EXTERNAL OPHTHALMOMYIASIS CAUSED BY SHEEP BOTFLY (OESTRUS OVIS) LARVA: A REPORT OF 8 CASES

Mohsen Masoodi MD*, Keramatalah Hosseini MD

Myiasis is the infestation of tissues and organs of animals or man by fly larvae. Ophthalmic myiasis has been reported of various world regions. In this study we present the clinical manifestations with ophthalmomyiasis caused by Oestrus ovis larvae in 8 patients from Fars Province in southern Iran. All of the patients were farmers, in close contact with sheep and goat. All patients presented with severe conjunctivitis. The larvae were observed in the bulbar conjunctiva, and following their removal, the symptoms of eye inflammation improved in a few hours.

Keywords • Iran • myiasis • Oestrus ovis • ophthalmomyiasis

Introduction

Myiasis is the infestation of tissues and organs of animals or man by fly larvae. The most common site of infestation is the skin wound. Less common sites are eyes, nose, paranasal sinuses, throat, and urogenital tract.1 – 5 Myiasis appears to be fairly common but underestimated in many rural areas. In some areas of Fars Province in South of Iran, myiasis does occur in warm seasons. Ophthalmic myiasis has been reported from Iran6, 7 and other parts of the world.2, 8 – 12 Most of these reports are limited to one case. We present the clinical manifestations in 8 patients with ophthalmic myiasis from North-East of Fars Province in Iran.

Case Report

We investigated all of the patients who were referred with evidence of ophthalmic inflammation to Vali-e-Asr Hospital of Surian city during the year 1997. Vali-e-Asr Hospital is the main referral hospital for the Bavanat area in the North-East of Fars Province. Most of those who live in this area are involved in agricultural activities and/or sheep raising. Each subject was given a thorough physical examination and was asked, in detail, about the medical history and, in particular, symptoms related to the development of myiasis. Attempts were made to directly detect any present larva in the eye case. Diagnosis of myiasis was made by direct visualization of the larva, using a magnifier lens, or ophthalmoscope. After instillation of tetracaine eye drop, the larvae were removed by an applicator or by washing of the eye with normal saline.

Eight patients (7 males and one female) were proved to have ophthalmic myiasis. The age of the patients ranged between 15 and 56 years (mean ± SEM, 31 ± 10). The condition occurred in the spring (75%) and summer (25%). All of the 8 cases lived in rural areas and in close contact with sheep and goats. The major clinical features are shown in Table 1.

In each case, the symptoms began while the affected individual was working outdoors, on a farm, during the days. None of the patients had history of allergic reactions in the past. The first symptom, sensing the presence of a foreign body in the eye and itching, had always appeared abruptly. In all of case, the eye involvement was unilateral and extraocular with motile larvae
present in the bulbar conjunctiva. There was no evidence of corneal or intraocular involvement. The number of larvae varied from one to five and measured 2 – 4 mm in length. They were mounted on a microscope slide, examined carefully, and photographed under a microscope. The larvae were identified as first instars of *Oestrus ovis* (Diptera: Oestridae) which is a larviparous dipteran on the basis of their spindle shape, the pair of sharply curved mouth-hooks. The pattern of spinules on the dorsal surface consisted of a complete row of denticles on the third segment and a broadly interrupted row on both the fourth and fifth segments with 22 to 25 terminal hooks arranged in two scallops (Figures 1 and 2).

Following removal of all larvae, the symptoms completely resolved within a few hours. In patients who had remained without treatment for some time, swelling of the eye had increased rapidly, and prevented eye opening.

**Table 1. Clinical findings in 8 patients with ophthalmomyiasis.**

<table>
<thead>
<tr>
<th>No. of patient</th>
<th>Gender (age)</th>
<th>Season</th>
<th>No. of larva</th>
<th>Complaint and findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male (15)</td>
<td>Spring</td>
<td>4</td>
<td>Rhinorrhea, swelling and chemosis, redness, itching, foreign body sensation, lacrimation</td>
</tr>
<tr>
<td>2</td>
<td>Male (18)</td>
<td>Summer</td>
<td>3</td>
<td>Itching, foreign body sensation, lacrimation, pain, swelling and chemosis, redness</td>
</tr>
<tr>
<td>3</td>
<td>Male (24)</td>
<td>Spring</td>
<td>1</td>
<td>Foreign body sensation, lacrimation, pain, swelling and chemosis</td>
</tr>
<tr>
<td>4</td>
<td>Male (27)</td>
<td>Spring</td>
<td>5</td>
<td>Itching, foreign body sensation, lacrimation, swelling and chemosis, redness</td>
</tr>
<tr>
<td>5</td>
<td>Male (34)</td>
<td>Summer</td>
<td>2</td>
<td>Itching, foreign body sensation, lacrimation, swelling and chemosis, redness</td>
</tr>
<tr>
<td>6</td>
<td>Male (36)</td>
<td>Spring</td>
<td>2</td>
<td>Itching, lacrimation, rhinorrhea, swelling and chemosis, redness</td>
</tr>
<tr>
<td>7</td>
<td>Female (41)</td>
<td>Spring</td>
<td>3</td>
<td>Itching, foreign body sensation, lacrimation, swelling and chemosis, redness</td>
</tr>
<tr>
<td>8</td>
<td>Male (56)</td>
<td>Spring</td>
<td>4</td>
<td>Itching, foreign body sensation, lacrimation, pain, swelling and chemosis, redness</td>
</tr>
</tbody>
</table>

**Discussion**

Ophthalmic myiasis is due to deposition of fly larvae in the human eye. Various species of flies are able to provoke ophthalmomyiasis, including *Oestrus ovis*, latrine fly (*Fannia*), house fly (*Musca domestica*), and cattle botfly (*Hypoderma*). *Oestrus ovis* is by far the most common cause of ophthalmic myiasis in man. Ophthalmic myiasis due to *Oestrus ovis* was described for the first time in 1947 by James. More scattered cases have been reported since then from Mediterranean area, like Italy, and also from Russia, Serbia (previous Yugoslavia), India, Africa, America, and Oman. Although only a few cases of ophthalmomyiasis have been reported from Iran, many shepherds in Fars Province are familiar with this problem. Myiasis is more common than what have been indicated by previously published reports. This is the first series on ophthalmomyiasis due to *Oestrus ovis* from
Human myiasis mostly occurs in rural areas, where man lives in close contact with cattle. The sheep and goat are the main hosts for myiasis by *Oestrus ovis* and the men are infested accidentally. This eye involvement by *Oestrus ovis* is in the form of external ophthalmomyiasis, which is confined to conjunctiva, eyelid, and lacrimal ducts. 7, 11, 16

Symptoms, such as severe eye irritation, redness, foreign body sensation, pain, lacrimation, and swelling of the lids, and also, predominance of male patients and warmer climate presented in this study are similar to those described in other reports. 9, 17 – 20 Rhinorhoea, reported in a few studies, 19, 21 may point out to allergic reaction in addition to local irritation induced by fly larvae. 22 – 24

Complications such as corneal ulcer, invasion into eye globe, and decreased vision are not usual and none of these complications were encountered in our patients. But the larvae from some other species such as *Hypoderma* (or cattle botfly) can penetrate the eye globe and cause endophthalmitis and iridocyclitis, and may even lead to blindness. 25 The predisposing factors to opthalmic myiasis have been reported to be eye infection, young age, alcohol abuse, and debility. 26 But none of these factors were present in our patients. The treatment consists of anesthetizing the larvae and the eye, followed by removal of the larvae. Antihistamine drops and/or topical antibiotics may also be used as needed.

Myiasis should be considered as an occupational disease among farmers and shepherds. Awareness of the larval conjunctivitis in rural areas, especially during spring and summer, leads to the more prompt diagnosis, and institution of specific therapy for the disease.

Acknowledgment

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