

## Rare case report of oral myiasis in immunocompetent patient

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### ABSTRACT

Oral myiasis is a condition in which the soft tissues of different parts of the oral cavity are invaded by the parasitic larvae of flies known as maggots. Parasites causing myiasis belong to the order Diptera. Oral myiasis is often seen secondary to oral wounds, suppurative lesions, and extraction wounds, especially in individuals with neurological deficits. In such cases, neglected oral hygiene and halitosis attract the flies to lay eggs in oral wounds, resulting in oral myiasis. Hereby, we present the case of oral myiasis in a 45-year-old male patient who is immunocompetent and has a history of dental extraction.

**Key words:** Diptera larva, Immunocompetent, Myiasis

Oral myiasis is a rare disease that is mostly reported in developing countries and is primarily caused by the invasion of human body tissues by the larvae of certain Dipteran flies. Clinically, myiasis is classified as (i) primary myiasis larvae that feed on living tissue caused by biophagous larvae and (ii) secondary myiasis larvae that feed on dead tissue caused by the necrobiophagous flies. Another classification based on anatomic sites includes (i) cutaneous myiasis, (ii) myiasis of external orifices, and (iii) myiasis of internal organs [1]. In humans, the sites most commonly affected are the skin, nose, ears, eyes, anus, vagina, and really the oral cavity. Oral myiasis occurs when the larvae of flies invade the soft tissues of the oral cavity. It is a rare pathology because the oral cavity is not easily reachable for the fly to lay eggs. Oral myiasis is associated with nosocomial infections, dental extractions, visits to tropical countries, alcoholism, and mouth breathing and is commonly seen in mentally disabled individuals and people from low socioeconomic status [2,3]. There are various predisposing factors for myiasis to occur, including HIV, diabetes mellitus, nutritional deficiencies, poor hygiene, and sinonasal diseases such as atrophic rhinitis, leprosy of the nose, midline granuloma, and malignancy [4].

Good sanitation for personnel and environmental hygiene is the best method to prevent oral myiasis [5].


### CASE REPORT

A 45-year-old male postman by occupation presented with chief complaints of fever for 5 days and altered sensorium for 2 days.

The fever which was documented to be 101 F remained throughout the day and was associated with headache, vomiting, and pain in the maxillary area. Although there was no history of lacrimation, sore throat, cough, loose stool, or burning micturition, fever was decreased by taking medication. Later, over the next 4 days, the patient's condition further deteriorated, his sensorium fell, and the patient was taken to a nearby medical college. In the past, the patient had a history of dental treatment, including a dental implant from Quack 4 months ago. The patient was non-diabetic with no history of other premorbid conditions.

On examination, the patient was neither conscious nor oriented to time, place, or person. The patient was febrile to touch, with loss of buckle and temporal fat, and had poor oral hygiene. Neck rigidity was also present, but Kerning and Brzezinski signs were negative though the possibility of meningitis was kept, and the patient was started on IV antibiotics and ceftriaxone 2 g IV bid, vancomycin 1 g IV bid, and injection acyclovir 500 mg IV tds.

A blood investigation revealed no significant abnormality. A complete blood count showed hemoglobin of 11.5 g/dL, a total leukocyte count (TLC) of 11,000/micro, and platelets of 170,000 micro L. Renal function tests showed urea at 30 mg% and creatinine at 0.9 mg%. Liver function tests showed bilirubin 1 mg%, serum glutamic-oxaloacetic transaminase (SGOT) 40 IU/mL, and serum glutamic pyruvic transaminase 42 IU/mL. Electrolytes showed sodium-138 meq/l, potassium-4.5 meq/l, and calcium-8.5 meq/l. Viral markers were non-reactive. The cerebrospinal fluid examination showed no abnormality in biochemistry or cytology. Cartridge-based nucleic acid amplification testing was also normal. Radio-imaging was also done. Non-contrast computed tomography of the head and face did not reveal

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anything. Further, magnetic resonance imaging of the brain and ultrasound were also normal.

Over the course of the next 3 days in the hospital, the patient's attendant started complaining of a foul smell from the mouth along with blood coming from the mouth. A local examination was done that revealed black and white discoloration, injury to the tooth, and clotted blood with the wound on the inner aspect of the upper and lower lips with maggots in the oral cavity (Fig. 1).

Later, ENT and dental opinions were taken and advised for tooth extraction and manual maggot removal (Fig. 2). The oral cavity was cleaned with normal saline and turpentine oil-soaked gauze was kept, and antibiotics were continued. Later, the patient improved symptomatically, his sensorium was improved, oral hygiene was maintained, and regular oral cavity washing was done but the patient's attendant left the hospital against medical advice and the patient was lost follow-up.

## DISCUSSION

Oral myiasis is a very rare clinical condition; it is an opportunistic parasitic infestation in humans, as well as, in animals caused by dipteran larvae and commonly found in tropical and subtropical areas of the world [4]. The incidence of oral myiasis is

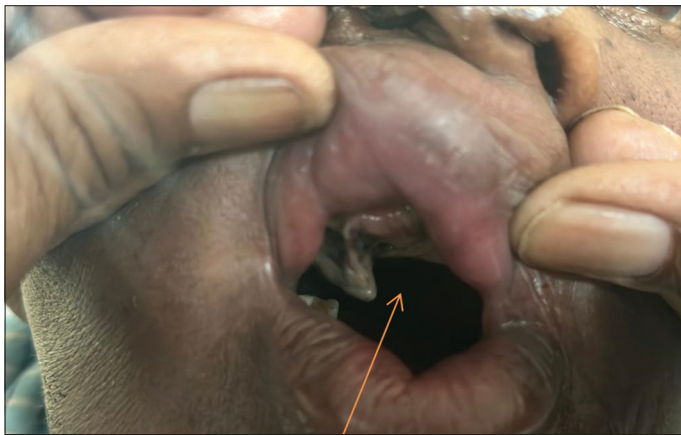


Figure 1: The decayed oral mucosa

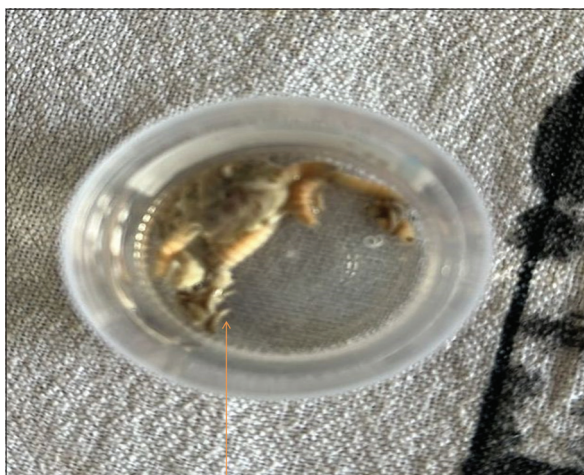


Figure 2: Extracted maggots from oral cavity

comparatively lesser than that of cutaneous myiasis, as oral tissues are not permanently exposed to the external environment [6].

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. Other predisposing factors are incompetent lips, poor oral hygiene, severe halitosis, anterior open bite, facial trauma, extraction wounds, ulcerative lesions, and carcinoma. In general, the presence of the above conditions is often the risk factor for oral myiasis, but in our case, none of the conditions were present though the patient had a history of dental treatment and dental implants from Quack [7].

The life cycle of a house fly starts with the egg stage, followed by the larvae, pupa, and finally the adult fly. Open wounds, ulcers, and open sores provide a favorable environment for their growth [8]. 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 can become exposed to the open air to make respiration possible [9].

Myiasis is diagnosed clinically based on the presence of the maggots, but the classification of the larvae has rarely been made. Similarly, the diagnosis in our case was made after finding out the presence of maggots [10].

The standard treatment of the condition is the immediate mechanical removal of the maggots, which can be supported with antiparasitic drugs such as ivermectin 12 mg/day for 3 days and adjuvant clindamycin 300 mg 3 times/day for 5 days in cases with severe tissue defects or cavitated lesions involving a large number of larvae. Local application of turpentine oil should be used in minimal quantities in a controlled manner through small cotton pellets. Many agents can be used for the removal of maggots, such as oil of turpentine, mineral oil, ether, chloroform, ethyl chloride, mercuric chloride, creosote, saline, phenol, calomel, olive oil, iodoform applied locally followed by manual removal, or surgical debridement [11,12]. In severe cases, even a triple-drug regimen of tablet ivermectin 12 mg/day for 3 days, tablet albendazole 400 mg twice per day for 3 days, and tablet clindamycin 300 mg 3 times/day for 5 days could be considered [13]. In our case, the patient was managed with oral normal saline wash, turpentine, manual removal, and IV antibiotics.

Singh and Singh in their study on the incidence of myiasis in humans revealed that only 156 cases have been reported from 1914 to 2014. Similarly, in a systematic literature search conducted using PubMed/Medline for the years 1997-2017, a total of 464 international case reports from 79 countries were evaluated [14,15].

## CONCLUSION

This case report highlights the rare occurrence of oral myiasis in an immunocompetent patient who underwent dental treatment

from a quack. Lack of proper awareness regarding dental and oral hygiene could provide the ways for oral myiasis. The patient with maxillary swelling or oral gum swelling following any dental treatment should be thoroughly examined.

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