CASE REPORT

DOI: 10.5336/caserep.2017-58560

Bilateral Human Otoacariosis

İlhan ÜNLÜ,[a]
Derya CEBECİ,[a]
Necati İLHAN,[a]
Fatih Alper AKCAN,[a]
Şükrü ÖKSÜZ[b]

Departments of
[a]Ear, Nose and Throat,
[b]Microbiology,
Düzce University Faculty of Medicine,
Düzce

Received: 18.10.2017
Received in revised form: 29.11.2017
Accepted: 30.11.2017
Available online: 04.06.2018

Correspondence:
İlhan ÜNLÜ
Düzce University Faculty of Medicine,
Department of Ear, Nose and Throat,
Düzce, TURKEY
iremunlu2005@gmail.com

For the video/videos of the article:

ABSTRACT A 48-year-old male patient who had complaints of itching and buzzing in both ears for about four months was admitted to our polyclinic. On the otoscopic examination, moving, white colored mites which were considered to be of histiostomatid family were observed in both external ear canals. The skin of external ear canal and membrane were fragile in appearance. Both external ear canals were aspirated and washed with 70% ethanol. Treatment with eurox (crotamiton) and tobramycin was initiated. The patient was aspirated with two-day intervals and was continued to be washed with 70% ethanol. It was observed that mite infestation in both external ear canals disappeared after the fourth application. In this case report, we will present a rare case of otoacariasis in company with the literature.

Keywords: Mites; otitis externa

Otoacariasis is the infestation of the external ear canal with mites or ticks. Although it is more commonly seen in the external ear canal of animals, it can rarely be seen in the external ear canal of human beings. Mite infestation in the external ear canal is rarely observed compared to tick infestation. The cases of otoacariasis caused by tick were reported in South Africa, Chile, Malaysia, Sri Lanka, America and Turkey.[1-8] Otoacariasis caused by mite "Otodectes cynotis (psoroptidae)" was reported by Van de Heyning and Thienpont in 1977 in Belgium, histiostomatid acariosis was reported by Al-Arfaj et al. in 2007 in Saudi Arabia, *Dermanyssus gallinae* otoacariosis which is known as chicken mite in farmers was reported by Rossiter in 1997 in England, sancassania *(Calaglyphus berlesei)* otocariosis which is storage mite and had a repetitive course in mastoid cavity was reported by Palari and Ruckley in 2001 in England.[9-12]

In this report, we presented a rare case of otoacariasis with review of the literature.

CASE REPORT

A 48-year-old male patient who had itching and buzzing in both ears for about four months admitted to Otolaryngology outpatient Department of Duzce University Medical Faculty on 26 Aug 2016. In patient' history we revealed that, he admitted to different medical center with these complaints and used many medical treatments for the diagnosis of otitis externa.When he was admitted to our department, we revealed that he was not using any treatment for the last two months. On the otoscopic examination, the skin of both external ear canals and ear membrane were severely fragile, and numerous moving, white colored mites were observed in this fragile tissue.

The patient's external ear canals were visualized with the endoscope (Figures 1, 2, Video 1, 2). Under microscopic examination, a vast number of mites at different stages of life cycle were observed in the external ear canal of the patient. Both external ear canals were suctioned and the specimens were sent to the parasitology lab for identification. The external ear canal of the patient was washed with 70% ethanol. The crotamiton (Eurox) and tobramycin treatment was initiated. The external ear canals of the patient were suctioned with two-day intervals and were continued to be washed with 70% ethanol. First week of treatment, the patient' symptoms improved and the mite infestation in the external ear canal disappeared. No relapse was observed 1 month after treament.

FIGURE 1: Mites in right ear canal.

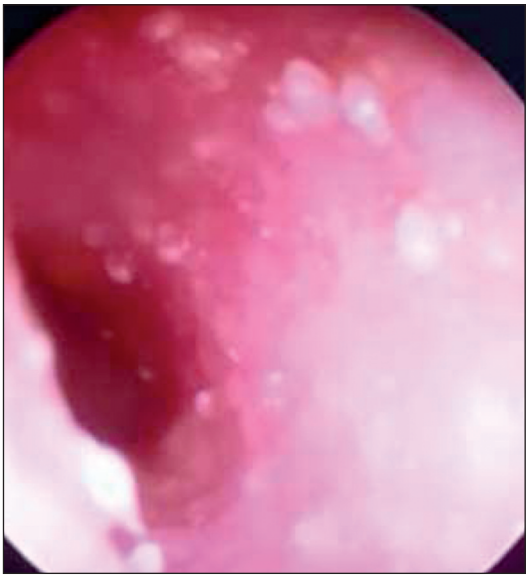

FIGURE 2: Mites in left ear canal.

DISCUSSION

The ear itch is one of the most common complaint encountered in otolaryngology. Otorrhea, bouchon, dermatitis, otomycosis and foreign body are among the most common causes of ear itch.[13] In our case, the cause of ear itch was mite infestation which is a quite rare entity.

Although otoacariasis caused by mite is frequently seen in the external ear canal of animals, it may also be seen in the external ear canal of human beigns. Otoacariosis caused by mite was first described by P.A. Basson when he detected the *Loxanoetus bassoni* mites in the external ear canal during the postmortem examination of elephants from South Africa in 1971.[14] The Anatodia mite was detected in the elephants by R. Domrow in 1984 in India.[15] In humans, *Otodectes cynotis* mite was reported by Van de Heying J. in 1977.[9] Otobius megnini was identified by Burchard L. in 1984 in Chile and the same mite was re-reported by Naude TW in 2001.[1,2] The mite found in our patient was detected to be of a histiostomatid family.

In Sri Lanka, 383 cases of otoacariasis were analyzed in 2004 and it was revealed that 70.8% of these cases were caused by identified ticks and 29.2% were unidentified ticks.[4] The mentioned studies have shown that the mites in otoacariasis are more common than those of the ticks. Histiostomatid otoacariasis in the external auditory canal of a 31-year-old male patient was reported by Al-Arfaj et al. in Saudi Arabia in 2007.[13] It was also found out that the mite detected in our patient was of histiostomatid family.

Based on this information in the literature, it is considered that the feeding behavior of mites is mostly facultative commensal style, which is based on feeding from secretion, debris and microflora of external ear canal rather than parasitic style. Since these creatures are proliferated in the ears of the animals that have infected or impaired external ear canal, it can be assumed that the secretion, bouchon and hot humid weather protect external ear

canal from an infestation. Based on this rationale, mites may proliferate and survive in an infected ear rather than a healthy external ear canal.[10]

Widespread information about the source of infestation of mites is that as a result of entering into the water which contains mites. In the case reports which included elephants and African buffaloes, it was stated that animals entered into water pools to cool down and clean themselves.[14,15] Also in the case reported by Al-Arfaj from Saudi Arabia in 2007, it was estimated that the infestation with mite occurred due to entering into the lake which was near his farmhouse.[10] Our case was dealing with ovine and bovine breeding. There was no history of contact with water bodies such as streem, lake, ponds. There was neither a history of contact with domestic animals such as cats and dogs. There was no similar complaint in his family and around him. The mode of transmission of *Dermanyssus gallinae* mite which was reported by Rossiter in 1997 was reported to be occupational.[11]

In the case which was published by Al-Arfaj et al., it took approximately three years for the diagnosis and treatment to be completed since the onset of complaints.[10] Our case was first admitted to a doctor in April 2016 with the complaint of itching in the external auditory canal and used local antibiotic treatment. When his complaint did not improve, he was admitted to other ear nose and throat specialists till the end of June 2016 and received different treatments. After that, following two months of the period without treatment, he admitted to us on 26 Aug 2016 due to the increase in his complaints.

In the case who was published by Al-Arfaj et al., the external ear canal was washed six times intermittently with 70% ethanol and saline for 2-3 months and local neomycin and gentamicin were initiated. In addition, crotamiton (Eurox) solution was added after one week since the mites persisted.[10] In our case, the external ear canal was washed with 70% ethanol. The Eurox (crotamiton) and tobramycin treatment was initiated. The external ear canals of the patient were suctioned with two-day intervals and were continued to be washed with 70% ethanol. First week of treatment, the patient' symptoms improved and the mite infestation in the external ear canal disappeared. No relapse was observed 1 month after treament (Figures 3, 4).

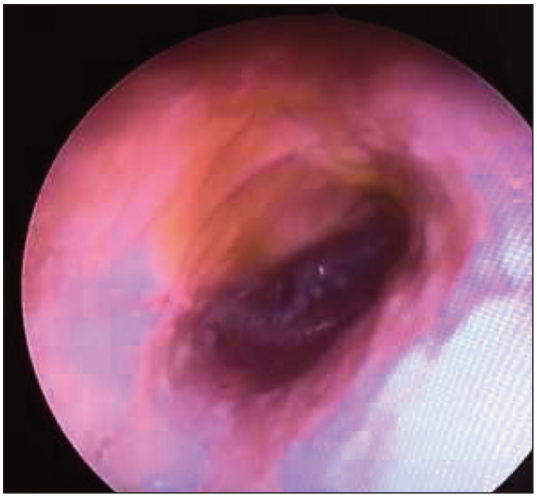

FIGURE 3: After treatment right ear canal.

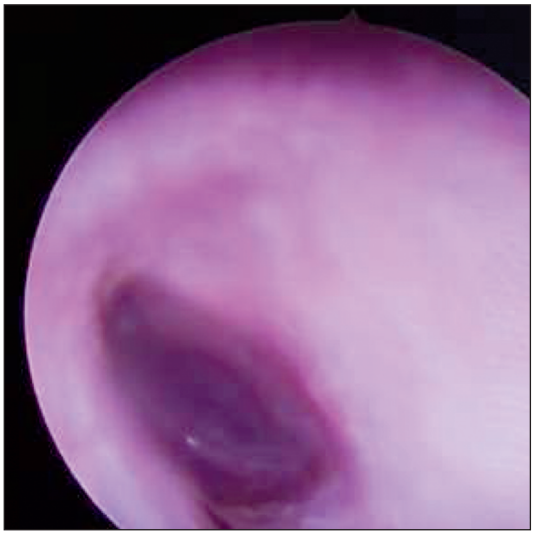

FIGURE 4: After treatment left ear canal.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Necati İlhan, Fatih Alper Akcan;* ***Control/Supervision:*** *İlhan Ünlü, Şükrü Öksüz;* ***Literature Review:*** *Derya Cebeci;* ***Writing the Article:*** *İlhan Ünlü;* ***Critical Review:*** *Şükrü Öksüz.*

REFERENCES

1. Naudé TW, Heyne H, van der Merwe IR, Benic MJ. Spinose ear tick, Otobius megnini (Duges, 1884) as the cause of an incident of painful otitis externa in humans. J S Afr Vet Assoc 2001;72(3):118-9.
2. Burchard L, Larenas N, Ramos P. [Human otoacariasis caused by Otobius megnini in Calama, Chile]. Bol Chil Parasitol 1984;39(1-2):15-6.
3. Indudharan R, Ahamad M, Ho TM, Salim R, Htun YN. Human otoacariasis. Ann Trop Med Parasitol 1999;93(2):163-7.
4. Dilrukshi PR, Yasawardene AD, Amerasinghe PH, Amerasinghe FP. Human otoacariasis: a retrospective study from an area of Sri Lanka. Trans R Soc Trop Med Hyg 2004;98(8):489-95.
5. Eads RB, Campos EG. Human parasitism by Otobius megnini (Acari: Argasidae) in New Mexico, USA. J Med Entomol 1984;21(2):244.
6. Keleş E, Karlıdağ T, Işık O, Saki CE. [Tick in the external ear track: case report]. Fırat Tıp Derg 2010;15(2):110-2.
7. Gökdoğan O, Çakabay T, Baran H, Karabulut B, Tasdemir C, Vatansever Z. Otoacariasis: demographic and clinical outcomes of patients with ticks in the ear canal. Braz J Otorhinolaryngol 2016;82(4):416-21.
8. Cakabay T, Gokdogan O, Kocyigit M. Human otoacariasis: demographic and clinical outcomes in patients with ear-canal ticks and a review of literature. J Otol 2016;11(3):111-7.
9. Van de Heyning J, Thienpont D. Otitis externa in man caused by the mite Otodectes cynotis. Laryngoscope 1977;87(11):1938-41.
10. Al-Arfaj AM, Mullen GR, Rashad R, Abdel-Hameed A, OConnor BM, Alkhalife IS, et al. A human case of otoacariasis involving a histiostomatid mite (Acari: Histiostomatidae). Am J Trop Med Hyg 2007;76(5):967-71.
11. Rossiter A. Occupational otitis externa in chicken catchers. J Laryngol Otol 1997; 111(4):366-7.
12. Paleri V, Ruckley RW. Recurrent infestation of the mastoid cavity with Caloglyphus berlesei: an occupational hazard. J Laryngol Otol 2001;115(8):652-3.
13. Basson PA, McCully RM, De Vos V, Young E, Kruger SP. Some parasitic and other natural diseases of the African elephant in the Kruger National Park. Onderstepoort J Vet Res 1971;38(4):239-54.
14. Domrow R, Ladds PW. A new ear mite from the Indian elephant (Acari: Anoetidae). J Nat Hist 1984;18(5):759-64.
15. Fain A, Zumpt F. Notes on three species of Anoetidae, two of which are new, living as commensals or parasites in the ear of an African buffalo. Acta Zool Pathol Antverp 1974;58(0):97-102.