WRIGGLING ROTTERS" IN THE PERIODONTIUM: A RARE CASE REPORT AND ITS MANAGEMENT

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Abstract

Oral myiasisis a rare suppurative oral lesions associated with poor oral hygiene. We present a case of oral myiasis in the maxillary anterior region of a 16-year-old 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, Ivermectin

Introduction

Myasis has been defined as pathological condition in which there occurs an infestation of living mammals with dipterous larvae, whichfeeds on living or dead tissue in the host for a certain period of time and act as parasites.[1]The Reverend Frederick William Hope first came up with the term 'Myasis' while the term Oral myiasis was first reported by Laurence in 1909.[2] Persistent mouth opening in addition to poor oral hygiene, suppurative lesions,[3,4] f acial trauma and severe halitosis may predispose the patient to oral myiasis. It has been reported amidst epileptic patients having lacerations, incompetent lips and thumb sucking habits, advanced periodontal disease, at tooth extraction sites, fumigating carcinoma of buccal mucosa and patient with tetanus, gingival myiasis has been accused to poor oral hygiene, alcoholism, senility, suppurative lesions, severe halitosis, and neoplasias and has been noted in patients with special needs.[5]

Classification of Myasis[2]

Based on part of host that is attacked by parasite:
- Dermal
- Sub-dermal
- Cutaneous
- Creeping
- Furuncular (boil-like lesion)
- Nasopharyngeal nose, sinuses or pharynx
- Ophthalmic or ocular
- Auricular
- Gastric, rectal, or intestinal/enteric
- Urogenital

Myiasis can also be classified as:
- Obligatory: Larvae develops within living tissue
- Facultative: Maggots feed on necrotic tissue
- Accidental: Larvae ingested along with food

Case Report

A 16-year-old male with neurological deficit was referred from Pingalwara Charitable Society Amritsar to the Department of Periodontics at Sri Guru Ram Das Institute of Dental Sciences and Research, Sri Amritsar. Patient presented with a chief complaint of pain and swelling in front region of upper jaw. He was a mouth breather accompanied by drooling saliva, bleeding gums and fetid odor. Extra-oral examination revealed incompetent upper lip with diffuse swelling in maxillary anterior palatal region (Figure 1). Intraoral examination revealed 2 cm wide, circular, ulcerated lesion with maggots in the right maxillary lateral incisor region (Figure 2). Surrounding area was erythematous and swollen. There was no sign of numbness or paresthesia in relation to the swelling. Patient had Angle's class II occlusion and generalized spacing between the teeth, making contact between the upper and lower lip impossible, in addition he had poor oral hygiene and advanced periodontal disease. Based on history taking from the attendant it was speculated that patient was mentally retarded and was born prematurely, further MRI and CT scans disclosed focal cerebral abnormalities (Figure 3).Provisional diagnosis of oral myiasis was made based on history taking and clinical examination.

At first, larvae were eliminated by means of forceps. Then under aseptic conditions, the infected site was explored thoroughly and flushed with normal saline followed by irrigation with 3% hydrogen peroxide (10 volumes) diluted in water (1:3), wound was cleaned and disinfected. Further, cotton bud impregnated with turpentine oil was placed at the orifice for approximately 10 minutes. Later on, 11 maggots were manually removed with the help of tissue holding forceps and taken for entomological examination. For the next two days same procedure was repeated. Finally,oral therapy was administered with Ivermectin 6mg once daily for 3 days, along with metronidazole 400mg three times a day for 5 days, chlorhexidine 0.12% mouthwash rinse 3–4 times/day. Complete healing of lesion was noted after 2 weeks (Figure 4).

Figure 1: Extra-oral examination revealed incompetent upper lip with diffuse swelling in maxillary anterior palatal region

Figure 2: Intraoral examination revealed 2 cm wide, circular, ulcerated lesion with maggots in the right maxillary lateral incisor region

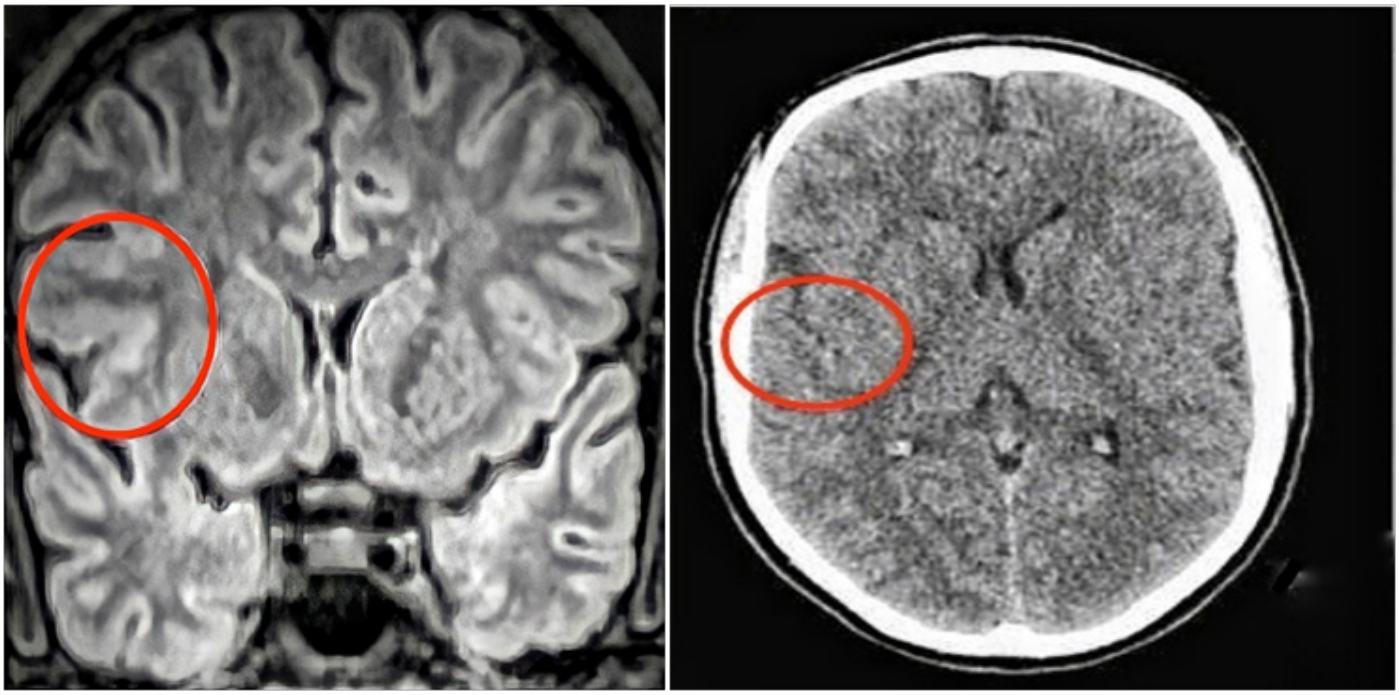

Figure 3: MRI and CT scans disclosed focal cerebral abnormalities

Figure 4: Complete healing of lesion was noted after 2 weeks

Discussion

Myiasis, an ecto-parasitic infestation of viable or necrotic tissues of living vertebrates (animals and humans) is causedby larvae of numerous species of the order Diptera, predominantly found in tropical and subtropical regions. Many species of dipterans have been reported to be interconnected with human myiasis.[6] Patient in the present case was a mouth breather hadincompetent lips which favored laying of eggs on to the anterior region of gingiva, where infestation had developed. Poor oral hygiene and periodontal disease were conducive for larvae to develop. Moreover neurological deficit would have facilitated the infestation.

Larvae may destroy vital tissues, inducing serious or even life-threatening hemorrhagic condition.[2] Flies get attracted to the smell of necrotic tissue and the presence of secretions, such as blood.[6] In the present case, gingiva of the maxillary anterior region was affected which was also reported by Moshref et al(2008), Mohammad zadeh et al (2008) Reddy et al (2012), Bhagawati et al (2013) and Govindaraju et al (2014) in their respective studies.[7]Anterior part of the oral cavity including both jaws and the palate frequently gets affected by oral myasis insinuating direct inoculation of tissues [8] as described in bulk of the cases but inclusion of posterior [9] areas of both jaws

is sporadic.[10]Larvae during its developmental transition requires an intermediate host, suitable substrate and temperature conditions for its survival.[4]

Larvae stage persists for 6–8 days amidst which they are parasitic to human beings. Larvae have backward directed segmental hooks with which they anchor themselves to the encompassing tissue. Being photophobic they tend to hide deep into the tissues for an ideal niche to develop into pupa. The presence of such hooks makes it difficult to manually remove larvae from the host. These larvae release toxins which obliterate the host tissue; additionally proteolytic enzymes secreted by the encompassing bacteria decompose the tissues and the larvae prey on this rotten tissue. The infected tissue continually secretesa repugnant smelling discharge. Necrotic ulcer and intense halitosis seen in the present case evocates obliteration caused by toxins released by the larvae.[2] Based on studies reported by Ribeiro et al (2012), de Arruda et al (2017), Ashour et al(2019), Batista et al (2019) treatment of myiasis, regardless of the affected site is based on the mechanical removal of larvae, surgical debridement of devitalized tissues and drug administration. Ivermectin, a drug of the macrolide family obtained from actinomycetes is a broad-spectrum antiparasitic drug for veterinary use, but has shown potency for some parasites that affect humans. Based on studies conducted by Girardi & Scrofernecker (2017), Filho et al (2018), Vasantha kumar et al (2020) single dose of 150–200 μg/kg based on body weight is sufficient for the treatment of human myasis after thorough debridement. Vasantha kumar et al (2020) noted that ivermectin block impulses in the nerve endings of the parasites, causing paralysis and death of the larvae. Jittamala et al (2021) considered it safe and effective in controlling myiasis in paediatric patients. Prior to the emergence of ivermectin, especially for the treatment of furuncular lesions, the topical use of cigarette smoke, saline, sulfuric ether, olive oil, gentian violet, petroleum jelly, animal fat, nail polish, turpentine oil, phenol, chloroform, hydrogen peroxide, chlorhexidine and other veterinary topical worm killers have been reported previously in the literature. It was well supported by Girardi et al (2017), Filho et al (2018),Calvopina et al (2020) with the objective of promoting tissue hypoxia and inducing the outflow of larvae from inside the tissues.[6]

Conclusion

As the old saying goes "prevention is better than cure." Intraoral myiasis can be curbed by controlling predisposing local, systemic and environmental factors. In the case of patients with some degree of immobility and dentofacial alterations, such as mouth breathing, open bite and lip incompetence, caregivers should be instructed on strict attention to oral inspection and hygiene, protection of natural cavities (use of masks by the patient) and control of causative agents (dipteran flies). As dentists, it is our duty to raise awareness that a special needs patient should be exposed to proper dental intervention on regular basis as early as possible in order to intercept the occurrence of the disease.

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