

EXTERNAL OPHTHALMOMYIASIS- A RARE OCULAR LARVAL INFECTION

Sagarika Laad¹, Harpal Singh², Rajesh Sripat Pattebahadur³, Parag Ramnan⁴, Pranav Saluja⁵

¹Postgraduate Resident, Department of Ophthalmology, People's College of Medical Sciences and Research Centre, Bhopal.

²Professor and HOD, Department of Ophthalmology, People's College of Medical Sciences and Research Centre, Bhopal.

³Assistant Professor, Department of Ophthalmology, People's College of Medical Sciences and Research Centre, Bhopal.

⁴Postgraduate Resident, Department of Ophthalmology, People's College of Medical Sciences and Research Centre, Bhopal.

⁵Postgraduate Resident, Department of Ophthalmology, People's College of Medical Sciences and Research Centre, Bhopal.

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PRESENTATION OF CASE

We are reporting a case series of 3 patients-

A 35-year-old and a 28 year-old-male, and a 30-year-old female patient presented to eye OPD with chief complaints of foreign body sensation, redness, watering and crawling movements in the affected eye. First two patients gave the history of developing complaint, while working in a farm and third patient developed these symptoms, while cutting trees near a farming area. There was no history of trauma.

Vision in the affected eye was 6/12, 6/18 and 6/9 recorded on Snellen's chart, respectively. Fellow eye vision was 6/6, 6/12 and 6/9, respectively. On slit-lamp examination- mild lid oedema along with conjunctival congestion and discharge was present in all 3 patients. By pulling down the lower lid and everting the upper lid, white colour larvae were noticed crawling on the conjunctiva, approximately 25-30, 8-10 and 10-15, respectively. They disappeared on slit-lamp illumination. Rest anterior and posterior segment were normal. Fellow eye was normal.

DIFFERENTIAL DIAGNOSIS

It is important to consider it in the differential diagnosis of acute conjunctivitis and to identify and treat the condition effectively, not only to reduce morbidity and discomfort, but also to reduce the potential risk of ophthalmomyiasis interna (i.e., penetration of the globe by larvae and visible in the subretinal space and the vitreous cavity). Any patient coming with history of foreign body sensation along with development of an acute conjunctivitis should undergo slit-lamp examination for the presence of larvae. Occasionally, larvae may die in the host giving rise to a permanent nodule, which may resemble the styte that may further lead to misdiagnosis. Identification of the species is important to estimate the risk of penetration of the globe. The treatment is effective and the condition is curable, but a delay in removal of larvae may result in their penetration into the eye

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Corresponding Author:

Dr. Sagarika Laad,

Postgraduate Resident, Department of Ophthalmology,

People's College of Medical Sciences and Research

Centre, Bhopal, Madhya Pradesh.

E-mail: sagarikalaad@gmail.com

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or orbit leading to more destruction. Thus, it is important to examine every patient coming with signs and symptoms of conjunctivitis, especially from rural or animal breeding areas.

PATHOLOGICAL DISCUSSION

Myiasis is the infestation of humans and animals with maggots of certain flies.¹ Ophthalmomyiasis is an infestation of the eye with the larvae of sheep nasal botfly (*Oestrus ovis*), which is one of the most common organism causing it. The maggots are tiny translucent worms, 1-2 mm in length with dark heads and distinct dark brown oral hooks and numerous hooks of the body can be seen crawling over the conjunctiva or swimming in the vitreous cavity or subretinal space.

Ophthalmomyiasis is of 3 types-

External Type- Larvae deposited on the eyelid or ocular surface.

Internal Type- Larvae penetrate the globe and can be seen in the vitreous cavity or subretinal space.

Orbital Myiasis- It is most damaging where the larvae enter the orbital structure and cause serious damage.

External ophthalmic myiasis refers to superficial infestations of ocular tissue such as conjunctiva and eyelids. But, external ophthalmomyiasis can also result in larval invasion leading to serious complications such as keratitis, iridocyclitis, globe penetration, endophthalmitis and even blindness.² Ophthalmomyiasis interna is a rare disease caused by larvae of Diptera flies.³ These larvae penetrate the sclera and migrate into the eye.⁴ However, there is no recognisable site of entry. In most cases, the larvae are found in the posterior segment appearing as posterior uveitis, retinal detachment and subretinal migratory tracks. Anterior ophthalmomyiasis interna is less common and appears clinically as anterior uveitis.³

There are three families of flies, which cause ophthalmic infestation, i.e. Oestridae, Calliphoridae and Sarcophagidae.¹ The Oestridae are a large family of obligate parasites of animals in their larval stage. *O. ovis* is a typical parasite of the eyes, ears, nose and skin of sheep and goats. It is usually caused by larvae of the sheep nasal botfly (*Oestrus ovis*), while human botfly (*Dermatobia hominis*) is less commonly involved.⁵ All these flies are oviparous and eject their eggs on necrotic dead tissue, which hatch to larvae (maggots). Firstly, female *O. ovis* (a large, dark gray fly with dark spots on the dorsum of the thorax and abdomen) deposit larvae into the nostrils of their animal hosts. However, there have

been many reported cases of human ophthalmomyiasis (infestation of the eye with larvae) due to *O. ovis*.

Two cases were reported in southern Pakistan in 2006.⁶ The first case in the Caribbean in an urban area of Barbados was reported in 2004⁷ and 4 cases were reported in Kuwait in 1993.⁸ Other reported cases came from Libya⁹ where it was found particularly among adult male shepherds and farmers from rural areas. In a retrospective review of a 4-year period in Tunisia, *O. ovis* accounted for 2 of 65 identified parasitic infections of the eye.¹⁰ Also, a case reported from northern Iraq involving an American soldier¹¹ as well as 3 cases in Italy that were not related to direct exposure to wild or farm animals.¹² Ophthalmomyiasis due to *O. ovis* is not a new incident; however, the cases among shepherds have been reported approximately 150 years ago in Sicily¹³ as typically occurs in shepherds and farmers in rural areas.⁹ *O. ovis* ophthalmomyiasis has also been reported in urban areas in patients who have no association with animal husbandry.¹⁴ Therefore, it is important for medical professional to recognise this condition and understand that it may not always be associated with animal contact. A history involving foreign body sensation and the development of an acute conjunctivitis should be promptly examined by slit-lamp for the presence of larvae.

The only treatment for this situation is removal of the larvae followed by topical antibiotics, steroids and local analgesia. Topical anaesthetic is used to reduce the motility of migrating larvae.¹ It is important to note that irrigation of the conjunctival sac with normal saline is generally not useful in washing out the larvae because they are firmly attached to the tissue with their oral hooks and body spicules. Rather, removal of larvae with cotton swab or forceps after instilling local anaesthetic under slit-lamp biomicroscope is preferred to reduce both irritation and the risk of intraocular penetration. Severe orbital myiasis may require exenteration. However, in internal myiasis, larvae can be destroyed by laser photocoagulation or removed by pars plana vitrectomy. According to various studies, removed larvae should ideally be preserved in 70% alcohol and sent to specialist for examination. But, in our cases, larva was sent for microbiological examination in normal saline.

DISCUSSION OF MANAGEMENT

Local anaesthetic (0.5% proparacaine) was instilled; firstly irrigation with normal saline was done, but it was not successful. It was then removed with the help of plain forceps. Larvae were collected in normal saline and sent for microbiological investigation. After removal of larva, topical antibiotics (moxifloxacin) and steroid (fluorometholone) were given along with oral analgesics for pain. Patients came for follow up on the next day, they got relieved, slit-lamp examination was done and no abnormalities were detected.



Microscopic Images of Ophthalmomyiasis Larvae

FINAL DIAGNOSIS

After slit lamp and microbiological examination, we had concluded that these were the cases of external ophthalmomyiasis.

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