Management of the cutaneous reaction induced by scorpion sting: Thinking about treatment and means of prevention

Prise en charge d'une piqûre de scorpion : réflexion autour du traitement et des moyens de prévention

Scorpionism is defined by the local or general envenomation caused by a scorpion sting. This latter is a frequent event in developing countries, especially in North Africa, Middle East, Central America and sub-Saharan areas where it constitutes a real public health issue [1]. Its incidence is much rarer in Europe. Clinical signs following a scorpion sting are mostly local: persistent pain and pruritus are described around the inoculation site of venom. After a 24 h-period, the intensity of symptoms begins to decrease, and there is no further risk for the patient [2].

Severe envenomations remain unusual, but should be thoroughly monitored. Thus, practitioners have to be ready to respond appropriately. In the scientific literature, there are many case reports that deal with envenomation due to highly dangerous scorpions. Nonetheless, little has been described so far about the skin reactions caused by species producing venom with mild-to-moderate toxicity [3]. We report and discuss a case of cutaneous envenomation caused by a common European scorpion species.

Case report

A 35-year-old man exhibited an erythematous inflammatory lesion of the right forearm (figure 1). His skin was warm and hypersensitive. The patient mainly complained of intense pruritus and pain like a burning. There was neither fever, nor generalised headache, vomiting, nor other symptoms. The patient reported to have been stung by a scorpion in his bed, during a journey in Crete 2 days earlier. Despite his great panic at that time, he had succeeded in catching its attacker. The specimen was identified as a species belonging to the Euscorpius carpathicus complex (figure 2), in which E. candiota is endemic to Crete and neighbouring islands. Although symptoms were more extensive and pronounced than what is usually observed, only an anti-pruriginous cream (hydrocortisone acetate, mafenidramium methylsulfate, and lidocaine chlorhydrate in association) was prescribed. Symptoms disappeared within the following week.

Discussion

Since scorpion stings are infrequent in Europe and poorly documented in the scientific literature, they may generate questions among healthcare staff as to how such lesions need to be treated. Thus, we would like to raise awareness on the real risks related to the scorpion envenomation. Here are 10 recommendations to limit these threats:

- the geographical distribution of the 1750 scorpion species is not only limited to desert areas, but also extends to all the continents, except for Antarctica [1]. Some, like Pectinibuthus birulai, can live below −50 °C [4];
- scorpions are very fearful. When they feel threatened, they run away or pretend to be dead. They do not attack spontaneously the Humans, unless if one dislodges them from their hideout;
- two thirds attacks occur outside during nighttime, when scorpions emerge from their shelter to hunt and feed: thus in endemic areas, closed high-topped shoes should be worn right from the evening;
- since three quarters of the scorpion stings occur at home in summer [1], tourists should be particularly careful when returning in their holiday home after a long vacancy. They have to start by inspecting all the nooks and crannies, which could serve as hiding places for scorpions;
- in endemic areas, clothes and shoes should be hung when not used. They have to be vigorously shaken before dressing;
- in case of scorpion sting, the victim must immediately visit his practitioner, or call the nearest Poison Control Centre. The wound should be cleaned with water, and then disinfected. In 95% of cases, the envenomation remains localized [5]. Intense pain, which persists during 0–2 hours, rarely beyond 10–15 hours, usually remains the only symptom, sometimes accompanied with swelling and burning sensation [6]. Therefore, physicians have to provide local symptomatic treatments, with cold compress, cold water or ice. Paracetamol may be orally given;
- the sting wound should not be sucked, especially when lesions are present in the oral mucosa of the rescuer;
- a tourniquet should not be applied. On the contrary, the limb, which was stung has to be rather immobilized [7]. When the sting is located at a finger, ring of local anaesthesia provides satisfactory relief;
- only around 30 species are sufficiently venomous for causing severe envenomations [1]. They mostly belong to the Buthidae family, and produce neurotoxins, responsible for about
3000 deaths per year [1]. Therefore, a definite identification of species is needed to ensure the most appropriate medical management. When not realizable, the victim is kept as a precaution under medical observation for 6–24 h, particularly if the pain worsens and if the attack concerns a child, an elderly or a subject with heart disease [8,9]; cardiovascular collapse, cardiac arrhythmia, pulmonary edema [9], hyperthermia [8] require urgent hospitalization in ICU. An intravenous specific antivenom is then recommended [5].

Overall, envenomations generated by scorpions of the complex Euscorpius carpathicus usually result in uncomplicated locoregional skin reactions. Pain at the point of inoculation is a convenient tool to assess the amount of injected venom. It usually tends to rapidly decrease within 1 hour after the sting. In absence of symptoms, the victim may be discharged after a minimal procedure of antiseptic wash.

Acknowledgements: the authors would like to thank the patient and his family for their cooperation.

The authors did not receive any specific research funding for the study and declare no ongoing financial support for their research. Data were generated as part of the routine work at the University Hospital in Tours, France. All the authors listed in the manuscript are assumed to have agreed with the publication.

Disclosure of interest: the authors declare that they have no conflicts of interest concerning this article.

References
Management of the cutaneous reaction induced by scorpion sting: Thinking about treatment and means of prevention


Guillaume Desoubeaux1,2, Éric Bailly3, Christian R. Andres3,4, Claude Guiguen5, Jacques Chandenier1,2

1CHU de Tours, hôpital Bretonneau, service de parasitologie, mycologie, médecine tropicale, 37044 Tours cedex 9, France
2Université François-Rabelais, CEPR, Inserm U1100/E.A. 6305, Faculté de médecine, 37032 Tours cedex, France
3CHU de Tours, hôpital Bretonneau, laboratoire de biochimie et biologie moléculaire, 37044 Tours cedex 9, France
4Université François-Rabelais, UMR, Inserm U930, Faculté de médecine, 37032 Tours cedex, France
5CHU de Rennes, hôpital Pontchaillou, laboratoire de parasitologie & mycologie, 35000 Rennes, France

Correspondence: Guillaume Desoubeaux, CHU de Tours, hôpital Bretonneau, pôle de biologie médicale, service de parasitologie, mycologie, médecine tropicale, 2, boulevard Tonnellé, 37044 Tours cedex 9, France
guillaume.desoubeaux@univ-tours.fr

Received 5 June 2014
Accepted 29 October 2014
Available online:
http://dx.doi.org/10.1016/j.lpm.2014.10.013
© 2015 Elsevier Masson SAS. All rights reserved.