

# Unilateral conjunctivitis of unique etiology: A case report from Eastern India

**Nandita Pal,  
Bhuban Majhi<sup>1</sup>**

Department of Microbiology, College of Medicine and Sagore Dutta Hospital, <sup>1</sup>Department of Cardiology, Institute of Cardiovascular Sciences, IPGMER and SSKM Hospital, Kolkata-20, West Bengal, India

**Address for correspondence:**

Dr. Nandita Pal, Department of Microbiology, College of Medicine and Sagore Dutta Hospital, Kamarhati, Kolkata - 700 058, West Bengal, India. E-mail: nansjj@gmail.com

## Abstract

A middle-aged female patient from West Bengal presented with complaints of redness, foreign body sensation, and watering for 2 days in the left eye. Slit lamp examination of the left eye revealed several minute white foreign bodies moving over the bulbar conjunctiva. Removal of the foreign bodies under local anesthesia, followed by microscopic examination, suggested the presence of first instar larvae of *Oestrus ovis*; the sheep nasal bot fly. Diagnosis of unilateral external ophthalmomyiasis was made. Such cases though very infrequently have been reported in the past from Southern and Central Part of India. To the best of our knowledge, this is the second report from Eastern India. A high index of suspicion is necessary both on the part of the clinician and the microbiologist for correct diagnosis.

**Key words:** *Oestrus ovis*, ophthalmomyiasis externa, sheep nasal botfly, unilateral conjunctivitis

## INTRODUCTION

Conjunctivitis is a very common cause of bilateral as well as the unilateral red eye. Most of the infections are of viral and bacterial etiologies. However, parasitic infestations may also manifest as unilateral red eye. Although rare, the occurrence of exoparasitic maggot infestations of nose and eye in human being have been found in Africa, Central America, and Mediterranean countries and is termed as myiasis.<sup>[1]</sup> It is caused by the larvae of numerous dipteran fly species, including the sheep botfly *Oestrus ovis*. This species is an obligate parasite in the nasal cavities and

frontal sinuses of sheep but may also cause accidental infestation in human.<sup>[2]</sup> Involvement of the eye is termed ophthalmomyiasis and may be classified according to its location as external, internal, or orbital.<sup>[3]</sup> Symptoms of external ophthalmomyiasis are nonspecific. So it may be misdiagnosed as any other conjunctivitis if physicians do not take myiasis into consideration.

## CASE REPORT

A 36-year-old lady presented with complaints of redness, foreign body sensation, and watering for 2 days in the left eye.

She gave a history of dust entering the eye while boarding a roadside cab. She had unaided visual acuity of 6/6 in both eyes. The right eye was asymptomatic. Left eye examination revealed hyperemic bulbar and palpebral conjunctiva and motile minute white bodies on the conjunctival surface. There was no corneal involvement. Anterior chamber, lens, and posterior chamber examinations were normal. On direct ophthalmoscopy, bilateral fundus oculi was found healthy. Examination of left eye under slit lamp revealed several highly motile worm-like organisms of about 1-2 mm long moving on the external surface of the conjunctiva. These organisms moved away from the slit lamp beam to the fornix. They were immobilized using 0.5% propacain drops and were removed using McPherson Forcep under slit lamp examination. And, few were placed into a freshly opened vial containing tear drop solution for further investigation. The eye was irrigated with saline solution. The specimen was sent to microbiology laboratory for identification.

Light microscopy of wet mount prepared from the specimen showed spindle-shaped body with a pair of sharp, dark brown oral hooks, connected to a large internal cephalopharyngeal skeleton. The body was divided into segments, and each segment had tufts of numerous brown appendages at the margins. These findings were suggestive of first instar larvae of *O. ovis* [Figure 1]. The rest of the ocular examination was normal, so diagnosis of unilateral external ophthalmomyiasis was made.

The patient was advised for instillation of anti-inflammatory and antibiotic eye drops. The patient gradually improved and was completely asymptomatic on her next visit after 7 days.

## DISCUSSION

*O. ovis*, also called sheep nasal botfly, belongs to class *Insecta*, order *Diptera* and family *Oestridae*. It is a cosmopolitan parasite that infects the nasal sinuses of sheep and goats. During the summer and early autumn, the adult female flies are active, laying, and retaining eggs until they hatch. The gravid adult female fly swarms around the head of the animals and ejects the first instar larvae on to the nostrils of the host. The larvae mature in the mucous membrane of the nasal cavities are sneezed out of the nostrils and they pupate in the soil. Adults then emerge from the pupae. Occasionally, due to an aberration in the life cycle, man becomes the intermediate host.<sup>[4]</sup> Ocular involvement or ophthalmomyiasis is seen to occur in about 5% of all cases of myiasis.<sup>[5]</sup> Human conjunctival myiasis manifestations are usually short-lived and self-limiting, as the larvae cannot develop further and die within 10 days<sup>[6]</sup> though they may



**Figure 1:** Photomicrograph showing first instar larva of *Oestrus ovis* ( $\times 150$ )

rarely become invasive depending on host factors.<sup>[7]</sup> Larvae might have entered our patient's eye along with dust, as elicited in the history. Short-lived larval stage of life cycle of the maggot in the soil, prior to pupation,<sup>[4]</sup> closely supports our presumption.

External ophthalmomyiasis manifests as acute catarrhal conjunctivitis with nonspecific symptoms similar to those presented in this case.<sup>[8]</sup> It may be misdiagnosed as any other conjunctivitis if the doctors do not take myiasis into consideration.

There are three different forms of ophthalmomyiasis based on the portion of eye involved:<sup>[7]</sup> Ophthalmomyiasis externa — results from infestation of conjunctiva, cornea by larvae. Ophthalmomyiasis interna — when larvae penetrate the ocular globe and can be visualized in aqueous humor, subretinal space and vitreous cavity. Orbital ophthalmomyiasis — least common condition due to invasion of the orbit, sometimes may lead to rapid destruction of globe.

Rare instances of sequel and complications such as minute conjunctival hemorrhages, corneal ulcer, decreased vision, and invasion into eye globe causing endophthalmitis, iridocyclitis, and even blindness do exist in past literature.<sup>[9]</sup> Apart from ocular infestation, pharyngeal infestation has also been reported in human being.<sup>[10]</sup> Therefore, ophthalmomyiasis externa caused by *O. ovis* larva should not be ignorantly regarded as a completely benign condition and should be treated promptly to prevent serious complications.

This condition is an accidental zoonosis among people involved in livestock rearing and farming.<sup>[7]</sup> In the past, cases of human external ophthalmomyiasis have been reported from rural locations of countries endemic

for sheep infestation by the concerned fly.<sup>[1]</sup> Our case aroused great interest because of the fact that the patient was from urban area with no history of travel to the rural area. She had no contact with either sheep or cattle.

Our patient presented in the month of November falling in the winter season. Nasal Infestation in sheep by first stage larva is seen to increase in autumn-winter as compared to spring-summer.<sup>[11]</sup> Hence, accidental infestation in human is likely in varied frequencies in any of these seasons.

The state of West Bengal from Eastern part of India where the patient resides is neither known as a sheep breeding zone nor considered as an endemic zone for *O. ovis*. Until date, only one similar report comprising of two cases has been documented in the past from West Bengal.<sup>[12]</sup> Though West Bengal is not counted among the well-known sheep breeding states, breeding of goats is not very uncommon here. Goat population is also a known host of the same though less common one.<sup>[10]</sup> The future emergence of this condition in this Eastern Indian state cannot be totally ruled out; as here rural livestock breeding areas lie in close proximity to the urban outskirts. If there is close contact between animals and man, hygienic conditions are poor, then chances of human infestation are high.<sup>[13]</sup> Few states of Eastern India including West Bengal, harbour high urban population density. Existence of affected livestock into contact with a dense urban population may enhance the risk for transmission of zoonoses.<sup>[14]</sup>

In a past report, Misra *et al.* have suggested endemicity of this infestation in rural population of central India.<sup>[15]</sup> Sporadic reports are available from South Indian States.<sup>[6-7]</sup> Until date, no satisfactory literature is available suggesting the overall endemicity of *O. ovis* in India. Also, it is of paramount importance to investigate whether this fly is endemic in some areas supplemented with rare sporadic occurrences in other parts of the country or is it an emerging zoonotic exoparasitic infestation in livestock as well as human being encompassing multiple geographic zones of Indian peninsula regarding which we are still ignorant?

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#### Conflicts of interest

There are no conflicts of interest.

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