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Treatment of oral myiasis caused by *Cochliomyia hominivorax*: two cases treated with ivermectin

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Abstract

The term myiasis is applied to the injurious action that larvae of certain diptera cause to the organism of vertebrate animals in the living or dead tissue in which they grow. Because of its great destructive potential, appropriate and preventative treatment are necessary. Among the sites of infestation, the human mouth is a common site, mainly in tropical countries. We present two cases of oral myiasis caused by *Cochliomyia hominivorax* spp. Ivermectin is an extremely effective semi-synthetic macrolides, in the treatment of this condition.

Keywords: Oral myiasis; Ivermectin; Cochliomyia hominivorax; Maggots

Introduction

Myiases are tissue lesions caused by the injurious action of certain larvae that grow in the tissues of vertebrates, in this case humans. Mouth lesions are particularly vulnerable to attack in tropical countries. Because of its potential for destruction and mutilation, appropriate and preventative treatments are necessary. The species of the *Calliphoridae* family is the only one that can be found from the south of the United States to Chile. Ivermectin is used to treat the disease that it causes.

Case 1

A 22-year-old mentally handicapped man was taken to the University Hospital, Maringá, by his mother, who had seen larvae in her son's mouth two days before. He had had a dental extraction five days previously, and the lesion had been attacked by the fly. On examination, some subcutaneous larvae were seen in the dental alveolus, and it was diagnosed as a case of oral myiasis (Fig. 1).

Ivermectin 6 mg tablets were used. Twenty-four hours after the first dose, another 6 mg was given. Forty-eight hours after the first dose, some larvae still persisted in the site, so he was operated on under general anaesthesia, to remove the larvae and debride the wound. A full thickness flap was raised and all visible larvae removed. The wound was irrigated liberally with saline, debrided, and the wound closed with 4/0 polyglactin 910 (Vicryl®). After that cefazolin 1 g 6-hourly and metronidazole 500 mg 8 hourly were given. This was continued for five days postoperatively, and chlorhexidine 0.12%

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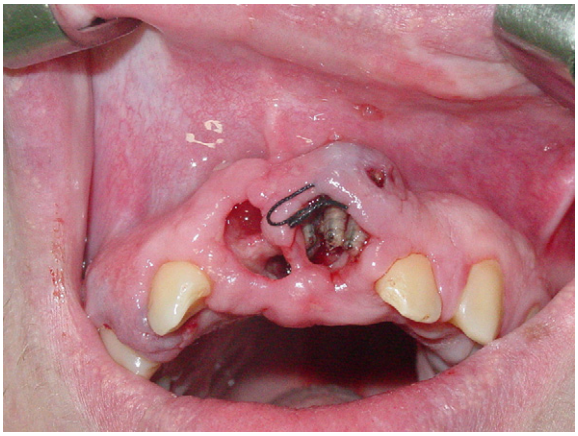

Fig. 1. Intra oral view. Note the maggots in the alveolus.

was used for local cleansing. After seven days of treatment, the wound had healed completely.

Twenty-four larvae were removed and sent for entomological analysis, when they were identified as being *Cochliomya hominivorax* (Fig. 2).

Case 2

A 70-year-old patient who weighed 65 kg presented with lesions in the roof of his mouth with infestation of larvae.

On examination we noted that the patient was senile, and dependent on relatives' help with his personal hygiene. He constantly opened his mouth, and had ulcerated palatal lesions and some subcutaneous larvae. During computed tomography we noted extensive destruction of soft and hard tissues of the palate, which had almost caused oronasal communication (Fig. 3).

After blood count, white cell count, and tests of renal and hepatic function, other conditions could be excluded. Ivermectin 12 mg–200 μg/kg was prescribed orally, together with intravenous rehydration with 0.9% physiological saline and cefalotin 1 g every 6 hours.

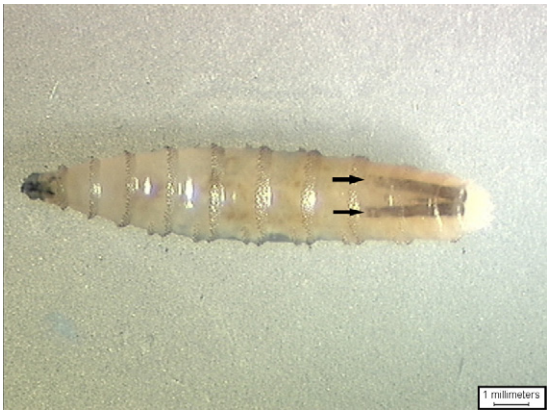

Fig. 2. *Cochliomyia hominivorax* maggot. Arrows: note the pigmented tracheal trunk extending throughout the third segment.

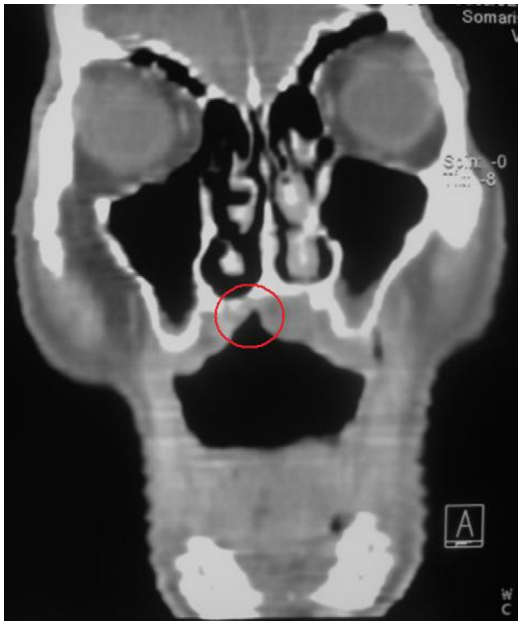

Fig. 3. Computed tomogram. Coronal view showing the palatal destruction.

The following day some larvae still remained. However, the patient's relatives reported that several other dead larvae were visible on the wound. Relatives had to provide care to prevent the patient from swallowing or aspirating larvae so another dose of ivermectin 6 mg 100 ug/kg was given together with the supporting treatment.

After 48 hours all larvae had disappeared, but the patient's relatives reported that dead larvae were being discharged from the lesion. The oral antibiotic treatment was maintained for five days, together with local cleansing. After seven days the palatal lesion had regressed spontaneously, with formation of granulation tissue. After 30 days of treatment, the lesion had healed completely, and the patient's nostrils were normal.

Entomological analysis verified that the larvae were *Cochliomya hominivorax*.

Parasitology

The term myiasis is applied to the injurious action that larvae of certain diptera cause to vertebrate animals, in whose living or dead tissue they grow. Myiases are classified according to clinical and aetiological aspects. Clinical signs depend on the species of fly, and on the organ or tissue affected, which is usually through the skin. Larvae can be found in body cavities such as the nose, and aural and paranasal sinuses, and also the gastrointestinal and urinary tracts.

The disease can be clinically classified into dermal, cavity, and organic myiasis. Aetiologically, myiases can be divided into three groups: *pseudomyiases, semi-specific or optional myiases*, and specific or obligatory myiases. *Pseudomyiases* develop accidentally, with inadvertent ingestion of larval