

Oral Myiasis caused by *Chrysomya bezziana*: A case report

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Abstract:

Myiasis is caused by members of the Diptera fly family that lay eggs on food, necrotic tissue, open wounds, and unbroken skin or mucosa. Although myiasis is primarily a problem of cattle and livestock in tropics, human infestation is uncommon and occurs accidentally in persons at extremes of age, who are debilitated or not able to ensure basic hygiene and wound cleanliness. The oral cavity is an uncommon site of infestation as was seen in the case reported here.

Key Words: Oral myiasis, larva infestation, gingival myiasis, *Chrysomya bezziana***Introduction:**

Myiasis is an infestation of a live vertebrate by dipterous larvae, which at least for a time feed on living or dead host tissue, liquid body substances, or undigested food (Gomez et al. 2003). The term myiasis was first proposed by Hope (1840) to refer to diseases of human originating specifically with dipterous larvae, as opposed to those caused by insect larvae in general, scholechiasis (Hope, 1840). Oral myiasis was however, first described by Laurence (1909) and is reported mainly in the tropics and is associated with, inadequate public and personal hygiene (Gursel et al, 2002). Myiasis can occur in the skin and mucosa by maggots from the families Cuterbridae, Hypodermatidae and a few Calliphoridae and Sacrophagidae species (Gomez et al, 2003). Based on degree of dependence on the host myiasis is classified as: (1) 'obligatory myiasis' where fly larvae are completely parasitic and depend upon the host for completion of their life cycle, and (2) 'facultative myiasis' where the fly larvae are free living and only circumstantially adapt themselves to parasitic dependence to a host (Dogra et al, 2009).

Case report:

A 12 year old girl reported to the out patient clinic of the Department of Oral Medicine & Radiology, People's Dental Academy in October, 2009. She presented with a history of pain and swelling in the gums in the maxillary anterior region since the past one week. The patient had initially noticed bleeding gums which rapidly progressed to a painful swelling. Small maggots were noticed from the gingival swelling since the past two days causing much alarm and discomfort to the patient.

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A physical examination revealed a moderately built and well nourished female with no known systemic disorder. All hematological parameters were within normal limits. An intraoral examination showed a mutilated labial gingiva in the region of the maxillary incisors with multiple fenestrations. The anterior palatal gingiva showed a poorly defined swelling measuring 1x2 cm. with exposure of underlying bone. Multiple larvae were noted crawling within the gingival lesion (Fig.I).



Fig.I: Photograph showing gingival wound with multiple larvae (Intra oral view).

The surrounding mucosa was inflamed and tender to palpation but bleeding and discharge was not evident. A provisional diagnosis of oral myiasis was made. Radiographic examination (Fig.II) revealed diffuse rarefaction of the alveolar bone in the peri-apical region of the maxillary central incisors suggesting superficial erosion of the cortices. The floor of the nasal cavity was un-altered. A solitary well defined granuloma was appreciated in the peri-apical region of maxillary right central incisor. The wound was debrided under local anesthesia and the visible larvae were removed. Copious irrigation with physiological saline and povidine iodine was performed but primary wound closure was delayed. Under antibiotic coverage with oral penicillin, the patient underwent debridement for three consecutive days. When no further larvae could be isolated, wound closure was performed.

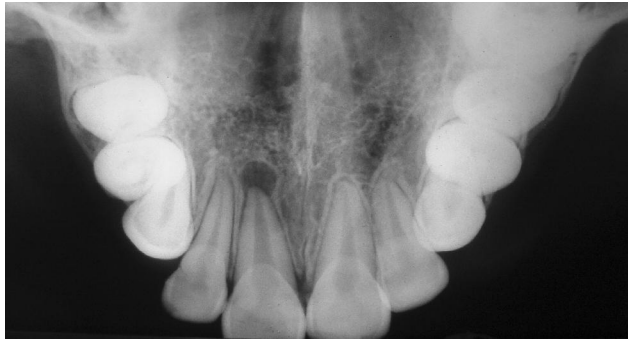


Fig. II: Maxillary occlusal radiograph showing rarefaction of the alveolar bone in the region of maxillary incisors. Well defined periapical granuloma in the region of maxillary right central incisor.

The larvae recovered from the wound were preserved in formaldehyde (40%). They appeared tapered in shape and creamy white in colour, their segments giving the appearance of transverse rows, with a brown-black tip anteriorly and were identified as larvae of *Chrysomya bezziana* (botfly) by an entomologist (Fig. III).



Fig. III: Photograph showing a solitary larva of *C.bezziana* with creamy white tapered body and characteristic transverse grooves.

Discussion:

Myiasis is caused by members of the Diptera fly family that lay eggs on food, necrotic tissue, open wounds, and unbroken skin or mucosa (Gomez et al, 2003). The myiasis can be obligatory, when larval flies (three stages) develop in living tissue, or facultative, when maggots feed on decomposing matter or necrotic tissues. Obligatory myiasis is more harmful for the host, particularly mammals (including man). Poor oral hygiene, ulcerated lesions, severe halitosis, and alcoholism are the pathological factors associated with it. Weak, senile, pediatric or mentally handicapped patients who are unable to defend themselves, and who often present with a lack of labial sealing, are attacked by flies and consequently by the disease (Gealh et al, 2009).

During its life cycle, adult fertile female flies are attracted by a wound's odour, feed on exudates, and lay eggs in the injured and necrotic tissues. After 12–24 hours (in summer) the first instar larvae hatch and enter the living tissues and feed for 5–7 days. In this period, the larvae moult twice and the third instar (last stage), after ceasing to eat, leaves the host and pupates inside the ground. In the next 1–2 weeks the adult fly emerges (Gomez et al, 2003). The preservation of the species of larvae is necessary for subsequent

entomological identification.

The standard treatment options include maintenance of nutrition, antimicrobials for secondary infection and manual removal of larvae with or without topical asphyxiating drugs such as ether, chloroform, olive oil, turpentine oil that make the larvae to come out. Ivermectin given orally in just one dose of 150–200 mg/kg body weight and repeated after 24 hours has been reported to be effective in severe cases (Shinohara 2003). Recently a failure of the above dose has been reported with survival of larvae even after 5 days of therapy, finally requiring surgical debridement (Gealh et al, 2009). Since the larvae were already in the third instar suggesting a week old infestation, the effectiveness of ivermectin was questionable in our patient. Appropriate guidelines of ivermectin dosage in such cases are yet to be clearly established.

Of late, with the identification of prion rods in both fly larvae and pupae, transmission of prions by ectoparasites has given cause for much apprehension (Lupi, 2006). The prevention of human myiasis is, therefore, important and involves control of fly population, general cleanliness of dwelling areas and provision for basic sanitation and health education. Oral health care in pediatric patients must be given due emphasis.

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