

Prevalence of Gastrointestinal parasites of Poultry in and around Bangalore

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Abstract

In the present study 100 desi and 100 farm birds were screened for the presence of gastrointestinal parasites. Among 100 desi birds screened, 71 were found positive of gastrointestinal parasites by gross examination of gastrointestinal tract. Out of 71 positive desi birds, 35 (52.2%) were found positive for cestodes, 23 (34.3%) harbour nematodes and remaining 13 (18.3%) had mixed infection. However there were no adult helminthes and helminthes ova was observed in farm birds except the gut contents showed Eimerian oocysts in 10 birds out of 100 birds by microscopic examination.

Keywords: Gastrointestinal parasites, Bird, Eimerian oocysts, cestode, nematode, mixed infection.

Introduction

Poultry farming has tremendously developed in recent years and has become one of the most intensive forms of animal husbandry activities. Though the impact of parasitic diseases in farm birds reared on cage systems have diminished due to modernization in poultry farming and biosecurity measures, but farm birds maintained on deep litter system and backyard free ranging birds still remain susceptible to parasitic infection via litter droppings and scavenging habits. The common internal parasitic infections occur in poultry include cestodes, nematodes and coccidia. These worm infections may cause considerable damage and great economic loss to the poultry industry due to malnutrition, decreased feed conversion ratio, weight loss, lowered egg production and death in young birds.

Improved poultry management practices are responsible for the reduction in incidence of parasitic infections. However due to abundance of intermediate host they visit the poultry pens for carrying food material or for feeding like in beetles, ants, and houseflies which abundant on poultry litter droppings are responsible for transmission of various helminthes.

Materials and Methods

A total of 100 intact whole intestines of both desi and farm birds were collected from local poultry stalls located in and around Bangalore. The intestines were dissected longitudinally and screened for the presence of helminthes parasites. The adult parasites recovered from the intestine were preserved in 10% formalin for identification.

Intestinal contents were also examined by sedimentation and flotation methods as per the procedure of Bowman and Lynn (1995) for the presence of helminthes ova/coccidian oocysts. The samples found positive for oocysts were kept for sporulation at room temperature by using 2.5% potassium dichromate solution. The sporulation of oocysts was observed by 12 hours interval. The oocysts were identified based on sporulation time, morphology and micrometry and OPG (oocyst per gram of feces) by McMasters method as per Bowman and Lynn (1995).

The scrapings from caeca were also collected and examined for the presence of schizonts and merozoites after Geimsa's staining. In addition pieces of caecum were collected in 10% Neutral Buffered Formalin for histopathological studies (Luna, 1968).

Results and Discussion

In the present study 100 desi and 100 farm birds were screened for the presence of gastrointestinal parasites. Among 100 desi birds screened, 71 were found positive of gastrointestinal parasites by gross examination of gastrointestinal tract (Fig. 1). This in accordance with Raote *et al.*, (1991) they found 71.10% positive for parasitic infection in desi fowls on intestinal examination in Akola region of Maharashtra. Out of 71 positive desi birds, 35 (52.2%) were found positive for cestodes, 23 (34.3%) harbour nematodes and remaining 13 (18.3%) had mixed infection. The similar observations were made by Nadakal *et al.*, 1972 who reported highest prevalence rate of cestodes followed nematodes and trematodes in desi birds.



Fig.1. Intestinal Contents showing Nematode and Cestode parasite



Fig.2. Tapeworm embedded on the intestinal mucosa

But in the present study none of the birds harbour trematode parasites, might be due to non accessibility of infected snails.

Of the 35 intestines positive for cestodes, 28 (80%) were positive for *Raillietina tetragona* and 7 (20%) had *Raillietina echinobothrida* (Fig. 2). Similarly Hegde, *et al.*, 1973 reported prevalence of *Raillietina tetragona* and *R.echinobothrida* as 77.1 and 57.8% in desi birds. Among 23 intestines which were positive for nematodes, 21 (91.4%) had *Ascaridia galli*, one had *Heterakis gallinarum* (4.3%) and other one had *Subulura spp.* (4.3%) seen as single infection. *Ascaridia galli* had the highest prevalence rate followed by a *Heterakis gallinarum* and *Subulura spp.*, respectively. Negesse *et al.*, (1991) reported *Subulura brumpti* (40%) followed by *Ascaridia galli* (34%) and *Heterakis gallinarum* (24%) in Ethiopia. The low prevalence of *Heterakis gallinarum* and *Subulura spp.* might be due to regional variation.

Thirteen desi birds showed mixed helminthic infections of *Ascaridia galli*, *Raillietina tetragona* and *R.echinobothrida*. Among mixed infection *Ascaridia galli* and *Raillietina tetragona* were recorded in 10 desi birds and all the three helminthes viz., *Ascaridia galli*, *Raillietina tetragona* and *R.echinobothrida* were observed in remaining 3 desi birds. However Raote *et al.*, (1991) reported 50.97% of mixed infection in desi birds in Akola regions in Maharashtra. The lowest prevalence rate of mixed infection in the present study might be due to regional variation.

The intestinal contents of 100 desi birds were also examined by sedimentation and flotation methods showed the ova of *Ascaridia galli* and *stroglyoides avium* in only one bird by flotation method and no oocysts were observed in birds.

However there were no adult helminthes and helminthes ova was observed in farm birds except

the gut contents showed Eimerian oocysts in 10 birds out of 100 birds by microscopic examination. In the present study two types of Eimerian oocysts were recorded and identified as *E.tenella* and *E.necatrix* based on the morphology and micrometry. The micrometry of these oocysts revealed 18.2 μm x 22.2 μm for *E.tenella* oocysts and 13.8 μm x 15.5 μm for *E.necatrix* oocysts, respectively. Morphologically the *E.tenella* oocysts was elongated where as *E.necatrix* was round in shape. The sporulation time of *E.tenella* and *E.necatrix* was found to be 18 and 24hrs, respectively. Oocysts were counted by McMaster technique and they were in the range of 1,50,000 to 1,75,000 per gram of feces collected from intestines of farm birds. However the histopathological examination of caecal scrapings of farm birds infected with Eimerian oocysts revealed necrosis of villous epithelium, massive haemorrhages and infiltration of inflammatory cells in the lamina propria and submucosa. The schizonts, merozoites and oocysts were also observed in lamina propria.

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