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CASE REPORT

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Treatment of oral myiasis in a patient with implant-supported fixed prosthesis

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ABSTRACT

Oral myiasis is a rare parasitic disease that requires immediate treatment once diagnosed. However, no standard treatment protocol can be found in the literature. Through a clinical-surgical report, we present the case of an 82-year-old man with lesions extending through the vestibule and alveolar ridge of the maxilla on both sides, in addition to occupying a large part of the palate, with a considerable number of larvae. The patient was initially treated with a single dose of systemic ivermectin (6 mg orally) and topical application of a tampon soaked in ether. The larvae were then surgically removed and debridement of the wound was performed. A crushed tablet of ivermectin 6 mg was applied topically for 2 days, the remaining larvae were again mechanically removed, and the patient received intravenous antimicrobial therapy. Treatment with systemic and topical ivermectin combined with antibiotic therapy and debridement proved to be effective in treating oral myiasis.

KEYWORDS: Myiasis. Parasitology. Ivermectin. Tropical medicine.

INTRODUCTION

Myiasis refers to a rare parasitic disease that occurs due to infestation of living tissue in mammals by fly larvae of the order Diptera. They feed on the healthy or necrotic tissue of the host and develop as parasites over time[1,2]. The disease mainly occurs in tropical and subtropical countries because the climate is favorable for the disease vectors, usually the *Cochliomyia hominivorax* (screwworm) and *Dermatobia hominis* (human botfly)[3]. Risk factors related to the disease include lack of basic sanitation, inadequate oral hygiene, lack of lip seal, neurological deficit, halitosis, among others[4,5].

Myiasis is classified according to its location into cutaneous myiasis, internal organ myiasis, and cavity myiasis. The latter is the focus of this report since it involves the occurrence of myiasis in the oral cavity[6]. Clinically, it is classified as primary (biontophagous), when the fly deposits its eggs in healthy tissue; secondary (necrobiontophagous), when the eggs are deposited in necrotic tissue, lacerated tissue, or open wounds; and pseudomyiasis (accidental), from the accidental ingestion of eggs[7].

The occurrence of myiasis is rare, with a small number of reports in the literature. For the purpose of contributing to new therapeutic options, this article presents a case of oral myiasis in an elderly patient who wore a Brånemark's protocol implant prosthesis and an oxygen catheter.

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CASE REPORT

A white male patient aged 82 years old was attended in the Maxillofacial Surgery and Traumatology Department at the Hospital Beneficencia Portuguesa, Sao Paulo city, Sao Paulo State, Brazil. The accompanying caregiver reported that he had dysphagia, local pain, and excess salivation, but had no information about the duration of the condition. The medical history was collected. The patient had been suffering from a neurological deficit for six months due to a stroke and had terminal cancer, undergoing palliative care. He reported no other underlying diseases.

Laboratory tests and clinical examination revealed that the patient had toxemia, which complicated his recovery. In addition, the lack of lip sealing and the use of an oxygen catheter favored the larval infestation. Intraoral examination revealed an upper Brånemark protocol prosthesis, poor hygiene of the oral and prosthetic structures, and lesions extending over the entire fornix region of the vestibule and palate, with a considerable number of fly larvae (Figure 1). Removal of the prosthesis revealed a large palatal lesion with emerging larvae. Because of the patient's serious debilitated systemic clinical condition, imaging studies were prevented and limited to laboratory and physical examinations.

At admission to the hospital, the visible larvae were mechanically removed and copious irrigation was performed with topical PVPI solution + 10 vol H_2O_2 + 0.9% saline solution 1:1:1 (Figure 2A). A single dose of ivermectin (6 mg) was administered orally and a tampon soaked with ether was applied to the wound. Afterwards, the patient was taken to the operating room, where the remaining larvae were removed and the necrotic tissue was debrided under local anesthesia. After the surgery, a crushed tablet of 6 mg ivermectin was placed on the wound (Figure 2B) and left for 2 days, and IV antibiotic therapy with cephalothin 1 g was administered. After an observation period of 48 h with the tampon in position, upon reassessment, we observed a large number of larvae on site, and most of them were lifeless. The larvae were mechanically removed, totaling 29 larvae at an advanced stage of development (Figure 3).

Figure 1 - Presence of necrobiosis with larval infestation under an implant-supported prosthesis.

The patient was followed up by the Maxillofacial Surgery and Traumatology Service and the Internal Medicine departments and was discharged after 15 days of hospitalization, with an improvement of the general clinical condition and good wound healing. He returned for follow-up at 21, 35, 42, and 60 days.

For the publication of this case, an informed consent form was signed by the patient's caregivers.

DISCUSSION

For this report, we reviewed several studies related to myiasis, with emphasis on the oral cavity, all of which

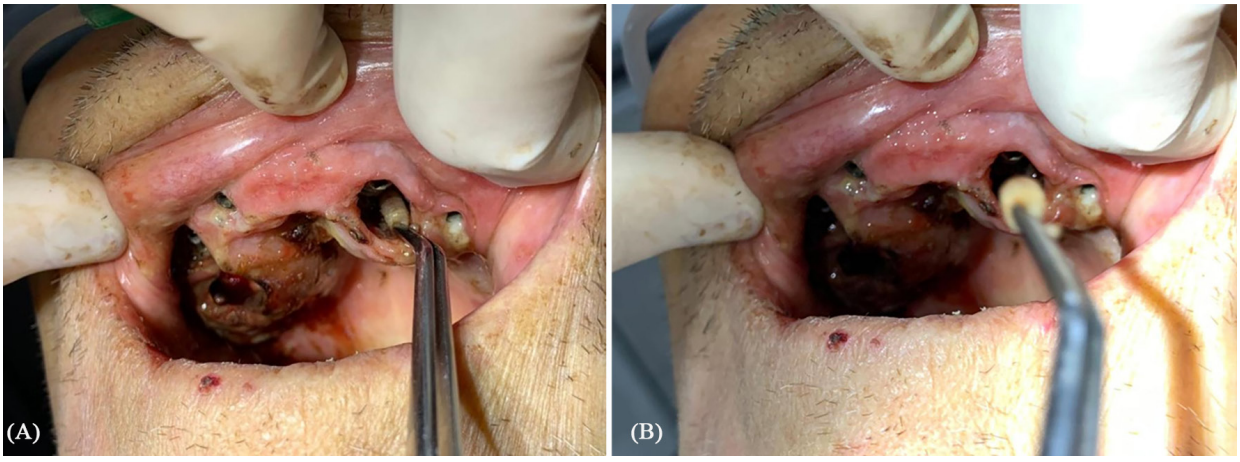

Figure 2 - A) Removal of larvae with clinical forceps; B) Application of an ether-soaked tampon and a crushed ivermectin tablet to the wound.

Figure 3 - Larvae (29 in total) removed from the oral cavity.

described inadequate hygiene, neurological deficiency, open wounds and halitosis, among others, as predisposing factors for this condition[7,8]. These factors were found in the present case report.

However, the studies lacked a definitive therapeutic protocol and treatment varied considerably in the reports analyzed[7-9]. The mechanical removal of larvae is consistent with the literature review, followed by irrigation with different solutions, depending on the approach of the professional responsible for the procedure[10]. In several cases, systemic ivermectin was administered orally and, depending on the severity, combined with intravenous antibiotic therapy[7,10-12].

The gap in the literature regarding the treatment of oral myiasis may be due to its low incidence: it affects about 2% of the population and is considered extremely rare by several researchers[10-12]. Therefore, a unique therapeutic treatment was proposed in this work.

We used ivermectin, an antiparasitic agent of the macrolide family, as the drug of choice because of its high success rate[9]. However, in a study by Gealh *et al*.[6], ivermectin was ineffective in one of their cases because the drug is distributed systemically and did not reach the affected area due to the extent of the injured tissue and the low dose administered. One way to overcome this problem is to topically apply a crushed tablet of the drug after debridement of the wound in combination with oral administration.

Other cases were treated with ivermectin 6 mg in early stages and the dose was repeated after 24 h, but they showed controversial results[13]. Although ivermectin may be neurotoxic due to possible interactions with other drugs, it remains the drug of choice, as its beneficial effect on the patient is more important than its non-use[13].

To improve the effectiveness of the treatment, we placed an ether-soaked tampon on the wound before debridement, and after the debridement we placed a crushed ivermectin tablet on the necrotic region, which allowed better contact of the larvae with the drug while preventing the passage of air, causing the larvae to emerge to the surface, since they are aerobic[10,12]. At the time of debridement, the number of live larvae had decreased significantly. The local ivermectin tampon then maintained the drug action in case larvae remained after the removal and debridement procedures, thus supporting the systemic effect of the drug. The topical application of ether followed by topical application of ivermectin has not been previously reported, and this case report presents the procedure as an effective therapeutic option against myiasis.

CONCLUSION

We concluded that the combination of systemic and topical ivermectin, and an ether-soaked tampon, in addition to antibiotic therapy with mechanical removal of larvae and debridement of the wound, proved effective and resulted in a favorable outcome and prognosis.

CONFLICT OF INTERESTS

None to declare.

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