

External Ophthalmomyiasis, Case Report in Campania

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Submission: March 31, 2016; **Published:** April 05, 2016

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Abstract

Objective: To describe a clinical case of external ophthalmomyiasis in a 55 year old man from Umbria, Italy. We are also taking into consideration a differential diagnosis of Onchocerciasis and Cisticercosis.

Design: Case Report Interventional

Participants: 1 patient, 2 eyes in an interventional case report

Methods: biomicroscopic examination, surgical removal of the larve, medical treatment, laboratory examination of the specimen and blood screening

Main Outcome Measures: Inflammation of the conjunctiva, blood screening, Visual Acuity, Fundus, Anterior chamber status.

Results: It was not possible to obtain microscopic evidence of the larvae. Blood screening and examination of the specimen was negative but the biomicroscopic evidence of the parasites, together with documented information, made the diagnosis relatively easy.

Conclusions: The difference in clinical signs and negative laboratory tests allowed us to exclude all the diseases mentioned above. With case study, we hope to be able to aid in simplifying the diagnosis of this pathology for our colleagues.

Keywords: Ocular Pain; Melanoma; Ciliary Body; Cataract

Abbreviations: BCVA: Best-Corrected Visual Acuity; NMR: Nuclear Magnetic Resonance

Introduction

Ophthalmomyiasis is an infection of the eye by Diptera larvae. *Oestrus Ovis* is the most frequent cause of ocular myiasis especially in countries with tropical or mild climates [1]. The presence of this pathogen is widely seen in Central and Southern Italy and the islands where sheep farming is common [2]. Ophthalmomyiasis, based on its location, is classified as external, internal and/ or orbital. In its external form the larvae are found on the conjunctiva or on the edge of the eyelid [3]. With accidental contact this can give rise to inflammation of the conjunctiva. The patient may also experience lacrimation, photophobia and foreign body sensation in the eye.

Case History

A 55 year old male patient, telephoned from Umbria where he was attending an open air public manifestation. He stated

that, whilst sitting under a tree the previous evening, he had the sensation that something had "hit" his left eye. He complained of foreign body sensation, pain and photophobia throughout the night. He was advised to come to our private practice. At 14.00 h he arrived. His general condition was good. His left eye was red, painful and intensely photophobic. A biomicroscopic examination revealed numerous tiny worms in rapid movement (Figure 1). The worms were removed by using forceps, cotton buds and continuous irrigation of the inferior and superior conjunctival sac with a iodopovidone 5% solution and netilmycin sulphate 0.455g eye drops equal to 0300g. The patient was then treated with netilmycin sulphate ointment every two hours. At 22.00 h after a second biomicroscopic examination more larvae were removed. Some larvae were preserved in test tubes containing tears and others were placed on slides to be microscopically examined in the laboratory.

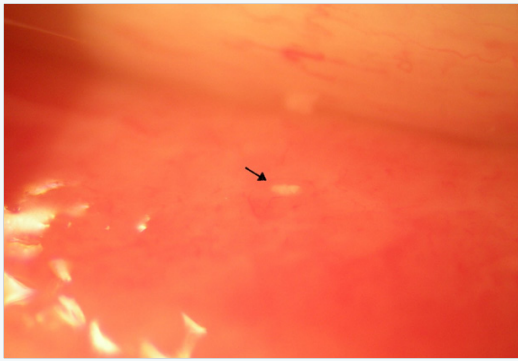


Figure 1: A larvae in the tarsal conjunctiva.

The specimens (slides and lacrimal liquid collected in tubes) were examined immediately. One drop of physiological solution at 0, 9% was added to the lacrimal fluid and placed on dry glass slides and observed microscopically (first at 10x field and then 40x). No Diptera larvae were found, because they had dissolved. Giemsa slides at 3% were prepared next. This stain is used to highlight the visibility of other forms of parasites, particularly nematodes and larvae of platelminta cestodes. Thin films of lacrimal liquid were fixed with methanol and then stained with Giemsa at 3% Microscopic examination, at 1000x with an oil immersion lens revealed no parasites.

The following day a blood sample was drawn and biomicroscopic examination revealed the presence of a few slow moving larvae. These were removed with forceps. A complete and thorough examination (vision, IOP, anterior chamber, vitreous and fundus) was normal aside from conjunctival injection. An examination two days later showed the presence of cysts situated in the conjunctiva (Figure 2). The base of the cysts was pearl in color but the upper part was transparent. Haemato chemical tests were negative and a diagnosis of ophthalmomyiasis was made based on physical evidence. An examination six days later revealed a slight reduction in the size of the cysts and an absence of larvae. After eight days the cysts were in a phase of regression and the conjunctiva was no longer inflamed.

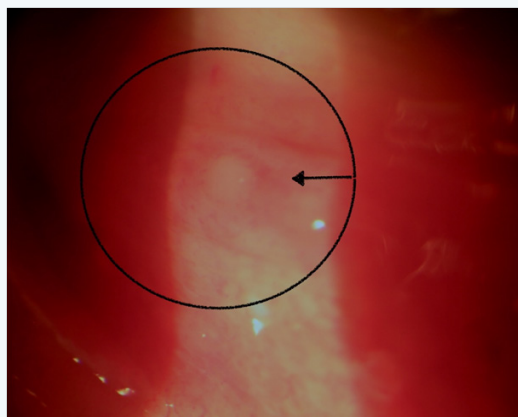


Figure2: A cysts situated in the tarsal conjunctiva.

Discussion

The term myiasis means the invasion of human tissue by parasites of the type Diptera. The first case of ocular myiasis was described by Keyt in the 1900s [1]. The ocular form can be external, internal or orbital and is commonly associated with *Oestrus Ovis* [4]. Infestation occurs when the female lays her eggs on the skin or mucous membrane. Stimulated by the warmth these eggs evolve into larvae that are about 1.5 mm in size. The larvae then penetrate the skin or mucous membrane in a few minutes. Penetration inside the eye occurs from perforation of the sclera which allows the larvae to move below the retina. This may leave a hypopigmented trail. Entry into vitreous chamber may occur due to a break in the retina. The larvae can be trapped in the vitreous and gain entry into the anterior or posterior chambers. The risk is partial dislocation or dislocation of the lens and damage to suspensory ligaments (zonulules) [5]. The signs and symptoms of internal ophthalmomyiasis vary accordingly to anterior or posterior positioning of the larvae. The signs of anterior positioning are recurring iritis associated with partial displacement or total displacement of the lens. In posterior positioning one can see vitreous turbidity and possible detachment of the retina [6].

External ophthalmomyiasis presents symptoms similar to acute catarrhal conjunctivitis as in the case presented. However it is necessary to pay much attention to the treatment, because it could have serious complications such as conjunctival ulceration, endophthalmitis and invasion into other regions of the eye and orbit [4]. Diagnosis is based on anamnetic and clinical data. Identification of the parasite if it is microscopically present. The typical parasitological aspects are, length a little over 1 mm, off-white color and two hooks in the cephalic segment. Examined under a light the fissures appear tiny and fusiform with cylindrical translucent elements and a black mark at one end. This allows the parasite to be highly mobile and capable of penetrating the conjunctiva [2]. Note, it is extremely difficult to remove and preserve these larvae due to their fragility. Even though some were rapidly placed on slides and others saved in lacrimal liquid in the test tubes, it was not possible for the laboratory to examine them as they dissolved. Treatment requires continual removal of the larvae and antibiotics to prevent further bacterial infection.

We found that irrigation of the conjunctiva with a solution of iodopovidone 5% and nethilmycina, did reduced the number of larvae which helped lower the risk of further infection. It is also necessary to be on the lookout for other conditions that could occur due to larvae having entered the eye. We refer in particular, to cysticercosis and onchocercosis, which, initially, had been considered as possible differential diagnosis.

Cysticercosis is a parasitic disease caused by larvae of platelminta cestode of taenia type A. This cestode has man as its final host and pigs are the intermediary hosts [7]. Clinical symptoms depend on the site of infection and migration. One can see conjunctivitis, iridocyclitis, displacement of the lens, retinal

detachment, vitritis, etc. Decreased vision, pain and foreign body sensation are symptoms that the patient may experience [8]. Diagnosis is made by looking for anti cysticercus serum antibodies; enzyme linked immunoelectro transfer blot (EITB).

Onchocercosis is an infectious disease caused by infestation of nematode filariform onchocerca volvulus. The incubation period of 3-12 months shows no clinical signs [9]. The first sign is usually the appearance of subcutaneous nodes. Lesions to the eye, starting at the cornea, begin with opaque white infiltrates and keratitis, followed by corneal opacities. Microfilarie found in the anterior chamber can cause iridocyclitis and glaucoma, whereas, regardless of microfilarie in the posterior chamber, it is possible to find atrophied areas of the retina and choroid. Involvement of the retina can lead to damage of the optic nerve causing reduced vision or eventually blindness [10-11]. Diagnosis is made through anamnestic and laboratory data: an increase in eosinophil, immunoenzymatic tests and the presence of microfilarie. Sample is taken during the night when reproduction of filarie is at its highest.

Conclusion

Although it was not possible to obtain microscopic evidence of larvae, the symptoms, the biomicroscopic aspect of the parasites, together with documented information, made the diagnosis relatively easy. The difference in clinical signs and negative laboratory tests allowed us to exclude any of the diseases mentioned above. With case study, we hope to be able to contribute and aid in simplifying the diagnosis of this pathology for our colleagues.

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