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Case Report

# Acute Red Eye due to Conjunctival Ophthalmomyiasis

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## Abstract

**Background:** Myiasis is the invasion of living or dead animal tissue by dipterous fly larvae. Myiasis of the eye or ocular adnexa is referred to as ophthalmomyiasis. Ocular involvement or ophthalmomyiasis is seen to occur in about 5% of all cases of myiasis. On the basis of the site of infestation, ophthalmomyiasis may be classified as external, internal, or orbital. External ophthalmomyiasis results from the deposition of larvae of ovine nasal botfly, *Oestrus ovis,* and the Russian botfly, *Rhinoesirus purpureus.*

**Case Report**: A 26-year old female presented to us with complaints of pain, irritation, foreign body sensation and watering of the right eye for one day. Examination revealed a visual acuity of 6/6, clear cornea, full ocular movements and normal intraocular pressure. The conjunctiva was congested, with profuse lacrimation in the right eye. On slit lamp examination under topical 0.5% proparacaine, five larvae of approximately 1mm size with black heads were seen moving over the conjunctiva which were removed by using a sterile plain forceps and sent to microbiology laboratory. The larvae were identified as *Oestrus ovis.* (sheep nasal botfly).

**Conclusion**: The presentation of *O. ovis* myaisis is similar to viral or allergic conjunctivitis, and may present with foreign body sensation, pain, itching, redness, watering and discharge in the affected eyes. We, as ophthalmologists need to be aware of this entity and should examine all patients of red eye with or without history of insect striking the eye under slit lamp after lid eversion, to rule out Ophthalmomyiasis.

**Keywords:** *Oestrus ovis;* Myiasis; Eye

## Introduction

Myiasis is defined as the invasion of living or dead animal tissue by dipterous fly larvae (maggots) and is common in tropical regions [1]. Myiasis of the eye or ocular adnexa is referred to as ophthalmomyiasis. On the basis of the site involved, ophthalmomyiasis is classified as external, internal, or orbital. External ophthalmomyiasis results from the deposition of larvae on the conjunctiva or eyelids [2]. Internal ophthalmomyiasis [3] develops when the larvae penetrate the globe. Once through the sclera; the larvae may be visible in the subretinal space and sometimes in the vitreous cavity [3]. Orbital myiasis, the least common form of ophthalmomyiasis, results from invasion of the orbit by larvae, causing destruction of orbital contents with severe ocular damage [4]. Conjunctival ophthalmomyiasis in humans is commonly caused by the ovine nasal botfly, *Oestrus ovis* [5], and the Russian botfly, *Rhinoesirus purpureus* [6]. Larvae of O. ovis are well-known parasites of the nasal cavities and paranasal sinuses of domestic sheep and goats and are found in most sheep-farming communities [7]. Ophthalmomyiasis occur in about 5% of all cases of myiasis [8].

**Figure 1:** Image showing tiny white coloured larva in lower palpebral conjunctiva.

**Figure 2:** Larva of *Oestrus ovis* demonstrating oral hooks connected to the internal cephalopharyngeal skeleton and multiple spiny projections (original magnification x10).

**Figure 3:** 2 white coloured larva seen over right palpebral conjunctiva.

## Case Report

A 26-year old female adult presented to the Outpatients Department of Ophthalmology with complaints of pain, irritation, foreign body sensation and watering of the right eye for one day. She had been apparently healthy before, when she complained that something had entered into her right eye, when she was doing some domestic work. After that, she suffered from irritation, pain and watering from the right eye. The patient was not in close contact with animals like sheep, goats and cows. There was no significant medical history. An ophthalmic examination revealed a visual acuity of 6/6 in both the eyes. The cornea was clear, ocular position was normal and the ocular movements were full and free in all the directions. There was bilateral focal symmetry. The intraocular pressure was normal in both the eyes. The lacrimal sac was clinically patent. The conjunctiva was congested, with watering and serous discharge from the right eye.

On slit lamp examination, approximately 1mm long translucent organisms with black heads were seen, moving over the conjunctiva in the right eye. The patient was told about the possibility of the presence of larvae and a detailed examination was done under topical 0.5% proparacaine under slit lamp. On examination, the larvae were noticed to move freely over the bulbar and the palpebral conjunctiva. Five larvae were removed by using a sterile plain fine forceps under topical anaesthesia and they were sent to the Microbiology Department for identification. The next day, the right lower fornix was examined thoroughly for larvae, after eversion with Desmarre's lid retractor. The upper fornix was also examined after a double eversion. No larvae were detected. A thorough eye wash was given beneath the upper palpebral conjunctiva. The other eye was also examined for larvae. In the microbiology laboratory, microscopy was done. The larvae measured 2 × 0.5 mm and were motile. They had characteristic dark brown oral hooks connected to the internal cephalopharyngeal skeleton. The body of larva was divided into 11 segments, each covered by many brown hooks. The eleventh segment was bilobed and each lobe was having 12 hooklets. They were identified as larvae of *Oestrus ovis*. (sheep nasal botfly) (Figure 2). After the removal of the larvae, the patient was treated with topical moxifloxacin 0.5% with fluorometholone, artificial tears, anti-inflammatory drugs along with topical antibiotic ointment at bed time. The patient was adviced to remain under follow up examination.

## Discussion and Conclusion

Sargent in1952 summarized oculofacial 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 yellowish grey colored fly about 10 to12 mm long in size. Soon after its birth, larvae can parasitize the host. As a part of its normal life cycle, the adult female deposits larvae around the nostrils of goats and sheep, from where they migrate in to their sinuses. During maturation, larvae go through three progressive developmental larval stages (instars). After several months the mature larval stage (3rd instar) passes out of the nostrils of sheep and goat and pupate on the ground. From the pupa, adult flies emerge 3 to 6 weeks later and their life span is of approximately 1 month. Sheep, cattle and horse are the usual hosts.

Humans are accidental host when the bot fly deposits larvae near human eyes or nose while it is flying [9].

External Ophthalmomyiasis manifests as acute catarrhal conjunctivitis. Ophthalmomyiasis interna is usually associated with cattle bot fly (*Hypoderma bovis*) but some cases have also been reported due to larvae of O. ovis [10]. So, Ophthalmomyiasis by *Oestrus ovis* should not be taken as a benign condition and must be treated adequately to prevent serious complications of intraocular invasion. Conjunctival sac irrigation with normal saline is not useful in washing out the larvae because they grab the conjunctival firmly by their hooks. So it is necessary to remove the larval form under magnification with the help of a plain forceps after anaesthetizing the conjunctiva. Follow up examination is mandatory to avoid possible complications of residual larvae and internal Ophthalmomyiasis.

Like viral or allergic conjunctivitis, *O. ovis* myaisis may present with foreign body sensation, pain, itching, redness, watering and discharge in the affected eyes. Ophthalmomyiasis externa may result in serious complications. So, as ophthalmologists we need to be aware of this entity and should examine all patients of red eye with or without history of insect striking the eye under slit lamp after lid eversion, to rule out Ophthalmomyiasis.

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