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# ORAL MYIASIS: A CASE SERIES

Dental Science

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## ABSTRACT

Myiasis is a rare condition caused by the invasion of tissues by the larvae of flies, mainly from the order of dipteran fly larvae[1,2,3]. Oral myiasis is very rare in healthy persons [1,3]. It occurs mainly in the tropics and is usually associated with inadequate personal and public hygiene[1,2,3]. We present three cases of oral myiasis. In that two were mentally retarded, 13 year and 24 year-old girls suffering with cerebral palsy. Large numbers of larvae were found in the gingival sulcus of the mandibual region and right side of hard palate. In third case ,40 year old female patient with poor oral hygiene and an extensive necrotic area in the posterior region of the maxilla and fetid odor. In all three cases the diagnosis was based on the typical clinical features and the visualization of wriggling of the larvae. Treatment consisted of manual removal of the larvae, one by one, with the help of turpentine oil and clinical forceps, local debridement of the labial gingival, right side of hard palate and oral hygiene practice. Healing was uneventful, with resolution of the condition.

## KEYWORDS

**Introduction:**

The term Myiasis derived from the Greek word "myia"meaning fly and "iasis" meaning disease was coined by Hope in 1840[5]. 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[6] . The most common sites for myiasis are the nose, eye, lung, ear, anus, vagina and more rarely, the mouth. Incidence of oral myiasis as compared to cutaneous myiasis is less as the oral tissues are not permanently exposed to the oral environment. In orofacial myiasis, soft tissues of the oral cavity are invaded by parasitic larvae of flies through the periodontium or the oral mucosa, separating the periosteum from the bone[7,8]. Lawrence[2,9]. first described oral myiasis in 1909. 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[1,3].

The condition can be completely benign and asymptomatic, result in mild to acute pain. Predisposing factors for oral\ myiasis are extraction wounds, poor oral hygiene, senility, mouth breathing during sleep, suppurative lesions, necrotic tissues, diabetes and perivascular diseases mainly in the elderly, severe halitosis, alcoholism, cerebral palsy, mental retardation and hemiplegia, and factors that favor persistent non-closure of the mouth[10,11] .

These report describes a case of gingival myiasis in mandibular and maxillary region and in right hard palatal region in a child with spastic cerebral palsy. In third case gingival myiasis in the maxillary post region in a 40 yr female patient with poor oral hygiene.

**Case Report 1:**

A 13 year old girl with spastic cerebral palsy was referred to our department with the complaint of redness of the lower lip accompanied by an itching sensation for about 15 days. Her parents also noticed worm- like structures in the mandibular anterior and posterior area. The child presented with persistent mouth opening. Intraoral examination revealed live maggots in the gingival sulcus of the mandibular region, and they formed deep pockets and contained about 15-20 visible living maggots (fig 1). The first attempt was to flush the cavity with normal saline which proved ineffective. A cotton bud impregnated with turpentine was then placed at the opening of the cavity for 10 to 15 minutes. Dozens of maggots `rushed' out from the cavity,which were then manually removed one by one, with the help of clinical forceps, and sent for the entomological examination.

**Fig. 1. Photograph showing the maggots visible in the mandibular gingival sulcus**

**Fig. 2. Photograph showing the maggots removed in the mandibular gingival sulcus.**

**Case Report 2:**

A 22-year-old mentally handicapped girl was taken to the oral surgery department by her mother, who had seen larvae in her daughter's mouth along with an extensive pouch on the right side of palate. On intra oral examination , some larve were seen in the maxillary gingival sulcus and right side of hard palate (12 to 17 ). The palatal pouch progressed rapidly, there was necrosis of the hard palate. The affected mucosa appeared denuded and covered with brown color slough with debris and were infested by live maggots on the palatal side. 10-15 maggots were retrieved with tweezers and the palatal wound was irrigated with 2% hydrogen peroxide. Physical examination showed swelling and tenderness of the upper lip.

**Fig. 3. Photograph showing the maggots visible in the maxillary gingival sulcus and palatal pouch.**

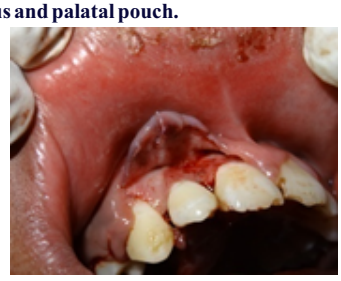

**Fig. 4. Photograph depicting the live maggots that were retrieved after the application of turpentine oil.**

**Case Report 3:**

40-year-old female was referred to the oral surgery department, presenting acute upper lip swelling with an extensive necrotic area in the anterior region of the maxilla and fetid odor. The intraoral clinical examination revealed poor oral hygiene, generalized gingivitis and several cavited carious lesions.

In the region of the 12, there was a necrotic ulcerative lesion with fetid odor and grayish secretion, with a larvae spread on the gingival crevice. A diagnosis of oral myiasis was established and the treatment as rendered. Gauze soaked in ether was applied onto the affected region for a few minutes.

Thereafter, under local anesthesia, the larvae were carefully removed using a pair of tweezers. As the larvae were removed, the patient reported the improvement of discomfort. A total of4-5 larvae, were collected from the labial gingival pocket of the maxillary right lateral incisor, followed by localized scaling and irrigation with normal saline.

The next steps were removal of the necrotic tissue, cleaning of the region with a hydrogen peroxide solution. Amoxycillin and metronidazole were prescribed, and the patient was instructed with respect to maintenance of at-home oral hygiene and the importance of attending the scheduled recall visits.

The follow-up clinical examination after 7 days revealed a considerable improvement of oral health. The affected region was in course of healing, but the presence of 2-3 larvae was noted in the gingival crevice of the12, and larvae were removed and oral cleaning was done in the same was as described for the first visit. Again, the importance of keeping a high-quality oral hygiene as well as healthy habits. At the subsequent follow-up evaluation 14 days later, the intraoral examination showed no larvae, complete lesion healing and remission of symptom.

**Fig. 5. Photograph showing the necrotic slough with maggots visible in the maxillary lateral incisior gingival sulcus.**

**Discussion:**

Myiasis is an uncommon disease in humans. Most cases reported in developing countries were due to poor personal hygiene and housing conditions associated with a warm climate, which are predisposing factors to this diseases[12]. Diabetes and peripheral vascular diseases might also be predisposing factors[13].

Many different species of fly larvae have been implicated as causative agents in human myiasis. They all belong to the order Diptera, which literally means two-winged[4]. The life cycle of a fly begins with the egg stage followed by the larva, the pupa and finally the adult fly. The conditions required for egg laying and survival of the larvae are moisture, necrotic tissue and suitable temperature[1]. The eggs hatch to become maggots in less than 1 week and the life cycle is completed when the maggots turn into flies in about 2 weeks[4]. The larvae obtain their nutrition from the surrounding tissues and burrow deeper into the soft issues by making tunnels, or separating the gingivae and mucoperiosteum from the bone in cases of oral myiasis similar to what had occurred in our case[4].

The developmental transition via the larval stage requires an intermediate host[1]. The larval stage lasts from six to eight days in which period they are parasitic to human beings. Larvae are white, yellow or brown in color depending on the stage of growth. In the last stage, the larvae can reach to 2.5 to 3 cm in length[14]. They are photophobic and therefore tend to hide themselves deep into the tissues and also to secure a suitable niche to develop into pupa[1]. 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[1]. The infected tissue frequently releases foul smelling discharge. Primary oral myiasis commonly affects the anterior part of the mouth, as in the case reported here. Oral myiasis can also be classified as:

1) Larvae living outside the body.
2) Larvae burrow into unbroken skin and develop under it.
3) Larvae live in the intestinal or urinary passages.
4) Eggs or young larvae are deposited in the wounds or natural cavities in the body.

Our case report correlates with the fourth group in the above classification.

Mechanical removal of larvae under local anesthesia is the traditional treatment for cases of Myiasis[3,13,15]. However, in lesions with multiple larvae, local application of several substances such as oil of turpentine, larvicidal drug like Negasunt® (12),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 (13,14). used2. In some cases, administration of topical corticosteroids and analgesics to relieve the symptoms and topical antibiotics to prevent bacterial contamination may be useful[13].

Systemic treatment includes broad-spectrum antibiotics such as ampicillin and amoxicillin especially when the wound is secondarily infected. Systemic ivermectin, (semi-synthetic macrolide antibiotic) and nitrofurazone is a synthetic nitrofuran, classified as a topical anti-infective agent with a broad antibacterial spectrum, may give favorable results in more severe cases[1,16].

The prevention of human myiasis should involve education, control of fly populations and adoption of general cleanliness measures. However, unfortunately, in developing and undeveloped countries part of the population live in poor hygienic conditions in locations without access to basic sanitation, which predispose the occurrence of the larval infestation[15].

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