

CASE REPORT

Maggots in the Mouth—Oral Myiasis: A Rare Case Report

GS Asokan, V Anand, N Balaji, J Parthiban, S Jeelani

ABSTRACT

Oral myiasis is a rare disease that is mostly reported in developing countries. It is primarily caused by the invasion of the human body tissues by larvae of certain Dipteran flies. It is associated with poor oral hygiene, alcoholism, senility, suppurating lesions, severe halitosis and mouth breathing during sleep. The development of myiasis may also be facilitated due to poor manual dexterity in mentally challenged patients, cerebral palsy and hemiplegia patients. The diagnosis is made basically by the presence of larvae. This case report describes the presentation of oral myiasis in a 44-year-old male patient. The patient was treated by manual removal of the larvae, after topical application of turpentine oil, followed by surgical debridement and broad spectrum antibiotics.

Keywords: Oral infestation, Maggots, Larvae, Parasitic infection.

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INTRODUCTION

Despite the advances in science and the exceptional knowledge of mankind in the contribution to development in technology yet the counterattack of nature to mankind in the form of diseases in the most unpredictable manner is an everlasting challenge. Human race has been attacked by pathetic infestations since time immortal. Parasitic infestations occurring through common flies are a rare entity of orodental complex and noteworthy to mention is one of the most daunting infestations—myiasis.

Myiasis is defined by Zumpt as an infestation of live human and vertebrate animals by dipterous larvae which at least for certain period of its lifecycle feed on host's living or necrotic tissues, liquid body secretions and fluids or ingested food.¹ The word myiasis is derived from Greek language wherein 'myia' means fly and 'asis' means disease.²⁻⁴ The term myiasis was coined by F William Hope in 1840 and was first described by Lawrence in 1909.⁵ Almost 86 different species of flies have been reported to cause human myiasis.

Myiasis, a rare entity in human habitat can occur in any place across the globe but usually is seen in warm and humid climatic areas. It is more commonly prevalent in unhealthy individuals of underdeveloped and developing countries and less prevalent among the developed western countries.⁶ The

first case in human was documented in 2003 in Hong Kong.⁷ Myiasis is caused by Dipteran fly. These flies belong to the order Diptera.⁸ When tissues of oral cavity are invaded by parasitic larva of flies, this condition is named oral myiasis. In India the most common housefly associated with Myiasis is *Musca Nebulo*.

Clinically, myiasis is classified as: (i) Primary myiasis-larvae that feed on living tissue caused by biophagous larvae. (ii) Secondary myiasis-larvae that feed on dead tissue caused by the necrobiophagous flies. Based on anatomic site, it can be classified as (i) cutaneous myiasis, (ii) myiasis of external orifices and (iii) myiasis of internal organs⁹ Depending on the condition of the involved tissue as accidental myiasis (larvae ingested along with food), semi-specific (larvae laid on necrotic tissue in wounds) and obligatory myiasis (larvae affecting the undamaged skin). The most common anatomical sites for myiasis are the nose, eyes, skin wounds, sinuses, ears, lungs, gut, gallbladder, vagina, nasal cavities and rarely the mouth.¹⁰

Oral myiasis is commonly associated with certain anatomical and medical conditions. Most of the cases were related to neglected oral hygiene and fermenting food debris associated with poor manual dexterity leading to severe halitosis attracting the flies,¹¹ low socioeconomic status, immunocompromised state, debilitated and poor hygienic living conditions and close proximity to livestock-an environment favoring flies.¹² Medical conditions which favor the oral cavity to be exposed to external environment persistently, such as mental retardation, cerebral palsy, hemiplegia, alcoholism, senility and habit such as mouth breathing during sleep.

The incidence of oral myiasis is relatively less when compared to cutaneous myiasis since tissues of the oral cavity are not permanently exposed to the external environment. However, persistent mouth opening facilitates the deposition of eggs by the adult fly. The larvae in the mouth are observed as worms/bugs/maggots.

We present a case of oral myiasis in the maxillary anterior region in a patient with poor oral hygiene.

CASE REPORT

A 44-year-old male patient reported to the Department of Oral medicine and Radiology, Tagore Dental College and Hospital, with chief complaint of pain and mobility of the left upper front tooth for the past 6 months. He gave a history

of swelling, pus discharge and presence of worms for the past 2 days. He also presented a history of severe bad breath and itching sensation behind the upper front teeth region in the gums.

On clinical examination, the patient had incompetent lips with protrusion of the upper anterior teeth (Fig. 1). The patient had generalized malaise and fever. There was grade II mobility of 22 and 23 and grade III mobility of 21. There was generalized gingival recession, multiple root stumps and poor oral hygiene. There was a well circumscribed localized swelling seen in the palatal aspect of 21, 22 and 23 (Fig. 2). The swelling was approximately 3 × 2 cm in size. Swelling was soft in consistency and tender on palpation. There was a deep ulcer involving the anterior part of the swelling in relation to 21 and 22. Within the ulcer, there were approximately a dozen maggots (Fig. 3). The worms were alive and moving. Based upon the history and presence of maggots, the case was diagnosed as oral myiasis.

Intraoral periapical radiograph was taken which revealed bone loss in relation to 21, 22 and 23. The hematological values were within normal limits.

The treatment was performed in our hospital. A total of 20 larvae were grasped gently and removed one by one with the help of tweezers after application of turpentine oil. The maggots were roughly oval in shape and measured approximately 6 to 8 mm (Fig. 4). The wound was irrigated with saline followed by antiseptic betadine solution. Teeth 21 and 22 were extracted under local anesthesia. Broad spectrum antibiotics and analgesics were prescribed. The follow-up of the case showed normal healing of the area.

DISCUSSION

Myiasis is an uncommon disease in humans and common in rural areas compared to urban areas. Predisposing

factors are extraction wounds, poor oral hygiene, psychiatric patients, mouth breathing during sleep, facial trauma,¹³ open neglected wounds and necrotic tissues. The patient reported here was laborer residing in a rural area, with low socioeconomic background. He had incompetent



Fig. 2: Intraoral photograph showing palatal swelling and ulcer

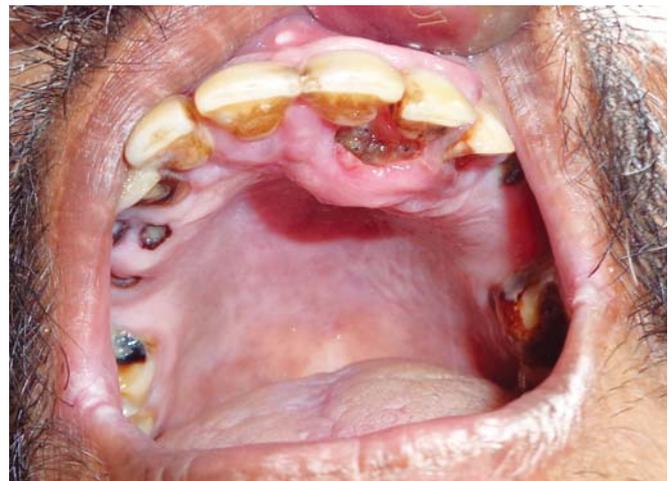


Fig. 3: Multiple maggots seen in ulcerative lesion



Fig. 1: Incompetent lips



Fig. 4: Isolated live maggot from the lesion

lips and mouth breathing habit with lack of awareness on oral health. This had contributed to his being attacked by parasitic infection leading to live maggots in his ulcerated mouth.

Myiasis of orodental complex commonly caused by common Indian housefly *Musca Nebulo*. They are found commonly in human habitats with poor hygiene and passable sanitation, especially during summer and rainy season.

The lifecycle of the Diptera fly consists of four stages—egg, larva, pupa and adult fly. The commencement of the lifecycle occurs with the eggs laid by the female fly on dead and decaying tissue. Within 1 day, the eggs hatch and the larvae are released. There are a triad of requisites for egg laying and larvae survival which include suitable temperature, moisture and necrotic tissue provided by open wounds, ulcers and sores. The bimodal parasitic infestation in humans occurs either accidentally with direct inoculation of the fly or by consumption of infected meat.¹⁴ In the present case, the location of the lesion is in the anterior part of the maxilla, implying a direct inoculation of the tissues.

The stage of larvae lasts for 6 to 8 days during which they are parasitic to human beings. The larvae have backward directed segmental hooks with which they anchor themselves to the surrounding tissue. They release toxins to destroy the host tissue. The larvae feed on the rotten tissue resulting from the decomposition of tissue caused by the proteolytic enzymes released by the surrounding bacteria. They are photophobic and tend to hide deep into the tissues for a suitable niche to develop into pupa.¹¹ The present case also showed the larvae burrowed deep inside the ulcer in palatal mucosa.

The management of oral myiasis is not governed by any standard guidelines. However, the ideal approach is to remove all the larvae.¹⁵ The standard treatment of myiasis is manual removal with hemostatic or clinical pincers, associated with or without the administration of topical asphyxiation drugs, which forces the larvae to come out.² Use of turpentine oil (a topical irritant) facilitates the removal of larvae;¹⁶ other agents such as ether, chloroform, iodoform and phenol mixtures can also be used. This is followed by surgical debridement of the wound, to remove the necrotic tissue.

Systemic management involves broad spectrum antibiotics such as amoxicillin with clavulanic acid, metronidazole, cefazolin, especially when the wound is secondarily infected. Use of systemic Ivermectin gives good results in most cases.¹⁷

CONCLUSION

Prevention is better than cure is apt with respect to oral myiasis. Prevention involves fundamentally control of fly populations, general cleanliness which incorporate decrease in decomposition odors, maintaining wounds by cleaning and covering them, educating and sensitizing the common population that inadequate basic sanitation can predispose to infestation and maintaining good oral and personal hygiene.

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