

Bilateral Aural Myiasis (*Wohlfahrtia magnifica*): A Case with Chronic Suppurative Otitis Media

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SUMMARY: Myiasis is a disease caused by fly larvae and aural myiasis is a rare clinic condition often occurring in children or mentally retarded people. We report the case of an unusual presentation of a bilateral aural myiasis in a mentally retarded patient with bilateral chronic otitis media caused by the third instar larvae of *Wohlfahrtia magnifica*. Two larvae were located on the outer ear canal while two additional larvae were located in the middle ear cavity and were removed through perforation of the tympanic membrane. Treatment of aural myiasis is based on removal of the maggots and cleansing of the ear with ethanol, chloroform or physiological saline. Physiological saline is preferred in patients who have tympanic membrane perforation. Myiasis is related to personal hygiene. Therefore, in order to decrease the incidence of these infestations, care and hygiene standards should be carried out for those at risk.

Key Words: Myiasis, *Wohlfahrtia magnifica*, chronic otitis media.

Bilateral Kulak Miyazı (*Wohlfahrtia magnifica*): Kronik Süpüratif Otitis Medialı Bir Olgu

ÖZET: Miyaz, sinek larvalarının neden olduğu bir hastalıktır. Kulak miyazıysa genellikle çocuklarda ya da mental retarde kişilerde gelişen nadir görülen bir klinik durumdur. Bu makalede alışılmadık görüntüsü sebebiyle, kronik süpüratif otitis medialı mental retarde bir hastadaki *Wohlfahrtia magnifica*'nın 3. dönem larvalarının sebep olduğu kulak miyazı sunulmuştur. İki larva dış kulak yolunda iken, iki larva orta kulak boşluğunda lokalize idi ve timpanik membran perforasyonundan çıkarıldı. Kulak miyazı tedavisi kurtçukların çıkarılmasına ve kontamine sahanın etanol, kloroform veya serum fizyolojik ile yıkanmasına dayanır. Kulak zarı perforasyonlu hastalarda serum fizyolojik önerilmektedir. Miyaz kişisel hijyenle çok ilgilidir. Bu yüzden, enfeksiyonun insidansının azaltılması risk altındaki kişilerin bakım ve hijyen standartlarının yükseltilmesiyle mümkündür.

Anahtar Sözcükler: Miyaz, *Wohlfahrtia magnifica*, kronik otitis media.

INTRODUCTION

Myiasis is the infestation of humans and other vertebrate animals by dipterous larvae. The larvae feed on the host's dead or living tissue, liquid body substances, or ingested food. Maggots can infest any organ or tissue accessible to fly oviposition or larviposition; most cases probably occur as a result of direct egg or larvae deposition on a human host. The larvae penetrate the tissue, thus causing different damages depending on the body site (5). There are few publications regarding human ear myiasis (10). Aural myiasis is a rare clinical state and occurs frequently in children. It is also frequently seen in adults especially

those who are mentally retarded. We present the case of an aural myiasis in such a patient, who had a bilateral myiasis caused by *Wohlfahrtia magnifica*.

CASE REPORT

A 32 years old man was referred to our clinic complaining of otorrhea, otalgia, itching of the left ear for the last two days and with a history of two maggots removed from the right ear one week earlier. Computerized tomography showed a bilateral chronic otitis media. In micro-otoscopic examination of the left ear, a purulent secretion filling the external auditory canal was observed. Because of the low compliance and cooperation of the patient, he was taken to the operating room for general anesthesia. After the suction of the purulent secretion 2 maggots which were located superficially were removed immediately, while two addition maggots were removed from the middle ear cavity by perforating the tympanic membrane (Fig. 1). For this purpose the micro-otoscopy was used, which also revealed

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that middle ear cavity was edematous and moistened. Pure tone audiometric analysis showed bilateral mild conductive hearing loss due to chronic otitis media. The removed maggots were fixed in 70% alcohol solution and identified by a veterinary entomologist in the parasitology laboratory of Firat University, Elazığ, Turkey.

The maggots were 8- 11.5 mm in length and 2- 2.5 mm in width (mean 9.85 x 2.1 mm) (Fig 1). The maggots were identified as the third stage larvae of *Wohlfahrtia magnifica* (Diptera: Sarcophaginae). Identification of larvae by light microscopy was carried out by examination of their size, segmentation, anterior and posterior spiracles, cephalopharyngeal skeleton and spines (Fig 2). In the third instar, there are only two thicker, longer and more markedly curved hooks. The anterior spiracles have five branches. The posterior peritremes are elongated on the dorsal surface of the last somatic segment. The peritremes have three variably shaped peritremal splits.



Figure 1. *Wohlfahrtia magnifica* larvae removed from the lesion; 2. The cephalopharyngeal skeleton and anterior spiracles of the larva.

DISCUSSION

The various forms of myiasis may be classified from an entomological point of view as: a. accidental myiasis, in

which larvae ingested together with food produce infection; b. facultative or semi specific myiasis, in which the larvae are laid on necrotic tissue in wounds; and c. obligatory or specific myiasis, in which larvae affect undamaged skin. Clinically myiasis is classified as: cutaneous myiasis, myiasis of external orifices (aural, ocular, nasal, oral, vaginal and anal) and myiasis of internal organs (intestinal and urinary) (7).

Three dipteran families are considered to be the main causes of myiasis in livestock and also, occasionally, in humans: Calliphoridae, Oestridea and Sarcophagidae (5). The sarcophagid *Wohlfahrtia magnifica* is one of the important obligatory parasites of livestock in Turkey, which cause myiasis in tropical and subtropical areas (4, 11, 15). In Turkey, there have been some case reports about cutaneous, oral and aural myiasis of man or animals by dipterous larvae (1, 12, 13). The first myiasis in Turkey caused by *W. magnifica* was reported in 1997 by Ciftcioglu, *et al.* as orotracheal myiasis (4). Recently reported is a nosocomial oral myiasis case report in a patient with bad oral hygiene. The patient in Yazar's study (15) was an unconscious patient in the intensive care unit and the larvae in this study were identified as *Sarcophaga sp.* A *W. magnifica* otomyiasis case patient who had undergone radical mastoidectomy previously was presented by Uzun (13). The maggots were identified as *W. magnifica* in the radical mastoidectomy cavity. Myiasis occurs predominantly in rural areas and is associated with poor hygienic practices and low educational level (6). In our case the patient was mentally retarded and was living in a rural area.

The larvae of *W. magnifica* are obligate parasites maturing within 4-7 days especially in body orifices and wounds of the host (9). Due to the fact that the larvae leave their host when they are fully matured, myiasis is a self-limiting disease, but it should keep in mind that severe and fatal complications can occur. Infestations of the nose and ears are extremely dangerous when the larvae penetrate the brain, in which case the fatality rate can be as high as 8% (8). Severe complications may be related to the involvement of the skull base (2, 4, 14). In our case, maggots were localized in the middle ear, and the area was suppurative. The passage of the larvae from middle ear into the cranium is relatively easier than when they are localized in the outer canal with intact tympanic membrane.

Aural myiasis is not a common manifestation in otorhinolaryngology. The clinical symptoms of aural myiasis could show a wide spectrum of symptoms; from silent infestation to otalgia, otorrhea, perforation of the tympanic membrane, bleeding, itching, mechanical sound, tinnitus, furuncle of the external ear and hearing impairment (3, 16). In our case, the major symptom was the purulent and particularly hemorrhagic secretion, which is common in suppur-

ative chronic otitis media, otalgia and aural itching. Aural myiasis generally occurs in neglected chronic disease such as untreated chronic suppurative otitis media in patients with poor personal hygiene in the otolaryngological cavity (13). In cases of aural myiasis, maggots can be found in the external auditory canal but also in the aural cavity (13). In our patient two larvae were located in the outer ear canal, while additional two in the middle ear cavity.

The therapeutic procedures include the use of local disinfectants such as 70% ethyl alcohol, 10% chloroform or physiological saline, the surgical removal of the larvae and prevention of secondary bacterial or fungal infections (5). In case of tympanic membrane perforation, the irrigation of the ear cavity with physiological saline and continuous suction is indicated (3, 10).

In conclusion, in case of otalgia, otorrhea, perforation of the tympanic membrane, bleeding, itching, mechanical sound, tinnitus, furuncle of the external ear and hearing impairments, the patient should be also examined for aural myiasis, which if located in the middle ear could lead to intracranial complications and become dangerous.

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