

A Rare Occurrence of Oral Myiasis in the Posterior Region of the Jaw

Neil De Souza¹, Saurabh Kamat², Paul Chalakal³, Godwin Clovis Da Costa⁴

ABSTRACT

Introduction: Oral myiasis is a rare condition where dipterous larvae feed on oral tissues. Oral myiasis has generally been known to affect debilitated individuals, unable to maintain satisfactory oral hygiene. There have been various previous reports of oral myiasis, all of which occurred in the anterior region of the oral cavity.

Case report: This case report presents a rare case of oral myiasis that occurred in the posterior molar region of the mandible, caused by *Chrysomya bezziana*. Emergency surgical intervention was performed under general anaesthesia to extract the causative teeth and to undertake surgical debridement and manual removal of all the larvae present.

Conclusion: Follow up visits revealed uneventful healing and no recurrence of the infestation. Special care needs to be taken in the case of medically and mentally compromised individuals and those that are dependent on others to maintain their basic oral hygiene.

Keywords: Oral; Myiasis; Larvae; Molar; Posterior; *Chrysomya Bezziana*; Larvae

INTRODUCTION

The term Myiasis is originally derived from the Latin word myia, meaning fly and sis meaning condition.¹ Although the term was first introduced by F. W. Hope in the year 1940, Zumpt later defined myiasis as the condition in which dipterous larva invade the human or other vertebrate animals and feed on the host's dead or living tissue, liquid body substances, and ingested food for a certain period of time.²

It can occur throughout the world, but is more frequently observed in locations having warm and humid climatic conditions. Incidence in humans is rare, mostly accidental, and often occurs as a result of neglect. It most commonly affects very young, very old, debilitated or individuals who are incapable of maintaining basic hygiene.³

The most commonly affected sites for myiasis are the nose, eye, lung, ear, anus, vagina and more rarely, the mouth. Incidence of oral myiasis is fairly rare owing to the fact that the oral tissues are not permanently exposed to the external environment. Pre disposing factors such as incompetent lips, poor oral hygiene, nocturnal mouth breathing, anterior open bite, extraction wounds, facial trauma, ulcer-like lesions and oral carcinoma only serve to aid in the rare occurrence of OM.⁴ Also the most common site affected by oral myiasis is the maxillary anterior jaw, predictably due to exposure to the environment. However the present paper reports a rare case of oral myiasis affecting the posterior region of the mandible in a 8 year old mentally compromised child, caused by *Chrysomya bezziana*.

CASE REPORT

An 8 year old male patient with documented history of Adeno-leuko-dystrophy reported to the emergency room of the paediatric hospital. Medical examination revealed mental retardation and an inability to communicate or perform any physical activity. The parents gave a history of noticing worms in the back region of the mouth, accompanied with fetid odour and intermittent fever since 2 days. Intraoral examination revealed presence of large number of maggots burrowed deep inside the gingival with relation to a partially erupted mandibular first molar (figure-1).

Maggots were also noticed in the lingual sulcus of mandibular anteriors, which wasn't noticed by the parents on the previous day. Owing to the child's inability to cooperate for treatment, coupled with the rapid spread of the maggots to the anterior region of the jaw, the decision was made to perform emergency manual removal of the larvae under general anaesthesia.

The parents were explained about the condition and the procedure, and informed consent was taken. Under general anaesthesia, intraoral examination revealed grade 3 mobility along with depressibility with relation to the newly erupted permanent 1st molar and primary 2nd molar. A diagnosis of chronic pericoronitis leading to the infestation was made. The decision was made to extract both mobile teeth to facilitate complete removal of the larvae. After extraction, a turpentine soaked gauze was placed within the sockets and manual removal of around 10-15 larvae was done using tweezers and haemostats. Further examination revealed multiple burrowing larvae in the surrounding tissues. A full thickness mucoperiosteal flap was raised to expose the lower border of the mandible and manual removal of an additional 15-20 larvae was done from the areas concerned. Further management included surgical debridement of dead

¹Lecturer, Department of Pedodontics and Preventive Dentistry, Government Dental College and Hospital, Bambolim, ²Lecturer, Department of Oral surgery, Government Dental College and Hospital, Bambolim, ³Assistant Professor, Department of Pedodontics and Preventive Dentistry, Government Dental College and Hospital, Bambolim, ⁴Department of Prosthodontics, Government Dental College and Hospital, Bambolim, Goa, India

Corresponding author: Dr. Neil J De Souza, Lecturer, Department of Pedodontics and Preventive Dentistry, Government Dental College and Hospital, Bambolim, Goa 403202, India

How to cite this article: Neil De Souza, Saurabh Kamat, Paul Chalakal, Godwin Clovis Da Costa. A rare occurrence of oral myiasis in the posterior region of the jaw. International Journal of Contemporary Medical Research 2018;5(8):H6-H8.

DOI: <http://dx.doi.org/10.21276/ijcmr.2018.5.8.11>



Figure-1: Intraoral view showing pericoronitis in relation to 36; larvae makes by arrow



Figure-2: Full thickness mucoperiosteal flap raised

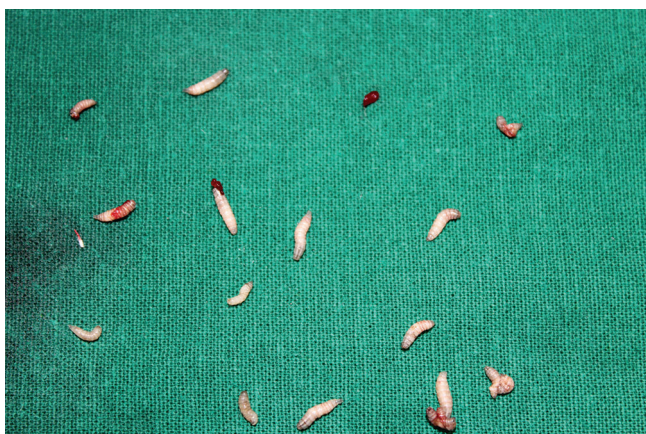


Figure-3: *Chrysomya bezziana* larvae

necrotic tissue and irrigation done with saline and betadine. Resorbable vicryl sutures were placed and oral hygiene instructions were given to the parents (figure-2,3,4).

The larvae were mechanically removed for next three consecutive days with exploration, curettage, and warm saline irrigations till no further larvae could be found. Patient was administered Inj Amoxycillin + Potassium Clavulanate and Inj Metronidazole IV for a duration of 5 days along with inj ivermectin IV treatment for 3 days. Entomological evaluation of the larvae by the Central Coastal Agricultural Research Institute (Goa, India) confirmed them to be of the species *Chrysomya bezziana*. Follow up visits after 1 week,



Figure-4: After placement of sutures

1 month and 6 months revealed no relapse of the infestation and satisfactory wound healing.

DISCUSSION

Oral Myiasis is a rather rare occurrence in today's developed world. Clinically, myiasis can be classified as primary or secondary. Primary myiasis, more commonly seen in cattle and livestock is caused by larvae that feed on living issue. Secondary myiasis is caused by flies that feed on dead tissue. This is the more commonly seen type in humans affecting patients with lesions that have necrotic cavities.⁵

Oral myiasis is commonly associated with certain predisposing physical and medical conditions which include incompetence of lips due to a mouth breathing habit, cerebral palsy, epilepsy, unattended maxillofacial trauma, patients undergoing mechanical ventilation, alcoholism and senility and local pathological conditions such as oral malignancies and noma. This condition is also commonly seen in bed ridden patients and patients with special needs who need a caregiver for the maintenance of their oral hygiene.⁴ The present case highlights a similar case in which the child is bed ridden, lacks manual dexterity and is unable to communicate his grievances to the parents.

Chrysomya bezziana (Old World Screw worm; CB) is an obligate parasite that is classified under the family Calliphoridae, order Diptera and suborder Calliphoridae. The adult CB is a fly that may be green or blue-green in colour, found in tropical and subtropical countries in Africa and Asia. The fly may lay around 150–200 eggs in living tissues (figure-2,3). After 12 to 18 hours, the eggs hatch and the larvae emerge. At this stage, they are white in colour and are about 1.5mm in length. The larvae burrow into the tissues and start to actively feed. After about four days, the larvae reach lengths of about four to 18mm. After five to seven days, the larvae exit the found and fall to the ground to form pupae. The adult flies emerge from the pupae after seven days.⁶ The uniqueness of CB larvae is their ability to invade tissues that are free of necrosis, by burrowing in a screw-like fashion.⁷

Oral myiasis is most commonly seen affecting the anterior part of the oral cavity including both jaws and the palate suggesting direct inoculation of tissues as described in the

majority of cases but there are very few reported cases involving the posterior region of the jaws as seen in the present case.⁸

Although there is no standardised protocol for treatment of myiasis, the ideal treatment plan includes manual removal of larvae using surgical tweezers and haemostats, topical application of asphyxiating drugs, maintaining adequate nutrition and administration of systemic antibiotics to prevent any secondary infection.

Because of the ability of larvae to burrow deep into underlying inaccessible areas, and the presence of hooks which it uses to grip the tissue cavity, simple mechanical removal under local anaesthesia is not possible frequently. Hence, in certain cases a different method known as suffocation approach is used in conjunction with manual removal. This method involves the use of topical asphyxiating agents such as ether, chloroform, turpentine oil, petroleum jelly and eucalyptus oil, which act as a topical irritant and forces this aerobic organism to come up to the surface in search of oxygen, thus facilitating their removal with the help of forceps or tweezers. A similar technique was used in the case described above owing to the spread of the larvae into deep inaccessible areas of the oral cavity.⁴

The administration of drugs to treat myiasis is not frequently documented, as it is only used in severe cases of rampant spread of the infestation with multiple foci. Ivermectin is a semi synthetic macrolide antibiotic isolated from streptomyces avermitilis and is the only drug documented to be very effective against maggots.⁹ Shinohara et al., first documented successful treatment of this condition with Ivermectin 6mg given orally, and repeated after 24 hours.¹⁰ More recently, topical agents such as Nitrofurazone and Polymyxin B have also been suggested as an alternative treatment option for the management of myiasis.⁸

Myiasis induced by CB rarely occurs in humans,^{7,11} and it was first reported in 2003 in Hong Kong.¹² A PubMed literature search reveals that oral myiasis caused due to CB is an uncommon finding, even more rare is its occurrence in the posterior region.^{8,11-14} Oral myiasis caused by CB in the posterior region is rare.¹⁵ However, this case report is the first case wherein the mandibular molar region had been affected. This sheds light on the invasive egg-laying nature of the CB fly.

CONCLUSION

Oral myiasis is a rare and easily preventable disease. Preventive methods include controlling fly population, maintaining good oral and personal hygiene, reducing the presence of livestock and cattle in close proximity to the home and by educating the susceptible population about basic sanitation.

REFERENCES

1. Bhardwaj PK, Singh V. Oral myiasis: Case reports. Asian Journal of Oral and Maxillofacial Surgery. 2010;22:91-3.
2. Ali FM, Patil K, Kar S, Patil AA, Ahamed S. Oral Myiasis Affecting Gingiva in a Child Patient: An

Uncommon Case Report. Case reports in dentistry. 2016;2016.

3. Dogra SS, Mahajan VK. Oral myiasis caused by *Musca domestica* larvae in a child. International Journal of Pediatric Otorhinolaryngology Extra. 2010 Sep 30;5:105-7.
4. Shukla AD, Kamath AT, Kudva A, Pai D, Patel N. Our Experience in the Management of Traumatic Wound Myiasis: Report of 3 Cases and Review of the Literature. Case Reports in Dentistry. 2016;2016.
5. Bhole N, Jadhav A, Borle R, Adwani N, Khemka G, Jadhav P. Primary oral myiasis: A case report. Case reports in dentistry. 2012;2012.
6. Maheshwari VJ, Giridhar Naidu S. Oral Myiasis caused by *Chrysomya bezziana*: A case report. People's J Scientific Res 2010;3:25-6.
7. Kumar GV, Sowmya G, Shivananda S. *Chrysomya Bezziana* Oral Myiasis. J Glob Infect Dis 2011;3:393-5.
8. Shikha S, Guru RP, Ashutoshdutt P, Meenakshi S. Oral Myiasis: A Rare Case Report and Literature Review. Journal of dentistry (Tehran, Iran). 2015;12:456.
9. Sharma D, Kumar S, Parashar P, Naphade VV. Oral gingival myiasis: A rare case report and literature review. Contemporary clinical dentistry. 2015;6:548.
10. Shinohara EH, Martini MZ, Oliveira Neto HG, Takahashi A. Oral myiasis treated with ivermectin: case report. Brazilian dental journal. 2004;15:79-81.
11. Sankari LS, Ramakrishnan k. Oral myiasis caused by *Chrysomya bezziana*. J Oral Maxillofac Surg 2010;14:16-8.
12. Ng KH, Yip KT, Choi CH, Yeung KH, Auyeung TW, Tsang AC, et al. A case of oral myiasis due to *Chrysomya bezziana*. Hong Kong Med J 2003;9:454-6.
13. Candamourty R, Venkatachalam S, Yuvaraj V, Sujee C. Oral myiasis in an adult associated with filariasis and Hansen's disease. J Nat Sci Biol Med 2013;4:259-62.
14. Avula JK, Avula H, Arora N, Manchukonda UK, Vivekavardhan Reddy N. Orofacial myiasis of the gingiva and nasal cavity: a report of two cases and general review. J Periodontol 2011;82:1383-8.
15. Rao GS, Chatra L, Prashanth SK. Oral myiasis: a rare entity. J Maxillofac Oral Surg 2009;8:398-400.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 06-07-2018; **Accepted:** 08-08-2018; **Published:** 19-08-2018