Chrysomya Bezziana Oral Myiasis

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ABSTRACT

Myiasis is an opportunistic infestation of human and vertebrate animals with dipterous larvae. Oral myiasis is a rare condition associated with poor oral hygiene, mental disability, halitosis and other conditions. We present a case report of an adult mentally challenged woman with extensive necrotic oral lesion burrowing into the hard palate through which three live maggots (larvae) were seen emerging out. The larvae were removed using forceps and the patient was treated with oral ivermectin. The maggots were identified as larvae of the *Chrysomya bezziana* fly.

Key words: *Chrysomya bezziana*, Maggots, Mental retardness, Oral myiasis

INTRODUCTION

In Greek, "myia" means "fly" and "iasis" means "disease." The term "Myiasis" was coined by William Hope in 1840[1] and myiasis was defined by Zumpt as "the infestation of live human and vertebrate animals by dipterous larva, which at least for certain period feed on host's dead or living tissue, liquid body substances or ingested food."[2] Many of the human myiasis are caused by flies belonging to the genera Oestridae, Calliphoridae and Sarcophagidae. Myiasis is common in the rural population living in close proximity to live stock. Myiasis is classified clinically as specific, semi-specific and accidental and anatomically as intestinal, nasal, cutaneous, ophthalmic, oral and urogenital.

Oral myiasis was first described by Laurence in 1909.[3] Oral myiasis is seen in persons with predisposing conditions like persistent mouth opening due to malocclusion of teeth, bad oral hygiene, tooth extraction and mental disability. Presence of necrotic tissue and bad oral hygiene attracts the flies leading to oviposition. We are reporting a case of oral myiasis due to *Chrysomya bezziana* in a mentally challenged patient having extensive necrosis of the hard palate and gums.

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CASE REPORT

A 32-year-old mentally retarded female patient belonging to low socioeconomic status presented to the dental outpatient department with tooth ache in the right maxillary region and generalized gum bleeding of 4 days duration. She had poor oral and personal hygiene.

On examination, there was generalized gingival enlargement with bleeding from the gingival sulcus. A gape in the palatal flap covered with necrotic tissue was observed. Mouth breathing, severe halitosis and periodontal disease were also noticed. Upper right incisor and right canine were missing. There was no history of trauma [Figures 1 and 2].

Mechanical debridement of necrotic slough was performed under local anesthesia. Three live maggots were seen emerging from a sinus in the hard palate. The live maggots were removed with a tissue forceps and were sent to the Microbiology Department for identification. The maggots were 10–15 mm long, whitish and without obvious body processes. The anterior spiracle had four to five lobes and the posterior spiracle was open. There were also compact spurs surrounding each segment of the body [Figure 3].[4] These features were compatible with the identification of *Chrysomya bezziana* larvae. The larvae and the photographs were sent to CDC, Atlanta, for confirmation of our diagnosis. CDC, Atlanta, confirmed the identification as *Chrysomya bezziana* larvae.

Necrosed flap and slough was removed and alveoloplasty

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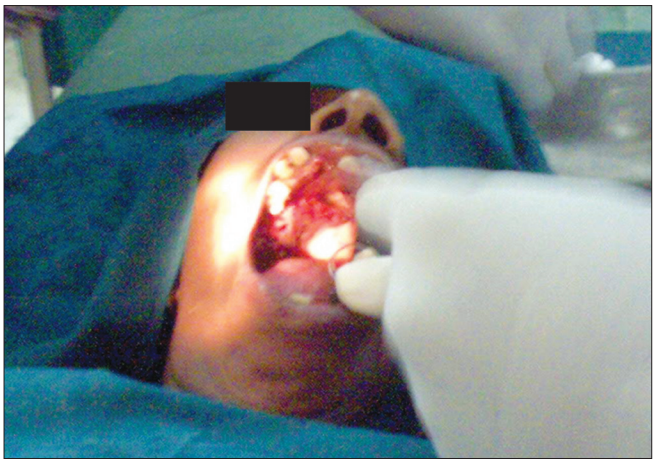

Figure 1: Pre-operative photograph showing gaping palatal flap and *Chrysomya bezziana* larvae

Figure 2: Photograph showing gaping palatal flap

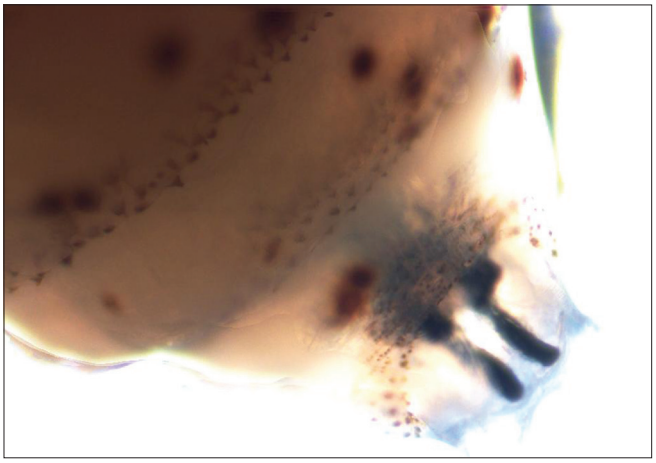

Figure 3: Microphotograph showing the cephalopharyngeal skeleton of *Chrysomya bezziana* larva

was performed. Nasal endoscopy showed no evidence of maggots in the nasal cavity. Further management included extraction of mobile periodontally infected teeth and daily curettage for 1 week. The patient was treated with tab. Ivermectin 6 mg orally once daily for 2 days, intravenous Metronidazole 500 mg infusion thrice-daily for 7 days and Tab. Albendazole 400 mg single dose. The lesion healed completely within 15 days. The patient was reviewed after 1 month and the palatal gap had healed completely without scarring.

DISCUSSION

Myiasis is a rare clinical condition seen among the rural population living in close proximity to livestock and an environment favouring the flies. Oral myiasis is seen in people with predisposing factors such as mental disability, cerebral palsy, hemiparesis, previous trauma of the oral cavity, loss of teeth, persistent periodontitis, malocclusion of the tooth, halitosis and mouth breathing. In our case, mental disability, low socioeconomic status, lack of personal hygiene and close proximity to live stock are the most probable causes in the development of oral myiasis.

Many different species of fly larvae belonging to the order Diptera are implicated as causative agents in human myiasis. *Chrysomya bezziana* is a rare myiasis-causing fly commonly seen in south Asian countries like Hongkong, Thailand, Phillipines, Malyasia and Indonesia.

The female adult *Chrysomya bezziana* fly lays 150–200 eggs at a time on exposed wounds and mucous membranes of the mouth, ear and nose. The eggs hatch after 24 h and the larvae feed on living tissue for 5–7 days and will fall to the ground to pupate. The pupa mature sexually in about 1 week to 2 months, and the life cycle is completed in 2–3 months.[4]

Chrysomya bezziana differ from other maggot infestations by its ability to cause tissue invasion even without pre-existing necrosis. The larvae of *Chrysomya bezziana* burrow deep into the host's healthy living tissue in a screw-like fashion feeding on living tissue that may be responsible for the separation of palatal flap and widespread necrosis observed in our case. Only three live maggots were removed from the wound, but by the observation of the palatal necrotic wound, the larval numbers were probably more, which may have got dislodged and fallen to the ground to pupate.

Oral myiasis due to *Chrysomya bezziana* has been reported in Hong Kong in 2003 in a paraplegic woman with ischemic heart disease on nasogastric tube feeding. She had lost orofacial muscle control, which resulted in partial opening of the mouth and hence myiasis,[5] and within 6 months, a

second case of *Chrysomya bezziana* oral myiasis was reported in the same hospital in a 50-year-old Chinese man with right hemiplegia who had difficulties in controlling his orofacial and masticatory muscles.[6] *Chrysomya bezziana* oral myiasis has also been reported in an 18-year-old boy with congenital cerebral palsy, quadriplegia and mental disability in Fars Province, Iran.[7] In a very recent report from India, *Chrysomya bezziana* larvae have caused oral myiasis in a 14-year-old epileptic and mentally challenged boy who had fracture of the upper front teeth. He developed oral myiasis following extraction of the fractured tooth.[8]

Chrysomya bezziana has also been reported as the agent causing urogenital myiasis,[9] cutaneous myiasis,[10] otomyiasis[11] and ocular myiasis.[12] Oral myiasis caused by other dipterous larvae like *Oestrus ovis,*[13] *Cochliomyia hominivorax,*[14] *Muscus domesticus*[15] and *Musca nebulo*[16] have also been reported.

From the available clinical data about *Chrysomya bezziana* myiasis cases, it is evident that it is not a common infestation. Oral myiasis due to *Chrysomya bezziana* is a very rare type of human myiasis. Childhood mental and physical disability due to congenital or acquired causes is the main predisposing condition for oral myiasis.

In the present case, childhood mental disability along with halitosis, mouth breathing and periodontal disease contributed for oral myiasis. Total removal of larvae, followed by oral Ivermectin, is the mode of therapy. A very intimate care of such patients keeps such rare conditions away from the mentally challenged persons.

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