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Review Article

Epidemiological and Clinical Aspect of Scorpion Stings in the Region of Azilal

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Abstract

Conducted over two years (2020-2021), study included hospitalized patients with scorpion stings, totaling 210 cases admitted to the Provincial Hospital of HAUT ATLAS AZILAL.

Patients, with a mean age of 11.4 years, showed a female predominance. Most cases (73.81%) were from rural areas, with 67.14% of bites occurring at night and primarily affecting distal limb parts (91%). Summer months, especially July, August, and September, saw a peak in frequency (70.4%). Black scorpions accounted for 61.9% of stings. The post-sting time varied from 30 to 370 minutes, with 63.8% treated before the second hour. Clinically, 36% were in class I (Local Signs), 51% in class II (General Signs), and only 13% in class III (Vital Distress).

Keywords: ***Scorpion sting, empidemiological and clinical aspect.***

Introduction

Scorpion stings are a major public health problem worldwide, affecting all five continents.

In Morocco, scorpion stings account for the majority of reported poisonings, with an incidence rate ranging from 0 to 2.4% depending on the region, and an overall case-fatality rate of 0.82%, which may be as high as 5.3% in some areas [1,2]. Children are particularly vulnerable, and envenomation in a pediatric population is a factor with a poor prognosis [3,4,5].

The provinces of central and southern Morocco, such as El Kelâa Sraghna, Khouribga, Beni-Mellal, Essaouira, Safi, Marrakech, Souss-Massa, and Ouarzazate, are the most affected by this problem.

In this context, our study, conducted over two years, aims to assess the epidemiological and clinical profile of scorpion stings and determine the scale of the problem in the Azilal region.

Materials and Methods

This study was based on a sample of 210 patients admitted between January 2020 to December 2021, using special hospital charts. It consisted of an exhaustive follow-up of all patients stung by a scorpion and admitted to the Haut Atlas Azilal provincial hospital, the hospitalization chart contained patients' demographics,the date,time and place where the sting occurred and the time of initial consultation.

A clinical test was used in order to classify the patient status into three classes: class 1 (local symptoms), class 2 (Tremor, Sweating,nosea, Vomiting, Priapism), and class 3 (Cardiovascular, Respiratory or Neurological Distress)

Results

During the period from January 2020 to December 2021, 210 cases of scorpion poisoning were admitted to the Haut Atlas Azilal Provincial Hospital. There were 91 cases in 2020 and 119 cases in 2021. All age groups are affected, with a predominance of children aged between 5 and 15 (47.62%). The mean age was 11.4 years, with extremes ranging from 9 months to 70 years.

In this series, the sex ratio was 0.75 with 120 women (57.14%) and 90 men (42.86%). Of all the cases collected, the majority came from rural areas, with 155 cases (73.81%), compared with 55 cases from urban areas.

In our study, the majority of cases of scorpion poisoning occurred at night, between 6 p.m. and 6 a.m., accounting for 141 cases (67.14%). All parts of the body were exposed, but the extremities were affected in 91.9% of cases. A peak in the number of bites was observed between July and August, accounting for 66.19% of all cases recorded. In our study, the color of the scorpion could only be identified in 67.14% of cases, with black scorpions predominating (61.9%).

About the time taken to consult a doctor after the sting, only 15.71% of patients consulted within 1 hour, 75.24% within 4 hours,

while 9.05% consulted after more than 4 hours, with an average of 121.3 minutes ranging from 30 minutes to 370 minutes.

The predominant clinical signs in our series were local signs (91%), vomiting (70%), hypersudation (56%), tachycardia (42%), abdominal pain (26%), and priapism in 7% of cases. The majority of scorpion stings were classified as stage 2 seriousness, with 107 cases (50.95%).

The duration of hospitalization varied from 3 hours to 5 days, with an average of 24 hours. In 74.29% of cases, the hospital stay did not exceed 24 hours. In our series, 14% of patients presented complications requiring admission to intensive care, and we observed 2 deaths, giving a mortality rate of 0.9%

Discussion

Scorpion stings account for more than 1.2 million stings worldwide, leading to more than 3,250 deaths [6]. There are 1,500 species of scorpion, but most zoologists recognize only 9 families according to the Sissom classification [7]. They are found in India, North Africa, South Africa, Asia, Mexico, the southwestern United States, Trinidad, Brazil and Colombia [8].

In our series, as in other studies, the most affected population is the pediatric population [9-12], which can be explained by the high level of activity, lack of attention, and adventurous nature of children.

However, a female predominance was noted in our study. Albuquerque et al reported that the risk of scorpion sting among women is higher than among men [13], this is due to the higher exposure of the female gender to situations favorable to sting, this is probably related to occupational and behavioral differences in home environment.

Scorpion stings occur mainly in rural areas (78.3% of cases) and are more frequent in summer, mainly in the evening, which is in line with national and international data [14,15]. The limitation of these events to the summer is explained by the thermophilic nature of the scorpion, which is widely supported by several studies [16]. Additionnally, the stings occurred particularly between 6.00 pm to 6.00 am because of the nocturnal activity of this arachnid [16].

All authors agree that the time between sting and evaluation is an important prognostic factor [17]. In our study, we found that the time between sting and evaluation was shorter than in other studies, which may be explained by the increased awareness of the population thanks to the national awareness program.

Clinically, local signs predominated, which is in line with the data of Bahloul and Otero [18,19].

According to our study, the pediatric population is the most prone to mortality, high morbidity and lethality rates in children have usually been associated with immune system vulnerability and the ratio between venom dosage and patient body weight [20].

The time between sting and clinical evaluation of the two deaths recorded in our study exceeded 4 hours, although this plays a very important role in prognosis. Mortality was due to cardiorespiratory failure in both cases, which is in line with the data in the literature [21].

Conclusion

The province of Azilal is heavily affected by scorpion envenomation, with significant economic and social consequences, requiring greater attention from the public health authorities. Children are the most vulnerable group, and any delay in providing them with medical care will worsen their prospects.

Competing Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

Authors' contributions

All authors have contributed to this work since conception, reading and endorsing the final version of the manuscript.

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