

Short Communication

A SURVEY OF THE GASTRO- INTESTINAL HELMINTHS OF CHICKENS IN SOKOTO
METROPOLIS, NIGERIA

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INTRODUCTION

A survey of the gastro-intestinal parasites of local chickens was carried out in Sokoto metropolis between June and September 1998, one hundred and fifty alimentary tract were observed: of which 139(92.6%) had helminths. The genera of gastro-intestinal helminths encountered were *Ascaridia* (18.66%), *Heterakis* (28.66%), *Capillaria* (4.00%), *Tetrameres* (9.33%), *Trichostrongylus*, (1.33%), *Raillietina* (74.66%), *Chaonotaenia* (5.33%), *Davainea* (0.66%) and *Amoebotaenia* (2%). The progenitor of the domestic fowl was the Red jungle fowl (*Gallus gallus*), modern forms of which are found in central and South India (*Gallus gallus sonerati*), East India (*Gg. murghi*), Burma and Malaysia (*Gg. spadiceus*) and Thailand and Cambodia (*Gg. gallus*). It is a smaller bird than most domestic varieties—an adult female weight about 800g and it is a tropical species (Michael *et al.*, 1992). Verminosis of the digestive tract of birds is a helminthosis due to the presence and development in the digestive tract of one or several species of pathogenic worms that belong to the class of Nematoda, Trematoda, Cestoda, or Acanthocephala (Serres, 1989). The poultry industry is one of the most promising and progressive of livestock industries and offers an important source of income for producers, even when they are operating on a small scale. Although the need for more eggs and poultry meat is obvious and the availability of these products can go along way to meet the protein needs of the several populaces, there are several constraints to the future development of the poultry industry (Daghir, 1995). Disease in poultry can be summed up as the changes in health, morbidity, mortality and productivity resulting from the effects of invading infectious, parasitic or non infectious agents. In Nigeria, indigenous chicken constitute about 92.7% of the total chicken population of 134 million (Nawathe and Lamorde, 1982). These local chickens are kept under extensive system roaming freely and scavenging for food. These birds are therefore very exposed to parasitic infections. It is believed that these free wandering chickens act as potential reservoirs and carriers of infection to themselves and the more susceptible exotic breeds in commercial enterprises (Adu, 1982). This study was thus carried out to determine the incidence of gastro-intestinal helminths parasites in local chickens slaughtered in Sokoto metropolis, Nigeria.

KEY WORDS: Helminthosis, Gastro- intestinal parasites, Local chickens, Sokoto, Nigeria.

MATERIALS AND METHODS

The survey of the gastro-intestinal helminths parasites of domestic chickens was carried out in Sokoto from June to September 1998. One hundred and fifty alimentary tracts were collected from markets and other slaughter houses in Sokoto metropolis.

The chickens were of the local breed and were mainly adults although their specific ages could not be determined. The alimentary tracts were collected on weekly basis. The digestive tracts were extracted intact and the various sections separated in Petri dishes. The oesophagus and the crop were slit open and each was emptied of its contents. Both were then washed and examined under light for embedded helminths. The contents of the proventriculus and gizzard were washed separately into Petri dishes and examined for worms. After peeling off the mucosa of the proventriculus, the brightened red patches of *Tetrameres* were teased to collect the embedded parasites. The duodenum, jejunum, ileum, caecum and rectum were examined for parasites separately. They were opened on a sieve, and parasites in the lumen were picked up, after which the contents were washed thoroughly under running tap water. The mucosal surfaces were rubbed carefully between fingers to remove adhering parasites. The mucosae were then scrapped into Petri dishes which were which were examined for parasites.

The parasites were fixed and preserved in a labeled sample bottle containing 10% buffered formalin. The detection of parasites in the sample involved the identification of eggs as well as preserved adult worms. Identification of each worm was done by thorough examination of the different morphological characteristics of the anterior mid gut and posterior region of the worms, using the x10 and x40 objectives of a light microscope (Fatihu *et al.*, 1991).

RESULTS AND DISCUSSION

Of the one hundred and fifty chickens examined, 139 (92.66%) were infected with helminths parasites. The most common helminths observed were cestodes, followed by nematodes, but trematode infection was not recorded (Table I and II). It means that there is a high prevalence of helminth parasites in domestic chickens in Sokoto metropolis. This result agrees with the results of previous surveys in other parts of the country. Prevalence rates of 90% (Fabiyyi, 1972), 93.3% (Okon and Enyenihi, 1980), 100% (Gadzama and Srivastava, 1986) and 91.2% (Dayo, 1993; Fatihu, *et al.*, 1991) were recorded in Vom, Oron, Borno and Zaria respectively. The complete absence of trematodes is a feature of this survey. Fabiyyi (1972) found no trematodes in a survey carried out in Vom. This might imply that chickens generally do not harbour trematodes. Schillhorn Van Veen *et al.* (1974) found many species of helminth parasites in a survey carried out in Zaria. Some of these helminths were not recorded in this study, which could be due to geographical location or seasonal variation that may account for the presence or absence of intermediate hosts of these helminthes. It could also be due to the type of management system practiced. Traditional production systems are conducive for parasitism, but because they are extensive systems the infections are rarely severe. The amphibious habits of the Anseriformes birds expose them to more parasites than the Galliformes birds. In intensive systems certain parasites with an indirect cycle can be eliminated but conditions are favourable for the rapid spread of helminths with a direct cycle. This is valid for *Ascaridia*, *Hetarakis* and certain *Capillaria spp.* (Serres, 1989).

Amongst the nematodes, the most common was *Hetarakis spp* occurring in 28.66% cases. The incidences of *Ascaridia spp* and *Tetrameres spp* were 18.66% and 9.33% respectively. While those for *Capillaria spp* and *Trichostongylus spp* were 4% and 1.33% respectively. The helminth species that appear to be known world wide which were also recorded in this study are *Hetarakis spp*. They have been found in Dahomey (1911), Brazil

(1929), Puerto Rico (1964), Uganda (1968), Chad (1969), and Ghana (1969) *Ascaridia* spp were recorded in Gambia (1904), South Africa (1929) and Chad (1959,1969) (Fabiyyi, 1972).

The most common cestode parasite was *Raillietina* spp, occurring in 74.66% of the birds (Table II). *Chaonotaenia* spp. and *Amoebotaenia* spp. were recorded in 5.33% and 2% of the birds respectively, while *Davainea* spp. was only found in 0.66% of the birds. *Davainea proglottina* a common tape worm in many parts of the world was recorded in this study only in one bird. Their very low prevalence might suggest that the intermediate hosts of this worm do not exist in this part of Nigeria.

Helminths occurring most frequently are *Heterakis* spp., *Ascaridia* spp. and *Raillietina* spp. These helminths have been encountered in some West African Countries with which Nigeria shares some common geographical features. Hodasi (1969) recorded that *Ascaridia galli* occurred in 29.6% of native and 32.4% of exotic birds. This author also reported the prevalence of *Raillietina tetragona* in local and exotic birds to be 53.3%, and 32.4% respectively. While the rates recorded for *R. echinobothrida* were 85.2% and 45.4% respectively.

TABLE I: Survey of gastro intestinal heminiths in local chickens

Types of Helminths	Number of Chickens Infected	Percentage Prevalence
<i>Acaridia</i>	28	18.66%
<i>Heterakis</i>	43	28.66%
<i>Capillaria</i>	6	4.00%
<i>Tetrameres</i>	14	9.33%
<i>Trichostrongylus</i>	2	1.33%
<i>Raillietina</i>	112	74.66%
<i>Chaonotaenia</i>	8	5.33%
<i>Davainea</i>	1	0.66%
<i>Amoebotaenia</i>	3	2.00%

TABLE I: Types of helminths based on classes

A. Nematodes	Number of Chickens infected	Percentage prevalence
1. <i>Ascaridia</i> Spp	28	18.66
2. <i>Heterakis</i> Spp	43	28.66
3. <i>Capillaria</i> Spp	6	4.00
4. <i>Tetrameres</i> Spp	14	9.33
5. <i>Trichostrongylus</i> Spp	2	1.33
B. Cestodes	Number of chickens infected	Percentage prevalence
1. <i>Raillietina</i>	112	74.66
2. <i>Chaonotaenia</i>	8	5.33
3. <i>Davainea</i>	1	0.66
4. <i>Amoebotaenia</i>	3	2.00

CONCLUSION

It is clear from the results obtained that verminosis of the digestive tract is one of the disease conditions present in local chickens within Sokoto metropolis. Worm burden is associated with the management system practised and extensive system of management is very common in Sokoto metropolis. This extensive system exposes the birds to infections with a variety of helminthes. This is because of high contact with a larger area of land and different intermediate hosts while feeding.

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