

CASE REPORT

**DERMATITIS CAUSED BY CENTIPEDE
ENVENOMATION: A CASE REPORT**

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ABSTRACT

Accidents caused by centipedes in Brazil result in mild envenomation, where pain, erythema and edema are predominant. Cases rarely evolve to complication stages. This report presents a clinical case of dermatitis produced by an unidentified centipede, registered at the Toxicological Information Center of Belém-Pará, which evolved to blisters and necrosis. The patient underwent treatment with antibiotics and oral anti-inflammatory drugs, topical bactericides and surgical cleaning; resulting in cicatrization of the wound. The purpose of this report is to inform health professionals of the possibility of complications, which should be considered and dealt with conventionally.

KEY WORDS: Arthropods; bites and stings; dermatitis; necrosis.

INTRODUCTION

The Invertebrate Centipedes belong to the Chilopoda class of the arthropod phylum, with about 3,300 species grouped into five orders, of which, Scolopendromorpha is the most important. This order is further split into five families, consisting of about 700 species, found on all continents, except Antartida, with higher diversity occurring in the tropics and temperate regions. It has a pair of legs per segment (15 to 191), and a flat, filiform body. On the head, there is a pair of forcipules to inoculate the venom (Edgecombe & Giribet, 2007). According to Undheim & King (2011), the venom is composed mainly of histamine, lipids, polysaccharides and various enzymes (proteases, esterases).

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In Brazil, three genera of centipedes are considered of medical importance: *Otostigmus*, *Scolopendra* and *Cryptops* (Knysak et al., 1998; Malta et al., 2008) which are responsible for human cases of envenomation, with clinical manifestations considered to be of mild severity, where pain, erythema and edema predominate (Barroso et al., 2001; Medeiros et al., 2008; Kimura et al., 2013). However, in the literature there are cases of greater severity in which the victims presented rhabdomyolysis (Logan & Ogden, 1985), lymphangitis (Essler et al., 2017), acute coronary ischemia (Ozsarac et al., 2004; Yildiz et al., 2006) and even fatal cases (Serinken et al., 2004).

In Brazil, centipede casualties are frequent, but their incidence is unknown (Knysak et al. 1998; Medeiros et al., 2008), however in the state of Pará-Brazil, Barroso et al. (2001) found an incidence of 16.8% cases without complications. The present study aims to report an unusual clinical case of dermatitis due to centipede envenomation, registered at the Toxicological Information Center of Belém-Pará.

CASE REPORT

A 43-year-old female patient from Maranhão, was stung by a centipede on 7th May 2017, in the kitchen of her house, at 5:00 p.m., while she was washing the dishes. The pipe ruptured, releasing several centipedes (Figure 1), one of which stung her left leg. She immediately felt a pain in the site, followed by dizziness but no other systemic symptom. She washed the spot with soap and water and later with alcohol and used an analgesic for the pain. As time passed, she noticed that the site was erythematous. After 4 hours, she had fever (which was unmeasured) with chills and noticed that the erythema had become a dark wine-like colour with vesicles. As the days passed, there was no improvement in the lesion and she continued to feel pain at the site. She sought medical attention at a health center five days after the envenomation occurred, and was prescribed analgesics. On 17th May 2017, she went to the Toxicological Information Center in Belém for a medical evaluation. During the clinical examination, an erythematous-bullous lesion was observed, with an area of tissue suffering necrosis and she continued to report burning at the site. The patient denies being diabetic. She was prescribed: cephalexin, oral nimesulide and topical nitrofurazone, on the return visit. On 23th May 2017 she returned for an evaluation, when clinical improvement was noted, but the necrotic areas persisted, without other signs and symptoms (Figure 2). She was referred to surgical cleaning (Figure 3), since the lesion was increasing considerably.

Ethics committee approval

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Figure 1. Centipede specimen responsible for the injury.



Figure 2. Ecchymotic, irregularly conformed plaque lesion, with hematous bubbles on the periphery and depressed formations in the central region.



Figure 3. Plaque lesion, with areas of desquamation, hematic crusting, exulcerated at the periphery and central ulcer of the necrotic content.

DISCUSSION

Centipede envenomation in Brazil is frequent (Barroso et al., 2001; Medeiros et al., 2008), but underreported. In this report, it was not possible to identify the species of centipede causing the envenomation, however, those of the genus *Scolopendra* have the most dangerous venom to humans (Rates et al., 2007; Kimura et al., 2013).

In a recent study on the toxic action of Brazilian centipede venom, Malta et al. (2008) showed that *S. viridicornis* venom is more toxic and therefore may induce more severe envenomation. Venoms contain hundreds of proteins and peptides (Rates et al., 2007; Hakim & Yang, 2015), neurotoxins acting on the ion channels, paralyzing prey (Yang et al., 2012).

The envenomation referred to in this report occurred on the patient's left leg while doing domestic work inside her home. According Edgecombe and Giribet (2007), centipedes are occasionally found inside; however, Barroso et al. (2001) and Medeiros et al. (2008) showed that this is where most envenomation casualties occur. They are nocturnal animals, spending most of the day hiding under wet debris, leaves and in the bark of trees. According to Knysak et al. (1998), Barroso et al. (2001), Medeiros et al. (2008) and Perfetti et al. (2012) the feet and hands of victims are the most affected areas.

The literature states that symptoms such as pain, erythema and edema are the most commonly reported (Barroso et al., 2001; Medeiros et al., 2008; Perfetti et al., 2012; Cupul-Magaña et al., 2015). Kimura et al. (2013) reported local inflammatory manifestations in *S. viridicornis* venom experiments with rats.

In the report, burning was the first complaint, which came immediately after the bite, followed by erythema, without edema. According to Barroso et al. (2001) and Medeiros et al. (2008), this is usually the first symptom. Cupul-Magaña et al. (2015) reported that this could persist from 9 to 24 hours, while Othong et al. (2012), found that it occurred within an average time of 40 minutes, ranging from 15 minutes to 48 hours in 104 cases of envenomation in Bangkok, Thailand.

Subsequently, the erythema caused by the sting took on a more intense hue. After four hours, vesicles and blisters appeared, these being uncommon clinical manifestations and not reported by Barroso et al. (2001), Medeiros et al. (2008), Cupul-Magaña et al. (2015) and Othong et al. (2012). Perfetti et al. (2012) presented a case in Venezuela of a centipede sting with vesicles at the site of injury.

Ten days after the bite, as there was no improvement in the wound, the victim spontaneously sought the Belém Toxicological Information Center for a medical evaluation, where blisters and necrosis were observed. Fung et al. (2011) described a necrosis measuring 2 cm in diameter six days after envenomation in a diabetic patient, whereas Bush et al. (2001) showed a 3 cm

necrosis, which spontaneously detached one month after the accident. Other clinical infectious manifestations often caused by Gram+ and after centipede bites are described as lymphangitis (Essler et al., 2017), cellulitis and necrotizing fasciitis (Serinken et al., 2004; Uzel et al., 2009), the latter being responsible for toxic shock, leading to death in patients stung by *S. moritans* in Turkey.

Systemic symptoms are not frequent; however, dizziness and fever were present in the report. These symptoms and others such as nausea, vomiting, sweating, palpitations, skin rash, pruritus and abdominal pain were reported by Bush et al. (2001) and Othong et al. (2012) in patients stung by centipedes. Studies show the presence of rhabdomyolysis and acute renal failure caused by the giant centipede *Scolopendra heros* (Logan & Ogden 1985) and electrocardiographic alterations on the ECG which are suggestive of acute coronary ischemia with an increase in the cardiac enzyme troponin (Ozsarac et al., 2004; Yildiz et al., 2006; Üreyen et al., 2015) in patients who are poisoned by centipedes.

Pain killers are the recommended treatment for centipede envenomation (Othong et al., 2012), but over the course of time, infection may occur, in which case the use of antibiotics is recommended (Essler et al., (2017). In cases with necrosis, surgical cleaning should be performed (Fung et al., 2011). In the present case, analgesic and antibiotic therapy were prescribed for the initial treatment, as there were signs of local infection, followed by surgical debridement of the necrotic area, which healed well.

CONCLUSION

Accidents by Brazilian centipedes are underreported and cause mild envenomation, where pain, erythema and edema prevail. The present case is not usual, having progressed to bubbles and necrosis. This report alerts health professionals regarding the possibility of complications, which should be considered and dealt with conventionally.

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