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A rare case of digital myiasis

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ABSTRACT

Cutaneous myiasis is the infestation of the skin or mucous membranes by larvae of the order Diptera. Wound myiasis affect the skin with a previous lesion, and it may consume both dead and living tissue. Finger infestation is rarely a cause of death, but it may provoke considerable morbidity. Prompt wound exploration and careful total larvae removal is essential to achieve healing.

In the reported case, the patient was presented in an advanced stage of the infestation, with a large area of finger necrosis and amputation, associated with cellulitis extending from the finger's base to the hand. This diagnosis helped uncover a familiar history of severe abuse and neglect.

The accurate understanding and management of such injuries are important not only for the orthopaedic treatment but also for the acknowledgment of their social and forensic implications.

Introduction

Cutaneous myiasis is the infestation of the skin and mucous membranes by larvae of the order Diptera [1]. There is often a preconceived notion that larvae are non-invasive and only feed on dead tissue. This mentality must be corrected: invasive larvae do exist, there are unique related infections, and serious complications can occur [2]. Depending on the infestation site, cutaneous myiasis can be classified as wound, furuncular, or migratory [3]. Finger infestation is rarely a cause of death, but it may provoke considerable morbidity; there is a paucity of literature on severe wound myiasis in the fingers [4], and even less common is a case of necrosis and amputation due to myiasis.

Case report

We report a case of a 41 years old female resident in Brazil, with history of psychiatric disorders, who lived with her 73 year old father and her husband, a known alcoholic with history of physical violence to both father-in-law and wife.

She suffered a knife injury to the 2nd finger of the left hand, and was not able to seek immediate medical care; instead a handkerchief was used to control the bleeding and cover the wound. Six months after, neighbours were warned by a strong odour emitting from the finger, and took the patient to seek medical care.

She was presented to the Emergency Department (ED) with a large area of finger necrosis and amputation, associated with cellulitis extending from the finger's base to the hand; at naked eye, one could observe the live larvae infesting the healthy tissue in drilled pocket-like holes under the skin (Fig. 1). In face of such an advanced lesion, asphyxiation or pharmacologic treatment alone would not suffice, and prompt treatment was conducted – broad-spectrum antibiotics and tetanic prophylaxis were initiated, and she was submitted to extended surgical resection (metacarpophalangeal disarticulation) and mechanical removal of 132 live larvae. Entomological study (morphological study) determined it to be *Cochliomyia hominivorax* (Diptera: Calliphoridae) – New World Screworm (NWS) – larvae. Besides infestation treatment, the socioeconomic problems were identified and conducted to the proper social services.

Discussion

Wound myiasis develops by the ectoparasitic infestation of fly larvae in open wounds of a living host [1,3,5]. The most common agents of wound myiasis are *C. hominivorax*, *Chrysomya bezziana* (Diptera: Calliphoridae) and *Wohlfahrtia magnifica* (Diptera: Sarcophagidae) [3]; these are obligatory zoophagous wound parasites, as so, they require living tissue for larval development [6]; they

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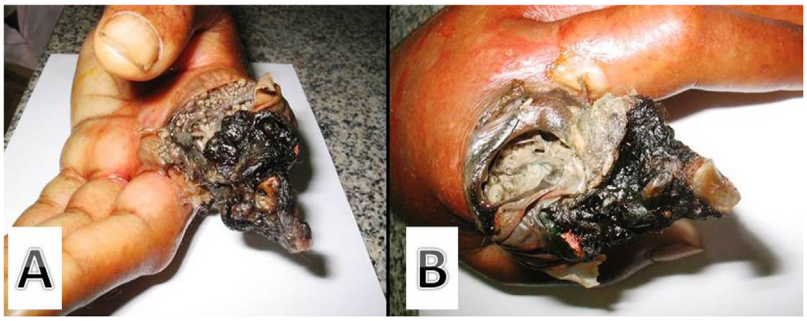

Fig. 1. A-B – Finger necrosis and amputation, associated with cellulitis extending from the finger's base to the hand – larvae at the wound.

cause rapid and intense tissue destruction, and may result in cartilage or bone loss [7].

Hominivorax means "human-eater", as these larvae were initially associated with the death of prisoners in the 19th century [8]; the NWS female is attracted to wounds and sores, where she lays her eggs that hatch after 1 day, and the larvae feed on tissue for 4–8 days; lesions 4–5 cm deep can be rapidly produced. The characteristic odour produced attract other gravid flies to lay additional eggs, perpetuating the infestation; cases of up to 3000 larvae in a single wound are described [1].

The NWS is endemic in Central and South America, as a parasite of house animals, wildlife, and human wounds [3]. With the surprising number of travellers to and fro these regions, the number of ED admissions due to myiasis is increasing worldwide. This parasite was considered eradicated in North America in 1960, but infestation cases are still being reported nowadays [9].

In our case, the infection by *C. hominivorax* larvae was suspected seeing the infestation took place in ulcerative wounds and the extracted larvae were deeply inserted in living tissue [10–14], but not in necrotic tissue.

Poorly treated open wounds, poor social conditions, poor hygiene, psychiatric illness, alcoholism, diabetes and severe handicap are predisposing factors for human wound myiasis [1,3,5,8]. The finding of myiasis can uncover cases of abuse or negligence [15,16] – the neglect and lack of care is crucial to the development of the infection, as seen in our report. It is essential to recognise these lesions and associate them to the patient's social environment. Most infestations could be avoided if proper precautions were taken [1].

Although there is a greater incidence in endemic regions (Africa, Central and South America), the increasing number of travels to these Countries and the fact that often travellers only realise they are infested after their return [10], favours its appearance in virtually any emergency department (ED) worldwide [17,18].

Conclusion

Wounds are a frequent presentation to the ED; many of these wounds are chronic, and some of these may contain worms [19]–most myiases cases initially present through the ED [18]. Depending on the parasite, it can affect not only dead tissue, but also living one, and secondary infections could be associated to myiases (*Staphylococcus* spp., MRSA, *Pseudomonas* spp., and *Proteus* spp.) [1]. Although it is a rare cause of death, the comorbidities may be devastating. With the crescent number of travellers, cases as such are being reported worldwide – ED physicians should be aware of the diagnostic signs: travels from endemic areas, history of insect bites, skin lesions with itching and pain, sensation of movement within those, and observation of larvae at the wound opening [10]. The accurate understanding and management of such injuries are important not only for the orthopaedic treatment but also for the acknowledgment of their social and forensic implications.

Conflict of Interest

None reported.

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