



## Oral myiasis in a patient with neuropsychiatric impairment: case report

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### ABSTRACT

Myiasis is a common zoodermatose in individuals living in rural areas, tropical and subtropical regions, mainly in underdeveloped or developing countries.

## 1 INTRODUCTION

The term myiasis refers to the infestation of living or dead tissues of humans or animals with eggs or larvae of flies of the order Diptera. It is a common zoodermatose in individuals living in rural areas, tropical and subtropical regions, mainly in underdeveloped or developing countries (FRANCESCONIA; LUPI, 2012).

This paper aims to report a case of myiasis involving the oral cavity, in a patient with neurological deficit, presenting bilateral anterior dislocation of the mandible, as well as to demonstrate the clinical and surgical management and characteristics pertinent to this treatment. A 34-year-old male patient, melanodermic, with neuropsychiatric impairment, attended the Hospital Geral do Estado, in Salvador (Bahia), brought by his companion with a bilateral mandibular dislocation. The intraoral examination revealed partial edentulism in both arches, poor oral hygiene and massive presence of larvae in the maxilla and mandible. After clinical evaluation and complementary imaging tests, with the patient under general anesthesia and nasotracheal intubation, a compress soaked in sulfuric ether was applied to the affected sites, the larvae were mechanically removed, the wound was debrided and inspected, and the edges were reapproximated. The mandibular dislocation was reduced and immobilized with a Barton-type bandage. The patient was given Ivermectin 12mg and antibiotic therapy with Cephalothin 01g, and a new dose of Ivermectin 06mg was used two days after the procedure. After 04 days of hospitalization, the patient presented a good aspect of the wound, laboratory tests without significant changes and clinical and physiological conditions for hospital discharge. Thus, although there is no protocol treatment, the mechanical removal and debridement with the administration of anthelmintics proved effective for the treatment of this condition.

**Keywords:** Myiasis, Mouth, Therapeutics

This condition can be classified according to the type of larva infecting the tissue, the casualty of the interaction between the larva and the host, anatomical sites of infection and the type of lesion, and these classifications are determinant for clinical management (RIBEIRO et al., 2001; SINGLA, 2013).

Myiasis in humans is widely documented in the literature, with the most affected anatomical sites being the nose, eyes, ears, lungs, anus and vagina (SHEIKH et al., 2011; VASANTHAKUMAR; VARALAKSHMI; VANMATHI, 2020). The development of these larvae in oral region are less common, since these tissues are less exposed to the external environment. However, when affected, the main areas involved is the gingiva, palate, lip and the anterior jaw region (ALI et al., 2016; DOS PASSOS et al., 2021).

Generally, it is related to inadequate public and personal hygiene situations (DOS PASSOS et al., 2021; FONSECA et al., 2016). Moreover, it is often associated with bedridden individuals, with neurological impairment, elderly or people with special needs who have solutions of continuity in the soft tissues, or predisposing factors such as: mouth breathing, absence of lip seal, immunosuppression, drug use or alcoholism, and poor oral hygiene (DOS PASSOS et al., 2021; THEOTONIO; DE BRITO RESENDE, 2017).

The oral myiasis manifests itself with variable clinical pictures, according to the area involved and the species of the parasite, presenting from mild and asymptomatic cases to severe forms, even evolving to death. The patient affected by this parasitic infection may present some main signs and symptoms such as fever, foul odor and local discomfort, ulcerations, tissue necrosis and inflammation (CAVALCANTI, 2008; GROSS; JIUMORI, 2020).

Moreover, there is no specific treatment protocolled in the literature for this condition, and therapeutic conducts are adopted according to each professional (DOS PASSOS et al., 2021; PEREIRA JÚNIOR et al., 2019). Also, according to the same authors, one of the most commonly adopted treatment measures is the mechanical removal of larvae with debridement of necrotic tissue associated with the lesion, as well as the systemic use of oral ivermectin.

Thus, it is necessary to discuss this problem based on successful procedures, based on the literature, in the treatment of this disease in order to support the clinical management of this disease. This paper aims to report a clinical case of myiasis involving the oral cavity, in a patient with unspecified neurological deficit, with bilateral anterior dislocation of the mandible, as well as to demonstrate the clinical and surgical management and characteristics pertinent to this treatment.

## **2 CLINICAL CASE**

A 34-year-old male patient, melanodermic, with unspecified neuropsychiatric impairment, non-collaborative, was admitted to the emergency department of Oral and Maxillofacial Surgery and Traumatology at the Hospital Geral do Estado, in Salvador (Bahia), brought by his companion (sister) who reported that the patient had been suffering from temporomandibular joint dislocation for about 4 days.

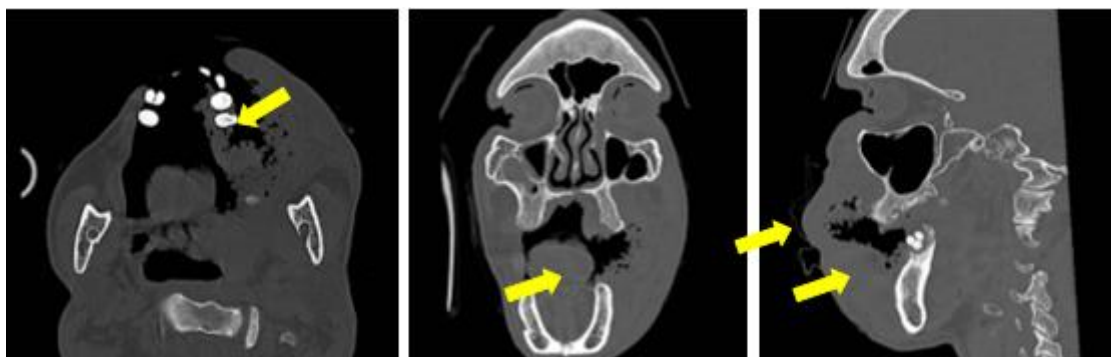
The maxillofacial physical examination showed signs of bilateral mandibular dislocation. When evaluating the intraoral region of the patient it was noted partial edentulism in both arches, poor oral hygiene, presence of foul odor and a large amount of larvae in the posterior mucogingival sulcus region of the maxilla, posterior of the oral floor with involvement of dental unit 37 and palate, in which oral myiasis was diagnosed, as can be seen in Figure 1.

Figure 1. View of lesion in maxillary region on the left with presence of large amount of larvae.



Imaging exam, face CT scan, showed signs suggestive of bilateral anterior mandibular dislocation and massive presence of larvae in the posterior region of the maxilla and mandible, as well as the patient's soft palate as shown in Figure 2.

Figure 2. Axial (A), coronal (B) and sagittal (C) sections of the CT scan of the face demonstrating massive presence of larvae in maxilla and mandible (yellow arrows).



After clinical evaluation and complementary imaging exams, with the patient under general anesthesia and nasotracheal intubation, a compress soaked in sulfuric ether was applied to the affected sites, which, by suffocation, stimulated the exit of the larvae to the most superficial region of the wound, in order to facilitate the catheterization process.

In addition, after the application of this dressing we performed the mechanical removal of approximately 306 larvae (Figure 3), followed by debridement and inspection of the wound, as well as its copious irrigation with saline 0.9%. In regions of extensive tissue injury, it was also performed the reapproximation of the edges and suture with Vicryl 4-0. Unit 37 was also extracted due to its clinical and functional impairment, as shown in Figure 4. Finally, the mandibular dislocation was reduced and immobilized with a Barton-type bandage for 48 hours.

Figure 3. about 306 larvae removed from the intraoral region.



Figure 4: Immediate post-operative appearance with suture in position for tissue approximation.



After the surgical procedure, Ivermectin 12mg was administered through a nasogastric tube, and a new dose of Ivermectin 06mg was used two days after the procedure, due to the appearance of rare larvae in the patient's mouth cavity. It was also performed antibiotic therapy for 03 days with Cephalothin 01g parenterally every 06 hours. After 04 days of hospitalization and general and local care, the patient presented a good aspect of the wound, laboratory tests without significant changes and clinical and physiological conditions for hospital discharge.

### 3 DISCUSSION

Oral myiasis is a condition that generally affects more frequently individuals with comorbidities, with inadequate hygiene conditions, in underdeveloped or developing countries and regions with tropical and subtropical climate, which demonstrates its association with socioeconomic and environmental characteristics (DOS PASSOS et al., 2021; HASSONA et al., 2014; KHAN et al., 2018).

Therefore, individuals with physical or psychiatric impairment and other limiting factors that compromise self-care, such as children, the elderly, or patients with special needs, due to negligence or mistreatment by caregivers, are more exposed to the onset of this disease (CARVALHO et al., 2021).

Also, poor hygiene, mouth breathing or parafunctional habits are facilitators for the installation of this condition in the oral cavity, since it is constantly more exposed, in these cases, to exogenous pathological agents (BARROS, 2017). In the case in question, the patient, in addition to having neuropsychiatric impairment, had poor oral hygiene. These factors, therefore, facilitated the development of this infection by these parasites. In addition, the patient had bilateral temporomandibular joint dislocation, the only reason why his caregiver sought the health service, allowing us to infer some negligence with the patient's oral condition.

The diagnosis of this condition is mostly clinical, however, complementary imaging tests such as CT scans are essential to determine the severity, location and extent of the lesion, based on this the most appropriate treatment approach. (MANFRIM et al., 2007; PEREIRA JÚNIOR et al., 2019). In the case of this patient, for example, the CT scan of the face was fundamental in determining the extent of the lesion, as well as the sites affected by the larvae.

However, specific treatment protocols to treat this parasitic infestation are still not found. The literature brings several successful approaches taken according to the conduct of each professional, according to the number of parasites and the tissue involved (PEREIRA JÚNIOR et al., 2019). However, as was proposed for this case, the most adopted conduct is the removal with mechanical debridement, being sometimes used complementary methods such as, for example, sulfuric ether to stimulate, through anoxia, the exit of the larvae to the more superficial region of the wound, facilitating its removal (DOS PASSOS et al., 2021; THEOTONIO; LOURO, 2017).

In addition, the use of antiparasitic agents, especially ivermectin, is very common in the treatment of myiasis, because it acts by blocking the impulses in the nerve endings of the larvae through the release of amino-butyric acid, which leads to the death of these parasites and spontaneous elimination (VASANTHAKUMAR; VARALAKSHMI; VANMATHI, 2021). According to the studies of Ribeiro et al. (2001), also observed in this case, the use of ivermectin in the correct dosage is effective in the eradication of myiasis larvae, without causing toxicity to the patient.

According to Ribeiro et al. (2001), a dose of 300 µg/kg is sufficient to eradicate myiasis larvae and, at the same time, not be toxic to the patient. Corroborating this, in this case, the initial dose of 12mg,

approximately 200µg/kg, was not sufficient to eradicate the parasites. Thus, it was necessary to supplement it with another dose of 06mg, ensuring the effectiveness in the disappearance of these larvae.

It is known that larvae present in myiasis have a potential against mainly gram-positive bacteria. This mechanism occurs through the secretion of proteolytic enzymes and other substances that exert a modulating function on human phagocytes, stimulating bacterial elimination (VAN DER PLAS, 2008; VAN DER PLASS et al., 2009).

Despite this possible antibacterial effect described by these authors, as stated by Dos Passos et al. (2021), Pereira Júnior et al. (2019) and was endorsed by the present report, the use of broad-spectrum systemic antibiotic therapy is also recommended, as an adjuvant, in order to avoid possible secondary infections, which could lead to a longer hospital stay for the patient.

#### **4 CONCLUSION**

Oral myiasis is a rare parasitic infection that may be avoidable through adequate preventive measures of sanitary and personal hygiene. Although there is no protocol treatment, as demonstrated in this study, mechanical removal and debridement with the administration of an anthelmintic has proven effective for the treatment of this problem.

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