

BRIEF REPORT

Report of 267 Cases of Scorpion Bite Referring to an Emergency Department during One Year

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Abstract

Scorpion bite is a common health problem in many parts of the world, including the Iran's tropics. There are thousands of cases and a number of deaths due to scorpion bite every year in the country. The present study aims to provide further data regarding the details, complications and outcomes of scorpion bite cases referring to Razi Hospital, Ahwaz, from March 2011 to April 2012. 267 patients (56.3% females) with a mean age of 35.2 ± 15.8 years were included in the study. The most common genus of scorpion involved was *Hemiscorpius* (69.3%) and the most frequent body part involved was the lower limb (38.9%). The frequency of hemolysis-induced renal insufficiency and death after scorpion bite were 1.9% and 1.1%, respectively. Of all the factors evaluated in this series only the old age was associated with higher possibility of renal insufficiency ($P < 0.001$).

Key words: Bites and stings; scorpion, hemolysis; environmental; poisoning

Cite this article as: Manouchehrifar M, Khosravi Sh, Khavanin A, Derakhshandeh N. Report of 267 cases of scorpion bite referring to an emergency department during one year. *Emergency*. 2013;1(1):24-6.

Introduction:

Scorpion bite is a common health problem all over the world, including the Iran's tropics (1, 2). In Iran, Khouzistan and Hormozgan Provinces are regions with a lot of scorpions and there are thousands of reports each year about scorpion bite with a number of related deaths (3). In rural areas of Khouzistan scorpion envenomation is the fourth common cause of death (4). The scorpions in Iran belong to three families, 18 genera, 29 species and 5 subspecies (5). One study in Khouzistan reported *Mesobuthus*, *Androctonus*, and *Hemiscorpius* are responsible for 89.1% of bites (6). Of all these families Scorpionidae and Buthidae are the most important ones; in this context, *Hemiscorpius* is responsible for 95% of deaths and *Androctonus Crassicauda* (black scorpion) is the most dangerous type (7, 8). Considering what discussed above, it is necessary to increase the knowledge of the health and treatment system about the details of scorpion bite, complications and outcomes of patients in these regions. Therefore, the present study aimed to report

the characteristics of scorpion bite in patients referring to the emergency unit of a hospital in Ahwaz city.

Methods:

The present case series has evaluated the victims of scorpion bite, who had been hospitalized in Razi Hospital, Ahwaz city, from March 2011 to April

Table 1: Details of scorpion bite victims [↑](#)

| Particulars | Number (%) |
|--------------------------------|-------------|
| Location of incident | |
| City | 196 (73.5%) |
| Village | 71 (26.5%) |
| Scorpion family | |
| <i>Hemiscorpius lepturus</i> | 185 (69.3%) |
| <i>Androctonus crassicauda</i> | 26 (9.7%) |
| <i>Mesobuthus eupeus</i> | 3 (1.1%) |
| Not known | 53 (19.9%) |
| The body part involved | |
| Head and neck | 31 (12.1%) |
| Trunk | 33 (12.8%) |
| Abdomen | 1 (0.4%) |
| Upper limb | 88 (34.2%) |
| Lower limb | 100 (38.9%) |
| Multiple | 4 (1.6%) |

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Received: 15 October 2013; Accepted: 15 November 2013



Table 2: Demographic data of patients with acute renal insufficiency [↑](#)

| Variables | Cases | | | | |
|-------------------------|--------------|------------|--------------|-------------|---------------|
| | 1 | 2 | 3 | 4 | 5 |
| Sex | Female | Female | Male | Female | Male |
| Age | 28 | 19 | 30 | 79 | 86 |
| Location | City | City | City | Village | Village |
| Involved body part | Upper limb | Lower limb | Trunk | Lower limb | Head and neck |
| Scorpion family | Hemiscorpius | Not known | Hemiscorpius | Androctonus | Hemiscorpius |
| hospitalization (days) | 7 | 1 | 6 | 5 | 4 |
| ICU ¹ (days) | 5 | 1 | 6 | 5 | 4 |
| Need for dialysis | + | - | - | + | + |
| Need for blood | + | - | - | - | - |
| Anti-venom | + | + | + | + | + |
| Outcome | Death | Discharge | Discharge | Death | Death |

¹ Intensive care unit**Table 3:** Details of laboratory results of patients with acute renal insufficiency [↑](#)

| Laboratory Tests | Cases | | | | |
|---|-------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 |
| Urine protein (mg/dl) | 3 | 0 | 0 | 0 | 1 |
| Urinary WBC ¹ (1/mm ³) | 10 | 2 | 12 | 42 | 60 |
| Urinary RBC ² (1/mm ³) | 6 | 2 | 4 | 12 | 8 |
| Hematuria | 4+ | 1+ | 1+ | 3+ | 3+ |
| Creatinine (mg/dl) | 3.1 | 1.7 | 1.7 | 2.3 | 1.8 |
| BUN ³ (mg/dl) | 164 | 19 | 17 | 28 | 16 |
| Platelet (×1000) | 103 | 203 | 169 | 105 | 98 |
| PTT ⁴ (/second) | 37 | 31 | 43 | 52 | 58 |
| PT ⁵ (/second) | 18 | 12 | 12 | 17 | 17 |
| WBC (/mm ³) | 24.3 | 14.9 | 5.2 | 17.8 | 19.1 |
| Hemoglobin (mg/dl) | 7.9 | 8.2 | 11.6 | 9.8 | 9.2 |

¹ White blood cell; ² Red blood cell; ³ Blood urea nitrogen; ⁴ Partial thromboplastin time; ⁵ Prothrombin time

2012. Data collected from the patients files, retrospectively, consisted of age, gender, location of the incident, the body part involved, the type of the scorpion involved, duration of hospitalization, clinical symptoms and signs, laboratory findings, type of the treatment rendered and patients' status at discharge. Data was registered in the database designed to this end and analyzed with SPSS 18. After providing a descriptive analysis, to examine the relationship between variables chi-square test was used. P value < 0.05 was considered as significant.

Patients:

During the period of study, 267 patients (56.3% females) were referred to the emergency unit due to scorpion bite. The mean age of the patients was 35.2±15.8 years (range: 14-86). [Table 1](#) presents details about the incidents. The most common type of scorpion involved was Hemiscorpius (69.3%). 188 (73.1%) bites had occurred in limbs (lower limb, 38.9% and upper limb, 34.2%) and only four

(1.6%) patients had been received multiple bites in the limbs and trunk. The patients had been hospitalized for a mean period of 3.0±1.5 days (range: 1-11). 22 patients had been hospitalized to the intensive care unit (ICU) for a mean period of 4.3±2.2 days. 76 (28.4%) patients simultaneously had a positive urinary test tape and a urinary RBC≤ 5/mm², as an indicator of hemoglobinuria. Finally, five (1.9%) patients had suffered from hemolysis-induced acute renal insufficiency during the hospitalization period and three (1.1%) of them had required dialysis ([Tables 2](#) and [3](#)). No significant relationship was found between the type of involved scorpion and the chances of hemolysis and incidence of hemoglobinuria and renal insufficiency (P>0.05). In addition, of the factors of age, gender, the body part involved, anemia and leukocytosis, only age had a significant relationship with renal insufficiency (P<0.001). Finally, eight patients had required injection of blood products after hemodialysis. All the patients



had received anti-venom and 50.7% antibiotics and 43.6% corticosteroids. Finally, 245 patients (91.8%) had been discharged without any specific complications and three (1.1%) died. 19 (7.1%) patients had left the hospital against medical advice before completion of diagnostic and therapeutic procedures.

Discussion:

The most common type of scorpion in these series was *Hemiscorpius* and the most common body part was the lower limb. The frequency of renal insufficiency and mortality due to the scorpion bites were 1.9% and 1.1%, respectively. Of all the factors evaluated in this study, only the old age was associated with a higher incidence of renal insufficiency. Of course, it should be pointed out that sufficient data was not available in relation to other possible concomitant diseases in these victims. The mean ages of victims reported did not the same in different studies (9-12). Given the fact that hospital evaluation in the present study admits only adult patients, the mean age of 35 years seems to be acceptable. In terms of sex distribution, location of the bite, and the mortality rate this study is consistent with previous one(4, 13).

Preparation and implementation of an educational program to increase people's awareness about the importance and the necessity of attention to scorpion bite might help decrease the incidence. It appears that some precautions can decrease the number of scorpion bite cases, including repairing and closing cracks and splits in buildings, keeping wood logs and chips, and motes away from homes and rural residential areas as well as avoiding sleeping outdoors.

Acknowledgement:

The authors would like to thank all the colleagues who helped in different stages of the present study, from data collection to preparation of the report.

Conflict of interest:

None

Funding:

None

Author's contribution:

All authors have substantial contribution in designing, data gathering and analysis, revising and final

approving of the published version and are responsible for all aspects of the work.

References:

1. World Health Organization. Rabies and envenoming, report consultative meeting. Geneva: World Health Organization; 2007.
2. Mohseni A, Vazirianzadeh B, Hossienzadeh M, Salehcheh M, Moradi A, Moravvej SA. The roles of some scorpions, *Hemiscorpius lepturus* and *Androctonus crassicauda*, in a scorpionism focus in Ramhormoz, southwestern Iran. *J Insect Sci.* 2013; 13:1-12.
3. Labafgahsemi R. Status of scorpion stings in Iran and their prevention. *Behvarz Journal.* 1999; 2(10): 32-5. [Persian].
4. Meashk Z, Nemat R, Mahboubian N. The epidemiology of Scorpionism in the patients admitted in scorpion ward of Aboozar Hospital, Ahvaz; 1989-1990. *Hakim.* 2000;3(3): 215-22. [Persian].
5. Dehghani R, Valaie N. Classification of scorpions and their diagnostic clue. *KAUMS Journal (FEYZ).* 2005;8(4): 73-92. [Persian].
6. Vazirianzadeh B, Haji HR, Amri B, Bageri S, Molaei Seyedeh M. Epidemiological study of scorpionism in the hospitals of ahvaz, sw iran, 2nd six months of 2006. *J Health Sci.* 2010;2(2):17-25 [Persian].
7. Zargan J, Tirgari S, Tahernejad K, Lotfi H, Farahmandzad A. Study of scorpion fauna in Abomosa, Great & Small Tonbs and Hengam Islands of the Persian Gulf. *Iran South Med J.* 2003;6(1):20-4. [Persian].
8. Akbari A, Tabatabai M, Hedayat A, Modiroosta H, Alizadeh M, Zare MK. Study of the geographical distribution of scorpions in the south of Iran. *J Pajo Sazandegi.* 1997;34:112-5. [Persian].
9. Attamo H, Diawara N, Garba A. Epidemiology of scorpion envenomations in the pediatric service of the Agadez hospital center (Niger) in 1999. *B Soc Pathol Exot.* 2002;95(3):209-11. [French].
10. Jarrar BM, Al-Rowaily MA. Epidemiological aspects of scorpion stings in Al-Jouf province, Saudi Arabia. *Ann Saudi Med.* 2008;28(3):183-7.
11. Charrab N, Soulaymani A, Mokhtari A, Soulaymani R. Scorpion envenomation treated at Beni Mellal Provincial Hospital in Morocco. *Revue Méd Trop.* 2009;69(1):33-6.
12. Al-Asmari AK, Al-Saif AA. Scorpion sting syndrome in a general hospital in Saudi Arabia. *Saudi Med J.* 2004;25(1): 64-70. [Persian].
13. Dehghani R. *Thermotherapy in the treatment of Hemiscorpius lepturus.* Tehran: Health college, Tehran University of Medical sciences; 2000.

