

Anterior Gingival Oral Myiasis Following Brain Injury in a Neurologically Impaired Patient: Clinical Presentation and Management

Nupur Jain¹; Khalid M. Agwani²; Ramank Mathur³; Pooja Ghosh⁴;
Srishti Mishra⁵; Madhuriya Lodha⁶

^{1,2,3,4,5,6}Department of Oral and Maxillofacial Surgery Darshan Dental College and Hospital Udaipur, India

Publication Date: 2025/12/22

Abstract: Myiasis refers to infestation of human tissues by the larval stages of dipterous flies and is most commonly observed in individuals with compromised systemic or neurological health. Oral involvement is rare due to the protective anatomy and constant movements within the oral cavity. However, certain predisposing conditions such as impaired neuromuscular control, poor oral hygiene, and prolonged hospitalization may facilitate larval infestation. This case report describes oral myiasis affecting the anterior gingival region in an elderly neurologically compromised male following a road traffic accident. Clinical diagnosis was established by the direct visualization of motile larvae within the gingival tissues. Management involved careful mechanical removal of larvae, local debridement, chemical asphyxiation using turpentine oil, copious irrigation with antiseptic solutions, and systemic administration of ivermectin. Early identification and prompt intervention are crucial in preventing extensive tissue destruction and associated complications, particularly in debilitated patients.

Keywords: Oral Myiasis; Dipterous Larvae; Neurological Impairment; Ivermectin; Parasitic Infestation.

How to Cite: Nupur Jain; Khalid M. Agwani; Ramank Mathur; Pooja Ghosh; Srishti Mishra; Madhuriya Lodha (2025) Anterior Gingival Oral Myiasis Following Brain Injury in a Neurologically Impaired Patient: Clinical Presentation and Management.

International Journal of Innovative Science and Research Technology, 10(12), 1270-1272.

<https://doi.org/10.38124/ijisrt/25dec903>

I. INTRODUCTION

Myiasis is a parasitic infestation caused by the larvae of certain dipterous flies, which invade living tissues or body cavities of humans and animals [1]. The term is derived from the Greek words *myi* meaning fly and *asis* meaning disease. Zumpt defined myiasis as the infestation of living humans and vertebrate animals by dipterous larvae that feed on the host's living or necrotic tissue, body fluids, or ingested food for a variable period of their life cycle [2]. Although myiasis can affect various anatomical sites, involvement of the oral cavity is relatively uncommon due to protective factors such as continuous salivary flow, intact oral tissues, and muscular activity [3]. Oral myiasis is more frequently observed in individuals with predisposing local and systemic factors. These include poor oral hygiene, mouth breathing, anterior open bite, unhealed extraction wounds, maxillofacial trauma, and neglected oral lesions [3,4]. Systemic conditions such as diabetes mellitus, advanced age, neurological impairment, and physical or mental disability further increase susceptibility to infestation [3,4]. Oral involvement was first described by Laurence in 1909, and since then only sporadic cases have been reported in the literature [5]. Neurologically compromised patients are particularly vulnerable due to

impaired motor coordination, reduced protective reflexes, and dependence on caregivers for maintaining oral hygiene [6]. Prolonged hospitalization, bedridden status, and inability to perceive or report oral discomfort may create favourable conditions for fly oviposition and larval development [7]. This report presents a rare case of anterior gingival oral myiasis in a neurologically impaired patient following traumatic brain injury and highlights its clinical presentation and management.

II. CASE REPORT

A 62-year-old male patient with neurological deficit reported with his son to the Department of Oral and Maxillofacial Surgery with the chief complaint of multiple worm-like organisms present in his mouth. Complete history revealed that he met with RTA in which he sustained head injury with depressed fracture of left parietal bone associated with underlying contusion and Sub Dural Hemorrhage. Decompressive craniotomy and removal of depressed fracture was done under GA, and he was admitted in the general hospital for 10 days in the Department of Neurosurgery. Then patient was referred to us with chief complaint of multiple larvae in his oral cavity. On general

examination patient was drowsy, arousable and occasionally following verbal commands with GCS E2V1M2 and obliterated left nasolabial fold seen (Fig 1a). On intraoral examination there was generalized gingival inflammation with generalized tooth mobility in maxillary arch. Detachment of gingiva and bone exposure in labial and palatal region 21 22 23 25 26 16 17 and there were deep burrowing lesions with multiple cavitations seen. Multiple larvae were noted crawling within the gingival lesions (Fig1b-c). Based on clinical findings and presence of maggots, a provisional diagnosis of oral myiasis was made.

III. CASE MANAGEMENT AND OUTCOME

The wound was cautiously debrided with turpentine oil application and total of 90 maggots were mechanically

removed with the help of tweezer followed by thorough irrigation with normal saline and Povidone–Iodine. After the procedure, the wound was left open for healing by secondary intention (Fig. 1d). Antiparasitic drug Ivermectin (12 mg) was given at single dose. The larvae were mechanically removed for next two consecutive days with exploration, curettage, and warm saline irrigations till no further larvae could be found. We could not get follow up photographs because the patient was neurologically compromised so it was not feasible for follow-up visits. The larvae that were removed measured 8-10 mm in length on an average, were whitish in color and segmented (Fig 2a-b). Larvae recovered from the wound were preserved in formaldehyde (40%) and sent to an entomologist for identification. Lab analysis report of maggots described it as house fly (*Musca domestica*) common Indian house fly.

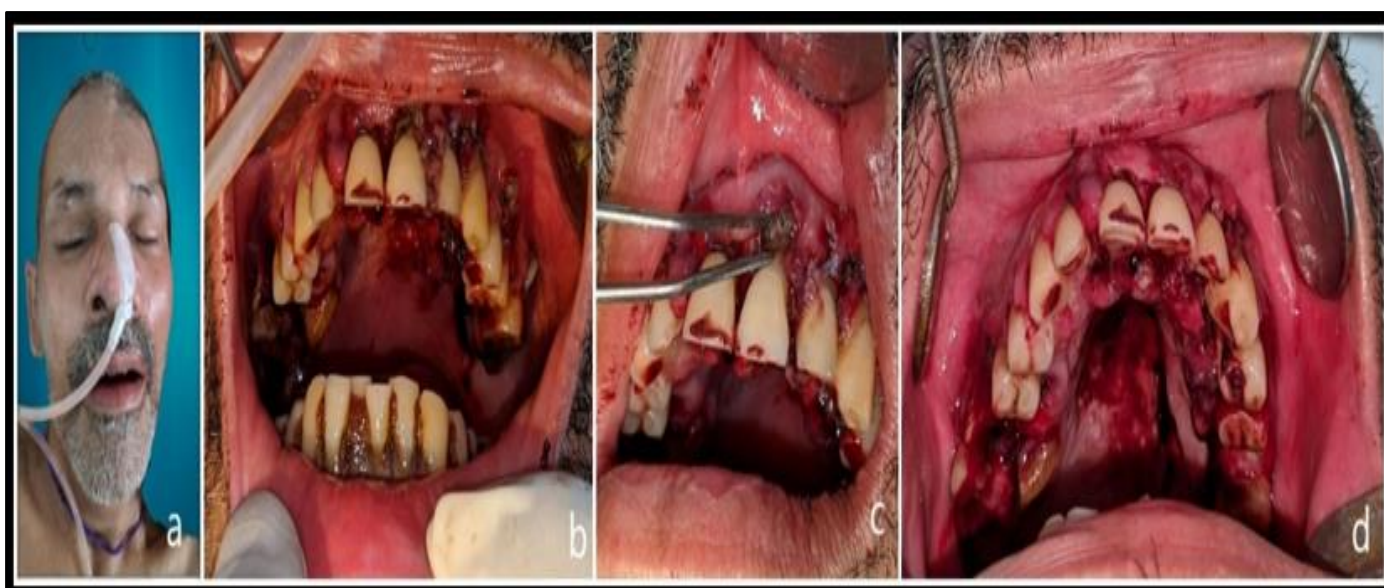


Fig 1(A-D): - Appearance of the Patient at Time of Reporting, Initial Appearance of Lesion, Larvae Seen Moving Inside the Lesion, Wound After Mechanical Removal of Maggots.



Fig 2 (A, B): Photograph of Retrieved Larvae Measured About 8-10 Mm in Length

IV. DISCUSSION

Oral myiasis occurs when dipterous flies deposit their eggs directly onto exposed or diseased oral tissues, followed by larval hatching and tissue invasion [3]. In the present case, the patient's neurological impairment, poor motor control, and prolonged bedridden state due to traumatic brain injury were major contributing factors for the development of this condition. Other factors such as mouth breathing, inability to maintain oral hygiene, and halitosis likely facilitated larval infestation [3,7]. The larval life cycle is influenced by environmental factors including warmth, moisture, and the presence of necrotic or inflamed tissue. Once hatched, larvae penetrate soft tissues and feed on necrotic material, which may lead to rapid tissue destruction [3,6]. In the present case, extensive gingival separation and necrotic tissue involving the anterior maxillary gingival region provided an ideal environment for larval proliferation. Early diagnosis is essential to prevent deeper tissue invasion and potential extension into adjacent anatomical spaces [7]. Management of oral myiasis primarily involves complete mechanical removal of larvae, thorough wound debridement, and elimination of factors favouring infestation [3,6]. Chemical agents such as turpentine oil are frequently used to induce larval asphyxiation, facilitating easier removal [4,6]. Systemic antiparasitic therapy with ivermectin has been shown to be effective in reducing residual infestation and preventing recurrence [6,7]. In the present case, combined mechanical, chemical, and pharmacological management resulted in successful eradication of larvae. Preventive measures are important in neurologically compromised patients. Regular oral examination, maintenance of oral hygiene, and caregiver education play a crucial role in preventing oral myiasis [3,7]. Early recognition and intervention not only limit tissue damage but also reduce morbidity in vulnerable patient populations.

V. CONCLUSION

Oral myiasis, though rare, can occur in neurologically compromised and medically debilitated patients. Early recognition, prompt mechanical removal of larvae, appropriate local wound care, and systemic antiparasitic therapy are essential for successful management. This case shows the importance of meticulous oral hygiene and regular oral examination in hospitalized and bedridden patients to prevent such infestations.

➤ Patient Consent

The patient's guardian provided written informed consent for the publication of this case report and the clinical photos that go with it.

➤ Ethical Approval

Ethical approval was not required for this case report as per institutional guidelines.

➤ Conflict of Interest

The authors declare no conflict of interest.

➤ Funding

This research did not receive any external funding.

REFERENCES

- [1]. Abdo EN, Sette-Dias AC, Comunian CR, Dutra CE, Aguiar EG. Oral myiasis: a case report. *Med Oral Patol Oral Cir Bucal*. 2006; 11: E130-131.
- [2]. Yeung C, Leung AC, Tsang AC. Oral myiasis. *Hong Kong Dental Journal* 2004; 1:35-36.
- [3]. Rossi-Schneider T, Cherubini K, Yurgel LS, Salum F, Figueiredo MA. Oral myiasis: a case report. *J Oral Sci*. 2007; 49: 85-88.
- [4]. Sharma J, Mamatha GP, Acharya R. Primary oral myiasis: a case report. *Med Oral Patol Oral Cir Bucal*. 2008; 13: E714-716.
- [5]. Laurence SM. Dipterous larvae infection. *Br Med J* 1909; 9:88.
- [6]. Nunes AM, Nunes WJ, Ribeiro CC, Lopes FF, Alves CMC. Oral myiasis: a case report in a child with cerebral palsy. *J Clin Exp Dent* 2010;2(3): e157–9.
- [7]. Dandriyal R, Pant S. Oral myiasis in mentally challenged patient: a case report. *J Clin Exp Dent* 2011;3(2): e155–7.