



Clinical Profile and Outcome of Children Admitted with Scorpion Sting in Tertiary Care Hospital

KEYWORDS

Scorpion sting, envenomation, hypertension, myocarditis, acute pulmonary edema,

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ABSTRACT *Aim:* To study the clinical profile and outcome of scorpion sting envenomization

Methods: Prospective Observational Study in children from age group of 1 month to 12 years with a history of scorpion sting. Symptoms and clinical signs including complications like peripheral circulatory failure, Hypertension, Pulmonary edema, Myocarditis and Neurological complications like stroke syndrome by clinical examination and investigations like ECG, X-ray chest, Echo and CT brain in selective cases were examined.

Results: 46% of children were in the age group of 5 to 10 years and more number of cases were noted in the summer months (26.6%) and post monsoon (26.6%). More number of cases in noncentering houses (63.3%). The pain at the site of sting (86.6%) was the commonest complaint and cold Peripheries (75%) were the most common sign. Peripheral circulatory failure (25%) was the most complication. The majority of complication occurred in 1 to 5 years. Hypertension was noted as earlier complication and myocarditis, peripheral circulatory failures were observed after 24 hrs of sting. Thrombosis (1.66%) was observed in one case.

Conclusions: Early intervention with oral prazosin and appropriate use of dobutamine with avoidance of atropine, excessive diuretics, steroids and antihistaminic might help to hasten the recovery in severe scorpion sting victim. The presence of metabolic acidosis, myocarditis, encephalopathy and acute pulmonary edema are the important determinants of the mortality and morbidity in children

INDRODUCTION

Scorpion Sting is an acute life threatening time limiting medical emergency among the rural population in most places of India such as Andhra Pradesh, Bellary, Madurai, Chennai, Pondicherry, Madhya Pradesh, Maharashtra and Orissa. There are about 1500 species of scorpions worldwide of which about 50 are dangerous to man. The consequences of scorpion envenomation syndrome have been underestimated in health statistics of developing countries due to inadequate detection and /or data entry of cases. In India Mesobuthus Tamulus and Palamnaeus Swammerdami are poisonous, cardiovascular effects are particularly prominent following these stings by the Mesobuthus Tamulus. Cerebrovascular manifestations are uncommon in Indian sub continent. Scorpion sting is usually harmless in adults but causes serious systemic toxicity in children. The chemical properties and physiological effects of the toxin vary in different species of scorpion. Virulence of toxin more in summer and breeding season. The clinical features of post - scorpion bite, include pain in and around the sting site, florid autonomic signs such as hypertension, tachycardia, hypertension, pulmonary edema, priapism and infrequently; central nervous manifestations such as encephalopathy, convulsions and coma.^{1,2}

AIMS

To study the clinical profile and outcome of scorpion sting envenomation

MATERIALS AND METHODS

Prospective Observational study was conducted in Department of Pediatrics, Tirunelveli Medical College Hospital. Ethical clearance for the study was obtained from the Tirunelveli Medical College Hospital - Ethical Committee. Cases of definite scorpion sting from the age group 1 month to 12 years in which a scorpion was seen or killed

in the vicinity either by the patient or the parents/by-stander, immediately after the sting were included. Cases of scorpion sting in patients > 12 years of age. Unknown bites and cases where the clinical manifestation was not compatible with scorpion sting envenomation were excluded. Clinical Examination, ECG, X-ray Echo were performed.

RESULTS

Table 1
Age Distribution

Age	No. of Cases	Percentage
6 month – 1 year	8	14
1 year – 5 years	15	25
5 years – 10 years	28	46
10 years – 12 years	9	15
Total	60	100

Table 2
Gender Distribution

Gender	No. of Cases	Percentage
Male	37	61.66
Female	23	38.33
Total	60	100

Table 3
Seasonal Distribution

Season	No. of Cases out of 60	Percentage
Summer (April, May, June)	16	26.6
Mon Soon (July, August, September)	15	25

Post Mon soon (October, November)	16	26.6
Winter (December, January, February, March)	13	21.6
Total	60	100

Table 3
Sting – Prazosin treatment time interval (No. of cases received prazosin after scorpion sting)

Sting – Prazosin Interval	No. of Cases	Percentage
< 2 Hours	10	21.2
2-12 Hours	16	34
12-24 Hours	6	12.7
More than 24 hours	15	31.9
Total	47	100

Table 4
Presenting Symptoms

Symptoms	No. of Cases out of 60	Percentage
Pain at site of sting	52	86.6
Diaphoresis / Sweating	45	75
Vomiting	15	25
Swelling	10	16.6
Restlessness / Crying	40	66.6
Altered Sensorium	1	1.66
Restlessness / Crying	40	66.6
Cold and Clammy skin	45	75
Tachycardia	40	66.6
Tachypnea	26	43.3
Priapism	4	6.66
Hypertension	4	6.66
Hypotension	8	13.3
Altered Sensorium	1	1.66
Hemiparesis	1	1.66

Table 5
Complications

Complications	No. of Cases out of 60	Percentage
Peripheral Circulatory Failure	15	25
Myocarditis	4	6.66
Pulmonary edema	2	3.33
Thrombosis	1	1.66

Table 6
Imaging Studies

Imaging Modality	No. of Cases	Percentage
EG	50	83.3
ECHO	14	23.33
Chest x-ray	40	66.66
CT Brain	3	5

Out of 60 cases 25 cases treated outside in which 23 cases treated out side exclusively and 2 cases treated at both outside as well as at Tirunelveli Medical College Hospital. 37 cases treated at Tirunelveli Medical College Hospital in which 35 cases treated at Tirunelveli Medical College Hospital exclusively. Out of 60 cases, 47 cases Received prazosin. Out of 47 prazosin received cases 18

cases from outside (38.29%) and 29 cases from Tirunelveli Medical College Hospital (61.70%). 86.6% of cases of autonomic storm reversal occurred in < 24 hours and 13.3% occurred in > 24 hours. There were 15 cases of Peripheral Circulatory Failure (25%). There were 4 cases of myocarditis (6.6%). There were 2 cases of pulmonary edema (3.3%). All these cases were treated with prazosin, inotropes and these cases improved after 3-4 days. Majority of cases with sweating / diaphoresis disappeared with treatment of prazosin in 12 to 24 hours. Majority of cases with Restlessness / Crying disappeared with treatment of prazosin in 12-24 hours. Majority of cases with Cold & Clammy skin disappeared with treatment of prazosin in 12-24 hours. Majority of cases with hypertension disappeared with prazosin after 24 hours of treatment, 1 case was treated with nifedipine. Priapism (4 cases) disappeared after 12 hours of treatment. Most of the patients admitted were recovered within 3 days of hospitalization.

Table 7
Prognosis

Prognosis	No. of Cases	Percentage
Recovered	59	98.3
Hemiparesis	1	1.66
Expired	0	0
Total	60	100

Majority of cases recovered. One case with the sequelae of hemiparesis. No death in our study. Out of 4 cases of myocarditis 1 case (1.66%) developed < 24 hours, 3 cases (5%) developed > 24 hours. Out of 2 cases of pulmonary edema 1 case (1.66%) developed < 24 hours, 1 case (1.66%) developed > 24 hours. Out of 4 cases of Hypertension 3 case (5%) developed < 12 hours, 1 case (1.66%) developed > 12 hours. Out of 60 cases 1 case of Thrombosis (1.66%) developed > 12 hours. Peripheral circulatory failure followed by hypertension with myocarditis are the common complication observed in the study

DISCUSSION

In our study the number of cases in the age group of 6 months to 1 year, 1 to 5 years, 5 to 10 years, 10 to 12 years were 14%, 25%, 46% 15% respectively. Mahadevan S in 1981, reported a series of 100 cases of children with scorpion sting and reported a similar age distribution.³ Most of the admissions for scorpion sting, in pediatric departments were between 1-10 years of age. More number of cases was noted in the summer months (26.6%) and post monsoon (26.6%) It is widely observed that cases of scorpion stings increase dramatically in summer and are lowest in winter. This is because of hibernator behavior of scorpions in winter and scorpions tend to creep out of the burrows in summer. More number of cases from rural areas (63.3%) than from urban (36.6%) because scorpions inhabit the crevices of dwellings, underground burrows, the areas under logs or debris, paddy husk, sugarcane fields and coconut and banana plantations. Thus, children from rural areas are at highest risk for accidental contact with scorpions.⁴ Site of sting: Most of the cases of sting sustained in the lower limb (40%) than upper limb (13.3%). This is comparable to many studies in the past which an increased incidence of stings on the peripheries of 60-80%.⁵⁻⁷ Pain at the site of sting (86.6%) was the commonest complaint. The high incidence of pain was also noted in previous studies.^{8,9} Others being profuse sweating (75%), restlessness (66.6%), vomiting (25%) were also noted. Central nerv-

ous system manifestations are infrequently encountered in India. The incidence of CNS manifestations reported in India vary from 3% to 7%.¹⁰ Physical signs: Cold peripheries (75%) were the most common signs than Restlessness (66.6%), tachycardia (66.6%). Hypertension was noted in 6.6% of cases. Incidence of hypertension in scorpion stings in Indian studies varies from 12.6% to 29% and hypertension is seen usually within 4-8 hours after the sting.⁹ Priapism was noted in 6.6% of cases and among the priapism cases one case developed myocarditis. Bawaskar et al noted Priapism in 10% of cases and observed it to be one of the important cardiac premonitory signs. One case presented with altered sensorium (1.66%) and another case with hemiparesis (1.66%).⁸ High incidence of Peripheral circulatory failure, ranging from 56-80% has been noted in various case series in India.¹¹ Myocarditis (6.66%) occurred in 4 out of 60 cases. ECG abnormalities in the form of ST depression/elevation, T wave abnormalities and Echocardiogram showed decreased LV ejection fraction and / or LV dilatation, suggesting LV systolic dysfunction. Myocarditis has been known to occur secondary to Indian red scorpion envenoming, with the reported incidence of 22-50%. Pulmonary edema (3.33%) occurred in 2 out of 60 cases. The reported incidence of pulmonary edema secondary to scorpion sting in India is around 5%.⁹ Thrombosis (1.66%) occurred in 1 out of 60 cases Cerebrovascular manifestations following scorpion sting is infrequently encountered in India. No death in our study. The mortality due to scorpion sting has dramatically declined over the years from up to 68% to less than 1%.^{4,9}

CONCLUSION

Early intervention with oral prazosin and appropriate use of dobutamine with avoidance of atropine, excessive diuretics, steroids and antihistamines might help to hasten the recovery in severe scorpion sting victim. Selective conservative treatment related to specific organ system and counteracting the biochemical alterations, as well as intensive care support for circulatory failure and pulmonary complication remain the treatment of choice for scorpion sting envenomation.

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