

Case Report



A Case Report of Nasopharyngeal *Myiasis* in a 49-Year-old Shepherd Man Referred to the Emergency Department of Tabriz

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Abstract

Myiasis is an infection of living vertebrates with fly larvae. The disease in humans is caused by parasites that are associated with an animal host. It may also affect patients with some degrees of immunodeficiency and involve different parts of the vertebrate body. This report is a case of nasopharyngeal *myiasis* in a 49-year-old shepherd who had referred to the emergency department of Tabriz in Iran, and the purpose of this report is to make physicians and nursing staff, who work in the treatment and care of patients, more notified of this ectoparasitic infection.

Keywords: *Myiasis*, Larvae of flies, Shepherd, Emergency, Tabriz, Iran

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Introduction

Myiasis is a disease caused by the presence of the maggot larvae of dipterous flies (two wings) in the living/dead tissues of living vertebrates. This entry and presence of larvae may occur through wounds and skin lesions or natural body cavities such as the mouth, ears, eyes, and genitourinary system. Although the disease is more common in tropical climates, it is not limited to these areas and is a global agricultural problem in domestic animals. The disease in humans is caused by parasites that are related to an animal host. Cutaneous *myiasis* is the most common clinical form, and nasopharyngeal *myiasis* includes nasal-oral-sinus-ear infection, as well as the eye (ophthalmomyiasis) and intestinal *myiasis* caused by the ingestion of the organism (1, 2).

Braid et al reported two cases of nasopharyngeal *myiasis* in the American Gazette (3). Likewise, Beckendorf et al reported several cases of nasal *myiasis* in immunocompromised patients in the intensive care unit (4). In another study, Gordon et al found six cases of cutaneous *myiasis* caused by *Dermatobia hominis* (5).

In this article, a case of nasopharyngeal *myiasis* is described so that to increase the awareness of physicians and patient care staff, including nurses, of this ectoparasitic infection.

Case Report

The patient was a 49-year-old shepherd man who had

referred to the emergency department of a hospital in Tabriz, Iran with weakness, lethargy, nausea, and vomiting. He had a history of diabetes and had a blood pressure of 65/100, a heart rate of 35, and a respiratory rate of 42 at baseline. In addition, the patient had 430 glucose and troponin positive, as well as haematuria and ketonuria in urine analysis.

Hemodynamic status and pulmonary hearing were normal. The patient had jaundice and a series of white worms, which were actually fly larvae, coming out of the patient's mouth and nose.

The larvae were sent to the parasitology laboratory of the Faculty of Veterinary Medicine of the Islamic Azad University of Tabriz for definitive diagnosis.

The Results of the Laboratory Study

Macroscopic Description

Eight cream-colored larvae with a length of 0.1-0.8 cm and a diameter of 0.1-1.2 cm were found based on the results (Figure 1).

Microscopic Description and Diagnosis

In microscopic examinations, the larva had hooks in the mouth, cephalo-pharyngeal part of the esophagus, intestine and trunk, and a pair of posterior claws and cuticle spines (Figure 2).



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Figure 1. One of the Isolated Maggot larvae in the Test Tube.



Figure 2. Stigmata (Respiratory Pores) in the Posterior End of Maggot Larvae Under a Light-Microscope.

Discussion

Myiasis is an ectoparasitic infection of humans and vertebrates. Vertebrates are infected with the larvae of dipterous flies that are called maggots. *Myiasis* is extremely important in veterinary medicine, and human disease is due to parasites that are associated with animal hosts. The most common form of *myiasis* is the skin form (cutaneous *myiasis*). Nasopharyngeal *myiasis* includes infections of the nose, mouth, sinuses, and ears. Eye (ophthalmomyiasis) and intestinal *myiasis* caused by the ingestion of the organism are observed as well (5, 6).

Dermatobia hominis is one of the causative flies of *myiasis*. Female flies lay their eggs in shady soils or drying clothes, preferably contaminated with urine or feces. Within one to three days, the fertilized larvae remain close to the soil to be activated by heat (e.g., the heat of a human or animal body). Female flies attach their eggs to the abdomen of bloodthirsty arthropods, including mosquitoes. When a mosquito eats a warm-blooded animal, local heat causes the fertilized larva to fall on the host's skin (Larva stage 1), and the larvae penetrate the skin directly or through the wound caused by the mosquito without causing pain and thus access the dermis and subcutaneous tissue. The second- and third-stage larvae having hooks are formed within 5-10 weeks (7).

Treatment of Myiasis

The goal of treatment is to clear the tissue from the larvae of flies. If there is *myiasis* on the wound or skin, the first step is to cover the affected area with a layer of petroleum oils such as paraffin. This blocks the larvae's posterior

airways from escaping the wound to receive oxygen, and the larvae should then be removed immediately. If necessary, the larvae must be surgically removed from the affected skin or organ, especially the eyes or ears. In the pharyngeal *myiasis*, eating the lukewarm oil stimulates the larvae and releases them from the throat mucosa (8, 9).

In the case of cutaneous *myiasis*, hand pressure is sometimes sufficient and is usually performed before visiting a doctor. It can occasionally be caught by forceps by blocking the penetration path to prevent gas exchange. Surgery is almost always required for the migratory form of the disease. In the case of wound *myiasis*, it is necessary to manually remove all visible larvae, followed by cleaning and occasionally washing the wound. The use of 15% chloroform in the olive oil or any other oils or even ether immobilizes the larvae. Ivermectin has been used to treat *myiasis* in animals and at least one human with subcutaneous *myiasis* (10).

Prevention of Myiasis

Myiasis infection can be prevented by insecticides containing DDT. It is advised that people living in contaminated areas use head and face protective hats. Ironing clothes is an effective way to remove laid eggs. Further, wearing long-sleeved clothing to cover wounds and avoid sleeping outdoors are other ways to prevent *myiasis* infection. Moreover, infected tissues and organs such as ears, eyes, and urinary tract should be rapidly treated if there is a purulent discharge. The best and most effective way to control flies is to improve and maintain environmental health, and insecticides should be applied only as a complement to this action rather than a substitute (11).

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Authors' Contributions

YG wrote and edited the manuscript. IL and MB designed and collected data.

Conflict of Interests

The authors declare that they have no conflict of interests.

Ethical Issues

Ethical considerations were fully observed in this research.

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