

Oral myiasis involving palatal mucosa of a young female

**Suresh Yadav,
Shallu Tyagi¹,
Prince Kumar²,
Naveen Puri³**

Departments of Oral and Maxillofacial Surgery, ¹Pedodontics and Preventive Dentistry, ³Oral Pathology, Kalka Dental College and Hospital, Meerut, ²Prosthodontics, Shree Bankey Bihari Dental College and Research Centre, Ghaziabad, Uttar Pradesh, India

Address for correspondence:

Dr. Prince Kumar, Department of Prosthodontics, Shree Bankey Bihari Dental College and Research Center, N.H. 24, Masuri, Ghaziabad - 201 302, India. E-mail: princekumar@jts.edu.in

Abstract

In literal terms myiasis is the invasion of the tissues and organs of human beings by fly larvae. This phenomenon is well documented in the skin, especially among animals and people in developed and developing countries. When the tissues of oral cavity are invaded by the parasitic larvae of flies, the condition is called as oral myiasis. With the paper we are presenting a case

of 19-year-old female suffering from oral myiasis of upper lip and palate. The treatment consisted of manual removal of the larvae, surgical debridement of the wound and oral therapy with doxycycline used as a locally acting drug for faster and better recovery.

Key words: Diptera, myiasis, maggots, *Musca domestica*

INTRODUCTION

The term myiasis derived from the Greek word “myia” meaning fly and “iasis” meaning disease was coined by Hope in 1840.^[1] Myiasis was defined as infestation of live human and vertebrate animals with dipterous larvae which feed on the host’s dead or living tissue, liquid body substances, or ingested food.^[2] Lawrence first described oral myiasis in 1909. Since then, it has been reported mainly in developing countries such as Asian countries and very rarely from Western countries. The incidence of oral myiasis is rare, even in developing countries.^[3] The myiasis is diagnosed clinically based on presence of the maggots.^[4]

Myiasis can be classified as primary (larvae feed on living tissues) and secondary (larvae feed on dead tissue). Depending on the condition of the involved tissue into accidental myiasis (larvae ingested along with food), semi-specific (larvae laid on necrotic tissue in wounds), and obligatory myiasis (larvae affecting undamaged skin). Further classification can be based on the site as cutaneous, external orifice, internal organs and generalized.^[5] Myiasis occurs by dipterous larvae developing in decaying tissues and the developmental transition via the larval stage requires an intermediate host and the number of developing larvae depends on the number of viable eggs deposited.^[6]

Based on the sites involved in the body they were described as cutaneous, nasopharyngeal, aural, ocular, intestinal, and urogenital Myiasis.^[7] It can be caused by three main families of flies.

1. Calliphoridae (timbu flies, screw worms, green bottles)
2. Sarcophagidae (flesh fly)
3. Oestridae (warble flies and bottle fly).

Larvae of common house fly *Musca domestica* have been identified in neglected wounds. The common house fly is found worldwide and its life cycle is similar to *Calliphoridae* species.^[8] The traditional management for myiasis is the mechanical removal of the maggots.^[9,10] When there are multiple larvae and in advanced stages of maggots development and tissue destruction, local application of several substances have been used to ensure complete removal of all larvae.^[11,12] Recently a systemic treatment with Ivermectin, a semi-synthetic macrolide antibiotic, have been used for treatment of oral myiasis.^[13]

CASE REPORT

A 19-year-old female patient came with a complaint of massive, painful, and swollen with mobile upper anterior teeth with detached mucoperiosteum from the palatal mucosa since 1 month [Figure 1]. The swelling started slowly and attained the present size. She was associated with fever since 2 days and also complains of discomfort and unable to eat since 1 week. Patient was from a low socioeconomic background, residing in a rural area. She had a history of mouth breathing with poor generalized periodontal status. The swelling was extending from infra-orbital region bilaterally to the entire upper lip. Skin over the swelling appeared stretched, erythematous and there was localized rise in temperature.

Intraoral examination revealed poor oral hygiene with severe halitosis. Swelling may be seen involving the lips, anterior portion of hard palate. Palatal flap in the premaxillary region was necrotized, detached from the underlying bone. Computed tomography revealed that there was no involvement of maxillary sinus, nasal cavity which was suspicious for involvement. Maggots were seen between the palatal bone and flap. The case was posted for surgery under local anaesthesia after taking informed consent. Turpentine oil was placed in the wound area during which maggots were coming out [Figures 2, 3a and 3b]. Around 25-27 maggots were removed. Based on the clinical findings and the presence of maggots the provisional diagnosis was made as myiasis. The larvae were preserved in 40% formaldehyde and sent for pathological investigation. On pathological examination the diagnosis of larvae of *Musca domestica* was confirmed.

Complete treatment was executed with Taxim 1 g, Metranidazole 100-ml IV injections along with intramuscular injection of Voveran injections for 10 days faster and better recovery. Postoperative healing was uneventful in the wound area. A week later patient discharged and was asked to report back after a period of 6 months to evaluate the healing status and the healing was uneventful and satisfactory [Figure 4].

DISCUSSION

The patient in the present case was of low socioeconomic status having poor living conditions. The poor oral hygiene, lack of manual dexterity, lip incompetence, open bite and



Figure 1: Preoperative intraoral view showing anterior palatal swelling



Figure 2: Surgical eradication of maggots under local anesthesia

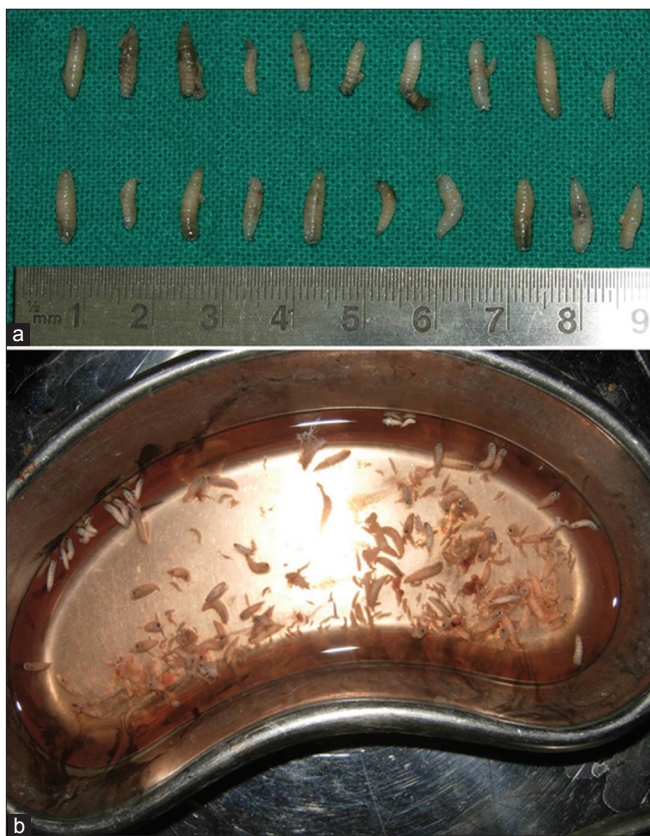


Figure 3 (a and b): Removed live maggots

residence in a rural area were considered to be predisposing factors for larval infestation in this patient. It was predicted that the flies were attracted to the bad mouth odor due to neglected oral hygiene or fermenting food debris, making our patient a prime target for this disease. The developmental transition via the larval stage requires an intermediate host. The periodontal pockets contributed for the mechanical support, and provided suitable substrate and temperature for the survival of the larvae. The larval stage lasts from six to eight days in which period they are parasitic to human beings. They are photophobic and therefore tend to hide themselves deep into the tissues and also to secure a suitable niche to develop into pupa.^[14,15]



Figure 4: Intraoral postoperative view depicting complete and uneventful healing

There are two forms depending upon the condition of the involved tissue:

1. Obligatory, where maggots require living tissues for larvae development^[4]
2. Facultative, where flies use necrotic wounds as a site in which they lay eggs and incubate their larvae.^[8]

Clinically it can be classified as primary and secondary. Primary myiasis is caused by biphagous larvae (feed on living tissue) which are common in cattle, rare in human beings. Secondary myiasis is caused by necrobiphagous flies (feed on dead tissue) which are more common in human beings with neglected oral and body care.^[9] The present case also showed the larvae burrowed deep inside the pockets. Proteolytic enzymes released by the surrounding bacteria decompose the tissue and the larvae feed on this rotten tissue.^[16] The traditional management of myiasis is the mechanical removal of the maggots. In case of multiple larvae and in advanced stages of development and tissue destruction, local application of several substances such as oil of turpentine, larvicidal drug like Negasunt, mineral oil, ether, chloroform, ethyl chloride, mercuric chloride,

creosote, saline, phenol, calomel, olive oil, iodoform, can be used to ensure complete removal of all larvae.^[12,17,18] Turpentine is a toxic chemical as it can induce tissue necrosis. When applied topically, it can produce epithelial hyperplasia, hyperkeratosis and ulceration. However, the damage is reversible, the hyperplasia will only persist when the stimulus is continuously applied and regresses once it is withdrawn. This disease can be prevented by controlling fly population and by maintaining good oral and personal hygiene. Special needs patients include patients with mental and/or physical disability.

CONCLUSIONS

The prevention of human myiasis is by education, but unfortunately in the developing countries some people live in low condition, predisposing the occurrence of the infestation. The treatment consisted of manual removal of the larvae, surgical debridement of the wound and oral therapy with doxycycline or other locally and systemic acting drug for faster and better recovery.

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