

Nasal Myiasis due to *Oestrus ovis* Larvae in Israel

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M yiasis is the infestation of living humans or animals with the larvae of dipteran flies, which at least for a certain period feed on the host's dead or living tissues, body substances or ingested foods [1]. The larvae of the sheep nasal bot fly, *Oestrus ovis* L., are well-known parasites in the nasal cavities and frontal sinuses, sometimes also in the maxillary sinuses of domestic sheep, goats and some wild ruminants worldwide, causing the clinical picture known as oestrosis [1]. The viviparous females swarm around the heads of the animals and deposit the larvae from a distance of several centimeters into the nostrils, and sometimes also into the eye orbits, in batches of one to several dozen. The larvae then migrate into the nasal cavities and the paranasal sinuses where they develop.

In animals, the infestation frequently induces clinical signs of rhinitis and sinusitis that are sometimes severe. Infested animals excrete a purulent discharge from the nostrils, shake their heads, grate their teeth, sneeze, have difficulty breathing, and rub their noses on the ground or against their forelegs. In rare cases, especially in lambs, the larvae reach the cranial sinuses and lungs causing death. Larvae in the animal's orbit may cause mild conjunctivitis [1].

O. ovis may attack humans as well, usually causing ocular myiasis (ophthalmomyiasis), but the larvae never develop

beyond the first stage. People are affected mainly in areas where sheep and goats are raised. From a study conducted in 22 townships in the Etrurian area in Italy during which 112 shepherds were interviewed, it was discovered that 80.3% of them, at least once in their lives, had contracted *O. ovis* myiasis [2].

Victims usually have the sensation of being struck in the eye by an insect or by a small foreign object. A few hours later a painful inflammation develops, causing an acute catarrhal conjunctivitis. Ocular symptoms, such as foreign body sensation, irritation, redness and photophobia, have been reported. As many as 50 larvae have been removed from the conjunctival sac of a single patient, although usually there are considerably less [1]. Larvae are removed under local anesthesia using forceps.

Rarely, the larvae are also deposited into the mouth, nostrils or outer ear of humans, where they usually survive only a few days without further development. Nasal symptoms such as sneezing, nasal discharge and epistaxis have been reported [1].

PATIENT DESCRIPTION

A 33 year old woman living in El'ad, a small city about 25 km east of Tel Aviv in the middle of a rural area, had suffered for years from sinusitis and asthma for which she was treated with antibiotics and prednisone. Recently she was not permitted to take part in nature trips and had not left the country for the last 2 years. On 20 May 2010, she observed two small living larvae that were expelled from her nose while sneezing. The larvae were sent to a neighboring hospital but were lost. On

2 October 2010, a third, larger, larva was discharged from her nose while sneezing, and was brought to our laboratories for examination. The larva was black in color and had shrunk, indicating that it had been dead for some time before it was expelled from the nasal cavity. It was identified as the third stage of *O. ovis*.

On examination, including anterior rhinoscopy and nasal endoscopy, the nasal cavity seemed to be normal, with no discharge or polyps. Mild scarring was noticed in the left middle nasal meatus, but the maxillary sinus ostium was patent and the surrounding mucosa was normal. No additional maggots were found. Sinus computed tomography scan showed mild chronic changes in the mucosa, mostly at the base of both maxillary sinuses; however, the osteo-meatal complex was open on both sides.

COMMENT

In Israel, Harvey [2] treated 30 patients with conjunctivitis due to *O. ovis* infestation in the Jerusalem area during the period 1981–1982. The conjunctivitis varied from mild to severe pseudo-orbital cellulites. Features of the conjunctivitis included pale edema, linear superficial punctate keratopathy and the presence of larvae in the conjunctival sac. Garzozzi et al. [3] also reported a case of external ophthalmomyiasis caused by *O. ovis* in the Afula area (in the Lower Galilee).

Infestation of humans with the larvae of *O. ovis*, which remained in the nasopharyngeal cavities until they reached the third larval stage, has been rarely reported [4]. In Israel, Yeruham and co-workers [5] reported the case of an 82 year old man who presented with a white mass that

appeared in his mouth after sneezing or coughing. A CT scan of the nasal sinuses and eyes was normal and an examination by an ear, nose and throat consultant was unremarkable. After having produced a total of six larvae there were no further episodes. The collected larvae were identified as the third larval stage of *O. ovis*.

In conclusion, although occurring very rarely, any patient with nasal complaints and feeling a moving foreign body in the nasosinus must be examined to exclude

nasal myiasis, especially if he or she has visited areas with sheep and goat husbandry.

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