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A Huge Orofacial Myiasis, the Importance of Ideal Management: A Case Report

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ABSTRACT

It is widely accepting that Myiasis refers to an infestation of alive human animals or vertebrates from larvae of the Diptera insect family that feed on live or necrotic tissues depending on the species. The Cochliomyia hominivorax species is the most common, which feeds entirely on the necrotic tissues and is commonly founding in tropical and subtropical areas, primary screw-worm larvae fed on the living tissues so that the egg deposition occurs on the periphery of the new wounds. The most common locations in the head and neck where this infestation appears are the ears, eyes, nose, oral cavity, sinuses, mastoid region, tracheotomy wound, and lymph nodes. Multiple parameters predispose to the possibility of presenting myiasis in this area, such as the increased age, lower socioeconomic status as well as medical co-morbidities, and malignant tumors. Therefore, this study presented a case of a 71-year old patient with orofacial myiasis, who received medical treatment, mechanical removal, surgical debridement and occlusion of the wound with liquor based on the essence of anis or anisette for the asphyxia of the larvae, with a satisfactory evolution after seven days of the protocol. This case provides interesting information that could help to oral and maxillofacial surgeons in the management of the type of orofacial myiasis.

1. Introduction

Myiasis is a term that originated from Greek myia for 'fly.' It represents the infestation of alive humans, animals, and vertebrates from the larvae of the Diptera insect family, which depending on the species feed on the living or necrotic tissues.[1] Cochliomyia hominivorax species it is the most common that feeds entirely on the necrotic tissues and is commonly found in tropical and subtropical areas, primary screw-worm larvae fed on the living tissues so that their egg deposition occurs on the periphery of the new wound. Naturally, such larvae would burrow or "screw" themselves within the deeper tissues, in which they would feed on the living tissues.[2] According to the studies, myiasis has been commonly considered amongst the five most ordinary dermatological conditions, representing 7.3-11% of the cases. The most common locations in the head and neck where this infestation appears are ears, eyes, sinuses, oral cavity, nose, mastoid region, tracheotomy wound, and lymph nodes[3]. Multiple parameters predispose to the possibility of presenting myiasis in this body region like the higher age, lower socioeconomic status as well as the medical co-morbidities and malignant tumors.[4] The purpose of this study is to present a massive clinical case of orofacial myiasis (OFM), as well as an updated review of the literature on this infrequent clinical presentation.

The present research has received the respective approval from the ethics committee of the University Hospital of Maracaibo, and the people involved signed informed consent, according to the Helsinki declaration.

2. Case presentation

A 71-year-old male patient who attended the emergency service of the University Hospital of Maracaibo, Venezuela, in January 2018, for presenting increase of volume in the left facial region with an undefined time of evolution with the main complaints of the creeping sensation in the area, referring lacerating wound in the area. The patient did see alcoholism ceased eight years ago. In the medical examination, the patient presented variable clinical conditions. There was evidence of a moderate an increase in volume in the left buccal and submandibular region, indurated and painful on palpation, with presence of larvae (Fig. 1).

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Fig. 1. Extraoral photo of the patient.

Intraorally, there was evidence of mouth opening limitation. Hospital admission was decided, handling the protocol, the patient received double intravenous antibiotic medication: amoxicillin and clavulanate potassium and clidamycin, along with a single dose of Ivermectin 0,2mg/kg, surgical removal the larvae (Fig. 2), debridement of the infected tissue and occlusion of the wound with an asphyxiating agent: essence of anis and a pure honey-soaked dressing applied directly on the wound to improve healing. After three surgical procedures, the total sample of larvae was 637 (Fig. 3).

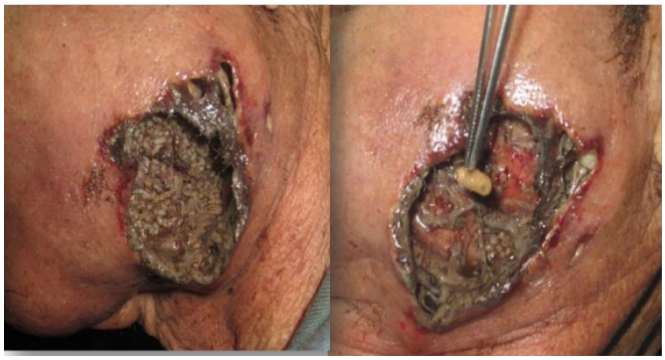

Fig. 2. Close view of the larval removal.

3. Fig. 3. Larvae sample.

After seven days of evolution, the patient responded satisfactorily to medical treatment and daily surgical washes with honey-soaked dressing, presenting involution of the lesion and without larvae (Fig.4), the reason why the patient was multidisciplinary management with plastic surgery for reconstruction of the facial defect.

Fig. 4. Evolution of the patient at seven days.

3. Discussion

Oral myiasis was first described by Laurence in 1909 (two cases) and occurred in humans mainly in the Tropics.3 OFM refers to an infection of the animal or humans' tissues infected by the larvae of specifically flies of the Diptera family. This disease occurs mostly in tropical and subtropical regions like Brazil.[4] Cochliomyia hominivorax caused myiasis in tropical and temperate areas, a disease caused by this species primarily identified among indigenous populations living in the Andean region where the temperature ranges 8 to 18˚C. This species of fly native to the neotropical area has been considered a parasite that occurs in mammals, where humans included. Initially, the larval stage indicates the obligate parasite where they feed on tissue, including cartilage and bone, while during the other phases, they would be safe to the hosts. During the initial period, they have a feeding cycle lasting about three days before the time they leave the wound from which they feed.[5, 6] The infestation sites are generally open wounds and the mucous membranes, the fly is capable of generating 500 eggs. The laid eggs hatch in 24 hours, and in 48 hours they reach their stage III; at that time a burrow is formed in the tissues of the host that deepens in the form of a screw.[7] Extraoral myiasis is observed in more cases than oral myiasis since the oral cavity tissues do not have permanent exposure to outer environments.[8]

Treatment mostly used for myiasis is based on antibiotic therapy as well as mechanical elimination of necrotic tissues they cause is presented in the surgical bed.[4] This management was used for this patient who presented one of the largest OFM reported in the literature, where double antibiotic therapies, as well as the mechanical debridement have been influential and efficient. In fact, Ivermectin is a member of the chemical group of avermectins as well as a semi-synthetic macrolide antibiotic. To carry out study the larva, it recommended, although in our case, the identification of the same not carried out. However, the protocol handled in the same way.

Ivermectin is a broad-spectrum antiparasitic drug for veterinary use, but with proven efficacy for some parasites that attack the human organism. Ivermectin is absorbed quickly and reaches a high concentration in the blood within a relatively short period. That acts by blocking nerve impulses on the nerve ending through the release of g-aminobutyric acid linking the receptors and causing palsy and death. Acetylcholine, which is the main peripheral neurotransmitter in mammals, is not affected by Ivermectin.[9, 10] This drug is

utilized for treating and controlling the worm infestation in the animal and humans it is usually administered as a single dose achieving the desired effect and is calculated in dosages equal to 0.2 to 0.3 mg/kg body weight. This medicine would be quickly adsorbed and reached the increased blood concentration in a short time; therefore, the larvae would rapidly discharged from the wound. Notably, mechanical elimination of the larvae and surgical debridement of the necrotic tissues have utilized to treat this case. Moreover, the patient has been given the oral ivermectin (i.e., a single dosage of 0,2mg/kg) according to Alcides et al.'s recommendations.[4]

Wound occlusion recommended to facilitate the mechanical removal of larvae and many asphyxiating agents such as petrolatum, beeswax, raw meat, butter, chewing gum, tobacco leaf, chloroform, among others are reported.[4, 10, 11] This case was adopted the occlusion of the wound for asphyxia of the larvae with the essence of anis as mentions Chaccour.[12]

Honey has used as a biomaterial for wound dressing is the oldest and its properties for wound healing have confirmed. It has all the multiple beneficial criteria to be considered to apply to the wound that will heal by the second intention. It believed that honey could be an appropriate alternative option in most infected wounds due to its antibacterial effect,[13] for this, in this case, pure honey-impregnated dressings were considered obtaining favorable results.

4. Conclusion

This case is one of the largest reported in OFM. An ideal protocol is vital for total success. The protocol in our case for neck and head myiasis has been the surgical debridement as well as mechanical removal for removing the necrotic tissues in combination with a certain systemic medicine like ivermectin and occlusion of the wound with the essence of anis for the asphyxia of the larvae. This last step was essential and allowed the total larvae to exit, facilitating mechanical removal, despite being poorly reported, and honey, with its antibacterial properties, kept a clean wound. This case provides interesting information that could help to oral and maxillofacial surgeons in the management of the type of orofacial myiasis because late treatment of this case could lead to severe consequences.

Conflict of Interest

The authors declared that there is no conflict of interest.

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