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CASE REPORT

# OPHTHALMOMYIASIS EXTERNA CAUSED BY SHEEP BOTFLY (OESTRUS OVIS) LARVA: RARE CASE REPORT

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## INTRODUCTION:

Ophthalmic myiasis is due to deposition of fly larvae in the human eye. Various species of flies are able to provoke ophthalmomyiasis, including, Oestrus ovis , latrine fly (Fannia), house fly (Musca domestica), and cattle botfly (Hypoderma).[14,15] Oestrus ovis is by far the most common cause of ophthalmic myiasis in man.[8] Ophthalmic myiasis due to Oestrus ovis was described for the first time in 1947 by James.[11]

**Figure 1:**

**Figure 1:**

The most common site of infestation is the skin wound. Less common sites are eyes, nose, paranasal sinuses, throat, and urogenital tract. [1 – 5] Myiasis appears to be fairly common but underestimated in many rural areas. More scattered cases have been reported since then from Mediterranean area, like Italy, and also from Russia, Serbia (previous Yugoslavia), Iran, Africa, America, and Oman.[9, 10] Although only a few cases of ophthalmomyiasis have been reported from India, [6, 7] many shepherds in Fars Province are familiar with this problem. Myiasis is more common than what have been indicated by previously published reports.

Symptoms, such as severe eye irritation, redness, foreign body sensation, pain, lacrimation, and swelling of the lids, and also, predominance of male patients and warmer climate presented in this study are Similar to those described in other reports. Complications such as corneal ulcer, invasion into eye globe, and decreased vision are not usual and none of these complications were encountered in our patients. But the larvae from some other species such as Hypoderma (or cattle botfly) can penetrate the eye globe and cause endophthalmitis and irridocyclitis, and may even lead to blindness.[25]

The predisposing factors to ophthalmic myiasis have been reported to be eye infection, young age, alcohol abuse, and debility. [26] But none of these factors were present in our patients. The treatment consists of anesthetizing the larvae and the eye, followed by removal of the larvae. Antihistamine drops and/or topical antibiotics may also be used as needed. Myiasis should be considered as an occupational disease among farmers and shepherds. Awareness of the larval conjunctivitis in rural areas, especially during spring and summer, leads to the more prompt diagnosis, and institution of specific therapy for the disease.

## CASE HISTORY

NAME: MAHADEV

AGE/SEX: 23y MALE

OCCUPATION: FARMER/SHEPHERD ADDRESS: INDI, BIJAPUR.



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CHIEF COMPLAINTS: complaint of sharp pain, foreign body sensation, burning and excessive watering from his right eye after something fell in his right eye while working out doors in the fields, Before coming to the hospital he had noted tiny white worm like objects crawling in the eye which came in hand while rubbing the eye.

PRESENTING ILLNESS: pt was alright 2 days back when he was hit by a fly in his right eye while he was working out doors in the fields.

Following which he noticed sharp pain, foreign body sensation, burning and excessive watering from his right eye. Before coming to the hospital he had noted tiny white worm like objects crawling in the eye, he tried to wash them out but there was no relief there was no significant history of ocular or medical problems preceding this.

No h/o trauma, watering/discharge in past, No h/o watering/ discharge from nose

No h/o diminished vision, No h/o fever, or other systemic illness in past

PAST HISTORY: Nothing significant.

FAMILY HISTORY: Nothing significant.

PERSONAL HISTORY: Nothing significant.

GENRAL PHYSICAL EXAMINATON: Here is a young male pt moderately built well nourished, well oriented with time place and person.

Pulse:-82 beats /min,

Bp: 128/86 mmHg,

RS: NAD, CVS:-NAD, PA:-NAD

OCCULAR EXAMINATION:

| ANTERIOR SEGMENT :- | RIGHY EYE | LEFT EYE |
|---|---|---|
| | | |
| Head posture:- | N | N |
| Facial symmetry:- | N | N |
| Fore head:- | N | N |
| Eye brows:- | N | N |
| Orbits:- | N | N |
| Eye balls:- | N | N |
| Eyelids:- | odematous | N |
| Palpebral fissure:- | reduced | N |
| Lacrimal apparatus:- | N | N |
| Conjunctiva:- | congested chemosed | N |
| | small transparent | |
| | worms crawling | |
| Sclera:- | N | N |
| Cornea:- | N | N |
| Anterior chamber:- | N | N |
| Iris:- | N | N |
| Pupils:- | N | N |
| Lens:- | N | N |
| IOP:- | N | N |
| VISUAL ACIUTY:- | 6/6 | 6/6 |

Conjunctival finding was the presence of white tiny worm like organisms crawling over the conjunctiva, Normal Slit-lamp examination revealed a number of small 1-2mm long translucent organisms over the conjunctiva .The organisms were motile and actively avoided the light of the slit-lamp. These organisms moved freely over the palpebral and bulbar conjunctiva and were occasionally seen darting over the cornea .The organisms were more in the upper temporal aspect of the bulbar conjunctiva. Direct and indirect Ophthalmoscopic examination of fundus after mydriasis did not reveal any evidence of intraocular organisms.



 

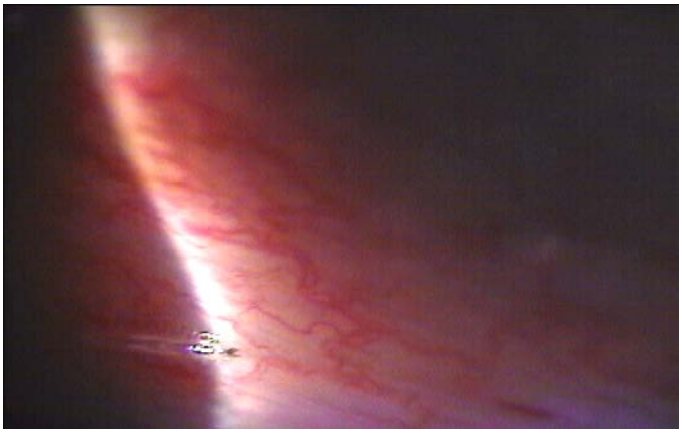

**Figure 3:**


**Figure 3:**

**TREAMENT:** After topical Lidocaine 4% drops about 15 organisms were removed with the help of cotton swabsticks and fine plane forceps. The organisms were placed in normal saline for identification. Through saline wash was given and Topical antibiotics and steroid drops were prescribed

On examination under the microscope the organisms were identified as the first stage larvae of Oestrus ovis (the sheep nasal botfly) characterized by a pair of sharp dark brown oral hooks connected to the large internal cephalopharyngeal skeleton and by tufts of numerous brown hooks on the anterior margin of each body segment . The posterior spiracles were found, in the eighth segment.

Q. What is ocular myiasis (OM)?

A. Myiasis (my-EYE-uh-sis) is defined as the invasion of living animal tissue by fly larvae (maggots). When larvae invade the eye, this condition is termed ocular myiasis (OM) or ophthalmomyiasis (op-THAL-mo-my-EYE-uh-sis). Larvae most commonly attack the lids or conjunctiva (external ophthalmomyiasis). In rare instances they may penetrate into the eyeball itself (internal ophthalmomyiasis). External OM can usually be remedied without complications; however, internal OM is very serious and often results in serious damage including blindness.

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Q. What causes ocular myiasis (OM)?

A. In the majority of cases, OM is caused by larvae of the sheep nose bot fly (Oestrus ovis), although other species such as the human bot fly ( Dermatobia hominis) are occasionally involved. The sheep nose bot fly is a large, hairy, yellowish-brown, bee-like fly. It resembles a honey bee, but is slightly smaller in size. Unlike most flies, O. ovis gives birth to live young (larvae) which are capable of parasitizing hosts immediately. In its normal life cycle, the adult female fly deposits larvae around the nostrils of sheep and goats and the larvae migrate into the sinuses. There, they mature by going through three progressively larger larval stages (instars). After a few months, the fully mature larvae (third instar) pass out of the nostrils and pupate on the ground. Adult flies emerge from the pupae approximately 3 – 6 weeks later and live for about a month.

Q. How do you get ocular myiasis (OM)?

A. Occasionally, the sheep nose bot fly deposits larvae near the eyes of humans living or

working in close proximity to livestock. In humans, O. ovis larvae generally do not develop

past the first instar stage, although other species may grow much larger. An interesting feature of O. ovis is that it can deposit larvae while still in flight. The fly darts close to the eyes or nostrils and ejects a stream of larvae into the target area.

Q. What is the geographic distribution of ocular myiasis?

A. OM can occur in most regions of the world, particularly in underdeveloped or rural areas where livestock are prevalent. It is most common in the Middle East, Africa, and Central America. Few cases occur in the United States. Several cases have recently been reported among military personnel serving in Iraq.



 

Q. What are the symptoms of ocular myiasis?
A. OM is characterized by a condition similar to conjunctivitis, marked by pain, burning, itching, redness, and tearing in the affected eyes. Often these symptoms are accompanied by the sensation of a foreign body moving in the eye. Many patients report having had an insect buzzing around their face or striking them in the eye immediately prior to the onset of symptoms. In extreme cases the larvae may penetrate the mucosal sinus causing swelling, pain, and frontal headaches, or may invade the globe of the eye, causing retinal damage and blindness. Occasionally, if a larva dies in the eye, a permanent nodule resembling a sty may develop.

Q. How is ocular myiasis diagnosed and treated?
A: The larvae of the sheep nose bot fly are grey-white in color and measure about 1 mm long. They have eleven body segments, each with spines or hooks which allow them to maintain their hold on the host tissue while moving about by means of peristaltic Contractions. A pair of enlarged oral hooks on the anterior end (mouth) anchors the larva firmly while it feeds on eye secretions and bits of broken tissue. The larvae are readily visible to physicians examining the eye. In some cases they can be seen traveling through the Cornea. Early growth stage larvae can often be carefully extracted from the eye with fine forceps. Anesthetic drops may be useful to immobilize the larvae during removal. Antibiotic ointments have also been used to help suffocate the larvae, thereby facilitating removal. Antibiotic ointments or drops, as well as topical corticosteroids, can be used to prevent secondary bacterial infection and reduce inflammation. Follow-up examination is advisable to rule out complications or the existence of additional larvae. If the larvae have burrowed more deeply into the conjunctiva, sinuses, or eyeball, surgery may be required.

Q. Can ocular myiasis be prevented?
A. The best way to prevent OM is to avoid locations where livestock are housed or where they congregate, especially in areas of the world where OM is most common. In addition, using the standard military skin and clothing repellents (DEET and permethrin, respectively) will reduce the ability of flies to get close enough to your face to deposit larvae. Head nets are effective in preventing attack by flies, but may not be practical in certain hot environments or deployment situations. It is also important that medical personnel be familiar with OM so that they can diagnose and treat the condition effectively. Use both skin and clothing repellents that have been approved by the Environmental Protection Agency (EPA). They are safe and effective.

For your skin, use a product that contains 20-50% DEET (N,N-diethyl-meta-toluamide). DEET in higher concentrations is no more effective. Apply DEET lightly and evenly to exposed skin; do not use underneath clothing. Avoid contact with eyes, lips, and broken or irritated skin. To apply to your face, first dispense a small amount of DEET onto your hands and then carefully spread a thin layer.

Use DEET sparingly on children, and don't apply to their hands, which they often place in their eyes and mouths. Wash DEET off when your exposure to flies, ticks, mosquitoes, and other arthropods ceases. For your clothing, use a product that contains permethrin. Permethrin is available commercially as 0.5% spray formulations. Permethrin should only be used on clothing, never on skin. When using any insect repellent, always FOLLOW LABEL DIRECTIONS.

Do not inhale aerosol formulations. For optimum protection from flies and other disease-bearing arthropods (such as mosquitoes and ticks), soldiers should utilize the DOD INSECT EPELLENT SYSTEM . In addition to proper wear of the battle dress uniform (BDUs)(pants tucked into boots, sleeves down, undershirt tucked into pants), this system includes the concurrent use of both skin and clothing repellents:

Standard military skin repellent: 33% DEET lotion, long-acting formulation, one application lasts up to 12 hours, Standard military clothing repellents: either aerosol spray, 0.5% permethrin , one application lasts through 5-6 washes, or impregnation kit, 40% permethrin, one application lasts the life of the uniform (approximately 50 washes),

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