

CASE REPORT

Counting Larvae in a Farmer's Ear: 23

Sinan Atmaca, Senem Cengel, Murat Gumussoy, Gokhan Kutlar, Mustafa Acici, Murat Hokelek

Department of Otolaryngology and Head and Neck Surgery, Ondokuz Mayıs University School of Medicine, 55139 Kurupelit, Samsun, Turkey (SA, SC, MG, GK)

Department of Parasitology, Ondokuz Mayıs University School of Veterinary Medicine, 55139 Kurupelit, Samsun, Turkey (MA)

Department of Microbiology and Clinical Microbiology, Ondokuz Mayıs University School of Medicine, 55139 Kurupelit, Samsun, Turkey (MH)

Aural myiasis can be defined as fly larvae feeding on the host's ear. It is a rare condition and occurs mostly in children and the mentally retarded adults. We present a 40-year-old, mentally healthy, farmer with aural myiasis. Clinical examination revealed live maggots filling the left external ear canal (EAC). Twenty-three live maggots were removed from the EAC and the middle ear (ME) with alligator forceps and suction-irrigation. The maggots were classified as *Wohlfahrtia magnifica*. Successful treatment is achieved by direct removal of the maggots and application of preventive methods.

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“Myiasis” comes from the Greek word “myia” meaning “fly” and is defined as infestation by dipterian larvae that feed on dead, necrotic or living host tissue for a certain period of time. It may affect the skin, body cavities and internal organs^[1,2]. From entomological point of view, myiasis can be classified as: 1) obligatory (the fly larvae live on a live host), 2) facultative (the fly larvae can live on their own but may invade sores, ulcerations or feces of a host), 3) accidental (the fly larvae infest a host that is not involved in their living cycle)^[1-3]. Most cases of human myiasis are facultative or accidental^[4]. These infestations have a predilection to tropical and subtropical regions^[3, 4]. Skin, eye, nose, airway, ear, mouth, vulva, penis, brain and urinary bladder infestation by maggots have been reported previously^[2-5]. Aural myiasis is a rare condition that frequently involves the children and the mentally retarded adults. Otalgia, otorrhea, itching, roaring noise, bleeding, hearing impairment, sensation of a moving object and tympanic membrane (TM) perforation are among the clinical symptoms in a patient with aural myiasis^[1, 4, 6, 7]. Intracranial involvement through the nose or ear may have grave prognosis.

Case Report

A 40-year-old, mentally healthy, farmer with obviously poor personal hygiene presented with live maggots filling his left EAC (Figure 1). The patient had history of left chronic otitis media and stated that he had had otalgia, otorrhea, itching, roaring sound and sensation of a moving object in his left ear 3 days prior to admission. The patient was seen by a primary care physician and given some eardrops but did not have relief of his symptoms. After removal of 21 maggots (Figure 2 and 3) with alligator forceps, the anterior-inferior perforation of the TM was observed and another maggot was seen inside the middle ear (ME). After the fasting period, the patient was taken to the operating room and under general anesthesia, two more maggots were removed from the ME by saline irrigation and suction. The ME and EAC was washed with H₂O₂ several times and no more maggots were seen. After cleaning the ear, diffuse inflammation and edema of the TM and the EAC was observed. The patient was put on oral ciprofloxacin 500 mg bid and topical ciprofloxacin eardrops. Computerized tomography showed no bony destruction or

Corresponding address:

Sinan Atmaca MD

Assistant Professor of Otolaryngology Ondokuz Mayıs Üniversitesi Tıp Fak.

KBB Anabilim Dalı Kurupelit 55139 Samsun-TURKEY

Phone: +90-362-3121919 ext 2749; Fax : +90-362-4576041; E-mail: sinanatmaca@yahoo.com

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Figure 1. External ear canal packed with live maggots.



Figure 2. Third instar larva of *W. magnifica*.



Figure 3. Larvae of *W. magnifica* after removal.

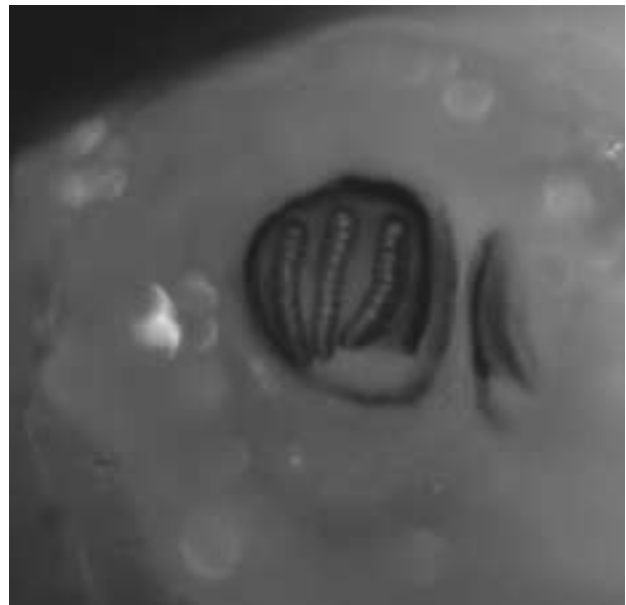


Figure 4. Posterior spiracles in the cavity of third instar larva of *W. magnifica*.

intracranial involvement. Audiologic examination revealed mixed hearing loss with bone-conduction thresholds of 32 dB and air-conduction threshold of 65 dB. The maggots were classified as *Wohlfahrtia magnifica*. No maggots were seen in daily follow-up examinations for 3 days. Ten days later the EAC and TM recovered completely with persisting perforation and the audiologic examination revealed significantly improved mixed hearing loss with bone-conduction

threshold of 11 dB and air-conduction threshold of 32 dB.

Discussion

Although aural myiasis is a rare disease, it has been described in the literature from different parts of the world^[1, 7]. It usually affects the children and mentally retarded adults. The present case is neither a child nor mentally retarded but an adult farmer with poor

personal hygiene. Aural myiasis cases in a farmer have been reported from Italy and Korea previously ^[3, 6]. Uzun et al. ^[4] described aural myiasis in a radical mastoidectomy cavity. To our knowledge this is the first Turkish farmer with aural myiasis to be discussed in the English literature. *Wohlfahrtia magnifica* is an obligatory parasite with a habitat extending from Europe to China ^[3, 4]. The female can lay 120-170 larvae ^[3]. The larvae feed and mature in five to seven days and then leave the wound for pupation. A diagnosis of myiasis can be confirmed only by observing the larvae, which should be removed from the lesion and kept for identification. The precise identification of the species requires examination of the adult fly but the family and genus can be determined from larval morphology. The larva was identified as *Wohlfahrtia* spp. according to the pair of spiracles at the posterior end (Fig. 4). They were in third phase of larval period. Further investigation was performed under stereo-microscope for anterior and posterior spiracles and two live larvae were incubated in a special jar. One of them developed pupa stage in soil inside the jar, and turned mature form at the end of 13th day. Well defined round spots on the abdomen, black longitudinal stripes on the thorax (Fig. 5) and the



Figure5. Arrowhead- Black round spots on the abdomen of *W. magnifica*
Arrow- Black longitudinal stripes on the thorax of *W. magnifica*.

arista without bristles (Figure 6) specified the adult fly as *Wohlfahrtia magnifica*.

TM perforation and chronic ear disease seem to be preceding myiasis rather than being a result of it ^[3]. Yuca et al. ^[2] reported on 6 children with aural myiasis, all having TM perforation and chronic otitis media. Disturbing smell of discharge, inflamed EAC soft and poor hygiene of the patient are favorable conditions for the flies. We think that the present patient may have been infested by an accidental entry of a fly while the patient was asleep or working in the field. Besides direct removal, topical treatment with turpentine, calomel powder, ethanol, carbolic lotion, urea, oil drops, dextrose, creatine, hypertonic saline, ivermectine and iodine saline have been suggested ^[2-4,6]. If left untreated, fatal complications may occur. We strongly recommend avoidance of ototoxic solutions before ruling out TM perforation. Forceps removal and suction-irrigation with saline are safe treatment modalities before the integrity of the TM is visualized. Initial application of ototoxic solutions in the EAC may leak through TM perforation and worsen the already deteriorated hearing. Besides children and mentally retarded adults, farmers with chronic otitis media may be considered as a relatively high risk population with regards to aural myiasis.

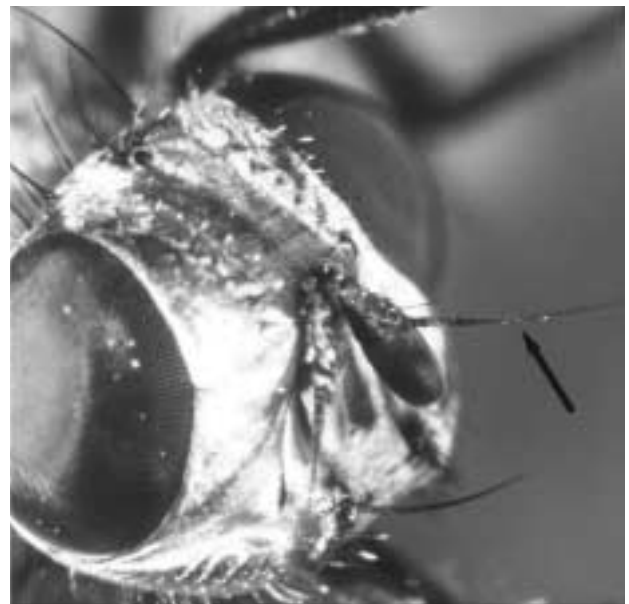


Figure 6. Arrow- Outline of antenna and arista without bristles on first flagellomere of *W. magnifica*

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