

A case report of Ophthalmic Myiasis in an urban setting.

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Abstract:

Myiasis is the infestation of the tissues and organs of animals or man by fly larvae. Oestrosis is a regional myiasis caused by larvae of the fly *Oestrus ovis* which belongs to class Insecta, order Diptera and family Oestridae. In this study, we present the clinical manifestations of external ophthalmomyiasis caused by the larvae of the sheep nasal botfly, *Oestrus ovis*, in a 46 year old male patient, who did not work in close contact with sheep or goats. He presented with pain and foreign body sensation in left eye. On detailed examination, the larvae were observed on the bulbar conjunctiva and in fornices. Following their removal, the symptoms of eye inflammation improved in a few hours.

Keywords: Conjunctivitis, External Ophthalmomyiasis, *Oestrus ovis*, Sheep nasal botfly.

Introduction:

Myiasis is the infestation of tissues or organs of animals or humans by the larvae of a dipteran fly. The common sites of affection are wounds and cuts in skin. Eyes, nose, nasal sinuses, throat and the urogenital tract are the less commonly affected^[1,2] Various species of flies can provoke ophthalmomyiasis, which include *Oestrus ovis*, latrine fly (*Fannia*), house fly (*Musca domestica*) and cattle botfly (*Hypoderma*). *Oestrus ovis* is by far, the most common cause of ophthalmic myiasis in humans. Sheep bot (*Oestrus ovis*) is a cosmopolitan parasite of sheep and goats. The sheep nose bot is bee-like, hairy, yellowish and about the size of a common horsefly. The adult flies are 12-14 mm in length. The adult female fly is active during spring and summer. It retains its eggs in the body until they hatch. The gravid adult female fly swarms around the heads of animals and ejects the first-instar larvae, previously hatched from the eggs in its vagina, through a stream of milky fluid onto the nostrils of the host. The flies may deposit as many as 500 larvae at a time. A direct contact between the fly and its host is not essential for infestations. The larvae of *Oestrus ovis* mature in the mucous membrane of the nasal cavities, where they remain for about 10 months and then are sneezed out of the nostrils. The adult flies may also dart their larvae in the eyes of human beings, especially eyes of sheep and goat farmers/workers.¹ The first stage larvae (L1) do not mature in such unnatural human hosts but erratically wander on the ocular sites producing ophthalmomyiasis.^[1,3] An ocular involvement occurs in about < 5% of all cases of human myiasis.^[4,5] Ophthalmomyiasis may be classified as ophthalmomyiasis externa if the larvae are present only on the conjunctiva and as ophthalmomyiasis



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interna if the larvae penetrate intra ocularly.^[6] Symptoms such as severe eye irritation, redness, foreign body sensation, pain, lacrimation, and swelling of the lids, with a predominance of male patients and a warmer climate are features of infestation.

Complications such as corneal ulcers, intraocular invasion and decreased vision are uncommon.^[1] The factors which predispose to ophthalmic myiasis are ocular infection, young age, alcohol abuse and debility. The treatment consists of anaesthetizing the eye, followed by removal of all the larvae. Antihistamine drops, mild steroid drops, topical antibiotics may be used, as needed.

Here, we present the clinical manifestations of ophthalmic myiasis in a single patient from the Ahmedabad district of Gujarat, India who did not work in close contact with sheep or goats. The present case highlights the awareness among the ophthalmologists regarding larval conjunctivitis in spring and summer seasons, even in urban areas, with a mention of timely diagnosis and treatment of this rather rare infestation.

Case Report:

A 46 year old male patient, resident of Ahmedabad, was referred with an evidence of an ophthalmic inflammation to our tertiary care hospital during the month of March. The major clinical features were sudden onset of left eye watering, foreign body sensation, burning sensation, itching with redness. Patient gave alleged history of fall of some unknown foreign body while he was standing under a tree. Patient had no associated complaints of blurred or decreased vision or discharge. Patient consulted a local doctor who prescribed him some eye drops (details were not available). But complaints did not resolve so patient was referred to our institution for further management.

He had no history of similar episodes or allergic reactions in the past. There was no significant past history of eye disease, eye surgeries, previous ocular foreign body or ocular trauma nor any significant systemic, personal or family history. He did not have any positive history regarding any close contact with sheep/goat or agricultural activities.

Best corrected visual acuity was 6/9 in both the eyes on the Snellen's chart. On torch light examination, only conjunctival congestion was found in the left eye. On thorough slit lamp examination unilateral and extra ocular eye involvement was found with white colored motile larvae present on the bulbar conjunctivae and in the fornices.

There was no evidence of corneal or intraocular involvement. Larvae which varied from four to five in number measured up to 2 mm in length.

The provisional diagnosis of myiasis was made by a direct visualization of the larvae. The larvae were removed with help of sterile forceps after instillation of proparacaine 0.5% eye drops. The eye was given thorough septidine and normal saline wash. The larvae were transported to laboratory in distilled water. They were mounted on a microscope slide, examined carefully and photographed under a microscope. The larvae were identified as the first instars of *Oestrus ovis* (Diptera: Oestridae), which is a larviparous dipteran, on the basis of their spindle shape and the pair of sharply curved mouth-hooks. The pattern of the spinules on the dorsal surface consisted of a complete row of denticles on the third segment and a broadly interrupted row on both the fourth and fifth segments, with 22 to 25 terminal hooks

being arranged in two scallops. So, the diagnosis was confirmed of ophthalmic myiasis after microbiological examination.

Image 1: Oestrus ovis larvae found in lower Conjunctival fornix on slit lamp examination



Image 2: Enlarged view of the Oestrus ovis larvae



Image 3- Microscopic image of a dissected Oestrus ovis larvae



Following the removal of all the larvae, patient was topically started on Moxifloxacin (0.5%) eye drops and Carboxy Methyl Cellulose (0.5%) eye drops 6 times a day for prophylaxis against infection and lubrication. Patient was advised tablet Levocetirizine (5mg) to overcome any allergic reaction from toxins released during larvae removal. Patient was symptom free and normal in a day but was kept under regular follow up for a month for detection of further larvae and early diagnosis of any complications. No further larvae were found on follow up and no complications developed.

Discussion:

The ophthalmic myiasis in human beings, which is caused by *Oestrus ovis*, was described for the first time in 1947 by James.^[7] Cases have been reported from various parts of the world^[8,9,10,11] particularly Mediterranean countries, Central America and South Africa. Around 10 cases presented in Tamil Nadu district.^[1] Three cases have been reported from North India.^[12] Few isolated cases have been reported from different parts of India including urban areas.^[13,14,15]

Human myiasis mostly occurs in the rural areas, where man lives in close contact with small ruminants. Sheep and goat are the main hosts for myiasis which is caused by *Oestrus ovis* and humans are infested accidentally. Ocular myiasis which is caused by the infection of the first stage larvae of the sheep botfly and is associated with mucopurulent conjunctivitis in

the human eyes is a rare occurrence. However, if the sheep botfly, *Oestrus ovis* abounds, there may be chances of the deposition of its larvae in the conjunctival sac of the human eyes.

Conclusion:

Myiasis should be considered as an occupational disease among farmers and shepherds. Awareness on larval conjunctivitis in rural areas, especially during spring and summer, leads to a more prompt diagnosis, and institution of specific therapy for the disease. The infestation can be missed in people of urban areas with no close contact with sheep or agricultural industry, where it becomes important not to miss the diagnosis and treat early and wisely to prevent complications. This case report emphasizes on the same. This case report may also guide the diagnosis and treatment regimes in cases with a similar clinical picture.

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