



STUDIES ON HELMINTHES OF POULTRY IN GHARBIA GOVERNORATE

Nagwa E. A., Loubna, M. A., El-Madawy, R.S. and Toulan, E. I.

Parasitology department, Faculty of Veterinary Medicine, Banha University.

ABSTRACT

The current study was conducted to detect the prevalence and the seasonal dynamic of helminthes infection among domesticated poultry (705 chicken, 265 pigeon, 84 turkey, 353 duck and 58 geese). The results revealed that 642 (43.8%) out of 1465 examined birds were infected with intestinal worms and the incidence rates were 327 (46.4%) in fowls, 137 (51.7%) in pigeons, 36 (42.9%) in turkeys, 134 (38%) in ducks and 8 (13.8%) in geese. Seasonal dynamics revealed that the highest rates of helminthes infection in fowl and duck were during Spring (56.3% and 64.9% respectively), while in turkey and geese were during Summer (88% and 30.8% respectively) and Autumn for pigeon (67.1%) while The lowest rates of infection in fowl and turkey were during Winter (39.3% and 19% respectively) while during Autumn for duck and geese (24.1% and 5.8% respectively) and Spring for pigeon (38.8%).

Key words: poultry helminthes, internal parasites of poultry, poultry worms.

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1. INTRODUCTION

Domestic birds are highly susceptible to infection with large number of internal parasites specially helminthes one. In heavily parasitized young birds, the common manifestation are stunted growth, emaciation, weakness and death in young, while in laying hens the egg production was lowered or entirely stopped. The problems of helminthic infection in birds were discussed by many authors. [1] who recorded that delayed maturity, lowered egg production and increased susceptibility to infectious diseases were the consequences to tapeworms infestation. The same author [2] added that *Ascaridia galli* was the great cause of losses due to reduction in weight of Egyptian chickens. In this respect [3] recorded that tap worms constitute the most common helminthes causing severe losses, as they produce anemia, retardation of growth. [4] Reported the incidence of trematodes in the Egyptian ducks about 1.9%. This study was carried out to

surveyed the helminthes in Gharbia Governorate.

2. MATERIALS AND METHODS

2.1. Samples collection.

Intestinal tracts of 705 fowls (*Gallus gallus domesticus*), 265 pigeons (*Columba domestica*), 84 turkey (*Meleagris gallopavonis*), 353 ducks (*Anas domesticus*) and 58 geeses (*Anser anser*) were examined for helminthes infection during the period between January 2012 to January 2013 in all seasons from 3 localities in Gharbia governorate (kotour, Tanta and Basion).

1. Fecal examination: The fresh faecal samples from the small intestines and caeci were collected from the domestic birds and examined for eggs of parasites .

2.2. Direct smear [5]

A small quantity of faces is placed on a slide, mixed with a drop of water, spread out

and covered with a cover slip. 3 slides from each faecal samples were examined.

2.3. concentration method

- a- Washing-sedimentation technique [5].
- b- concentration- Flotation technique of eggs [5].

2.4. P.M. examination:

Intestines were examined and divided into 4 parts, each part was opened along the line of the lesser curvature and examined separately with its contents in a large Petri dish containing normal saline. The macroscopic worms were collected and transferred into another Petri dish containing normal saline. For attached helminthes, the mucosa of each part was scraped, and then examined under the dissecting microscope. The remainder of the intestinal contents were transferred into a cylinder containing physiological saline. After thorough agitation the cylinder was left for 30-60 minutes to allow the content to sediment. The supernatant fluid was decanted leaving the sediment, which was examined according to the sedimentation technique. The sediment was poured into a small Petri dish and examined under the dissecting microscope. The collected worms were left in the refrigerator for 4-12 h for complete relaxation.

2.5. Preparation of permanent samples

Trematodes and cestodes [6]. Fixation: Fixation of trematodes and cestodes was carried out by putting the parasites between two glass slides or between a slide and thin glass slip. By exerting a gentle pressure, the specimen could be flattened to the desired degree, this was followed by immersion the slides into 10% formaline for the fixation was used. The time of fixation varied from 4h for small specimens to 24h for large ones. Staining and mounting: The fixed worms were washed several times by tap water and stained by acetic acid alum carmine for 12-24h. After washing, the stained worms differentiated by

decolorizing under the dissecting microscope by acid alcohol (1% HCL in 70% ethyl alcohol), followed by dehydration in ascending grades of alcohol, and then clearing in clove oil. For best clearing and good mounting Entellan was used.

Nematodes [7]. fixation: Nematodes were killed extended by using hot 70% ethyl alcohol and preserved in 70% ethyl alcohol containing 5% glycerin. Clearing and mounting: The fixed nematodes were passed in ascending concentration of (alcohol –glycerol) till they reached absolute glycerol, then they were mounted in glycerine gelatine [8]. Lactophenol was used as a clearing agent, followed by mounting in glycerine gelatine.

3. RESULTS

Fecal examination revealed that, presence of eggs of *Ascaridia*, *Heterakis* and *Capillaria*.

Table (1) showed that 642 (43.8%) out of 1465 intestinal tracts of birds were infected with intestinal worms [327 (46.4%) in fowls, 137 (51.7%) in pigeons, 36 (42.9%) in turkeys, 134 (38%) in ducks and 8 (13.8%) in geese]. One species of trematode (*Echinostoma revolutum*) was found in the large intestine of six ducks (1.7%). The same table showed that 14.7 % of birds were infected with cestodes and the highest incidence was in pigeons (30.9%). The nematodes were found in 19.7% of examined birds, the highest incidence was (26.2%) in turkey. Tables (2) cleared that *R. tetragona* was found in all examined bird species at total incidence (7.4%). *R.echinobothrida* was found in 6.6% of examined birds (fowl, pigeon, duck and geese) which were 5.4%, 17.7%, 2.8% and 1.7% respectively. *R.georgiensis* was found in pigeon and turkey at incidence 5.3% and 9.5% respectively. *R.kishiwarnensis* (*sawada 1958*) was found for the first time in Egypt in 7 fowl (1%). Table (3) mentioned that *A.galli* was found at high

incidence of examined birds (16.3%) which were 28.7%, 3.5%, 8.8% and 5.2% in fowl, turkey, duck and geese respectively. *A.columbae* was found in pigeon only at incidence 12%. *H.gallinae* was found in turkey and ducks only at incidence 7.1% and 3.4% respectively while *H.dispar* was found in fowl (4%), turkey (8.3%), duck (5.4%) and geese (3.4%). *Ca.obsignata* was found in all species of examined birds (3.1%) at incidences of 0.9%, 7.2%, 17.9%, 3.1% and 1.7% for fowl, pigeons, turkey, duck and geese respectively. *A.galli* was found at high incidence among the examined birds (16.3%). *H.gallinae* was the lowest one (1.2%). The seasonal dynamics of helminthic infection. Tables (4, 5, 6, 7 and 8) displayed that the highest rates of helminthic infection in duck and fowl were found during spring (64.9% and 56.3% respectively), while in turkey and geese were during summer (88% and 30.8% respectively) and autumn for pigeon (67.1%). The lowest rates of infection in turkey and fowl were during winter (19% and 39.3% respectively) while during autumn for geese and duck (5.8% and 24.1% respectively) and spring for pigeon (38.8%).

4. DISCUSSION

The present results revealed that, out of 1465 of five species of domestic birds from 3 different areas of Ghrbia governorate (Kotour, Tanta and Basion) only 642 were infected with helminthes at incidence 43.8% and pigeons were the most susceptible host for helminthes infection (51.7%), followed by fowl (46.4%), turkey (42.9%), ducks (38%) and the last one was geese (13.8%). The results were in accordance with those of [4] for fowl and pigeons, which were 47.4% and 51.6% respectively. Examination of 705 domestic fowls showed that 46.4% of birds were infected with one or more of 6 species of helminthes represented as 3 species of cestodes (13.6%) and 3 species of

nematodes (21.3%). The moderate incidence of helminthic infection in fowls was near to that be recorded by [4] in Egypt and [9] in Nigeria which was 47.4% and 35.5% respectively. In addition, it was higher than that of [10] in Ethiopia, which were 24.53%. In this respect higher rates of infection were recorded by [11], [12], [13] and [14], which were 63.3%, 73.1% 100% and 91% respectively. The incidence of cestodes in fowls (13.6%) was lower than that of [4] which was 18.2% and higher than that recorded by [15] which was 4.3%. The moderate incidence of nematodes in fowls (21.3%) was in the same limit of that recorded by [4] which was 20.4% and slightly lower than those of [16] and [17] which were 27% and 60% respectively. Out of 265 pigeons, 137 (51.6%) were showed enteric helminthes. The finding worms were 3 species of cestodes (30.9%) and 2 nematodes (14.3%) while the mixed infection between them was 6.4%. The incidence of helminthes infection in pigeons similar to that recorded by [4] which was 51.6% and slightly higher than that observed by [8] which was 47.46% and lower than that recorded by [18] which was 80%. In regarding to the dealing with incidence of cestodes and nematodes in pigeons the present results were slightly agreed with that of [19] in Egypt which were 34.76% and 18.64% respectively, while the incidence of cestodes in pigeon were lower than that of [4] and [20] which were 40.41% and 44.77% respectively. The mixed infection was near to that recorded by [19] in Egypt which was 5.93%. These differences could be attributed to localities and racing differences. The present data showed that out of 84 examined turkeys 36(42.8%) were infected with intestinal worms. The identified worms were one cestode (*R.georgiensis* 9.5%) and four nematodes (26.2%). The general rate of helminthic infection in turkey as well as the incidence of cestodes and nematodes were higher than those of [4] in Egypt which was 20.7%, 3.4% and 17.2% respectively. Out

of 353 examined ducks, 134 showed enteric helminthes (38%). They were one trematode (*Echinostoma revolutum* 1.7%), 2 cestodes (7.6%) and 4 nematodes (20.7%). The incidences of infection was relatively higher than that recorded by [4] and [16] which were 12.2% and 17.1%, respectively while lower than that of [21] and [22] which were 52% and 40% respectively. The incidence of trematode was nearly similar to that obtained by [10] (1.9%) for *E.paraulum* in duck. The recorded incidence of cestodes were higher than that found by [4] and [22], which were 5.2 % and 1.38% respectively. The incidence of nematodes in ducks was lower than that of [22] which was 50.34%. Out of 58 examined geese, 8 were infected with helminthes (13.8%) which were 2 species of cestodes (3.4%) and 3 species of nematodes (10.3%). The total incidence of helminthes infection in geese was agreed with [23] in China which were 15.5% while helminthes rate considerably low comparing with that recorded by [4], [16] in Egypt and [24] in Turkey which were 25.8%, 27.9% and 78.9% respectively.

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دراسة على الديدان التي تصيب الطيور المستأنسة في محافظة الغربية

نجوى عيد احمد، لبنى محمود العقباوى، ريهام سمير المعداوى وايمان اسماعيل طولان
قسم الطفيليات-كلية الطب البيطري – جامعة بنها

الملخص العربي

قد اجريت هذه الدراسة لتحديد النسبة والاصابة الموسمية لعدوى الديدان بين الطيور المستأنسة وهم (705 من الدجاج، 265 من الحمام، 48 من الرومي، 353 من البط و58 من الاوز). وخلصت النتائج ان عند فحص 1465 طائر ان عدد 642 طائر بنسبة 43.8% طائر اصيبت بالديدان طائر تم وكانت اصابة الدجاج تمثل 327 (46.4%)، والحمام 137 (51.7%)، والرومي 36 (42.9%)، والبط (38%) و للاوز 8 (13.8%). وقد اوضحت الدراسة الموسمية هي اعلى نسبة اصابة بالديدان فى البط والدجاج كانت فى فصل الربيع بنسبة 64.9% و 56.3% على التوالي بينما فى الرومي والوز كانت فى فصل الصيف بنسبة 88% و 30.8% على التوالي والخريف بالنسبة للحمام بنسبة 67.1%. وكانت اقل اصابة فى الرومو الدجاج فى فصل الشتاء بنسبة 19% و 39.3% على التوالي ولكن فى الخريف بالنسبة الاوز وللبط بنسبة 5.8% و 24.1% والربيع للحمام بنسبة 38.8%.

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