



A two year study of verified spider bites in Switzerland and a review of the European spider bite literature



Wolfgang Nentwig^{a,*}, Markus Gnädinger^b, Joan Fuchs^c, Alessandro Ceschi^{c,d}

^a Institute of Ecology and Evolution, University of Bern, Baltzerstrasse 6, CH 3012 Bern, Switzerland

^b Department of General Practice, University Hospital, Zurich, Switzerland

^c Swiss Toxicological Information Centre, Associated Institute of the University of Zurich, Zurich, Switzerland

^d Department of Clinical Pharmacology and Toxicology, University Hospital Zurich, Zurich, Switzerland

ARTICLE INFO

Article history:

Received 7 June 2013

Received in revised form 7 July 2013

Accepted 10 July 2013

Available online 18 July 2013

Keywords:

Cheiracanthium punctorium

Zoropsis spinimana

Tegenaria sp.

Amaurobius ferox

ABSTRACT

During a two-year study, all spider bites recorded by Swiss primary care physicians were reported to the Swiss Toxicological Information Centre and all collected spiders were identified. A total of 14 verified spider bites were recorded, involving five species from four families: *Zoropsis spinimana* (five cases), *Cheiracanthium punctorium* (four cases), *Tegenaria atrica* (three cases) and one case of *Malthonica ferruginea* (= *Tegenaria ferruginea*) (both Agelenidae), and one case of *Amaurobius ferox* (Amaurobiidae). The bites of all spider species produced relatively mild symptoms. Local symptoms such as moderate to severe pain, circumscribed swelling and redness were the only effects in most cases. Systemic symptoms were rare. There was complete recovery in all cases and all lesions healed completely without further damage or secondary disorders. Following a review of the European spider bite literature, the number of spider species capable of biting humans in Europe is considered to be much larger than could be concluded from this study. Most spider bites are restricted to species living synanthropically, thus promoted by climate and habitat change. The annual frequency of spider bites in Switzerland is estimated at 10–100 bites per million inhabitants, but this is predicted to increase due to the continuous arrival of new alien species, many of which have a high potential to establish in urban areas.

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Spider bites are frequently reported from the United States and some subtropical and tropical areas, as summarized by Nentwig and Kuhn-Nentwig (2013) in a recent review. For Europe, no recent or comprehensive review is available and the general impression is that European spiders are not harmful to humans. This is surprising, because Europe has a diversity of 4500 spider species (Nentwig et al., 2013), many of them sufficiently large to perforate the thick human skin. This includes genera such as *Latrodectus* and *Loxosceles*, which are usually considered to be of medical importance.

It is indeed difficult to obtain an accurate representation of the frequency, species involved and medical importance of spider bites, because the only major data compilation for Europe (Maretic and Lebez, 1979) is of restricted value, at least according to modern standards. These authors refer to a wealth of historic sources and also cite relevant contemporary literature, however, they completely overlook the need for an objective verification of what constitutes a spider bite. Because there are no particular symptoms that are diagnostic of a spider bite, it is not possible to conclude that “something that looks like a spider bite” is actually a spider bite. Typically, neither physicians nor patients are properly educated in spider identification, probably because spider bites are considered to be rare events. Therefore, it is not unexpected that cases formally diagnosed as spider bites often proved to be

* Corresponding author. Tel.: +41 31 631 4520; fax: +41 31 631 4888.
E-mail address: wolfgang.nentwig@iee.unibe.ch (W. Nentwig).

incorrect when verified by experts (e.g., Russell and Gertsch, 1983; Schenone, 1996; Vetter, 2000; Vetter et al., 2003). The verification process involves three steps and is currently recognized as the international standard for a 'verified spider bite': First, the spider bite has to be observed; second, the spider must be caught during, or immediately after the bite and sent to an expert for identification; and third, the bite must cause symptoms such as pain or discomfort, usually associated with spider bites (Isbister and White, 2004; Vetter and Isbister, 2008).

In contrast to the lack of comprehensive analyses and national surveys of spider bites for Europe, there is a large number of case reports that are often not easily identifiable as 'verified bites', e.g., Grasshoff (1979), Terhivuo (1993), Ribuffo et al. (2012). This paucity of scientifically verified information is in contrast to the wide-spread overestimation of the frequency of dangerous spiders and spider bites in the public and occasional media hyperbole surrounding apparently dangerous incidents (e.g., a *Cheiracanthium punctorium* "invasion" in 2006; or the appearance of an assumed Sydney Funnel-web spider, 2010, both in Switzerland and both hoaxes).

Given this discrepancy between evidence-based scientific knowledge and public opinion, we decided to perform a country-wide investigation in Switzerland. This study was conducted over two years in a bottom-up approach by including all Swiss primary care physicians. Here we report our results and estimate the frequency of spider bites in Switzerland. We draw conclusions on the medical importance of spider bites in Switzerland and discuss this for Europe.

2. Material and methods

We collected all reported cases of humans being bitten by spiders in Switzerland over a two-year period from June 2011 to May 2013. We encouraged these patients to consult their family physician to record the symptoms and to receive medical treatment if necessary. We provided general information about the study and standardized forms for recording information on the project website www.spiderbites.ch in three Swiss national languages (German, French, and Italian). The forms were designed to record specific personal data, circumstances of the bite and medical data. We also provided a consent form for the patient's data to be included in the study, and a form to send the spider to one of us (WN) for identification. All forms were collected at the Swiss Toxicological Information Centre.

We informed all Swiss primary care physicians via an announcement in Primary Care and the Swiss population via a media campaign. The media campaign was refreshed after the first year of the project. The study was approved by the responsible ethics committees of Switzerland and the Principality of Liechtenstein, and registered at ClinicalTrials.gov (NCT01355744).

According to international standards (Isbister and White, 2004), we only classified assumed spider bites as a 'verified spider bite', when three criteria were fulfilled: 1) The spider bite had been observed; 2) the spider was caught during or immediately after the bite and sent to us for identification; and 3) the case presented matched the

clinical course of a spider bite through symptoms such as pain or discomfort.

3. Results

Over the course of the two-year study, the Swiss Toxicological Information Centre received data for a total of 19 cases. In only eight cases the spider was observed while biting, collected and sent for identification. In addition, the Centre was informed about six cases of spider bites where a spider was observed and sent in for identification but no physician was contacted in person. These eight plus six = 14 cases were considered as verified spider bites and involved five species from four families: *Zoropsis spinimana* (Zoropsidae, five cases), *C. punctorium* (Miturgidae, four cases), and two species of Agelenidae (four cases), and one species of Amaurobiidae (one case) (Table 1). Here we provide short descriptions for these cases.

3.1. *Zoropsis spinimana* (Zoropsidae) (5 cases)

Case 1: A 20 month old boy was playing in the afternoon in a playground when a spider bit him on the finger. The child immediately reacted by crying and shaking his hands, but the spider remained attached to the finger until a kindergarten worker was able to remove it. The child was taken to an emergency doctor who confirmed the presence of major swelling (100 mm diameter), but no redness. No fang marks were detected and no further medical attention was necessary.

Case 2: A 36-year-old man noticed a spider in his apartment and tried to collect it with his hands to remove it from the building. While trying to do so, the spider bit him on the finger. Because he immediately felt pain of moderate intensity, less severe than a wasp sting, he consulted a doctor in a hospital the same evening. Two fang marks were visible and a swelling of 60 mm diameter with a redness of 30 mm diameter was reported. Because the pain disappeared after 5 min, no further medical attention was required.

Cases 3–5 (without consulting a physician in person) concerned two women and one man, with bites on a finger by adult spider females in the evening, in April, July and November. In case 3, no local symptoms were reported and case 4 mentioned only fang marks. For case 5, the patient referred to his frequent allergic reactions and mentioned severe pain, swelling and nausea.

All cases occurred in urban areas, usually in buildings, involved adult female spiders and happened all over the year (April–December). For cases 1 and 2, complete recovery was reported within one day.

3.2. *Cheiracanthium punctorium* (Miturgidae) (3 cases)

Case 1: While sleeping, a 61-year-old woman noticed something on her face. She removed it with her fingers and was bitten on the finger. It was then that she noticed the spider. She immediately felt a severe pain in her finger, described as unbearable as and stronger than a wasp sting, however, no fang marks could be detected. She experienced chest pain, respiratory problems, nausea and itchiness on

Download English Version:

<https://daneshyari.com/en/article/8397355>

Download Persian Version:

<https://daneshyari.com/article/8397355>

[Daneshyari.com](https://daneshyari.com)