

Oral gingival myiasis: A rare case report and literature review

DHEERAJ SHARMA, SANDEEP KUMAR¹, PRANAV PARASHAR², VIHANG VINOD NAPHADE³

Abstract

Myiasis is a universal term for extreme infection by the parasitic fly larvae that feed on their host living/dead tissue. Gingival myiasis is a rare disease in the humans associated with poor oral hygiene, suppurative oral lesions, alcoholism, and senility, among other conditions. We present a case of gingival myiasis in the maxillary anterior region on the palatal surface in a 21-year-old mentally challenged male with moderate periodontitis and neurologic deficit. The diagnosis was made on the presence of larvae in the lesion. Treatment done was a manual removal of the larvae, one by one, with the help of the clinical forceps, surgical debridement of the oral wound, and subsequent management of the periodontal disease.

Keywords: Fly larvae, oral myiasis, parasite infection

Introduction

The term myiasis is derived from Latin word “muia” which means fly and “iasis” means disease (In Greek: Myi means mosca) refers to infestation of living tissues of animals or humans by diptera larvae. It was first coined by The Reverend Frederick William Hope.^[1] Even though the term myiasis was first used in 1840, such conditions have been known since ancient times.

Ambroise Paré, the chief surgeon to King Charles IX and King Henry III, observed that maggots infested open wounds.^[1,2] Zumpt defined myiasis as the infestation of live human and vertebrate animals by dipterous larva, which at least for a certain period feed on host’s dead or living tissue, liquid body substances or ingested food in unhealthy individuals frequently found in the third world countries.^[3]

Human myiasis is a rare condition that can occur in any part of the globe, but is more common in regions with a warm

and humid climate especially, in tropics and subtropics. Oral myiasis was first described by Laurence in 1909. Conditions leading to the persistent mouth opening along with poor hygiene, suppurative lesions,^[4,5] severe halitosis, and facial trauma may predispose the patient to oral myiasis. It has been reported among epilepsy patients with lacerated lips following a seizure, incompetent lips and thumb sucking habits, advanced periodontal disease,^[6,7] at tooth extraction sites, fumigating carcinoma of buccal mucosa, and patient with tetanus, gingival myiasis has been ascribed to poor oral hygiene, alcoholism, senility, suppurative lesions, severe halitosis, and neoplasias and has been reported in patients with special needs.^[6] The infestation can strike organs or tissues that are accessible to egg-laying and development of the larvae, which feed on living or necrotic tissue and body fluids, and necrotic lesions provide an ideal substrate.^[8]


Classification of myiasis

According to the part of the host that is infected:^[4]

- Dermal
- Sub-dermal
- Cutaneous
 - Creeping, where larvae burrow through or under the skin
 - Furuncular, where a larva remains in one spot, causing a boil-like lesion
- Nasopharyngeal nose, sinuses or pharynx
- Ophthalmic or ocular in or about the eye
- Auricular in or about the ear

Departments of Oral Pathology, ²Oral and Maxillofacial Surgery and ³Oral Medicine and Radiology, Index Institute of Dental Sciences, Indore, Madhya Pradesh, ¹Department of Orthodontics and Dentofacial Orthopaedics, Uttaranchal Dental and Medical Research Institute, Dehradun, Uttarakhand, India

Correspondence: Dr. Pranav Parashar,
Department of Oral and Maxillofacial Surgery, Index Institute of
Dental Science, Indore, Madhya Pradesh, India.
E-mail: pranav_parashar@yahoo.in

Access this article online	
Quick Response Code:	Website: www.contempclindent.org
	DOI: 10.4103/0976-237X.169857

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Sharma D, Kumar S, Parashar P, Naphade VV. Oral gingival myiasis: A rare case report and literature review. Contemp Clin Dent 2015;6:548-51.

- Gastric, rectal, or intestinal/enteric for the appropriate part of the digestive system
- Urogenital.

Myiasis can also classify as:

- Obligatory: When larvae develop in living tissue
- Facultative: When maggots feed on necrotic tissue
- Accidental: When larvae ingested along with food.

The most common anatomic sites for myiasis are the nose, eye, lung, ear, anus, vagina and more rarely, the mouth.^[3] We present a case of oral myiasis in the maxillary anterior region on the palatal surface in a 21-year-old patient with neurological deficit.

Case Report

A 21-year-old male with neurological deficit and of low socioeconomic status having poor living conditions presented to the Department of Periodontics at SGT Dental College and Hospital, Gurgaon, India with the chief complaint of swelling in the front region of the upper jaw. It was accompanied with bleeding from gums, pain, and fetid odor. There was no relevant past dental and family history. The patient was mentally retarded since childhood and was born prematurely. Patient has the habit of mouth breathing.

Extraoral examination [Figure 1] revealed incompetent upper lip with a diffuse swelling in the maxillary anterior palatal region. Intraoral examination revealed a necrotic area in the maxillary anterior region palatal surface extending from the central incisor to the mesial aspect of the first premolar, measuring 7 cm × 4 cm [Figure 2]. A number of maggots were clearly seen in the necrotic area.

The surrounding area was erythematous and swollen. The evaluation of a swelling was done which was accompanied by intense pain and a fetid odor. The patient had type II occlusion and multiple diastemas, making contact between

the upper and lower lip impossible, in addition to having poor oral hygiene and advanced periodontal disease. Based on the history and the presence of maggots, provisional diagnosis of oral myiasis was made. Radiographic examination revealed no significant bone loss and hematological investigations were within normal limits [Figures 3 and 4].

Under aseptic conditions, the infected site was explored thoroughly, and the wound was flushed with normal saline and irrigated with turpentine oil. Exploration of the wound revealed multiple burrows and tunnels. First, the larvae were eliminated through pressure around the lesion and the use of forceps. Second, the wound was cleaned and disinfected. Further, control is necessary to avoid further reinfestation. Cotton bud impregnated with turpentine oil was placed at the orifice of the socket for approximately 10 min. Each larva were 7–9 mm long typical creamy whitish in color, cylindrical, but tapering toward the head [Figure 5]. The larvae obtain their nutrition from the surrounding tissues and burrow deeper into the soft tissues by making tunnels, separating the gingiva, and mucoperiosteum from the bone.

Later on, 24 maggots were manually removed with the help of tissue holding forceps and taken for entomological examination. The same procedure was repeated for two more days [Figure 6]. Complete oral prophylaxis involving the scaling of teeth was carried out and suturing of buccal and lingual flaps was done following complete debridement. Complete periodontal therapy was completed over the week [Figure 7]. Next the oral therapy was administered with tablet doxycycline 100 mg BD followed by OD for 7 days, tablet metronidazole 400 mg TID for 5 days, tablet ivermectin 3 mg BD for 5 day, chlorhexidine 0.2% mouthwash rinse 3–4 times/day. Two weeks follow-up showed complete healing of the lesion [Figure 8].

Discussion

The patient in the present case was of low socioeconomic status having poor living conditions. From the observation, in



Figure 1: Extraoral examination of the lesion



Figure 2: Intraoral examination of the lesion

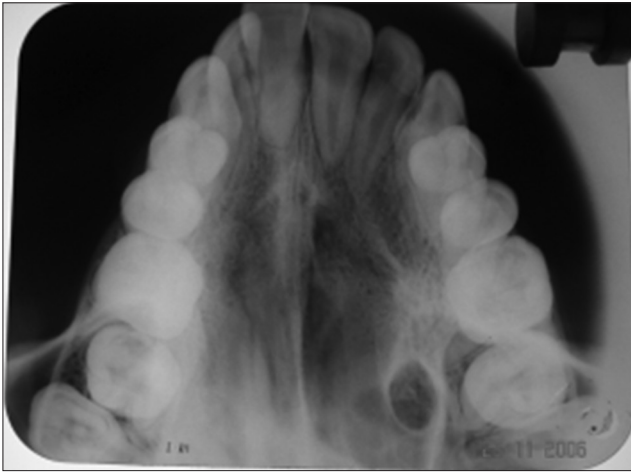


Figure 3: Radiographic appearance



Figure 4: OPG Examination



Figure 5: Worms removed from the socket



Figure 6: Perio treatment done



Figure 7: Follow-up



Figure 8: Follow-up after 2 months

this case, incompetent lips and the habit of mouth breathing had favored egg laying on the gingiva, where infestation had developed. Second, poor oral hygiene and periodontal disease provided the favorable environment for larvae to

develop. Third, the neurological deficit would have facilitated the infestation.

Larvae can destroy vital tissues, inducing serious, or even life-threatening hemorrhage.^[1] Developmental transition via the larval stage requires an intermediate host and suitable substrate and temperature for the survival of the larvae.^[9]

The stage of larvae lasts for 6–8 days during which they are parasitic to the human beings. The larvae have backward directed segmental hooks with which they anchor themselves to the surrounding tissue. They are photophobic and tend to hide deep into the tissues for a suitable niche to develop into pupa. The presence of these hooks makes manual removal of larvae from the host difficult.^[1] Hence, when multiple maggots are detected as observed in our case, elimination can be achieved with agents like turpentine oil or topical irritants such as ether, chloroform, olive oil, calomel, iodoform, and phenol mixture.^[3,8] These larvae release toxins to destroy the host tissue proteolytic enzymes released by the surrounding bacteria decompose the tissue and the larvae feed on this rotten tissue. The infected tissue frequently releases a foul smelling discharge. The necrotic ulcer with a palatal abscess and intense halitosis seen in the present case is suggestive of the destruction caused by toxins released by the larvae. Treatment consisted of manual removal of maggots, broad spectrum antibiotics and oral therapy with ivermectin. Ivermectin is a semi synthetic macrolide antibiotic isolated from streptomyces avermitilis and has been found to be efficacious.^[5,7]

Conclusion

As the old saying goes “prevention is better than cure.” Prevention of human myiasis involves control of fly populations and general cleanliness such as reducing decomposition odors and cleaning and covering wounds, in addition to informing the public about basic sanitation the special oral care needs to be taken in physically handicapped, medically compromised dependent neurologic deficit patients as they are unable to maintain their basic oral hygiene.^[8,10]

Maggots have been used therapeutically to clean out necrotic wounds, an application known as maggot therapy.^[11] Maggot therapy – also known as maggot debridement therapy, larval therapy, larva therapy, or larvae therapy – is the intentional introduction by a health care practitioner of live, disinfected green bottle fly maggots (larvae) into the non-healing skin and soft tissue

wound(s) of a human or other animal for the purpose of selectively cleaning out only the necrotic (dead) tissue within a wound in order to promote wound healing.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Fredrick William Hope: Introduction to Myiasis. The Natural History Museum of London. Available from: <http://www.nhm.ac.uk/research-curation/research/projects/myiasis-larvae/intro-myiasis/index.html>. [Last accessed on 2012 Aug 12].
2. Sharma J, Mamatha GP, Acharya R. Primary oral myiasis: A case report. *Med Oral Patol Oral Cir Bucal* 2008;13:E714-6.
3. Shinohara EH, Martini MZ, de Oliveira Neto HG, Takahashi A. Oral myiasis treated with ivermectin: Case report. *Braz Dent J* 2004;15:79-81.
4. Rossi-Schneider T, Cherubini K, Yurgel LS, Salum F, Figueiredo MA. Oral myiasis: A case report. *J Oral Sci* 2007;49:85-8.
5. Ramli R, Abd Rahman R. Oral myiasis: Case report. *Malays J Med Sci* 2002;9:47-50.
6. Baskaran M, Kumar BJ, Amritha G. Cutaneous myiasis of face. *J Oral Maxillofac Pathol* 2007;11:70-2.
7. Zumpt F. *Myiasis in Man and Animals in the Old World*. London: Butterworth; 1965.
8. Karjodkar FR, Sharma N. Myiasis: A case report. *Clin Dent* 2006;1:51-4.
9. Ramli R, Abd Rahman R. Oral myiasis: Case report. *Malays J Med Sci* 2002;9:47-50.
10. Rita R. Maggots and Leeches: Good Medicine. *USA Today*; 7 July, 2004.
11. Rohela M, Jamaiah I, Amir L, Nissapatorn V. A case of auricular myiasis in Malaysia. *Southeast Asian J Trop Med Public Health* 2006;37 Suppl 3:91-4.