

## Red eye: Rule out Ophthalmomyiasis too

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Ophthalmomyiasis is the infestation of human eye by the larvae of certain flies. Sheep botfly commonly manifests as Ophthalmomyiasis externa when there is conjunctival involvement or rarely as Ophthalmomyiasis interna when there is larval penetration into the eyeball. It appears to be more common than what has been indicated by previously published reports. We present a report of seven cases of Ophthalmomyiasis by *Oestrus ovis*, from central India who presented with features of conjunctivitis varying between mild to severe. The larvae were seen in bulbar and palpebral conjunctiva and also entangled in lashes with discharge. Since the larvae are photophobic, it is prudent to look for them in the fornices and also in discharge. Prompt removal of the larvae from the conjunctiva helps in relieving the symptoms and also prevents serious complications. Taxonomic identification of the species is important to estimate the risk of globe penetration by the larvae.

**Key words:** Central India, conjunctivitis, *Oestrus ovis*, Ophthalmomyiasis

Ophthalmomyiasis externa and interna in humans have been reported to be caused by many types of Dipterous flies, the most common being the sheep nasal botfly, *Oestrus ovis*. Cases of Ophthalmomyiasis externa by sheep botfly have been documented from different parts of the world.<sup>[1-3]</sup> However, there are only few case reports from India,<sup>[4,5]</sup> and none from the state of Madhya Pradesh. We describe a series of seven cases of external Ophthalmomyiasis caused by *O. ovis*, who reported to the Ophthalmology department of a tertiary health care centre of Madhya Pradesh during a 1 month period between March and April, 2012.

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## Case Report

In the present series, six patients were young females between 14 and 25 years of age and one patient was a 65 year male. All patients presented in the spring season and belonged to middle socioeconomic strata with good personal hygiene except case no. 4 who was from low socioeconomic strata and had poor hygiene. In all cases, the involvement was unilateral [Fig. 1]. Visual acuity was 20/20 both eyes in all cases except case no. 4 in which vision was 20/40 both eyes and could be attributed to lenticular opacity. Conjunctivitis varying from mild to severe with/without discharge was seen [Fig. 2]. The anterior segment, fundus examination and ear nose and throat examination did not reveal any abnormality. Diagnosis of Ophthalmomyiasis external was made after direct visualization of the larvae on slit lamp examination [Fig. 3]. The clinical profile of the patients is shown in Table 1.

In all cases, anesthetic eye drops were instilled to immobilize the larvae. The lids were everted and larvae were then removed by fine smooth forceps under operating microscope and fixed in formalin. After removal, the affected eye was irrigated copiously with normal saline and topical antibiotic-steroid combination eye drops were prescribed 4 times a day, for a week. Next day DPX mount slide was made.

Follow-up examinations on subsequent days in case nos. 2 and 4 showed residual larvae which were removed. Ocular symptoms had largely resolved in all except case no. 4 where mild conjunctivitis persisted which resolved over next 5 days. All patients were followed up for 1 week and no complications were noted.

On examination under microscope, the organisms in all cases were identified as the first instar larva of *O. ovis* (Linn.), Family Oestride: Cyloerrhpha: Brachycera: Diptera, commonly known as sheep bot fly.

The larva is characterized by a pair of sharp, dark brown oral hooks, connected to a large internal cephalopharyngeal skeleton. The body is divided into 11 segments and each segment is covered by tufts of numerous brown hooks with spinose tips on the anterior margin. Terminal hooks are arranged in two scallops [Fig. 4].

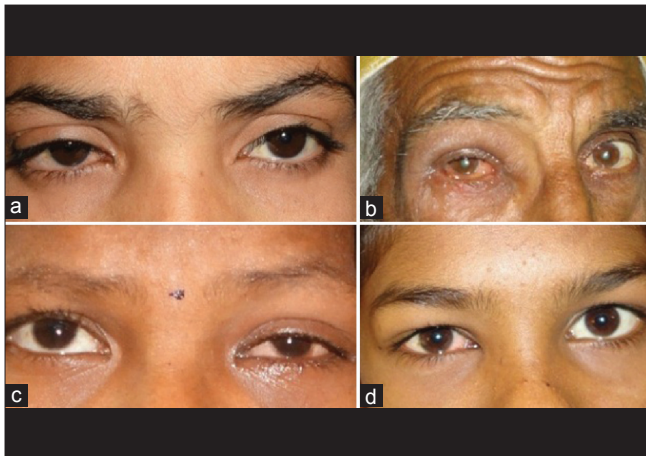
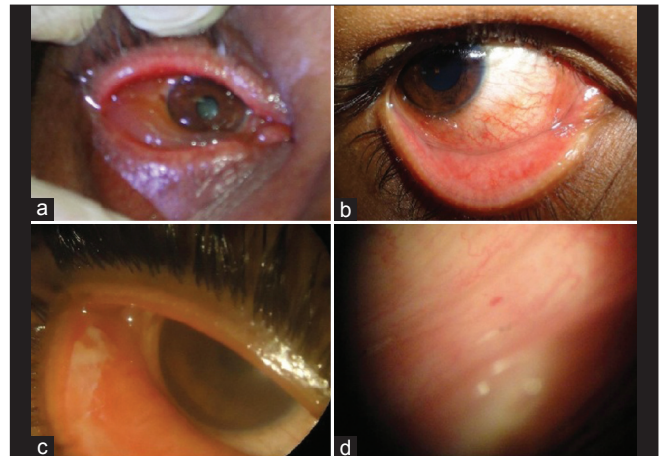
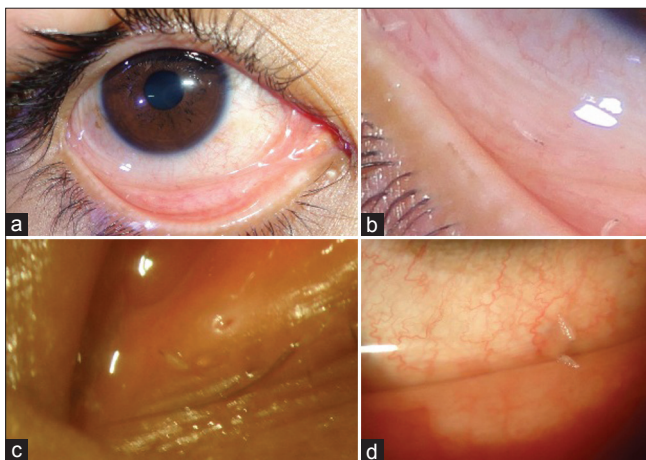
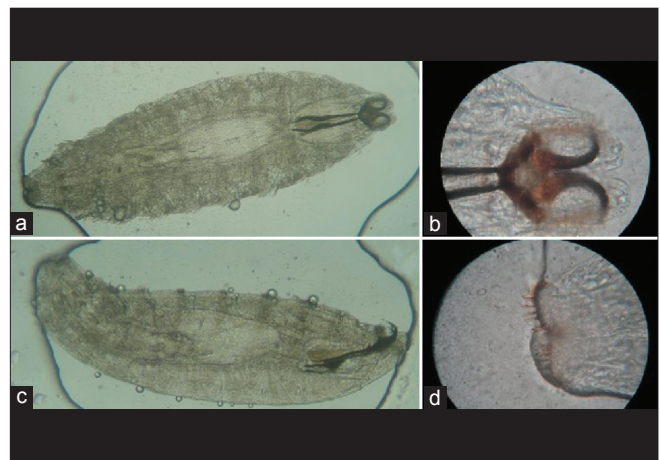
## Discussion

Ophthalmomyiasis externa in our series of patients manifested as acute catarrhal conjunctivitis and presented with varied symptoms like redness, lacrimation, pain, itching and mucoid discharge along with foreign body sensation. Similar findings have been reported in various studies.<sup>[6-8]</sup>

Sergent (1952), in summarizing oculonasal myiasis in man due to *O. ovis* appears to be the first to record the infection as far back as in 1907. *O. ovis* is a large, yellowish gray fly about 10-12 mm long. Its larvae can parasitize the host, soon after birth. In its normal life cycle, the adult female deposits larvae around the nostrils of sheep and goats, from where they migrate to sinuses. The larvae mature by going through three progressive developmental larval stages (instars). After several months the 3<sup>rd</sup> instar (mature larval stage) passes out of the sheep and goat

**Table 1: Clinical characteristics in seven patients with ophthalmomyiasis**

Age/sex	Predisposing factor	No. of larvae	Symptoms and signs
16 years/F	Injury by mutton piece; denying hit by fly	09	Foreign body sensation, watering; mild conjunctivitis
14 years/F	Hit by fly	03	Foreign body sensation, itching, watering; mild conjunctivitis with mucoid discharge
18 years/F	Working in wheat field; denying hit by fly	04	Foreign body sensation, redness, watering; mild conjunctivitis
65 years/M	Hit by fly	07	Pain, redness, watering; mucopurulent discharge, conjunctival chemosis, congestion and punctuate sub conjunctival haemorrhages
16 years/F	Hit by fly	04	Pain, redness, foreign body sensation; mild conjunctivitis
25 years/F	Working in wheat field; denying hit by fly	03	Foreign body sensation, redness, watering
18 years/F	Hit by fly	05	Pain, redness, watering

**Figure 1:** Red eyes at the time of presentation (a) Case 1 (b) Case 4 (c) Case 2 (d) Case 5**Figure 2:** (a) Chemosis (b) Conjunctivitis (c) Conjunctivitis with mucoid discharge (d) Sub conjunctival haemorrhage**Figure 3:** (a) Larvae in lower fornix (b) Larvae over bulbar conjunctiva (c) Larva near lower punctum (d) Larvae over lower lid margin**Figure 4:** (a) First stage larva of *Oestrus ovis* (b) Anterior end of larva of *Oestrus ovis* (c) Two large dark oral hooks connected to cephalopharyngeal skeleton (d) Caudal end of larva of *Oestrus ovis*

nostrils and pupate on the ground. Adult flies emerge from the pupa 3 to 6 weeks later and live for approximately 1 month. The usual hosts are sheep, cattle and horse. Man may serve as an accidental host when the bot fly deposits a stream of larvae near human eyes and/or nose while it is flying.<sup>[9]</sup>

External Ophthalmomyiasis manifests as acute catarrhal conjunctivitis. Ophthalmomyiasis interna is commonly

associated with cattle bot fly (*Hypoderma bovis*) but cases have also been reported due to larvae of *O. ovis*.<sup>[10]</sup> Hence, Ophthalmomyiasis by *O. ovis* should not be regarded as a benign condition and must be treated promptly to prevent serious complications of intraocular invasion. Irrigation of conjunctival sac with normal saline is unsuccessful in washing out the larvae because they grab the conjunctiva firmly by their hooks. So it is prudent to remove the larval form promptly

under magnification after anaesthetizing the conjunctiva with the help of plain forceps. Follow-up examination is recommended to avoid possible complications of residual larvae and internal Ophthalmomyiasis.

The presentation of *O. ovis* myiasis is similar to viral or allergic conjunctivitis, and may present with foreign body sensation, pain, itching, redness, watering and discharge in the affected eyes. Awareness of larval conjunctivitis especially during spring and summer seasons would lead to a more prompt diagnosis and treatment. Ophthalmomyiasis externa is an under diagnosed condition and may result in serious complications. We, as ophthalmologists need to be aware of this entity and should examine all patients of conjunctivitis with or without history of insect striking the eye after lid eversion, to rule out Ophthalmomyiasis.

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