

CASE REPORT

## Oral Myiasis

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**ABSTRACT:**

Myiasis is the infestation of tissues and organs of animals and humans by certain Dipteran fly larvae. This phenomenon is well documented in the skin, especially among animals and people in tropical and subtropical areas. Oral myiasis is a rare condition and can be caused by several species of Dipteran fly larvae and may be secondary to serious medical conditions. Upon removal of the larvae, the tissues seem to recover with no subsequent complications and with no need for further treatment.

**Key words:** Myiasis, Diptera, oral, infestation.

### Introduction

Myiasis (myia means "fly" in Greek) is the infestation of body tissues of animals by the larvae of flies, commonly known as maggots.<sup>1</sup> Myiasis occurs mainly in the tropics and is associated with inadequate public and personal hygiene. It also occurs when people live in close proximity to animals. Oral myiasis in human beings appears to be rare, and most cases have been reported from the developing countries, particularly in Asia. At least 86 different species of the fly *Diptera* can infect man with larvae that invade the skin and body cavities, such as the

nasal fossae and ears, and cause odoriferous discharge. Eye involvement is secondary to nasal and ear lesions. Nasal myiasis also is common in patients with leishmaniasis.<sup>2</sup>

### CASE REPORT

A 21 year old phocomeliac and mentally retarded male presented to the Department of Oral and Maxillofacial Surgery, D.A.V. (C) Dental College, Yamunanagar with severe maggots infestation of the oral cavity (Fig. 1). On examination, there were present hundreds of maggots in the anterior maxilla burrowing and causing the elevation of the whole buccal and palatal mucoperiosteum till the soft palate region (Fig. 2, 3).

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A thorough debridement of the region was performed under local anesthesia by mechanically removing all the maggots with the help of an artery forceps (Fig. 4). This debridement was further aided by turpentine oil dressing which caused the maggots to move to a more superficial position for easy removal. In addition, the patient was given Tab Ivermectin 12 mg. stat which is an antiparasitic and intravenous antibiotics were started to prevent any secondary infection. This surgical debridement with turpentine oil was done for 3 consecutive days twice daily till the site was completely free of maggots. The antibiotics were continued for seven days. The patient was discharged only after the complete elimination of maggots (Fig. 5, 6).

## DISCUSSION

The classification of myiasis is based on the localization in the host body (dermal, subdermal, nasopharyngeal, internal organs and urogenital) or in, parasitological terms, on the type of host-parasite relationship (obligatory, facultative or pseudomyiasis). The myiasis can be obligatory, when larva in any of the stages of development needs living tissue, or facultative when maggots feed on decomposing matter or necrotic tissues. Obligatory myiasis is more harmful for the host, particularly mammals (including man). The infestation is most often subcutaneous and produces a furunculoid or boil-like lesion but can also occur in wounds and certain body cavities.

The flies whose larvae may be responsible for myiasis in man include the following groups:

### Family muscidae

Houseflies, *Fannia canicularis* (lesser house fly) and *Musca domestica* (house fly) may deposit eggs on skin wounds and give rise to myiasis.<sup>3</sup>

### Family Calliphoridae (screw worms)

*C. macellaria* is a facultative parasite that may be responsible for secondary infestation of wounds. *C. hominivorax* larvae are obligatory parasites that feed on living tissue and can infest wounds but also penetrate unbroken skin.<sup>4</sup> Larvae of *Chrysomya bezziana*, the old world screw worm, are obligatory

parasites in wounds and infestation is seen especially in India and Africa. Larvae of members of the genera *Phormia* (black blowfly), *Lucilia* (greenbottle) and *Calliphora* (blue bottle) may also be secondary invaders of wounds in man.

### Family sarcophagidae (flesh flies)

*Sarcophaga* occasionally infests wounds and necrotic tissue.<sup>5</sup> *Wohlfahrtia magnifica*, *W. vigil* and *W. opaca* cause infestation only in infants, as the larvae can not penetrate adult skin.

### Family cuterbridae

*Cuterebra* (rodent or rabbit botfly) only infrequently causes human myiasis.<sup>6</sup> *Dermatobia* (human botfly) like *D. hominis* causes cutaneous myiasis in man and particularly infests cattle. Myiasis caused by *D. hominis* is the most common cause of localized myiasis in the tropical new world.

### Family Gasterophilidae

*Oestrus ovis* (sheep nostril fly) is a parasite mainly in sheep and goats, and *Rhinoestrus purpureus* is a parasite in horses, but both are occasionally responsible for myiasis in human beings.<sup>7</sup>

Oral myiasis is very rare, and was first described by **Laurence in 1909**.<sup>8</sup> In **1964, Scott** reported only one case of oral myiasis in 120 human beings with myiasis in North America. According to **Zeltser and Lustmann (1988)**,<sup>9</sup> 14 cases were reported until 1987, although they almost certainly did not consider some reports published in journals with small circulation. Myiasis is a worldwide phenomenon the prevalence of which is related to latitude and the lifecycle of various species of flies. The incidence is higher in tropical and subtropical zones of Africa and the Americas. The flies responsible for the condition prefer a warm and humid environment therefore myiasis is restricted to the summer months in temperate zones while it is all the year round in the tropics.

Methods of infestation in humans may occur in two ways, either accidentally with direct inoculation by the fly or by ingestion of infected materials such as meat. A direct infestation may be possible in cases

the lesions are at the anterior mandibular or maxillary region however it would be difficult for the fly to infest directly the tissue of the molar region. An incidental ingestion of eggs was also reported in the literature as possible cause for intestinal lesions.

In the mouth, the fly usually lays larvae in the alveolus or in a periodontal pocket, which in about a week hatch into maggots. The larvae are 5 to 20 mm x 3 mm and as they grow, crawl into the tissue. The tendency to migrate increases as the larvae matures to pupation.

Oral myiasis can be primary or occasionally secondary to nasal involvement, when the maggots can penetrate to the paranasal sinuses or palate. Local factors such as halitosis caused by necrotic suppurating tissues can attract the flies. Mouth breathing during sleep, alcoholism, senility, mental retardation and hemiplegia may facilitate the development of oral myiasis. Some cases described in the literature were secondary to medical or anatomical conditions such as Cancrum oris, neglected mandibular fracture, cerebral palsy, mouth breathing, anterior open bite, incompetent lips and patients undergoing mechanical ventilation. Myiasis has also been described following teeth extraction. Oral myiasis is rare in healthy persons and is usually associated with poor individual hygiene.

Though the number of cases is small, we see that most infestation occurred in males probably because they tend to spend more time out-doors, and more frequently tend to neglect their oral hygiene when compared to females.

The diagnosis of myiasis is clinical and the treatment of oral myiasis is surgical debridement under local anesthesia. Debridement is curative, although a foreign body response may occur if parts of the larvae remain in the surgical site. Some authors have used local iodoform, ethylchloride, mercuric chloride, creosote, saline, or turpentine oil and systemic butazolidine or thiobendazole. Further some articles described methods of occlusion and suffocation used in the skin infestation. Application

of such materials forces the aerobic larvae into a more superficial position where it is possible to remove them easily with less damage to the tissues.<sup>10</sup> But these methods are not easily applicable in the oral cavity. Hence thorough lavage and surgical debridement are the treatment of choice for cases involving the oral cavity. This condition can be prevented by proper maintenance of personal and environmental hygiene especially taking care of necrotizing and fungating wounds by cleaning, using topical metronidazole and palliating radiations if required.

It can be concluded that oral myiasis although a rare condition is still found more frequently in tropics. It occurs more commonly in either habitually neglected mouth or if the patient is medically compromised. Thorough mechanical debridement is although curative but overall prognosis of medically compromised patient is poor.

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**Figure 1 :** Phocomeliac patient



**Figure 2 :** Maggots infestation on buccal surface of anterior maxilla



**Figure 3 :** Maggots surface on the palatal surface



**Figure 4 :** Mechanical debridement



**Figure 5 :** Site cleared



**Figure 6 :** Site cleared

