

PROLONGED PATCHING AN UNCOMMON CAUSE FOR ORBITAL MYIASIS

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PRESENTATION OF CASE

A case of orbital myiasis in a 68-year-old lady with complete ocular destruction without co-existing systemic disorder, immune compromise or malignancy is reported. Detailed history revealed prolonged patching of the same eye to subvert lagophthalmos as the precipitating factor. Spontaneous healing & satisfactory cosmesis were observed following maggot removal, debridement, antisepsis & oral Ivermectin.

A 68-year-old lady from a suburban background presented with fleshy brown foul-smelling mass in her right eye with overlying crawling maggots. History revealed a haemorrhagic stroke suffered by the patient 3 months back, with subsequent left sided hemiparesis and right facial palsy. Patient had since remained bedridden and was advised prolonged patching of her right eye to circumvent lagophthalmos. 15 days back, she developed severe pain in the right eye with total loss of vision. There was a serosanguinous discharge with a peculiar crawling sensation in her right eyelids. There was no history of diabetes, tuberculosis or ocular malignancy.

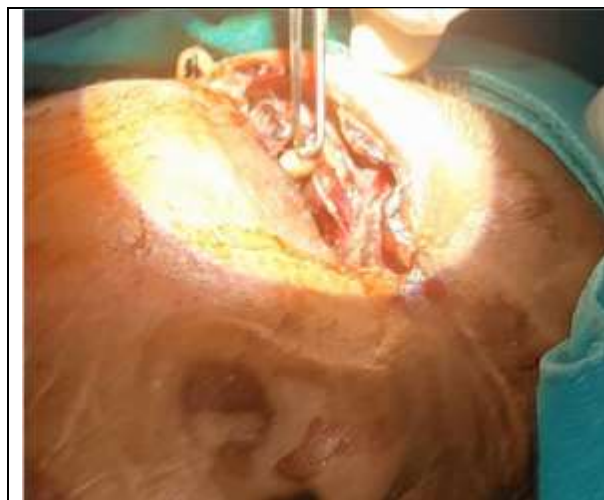


Figure 2. Removal of Maggots from Eye Structures Not Identifiable



Figure 3. Live Maggots Removed and Sent for Entomological Identification



Figure 1. Orbital Myiasis with Complete Destruction of Globe

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Detailed history and generalized examination to detect domiciliary causes of myiasis was undertaken. Ocular and ENT examination was followed by radiological assessment (plain CECT brain & orbit) to evaluate extent of orbital destruction and intra cranial involvement. Scrupulous debridement along with physical removal of maggots undertaken using sequentially 70% alcohol and turpentine oil.

Patient was thin built, with moderate pallor, no icterus or cyanosis & fair hydration. No preauricular or submandibular lymphadenopathy were noted. Cardiovascular & Respiratory examination was unremarkable. Abdomen was soft, non-tender with no

hepato-splenomegaly. CNS examination revealed left sided hemi-paresis & right sided facial paresis.

Right eye examination revealed a fungating, foul smelling, ulcerated mass involving the whole orbit that mildly bled on touch. Ocular structures were unidentifiable with complete disorganisation of the tissues including eye lids. Vision was absent.

Left eye examination was within normal limits with early cataractous changes & an unaided vision of 6/18.

PATHOLOGICAL DISCUSSION

Hb-10.6 gm%, Total RBC count- 3.31 million/cu mm, TLC- 7630/cumm, BT- 2.20 min, CT- 4.0 min, Prothrombin time 14.1 sec, DLC- N₈₂L₁₁E₀₄M₀₂B₁, PCV- 31.4%, Platelet Count - 1.77 Lakhs/ cu mm. Urine & stool examination reports were within normal limits.

CECT Skull & Orbit with 5 mm axial slices revealed small pthysical globe in right orbit with disorganized ocular tissue. Few calcific foci were noted in the right globe. Soft tissue thickening contiguous with right eyeball & fat stranding in preseptal and periorbital region were noted. Soft tissue opacification of right frontal sinus suggested sinusitis. No infiltration of intra-cranial space or para nasal sinuses were noted.

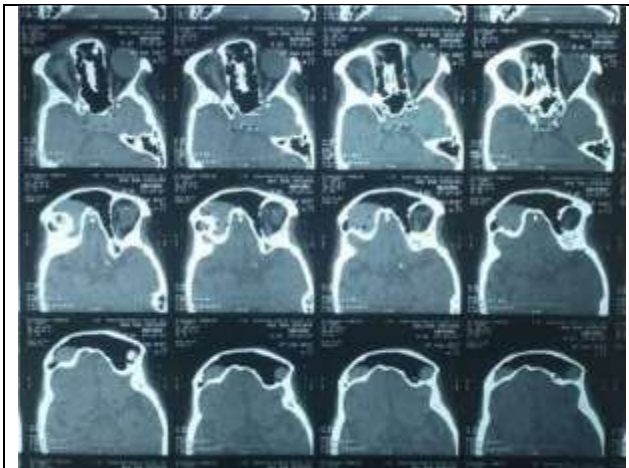


Figure 4. Complete Destruction of Right Globe; No Intra Cranial Involvement Seen

Punch biopsy of orbital margin revealed lymphocytic infiltration & erythrocytosis suggesting chronic inflammatory changes. Malignant changes were however not detected. Absence of fungal hyphae or spores ruled out fungal pathology.

Myiasis is the term used to describe invasion of living animal tissue by fly larvae or maggots.¹ These larvae by virtue of their specialized attachment hooks adhere to the tissue while actively feeding on them. Orbital myiasis as first reported by Keyt in 1900 describes invasion of the globe and its adnexal structures by the feeding larvae (maggots) of flies of various species.² The common implicating flies are the sheep nose botfly (*Oestrus ovis*), the human botfly (*Dermatobia hominis*) and the Botfly of Caribou (*Hypoderma tarandi*).³ More rarely infestation by *Wolphartia magnifica* & *Chrysomya bezziana* is reported.^{1,4} Proximity to these flies

as is often observed among livestock handlers, explains higher incidence of detection of this condition in them. Larvae of the common housefly (*Musca domestica* Linnaeus) causing external or internal ophthalmomyiasis has been rarely reported. Association of Orbital myiasis with poor hygiene, debility, immune-compromised status, infection and ocular malignancy with Basal cell carcinoma in particular are well established.^{5,6,7,8}

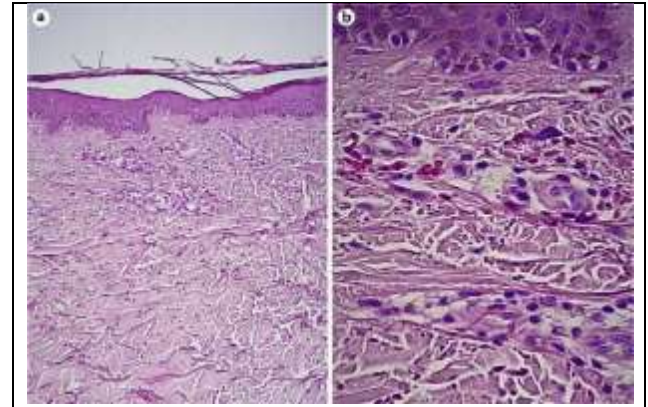


Figure 5. Marked Lymphocytic Infiltration Noted in the Excised Tissue

Ophthalmomyiasis (orbital myiasis) causes severe ocular irritation, oedema, and pain. It is known to lead to uveitis, glaucoma, and retinal detachment.⁹ Majority of case reports however describe the condition in an advanced stage with total destruction of globe. Basal cell carcinoma creating an open necrotic bed for flies & maggot replication is a common accompaniment.^{7,8} The clinical picture of Orbital myiasis is governed by the causative factors, state of disease and general health status of the individual. Often the incursion of maggots in the live orbital tissue is masked by fungating masses, necrotic crusts, severe oedema and muco-purulent discharge. Frank detection of maggots is late and may follow, only after complete destruction of globe.

The taxonomic order of true flies, Diptera is large with an estimated 240, 000 insect species.⁴ The usual life cycle of such insects goes through the stages of eggs, larvae, pre-pupa, pupa and adult flies, with larvae or maggots being the feeding stage. The tremendous growth potential of larvae, (approx. 8-10 times its size) in a matter of 4-5 days accounts for its potential to destroy host tissue. The larvae of some Diptera species are obligate parasites, while others are facultative (survive both inside & outside host animal tissue). Some species (sheep botfly or *Oestrus ovis*) are larviparous, injecting larvae directly into exposed tissues such as nostril, nasopharynx & eyes. Others are oviparous that lay eggs on exposed necrotic tissues where the larvae hatch and migrate inside the tissue. The housefly *Musca domestica*, is a fly of the suborder Cyclorrhapha. The female housefly usually mates once & stores the sperm for later use. Each female fly can lay up to 500 eggs in a lifetime, in several batches of about 75 to 150 on decaying organic matter. These soon hatch into legless white maggots which after 2 to 5 days of development transform into reddish-brown pupae, about 8 mm (0.3 in) long.

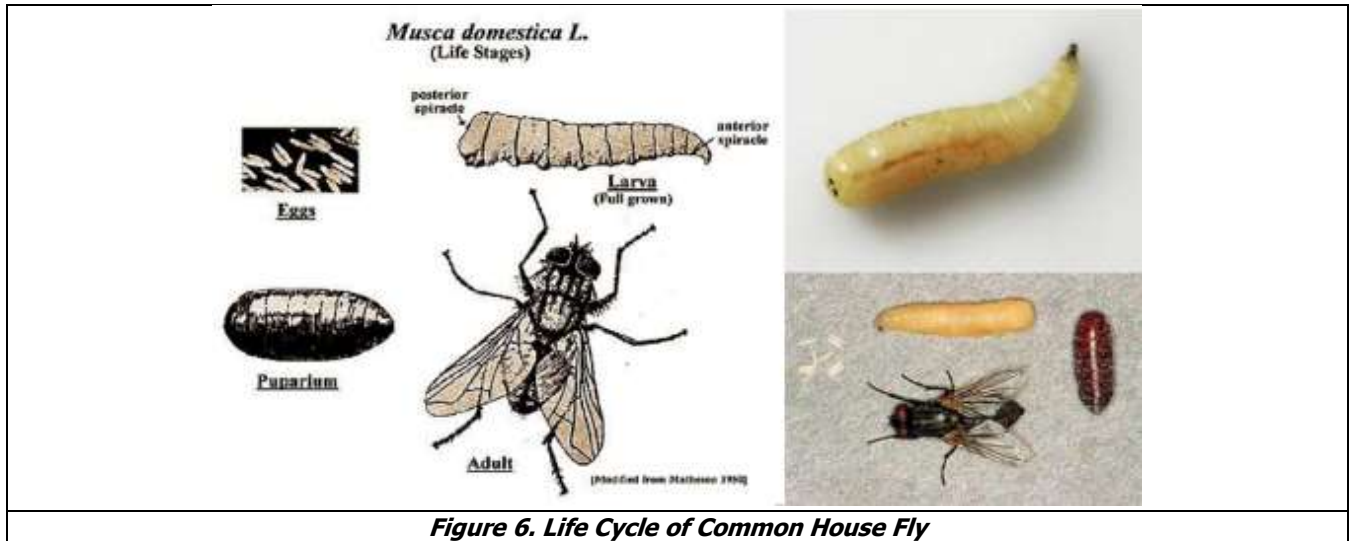


Figure 6. Life Cycle of Common House Fly

Compromise of periorbital tissue predisposes eye to ocular myiasis. Such loss of vitality can be precipitated by malignancy, ischemia, infections or surgeries.⁵ Orbital myiasis has a sporadic incidence accounting for less than 5% cases of human myiasis. Most case reports of orbital myiasis are associated with malignant condition like basal cell carcinoma & squamous cell carcinoma.^{6,10} Extreme debility, poor hygiene, & apathy lead to destruction of orbital tissues even in absence of malignancy.¹¹ Prolonged patching by causing pressure necrosis may devitalize the involved tissue. It may also mask the early detection of maggots, hence facilitating rapid destruction of orbital tissues and vision loss. Broad spectrum anti parasitic drug Ivermectin facilitates in the easy removal of maggots as has been substantiated by other case reports.^{12,13} Physical dislodgement of maggots by asphyxiating agents such as turpentine oil, alcohol, ether, hydrogen peroxide or liquid paraffin are the mainstay of management. Surgical debridement can be aided by injecting 2% lidocaine into the base of the maggot eaten cavity.

CLINICAL DIAGNOSIS

Ophthalmomyiasis?, Underlying Malignancy.

DIFFERENTIAL DIAGNOSIS

- Mucormycosis
- Unattended Orbital Cellulitis
- Cavernous Sinus Thrombosis
- Basal Cell Carcinoma
- Squamous Cell Carcinoma of Eyelids
- Sebaceous Gland Carcinoma
- Keratoacanthoma
- Lacrimal Gland Tumours
- Squamous Cell Carcinoma of Maxillary Antrum
- Rhinosporidiosis

DISCUSSION OF MANAGEMENT

Scrupulous debridement along with physical removal of maggots was undertaken using 70% alcohol and turpentine oil.



Figure 7. Debridement of Orbital Tissue Following Maggot Removal

A single dose of Ivermectin (200 mcg/Kg) was given to aid removal of maggots, along with a 10-day course of systemic antibiotics & anti-inflammatory drugs. Parenteral nutritional supplementation was added to enhance recovery. Entomological assessment of maggots identified the larvae as that of common housefly, 'Musca domestica Linnaeus'. Punch biopsy of orbital margins ruled out malignancy. Antiseptic dressing with 5% povidone iodine & paraffin gauze continued for a period of 3 weeks. Antibiotic powder (neosporin) sprinkling over wound was advised on discharge. Despite globe destruction and underlying necrosis, fairly good healing as signalled by healthy granulation tissue formation were noted. Satisfactory natural cosmesis obviated need for reconstructive procedure.

Extreme debility, poor hygiene, low socioeconomic status, proximity of domesticated animals and personal apathy of the patient and attendants were noted as contributory factors to orbital myiasis. An episode of partial stroke with closure of eyelids for around a month reported 3 months back seemed as the triggering factor. The practice of prolonged patching in old, neurologically challenged patients with metabolic disorders increases the risk of non-healing wounds, making such patients prone to Ophthalmomyiasis. Orbital myiasis generally reported in immunocompromised patients & ocular malignancy, may present in non-pathological eyes when subjected to extreme

debility & prolonged lid closure. Destructive potential of common housefly larva is at par with other parasitic flies. Maggot extermination, antiseptics & Ivermectin achieve fast recovery with salvage of viable tissue and possibly vision if detected in time.

FINAL DIAGNOSIS

Orbital Myiasis.



Figure 8. Satisfactory Cosmesis a Week Later

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