Oral Myiasis of the Maxilla: A Rare Case Report

Abstract

Oral myiasis is a rare parasitic infection caused by fly larvae (maggots) invading oral tissues. It typically presents in individuals with poor oral hygiene, nutritional deficits, or impaired immune function, especially among those with debilitating illnesses or mental health disorders. The condition is also associated with oral trauma, facial injuries, or necrotic lesions. Commonly implicated fly species include Musca nebulo,Cochliomyiahominivorax,Chrysomyabezziana etc.

Patients may exhibit symptoms including pain, swelling, malodor, and discharge, along with a sensation of movement within the affected tissues. In severe cases, tissue necrosis and secondary infections may occur, potentially resulting in systemic complications. Diagnosis is primarily clinical and is confirmed through the visual identification of larvae in the oral cavity

Treatment entails the mechanical removal of larvae, followed by extensive debridement and antiseptic irrigation. Adjunctive antibiotic therapy may be administered to prevent secondary bacterial infections. Local anesthetics or sedatives may be utilized to facilitate the extraction of larvae. Preventive measures include maintaining proper oral hygiene, addressing underlying health conditions, and minimizing fly exposure in susceptible individuals. Despite its rarity, early recognition and prompt intervention in cases of oral myiasis are essential to prevent tissue damage and enhance patient outcomes. This case underscores the importance of awareness regarding this uncommon yet potentially serious condition, particularly among vulnerable populations.

Keywords - Oral myiasis, maggots, poor oral hygiene

INTRODUCTION

Oral myiasis is a rare parasitic infestation that affects humans and other vertebrate animals. It is caused by dipterous larvae that feed on the host's living or necrotic tissues, bodily secretions, and ingested fluids during a specific stage of their life cycle.[1]

The development of oral myiasis is often facilitated by a combination of factors, including a humid climate, inadequate oral hygiene, and debilitating medical conditions such as maxillofacial trauma, intellectual disabilities, and cancerous or infected wounds.[2]

Oral myiasis is often linked to certain anatomical and medical conditions, with a significant proportion of cases attributed to neglect of oral hygiene and the accumulation of fermenting food debris. This neglect is frequently associated with poor manual dexterity, resulting in severe halitosis that attracts flies.3 Additionally,low socioeconomic status, neglected living conditions, intellectual disabilities, immunocompromised states, and overall debilitation create an environment conducive to fly infestation, thereby increasing the risk of oral myiasis.4 Medical conditions that favor persistent exposure of the oral cavity to the external environmentsuch as intellectual disabilities, cerebral palsy, hemiplegia, alcoholism, senility, and habits like mouth breathing during sleepalso predispose individuals to this condition.

Dipterous larvae, commonly known as maggots, are frequently encountered in developing tropical countries where inadequate sanitation and economic hardshipcreates an environment conducive to their proliferation.[2]

In India, the most common housefly associated with myiasis is MuscaNebulo. Clinically, myiasis is classified into two main categories: (i) Primary myiasis - larvae that feed on living tissue caused by biophagous larvae; (ii) Secondary myiasis - larvae that feed on dead tissue caused by the necrobiophagous flies.

Based on anatomic site, myiasis can be further classified as (i) cutaneousmyiasis, (ii) myiasis of external orifices, and (iii) myiasis of internal organs.[5] Additionally, it can be categorized according to the condition of the affected tissue accidental myiasis (larvae ingested along with food), semi-specific (larvae laid on necrotic tissue in wounds), and obligatory myiasis (larvae affecting the undamaged skin). The most common anatomical sites for myiasis are the nose, eyes, skin wounds, sinuses, ears, lungs, gut, gallbladder, vagina, nasal cavities, and rarely the mouth.[6]

Treatment of myiasis involves a multi-faceted approachthat includes the manual removal of larvae, surgical debridement of necrotic tissue, and administration of medication to promote healing, prevent further infestation, and mitigate potential complications.[6]

This case study presents a very rare case of oral myiasis in the maxillary anterior region, which occurred following trauma to the upper lip and was exacerbated by the patient's poor oral hygiene and negligence. This highlights the importance of regular dental care and good oral hygiene practices in preventing such infestations and promoting good oral health.

Case report

A 32-year-old female patient, hailing from a low socioeconomic status and residing in impoverished living conditions, presented to the Department of Oral and Maxillofacial Surgery

with a chief complaint of pain in the upper lip region and malodor. The patient's history revealed a traumatic incident 20 days prior, wherein she sustained injuries to the upper lip after falling from a height. The wound was then primarily closed by a local practitioner; however, it subsequently developed a surgical site infection, leading to a cascade of complications.

On clinical examination, the patient exhibited incompetent lips, halitosis, and poor oral hygiene. Notably, the patient presented with extensive necrosis of the upper lipwhich extended to the labial mucosa, anterior palate, and buccal mucosa on the left side.

A significant infestation of maggots was observed in the affected region, characterized by live, pulsating, and whitish appearance, being conical in shape and distinctive pointed anterior end and black posterior end.The tissue damage caused by the maggots was both extensive and alarming, with significant destruction of the surrounding tissue. Intraoral examination,revealed grade III mobility of teeth 11 and 21, indicating a compromised periodontal status. Based on the patient's clinical presentation, a diagnosis of oral myiasis was made, a rare and debilitating condition characterized by the infestation of oral tissues by fly larvae.

After obtaining informed consent,a comprehensive treatment plan was devised, prioritizing optimal patient care. The initial phase of treatment involved the topical application of turpentine oil for 10 minutes, which facilitated the manual removal of approximately 100-150 maggots using tweezers**.**The extracted maggots were sent for entomological analysis to identify the species of the responsible organism.

The treatment entailed the debridement of necrotic tissue and the extraction of teeth 11 and 21, which were periodontally compromised**.**The affected area was thoroughly irrigated with a solution of metronidazole and normal saline to promote healing and prevent further infection. Manual removal of maggots was performed for 5 consecutive days until the entire area was completely free of maggots.

The patient was administered Tab.Ivermectin 6mg OD for 3 days, inj Cefazolin 500mg, and inj Metronidazole 400mg for 5 days, to effectively manage the infection and prevent further complications. The patient was discharged on the 5th day, with detailed instructions provided on wound care and follow-up appointments.

Regular follow-ups revealed satisfactory healing, with the patient demonstrating significant improvement in her overall condition. Entomological analysis confirmed that the larvae were of the species Muscanubelo, a common housefly. Subsequently, the patient was referred to the Department of Plastic Surgery for further management and reconstruction of the affected area.

Fig.1 Pre Op Picture

Fig 2 Intra operative

Fig. 3 Follow up after 3 days

Fig.4 Follow up after 3 weeks

Discussion

Oral Myiasis is an uncommon disease in humans and occurs more frequently in rural areas compared to urban areas.Contributing factors include incompetent lips, mouth breathing habits, and a lack of awareness regarding oral health. Additionally, low socioeconomic status, immunocompromised individuals, and unsanitary living conditions significantly increase the risk of developing myiasis. Risk factors for oral myiasis include suppurative lesions, facial trauma, mouth-breathing, extraction wounds, fungating carcinomas, and other conditions. The flies are attracted to the bad mouth odor due to neglected oral hygiene or fermenting food debris.[4,7]

Myiasis of the oro-dental complex is commonly caused by the Indian housefly,*Musca nebulo*. They are found commonly in human habitats with poor hygiene and sanitation, particularly during the summer and rainy seasons.They are photophobic and tend to burrow deep into the tissues for a suitable niche to develop into a pupa. In the presented case, the larvae were observed burrowing deep within the ulcer.

The studies reviewed revealed a lack of a definitive therapeutic protocol, and the treatment approaches varied considerably in the analyzedreports. This gap in the literature regarding the treatment of oral myiasis may be due to its low incidence, affecting about 2% of the population, and is considered extremely rare by several researchers.The treatment modality for myiasis includes local and systemic measures.[9]

The mechanical removal of larvae is consistent with the literature review, followed by irrigation with various solutions. Local measures involve the topical application of turpentine oil, mineral oil, ether, chloroform, ethyl chloride, mercuric chloride, creosote, saline, phenol, calomel, olive oil, iodoform, or other such comparable solvents. These local measures irritate the larvae, causing larval asphyxiation and prompting their expulsion from deeply embedded cavities. Systemic treatment includes broad-spectrum antibiotics. In our case,the patient was treated with mechanical debridement of maggots after the application of turpentine oil followed by copious irrigation with normal saline, povidone-iodine, hydrogen peroxide, and metronidazole and injectable antibioticswere administered, resulting in excellent healing.[10]

Systemic management involves broad-spectrumantibiotics such as amoxicillin with clavulanic acid, metronidazole,cefazolin,especiallywhenthewoundissecondarily infected. The use of systemic Ivermectin gives good results in most of the cases.[11]

Conclusion

Prevention is better than cure is apt for oral myiasis. Prevention involves fundamental control of fly populations, general cleanliness which incorporatesa decrease in decomposition odors, maintaining wounds by cleaning and covering them, educating and sensitizing the common population that inadequate basic sanitation can predispose to infestation, and maintaining good oral and personal hygiene.

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