Research Article

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Clinical profile of scorpion sting envenomation in children

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ABSTRACT

Background: Scorpion sting envenomation is a life threatening emergency. The main objective is to study the clinical profile and outcome of scorpion sting envenomation in children.

Methods: This retrospective study analyzed case records of children under 15 years of age who admitted with scorpion sting envenomation from Feb 2014 to Jan 2016. Case records were analyzed for age and sex of the patient; site of scorpion sting, time lapsed from the scorpion sting to hospitalization, season, clinical manifestations, duration of hospital stay and outcome.

Results: During the study period, 164 children were admitted for scorpion sting. Majority of the children are from rural area, male sex, and stung in lower limb, mostly during nights of summer. Local pain at the site of sting and sweating are the commonest local symptoms and systemic sign, respectively. 53.65% children had class II severity. Mean duration of hospital stay was 3 days. Two patients died, both had pulmonary edema.

Conclusions: Prompt referral and early therapy with prazocin is life saving for scorpion sting envenomation in children.

Keywords: Scorpion sting envenomation, Pulmonary edema, Prazocin

INTRODUCTION

Scorpion sting envenomation is a life threatening emergency in tropical and subtropical countries with a potential of severe and often fatal clinical manifestations among children. There are 2000 subspecies of scorpions worldwide, with 50 subspecies having venom dangerous for humans. In India, only two species, Mesobuthus (red) and Palamnaeus (black), are poisonous scorpion. *Mesobuthus tamulus* (Indian red scorpion) is the most lethal scorpion species. These are found abundantly in western Maharashtra, northern Karnataka, Andhra Pradesh, Saurashtra and Tamilnadu. The clinical manifestations of scorpion sting envenomation are due to a massive release of sympathetic and parasympathetic neurotransmitters. The present study was aimed to

study the clinical profile of scorpion sting envenomation and outcome in children.

METHODS

This retrospective study analyzed the clinical profile of children under 15 years of age who were admitted to the Department of Pediatrics, Katuri Medical College, Guntur district, Andhra Pradesh, during February 2014 to January 2016. The study was approved by institutional ethics committee.

Data were extracted from the case records of children admitted with positive history of scorpion sting, with scorpion being seen or killed by relatives or bystanders. Data recorded for each case included: age and sex of the patient, site of scorpion sting, time lapsed from the

scorpion sting to hospitalization, season, clinical manifestations, duration of hospital stay, and outcome.

The severity of envenomation was classified according to Abroug's classification as follows.

Severity class I: Local symptoms including local pain, erythema and paresthesia restricted to the sting area;

Severity class II: Shivering, cool extremities, excessive sweating, nausea and vomiting, hypertension, and priapism.

Severity class III: Cardiovascular, respiratory or neurological symptoms such as cardiogenic shock, pulmonary edema, altered consciousness, and convulsive crisis.

All cases were treated according to treatment protocol of the institute. Patients with cold extremities, sweating, and tachycardia were treated with oral prazocin. Patients with features of shock and myocarditis were treated with prazocin plus dobutamine. All patients were monitored till the signs of recovery. We did not use anti-venom in any patient. The data was analyzed using appropriate statistical method.

RESULTS

A total of 164 children, 94 (57.31%) males and 70 (42.68%) females were admitted with scorpion sting during the study period. 38 (20.73%) children belonged to the 0-5 years, 66 (40.24%) to the 5-10 years and 60 (36.58%) to 10-15 years of age group. 98 (59.75%) patients were from rural area, whereas 66 (40.25%) were from urban area. The majority (n=73, 44.51%) of the stings occurred during the summer, 58 (35.36%) in winter, and 33 (20.12%) in rainy season.

Of the victims, 91 (55.49%) were stung by black scorpion and 60 (36.58%) by red scorpion, whereas color was not identified in 13 (8%) cases. The majority (n=87, 53%) of the sting occurred between 6 pm-12 am, whereas number of stung cases between 12 am-6 am, 6 am-12 noon, and 12 noon to 6 pm were 36 (21.95%), 9 (5.48%) and 32 (19.51%), respectively. The most common site of scorpion sting was lower limbs (n= 103, 64%), followed by upper limb (n=36, 21.95%), trunk (n=15, 9.14%), and head and neck (n=10, 6.09%). The cases were admitted to hospital with a mean time of 2.35±1.23 hours after the sting and ranged from 30 minutes to 10 hours (Table 1).

The local symptoms noted were local pain (n=150, 91.46%), redness (n=124, 75.60%), swelling (n=66, 40.24%), itching (n=34, 20.73%) and numbness (n=25, 15.24%). The systemic signs noted were cold extremities (n=118, 71.95%), sweating (n=125, 76.21%), tachycardia (n=111, 67.68%), hypotension (n=74, 45.12%), hypertension (n=30, 18.30%), altered sensorium

(n=9, 5.48%) and pulmonary edema (n=2, 1.21%) (Table 1).

With regard to severity, 55 (33.53%), 88 (53.65%), and 21 (12.80%) patients were classified into classes I, II and III, respectively. The duration of hospitalization ranged from 1 to 7 days with mean hospitalization stay of 3 days. The duration was longer in younger children and the patients who reported to the hospital very late. 156 (95.12%) patients were discharged after complete recovery and 6 (3.65%) had cardiac dysfunction. 2 (1.21%) died, both had pulmonary edema (Table 1).

Table 1: Clinical profile of scorpion sting envenomation.

Clinical parameters	Number	Percentage
Site of sting		
Lower limbs	103	64
Upper limb	36	21.95
Trunk	15	9.14
Head and neck	10	6.09
Local symptoms		
Local pain	150	91.46
Redness	124	75.6
Swelling	66	40.24
Itching	34	20.73
Numbness	25	15.24
Systemic signs		
Cold extremities	118	71.95
Sweating	125	76.21
Tachycardia	111	67.68
Hypotension	74	45.12
Hypertension	30	18.30
Altered sensorium	9	5.48
Pulmonary edema	2	1.21
Severity		
Class I	55	33.53
Class II	88	53.65
Class III	21	12.80
Outcome		
Complete recovery	156	95.12
Cardiac dysfunction	6	3.65
Death	2	1.21

DISCUSSION

Scorpion sting envenomation is one of the common medical emergencies among children, especially in rural areas. In the present study, maximum number of scorpion sting among children has occurred in the age group of 5 to 10 years, whereas Pol R et al reported 2-7 years as most involved group.⁶

Boys were stung more often girls. Similar findings were observed by other studies.^{7,8} This male predominance of scorpion sting may be due to higher inquisitive nature of boys and boys go outside more commonly than girls, especially during night.

There is higher incidence of scorpion sting in rural areas. This may be attributed to poor socio-economic status (children walking barefoot). The incidence of scorpion sting is more during summer than other season. Majority of the sting occurred during 6 pm to 12 am. This might be because of scorpions are active at night.

Majority of the children the site of scorpion sting was lower limbs, which was similar to Pol et al, Bosnak et al and Farhly et al's observations.^{7,9,10}

The local symptom of scorpion sting include pain at the site of sting (most common), followed by redness, swelling, itching and numbness. The common systemic signs include cool extremities, sweating, and tachycardia. Cold extremities were reported in majority of patients in their studies by Bawasker et al and Biswal et al. ^{1,11} Two cases died, both are complicated with pulmonary edema.

CONCLUSION

Scorpion sting envenomation is a common medical emergency among children. It is common in rural areas and among boys. The site of sting was predominantly in the lower limbs and during nights of summer season. Timely referral and early therapy with prazocin may be lifesaving.

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Institutional Ethics Committee

REFERENCES

1. Bawaskar HS, Bawaskar PH. Scorpion sting: update. J Assoc Physicians India. 2012;60:46-55.

- 2. Bawaskar HS, Bawaskar PH. Clinical profile of severe scorpion envenomation in children at rural setting. Indian Pediatrics. 2003;40:1072-81.
- 3. Vazirianzadeh B, Farhadpour F, Hosseinzadeh M, Zarean M, Moravvej S. An epidemiological and clinical study on scorpionism in hospitalized children in Kuzestan, Iran. J arthropod Borne Dis 2012;6:62-9.
- 4. Mahadevan S. Scorpion sting. Indian Pediatr. 2000;37:504-14.
- 5. Ismail M. The scorpion-envenoming syndrome. Toxicon. 1995;3:825-58.
- Chi PJP. Emerging options for the management of scorpion stings. Drug Des Devel Ther. 2012;6:165-73.
- 7. Pol R, Vanaki R, Pol Manaswini. The clinical profile and the efficacy of prazosin in scorpion sting envenomation in children of North Karnataka (India). J Clin Diagn Res. 2011;5(3):456-8.
- 8. Cesaretli Y, Ozkan O. Scorpion sting in Turkey: Epidemiological and clinical aspects between the years 1995 and 2004. Rev Inst Med Trop Sao Paoulo. 2010;52:215-20.
- 9. Bosnak M, Levent YH, Ece A, Yildizdas D, Yolbas I, Kocamaz H, et al. Severe scorpion envenomation in children: management in the paediatric intensive care unit. Hum Exp Toxicol. 2009;28(11):721-8.
- Farghly WM, Ali FA. A clinical and neurophysiological study of scorpion envenomation in Assiut, Upper Egypt. Acta Paediatr. 1999;88:290-4.
- 11. Biswal N, Bashir RA, Murmu Uday C, Mathai B, Balachander J, Srinivasan S. Outcome of scorpion sting envenomation after a protocol guided therapy. Indian J Pediatr. 2006;73:577-82.

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