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Editorial

Oculomyiasis: An overview

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The term 'myiasis' has its origin from the greek word "Myia" which literally means "fly".¹ This word was coined by Frederick William Hope in 1840.² Myiasis is a parasitic infestation of living vertebrate animals or humans by larvae of dipterian fly. Myiasis can be classified according to anatomical involvement³ as (i) Sanguinivorous or blood sucking, (ii) Cutaneous (furuncular or migratory), (iii) wound myiasis, (iv) cavitary myiasis (infestation of body cavity). Common cavitary myiasis are cerebral myiasis, aural myiasis, nasal myiasis, urogenital, vaginal myiasis and ophthalmomyiasis etc. Clinically myiasis can be divided into primary and secondary myiasis. In primary myiasis larvae feed on living tissue (biophagus) commonly seen in cattle and rarely in humans. Secondary myiasis caused by necrobiophagous larvae that feeds on dead or necrotic tissue. Wound myiasis is example of secondary myiasis where fly larvae invade in preexisting lesions like post traumatic wound, hemorrhagic or pus filled lesions and fungating necrotic wounds of cutaneous malignancies like extensive basal cell carcinoma (Figure 1). The fly is most commonly attracted by the foul odour or foetor and alkaline discharge of the exposed and diseased body parts.⁴⁻⁷ Poor local hygiene also encourages the deposition of eggs. Entomologically myiasis can be obligators, facultative and accidental. In obligatory myiasis parasite complete their life cycle in host and larvae can survive only in live vertebrates e.g. Calliphoridae cuterebridae. While in

facultative myiasis, parasites are free living but can infest the surrounding living tissue e.g. flies of Sarcophagidae family.⁸ In accidental myiasis parasites are free living and they feed on dead and decaying organic matter and myiasis occurs once gravid female fly come in contact with open body cavity.⁹

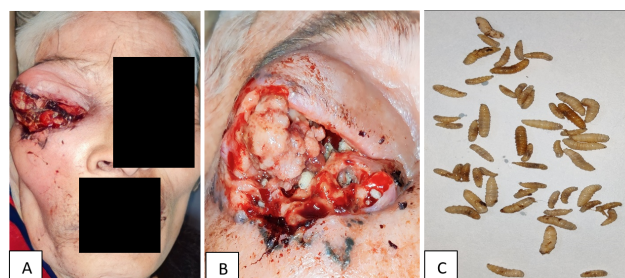


Fig. 1: (A): Old female patient having extensive Basal Cell Carcinoma with facial nerve palsy complicated by orbital Myiasis; (B): Multiple crawling maggots in ulcerated tumor mass; (C): Mechanically removed maggots

In the 1900s, Keyt first reported the case of Human oculomyiasis and later on by Elliot from India in 1910¹⁰ and Zumpt defined it.³ Oculomyiasis can be defined as larval infestation of any anatomic structure of eye and ocular adnexa. The vertebrate animals like dogs, cats, and cattle's etc. are definite host whereas human beings considered as an accidental host. Though it is a rare condition, human oculomyiasis can occur in any part of the world. But, it is

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most commonly seen in tropical and subtropical countries with warm and humid climates.¹¹ The common risk factors associated with oculomyiasis are illiteracy, advanced age, hot & humid climate, overcrowded living environment, poor sanitation, lack of personal hygiene, alcoholism, chronic debilitating disease, mental retardation, lack of self care (unconscious patient) etc.⁸ Neglected long-standing, large ulcerated necrotic malignant or traumatic wounds has been also reported as important predisposing factors for ophthalmomyiasis.^{11–13}

Oculomyiasis is a rare occurrence with variable clinical presentations in human beings. It accounts for less than 5% of all cases of human myiasis. The most common flies that cause human ophthalmomyiasis worldwide are *Dermatobia hominis* (human bot fly), *Cordylobia anthropophaga* (tumbu fly), *Oestrusovis* (sheep nose botfly), *Cochliomyia hominivorex* (screw worm) etc.⁶ Orbital involvement can also be rarely caused by *Wohlfahrtia magnifica* (flesh fly).^{1,8–10,14} Depending on the site of larval invasion, oculomyiasis can be of three types, ophthalmomyiasis externa, ophthalmomyiasis interna and orbital myiasis.¹² Clinical presentation depend on type of fly, ocular structures invaded by larvae and extension of larval invasion. Ophthalmomyiasis externa is limited to superficial ocular tissue (conjunctiv & eyelid) and it is mild, self limiting benign condition. Patient usually presents as unilateral sudden onset foreign body sensation, lacrimation, redness, photophobia and superficial punctate keratopathy which mimics like catarrhal conjunctivitis & keratitis.^{15–17} Ophthalmomyiasis interna is larval infestation of anterior or posterior segment of eye ball. It may be complication of ophthalmomyiasis externa due to scleral invasion by larvae. Anterior ophthalmomyiasis interna is quite rare while posterior ophthalmomyiasis interna may lead to fibrovascular proliferation or exudative detachment and blindness. Orbital myiasis is rare form of oculomyiasis but most disastrous ocular morbidity occurs when huge numbers of larvae infest the orbital tissue and destroy its contents.¹⁸ Eyelid malignancies are the most common predisposing factors for orbital myiasis. Orbital myiasis can complicate and aggravate the ocular malignancy.^{12,19}

Main aim of the treatment is to remove maggots completely.^{20–22} The crucial step in management of ophthalmomyiasis is mechanical removal of maggots with forceps after suffocating them with use of various chemical substances like turpentine oil with or without chloroform, ethenol, petroleum jelly or 4% xylocaine etc. which blocks the spiracles of larvae.²³ This mechanical removal of the larvae may also need more than one session.²⁴ Surgical debridement of involved region and systemic treatment with ivermectin could also be used as an effective means of treatment.^{25,26} Exenteration and surgical debridement of necrotic tissue might be needed to prevent intracranial extension by tissue destruction in case of massive orbital

myiasis.^{1,27}

The larvae could also be inactivated prior to surgery by using a single oral dose of ivermectin (150–200 mg/kg), making the manual removal of the larvae in easy way. Due to lack of standard protocols, management of myiasis can be challenging and hence should be first focused on its prevention. Creating awareness by nursing- home staff, paramedical, and medical personnel to possible myiasis in high risk group. Screens on the window panel could prevent flies from entering the rooms where immobilized patients and those with chronic wounds are living or hospitalized. Proper wound care, personal hygiene, adequate nutrition and treating the underlying condition of the patients also play a pivotal role in the recovery.


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