

Dead End for Ticks: External Auditory Canal

Keneler İçin Çıkmaz Sokak: Dış Kulak Yolu

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ABSTRACT Ticks can be rarely seen in the external auditory canal (EAC) or on the tympanic membrane. Ticks can cause many diseases. Crimean-Congo hemorrhagic fever (CCHF) is one of the most important diseases in our country caused by ticks due to the lack of effective treatment. Ticks in the external auditory canal can turn into a life threatening situation due to CCHF. The way that is important in terms of disease risk. In this article, we presented cases of ticks extracted from the EAC of two patient and from the tympanic membrane of one patient. This article also describes the technique of removing ticks from the EAC. In addition, it was aimed to draw attention to CCHF disease caused by ticks. It is pointed out that spilling of solutions such as alcohol used in other living foreign bodies will increase the risk of disease.

Keywords: Ticks; foreign bodies;
Crimean-Congo hemorrhagic fever; ear canal

ÖZET Kene gibi canlı yabancı cisimler nadiren dış kulak yolunda veya timpanik membranda görülebilir. Keneler birçok hastalığa neden olabilir. Kırım-Kongo Kanamalı Ateşi (KKKA), etkili tedavisinin olmaması nedeniyle kenelerin neden olduğu ülkemizde görülen en önemli hastalıklardan biridir. Dış kulak yolundaki keneler KKKA nedeniyle hayatı tehdit eden bir duruma dönüşebilir. Kenelerin çıkarılma şekli hastalık riski açısından önemlidir. Bu yazıda, 2 hastanın dış kulak kanalından ve bir hastanın kulak zarından çıkarılan kene vakalarını sunduk. Bu makale aynı zamanda dış kulak yolundan keneleri çıkarma tekniğini de açıklamaktadır. Ayrıca kenelerin neden olduğu KKKA hastalığına dikkat çekilmesi amaçlanmıştır. Diğer canlı yabancı cisimlerde kullanılan alkol vb. solüsyonların dökülmesinin hastalık riskini artıracağına dikkat çekilmektedir.

Anahtar Kelimeler: Keneler; yabancı cisimler;
Kırım-Kongo hemorajik ateşi; kulak kanalı

Foreign bodies can often be seen in the external auditory canal (EAC). Especially in the younger age group, objects such as fruit seeds, nuts, beads and toy pieces can be encountered. Live foreign bodies such as bees, flies, ticks and larvae can also be seen in all age groups. Ear fullness, obstruction, hearing loss, discharge, tinnitus are among the common complaints. Rarely, it can cause taste disturbances and facial paralysis. Although they are not very rare in developing countries, ticks are rare living foreign bodies in EAC.¹ Ticks are mandatory bloodsucking arthropods and are found in every region of the world.² They are vectors of various bacterial and viral diseases and they cannot fly and jump.^{3,4} Due to the

superficial anesthetic effect of their saliva, they are mostly not noticed by the host. Thanks to anti-inflammatory and immunomodulatory compounds in salivary secretion, it blocks the host defense and ensures long-term blood absorption.⁵

Tick bites can be asymptomatic or cause diseases with systemic involvement such as Crimean-Congo hemorrhagic fever (CCHF), Lyme disease, tularemia and rocky mountain fever. It may progress with local findings such as abscess and lymphadenopathy.⁶

The most important tick-borne infection in Turkey is CCHF.⁷ The known occurrence of CCHF in Europe, Asia, and Africa coincides with the global

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distribution of hyalomma ticks. *Hyalomma Marginatum Marginatum* known as the Mediterranean Hyalomma. It may be the main vector of CCHF virus in Europe.⁶ It is an important public health problem due to the lack of effective treatment. The CCHF virus causes severe viral haemorrhagic fever outbreaks, with a case fatality rate of 10-40%.^{8,9}

In this article, very rare tick cases that we encountered as EAC foreign bodies are examined and the removal technique is explained. In addition, it was aimed to draw attention to CCHF disease caused by ticks. Written informed consent was obtained from the patients.

CASE REPORTS

CASE 1

A 36-years-old female patient presented to otolaryngology department with complaints of night-onset ear itching and tinnitus. On examination, a tick was seen at the entrance of the right EAC (Figure 1). The tick was removed alive with a 0 degree autoendoscope without pressing on the abdominal region of the tick. The head part was found to be intact (Figure 2). The tick's attachment site was hyperemic and lacerated at the inferior part of the EAC. The tympanic membrane was intact.

CASE 2

A 65-years-old female patient presented to otolaryngology department with complaints of ear itching and obstruction for one week. Otomicroscopic examination revealed a gray-purple immobile foreign



FIGURE 1: Tick in the entrance to the external auditory canal.



FIGURE 2: Tick in the entrance to the external auditory canal, after removal.



FIGURE 3: Swollen tick filling the external auditory canal, after removal.

body obliterating the left EAC. The foreign body, considering the inanimate object, was removed under microscopic examination without sudden movements. After the removal, it was observed that the foreign body was an alive tick. It was extremely swollen due to blood sucking. It was seen that tick was removed with a small piece of skin in its mouth (Figure 3). There was minimal laceration in the EAC. Fecal matter was removed from EAC. In the first blood values of the patient, it was seen that the lactate dehydrogenase (LDH) value was 275u/L (reference range 10-247u/L) and the platelet count was $161 \times 10^9/L$ (reference range: $148 \times 10^9/L - 400 \times 10^9/L$). The patient was followed up, no significant decrease in platelet count or increase in LDH was observed.

CASE 3

A 65-years-old female patient presented to our otolaryngology department with complaints of new-onset tinnitus in the left ear, foreign body

sensation. On otomicroscopic examination, a live tick was observed in the anteroinferior quadrant on the left tympanic membrane (Figure 4). Under microscopic examination, the tick was held close to the head without pressing on the abdomen, and was pulled with the alligator forceps. It was seen that the tick was removed alive and intact. Fibrous layer of the tympanic membrane was intact, but the outer epithelial layer was hyperemic and lacerated (Figure 5). The fecal matter was cleaned from the EAC.

Neither local anesthetic nor alcohol was used in three patients. Patients had no other systemic or local finding. Ciprofloxacin eardrops were prescribed. Patients were followed up in terms of CCHF. Biochemistry, hemogram and coagulation parameters were followed at 3-day intervals. Excepting LDH value of case 2, all results were seen within the reference range. Serology tests were not analyzed because the patients did not develop any symptoms during follow up. One month later, tympanic membrane and EAC had healed well. Removed ticks were placed in containers filled with alcohol and kept until they became immobilized. They were sent for identification. Ticks were identified as *Hyalomma* sp.

DISCUSSION

CCHF, a tick born disease, is caused by a microbial factor called Nairovirus in the Bunyaviridae family.⁸ The disease was seen for the first time in Turkey in 2002. It occurs between April and October every year and peaks in June-July.⁶ The disease needs attention due to its high mortality. Ticks in the EAC can turn into a life threatening situation due to CCHF. Therefore, care should be taken in all tick cases.

Biochemistry tests including specific tests such as hepatic enzymes, hemogram and coagulation parameters should be analysed. Patients should be followed for 14 days for CCHF.⁷

In an animal experiment, Orobello et al. observed how long it took for ticks in the EAC to die with various solutions and found acetone is fastest.¹⁰ However, while both mechanical removal and chemical incapacitation have their advocates, ex-



FIGURE 4: Tick on the tympanic membrane.



FIGURE 5: Tympanic membrane, after tick removal.

perimental evidence suggests that chemical irritants are ineffective at persuading ticks to detach. Furthermore chemicals have risk triggering injection of salivary fluids and possible transmission of disease-causing agents. For this reason, approaches such as applying alcohol to ticks should be avoided. Ticks should be pulled straight, if rotation is done, mouth pieces may remain in the area where they are attached.¹¹ Besides, Centers for Disease Control and Prevention (CDC) recommends removing the tick quickly without applying any solution, it should be kept close to the skin where it is attached. It is advised that do not twist or jerk the tick.¹² We removed ticks from 3 patients in line with the recommendation of the CDC.

Furthermore, if the tick which attached to the tympanic membrane is not removed carefully, it may cause perforation. The tick may need to be removed under anesthesia in children.¹³

Cases of ticks in the EAC are very rare.^{14,15} However in the last year, foreign bodies were removed from the ears of 63 patients in our otolaryngology department, 11 of them were live foreign objects such as insects and flies. Three of them (4.76% of all foreign bodies) were ticks. Therefore we think that ticks are seen with increased frequency in the EAC in rural areas.

As a result, during the intervention of live foreign bodies, the physician should also take all necessary precautions to protect himself. Foreign bodies that are immobile in the EAC and cannot be identified on otomicroscopic examination may be ticks. It should not be forgotten that all ticks can be disease vectors.

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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

All authors contributed equally while this study preparing.

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