Iranian Journal of Veterinary Science and Technology

Received: 2023- Jun- 20
Accepted after revision: 2023- Sep- 19
Published online: 2023-Sep- 30

CASE REPORT

DOI: 10.22067/ijvst.2023.82513.1253

The First Report of a Horned Owl Infection with the Trematode *Plagiorchis noblei* in Shahrekord, Iran

Nader Ahmadi Saleh Baberi[a], Reyhaneh Ghasemi[b], Navid Emami[c], Hajar Sohrabinia[c]

[a] Department of Pathobiology, Faculty of Veterinary Medicine, Shahrekord University, Shahrekord, Iran.
[b] Graduated, professional doctor of veterinary medicine, Shahrekord University, Shahrekord, Iran.
[c] Master's student in Parasitology, Faculty of Veterinary Medicine, Shahrekord University, Shahrekord,Iran.

ABSTRACT

In 2022, the trematode Plagiorchis noblei was isolated from a Horned owl (Asio otus) in Shahrekord city. This trematode was isolated from the small intestine of the Horned owl. The trematode was fixed on a microscope slide and stained with Carmine acid. Then the sample was examined with a stereomicroscope and identified with the available diagnostic keys. Studies showed that this trematode belongs to the species *Plagiorchis noblei*. This parasite belongs to the *Plagiorchiidae* family, but so far this parasite has not been observed in owls in Shahrekord city. This parasite belongs to the Digenea order, which causes lung, digestive, liver and blood diseases in birds and other vertebrates.

Keywords

Asio otus, Plagiorchiidae, Plagiorchis noblei, Shahrekord, Trematoda

Abbreviations

No abbreviations

Number of Figures: 1
Number of Tables: 0
Number of References:: 10
Number of Pages: 3

Corresponding author:
Nader Ahmadi Saleh Baberi
Email: nahmadisaleh@gmail.com
Tel: +98(38)3232-4427

Introduction

A special trematode species was first isolated and identified in the intestine of a Horned owl (*Asio otus*) in Shahrekord, Iran. Studies suggested that the trematode was from the genus *Plagiorchis noblei* belonging to the Plagiorchiidae family. The present case is the first report of a Horned owl infection with trematode *P. noblei* in Shahrekord.

Raptorial birds represent the top predators in the food chain and contribute significantly to the biological balance of nature given their unparalleled role in a healthy ecosystem [1]. They prey on insects, small mammals, and other birds. Most owls are nocturnal and solitary animals. The Horned owl, with the scientific name *Asio otus*, is a native owl of Asia, North America, and Europe. Little information is available on the parasitic disease prevalence in the wild owl population. Although these birds are prone to parasitic and other infections, they generally show no clinical symptoms [2].

Case Presentation

An infected Horned owl was collected by the General Department of Environmental Protection and was transferred to the Veterinary clinic at Shahrekord University, and died a few days after treatment. The owl was then dissected to isolate the digestive system, which was sent over to the Parasitology Laboratory at the Faculty of Veterinary Medicine, Shahrekord University. The digestive system was cut open and its content was transferred into a petri dish. Distilled water was added to the petri dish, and the parasite was detected and isolated using a stereomicroscope. Internal parasites were then isolated and placed in a glass container containing 5% glycerol and 70% alcohol. The trematodes were stained using carmine acid and were identified using the available diagnostic key [3].

Discussion

The identified trematode belonged to the Plagiorchis order, Plagiorchiidae family, and Plagiorchis genus. The mature helminth was 1.70 mm in length and 0.55 mm in width. The oral sucker of the parasite was almost spherical with a dimension of 220 × 270 µm (Figure 1). The abdominal sucker was revealed to be 160 × 190 µm. The helminth had two spherical testes behind an ovary and belonged to the Digenea order known to cause various digestive, hepatic, pulmonary, and blood diseases in birds and other vertebrates. Plagiorchis is a genus from the Plagiorchiidae family and a parasite affecting most vertebrates, such as mammals and birds.

Owls are valuable birds of prey playing the role of natural pest controllers. Similar to other birds, owls are prone to various infectious and non-infectious diseases, including bacterial (dermatophilosis), viral (Herpesvirus), and parasitic (Trichomonas) infections [4]. Mortality has been reported in birds due to infection with the studied parasite. Infection with this parasite prevents weight gain and causes depression and, ultimately, death in birds [5].

Ethics and animal experimentation

All animal experiments were performed in strict accordance with the guidelines approved by the Animal Ethics Committee of the Shahrekord University of Shahrekord. Iran.

Figure 1.
Microscopic image of the *Plagiorchis noblei* in the intestine of *Asio otus*

Authors' Contributions

Nader Ahmadi Saleh Baberi: Supervision, Conceptualization, Visualization, resources, Writing- Reviewing and Editing Reyhaneh Ghasemi: Supervision, Methodology, investigation, Resources, Writing- Reviewing and Editing. Navid Emami: Validation Hajar Sohrabinia : Validation. Resources,

Acknowledgements

Many thanks to Shahrekord University and Dr. Nader Ahmadi who helped us to write this article.

Competing Interests

The authors declare that there is no conflict of interest.

Reference

1. Newton I. Population ecology of raptors: A&C Black; 2010.

2. Pirali-Kheirabadi K, Cheraghchi-Bashi M, Navidpour S. Infestation of an owl (Bubo bubo) with Lucilia spp. Comparative clinical pathology. 2010; 19: 221-224.

3. Blankespoor HD. Host-induced variation in *Plagiorchis noblei* Park, 1936 (Plagiorchiidae: Trematoda). American Midland Naturalist.1974; 415-433.

4. Jessup D. Trichomoniasis in great *horned owls*. Modern Veterinary Practice.1980;61(7):601-4.

5. Cichy A, Faltynkova A, Zbikowska E. Cercariae (Trematoda, Digenea) in European freshwater snails.a checklist of records from over one hundred years. Folia Malacologica.2011;19(3).

6. Zbikowska E. One snail. three Digenea species, different strategies in host. *parasiteinteraction*. Animal Biology. 2011;61(1):1.19. DOL: 10.1163/157075511X554383

7. Rivaz S, Nasiri V, Karimi G, Abdigoudarzi M, Paykari H, Motamedi G, et al. Lymnaea stagnalis (Linnaeus, 1758) snails' infection to trematoda larval stages in Shahrekord city's springs. Asian Pacific Journal of Tropical Disease. 2014;4:S246.S9. Doi: 10.1016/S2222. 1808(14)60448.5

8. Mowlavi G, Mobedi I, Abedkhojasteh H, Sadjjadi SM, Shahbazi F, Massoud J. Plagiorchis muris (Tanabe, 1922) in *Rattus norvegicus* in Iran. Iranian Journal of Parasitology.2013;8(3):486.

9. Tkach VV, Pawlowski J, Sharpilo VP. Molecular and morphological differentiation between species of the *Plagiorchis vespertilionis* group (Digenea, Plagiorchiidae) occurring in European bats, with a redescription of P. vespertilionis (Miiller, 1780). Systematic Parasitology. 2000:47(1):9.22. Doi:10.1023/A :1006358524045

10. McMullen DB. An experimental infection of *Plagiorchis muris* in man. The Journal of Parasitology. 1937;23(1):113.5. Doi: 10.2307/3272048

COPYRIGHTS
©2022 The author(s). This is an open access article distributed under the terms of the Creative Commons Attribution (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, as long as the original authors and source are cited. No permission is required from the authors or the publishers.

How to cite this article
Ahmadi Saleh Baberi N, Ghasemi R, Emami N, Sohrabinia H. The First Report of a Horned Owl Infection with the Trematode *Plagiorchis noblei* in Shahrekord, Iran. Iran J Vet Sci Technol. 2023; 15(3): 57-59.
DOI: https://doi.org/10.22067/ijvst.2023.82513.1253
URL:https://ijvst.um.ac.ir/article_44314.html