

Skin lesions simulating blue toe syndrome caused by prolonged contact with a millipede

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ABSTRACT

Venomous animals are those that, by means of a hunting and defense mechanism, are able to inject their prey with a toxic substance produced in their bodies, directly from specialized glands (e.g., tooth, sting, spur) through which the poison passes. Millipedes are poisonous animals; they can be harmful to humans, and their effects usually manifest as erythematous, purpuric, and cyanotic lesions; local pain; and paresthesia. Here, we report a case of skin contact with a millipede for 6h resulting in skin lesions similar to blue toe syndrome.

Keywords: Arthropod venom. Arthropods. Hydrogen cyanide.

INTRODUCTION

Millipedes are elongated wormlike animals of the phylum Arthropoda and class Diplopoda, scientifically known as millipede or centipede and popularly known as gongolo. Most have at least 30 pairs of legs, and most of the body segments have 2 pairs of legs¹. It has a marked seasonality, and its emergence occurs mainly during warm and rainy periods. It is found in damp places under leaves, stones, and wood and around moss or soil^{1,2}.

Many species can emit a liquid with an unpleasant odor that is strong enough to kill some insects. They release quinones and other irritants and pigments for their defense, and, in some cases, the presence of hydrogen cyanide has been observed. Millipedes are not considered venomous animals; however, this defense mechanism can be harmful to humans and usually manifests as erythematous, purpuric, and cyanotic lesions; local pain; and paresthesia^{3,4}.

The differential clinical diagnosis should be performed using acute arterial occlusion, of which the frequent causes are embolisms, thrombosis, and traumas. Atheroembolism, or peripheral microembolization, may occur in any arterial area, but, in the lower limbs, it is characterized by the classic presentation of blue toe syndrome. This acute manifestation of digital ischemia is evidenced by the sudden change in

temperature and color of the toe, which initially becomes cold and pale and later acquires a cyanotic aspect⁵. A key symptom of acute arterial occlusion is pain, and the sudden onset of arterial occlusion and severity of the resulting ischemia dominate the clinical condition⁵⁻⁷.

Here, we describe a case from the western region of the City of Rio de Janeiro, which has the highest temperatures in the state. The patient accidentally stepped on a millipede in her shoe.

CASE REPORT

A 23-year-old female patient from Bangu, Rio de Janeiro, presented to the emergency room (ER) in Bangu with pain, paresthesia, and blackened erythematous lesions on the first 3 toes of her left foot. She denied intermittent claudication. She reported that she experienced the symptoms after crushing a millipede inside her shoe; she remained in contact with the millipede for approximately 6h. The patient presented the animal that had been trapped in her shoe, which was identified as a millipede. The definition of the species was not possible due to the destruction of the morphological aspects during the crushing (**Figure 1**).

On physical examination, there was no difference in temperature at the sites of the lesions compared to the contralateral foot, and there were normal peripheral pulses, which were strong and symmetrical. The capillary refill time in the 3 injured toes was normal, and there was no pallor on elevation of the left foot. Dermatological examination revealed erythematous, cyanotic, and blackened lesions at the distal end of the left hallux in addition to the medial and distal phalanges of the second and third left toes; she had local hyperesthesia (**Figures 2 and 3**). The patient was told that it was a benign condition and was medicated with analgesics, an anti-inflammatory, and ice placed on the site.

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FIGURE 1 - Millipede found crushed inside the patient's shoe. It was not possible to identify the species due to the destruction of the morphological characteristics of the animal.



FIGURE 2 - Erythematous, cyanotic lesions on the left hallux and blackened erythematous lesions on the second and third toes.



FIGURE 3 - Erythematous blackened lesions on the left toes with a necrotic aspect on the second toe.

DISCUSSION

Millipede populations can be very high, reaching 30-40 individuals/m² in some areas^{1,2}. These animals assume a coiled position when threatened and may release a number of irritants, including quinones and cyanides, that cause conditions ranging from mild local irritation to skin necrosis; the clinical injury is limited to the contact site⁷⁻⁹. Skin lesions may occur in any individual in the absence of predisposition, simply through direct contact with the fluid released by the millipedes⁷. Usually a dark reddish or blackish staining of the skin that simulates inflammatory or even necrotic lesions is observed¹⁰.

In this case, the peculiarity of the lesions and identification of a millipede inside the shoe assisted with the correct diagnosis. The prolonged contact time with the animal was responsible for the more blackened tonality of the lesions. The cyanotic and blackened aspects looked like a standard ischemic tissue condition, and clinical peripheral vascular disease can often be

a diagnostic challenge, especially if there is no awareness of contact with an animal.

The clinician and, especially, the dermatologist should be alerted to this diagnosis, be aware of whom to consult, and accompany the case until complete resolution.

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