



Clinical Profile of Patients with Scorpion Sting

B. S. Pandey¹, L. Venugopal¹, V. Dharma Rao^{1*} and N. Ganesh¹

¹Mamata Medical College, MGH Campus, Khammam, Telangana, India.

Authors' contributions

This work was carried out in collaboration between all authors. Author BSP designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors LV and VDR managed the analyses of the study. Authors VDR and NG managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

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ABSTRACT

Introduction: Scorpion sting is a major public health problem in developing countries, especially in villagers. Manifestations include vomiting, profuse sweating, piloerection, diarrhoea, loss of appetite, loss of sphincter control and priapism. Stimulation of Alpha receptor results in hypertension, tachycardia, myocardial dysfunction, pulmonary edema and cool extremities.

Aims: The study is undertaken to know the clinical profile of the patients with scorpion sting.

Methods and Materials: prospective study was conducted from October 2011 to September 2013 at Mamata General Hospital, khammam in adult patients 18yrs and above with history of scorpion sting. Detailed physical examination and grading of envenomation was done.

Results: Eighty two patients fulfilled the inclusion criteria for the time period studied. Fifty two patients (62.25%) were male and thirty (37.50%) were female. Mean age of patients with scorpion sting was 31.23±7.23 years. Pain (87.50%), Sweating (81.25%) tingling & numbness (77.50%) were the most common presenting symptoms

Conclusion: The present study shows that scorpion bite is more common in males. Local pain and signs of sympathetic over activity were the commonest features.

Keywords: Scorpion sting; clinical features; envenomation.

1. INTRODUCTION

Scorpion sting is a life threatening medical emergency. Scorpion sting is a major public health problem in developing countries, especially in villagers. In India approximately eighty six scorpion species are reported. *Mesobuthus tumulus* and *Palamneus swammwedami* are of medical importance [1,2].

The toxin effects sodium, potassium, calcium & chloride channels and causes release of neurotransmitters such as acetylcholine & catecholamines. Early manifestations include vomiting, profuse sweating, piloerection, diarrhoea, loss of appetite, loss of sphincter control and priapism. Stimulation of Alpha receptor results in hypertension, tachycardia, myocardial dysfunction, pulmonary edema and cool extremities [3,4].

Literature on the clinical manifestation of scorpion envenomation are lacking due to deficiencies in reporting. Hence the study is undertaken to know the clinical profile of the patients with scorpion sting.

2. MATERIALS AND METHODS

A prospective study was conducted from October 2011 to September 2013 at Mamata General Hospital, khammam. Adult patients aged 18yrs and above who came to our hospital with history of scorpion sting were included in the study.

Following initial assessment and stabilization, detailed physical examination and grading of envenomation was done.

Following information was recorded prospectively:

- Demographics
- Presenting complaints at admission
- Grade of envenomation
- Time lapsed before admission
- Vital signs

Envenomation was graded as:

1. Mild- local pain, tingling, sweating and vomiting present without any cardiovascular symptoms
2. Moderate-profuse sweating, sinus tachycardia or bradycardia, tall T-waves on ECG, reduced LV function on 2D echo LVF (killips class 1 & 2) with presence of local signs.
3. Severe-pulmonary edema present along with signs of moderate envenomation.

3. RESULTS

Eighty two patients fulfilled the inclusion criteria for the time period studied. Fifty two patients (62.25%) were male and thirty (37.50%) were female.

In present study majority were between the age group of 31-40 yrs of age (40%) followed by those between 21-30 yrs of age(35%). In the present study, the mean age of patients with scorpion sting was 31.23±7.23 years (Table 1).

Table 1. Demographics

Age(yrs)	Males	Females	Total
<20	4	2	6
21-30	17	8	25
31-40	25	12	37
41-50	3	3	6
51-60	2	4	6
>60	1	1	2

Scorpion stings were most common in the month of September to October (35.00%) and were all due to Indian Red Scorpion (*Mesobuthus tumulus*) (Table 2).

Table 2. Frequency of scorpion stings

Season	Frequency
Jan-Feb	5
Mar-Apr	9
May-Jun	20
July-Aug	12
Sept-Oct	28
Nov-Dec	8

In present study, Pain (87.50%), Sweating (81.25%) tingling & numbness (77.50%) were the most common presenting symptoms (Table 3).

Table 3. Frequency of presenting features

Presenting features	Frequency
Pain	70
Sweating	65
Tingling & numbness	62
Cold clammy extremities	50
Restlessness	42
Swelling at the site of sting	36
Shortness of breath	28
Vomiting	15
Altered sensorium	8

In present study, sweating (81.25%), tachycardia (75%) & cold clammy extremities were the common signs (Table 4).

In present study 45 % of patients had moderate envenomation (Table 5).

In the present study out of 16 from severe envenomation, 3 patients expired because of intractable pulmonary edema (Table 6).

Table 4. Frequency of clinical signs

Signs	
Tachycardia	60
Hypertension	44
Pulmonary edema	24
Hypotension	20
Bradycardia	6

Table 5. Classification according to envenomation

Grade of envenomation	
Mild	29
Moderate	37
Severe	16

Table 6. Mild, moderate, severe envenomation with time lapsed before admission and patients outcome

Grade	Time lapsed before admission			Death
	<2hrs	2-12hrs	>12hrs	
Mild	8	19	2	0
Moderate	9	26	2	0
Severe	4	9	3	3

4. DISCUSSION

Majority of the patients were in the age group of 21-40 years and the mean age of patients was 31.23 ± 7.23 years. In the study carried out by K. Radha Krishnamurthy et al. [5] in G.G.H, Kurnool, India, out of the twenty five patients of scorpion sting studied, the highest incidence was found to be in the age group of 13 to 30 years.

There were more males than females both in total cases and in the age group data. The male to female ratio was 1.66:1. In the study carried out by K. Radha Krishnamurthy et al. the ratio was 2:1. Both show a higher incidence in males. The higher incidence of males in this study could be due to the fact that some of the men work in places with poor lighting and improper storage facilities which makes it ideal for scorpions to hide.

Maximum number of patients were admitted in the months of May to October. The study from Kurnool G.G.H showed the incidence of scorpion stings was high between July and December. Similar incidence has been reported from Brazil, Egypt, Morocco and Turkey [6,7]. Scorpion stings increase dramatically in summer months and are lowest in winter, this study also had similar pattern. This is due to the fact that scorpions are intolerant to high temperatures and so live under ruins and stones to protect themselves from heat during summer months.

All the patients presented with stings on exposed areas of the body. 44 patients (55%) presented with scorpion sting in the upper extremity while the rest had sting (45%) in the lower extremity. Scorpion sting was mostly seen in the upper limbs in Morocco and Brazil,

similar results were obtained in the present study. The same pattern was seen in a study from Turkey [8].

Local pain was the commonest symptom on presentation. 70 patients (87.50%) presented with pain at the sting site during admission. 65 patients (81.25%) had profuse sweating, 60 patients (75.00%) had tachycardia, 44 patients (55.00%) had hypertension, 24 of 80 cases (30.00%) had features suggestive of pulmonary edema and 20 patients (25.00%) presented with hypotension, 6 patients (7.50%) had bradycardia. Sweating and Tachycardia were the commonest finding among the patients presented to our hospital.

Of the eighty two patients 29(35%) patients had mild envenomation, 37(45%) were classified as moderate envenomation and 16 patients (20%) fitted the criteria for severe envenomation. These results were correlating with Suvarna patil et al. and H S Bawaskar et al. [9] studies.

Electrocardiographic abnormalities were detected in 42 of the 82 patients admitted with scorpion envenomation. The commonest abnormality observed in this study was sinus tachycardia in 31 patients. Other common findings were ST elevation, ST depression, tall 'T' waves and 'T' wave inversion seen in 2 patients each. Right bundle branch block and Left bundle branch block was seen in one patient each. Increased frequency of ST and T wave changes in the scorpion envenomation indicates myocarditis.

5. CONCLUSION

The present study shows that scorpion bite is more common in males. Majority of the patients belong to the age group of 21-40 years. Local pain was the commonest symptom on presentation in this study. Signs of sympathetic over activity were the commonest finding among the patients presented to our hospital.

CONSENT

All authors declare that 'written informed consent' was obtained from the patients prior to their enrolment into the study.

ETHICAL APPROVAL

All authors hereby declare that the study was approved by the Institutional Ethics Committee, Mamata Medical College and was therefore performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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