

Bilateral Destructive Ophthalmomyiasis: A Rare Case Report

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Abstract

Ophthalmomyiasis refers to larval infestation of the eye. A 75 years old male bedridden since three years was brought to casualty by his neighbour after having noticed worms crawling around both his eyes. Examination revealed a poor general condition and bilateral ophthalmomyiasis with blood stained foul discharge. Surgical intervention was undertaken. More than 200 maggots were removed mechanically and it was noted that there was complete destruction of intraocular contents leaving behind the scleral shell in both eyes. Entomological examination revealed larvae to be of *Musca domestica* and histopathological examination of the surrounding tissue showed no malignancy. Despite intensive treatment patient died after four days of admission.

Keywords: Bilateral, Destructive, Ophthalmomyiasis

Key Messages: Elderly bedridden patients who live in poor hygiene with inappropriate home care are at a higher risk of ophthalmomyiasis. A multidisciplinary approach for patients with significant disability should be considered.

1. Introduction

The eye and orbit can be infested by insect larvae and is commonly seen in countries where standards of hygiene are poor. Cases of ocular myiasis in the humans were first reported by Keyt (1900) and later from India (Elliott, 1910), Egypt (Wahba, 1915) and the United States (Herms, 1950). Myiasis of the face occurs in 1% of cases¹, cases of ophthalmomyiasis with ocular destruction are still fewer, however all of them were unilateral^{2,3}. Ophthalmomyiasis with near total destruction of both eyeballs is rare and hence reported.

1.1 Case Report

A Hindu male, approximately 75 years old was brought to casualty by his neighbour after having noticed

worms crawling around both his eyes. The patient had undergone a neurosurgical procedure and was paralysed and bedridden for last 3 years. He belonged to poor socioeconomic class; his wife suffered from psychiatric illness and son died 10 years ago.

General examination revealed that the patient had altered sensorium, he was dehydrated and malnourished with presenting BP 90/60 mmHg. He had right upper limb cellulitis and maggots in web spaces of right hand. Eye examination showed bilateral ophthalmomyiasis (Figure 1). On right side the ulcer extended from the eyebrow to lower lid and from medial canthus to lateral canthus and was full of freely moving maggots with blood stained foul smelling discharge. On the left side the eyelids were intact with erythema and edema; maggots were also present in the palpebral aperture. Details of the globe could not be made out at this stage. ENT examination revealed no maggots in the Ears, Nasal and Oral Cavity.

CT scan showed periventricular ischemia, chronic lacunar infarct in right corona radiata, craniotomy defect in right frontotemporal region. Orbital CT showed that both had irregular contour and were shrunken with no

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visualisation of intraocular lens. Areas of bony erosion were noted in the right medial wall.

Patients' urgent blood investigation revealed high total count and deranged electrolytes. Patient was taken to OT for manual removal of maggots.



Figure 1. Original picture.

Examination revealed bilateral ophthalmomyiasis, more extensive on right side with freely mobile maggots in ulcer cavity and blood-stained discharge. Status of the eyeballs can't be made out at this stage.

1.1.1 Intraoperative Findings

There was complete destruction of intraocular contents leaving behind the scleral shell and remnants of choroidal tissue in both eyes (Figure 2). The maggots were buried deep into the orbital tissue which was difficult to remove manually, therefore turpentine soaked cotton was used to immobilise the maggots. Mechanical debridement of the necrotic tissue was done along with removal of maggots. More than 200 maggots measuring 10 mm * 2 mm size approximately were retrieved using forceps (Figure 3). Some of the maggots were preserved in 70% alcohol for species identification. Edges of the necrotic orbital tissues were sent for histopathological examination to rule out malignancy. Post-operatively patient was administered intravenous fluids and antibiotics, electrolyte corrections were given and sterile dressings were done. However, patient went into septic shock and had cardiac arrest four days after admission.

Maggots were identified to be of common housefly - *Musca Domestica* and histopathological examination revealed no malignancy.

2. Discussion

“The term ‘Myiasis’, derived from Greek word, “μύγα” means fly, was first proposed by Reverend Frederick William Hope in 1840. Myiasis has been defined as “the



Figure 2. Original picture.

On table picture of right eye after removal of maggots. Only the scleral shell with few choroidal remnants left behind. Similar was the status of left eye.



Figure 3. Original picture.

More than 200 maggots removed manually and placed in kidney tray containing turpentine.

infestation of live vertebrate animals with dipterous larvae, which, at least for a certain period, feed on the host's dead or living tissue, liquid body substances or ingested food” (Zumpt 1965). Eye infestation is referred to as ophthalmomyiasis.”

Ophthalmomyiasis can cause simple irritation of the eye, orbital destruction, blindness and even death¹⁻⁴.

It is divided into external, internal and orbital myiasis depending on the site of infestation⁵. Ophthalmomyiasis externa is limited to external ocular structures such as conjunctiva and adnexa. Ophthalmomyiasis interna refers to infestation of the eye and orbital myiasis infestation of the orbital structures.

Musca domestica is a rare cause for ophthalmomyiasis despite the fact that housefly is so common. "Review of literature showed two reported cases of *Musca domestica* ophthalmomyiasis, both from the Indian subcontinent^{5,6}. Maggots were retrieved from the conjunctiva in both cases."

Myiasis is a zoonotic disease, more common in developing countries which lack basic sanitation and places where there is inadequate garbage disposal. It is more common in rural areas. Additionally, orbital myiasis is also associated with neoplasms, especially skin malignancies around the eyes⁴. Eye injury left without treatment and previous eye surgery, such as evisceration are potential risk factors^{7,8}. Chronic debilitating conditions, such as diabetes mellitus, fungating carcinomas, psychiatric illness, intellectual, leprosy, hemiplegia and open wounds may predispose individual's to myiasis.

Orbital myiasis is usually unilateral and very rarely bilateral. The two cases of bilateral ophthalmomyiasis occurred in patients who had a systemic infection and had low levels of consciousness^{9,10}, but to the best of our knowledge no case of bilateral ocular myiasis has been reported where there is complete destruction of the intraocular contents on both sides.

The treatment basically involves complete removal of larvae. Since they can firmly clamp onto tissues, forceful extraction may lead to incomplete removal leading to an inflammatory response and therefore, suffocating and anaesthetic agents are used before manual removal to make the removal easier. "Suffocating agents like turpentine oil,^{4,7,8,10} petroleum jelly,⁸ and liquid paraffin,⁸ can block the larval breathing holes, forcing the aerobic maggots to migrate to the surface for air." Topical administration of anaesthetic agents such as xylocaine^{7,8} can paralyze the larvae and prevent them from penetrating deeper into the tissues.

Medical management of ophthalmomyiasis involves use of Ivermectin which is a broad-spectrum antiparasitic drug. Once the globe is penetrated, enucleation and if required, orbital exenteration becomes inevitable.

3. Conclusion

We report a case of an elderly man with Ophthalmomyiasis receiving inadequate post operative general care at home. Severe neurological diseases, skin cancer around the eye and untreated eye injuries are important factors predisposing to orbital myiasis. Appropriate general care and hygiene can prevent ophthalmomyiasis. Once occurred, timely removal of larvae can prevent deeper penetration and protect the eyeball. This case highlights the importance of clean environment and hygienic living conditions of elderly patients with significant disability. It also highlights the mental and physical condition of the primary caregiver.

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