

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP Journal of Otorhinology and Allied Science

Journal homepage: <https://www.joas.co.in/>

Case Report

A nasty guest of EAC - A rare case report of human otoacariasis

B. P. Belaldavar¹, P. Apoorva¹, Chenchulakshmi Vasudevan^{1,*}

¹Dept. of Otorhinology Head and Neck Surgery, Jawaharlal Nehru Medical College, Belagavi, Karnataka, India



ARTICLE INFO

Article history:

Received 11-09-2022

Accepted 21-09-2022

Available online 07-10-2022

Keywords:

Human Otoacariasis

Amblyomma testudinarium

Parasitic Ear Infestation

Hard Tick

ABSTRACT

Introduction: Otagia has a spectrum of causes and one among them is a foreign body in the EAC. Insects are not uncommon, but pose a threat by virtue of carrying infections that affect the patient locally as well as systemically.

Case Report: A 42-year female patient presented with acute onset otalgia, examination by otoendoscopy showed a foreign body over the posterior superior canal wall and it was removed, further microscopy then diagnosed it as *Amblyomma Testudinarium* and patient was treated accordingly.

Discussion: In tropical and developing countries such as India otologists must be aware and watchful of EAC infestations by arthropod vectors. Farmers are more prone to this zoonotic infection. Ticks consume a blood meal and hatch eggs, causing local irritation, perforations and hematogenic spread of infection.

Conclusion: Tick infestations though rare are perilous due to the risk of tick-borne infections, which have grave complications. The management must be holistic including the otological perspective with systemic treatment.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

The presence of otalgia is one of the commonest complaints encountered by an otolaryngologist in day-to-day practice, among this external auditory canal (EAC) causes, contribute to a large number of cases. Studies show that 10% of the world population is bound to develop otalgia due to EAC causes during their lifetime. Patients usually have infection or a foreign body lodged which leads to development of pain. Organic foreign bodies and insects are quite common in the rural setting in India.¹ Among the various insects found as foreign bodies in the ear, commonly we see are nymphs, flies, ants and very rarely otoacariasis which is, a tick infestation. Hard ticks such as *Amblyomma* are mostly found in the tropical countries such as India, Japan, Sri Lanka, Thailand and Indonesia.² It is seen that tick infestations account for less than 1% of the causes

of otalgia among patients. These arthropods are mainly parasites and usually live on larger mammals such as cattle from whom they derive their nourishment. Poor hygiene and living in close proximity to infested cattle is a source of this infection.^{3,4} These parasites lead to several debilitating infections such as Kyasanur forest disease, rickettsia fever, Q fever and Lyme's disease.⁵ Reporting of cases of otoacariasis in the EAC have been very few in the past 3 decades. Here we present one such rare case report along with a review of literature.

2. Case Report

A 42-year-old female patient, hailed from rural Belagavi district of Karnataka and a farmer and cattle rearer by occupation presented to the out-patient department of otorhinology with chief complaints of right ear pain for 1 week, which was sudden in onset gradually progressive, dull aching in nature. She gave history of 4-

* Corresponding author.

E-mail address: lakshmi9526@gmail.com (C. Vasudevan).

5 episodes of scanty bleeding from the right ear, sudden in onset and ceasing spontaneously. There was no history of trauma to ear, instrumentation, ear discharge, reduced hearing, or fever and no similar complaints in the past. The patient had no aggravating or relieving factors and was referred by a local doctor to our tertiary care centre. She had no complaints in the other ear, throat pain, nasal obstruction or rhinitis. She had no co-morbidities and was not on any chronic medications. General physical examination (GPE) was done, there was no pallor. She was moderately built and nourished with a body weight of 68kg. She was afebrile and her vitals were stable. Otoscopy revealed a congested EAC and a foreign body in the posterior superior bony wall. Upon doing otoendoscopy we found a tick which was lodged in the canal wall skin, surrounded by minimal ecchymosis and oedematous skin. The tympanic membrane was intact and the mouth of the tick was facing laterally. Using Hartmann's forceps, the tick was slowly dislodged and then removed, following which the canal wall was examined. Topical anaesthetic agent was applied for temporary pain relief. Further detailed systemic examination was done to rule out for its presence elsewhere and any other systemic involvement. The patient was then started on medications in the form of anti-inflammatory enzymes, analgesics and a course of prophylactic antibiotics. The 1st image is the initial otoendoscopy view of the right ear, the hard tick anchored to the posterosuperior bony canal wall. The specimen which was removed was then studied under microscopy. As in the 2nd image we visualized the structures such as the scutum, hypostome (green arrow) and the legs (as shown by red arrow) based on which it was identified as an engorged hard tick, *Amblyomma Testudinarium*. The tick having completed its blood meal appeared engorged thus it was easy to detach from the canal skin in a single attempt.

We then were able to correlate the history of cattle rearing and working on the fields to her condition of otoacariasis. The patient and the attenders were counselled regarding the precautionary measures to prevent such further infestations. At 1 week follow up the patient's complaints of otalgia had completely resolved, with no further complaints. On otoendoscopy the right EAC was clear, and the tympanic membrane was intact.

3. Discussion

Ticks as we know them are the Acarians, they are a group of organisms which are ectoparasites that are mainly hematophagous.⁵ Ranked second only to mosquitoes as vectors of human pathogens, ticks can carry and transmit pathogens like bacteria, viruses, rickettsia, spirochetes, protozoans, and nematodes.⁶ Tick borne diseases are a form of vector borne diseases which are a threat to both livestock as well and humans. These ticks have around 900 species and are further classified into two subgroups Argasidae –

'soft ticks' and Ixodidae – "hard ticks".⁷ Ticks have a life cycle that lasts for about 2 years and constitutes 4 stages, egg, larva, nymph and adult. The surge in the diagnosis of these diseases is attributed to not just a deeper knowledge and better diagnostic techniques but also to urbanization and deforestation which has provided more interfaces for human interaction with fauna and thus increasing the chance of these vectors to cause infections. Tropical countries such as ours are more prone to these infections and in particular, Karnataka, in its Shimoga district is known for ticks borne diseases, such as that of Flaviviridae that causes the Kyasanur forest disease. Other diseases such as Crimean Congo fever, Q fever, Rickettsial fever are also tick borne.⁸ This being said we now understand the gravity of these infestations as they cause haemolysis, jaundice, secondary fungal and bacterial infections and systemic diseases making their early diagnosis and treatment more crucial. Though the aural infestation of a tick may not be an emergency, it needs to be addressed due to the pain, inflammation and local irritation that it will lead to.⁹ Studies done on otoacariasis such as that by Indhudaran et al have described complications spanning from ear bleeding, vertigo to even facial nerve weakness with otitis media.¹⁰ Ticks are known to release neurotoxins which inhibit acetylcholine, thus leading to respiratory distress or even paralysis.

Some cases report the mouth parts attached to the tympanic membrane leading to perforations and release of the enzymes into the middle ear.^{11,12} In our case, there was no injury to the tympanic membrane, leaving the middle ear intact. Alongside the otolaryngological significance of these parasites, we must also understand the community health perspective, wherein hygiene and awareness must be instilled especially to the rural folk who are at higher risk of infection.

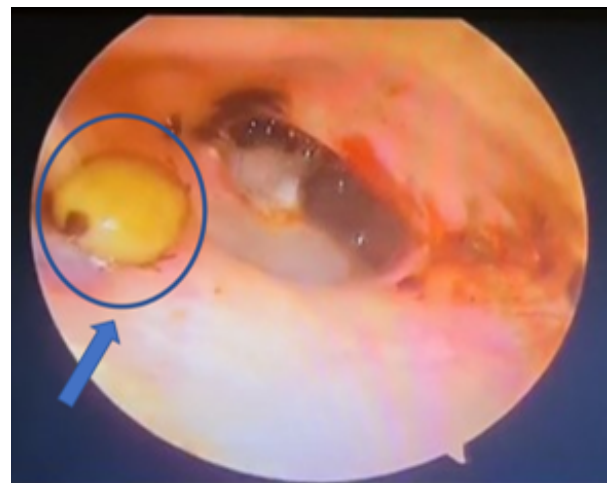


Fig. 1:

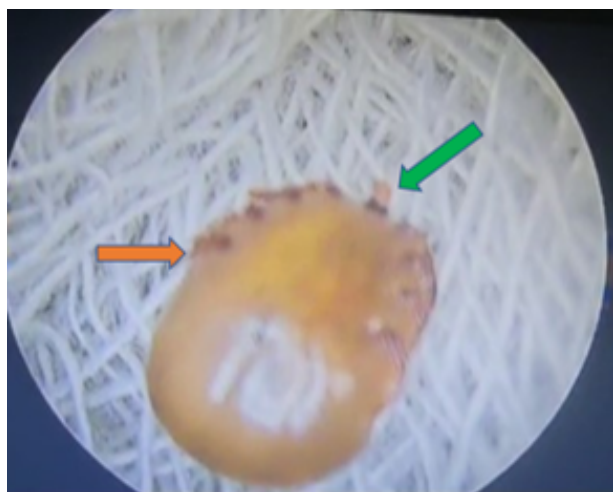


Fig. 2:

4. Conclusion

Though uncommon the tick infestation is a parasitic infection that must be present in the repertoire of an otologist's mind. The often-overlooked condition can lead to grave otological complications spanning from a perforation of the tympanic membrane, suppurative otitis media, facial palsy and labyrinthitis to systemic complications such as haemolysis and even respiratory paralysis. The removal of the organism from the ear and thorough local and systemic examination is imperative, along with education of the patient and their families regarding personal hygiene and preventive measures. Practice in a developing country must thus be both curative and preventive to reduce the load of morbidity from such parasitic infections.

5. Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

6. Consent for Participation

Informed consent was obtained from the patient and relatives of the patient.

7. Consent of Publication

written and informed consent for publication was obtained from the patient and his relatives as per the guidelines of the institution and the journal prerequisites.

8. Source of Funding

None.

9. Conflict of Interest

None.


References

1. Somayaji KSG, Rajeshwari A. Human otoacariasis. *Indian J Otolaryngol Head Neck Surg.* 2007;59(2):237–46.
2. Shibghatullah AH, Abdullah MK, Pein CJ. Acute labyrinthitis secondary to aural tick infestation. *Southeast Asian J Trop Med Public Health.* 2012;43(4):857–66.
3. Fujita H, Watanabe Y, Ishikura M. List of all isolates of spotted fever group rickettsiae from ticks in Japan 1993-1998. *Ann Rep Ohara General Hosp.* 1999;42(6):68–73.
4. Dutkiewicz J, Cisak E, Sroka J. Biological agents as occupational hazards-selected issues. *Ann Agric Environ Med.* 2011;18(2):286–93.
5. Negi T, Arunachalam K. Study on prevalence of ixodid tick infestation on bovines of Dehradun district. *Biol Rhythm Res.* 2020;51(8):1288–97.
6. Yoneda Y, Fukma T, Itoh T. Eleven human cases infested with ixodid ticks. *Med Entomol Zool.* 1992;43:263–9.
7. Parola P, Fenollar F, Badiaga S, Brouqui P, Raoult D. First documentation of Rickettsia conorii infection (strain Indian tick typhus) in a Traveler. *Emerg Infect Dis.* 2001;7(5):909–10.
8. Negi T, Kandari LS, Arunachalam K. Update on prevalence and distribution pattern of tick-borne diseases among humans in India: a review. *Parasitol Res.* 2021;120(5):1523–62.
9. Nakao Y, Tanigawa T, Shibata R. Human otoacariasis caused by Amblyomma testudinarium: Diagnosis and management: Case report. *Medicine.* 2017;96(26):7394.
10. Indudharan R, Ahamad M, Ho TM, Salim R, Htun YN. Human otoacariasis. *Ann Trop Med Parasitol.* 1999;93(2):163–70.
11. Burchard L, Larenas N, Ramos P. Human otoacariasis caused by Otobius megnini in Calama. *Bol Chil Parasitol.* 1984;39:15–21.
12. Lindsey NP, Lehman JA, Staples JE, Fischer M. Division of Vector-Borne Diseases. National Center for Emerging and Zoonotic Infectious Diseases, CDC. West Nile virus and other arboviral diseases-United States; 2013. Available from: <https://www.cdc.gov/ncezid/dvbd/index.html>.

Author biography

B. P. Belaldavar, Professor and Head  <https://orcid.org/0000-0002-5907-0770>

P. Apoorva, Assistant Professor  <https://orcid.org/0000-0002-1404-1714>

Chenchulakshmi Vasudevan, Resident  <https://orcid.org/0000-0002-8127-9706>

Cite this article: Belaldavar BP, Apoorva P, Vasudevan C. A nasty guest of EAC - A rare case report of human otoacariasis. *IP J Otorhinolaryngol Allied Sci* 2022;5(3):94-96.