

Oestrusovis larvae, Human a accidental host: A Case Report.

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Abstract:

A Sheep bot fly *Oestrusovis* larva is an obligate parasite of sheep and goats. Mainly it causes myiasis in animals but occasionally in humans; ophthalmomyiasis caused by this fly and is seen in rural areas, where small ruminants and humans live in close proximity. *Oestrusovis* is a parasite during the larval phase of its life cycle. Larvae develop into three instars, known as L1, L2, and L3; Most of the fly's life is spent as larval instars, ranging from one to nine months in length depending on the climate and season. Shortest generation times occur in warm, wet climates. External ophthalmomyiasis refers to larvae on the conjunctiva, in these cases; larvae do not pass to the L2 stage. Larvae cause discomfort and irritation to the eye.

Keywords: *Oestrusovis*, larvae, seasons, ophthalmomyiasis

Introduction

The sheep bot fly *Oestrusovis* is a cosmopolitan and obligate parasite of nasal cavities and the adjacent sinuses in domestic and wild ruminants, mainly founding sheep and goats. Occasionally, humans become an accidental host [1, 2].

Oestrusovis may be considered a zoonosis [3]. In humans, ophthalmomyiasis, respiratory and non-respiratory infestation is also caused by this fly and is seen in rural areas where small ruminants and humans live in close proximity [4].

Oestrus Ovis larvae Belongs to-

Phylum: Arthropoda,

Class: insect,

Order: Dipetera,

Suborder: Cyclorrhpha

Family: Oestridae,

Genus: *Oestrus*,

Species: *Oestrusovis*[5].

The young larvae are white or slightly yellow with 12 segments; when they become mature, dark transverse bands develop on the dorsal surfaces of the segments, there are large, black, oral hooks connected to the internal cephalo-pharyngeal skeleton, the ventral surface bears rows of small spines, two caudal pigmented respiratory spiracles were in the caudal segment [6, 7].

Eggs: The eggs of *Oestrusovis* are fertilized, developed, and hatched within a female [8].

Larvae: *Oestrusovis* is a parasite during the larval portion of its life cycle [9]. The larvae of *Oestrusovis* develop through three instars, or phases, known as L1, L2, and L3, [Figure 1]. Most of the fly's life is spent as larval instars, ranging from one to nine months in length depending on the climate and season. Shortest generation times occur in warm, wet climates [10].



Figure 1: *Oestrusovis* L. larval instars, from top to bottom: L3 (up to 30 mm long), L2 (3 to 14 mm long), and L1 (1 mm long). By Lyle J. Buss, University of Florida.

Oestrusovis infecting humans is rare with only 295 cases reported worldwide between 1918 and 2017 [11]. Rarely, *Oestrusovis* can be found in and around eyeballs, causing external or internal ophthalmomyiasis, or infection of the eye by larvae. Internal ophthalmomyiasis involves the burrowing of larvae into inner structures of the eyeball, while external ophthalmomyiasis refers to larvae on the conjunctiva, the mucous membrane covering the outer surface of the eye [12].

Case Report

A 19 year male came to our Hospital in **29th march 2023** with a 2 day history of foreign body sensation, burning and excessive watering from his left eye. He gave a history of something falling his eye while he was passing by on the road and there was a no significant history of ocular or medical problems.

The most remarkable finding was the presence of tiny translucent worms, 1-2 mm in size with dark heads, crawling over the bulbar conjunctiva and cornea. They were 10 -12 in number. More organisms were seen on ever ting the upper lid, on bulbar conjunctiva.

Larvae were removed using plain forceps over the conjunctiva. The larvae (3 in number) were mounted on a glass slide and examined under microscope (40X).

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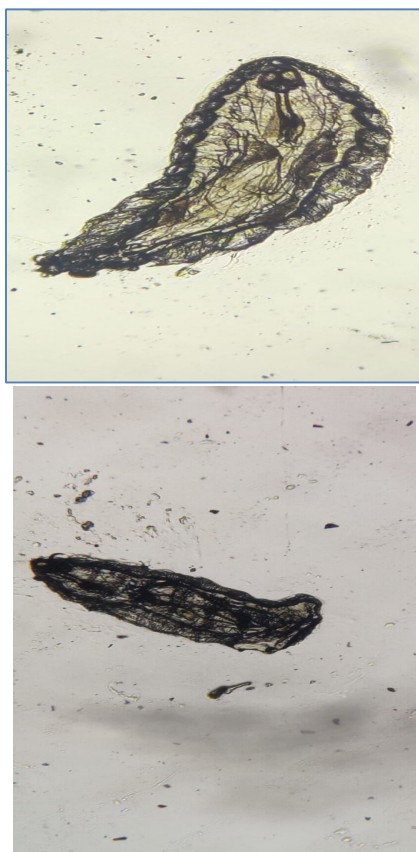


Figure 2: Microscopic image of Osisterovis larva under 40X objective lens.

Figure 2 shows dark brown color, long oval shaped, segmented and covered with small spines, with a pair of hooks in the scolex of *Oestrusovis* larvae.

Discussion

The sheep nasal botfly, *O. ovis*, are large dark gray flies with dark spots on the dorsum of the thorax and abdomen, and are covered by a moderate amount of light brown hair [13].

In our study, the organisms were identified as *Oestrusovis* larva under microscope which is the most common cause of ophthalmomyiasis. This outcome concurs with a study by K. Thakur et al. [14].

Larvae of *Oestrusovis* are common parasites of nasal cavities and associated sinuses of sheep and goats. Human can act as incidental hosts. Human myiasis mostly occurs in rural areas, where people live and work in close proximity to small ruminants [15].

Oestrosis is therefore considered a zoonotic disease, causing ophthalmomyiasis in infected humans around the world [16].

We reported this parasite in end march (the spring season). A previous paper presenting clinical manifestations and seasonal variations of 8 ophthalmomyiasis cases have reported that most of them occurred in the spring and summer seasons [17].

The present case creates awareness among the microbiologists regarding parasitic conjunctivitis,

which is more common during the spring and summer seasons especially in-developing countries like India, where the general standard of hygiene is low and there are a large number of flies around.

In man the larvae cannot survive beyond the first stage and are believed to die within 10 days [18], therefore, the infestation is of short duration.

Conclusion

We concluded these larvae of *Oestrusovis* based on their morphology observed under microscope. It is a parasite during the larval phase of its life cycle. The frequency of this larva is greater in those regions where people have closer contact with sheep and goats. Other contributory factors to human infestation may be poor hygienic conditions.

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Conflict of Interest

There are no conflicts of interest.

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