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ORIGINAL RESEARCH

Conservative management versus fasciotomy in non-bacterial snake bite cellulitis

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ABSTRACT

Aim: The present study aimed to hypothesize that non-bacterial snake bite cellulitis can be effectively managed conservatively in a majority of cases.**Methods:** The patients admitted in RIMS for snake bite and/or consequent cellulitis from July 2021 to July 2022 were included in the study. 80 patients were included in the study and 80 patients were divided into two groups with 40 patients in each group.**Results:** There was male predominance in both the groups and most of the patients belonged to 21-60 years of age. Most of the patients were treated conservatively and rest of the patients was treated with fasciotomy.**Conclusion:** The present study concluded that in any case of snakebite cellulitis, proper precautionary measures should be taken to prevent them.

Key words: Non-bacterial, snake bite cellulitis, conservative

INTRODUCTION

Snakebite is a major public health problem throughout the world and particularly in rural areas. An authentic measure of the global burden of snakebite remains obscure, despite several attempts to estimate it[1].The most common poisonous snakes among the list is common krait (Bungaruscaeruleus) in this part of Chhattisgarh, others are cobra and viper[2].Unlike many other public health risk, however, the burden of human suffering caused by snakebite remains unrecognised, invisible and unheard by the global public health community. The problem is so underrated that in April 2009, WHO added it in the list of neglected tropical diseases[1].

Snakebite envenoming is a topic perhaps too little discussed on the global stage. The disease has only recently been formally re-instated to the WHO list of neglected tropical diseases after a four-year hiatus 1. The additional focus is welcome and has been widely anticipated by many people that deal with and understand the devastating impact of snakebite envenoming on individuals, their families, and communities in general. It is widely hoped that the reinstatement will significantly boost efforts to reduce the burden of snakebite in Asia, Africa, and Latin America where the burden is highest[3, 4].

Specifying the requirements for antivenom at the local level, educating at-risk groups, improving accessibility to antivenoms, and training of healthcare

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personnel are the major challenges in addressing snakebites[3].Most of the mitigative strategies focus on ways and means of addressing these challenges[3].

However, evaluating the cost associated with managing snakebites at the local hospital level has often been overlooked. To date, there are no studies that provide estimates for how much it may cost to treat a victim of a snakebite at the local hospital setting.

Snakebite is a specialized form of injury that occurs throughout the world, most frequently in the countryside. Depending on the snake species, the injected venom leads to a wide variety of toxic effects, ranging from local tissue damage to systemic organ failure. Although antivenom is effective in preventing or limiting the systemic effects, the management of local symptoms remains problematic, especially in cases of soft tissue necrosis and compartment syndrome. The local symptoms and signs of snake envenomation include severe pain and the appearance of an immobile, tensely-swollen, cold, and apparently pulseless extremity. Clinically, this collection of cytotoxic symptoms can be indistinguishable from concomitantly developing compartment syndrome[5].

The aim of the present study was to hypothesisie that non-bacterial snake bite cellulitis can be effectively managed conservatively in majority of cases.

MATERIALS AND METHODS

The patients admitted in RIMS for snake bite and/or consequent cellulitis from July 2021 to July 2022 were included in the study. 80 patients were included in the study and 80 patients were divided into two groups with 40 patients in each group.

- **GROUP 1:** Conservative group: limb elevation., anti-edema measures, analgesics, hydration.
- **GROUP 2:**Fasciotomy group: fasciotomy for compartment of limb concerned at the first instance of appearance of cellulitis.

INCLUSION AND EXCLUSION CRITERIA FOR THE STUDY

INCLUSION CRITERIA

- Any patient diagnosed clinically with snake bite cellulitis to peripheries
- Any bite with any snake to peripheries
- Stable cardiorespiratory status

EXCLUSION CRITERIA

- Any bite other than snake bite.
- Evidence of secondary bacterial infection.
- Unstable cardiorespiratory status.
- Any bite to central body (non-periphery).

RESULTS

Table 1: Demographic data

Gender	Group 1	Group 2	Total
Male	28	30	58
Female	12	10	22
Age groups in years			
<20 years	4	5	9
21-40 years	16	15	31
41-60 years	12	13	25
>60 years	8	7	15

There were male predominance in both the groups and most of the patients belonged to 21-60 years of age.

Table 2:Management

Management	Group 1	Group 2	Total
Conservative	26	28	54
Fasciotomy	14	12	26
Total	40	40	80

Most of the patients were treated conservatively and rest of the patients was treated with fasciotomy.

DISCUSSION

India has the highest number of deaths due to snakebites in the world. Delay in seeking medical aid or ignorance among primary care physicians about the correct treatment of snakebite is also responsible for the high morbidity and mortality[6].

There were male predominance in both the groups and most of the patients belonged to 21-60 years of age. Most of the patients were treated conservatively and rest of the patients was treated with fasciotomy. The fang mark from neurotoxin predominated snakebite are not remarkable with pain or swelling and difficult to identify. Petechiae, oedema, swelling and ecchymosis are remarkable from haemotoxin predominated snakebites. Severe localised pain, haemorrhagic bullae are also prominent. Duration from snakebite and accompanied soft tissue presentation are also useful in identifying snakebites. Progressive swelling of extremities may cause

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compartment syndrome and fasciotomy is usually required[6].Because, fasciotomy is the usual treatment for other causes of compartment syndrome, it is reasonable to consider it for the management of compartment syndrome induced by snake venom. Indeed, some practitioners have advocated for early fasciotomy in nearly all victims of rattle snake envenomation[7].

From a surgical perspective, the first dilemma the clinician faces on managing a snakebite wound is determining whether to perform debridement on the wound site. In the past, early removal of snake venom by surgical methods was recommended as immediate management[8-10].Due to fear of complications caused by antivenoms, several authors in the past have performed wide debridement as soon as possible followed by application of tourniquets or ice bags while omitting the use of antivenoms[11].Immediate debridement is no longer the treatment of choice in managing snakebites, rather the current standard of care is administration of ASV followed by delayed debridement[12-14].

The use of tourniquets, incisions, suction, heat, ice, alcohol, and electric shock have all been reported to be counterproductive in snakebites[15].The jury may still be out on the role of herbal medicine in snakebites. Those that oppose the practice argue that seeking treatment from traditional herbal medicine practitioners often delays access to proper medical intervention and may result in complications[16, 17].In contrast, proponents of herbal medicine argue that the purpose of herbal medicine is not to replace antivenom, but serve an adjunctive role, particularly in managing local effects of envenomation such as necrosis, as has been reported by several authors[18-20].The latter seems to be buoyed by the fact that some phytochemicals isolated from medicinal plants have shown some promising *in vitro* and *in vivo* neutralization capacity against phospholipase A 2 and metalloproteases, which are enzymes associated with local tissue damage[18-21].

CONCLUSION

The present study concluded that in any case of snakebite cellulitis, proper precautionary measures should be taken to prevent them. If cellulitis and other surgical condition has already developed, then it should be treated promptly with proper division into bacterial/non-bacterial in order to prevent the loss of limb or life.

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