $32.24 \pm 14.30$  years<sup>2</sup> . The male predonance signifies they are earning member of the family and working outdoors and sleeping in the farmyard during harvesting as agriculture being the main occupation<sup>2</sup> Moreover farmers and labourers are mostly affected<sup>3</sup> . So it is reflected as an occupational hazard to farmers<sup>4</sup>, as they are working in the field with barefooted, which is a common phenomenon

observed in India<sup>3,4</sup> and globally<sup>5</sup>. Farm was the most common place of snake bite followed by house<sup>3</sup>.

The predominance of lower limb involvement was observed in most of the studies and mostly due to accidental stamping on a snake while working,<sup>6,7</sup> Upper limb bites usually occur during harvesting due to accidental exposure to snakes while holding onto grass.

Cellulitis was the most common surgical complication observed in many studies<sup>8,9</sup>. Other skin changes such as skin necrosis & skin blisters of patients & Ulceration were identified.

In a study by Sudhir et al<sup>3</sup>, was observed blister formation occurred in 11.36% and tissue necrosis in 10.33% cases which is almost comparable with the present study. Associated regional lymphadenopathy is seen but none of them progressed to suppuration. Gangrene formation accounting to 2.1% of the study population which is almost comparable to a study done by Palappallil et al<sup>9</sup> who observed only 1.9% of cases with gangrenous changes & 0.3% of cases with necrotizing fasciitis. However, in our study we did not observe any case of necrotizing fasciitis.

Vascular changes like thrombophlebitis or venous thrombosis are another severe complications. However, Frangides et al<sup>10</sup> in his study showed 10% of cases having thrombophlebitis but fortunately we didn't face it.

There was only a single (1%) case of compartment syndrome in our study which is consistent with study done by Choudhary<sup>11</sup> & Frangides<sup>10</sup>. There was a single death seen in this study due to sepsis & multi organ failure. So apart from complications due to snake venom, surgical complications sometime become more harmful for patients as well.

## CONCLUSIONS:

Snake bite and its complications are the major public health problem in our country. Moreover morbidity and mortality ultimately lead to a huge loss of man power specially young male of middle age more often & being more frequent in rural agricultural and farm workers. Thus, it is an occupational hazard.

The use of protective footwear and proper illumination at night could reduce the incidence of snakebites. Deep vegetation and grassy embankments in the fields must be approached cautiously, especially after rains. High incidence of cellulitis was observed. Hence proper precautionary measures should be taken to prevent the complication like strict limb elevation, ASV injection, appropriate antibiotic coverage and anti edema measures. When cellulitis has progressed for complications like compartment syndrome, necrotising fasciitis and gangrene, surgical intervention is required to prevent loss of limb or life. Suspected snakebite should get prompt immediate first aid in field and early transportation to nearest medical facility.

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