



RESEARCH ARTICLE

OCULAR MYIASIS CAUSED BY MUSCA DOMESTICA – A RARE ENTITY

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ABSTRACT

Ophthalmomyiasis can have variable presentation depending on the type of fly, structures involved, and level of penetration. Here we present a rare case, seen in a 60-year-old male patient with extensive myiasis of the right eye. A lesion of 4×2.5 cm was noted from the medial canthus to lateral canthus, and was infested with maggots. The larvae were removed meticulously and the wound debrided. The larva isolated was that of *Musca domestica* (housefly). M.R.I was done, hyperintense soft tissues swelling was seen in right orbito-naso frontal region. The wound was dressed regularly and healed by secondary intention. We conclude that ocular myiasis is a rare disease which can lead to many diseases such as intracranial extension which can be life threatening. Prompt management with debridement and radical antibiotic therapy is essential.

INTRODUCTION

Myiasis is any disease that results from the infestation of tissues or cavities of the body by larvae of flies (<http://dictionary.reference.com/browse/myiasis>). In our case the larva isolated was of *Musca domestica*, which is also called House Fly, its non biting muscoid fly found in the vicinity of human habitations all over the world. It is often a carrier of diseases such as typhoid fever, cholera, dysentery, trachoma, and anthrax (http://www.everythingabout.net/articles/biology/animals/arthropods/insects/flies/house_fly/). House flies have been shown to harbor, transport and vector numerous species of human and livestock pathogenic bacteria (<http://vet.entomology.cals.cornell.edu/arthropod-identification/chicken-recommendations/house-flies>). Because larvae have a nutritional requirement for bacteria (Graczyk, 2001), adult flies (particularly females) are attracted to septic substrates for oviposition (West, 1951). The female lays an average of 150 white eggs in a mass about 1 mm (about 0.04 inch) long. The eggs are laid in decaying substances. The female lives about two and one-half months and lays between 600 and 1000 eggs during its lifetime. The eggs hatch in about 12 hours into white legless larvae called maggots, which grow to 12.5 mm (0.5 in) in length (Zurek, 2000). The larvae are white and cylindrical, tapering in the front, dark reddish-brown in colour, legless and without a distinct "head" (West, 1985).

Larvae may infect dead, necrotic (prematurely dying) or living tissue in various sites: the skin, eyes, ears, stomach and intestinal tract, or in genitourinary sites (Ockenhouse, 1990). They may invade open wounds and lesions or unbroken skin (John, 2006). It is predominantly seen in tropical and subtropical countries with poor hygiene, inadequate living conditions and warm weather. Myiasis in man is found rarely, and eye involvement in humans has a prevalence of less than 5% (Burns, 2012). Wound myiasis occurs when fly larvae infest open wounds. It has been a serious complication of war wounds in tropical areas, and is sometimes seen in neglected wounds in most parts of the world. Predisposing factors include poor socioeconomic conditions, extremes of age, mental disability, psychiatric illness, alcoholism, diabetes, and vascular occlusive disease (Namazi, 2009).

Case report

A 60 year old male reported to our dept. of oral and maxillofacial surgery in Rama dental college hospital & research centre, Kanpur with extensive destruction of right orbital cavity and complaining of pain, burning, itching, redness, watering in the right eye and swelling for the past five days. On local examination there was generalized right periorbital edema, with matting of the eyelashes and severe conjunctival vascular engorgement. A lesion of approximately 4×2.5 cm was noted at the medial canthus extending up to lateral canthus border. The ulcer had indurated margins with scanty blood-stained, foul-smelling discharge. Small freely

moving maggots were visible in the wound. The cornea was hazy. M.R.I was done and it was found that T1 hypointense& T2 flair hyperintensens soft tissue swelling in right orbito-naso frontal region. Optic nerve, eyeball and eye muscles were normal (Figure 1).

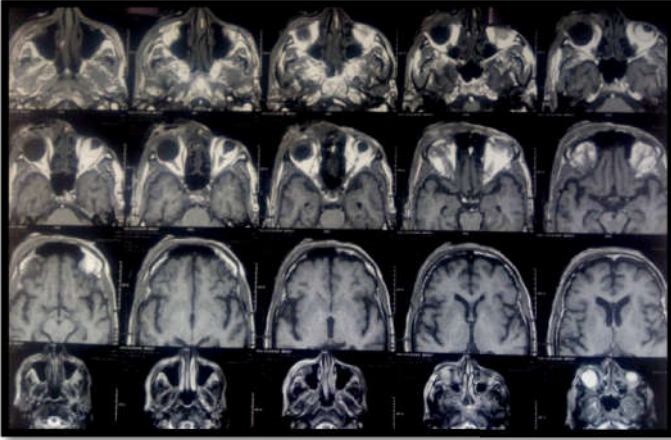


Figure 1. M.R.I scan orbit showing no signs of bone Involvement, with normal sinuses



Figure 2. Mechanical removal of maggots with wound debridement

The left eye was also examined for maggots and was found to be normal. Turpentine oil packing was done to immobilize the maggots. Mechanical debridement of the wound was done, and freely moving maggots were removed with the help of forceps, under local anesthesia using 4% lignocaine Figure 2. Regular dressing of the wound was done with removal of maggots for

next 3days. The patient was treated with intravenous amoxicillin potassium clavulanate 1.2gm given 8 hourly and intramuscular diclofenacpotassium 400 mg twice daily for 3 days, followed by oral amoxicillin/clavulanic acid 625 mg twice daily for 5 days. A single dose of albendazole 400 mg tablet was also given. Local application of oxxumspray to the right eye for 1 week was advised.



Figure 3. Follow up at 2 weeks, with completely healed wound



Figure 4. Maggots removed from patient's wound

The wound started to heal, with granulation tissue formation, and healing was completed by the end of 10 days (Figure 3). A total of 56 maggots were removed. The maggots were preserved in 10% formalin and sent for entomological evaluation to the Department of microbiology Rama Hospital. The larvae were white and cylindrical, tapering in the front, dark reddish-brown in colour, legless and without a distinct "head" and varied in size due to different stages of presentation, from 5 to 12.5 mm (Figure 4)

DISCUSSION

Human myiasis is a rare condition in any part of the world but it's more common in the regions with a warm and humid climate. Ophthalmomyiasis interna occurs when larvae penetrate into the eye (Spradbery, 2006). Ophthalmomyiasis is mainly manifested as orbital myiasis, ophthalmomyiasis externa (external ocular structure) and ophthalmomyiasis interna (internal ocular structures) (Ramonas, 2006). Normally, healthy individuals are unlikely to suffer from myiasis. Chronic debilitating conditions, such as leprosy, diabetes mellitus, open wounds, fungating carcinomas, psychiatric

illness, intellectual disability, hemiplegia, and immunosuppressive agents may predispose individuals to Myiasis (Khatamina, 2011). Similar to our case, few cases were reported from Iran in which a 70 years old woman with bilateral subretinal migration of larvae (Farahvash et al., 1998) and a 42-year-old female from Dibrugarh, Assam (Amit S Nene et al., 2015). Ophthalmomyiasis externa is characterized by superficial infestation of the ocular tissue and mimics allergic or viral conjunctivitis. Patients complain of pain, burning, itching, redness and watering in the affected eye with an abrupt onset accompanied by sensations of larvae moving in the eye (Duke-Elder, 1958). There are various methods for removal of the maggots. The basic principle involves either suffocating the larvae and forcing them out or first paralyzing them followed with mechanical debridement (Farahvash, 1998 and Amit, 2015) Systemic treatment with broad-spectrum antibiotics such as amoxicillin with clavulanic acid, metronidazole and cefazolin are indicated to prevent secondary bacterial infections (Mandell, 2000). Antiparasitic drugs such as ivermectin, a semisynthetic macrocyclic lactone can be used in cases of advanced orbital myiasis in a dose of 200 µg/kg (Asokan, 2013).

Conclusion

Ophthalmomyiasis is a rare disease but becomes significant in debilitated and compromised patients, as well as poor hygiene can provide a suitable ground for measures such as general cleanliness of surroundings, maintaining good personal hygiene, provision of basic sanitation, and health education have to be stressed, for preventing myiasis. We should also be alert about myiasis that can affect the patients with cancerous lesion.

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