Short Communication

The Journal of Venomous Animals and Toxins including Tropical Diseases
ISSN 1678-9199 | 2012 | volume 18 | issue 4 | pages 451-454

Scorpion envenomation in pygmies from Democratic Republic of Congo, the example of Pelenge Center, Lomela, DRC

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Abstract: In a survey among the pygmies of central Democratic Republic of Congo, the incidence of scorpion stings seemed very high with a severity greater than expected. Species responsible were not identified. Specific studies are needed to clarify the risk emerging in the equatorial African forest.

Key words: *Arothron hispidus*, tetrodotoxin, bioassay, ATPase and AchE enzymatic activities, anticancer activity.

Classically, scorpion stings are few and mild in sub-Saharan Africa, particularly in forest area, except in the Eastern and Southern Africa (1). Accident circumstances, therapeutic course, and the actual severity of scorpion stings still remain poorly known in Democratic Republic of Congo (DRC). As a result, the Antivenom Center of Kinshasa began studying the incidence and severity of stings, risk factors, species involved, clinical aspects, and finally the management of scorpion envenomation.

We performed a survey among the Pygmies "Lokoko" or "As'Eto" ("Caterpillars Eaters") in Kasai Oriental, in the DRC.

Pelenge is located 150 km north from Kole, Sankuru District, Kasai Oriental (Figure 1).

A survey was performed in a camp of Lokoko pygmies (about 300 people) to evaluate scorpion stings which occurred between 2010 and 2011. We interviewed the victims of scorpion stings and traditional healers, using standardized survey form. The latter included questions are about sex and age of the victims, circumstances of the sting (time and place of the accident, activity when stung etc.), symptoms and management, species names in dialect (Batwa), color of the scorpion, application mode of traditional recipes as well as various plants, barks and roots used, evolution and healing time after treatment, and death occurrences.

A total of 113 cases were reported, of which 37 were confirmed scorpion stings. During the month of survey, 4 scorpion stings were recorded. The majority of stings occurred in adults. However, two deaths were reported in children (Table 1).

Three different types of scorpions have been described by interviewed Lokoko people. The

Figure 1. Location of study area in Democratic Republic of Congo.

Table 1. Distribution of stings and deaths according to age

Age (years)	Stings	Deaths	Case fatality rate (%)
< 1	0	0	0
1-4	4 (11%)	1	0.25
5-14	5 (14%)	1	0.20
15-49	20 (54%)	0	0
≥ 50	8 (22%)	0	0
Total	37	2	5.4

Figure 2. Yellow scorpion, the most frequent form in the study area.

most common were small yellow scorpions responsible for approximately 30% of stings (Figure 2). A second form was completely black which was involved in 15% of stings, and the third group involved dark scorpions (5% of accidents). Scorpions responsible for the remaining 50% stings were not identified.

It seems from this study that the risk and severity of envenomation vary according to ecological landscapes.

Most victims stung by scorpions presented pruritic rash associated with vesicles and bullae on erythematous background (Figure 3). Some patients have complained of intense local pain, edema (hot to touch), insomnia, and sometimes dyspnea.

Some effects were noted, such as shaped hypoesthesia at the injection site, paroxystic pain increasing on palpation or contact, and unsightly scars.

This study showed a dramatic incidence of scorpion stings. It is difficult to accurately measure the annual incidence, since the questionnaire was not designed for dating the cases over time by investigators and, probably, still less by the victims. However, four cases were notified during the one month survey, which could confirm the high frequency of stings. From these data, the annual incidence could be estimated to several thousand stings (ranged 3,000-12,000) per 100,000 inhabitants. The case fatality rate can be evaluated 5.4%, notably higher in children than in adults.

Dermatological symptoms were also remarkable. They are likely similar to those developed during envenomation following *Hemiscorpius lepturus* stings (2).

Unfortunately, specimens that we could obtain were in very poor condition and they could not be identified. Small yellow scorpions belonged to the Buthidae family, perhaps *Uroplectes* genus, although it is unknown to date in DRC. The scorpion fauna of DRC is little known because of the absence of arachnological studies (3). Only *Lychas asper*, a potentially dangerous species for human, *Pandinus cavimanus*, and *P. viatoris*, whose sting is painful, but harmless to human (1), have been collected in DRC (3). It is likely that species of *Uroplectes* and, perhaps, *Opistophthalamus* could also be present in DRC.

Entomological and epidemiological surveys should respectively: identify scorpion species responsible for stings and severe envenomation; and estimate the annual incidence and mortality due to scorpion stings, in Kasai Oriental Province. Botanical surveys and harvesting of plants used

Figure 3. Skin lesion following scorpion sting envenomation.

by traditional healers should lead to study their composition and mode of action.

However, this preliminary study needs also to be extended to other Pygmies camps in the region which accounts up to ten.

ACKNOWLEDGMENTS

We wish to thank the Management Committee of the CAV for its financial support during this study. Our gratitude also goes to the tireless guides J. Kabata, R. Nkinda, J. Kapinga, and J. Ingondja. It would be wrong to conclude without thinking of Baby Kasongo for its sacrifices and determination during the work. Finally, we are grateful to Dr. Jean-Philippe Chippaux, director of researches at the Institut de Recherche pour le Développement (IRD), France, for its support and assistance in the preparation of this manuscript.

SUBMISSION STATUS

Received: September 28, 2012.
Accepted: November 8, 2012.
Abstract published online: November 9, 2012.
Full paper published online: November 30, 2012.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

FINANCIAL SOURCE

Institute of Research for the Development (IRD) and Center for the Study and Research on Malaria Associated with Pregnancy and Childhood provided the financial grants.

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