

## CASE REPORT

DOI: 10.5336/caserep.2022-91156

# An External Ophthalmomyiasis Case Presented with Orbital Cellulitis Symptoms

<sup>ID</sup> Mehmet CANLEBLEBİCİ<sup>a,b</sup>, <sup>ID</sup> Sara KOYLU<sup>b</sup>, <sup>ID</sup> Onur ÇATAK<sup>b</sup>

<sup>a</sup>Clinic of Ophthalmology, Akdağmadeni State Hospital, Yozgat, Türkiye

<sup>b</sup>Department of Ophthalmology, Fırat University Faculty of Medicine, Elazığ, Türkiye

**ABSTRACT** *Oestrus ovis* larvae are the most common cause of ophthalmomyiasis. It is frequently observed in the spring and summer in agricultural areas where there are many livestock animals, and these larvae generally cause external ophthalmomyiasis. Here, we report an atypical case with orbital cellulitis symptoms due to external ophthalmomyiasis. A 51-year-old male patient was referred to the outpatient clinic with the right eye erythema and swelling of the periorbital tissues, conjunctival congestion, chemosis, mucopurulent discharge, and eye movement limitation who diagnosed as orbital cellulitis with magnetic resonance imaging-based. During the careful ophthalmological examination, the mobile larvae were removed from the conjunctiva and slit-lamp examination revealed that the patient has infected with the first stage *ovis* larvae. He was treated with antibiotics and antihistamines as oral therapy and topically with antibiotics, steroids, and anticholinergics and recovered without complications. External ophthalmomyiasis may cause orbital cellulite findings with allergic reaction without internal ophthalmomyiasis and confuse the diagnosis.

**Keywords:** External ophthalmomyiasis; *oestrus ovis*; orbital cellulitis; orbita; eye lid

Myiasis is a parasitic infestation of some fly larvae which invade tissues and organs of its host. The larval invasion of the adnexa and orbit causes, ophthalmomyiasis externa. Eye involvement constitutes 5% of all cases.<sup>1</sup> *Oestrus ovis* larvae are often the cause of external ophthalmomyiasis, and the worm form can also cause an infestation. It can mimic allergic or viral conjunctivitis with symptoms such as foreign body sensation, pain, burning, itching, watering, rubor, edema, and photophobia.<sup>2</sup> Ophthalmomyiasis externa is usually self-limiting, but sometimes it may cause preseptal cellulitis.<sup>3</sup> In this case report, we report a case of external ophthalmomyiasis presenting with atypical orbital cellulitis findings. This case report is exempt from requiring ethical approval as per the regulations of the Fırat University Ethical Review Committee. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

## CASE REPORT

A 51-year-old male patient was referred to our outpatient clinic with the complaint of rubor and watering in his right eye and swelling of the lid. He fell from the tree and some particles have entered his left eye when falling. In the examination, we observed that visual acuity was 12/20 in the right eye and 20/20 in the left eye with the Snellen chart. Ocular tension was 12 mmHg bilaterally with applanation tonometry. There was intense hyperemia, chemosis, and secretion in the conjunctiva in the slit lamp examination of the right eye, no pathology was observed anterior segment of the left eye and in the fundus examination bilaterally (Figure 1). The eye movements of the right eye were limited in upward and outward gaze with minimal double vision and there was a feeling of pain during the movement of the globe. But he has no double vision and orthophoria in the primer head position. In a careful examination of the conjunctiva,

**Correspondence:** Mehmet CANLEBLEBİCİ

Clinic of Ophthalmology, Akdağmadeni State Hospital, Yozgat, Türkiye

**E-mail:** mehmetcl@hotmail.com

Peer review under responsibility of Türkiye Klinikleri Journal of Case Reports.

**Received:** 06 May 2022

**Received in revised form:** 22 Nov 2022

**Accepted:** 19 Dec 2022

**Available online:** 21 Dec 2022

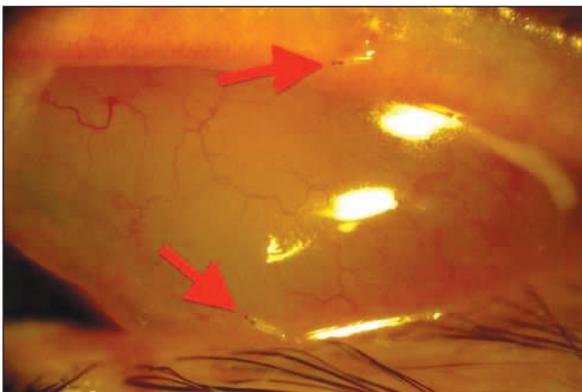
2147-9291 / Copyright © 2023 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).





**FIGURE 1:** Patient with left eyelid swelling and could not open his eyes with severe edema.

when the eyelid was lifted, several larvae were seen escaping rapidly under light towards the lower and upper fornices the areas with chemosis. The larvae were a few millimeters long, the head was black, the body was translucent, white in color, sensitive to light, and moving rapidly (Figure 2). After instilling the topical anesthetic drop (Alcaine 0.5%, Alcon, ABD), the lid was inverted and the fornices were carefully examined. The larvae were collected one by one with the help of forceps and cotton-tipped swabs without disrupting them. A total of 5 larvae were removed. In magnetic resonance imaging (MRI), there



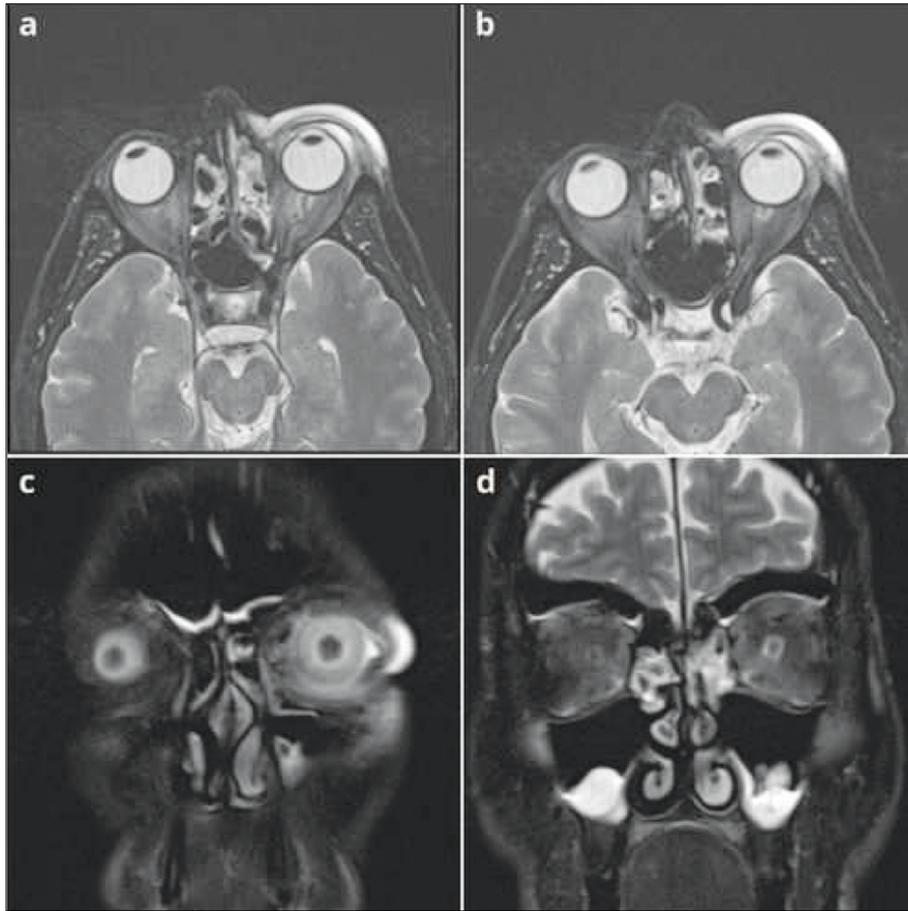
**FIGURE 2:** Biomicroscopic view of severe chemosis and oestrus ovis first stage larvae with a black head and translucent body in white color (red arrows indicate larvae).

was an increase in the skin and subcutaneous distance in the soft tissues around the left eye orbit and an increase in the cerebrospinal fluid distance around the optic nerve, orbital cellulitis (Figure 3). Complete blood count, routine laboratory tests, sedimentation and C-reactive protein levels were in normal limits. The patient was given topical fluoroquinolone drops 5 times a day, loteprednol and cyclopentolate drop 3 times a day and olopatadine drops twice a day. As oral therapy, amoxicillin/clavulanic acid 1000 mg twice a day, metronidazole 500 mg 3 times a day were continued which has been initiated family medicine clinic one day ago, and 5 mg desloratadine, a second-generation antihistamine twice a day were started.

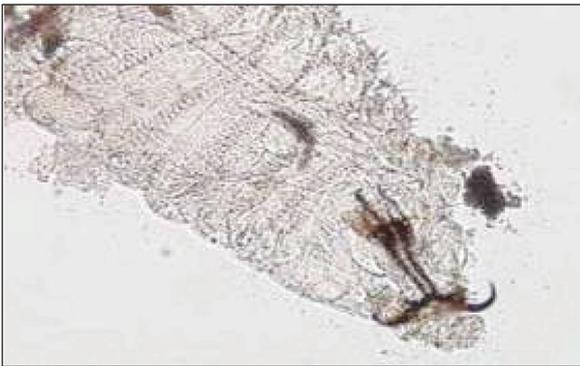
After the microbiological atlas examination of the light microscope larva photos, that infestation caused by the first stage *Oestrus ovis* larvae revealed (Figure 4). The next day, no new larvae and less chemosis were observed and the patient's complaint of foreign body sensation and watering was gone. After 2 days of clinical follow-up, visual acuity was found to be 18/20 with a Snellen chart and eye movements were free in all directions and no double vision at any gaze position with the disappearance of chemosis. The patient was asked for control 1 week later and was discharged. On his admission 1 week later, his visual acuity was 20/20, his eye movements were free, and other examination findings were normal.

## DISCUSSION

*Oestrus ovis* is the most common cause of ophthalmomyiasis and the mature *Oestrus ovis* fly is an obligate parasite that lays its eggs near the nostrils of sheep and goats. Human beings are accidental hosts in their life cycle.<sup>4</sup> The most of cases are reported from the Middle East, besides, the number of both reports and cases are higher in less developed countries and rural areas such as South Asia, the Middle East, and North Africa.<sup>5,6</sup> External ophthalmomyiasis is a parasitic disease that can cause complaints such as acute-onset foreign body sensation, conjunctival rash, photophobia, watering and itching are prominent, more severe findings such as swelling and rubor of the eyelids, follicular conjunctivitis, conjunctival point hemorrhages can be observed.<sup>1,2,4,7,8</sup> Further-



**FIGURE 3:** Magnetic resonance imaging of the patient with different angles and sequences, there was an increase in the skin and subcutaneous distance in the soft tissues around the left eye orbit and an increase in the cerebrospinal fluid distance around the optic nerve, orbital cellulitis.



**FIGURE 4:** *Oestrus ovis* first stage larva, light microscopic view.

more, they can penetrate the conjunctiva and cause orbital ophthalmomyiasis and cellulitis. Internal ophthalmomyiasis is very rare and occurs when larvae invade the conjunctiva or globe.<sup>9</sup>

In our case, external ophthalmomyiasis with eye movement limitation and orbital cellulitis findings was observed in MRI without internal ophthalmomyiasis, without conjunctival penetration. These findings were considered due to the severe occurrence of Type 1 hypersensitivity reaction. It supported that orbital cellulitis findings developed as a result of hypersensitivity reaction, as the symptoms and signs of the patient regressed in about 3 days after the removal of the larvae and initiation of antihistamine treatment. The patient has no parameters such as relative pupillary defect, systemic fever, and leukocytosis, which are signs of orbital cellulitis were not encountered and thus we thought due to mechanisms associated allergic reaction neither inflammatory nor infectious. Mechanical removal of the larvae is essential in treatment. Considering the light sensitivity of the larvae, diagnosis may not always be

possible, so careful examination should be made in as dim light as possible. The eyelids should be everted and the fornices should be carefully examined. Otherwise, ophthalmomyiasis can easily be misdiagnosed, it can be confused with such diseases causing any red eye like viral and bacterial conjunctivitis, preseptal and orbital cellulitis. Topical anesthetic and anticholinesterase drop slow down their movements by paralyzing the larvae and reduce their tight adhesion. Antibiotic and steroid drops used after the removal will be sufficient to prevent secondary bacterial infections and inflammation.<sup>10</sup> Oral and topical antihistamines are beneficial in patients with severe allergic responses.<sup>8</sup>

In conclusion, external ophthalmomyiasis may present with orbital cellulitis findings and confuse the diagnosis. Ophthalmologists should consider ophthalmomyiasis in the differential diagnosis, especially in cases of unilateral conjunctivitis and mimicking orbital cellulitis in appropriate geographical conditions.

### Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Mehmet Canleblebici; **Design:** Mehmet Canleblebici; **Control/Supervision:** Onur Çatak; **Data Collection and/or Processing:** Mehmet Canleblebici, Sara Koylu; **Analysis and/or Interpretation:** Mehmet Canleblebici; **Literature Review:** Mehmet Canleblebici, Sara Koylu; **Writing the Article:** Mehmet Canleblebici, Sara Koylu; **Critical Review:** Onur Çatak; **Materials:** Sara Koylu.

## REFERENCES

- Özyol P, Özyol E, Sankur F. External ophthalmomyiasis: a case series and review of ophthalmomyiasis in Turkey. *Int Ophthalmol.* 2016;36(6):887-91. [[Crossref](#)] [[PubMed](#)]
- Akdemir MO, Ozen S. External ophthalmomyiasis caused by *Oestrus ovis* misdiagnosed as bacterial conjunctivitis. *Trop Doct.* 2013;43(3):120-3. [[Crossref](#)] [[PubMed](#)]
- Engelbrecht NE, Yeatts RP, Slansky F. Palpebral myiasis causing preseptal cellulitis. *Arch Ophthalmol.* 1998;116(5):684. [[PubMed](#)]
- Rao S, Radhakrishnasetty N, Chadalavada H, Hiremath C. External ophthalmomyiasis by *Oestrus ovis*: A case report from Davangere. *J Lab Physicians.* 2018;10(1):116-7. [[Crossref](#)] [[PubMed](#)]
- Abdellatif MZ, Elmazar HM, Essa AB. *Oestrus ovis* as a Cause of Red Eye in Aljabal Algharbi, Libya. *Middle East Afr J Ophthalmol.* 2011;18(4):305-8. Erratum in: *Middle East Afr J Ophthalmol.* 2016;23(4):332. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Khurana S, Biswal M, Bhatti HS, Pandav SS, Gupta A, Chatterjee SS, et al. Ophthalmomyiasis: three cases from North India. *Indian J Med Microbiol.* 2010;28(3):257-61. [[Crossref](#)] [[PubMed](#)]
- Yar K, Özcan AA, Koltuş İS. Ophthalmomyiasis eksterna: olgu sunumları [External ophthalmomyiasis: case reports]. *Türkiye Parazitoloj Derg.* 2011;35(4):224-6. Turkish. [[Crossref](#)] [[PubMed](#)]
- Das M, Sahu PP. External ophthalmomyiasis presenting as acute allergic conjunctivitis in a patient belonging to urban population of East India- A Rare Case Report. *JMSCR.* 2021;7(6):1122-5. [[Link](#)]
- Gözüm N, Kir N, Ovalı T. Internal ophthalmomyiasis presenting as endophthalmitis associated with an intraocular foreign body. *Ophthalmic Surg Lasers Imaging.* 2003;34(6):472-4. [[Crossref](#)] [[PubMed](#)]
- Calışkan S, Ugurbaş SC, Sağıdik M. Ophthalmomyiasis externa: three cases caused by *Oestrus ovis* larvae in Turkey. *Trop Doct.* 2014;44(4):230-2. [[Crossref](#)] [[PubMed](#)]