

Myiasis of Anterior Palate - An Unusual Case Report and Review of the Literature

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Abstract:

Myiasis is a term used for parasitic infection by the fly larvae that feed on their host tissue. This is very common among animals but can even infest on humans. Oral myiasis is a rare disease usually seen in association with debilitating conditions like uncontrolled diabetes, people with special care needs, poor oral hygiene, alcoholism, immunocompromised individuals, feebleness, and among other conditions. We present a case of myiasis affecting the maxillary anterior region involving palatal surface, of an otherwise healthy 40 year-old female leading to periodontitis and loss of teeth. It gives an insight into pathophysiology and management modalities described and practiced in the literature. This paper would help the clinicians to arrive at a proper diagnosis and clear the bewilderment on the treatment modalities to conquer the disease.

Keywords: Myiasis, Palate, Larva, Periodontitis

INTRODUCTION:

Myiasis, a rare oral disease, is the infestation of tissues and organs of humans with larvae of housefly. Infestation into human body can happen in two different ways, either by direct inoculation into an open wound or through ingestion of infected meat.^[1] These larvae invade and feed on tissues causing debilitating myiasis. The present paper describes a case report of myiasis in an otherwise healthy adult woman. The diagnosis and various treatment modalities with a review of literature is detailed.

CASE REPORT:

A 40 year old female, daily wage by occupation reported to the out patient department of dentistry at government medical hospital, Chhattisgarh, with a chief complaint of pus discharge and associated foul smell from the upper front teeth region since 3 days. She also complained of an avulsed tooth a day back, which she discarded. Upon eliciting, she gave a history of an ulcer which started as a small lesion 4 months ago and gradually progressed to the present stage, with pus discharge and associated loosening of upper front teeth. She also noticed some worms dropping onto her tongue since 2 months, but never bothered to report to any physician due to personal reasons as informed by the patient. The patient was conscious, coherent and well oriented at the time of presentation. The medical history was noncontributory. She lives in a rural area with poor socioeconomic status. Past dental history revealed extraction of left lateral incisor and posterior teeth bilaterally two years back. Upon general examination, she looked pale and undernourished. Extra oral examination revealed symmetric face, competent lips and adequate mouth opening. Because of the associated pain and foul

smell from the mouth, she was unable to take proper diet since 3 months, which may be one of the reasons for her pallor. The vitals were within normal limits. Intraoral examination revealed fair oral hygiene, halitosis, and periodontally compromised upper and lower anterior teeth. The palatal gingiva with relation to the upper anterior teeth was erythematous, irregular and swollen. From the opening in the anterior palate multiple small live maggots were evident [Figure 1]. The margins of the lesion were bluish and edematous. Based on all the above pathognomic clinical findings and the presence of maggots, a provisional diagnosis of myiasis was made. After a thorough medical evaluation and a complete blood picture, patient had all her cell counts within normal limits and slightly reduced Hb value of 10.3gm%.

After obtaining a written consent, Under strict aseptic conditions a cotton pellet dipped in turpentine oil was placed at the orifice of the lesion for approximately 10 min after which the larvae started coming out of the lesion. They were then grasped with the help of tweezers and removed manually and the wound debrided thoroughly and irrigated with copious saline and povidone iodine solution. The larvae were typically whitish creamy in colour and cylindrical shape, measuring approximately around 6-8mm in length [Figure 2].

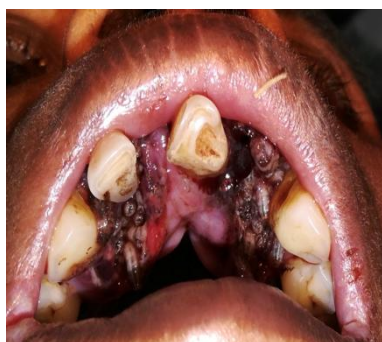


Figure 1: Live maggots visible in the anterior palate



Figure 2: Whitish, creamy larvae, cylindrical approximately measuring 6-8mm

Overall 25 maggots were removed on the first day. Subsequently the same routine was followed for further 2 days to ensure complete removal of larvae. The patient was discharged with the systemic oral therapy, tablet Amoxycillin & clavulonate 625 mg BID, and tablet metronidazole 400 mg TID for 5 days. The patient was advised to continue with regular diet. During the 3rd postoperative day the margins of the wound looked erythematous and by the 5th postoperative day, the wound was clear of larvae and showed signs of healing with bluish hue [Figure 3]. After 2 weeks, healing was found to be progressive in nature [Figure 4]. One month follow-up showed complete healing of the lesion [Figure 5]. As further control and proper care are necessary to avoid the recurrence of larvae, maintenance of personal and oral hygiene was strictly advised. The entomology report obtained, revealed the maggots belonging to common housefly, muscoidea family.



Figure 3: Healing on 5th postoperative day



Figure 4: Healing after 2 weeks



Figure 5: one month follow up

DISCUSSION :

Myiasis, a parasitic disease derived from Greek word, "myia," meaning fly and "asis," meaning disease was first described by F. W. Hope in 1840. It is defined by Fritz Zumpt, a German entomologist, as the infestation of live human and vertebrate animals with dipterous larvae.^[1] It is commonly reported to be seen in patients who can't maintain oral hygiene like Mentally retarded or with neurological disorders,^[2] the other predisposing factors reported in the literature are summarized in Figure 6.

Epileptic patient with lacerated lips following a seizure	Bhoyar SC, Mishra YC. , J Indian Dent Assoc 1986;58:535-6.
Incompetent lips and thumb sucking habits	Bhatt AP, Jayakrishnan A., Int J Paediatr Dent 2000;10:67-70.
Advanced periodontal disease	Gunbay S, Bicakci N. J Periodontol 1995;66:892-5. Zeltser R, Lustmann J, Int J Maxillofac Surg 1988;17:288-9.
Tooth extraction site	Bozzo L, Lima IA, de Almeida OP, Oral Surg Oral Med Oral Pathol 1992;74:733-5.
Fungating carcinoma of Buccal mucosa	Carvalho RW, Santos TS, J Oral Sci 2008;50:103-5.
Cancer of the oris	Aguier AM, Enwonwu CO, Oral Dis 2003;9:158-9.
Neglected mandibular fracture	Lata J, Kapila BK, Aggarwal P, Int J Oral Maxillofac Surg 1996;25:455-6.
Cerebral palsy patient, Leprosy	Shinohara EH, Martini MZ, Braz Dent J 2004;15:79-81.
Patients undergoing mechanical ventilation	Yoshitomi A, Sato A, Suda T, Nihon Kyobu Shikkan Gakkai Zasshi 1997;35:1352-5.
alcoholics and due to ingestion of infested flesh	Droma EB, Wilamowski A, Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;103:92-6
Mouth breathing in patients with neurological disorders, Senile or hemiplegic conditions	Atul P Sattur, Meera Kulkarni, Annals of tropical medicine and public health, 2012;5:2:130-132
uncontrolled Diabetes Mellitus and other Immune compromised states	Omi Prakash D Toshniwal, SM Ravi Prakash, J Indian Acad of Oral Med. & Radiology, 2011
Mental retardation	Bharadwaj Bordoloi, Aanchal Tandon I. , J. Of Dental research and review, June 10, 2020.

* Summary of Predisposing factors and co-morbidities associated with Myiasis, reported in the literature

Figure 6: Literature review on contributing factors for Oral Myiasis

In our case, as patient was healthy without any associated co-morbidities, the only factor that is assumed to preclude the condition was her close living in unhygienic conditions with densely populated domestic animals and flies associated with the poor socio economic status.^[3] The larvae would have gained entry by contaminated food through an unnoticed breach in the mucosa.

The most prevalent species found in India is *M. domesticus*, belonging to Muscidae family, as

similarly reported in this case [Figure 7]. The housefly has distinct stages in its life cycle [Figure 8]. It is after the pupated stage i.e within 4-5 days after infestation, patient starts experiencing the moment of larvae in the tissues, which brings them to the physician, which is the pathognomic symptom of myiasis.^[2]

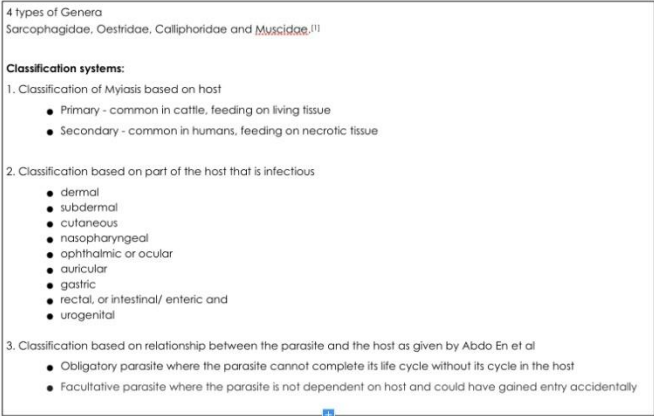


Figure 7: Classification systems for the Myiasis

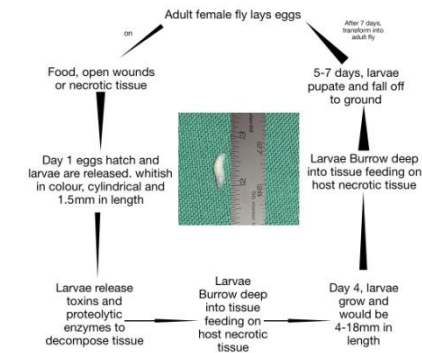


Figure 8: Life cycle of housefly in the intermediate host

In the present case, as informed by the patient, although she felt the moments of the larvae within tissues, neglected the treatment because of which the maggots buried deep into the tissues and led to resorption of bone and ultimately periodontitis, leading to loosening and avulsion of tooth.^[4]

The management of Myiasis consists of both local and systemic measures to control the infection [Figure 9]. The treatment should be aimed at improving the overall health of the patient by eliminating the primary infestation, Secondary bacterial infections and motivating the patient to maintain good oral and overall hygiene to prevent any further recurrence.^[5]

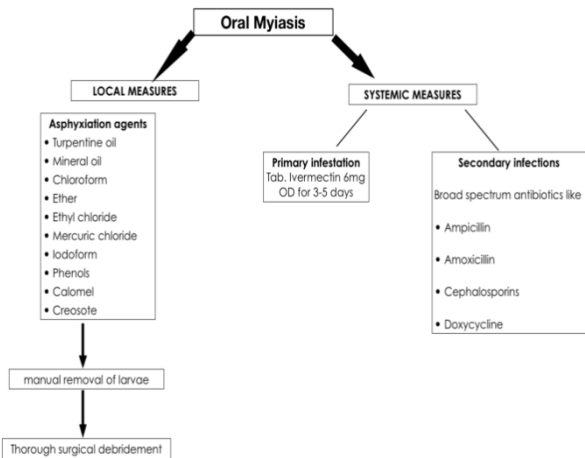


Figure 9: Various treatment modalities for management of Myiasis

Local measures include topical application of asphyxiation drugs which when applied to the open wound would create an anaerobic environment, so the aerobic parasitic larvae would easily crawl out of deeper tissues to the surface and facilitate their mechanical removal.^[3]

systemic treatment with the use of Ivermectin, a semi-synthetic macrolide antibiotic which activates the release of gamma amino butyric acid, inducing the death of the larvae and their spontaneous elimination was reported by Martin et al in 1993, without any toxicity or side effects.^[6] Shinohara et al and various other authors in the literature, reported its efficient and safe application in both oral and topical forms as a treatment for oral myiasis.^[7] Goyal et al has reported successful regression of symptoms with oral use of Ivermectin 6mg OD for 3- 5 days,^[8] augmented with local treatment methods.^[9] Other broad-spectrum antibiotics such as ampicillin, amoxicillin, cephalosporins and doxycycline are prescribed to treat any secondary infections of the surrounding mucosa.^[10]

It is very rarely reported in the literature, that myiasis can be acquired through lack of personal hygiene and ingestion of infested food. It becomes imperative on the public health workers to educate and also motivate the people in the rural areas regarding the preventive measures to be taken to prevent such externally acquired infections. Oral myiasis can be prevented from transforming into a debilitating disease by early identification and prompt treatment aimed at controlling larvae population and maintaining good oral and overall hygiene of the patient.

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