A case of throat *Cochliomyia hominovorax* infestation

Um caso de infestação de orofaringe por *Cochliomyia hominovorax*

Jacyr Pasternak¹, Sung Ho Joo², Arnaldo José Ganc³, Marcelino de Souza Durão Junior⁴, Rafaela Decza Morsh⁵, Thais Helena Pinto⁶

**ABSTRACT**

The epidemiological characteristics of myiases are not well defined. It has been described in persons having close contact with animals that usually attract flies, or in individuals of low socioeconomic level, in a poor health condition. In Brazil myiasis have also been described with similar epidemiological characteristics. The authors describe a case of myiasis in a previously healthy patient of good socioeconomic standing and to discuss its treatment.

Keywords: Screwworm infection; Myiasis/therapy; Oropharynx / pathology; Case reports [Publication type]

**RESUMO**

As características epidemiológicas das miíases ainda não estão bem definidas. Tem sido descrita em pessoas que lidam com animais que habitualmente atraem moscas, ou em indivíduos de baixa classe socioeconômica, com comprometimento de seu estado de saúde. No Brasil, as miíases têm sido descritas com características epidemiológicas semelhantes a essas. Assim, os autores foram levados a apresentar um caso de miíase em um paciente previamente sadio, de bom nível socioeconômico e a discutir seu tratamento.

Descritores: Infecção por Cochliomyia hominivorax; Miíase/terapia; Orofaringe/patologia; Relatos de casos [Tipo de publicação]

**INTRODUCTION**

Myiases are infestations of humans by fly larvae (maggots). They can occur in three settings: larvae in necrotic tissues, accidental infestations when flies that usually put their eggs in decaying matter put them in contaminated urinary or gastrointestinal passages, and larvae in living tissues. All humans, except those mummified or cremated will be eaten by maggots when dead, but being eaten alive by such larvae can be paralleled with being buried alive, as one of the most dreaded nightmares one can have. This fear is part of a fine police mystery where Oliver Wendell Holmes, Henry W. Longfellow, James Russell Lowe and other Boston city gentry living in 1865 are the detectives in a series of killings, the first of which involves the victim being eaten alive by hundreds of maggots of the American screwworm, *Cochliomyia hominovorax*. Some legends tell of historical figures meeting this fate: Herod the Great and perhaps Job. Nowadays, myiasis is found in indigents amply exposed to flies or small babies abandoned in dustbins. Oral myiasis is also known to occur in persons with very poor dental hygiene, in mouth breathers and in thumb suckers. Myiasis can be picked up by visitors to underdeveloped countries. Naturally, natives are also affected, but these cases go unreported...

The infestation is more common in persons having close contact with animals that are the usual target of flies. A recent review of wound myiasis in the United States, published in 2000 found 137 reported cases of acquired myiasis in the continental United States during the 1960-1995 time period: the author collected a further 41 cases from 20 centers, where the most common species causing the infestation was *Phaenicia sericata*. This species was the cause of an unusual hospital acquired infestation described by Beckendorf et al.: there was a mouse pest in the hospital, so poisoned baits were amply used and lots of mice died. Subsequently mouse carcasses became heavily colonized with *Phaenicia sericata* eggs and maggots, and flies resulting from these maggots laid their eggs on wounds in comatose patients in the Intensive Care Unit.

Most maggots eat only necrotic tissues and because of this preference are used for larval therapy of infected skin...
ulcers, including deep ones\(^{(11-12)}\). *Cochliomyia hominivorax* however, eats normal tissues; its maggots can migrate to the brain, lungs and other organs where infestation by this species can cause death.

There are myiases common in Brazil, including tungiasis, one of the most common causes for residents from a Fortaleza slum in northeast Brazil seeking pediatric medical care\(^{(13)}\). Moreover, noma has been seen in Brazil in association with oral myiasis\(^{(14)}\). Massive orbital myiasis caused by *Cochlyomia hominivorax* and ocular globe enucleation was recently reported by Brazilian ophthalmologists\(^{(15)}\) in an 80-year-old man abandoned by his family and living alone in a rural area.

\[\text{Figure 1. Oropharynx myasis}\]

**OBJECTIVE**

To present a life-threatening myiasis case in a previously healthy patient of good socioeconomic standing and to discuss its treatment.

**CASE REPORT**

A healthy 63-year-old man with a very good socioeconomic level came to our Emergency Room presenting cough, respiratory distress and bloody sputum. He lives in São Paulo, Brazil’s biggest city and had no contact with farm animals and did not visit rural areas, except for a barbecue one week before coming to our hospital, when he went to a small farm where no cattle were raised. The patient remembered sleeping in a hammock after lunch at the farm. He is a usual mouth breather. An otorhinolaringologist consultation was held and his sputum was sent to the clinical laboratory: in this sputum sample many good size live maggots were found. Later, maggots were seen exiting his mouth. Endoscopy was performed and many maggots were seen in his pharynx and esophagus. He developed respiratory distress and was given oral ivermectin, 200 mcg per kilogram because IV ivermectin was not available, and went into the operating room. The surgeon removed about 100 maggots from his neck tissues still moving, some near his vertebrae. After surgery he received another dose of ivermectin. The subject recovered well following surgery and was discharged from our hospital after four days with no sequelae.

Maggots were identified as *Cochliomyia hominivorax*, which was confirmed by the Parasitology Department of São Paulo Tropical Diseases Institute. We ascertained, given the size of the maggots, that eggs had been laid in the patient’s pharynx some three to seven days before the patient developed symptoms.

**DISCUSSION**

Cases of severe myiasis usually occur in patients of low socioeconomic class, frequently having a concomitant history of alcohol abuse, social isolation, and poverty\(^{(16)}\). There are reports of myiasis occurring in children\(^{(17)}\) and adults\(^{(18)}\) with endophtalmitis, also in very poor patients. However, this case shows that myiasis can occur in urban dwellers of excellent socioeconomic standing.

*Cochliomyia hominivorax* exists in Brazil and poses a risk of human myiasis affecting normal tissues. We found a report of a case of pharyngeal myiasis in São Paulo city with very few details in a non-indexed Brazilian journal from 1940\(^{(19)}\).

The diagnosis in our particular case posed no problems and usually depends on demonstrating the larvae, sometimes by the patient themselves\(^{(16)}\). Concerning treatment, this patient had to undergo surgical removal of maggots and received oral invermectin.

Ivermectin is an antiparasitic from a class of compounds known as avermectins. It is a macrolide endectocide with activity against both endoparasites and ectoparasites\(^{(20)}\). Invermectin was first used to treat myiasis in animals and its success has led to use in humans to treat various parasitic diseases\(^{(16)}\) including infestations by *Cochliomyia hominivorax*, as shown in a recent Brazilian case report, as well as in other cases cited in the literature\(^{(14-16,20)}\), proving effective in this case.

This disease was eradicated in the US by public health measures, through the release of many sterile males to compete with native males, as the flies mate only once. Brazil has many public health problems which are probably more relevant than this myiasis, but as a perfect solution to prevent this infestation is known and viable, it should be pursued as this infestation lead to death.
REFERENCES