CASE REPORT

Traumatic Myiasis of the Scalp in a 3-year-old Patient- A Case of Neglected Health Care

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ABSTRACT

Traumatic myiasis, the invasion of live tissues by fly larvae, is a commonly observed phenomenon in animals like sheep and cattle, but is also witnessed sometimes among humans. It is a parasitic infestation in which the dipteran larvae invade the neglected open wounds and foul smelling body apertures of vertebrate animals thereby using the living or necrotic tissue of their host as a nutritional source. A case of severe human traumatic myiasis is reported from India in the scalp wound of a 3-year-old female patient. The causative larvae were identified as the third instars of Old World Screwworm Fly- *Chrysomya bezziana* (Diptera: Calliphoridae). The myiasis in the present case was a complication of an open neglected wound. Ignorance played a key role in non-treatment of the patient for a long period of time. The authors emphasize the necessity to raise awareness among the general public about the problem.

Keywords: Wound myiasis, *Chrysomya bezziana*, Parasitosis

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INTRODUCTION

The tissue infestation of live vertebrates by fly larvae called myiasis, is derived from the Greek word, 'myia' meaning a fly. Traumatic myiasis involves infestation of lesions or body orifices of humans by parasitic dipterous larvae. Although quite prevalent worldwide among domestic and wild animals, the condition is also witnessed occasionally among humans, especially in areas of poverty, poor hygiene and poor sanitation, such as slum areas where domestic animals are in close contact (1). The phenomenon is generally more frequent in tropical climates than in sub-tropical and temperate ones. Being a tropical country, India provides all the suitable climatic conditions for the prolific growth of myiasis causing flies and their larvae. In human traumatic myiasis, the usual episodes involve oviposition by flies in uncovered neglected wounds or foul smelling putrid discharge from body orifices like the mouth, nose, ear, vagina and rectum. The presence of pus and odour of decay in the wounds had been reported to intensify the attractiveness of wounds or body orifices as oviposition sites. After hatching, the resulting larvae start feeding on the underlying soft tissues and body fluids. Prolonged infestations among children may lead to malnutrition, weight loss, poor growth and reduction in physical and mental activity, even death. Based upon the organs involved, traumatic myiasis may be classified as oral, nasal, aural, vaginal, rectal, cutaneous and so forth (2).

Infestation by the larvae of the Old World screwworm fly, *Chrysomya bezziana* has been recorded to cause myiasis in man and animals in the Oriental region (3). The adult female generally lays an average of about 175 eggs on neglected wounds or foul smelling body openings. The eggs hatch after 18-24 hours and the resultant larvae start feeding on the surrounding living tissue for 3-4 days and then drop onto soil for puparition. The adult flies emerge after 7-9 days in tropical climates and 8 weeks in subtropical winters (4).

CASE REPORT

A 3-year-old female from a slum area, with a traumatic wound on her scalp was brought to Mata Kuashalya Government Hospital, Patiala (Punjab) India, by a volunteer from a local charitable organization. The patient was suffering from high fever, severe pain and a nibbling sensation in her wound. On questioning, her parents declared that she had suffered from an injury on her scalp while playing about a week ago but they had not sought any medical care due to their low socio-economic status. The wound was left open and neglected during that period. Investigations revealed a bone-deep pus filled wound along with numerous fly larvae (maggots), but the skull was intact (Fig 1). Haematological examination revealed RBC count of 410 x 10^4/mm^3, WBC count of 11,200 /mm3 and Hb

6.5 g/dl. The clinical data indicated that the patient had slight leukocytosis and anaemia. About 50 fly larvae were removed by forceps and a turpentine liniment plug was used to help evacuate remaining fly larvae from the wound, as they emerged to avoid suffocation. A broad spectrum antibiotic- Cephalexin was prescribed to cure the soft tissue infection and the parents were asked to revisit the hospital with their child after two days for antiseptic dressing. A few creamish white larvae were recovered while dressing the wound on her next visit (Fig 2). The wound healed within two weeks, following the course of antibiotic together with anti inflammatory drugs and an antiseptic dressing. The fly larvae were identified with the help of identification keys in the literature (2) as third instars of *Chrysomya bezziana* (Diptera: Calliphoridae), on the basis of the combination of distinctive anterior and posterior spiracles (Fig 3,4)

Figure 1 : Scalp wound of the patient infested with maggots. Note also the extensive infestation with lice

Figure 2: Third Instar larva of *Chrysomya bezziana* removed from the scalp wound of the patient

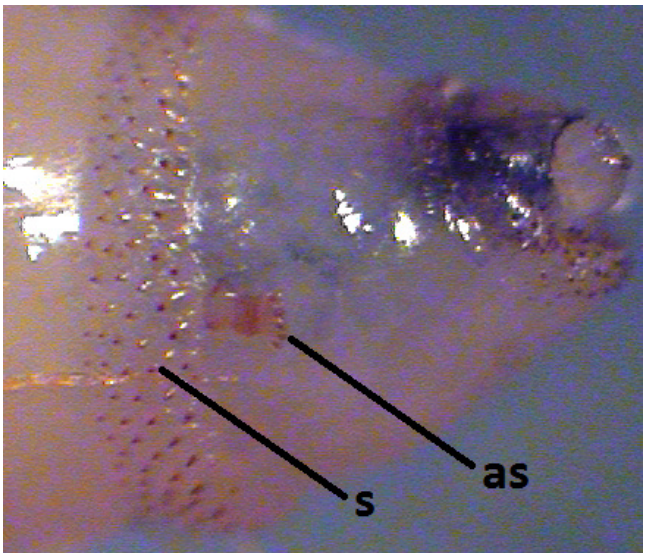

Figure 3 : Anterior spiracle of third Instar larva of *C. bezziana*. **as**, Anterior spiracle with 5 papillae; **s**, single-pointed spines

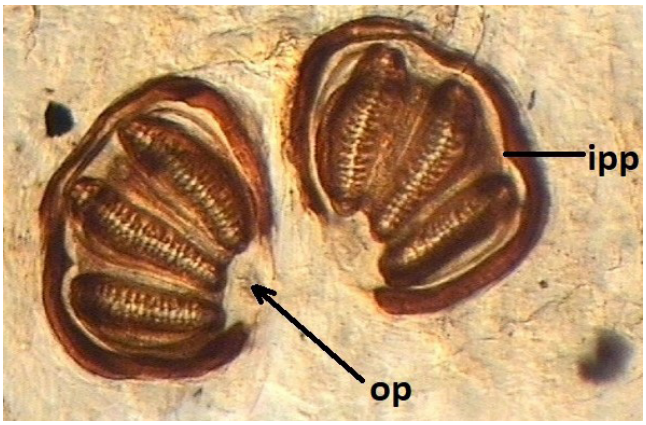

Figure 4 : Posterior spiracular plate of third Instar larva of *C. bezziana*. **op**, Open peritreme; **ipp**, Internal peritremal projection

DISCUSSION

Fly larvae usually infest humans when circumstances on the host favour larval development, as in overlooked foul smelling wounds and body appertures. Oviposition is generally enhanced by putrid discharges from diseased tissues. Other major factors such as necrotic lesions due to adenocarcinoma; squamous cell carcinoma; wounds of diabetic patients, trauma and surgical wounds play an important predisposing role for occurrence of human myiasis. It has also been observed that enfeebled patients who are mentally retarded or in comatose state are quite susceptible to myiasis (5).

The larvae of *Chrysomya bezziana* have been reported to be the key species responsible for traumatic myiasis among man and domestic animals in tropical regions of the Old World. The fly had been described as a pest of domestic animals in Africa, India, Arabian Peninsula,

and Southeast Asia (4). Larvae of *C. bezziana* have a wide host range having been recorded in wounds on many mammals; both wild and domesticated. The larvae are obligatory parasites and are unable to develop in dead and decomposing organic matter. Consequently the fly has to complete its larval development by parasitizing live animals. Cases of myiasis are more frequent during the months of June to November in India, since the optimum humidity and temperature, conditions for the flies to breed, are found in this period.

In the present study, the patient had a severely infected pus filled wound on her scalp, which had originated a week before medical attention was sought and had been totally neglected and left uncovered. Moreover the hygienic condition of the patient was very poor since she was also suffering from pediculosis, which was evident from the presence of many lice eggs (nits) in her hairs (Fig 1). The foul smelling pus had probably attracted gravid flies to lay eggs in the wound as the patient lived in a slum area with poor hygenic conditions. Following hatching, the larvae tend to penetrate inside the tissue to feed and the severe pain reported by the patient might be due to the approach of the larvae to the periosteum. Since a few third instar larvae were removed from the wound on her second visit, it was possible that some of the larvae (as first or second instars) might have been overlooked by the medical staff and hence left within the wound while dressing. It is advisable that health care staff should be thorough during their initial examination of such wounds, as small larvae are easily overlooked and may remain hidden beneath the skin and tissue pockets due to their aversion to light. Besides having a significant psychological impact on the patients, such oversight by health care staff can adversely affect the reputation of the health-care facility.

The present study is reported to be an outcome of severely neglected hygiene and ignorance among the general public about the inception of myiasis. Cleaning and covering of wounds together with control of fly populations are some of the efficacious means of avoidance of human myiasis in third-world countries.

CONCLUSION

It is notable that when myiasis occurs among children, a predisposing lesion could be expected; which attract flies for oviposition such as open neglected wounds with a foetid discharge as in the present case. At the same time a lack of hygiene could also be speculated to contribute to myiasis in fly infested areas. It is emphasized that the parents of children should not neglect their wounds and should instead take proper medical care so as to avoid myiasis. In addition, there is a great need to generate awareness among the general public about the potential for the problem of traumatic myiasis.

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