

A REVIEW OF WOUND MYIASIS IN ORO FACIAL REGION: A RETROSPECTIVE STUDY

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ABSTRACT

Compromised health and hygiene can lead to many complications and one among them is orofacial wound myiasis. Myiasis is the invasion of living tissues by larvae of flies. A ten cases of traumatic orofacial wound myiasis by larvae of *Musca Domestica* and treated by manual removal of larvae is reviewed. One year follow up showed no evidence of recurrence. We conclude that early management of orofacial wound myiasis with turpentine oil along with removal of myiasis and debridement is good treatment modalities

Key words:

Traumatic wound, Primary Myiasis, Maggots, Domestic Fly, Turpentine Oil.

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INTRODUCTION

Every human tries to maintain personal hygiene to an extent that his surrounding environment allows. But sometimes it may not be possible to maintain basic cleanliness by neglected, poor, old, debilitated and disabled ones. This group is more prone to wound infections and when not cared adequately, can lead to complications. One of such complication can be 'myiasis'. Myiasis is a rare condition refers to the invasion of living tissues by fly larvae. 'Myiasis' word was coined by Hope in 1840 and is from the Greek 'myia' means 'fly'¹ Zumpt defined myiasis as 'the infestation of live human or vertebrate animals with larvae of the insect order Diptera (flies), which feed on living or necrotic tissues.² Human myiasis is mainly found in tropical and underdeveloped countries, however not uncommon in other areas.³⁻⁸

Myiasis can be classified depending on the condition of the involved tissue as i) Accidental myiasis; when larvae get ingested along with food, ii) Semi specific myiasis; when the larvae are laid on necrotic tissue of the wound and iii) Obligatory myiasis; in which larvae affects undamaged skin⁹. Based on anatomic site it can be classified as i) Cutaneous myiasis, ii) Myiasis of external orifices and iii) Myiasis of internal organs¹⁰. Clinically it can be classified as i) Primary and ii) Secondary¹¹. Primary myiasis is caused by biophagous larvae (feed on living tissues) and also called as obligatory myiasis. Secondary myiasis is caused by the necrobiophagous larvae (feed on dead tissues) and also called as facultative

myiasis.^{6,8,12,13} The most common anatomical sites for myiasis are the skin wounds, nose, sinuses, eyes, lungs, ears, anus, vagina and rarely the oral cavity.¹⁴ Where as cutaneous myiasis involves invasion of the skin through the wounds. But specific types of flies can even penetrate healthy skin and produce myiasis.⁸

Oral myiasis though a rare condition was described in the literature since 1909 by Laurence.^{4,15} The common predisposing factors for oral myiasis are the conditions leading to persistent mouth opening along with poor oral hygiene, infections, ulcerative lesions, facial trauma⁷ and carcinoma.^{12,16}

Most of the patients are being senile,¹⁷ alcoholics, mentally handicapped,⁵ cerebral palsied^{5,8,11,17} and also reported to be seen in patients living in poor conditions with no age limitations.⁶ Droma EB4 et al, in their literature review have mentioned that incidence of myiasis is more in anterior maxillary region and men are more affected than women. Traumatic wounds in orofacial region when neglected by patients themselves and as well as care takers can lead to development of myiasis.^{2,7,18} the present study reviewed ten cases of orofacial wound myiasis managed by turpentine oil along with removal of myiasis and debridement shows good result with no recurrence.

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PATIENTS AND METHODS

All the cases of orofacial wound myiasis were reviewed. Clinical features, site of wound myiasis recorded (Fig 1). All cases treated by topical applications of Turpentine oil, debridement of wound by removing loose friable tissues fragments and copious irrigation, maggots were removed using non-toothed Addison's tissue forceps (Fig 2 and Fig 3) followed by wound closure. Post operative wound healing was uneventful. The patients were recalled for regular follow up. Few of the larvae were preserved in formalin and subjected to entomological examination. These were identified as larvae of house fly, *Musca Domestica* of Order Diptera (Figure 4).



Fig 1 Oro Facial Wound



Fig 2 Maggots Removed

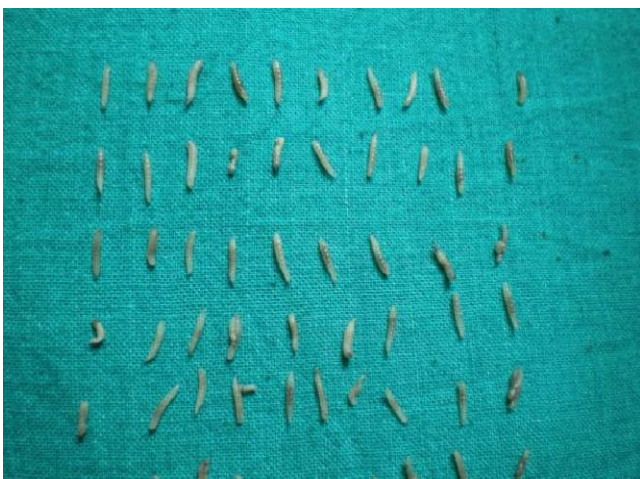


Fig 3 Group of Larvae



Figure 4 Stereomicroscopic photograph of larva

RESULTS

Out of ten patients in this study, seven were male and three were female. All cases were of low socioeconomic status having poor living conditions. Unhygienic and insufficient initial wound debridement and dressing might have attracted flies. All cases of wound myiasis were located in orofacial region, six cases were located in mandibular region and three cases were located in maxillary region. All cases treated by topical applications of Turpentine oil, debridement of wound by removing loose friable tissues fragments and copious irrigation, maggots were removed using non-toothed Addison's tissue forceps followed by wound closure. Post operative wound healing was uneventful. The patients were recalled one year for regular follow up. There was no recurrence found.

DISCUSSION

The risk factors for the development of myiasis are suppurative lesions, open wounds, scabs, traumatic wounds, ulcers contaminated with discharges and blood remnants. When these conditions are super-added with debilitation, mental or physical disability and poverty, the chances of myiasis increase.⁸ Review of the available literature on myiasis of oral and perioral region shows that infestation by multiple larvae is common.^{4,8} Males are affected more, probably because they tend to spend more time outdoor and tend to neglect their hygiene.⁴

In present study shows that all cases were of low socioeconomic status having poor living conditions. Unhygienic and insufficient initial wound debridement and dressing might have attracted flies. Since house flies are common in Indian houses with inadequate sanitation, chances of primary wound myiasis are more. The life cycle of a fly in larval stage (6-8 days) requires an intermediate host for mechanical support and suitable substrate to feed on. The larvae have different features which facilitate their anchorage on to the tissue and for burrowing action.¹⁴

The traditional and classical treatment of myiasis is surgical debridement under local anesthesia followed by mechanical removal of maggots.^{5,11,17} When there are multiple larvae, local application of various agents like turpentine oil,^{5,18} ethyl chloride, ether,¹² mercuric chloride, creosote, iodoform, chloroform,⁸ clove oil, calomel, phenol mixture,¹¹ gencian violet,¹³ alcoholic solution in association with tobacco, camphor, sodium hypochlorite¹⁷ is advocated. These agents are

supposed to asphyxiate the aerobic larvae and force them to a more superficial position making manual removal easier with less damage to tissues and larvae as well.^{4,12} Care should be taken not to rupture the maggots as it might cause allergic or foreign body reaction and secondary infection.^{8,12} Systemic ivermectin has been used with favorable results in some cases.^{11,14,17}

In the present cases, Maggots separate the necrotic tissue from the living tissue, making surgical debridement of the wound easier. The proposed mechanisms of maggot-induced wound healing included: i) continuous flushing or irrigation of the wound by copious exudates formed by the host in response to the maggots; ii) killing, ingestion, and digestion of bacteria by the maggots; iii) secretion of allantoin (component of fetal allantoic fluid); iv) the rapid formation of granulation tissue stimulated by the continuous larval movement in the wound; v) liquefaction of necrotic tissue by the maggots and vi) maggot extracts stimulated significant increase in total human fibroblasts.² It is hoped that this review will be useful in the evaluation and treatment of patients with myiasis. Histories and physical examinations must be always comprehensive. The condition of the patient's hygiene and clothing must be noted. Wounds should be thoroughly cleansed and tetanus immunoprophylaxis should be updated as necessary. Follow-up within a week should be a standard practice and antibiotics need to be prescribed to prevent bacterial infection.

CONCLUSION

Condition like myiasis of orofacial region can be prevented by educating the susceptible group about personal hygiene, primary care of any wound, control of fly population and maintenance of sanitation of the surroundings. Special care should be taken for dependent patients. Dental surgeon should be aware of such a condition and its management.

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