

Original article

Worms in the oral cavity: a case of Oral Myiasis

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Abstract

Oral myiasis is rarely reported and is usually associated with patients who are debilitated or who are unable to take care of their own personal hygiene. It has a predilection for poor oral hygiene, periodontitis and prolonged exposure of the oral mucosa to the external environment. Inflammation and destruction of the involved tissue are the characteristic features of oral myiasis. Early removal of the maggots through various means is usually curative. Death of a patient associated with oral myiasis is found to be reported once. A case of oral myiasis in a patient with obstructive hydrocephalus, who died shortly after the myiasis had been treated, is reported.

Introduction

Myiasis is the infestation of live human and vertebrate animals by the larva of the dipterous fly, feeding on the host's dead or living tissue, liquid body substances or ingested food and is found to have been reported mainly in the warm and humid tropical countries.¹⁻⁴ Myiases can affect the skin, external orifices, and internal organs. Postulated causes are ingestion with food, eggs laid on the necrotic tissue in wound, or direct entry to the undamaged skin.¹ Involvement of the oral cavity was first described in 1909 and is usually caused by the housefly, *Musca Nebulo*.^{2, 3, 4, 5} The larvae hatch from the eggs in about 12-24 hours after they are laid in the necrotic tissues, soon after which they burrow into the surrounding tissues causing inflammation. The larvae remain parasitic in the tissue for 5-7 days till they mature and leave the body for the pupal stage.⁶ They may diffuse to the paranasal sinuses, nasolacrimal duct, orbit, skin and occasionally intracranial structures.⁷ Predisposing factors of oral myiasis can be poor oral hygiene, mouth breathing, halitosis, oral suppurative lesions, trauma, alcoholism, senility,

mental retardation, and neurological deficit.⁸ Some cases of oral myiasis are associated with cancrum oris, tooth extraction, mandibular fracture, anterior open bite, incompetent lips, cerebral palsy and patients undergoing mechanical ventilation.² The first report of oral myiasis from the Indian state, Manipur is presented.

THE CASE

A 56 years old female patient was brought to the Oral and Maxillofacial Surgery OPD, Dental College, RIMS, Imphal with chief complaint of worms coming out from the oral cavity with accessory complaints of pain and swelling of the upper lip since the past 3 days. She was constantly in a blank gaze unaware of her surroundings, with her mouth constantly open (fig 1). She also had obstructive hydrocephalus since 5 years, pending neurosurgery for the same. The patient appeared weak and malnourished, and was unable to walk, take care of her personal hygiene, or communicate properly. The swelling on the lip was firm and tender. On intraoral examination, there was swelling on the labial sulcus and the labial gingiva was detached and lifted from the alveolar bone (fig 2). The palatal soft tissue was swollen and perforated near the incisal region (fig 2). On close examination, numerous maggots were seen moving and coming out of the lesion (fig 2 and 3). No bony perforation of the alveolar bone or the palate was seen on radiographic imaging. There was severe halitosis and poor oral hygiene with generalized periodontitis. The total leucocyte count was slightly raised and the haemoglobin was low. The clinical presence of the maggots and the examination of the maggots confirm the diagnosis of oral myiasis. Considering her debilitating general condition, infusion of electrolyte was started. Infusion protein was also included. Antibiotic given was Inj. Ceftriaxone. On the first visit, maggots were removed with tweezers followed by lavage of the infested site with chlorhexidine and normal saline. Ten was removed on that day (fig 4). According to the patient's attendant, about ten had left on the previous night. Appointment was given for complete removal of the maggots and surgical debridement of the infested wound on the next day. On the next morning, they reported that all the larvae had left on its own. Debridement and irrigation with turpentine oil of the wound after infiltration of local anaesthesia at the site was done as planned (fig 6). Not a single larva was found on that day. Irrigation and lavage of the wound continued for three consecutive days without retrieval of any larvae but rapid improvement of the wound was noted. The lifted palatal soft tissue was readapted and sutured. Complete reattachment was seen on the day of suture removal (fig 7 and 8). Unfortunately, on telephonic conversation with the patient's family following failure of their next appointment we came to know that the patient had died four days after the last appointment because she allegedly had refused to take food.



Fig 1: Fixed glare and Constant mouth-opening



Fig 2: Lifted and swollen labial and palatal mucosa



Fig 3: Worms in the palatal lesion



Fig 4: Maggots removed on 1st visit



Fig 5: Improved labial mucosa on 2nd visit



Fig 6: Irrigation of wound with saline and turpentine oil on 2nd visit



Fig 7: Healed labial mucosa



Fig 8: Healed palatal mucosa

DISCUSSION

Few authors attempted to classify myiasis based on many criteria.^{1, 9} Primary myiasis is caused by larvae that feed on living tissue and is seen as painful inflammatory nodules or fistulization caused by direct penetration of the living tissues by the larvae. Secondary myiasis is caused by larvae of flies that feed on dead tissue and occur in lesions with necrotic cavities. Many varieties of the dipterous flies can cause myiasis.¹⁰ The therapeutic value of maggots of certain flies in the Maggot Debridement Therapy has also been recognized in some quarters.¹¹ The presence of maggots clinically confirm the diagnosis of Myiasis.^{1, 6, 12} Differential diagnosis include bacterial infection, leishmaniasis or very early dracunculosis. There is no standard protocol as yet for the management of this condition despite claims of successful management from various quarters. Many authors opine that manual removal of the maggots and debridement of necrotic tissue from the affected site are most effective.^{13, 14} Antibiotics given to treat or prevent secondary infection of the site, and maintenance of nutrition are part of the treatment.¹⁵ Early removal of the maggots to prevent further tissue damage and secondary bacterial infection is considered prudent.¹⁶ Many techniques which aid in removing the maggots from the wounds are mentioned in the literatures, the most notable being the application of the site with turpentine oil which expunge the maggots out. A technique for removal of the maggots was occlusion of the infested wound by materials like paraffin to suffocate and force the maggots to come out to the surface.¹³ Topical or oral ivermectin, a semi-synthetic macrolide antibiotic have also been used to treat myiasis.⁹ Gingival pocket was the primary site of origin in our case as there was no communication of the oral affliction with the nasal cavity or the maxillary sinuses. Our patient was an instance of its predilection for individuals who cannot care for their personal hygiene. She was oblivious to her surroundings, with her mouth constantly open, thus favouring the laying of eggs in the diseased gingival tissue. The condition may have a destructive potential in situations of extreme negligence, but we have noted in our patient that a slight improvement in personal hygiene, for instance, using a chlorhexidine mouth wash is detrimental to the existence of the maggot in the affected oral tissue with subsequent improvement of the condition. We noted this when the patient's attendant claimed that all the worms came out on the day before the surgery appointment. But it could also be that the maggots have matured and left on its own to prepare for its pupal stage. Not a single maggot was left to be expunged when we attempted the retrieval of more larvae through surgical exploration and turpentine oil irrigation of the affected palatal tissues. The improvement in the inflamed tissue in our case was almost instantaneous after the larvae had left, as was evident by the closure and almost complete healing of the labial tissue on the day of surgery (fig 5). Death of the patient could be attributed to her

neglected neurological condition or general health. Another case of immediate death of an elderly debilitated patient with oral myiasis was reported.¹⁶

CONCLUSION

Early detection is important, before it causes secondary infection or dissipates and involves structures like the skin, blood vessels and nerves. While we need to know more about the mechanism of local tissue destruction, the chance of its systemic ramification, the importance of developing systemic drugs for its treatment, and also the prospect of the therapeutic benefit of certain maggots in treating wound infection with antibiotic resistance, it is finally our premise, after noting the literatures and our experience with this patient, that the likelihood of this condition in the oral cavity of humans is a concern only when the subject is in the state of a vegetable or unaware of the environment. Taking proper care of the hygiene of such individuals is of course mandatory for prevention.

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