The survey of gastrointestinal parasites in turkeys of Tabriz Iran

Hossein Hashemzade Farhang1, 2

1- Department of Pathobiology, Faculty of Veterinary Medicine, Tabriz Branch, Islamic Azad University, Tabriz, Iran
2- Corresponding author: Hossein Hashemzade Farhangt, Department of Pathobiology, Tabriz Branch, Islamic Azad University, Tabriz, Iran
E-mail: hh_farhang@yahoo.com

Abstract: In Iran, Tabriz city and suburb are the places both to a commercial poultry industry and to many small rural homesteads. Parasitic diseases are an important cause of hidden economic loss. Based of parasites economical importances, present study was done and results of this study revealed that prevalence of turkeys parsasites in Tabriz city and suburb are high. In our study, six helminth species comprising four nematodes and two cestode species were recognized. Raillietina tetragona (13%) and Raillietina echinobothrida (8%) were found species of cestodes and Ascaridia galli (18%), Heterakis galinarum (16%), Subulura brumpti (14%) were our found nematodes. Based of our results Tabriz city and suburb turkeys are very infected to different gastrointestinal parasites that cause many economical losses and hence must be considered with control programs.
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1. Introduction

Native turkeys can be infected with very parasites and parasites infections in turkeys are very important. Turkeys are hosted to many different parasites (helminthes, protozoa & arthropoda) (8).Infection with large number of parasites can have a devastating effect on growth, egg production, and over-all health. Clinical signs of parasitic disease are unthriftyness, poor growth and feed conversion, decreased egg production, and even death in severe infections (8, 9). Furthermore, parasites can make the flock less resistant to diseases and exacerbate existing disease conditions.In Iran studies of turkey parasites is very limited and there is few information about Tabriz city native turkey parasites and hence the aim of present study is to show occurrence and prevalence of gastrointestinal parasites in Tabriz city native turkeys.

2. Materials and methods

Turkeys were collected from different areas of Tabriz suburb villages and where examined for parasites infections. 100 gastrointestinal tracts (esophagus, prorentriculus, ventriculus, small intestine, large intestine & caeca) were collected during one year. Fecal samples from the large intestine were collected for fecal flotation to detect parasites ova and all organs were then opened to check for lesions and evidence of helminthes. The gastrointestinal sales were placed in 10% neutral buffered formalin for further processing and helminthes identification. One hundred and six turkey intestinal tracts that had been preserved in formalin and then were examined for helminthes parasites. Water was washed over the intestines to remove any excess preservative. The intestines were opened with scissors along their entire length and a standard glass microscope slide was used to scrape the lining of the intestine to remove embedded parasites. Using a heavy stream of water the scraped intestinal contents were first filters through a large screen (350nm) with mesh small enough to retain coarse debris. The second screen (150nm) was placed under the first to catch all parasites. Next the contents were washed in a bowl filled with water. The helminthes were allowed to settle to bottom of the bowl. The unsettled particles and liquid were decanted. The procedure was repeated until the supernatant was relatively clear. The remaining contents were examined for helminthes under a dissecting microscope. The parasites were separated into 3 major groups (Cestodes, Nematodes & Tremotodes) and then they were identified with valuable standard keys.

3. Results

Our results revealed that 34% of turkeys from 100 examined birds were infected with different parasites. Based of results six helminthes species comprising four nematodes and two cestode species were recognized.

Raillietina tetragona and Raillietina echinobothrida were found species of cestodes and Ascaridia galli, Heterakis galinarum, Subulura brumpti were our found nematodes. In table 1 prevalence rate of different species of separated helminthes are shown.

Table 1 - prevalence rate of different species of separated helminthes from turkeys

Parasite	Range	Mean (±SE)	Prevalence (%)
Raillietina tetragona	1-3	2 (0.5)	13
Raillietina echinobothrida	1-6	3 (1.1)	8
Ascaridia galli	1-14	5(1.5)	18
Heterakis galinarum	1-19	12(6.9)	16
Subulura brumpti	1-12	2(1.1)	14

4. Discussion

In Iran Tabriz city and suburb is home both to a commercial poultry industry and to many small rural homesteads that raise turkeys for subsistence, hobby, show, or simply for pleasure (9). The owners of many of these smaller farm flocks have often adopted a free-range type of management. The free-range management is certainly an acceptable type of husbandry practice, but there are some special health considerations to keep in mind, especially in the area of parasite control (9). Free-ranging birds have an increased opportunity to encounter the infective eggs, larvae, and intermediate hosts of parasites that can cause serious debilitating infections (8, 9). It is well known that parasitic disease are the cause for much money of losses to turkey producers each year (8, 9). Death losses are an obvious loss, but even greater economic losses are associated with decreased growth, egg production, and feed efficiency among the living (8). Parasites are an important cause of this hidden economic loss.

Based of parasite economical importance, present study was done and results of this study revealed that prevalence of turkeys parasites in Tabriz city and suburb is high.

In our study, six helminthes species comprising four nematodes and two cestode species were recognized.Raillietina tetragona and Raillietina echinobothrida were found species of cestodes and Ascaridia galli, Heterakis galinarum, Subulura brumpti were our found nematodes.

The large roundworm, Ascaridia gallis lives in the intestines of the turkeys. Symptoms of infection with this parasite include poor flesh, unthriftiness, weakness, reduced egg production, weight loss, and pale head and legs (8, 9).In our study Ascaridia galli was found in 18% of tested turkeys and results revealed that Ascaridia galli is one of the most important parasites in Tabriz turkeys. Good management and husbandry is very important to control this parasite, it is very important to separate young turkeys from older and yards and pens should be rotated and cleaned, and deep-litter pens must be kept dry(8,9).There is many studies that show Ascaridia spp has very occurrence in turkeys .Based of Sassevile et. al (1988) survey, Ascaridia dissimilis is the most prevalent parasite(52%) in turkeys (7) and in Iran Elami (1980) reporte indicate that Ascaridia galli prevalence in turkey is 10% and Ascaidia galli is one of the most important parasite in turkeys(4). According Norton et al. (1992) survey Ascaridia spp can cause high mortality in domestic turkeys (5,6). The nematode Heterakis gallinarum has a wide geographical

and is often reported during avian helminthes surveys. Although of common occurrence, few are the Iranian studies related to the parasite prevalence .In present study Heterakis gallinarum appeared with a prevalence of 16% in the studied turkeys .In a previous study in Iran, Eslami (1980) has reported that Heterakis gallinarum prevalence in turkeys is 58% and this the highest prevalence of turkeys parasites in Iran(4). Castle et.al (1984) have reported that prevalence of Heterakis gallinarum based of different area in USA is ranged from 15% to 33% (2).According Betriz et al.(2006) report prevalence of Heterakis gallinarum was 70% (1). Our finding result about high prevalence of Heterakis gallinarum in turkeys is similar to other reports.

Subulura brumpti is another roundworm that occurs in the ceca of turkeys and related and has low pathogen city. In present study prevalence of Subulura brumpti in studied turkeys was 14%. Based of Eslami (1980) study in Iran the prevalence of Subulura brumpti in turkeys was 2% that is less than our findings (3, 4).

Several species of tapeworms infect turkeys. The two most common worms that were found in Tabriz city and suburb were Raillietina tetragona and Raillietina echinobothrida and their prevalence rate were 13% and 8% respectively. Both species of adult tapeworm live in the intestines of the turkeys. The segments of the minute tapeworm pass out in the feces, and eggs contained in the segments hatch after being swallowed by any of several species of slug, which serve as the intermediate host(8). Within the slug, the tapeworm develops to an intermediate stage called a cysticercoid in about 3 weeks. When the slugs containing the tapeworm are eaten by a turkey, the intermediate tapeworm stage is released and develops to an adult in about 2 weeks. In the previous study in Iran Eslami and Anvar (1973) reported Raillietina tetragona and Raillietina echinobothrida prevalence in turkeys is 2% (3). Based of our results Tabriz city and suburb turkeys are very infected to different gastrointestinal parasites that cause many economical losses and hence must be considered and control programs should be planned and done.

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