

## Oral myiasis: A rare entity

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### ABSTRACT

Oral myiasis is a relatively rare pathology in humans caused by invasion of body tissue or cavities of living animals or humans by larvae of certain dipteran flies. It is an uncommon clinical condition, being more frequent in underdeveloped countries, and in countries with tropical climate. Common pre-disposing factors are poor oral hygiene, halitosis, trauma, senility, suppurative oral lesions, and in patients with neuro-psychiatric deficits. The present article reports a case of oral myiasis involving the anterior palate in a physically and mentally disabled 24-year-old female patient.

### Key words

Ivermectin, larvae, maggots, myiasis

### INTRODUCTION

Myiasis is a term derived from the Greek word “myia,” meaning invasion of vital tissue of humans or other mammals by fly larvae.<sup>[1]</sup> The term “myiasis” was coined by F.W. Hope in 1840 and it was first described by Laurance in 1909. Myiasis was defined by Zumpt as “the infestation of live human and vertebrate animals by dipterous larva, which at least for certain period feed on hosts dead or living tissue, liquid body substances or ingested food.” Human myiasis is reported mainly in developing countries such as Asian countries and very rarely from western countries.<sup>[2]</sup> Myiasis frequently occurs in rural areas, infecting livestock, and in humans prevails in unhealthy individuals in third world countries.<sup>[3]</sup>

Clinically, myiasis is classified as: (a) Primary myiasis – when larvae feed on living tissue and (b) Secondary myiasis – when larvae feed on dead tissue. Depending upon the condition of the involved tissues it is of two types: (a) Accidental myiasis – when larvae get ingested along with food, (b) Semi-specific myiasis – when the larvae are laid on necrotic tissue of the wound,<sup>[4]</sup> (c) Obligatory – require living tissue for larvae development, (d) Facultative – require necrotic

tissue for flies to lay eggs and incubate them.<sup>[5]</sup> Based on anatomic site, it can be classified as: (a) cutaneous myiasis, (b) myiasis of external orifices, and (c) myiasis of internal organs.<sup>[2]</sup>

Primary myiasis is caused by biophagous larvae (feed on living tissues) and also as obligatory myiasis. Secondary myiasis is caused by necrobiophagus larvae (feed on dead tissues) and also called as facultative myiasis. The most anatomical sites for myiasis are the nose, eyes, skin wounds, sinuses, ears, lungs, gut, gall bladder, vagina, nasal cavities, and rarely, the mouth.<sup>[2]</sup> However, specific type of flies can penetrate the healthy skin and produce myiasis.<sup>[6]</sup>

Incidence of oral myiasis is comparatively lesser than that of cutaneous myiasis as oral tissues are not permanently exposed to the external environment.

Cases of oral myiasis have been reported to occur following dental extraction, nosocomial infection, in drug addicts, in psychiatric patients, and conditions that are likely to cause prolonged mouth opening such as mouth breathing during sleep, senility, alcoholism, and mental retardation.<sup>[3]</sup> Other pre-disposing factors are incompetent lips, poor oral hygiene, severe halitosis, anterior open bite, facial trauma, extraction wounds, ulcerative lesions, and carcinoma.<sup>[7,8]</sup>

### CASE REPORT

A 24-year-old female patient reported to the Department of Oral Medicine and Radiology with a chief complaint of pain and swelling in the anterior palate since 4-5 days,

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which gradually increased in size. The medical history revealed that the patient was mentally challenged since birth and has been bed ridden [Figure 1].

On general examination, the patient was thin built, febrile, conscious, and non-cooperative. The patient had protruded maxillary incisors and was mouth breather. Clinical oral examination revealed an area of ulceration in the anterior palatal aspect in relation to 11 and 21 accompanied by erythema, redness, and mild bleeding on probing [Figure 2]. The patient presented with poor oral hygiene and severe halitosis. There was purulent discharge from the ulcerated region. Closer observation showed necrotic growth in the anterior palate extending mediolaterally from 21 to the palatal gingiva on the right side and anteroposteriorly from the 11, 21 to mid-palate with multiple worm like motile organism within the ulcerated area [Figure 3]. Based upon the history and presence of maggots, provisional diagnosis of oral myiasis was given. A total of 10 larvae were gently taken out with the help of tweezers after application of turpentine oil. These were identified as larvae of the common housefly. Later, the ulcerated area was debrided and well-irrigated with saline.

## DISCUSSION

Oral myiasis is a rare clinical condition seen among the rural population living in close proximity to livestock and an environment favoring the flies.<sup>[9]</sup>

Primary oral myiasis is usually located in the anterior part of the oral cavity affecting the anterior segments of both jaws and the palate suggesting a direct inoculation of the tissues. Rarely, posterior portions of the oral cavity are involved due to ingestion of infected material like meat.<sup>[10]</sup>

Myiasis occurs more commonly in rural areas than in urban and pre-disposing factors may be medical conditions such as diabetes mellitus, psychiatric illness, leprosy, mental retardation, and patients with an open wound, those who are mouth-breathers, drunkards, senile or the hemiplegic.<sup>[11,12]</sup> In the present case, mental disability, low socio-economic status, lack of personal hygiene, mouth breathing, and close proximity to live stock are the main probable causes in the development of oral myiasis.

Flies causing myiasis belong to the order diptera. The genera commonly reported are sarcophagidae (fleshflies), calliphoridae (blowflies), oestridae, and muscidae from the diptera order.<sup>[13]</sup> Other important species mainly causing human myiasis are dermatobia hominis (human botfly) and cordylobia anthropo-phaga (thumbu fly).<sup>[14]</sup> Musca Nebulo is the most common house fly in India. They are most active during the summer and rainy seasons.<sup>[15]</sup>



Figure 1: Profile picture of the patient

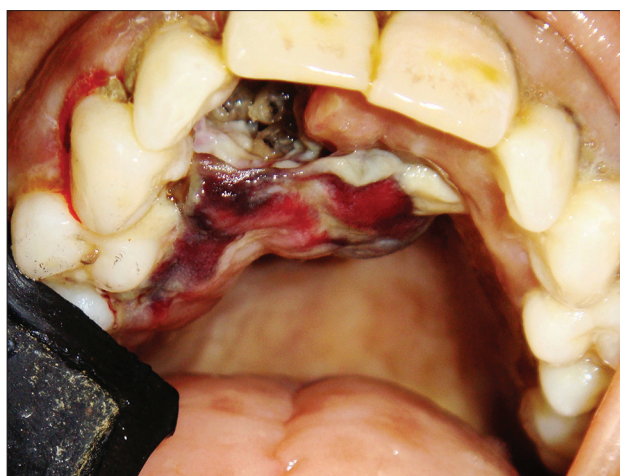


Figure 2: Intraoral picture showing necrotic growth in the anterior palate with live maggots



Figure 3: The larva, which was removed from the lesion

The myiasis is diagnosed clinically based on the presence of the maggots, but the classification of the larvae rarely has been made.<sup>[15]</sup> In the present case, the identification of the larvae could not be carried out.

The life cycle of house fly start with the egg stage, followed by the larvae, pupa, and finally, the adult fly. Open wound, ulcers and open sores provide a favorable environment for their growth.<sup>[16]</sup> After the fly lays eggs in the dead and decaying tissues, the larvae hatch in about 8-10 h, soon after, which they burrow into the surrounding tissue, and in this stage there will be tissue inflammation ensuing discomfort. This burrowing may cause separation of the mucoperiosteum from the bone. The larvae position their heads down so that the posterior spiracles could become exposed to the open air to make respiration possible.

After the young larvae penetrate the skin of the host, they take 8-12 days to develop into the prepupal stage and then leave the host to pupate. The stage of larvae lasts for 6-8 days during, which they are parasitic to human beings. They are photophobic and therefore tend to hide deep into the tissues, which also help them to secure a suitable niche to develop into pupa. Proteolytic enzymes released by the surrounding bacteria decompose the tissue and the larvae feed on this rotten tissue. The infected tissue frequently releases foul-smelling discharge.<sup>[2]</sup> In the present case also, the larvae was present deep into the tissue in the anterior palate and there was purulent discharge from the ulcerated area present in the anterior palate.

The treatment of myiasis comprises of systemic and local measure. Systemic treatment includes broad-spectrum antibiotic such as ampicillin and amoxicillin especially, when the wound is secondarily infected. Local measure consists mechanical removal of maggots with hemostatic or clinical pincers, associated with or without the administration of tropical asphyxiation drugs, which forces the larvae to come out.<sup>[8]</sup>

It is important to remove all the larvae; otherwise the cavity does not heal properly and can also become chronically infected. Larval rupture should be avoided as it can cause foreign body reaction. Recently, a systematic treatment with ivermectin, a semi-synthetic macrolide antibiotic derived from a group of natural substances – avermectin, – which is obtained from actinomycetes is given orally in just one dose of 15-200 mg/kg.<sup>[11]</sup>

## CONCLUSION

To conclude, myiasis is an uncommon condition that affects mostly the uncovered body areas where oviposition is easily carried out. It frequently affects low

socioeconomic level individuals with poor oral hygiene habits and unhealthy patients with psychiatric disorders. Myiasis of orofacial region can be prevented by educating the people from rural areas and low socio-economic groups about personal hygiene, taking care of any wound, control of fly population and maintenance of sanitation of the surroundings. We, the dentists, must educate parents/guardians to make them aware of the conditions, and the parents should bring children as early as possible for dental intervention to prevent further complications.

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