

INCIDENCE OF CESTODES IN INDIGENOUS (DESI) CHICKENS MAINTAINED IN DISTRICT LARKANA

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ABSTRACT

In order to assess the incidence rate of cestodes in indigenous (Desi) chickens, randomly selected 46 villages in four talukas of district Larkana were surveyed during December 2010 to May, 2011. A total of 500 freshly slaughtered indigenous (Desi) chickens were examined. The results of this study envisaged that the indigenous (Desi) chickens were severely infected by cestodes. The overall infection rate of cestodes in indigenous (desi) chicken was observed to be higher in taluka Dokri and Larkana followed by Bakrani, while, at Ratodero it was the lowest (60.77, 60.67, 57.00, 55.00 percent, respectively). The population of cestodes was in the rate of 07-08 per bird, the frequency for the value was the highest i.e., 21, followed by 05-06 which has a frequency value 14, while, population in the range of 3 to 4 and 13 to 14 per bird had the lowest frequency i. e., 2. Thus it shows that the cestodes in indigenous (Desi) chicken ranged in between 5 to 6. Four cestodes species identified were include; *Raillietina tetragona*, *Raillietina cesticillus*, *Amoebotaenia cuneata* and *Choantaenia infundibulum*.

Keywords: Percent, Population, Cestodes species

Citation: Jatoi. A. S., M. H. Jaspal., S. Mahmood., J. Hussain., Y. Abbas., H. M. Ishaq., A. H. Mirani and Z. A. Pathan. 2013. Incidence of cestodes in indigenous (desi) chickens maintained in district Larkana. Sarhad J. Agric. 29(3): 449-453

INTRODUCTION

Before 1960, chickens were maintained in the country as backyard poultry (Abedullah *et al.*, 2007). In Pakistan, poultry production sector has been playing a vital role in bridging the gap between supply and requirement of animal protein foods for its ever-increasing human population. This sector is one of the most organized and vibrant segments of the agriculture industry. Its contribution in agriculture is 5.76 percent, livestock 10.4 percent and in GDP at constant cost factor 1.2 percent (Anonymous, 2013). However, there still exists a gap between supply and demand of animal protein in the country, which is likely to widen if concerted efforts are not taken to increase production of animal protein foods. The situation therefore calls for not only strengthening the existing resources of production of animal protein foods but also exploiting some suitable efficient alternate sources of production of animal protein in the country. In this respect, backyard rural poultry (Desi) production seems to be one of the possible alternate sources possessing bright prospects required to off load pressure on the already existing meager resources of production of animal protein foods. In most of the developing countries, indigenous poultry genotypes constitute between 80 to 99 percent of the total poultry populations that are kept in villages (Sonaiya and Swan, 2004). These small flocks mainly comprise of native breeds like Desi (non-descript native chicken), Aseel, Naked neck and other breeds which are exotic like Fayoumi and Rhode Island Red. Backyard poultry keeping is an important economic activity in almost 80 percent families in villages of Pakistan (Anonymous, 2003). Rural poultry population is about 79.67 million and 3833 million rural eggs in the country and increased day by day very rapidly. This indicates that contribution of rural poultry in total eggs and poultry meat production of the country has been about 29.23 and 12.76 percent, respectively, (Anonymous, 2012). In villages the backyard rural poultry farming in general has not operated to its maximum potential mainly due to lack of technical expertise and also the health coverage (Bhatti *et al.*, 1991). It is observed that 80 percent of the families in villages of Pakistan keep an average of 10-12 adult birds each and hatch chicken under broody hen, but had enjoyed inadequate knowledge and also the health coverage (Buriro, *et al.*, 1985). One of the major problems is the prevalence of cestodes, which causes many hazards to the health of poultry birds' especially rural poultry such as retarded growth, reduced weight gain, decreased egg and meat production and high mortality rate (Magwisha *et al.*, 2002). Free-range poultry typically are kept with the use of no or few inputs (anthelmintic and vaccination) compared to commercial poultry therefore the meat and egg output in these chickens are generally low due to the predators, diseases, parasites and mal nutrition (Smith, 1990; Gunaratne *et*

al., 1993; Rodriguez *et al.*, 1997). Keeping above in view, the present study was undertaken in 4 taluks of district Larkana, Sindh, Pakistan to identify the different species of cestodes infecting indigenous (Desi) chickens and to provide guide line in adopting the preventive measures to treat and control the parasitic infection.

MATERIALS AND METHODS

Experimental Plan

The present study was conducted to investigate the incidence rate of cestodes in indigenous (Desi) chicken. For this purpose randomly selected 46 villages were surveyed in four talukas of district Larkana during December 2010 to May 2011. A total of 500 freshly slaughtered indigenous (Desi) chickens were examined to record the incidence rate of cestodes. The schedule for collection of freshly slaughtered intestines was followed keeping in view the sale points of indigenous (Desi) chicken indifferent villages. Fortnightly visits were made to each village sale points for collection of intestines. Observations regarding date of collection of samples, experience and education level of the villagers were recorded. The samples thus collected were brought to the Parasitology section of Central Veterinary Diagnostic Laboratory (CVDL) sub-center Larkana, for further detailed examination and identification of cestode species. Different species of cestodes were identified according to their morphological characteristics viz: head (*scolex*), neck, body, (*strobila*), segments (*proglottids*), reproductive organs, suckers (*acetabula*) and rostellum etc. (Soulsby, 1982).

Method: The details of the method adopted are given bellow:

The Specimens containing intestinal helminthes (cestodes) were passed through,

- (i) Stain from 30 percent alcohol.
- (ii) Then placed in Harris Hematoxylin with 09 parts of distilled water for one to two hours.
- (iii) Then washed in several changes of water.
- (iv) After that placed successively in 30 and 50 percent alcohol for 30 minutes each.
- (v) Then strain from 70 percent acid alcohol.
- (vi) After that washed in 70 percent alcohol for few minutes.
- (vii) Then placed in 70 percent alkaline alcohol.
- (viii) Then placed in 80 percent alcohol for two hours for dehydration.
- (ix) After complete dehydration, the material was kept in absolute alcohol for 10 minutes.
- (x) After dehydration and staining, the cestodes parasites were placed on microscopic slide under a drop cover of Canada balsam and then covered with slide cover slip.
- (xi) The slides were dried in oven at 40°C.
- (xii) Parasite (cestode) was identified under stereomicroscope and micro photography was prepared with the help of camera through the dissecting microscope (Raymond, 1963).

Statistical Analysis

The data thus collected were subjected to statistical analysis by following the standard statistical procedures (Lecherg *et al.*, 1965).

RESULTS AND DISCUSSION

The results of this study regarding the incidence rate of cestodes in indigenous (Desi) chicken have been discussed in light of the available literature. The detail is summarized in Table 1-5. The findings of the present study showed that the incidence rate of cestodes varied in village to village and within a village. The difference in incidence rate could be attributed to different management practices adapted in different villages. The population of cestodes in indigenous (Desi) chicken ranged between 4.83 ± 0.723 to 10.13 ± 1.128 per bird in villages at taluka Bakrani, 5.00 ± 1.275 to 10.67 ± 1.503 per bird in villages at taluka Dokri, 6.00 ± 3.328 to 14.00 ± 2.128 per bird in villages at taluka Ratodero and 5.80 ± 0.750 to 10.83 ± 1.441 per bird in villages of taluka Larkana. On overall average it was found that the prevalence of cestodes in desi chicken was highest at Dokri (60.77 percent) and Larkana (60.67 percent) followed by Bakrani (57.00 percent) while lowest at Ratodero (55.00 percent). The indigenous (Desi) chickens are basically scavenger birds feeding independently without any feed restrictions, therefore chances of infection against certain parasitic diseases including cestodes are comparatively higher in these birds as compared to commercial chicken housed intensively. Environmental changes also are one of the most important factors influencing variation in parasitic diseases. The results of the present study are fully in line with those of Buriro *et al.*, (1985) who reported 34.1 percent incidence of cestodes in indigenous poultry in Sindh. Similar findings were also reported by Bano *et al.*, (1989) who reported that poultry birds are heavily infested with cestodes ranging 75 percent causing a considerable economic loss in rural poultry, while, Anwar *et al.*, (1989) observed the overall prevalence of parasitic infection of 74.6 percent and 66.8 percent in indigenous and exotic laying chickens, respectively. The population of cestodes observed in

present study was 07 to 08 per bird, the frequency for the value was the highest i.e., 21, followed by 05 to 06 birds which had a frequency value of 14, while, population in the range of 3 to 4 and 13 to 14 per bird had the lowest frequency i.e., 2 which indicated that the cestodes in indigenous (Desi) chicken ranged between 5 to 6. The detailed investigation revealed presence of four species of cestodes which include; *Raillietina tetragona*, *Raillietina cesticillus*, *Amoebotaenia cuneata*, *Choantaenia infundibulum*. These findings are in quite agreement with those of Jansen and Pandey (1989) who reported two species (*Raillietina tetragona*, and *R. cesticillus*) in non-commercial free-ranged flock, whereas, in another study Tuli (1989) found five cestode species in poultry birds in unorganized farms, 63.55 percent infected with *Raillietina tetragona*, 24.57 percent with *R. cesticillus*, 5.39 percent with *R. echinobothrida*, 16.10 percent with *Chotugnia Digonopora* and 1.69 percent with *Choanotaenia infundibulum*, whereas in organized farms only one species was reported.

Table 1. Incidence of cestodes in indigenous (Desi) chickens in taluka Bakrani.

Name of Villages	Total # of birds	No. of birds examined	No: of birds infected	Mean # of parasites per bird	% of infected birds	*S.D for # of parasites per bird	**S.E for # of parasites per bird
K.M Aarija	88	05	03	4.83	60.00	1.772	0.723
Pathan	100	08	04	8.00	50.00	1.633	0.944
Mashori	250	10	05	10.13	50.00	2.740	0.913
Gerello	125	08	04	6.00	50.00	2.739	1.369
Rasheed Wagan	100	07	04	6.17	57.14	2.409	0.983
Haider Brohi	225	08	05	8.00	62.50	2.160	1.249
Bakhodero	275	13	07	7.83	53.85	3.625	1.479
Mehrabpur	100	12	06	7.33	50.00	3.091	1.262
Metla	125	12	07	10.13	58.33	4.365	1.128
New Gud	113	17	10	7.66	58.82	4.386	1.550
Total =	1501	100	57	7.412	57.00	0.929	0.294

*S.D = Standard deviation, **S.E = Standard error

Table 2. Incidence of cestodes in indigenous (Desi) chickens in taluka Dokri.

Name of Villages	Total # of birds	No. of birds examined	No: of birds infected	Mean # of parasites per bird	% of infected birds	*S.D for # of parasites per bird	**S.E for # of parasites per bird
Badah	125	09	06	5.00	66.66	2.550	1.275
Wadi Wahni	200	10	06	7.83	60.00	3.976	1.623
Tatri	350	13	08	7.55	61.53	3.577	1.078
Bagi Bandi	113	08	05	9.25	62.50	4.146	2.073
Bhalreji	100	07	04	4.38	57.14	3.389	1.197
Karani	150	17	11	8.21	64.71	4.229	1.131
Seehar	175	10	06	7.11	60.00	3.425	0.885
Qaboolo	100	15	03	5.50	20.00	2.500	1.773
Wakro	225	15	09	8.00	60.00	3.117	1.176
Gughar	113	12	06	10.67	50.00	3.682	1.503
Brohi	175	10	06	8.22	60.00	4.565	1.522
Gajidero	113	14	09	8.71	64.29	3.990	1.506
Total =	1939	130	79	7.78	60.77	0.616	0.178

*S.D = Standard deviation, **S.E = Standard error

Table 3. *Incidence of cestodes in indigenous (Desi) chickens in taluka Ratodero.*

Name of Villages	Total # of birds	No. of birds examined	No: of birds infected	Mean # of parasites per bird	% of infected birds	*S.D for # of parasites per bird	**S.E for # of parasites per bird
Mirpur Bhutto	175	08	04	8.00	50.00	3.082	1.541
Banguldero	125	06	03	8.80	50.00	3.187	1.423
Wasayo Bhutto	113	06	04	7.00	66.76	3.742	1.670
Agham	100	07	04	11.00	57.14	5.715	3.304
Naudero	150	07	04	7.00	57.14	3.742	2.163
Nareja	250	10	06	7.14	60.00	3.270	1.234
Ghaheeja	225	04	02	14.00	50.00	3.000	2.128
Saeedodero	325	10	05	8.22	50.00	4.157	1.386
Jagirani	100	06	03	7.60	50.00	4.587	2.048
Hussain Abad	250	07	04	10.33	57.14	7.295	2.978
Wahan	100	09	05	6.00	55.55	3.606	3.328
Bhutta Wandh	113	07	04	13.67	57.14	3.091	1.787
Kalhora	100	13	07	6.33	53.84	3.249	1.326
Izat-ji-Wandh	150	10	06	9.63	60.00	5.073	1.793
Pir-jo-Ghoth	200	10	05	9.57	50.00	4.435	1.674
Total =	2476	120	66	8.95	55.00	1.158	0.299

*S.D = Standard deviation, **S.E = Standard error

Table 4. *Incidence of cestodes in indigenous (Desi) chickens in taluka Larkana.*

Name of Villages	Total # of birds	No. of birds examined	No: of birds infected	Mean # of parasites per bird	% of infected birds	*S.D for # of parasites per bird	**S.E for # of parasites per bird
Baharpur	150	15	09	6.86	60.00	2.799	1.056
Khedkar	125	12	06	10.83	50.00	3.532	1.441
Aakil	100	10	07	9.28	70.00	3.977	1.090
Lal Bux Bugti	80	12	07	7.20	58.33	3.709	1.756
Beero Chandio	300	32	18	9.11	56.25	3.701	0.875
Dhamrah	125	17	10	7.50	58.82	3.041	1.075
Naich	150	15	09	7.50	60.00	2.390	0.902
Shahabad	175	15	10	9.00	66.67	3.078	0.890
Mahotta	225	22	16	5.80	72.73	2.903	0.750
Total =	1430	150	91	8.03	60.67	0.491	0.164

*S.D = Standard deviation, **S.E = Standard error

Table 5. *Mean percentage of infected birds due to prevalence of cestodes in indigenous (Desi) chickens maintained in district Larkana.*

S. #	Name of Taluka	No. of birds examined	No. of birds infected	Percentage
01	Bakrani	100	57	57.00
02	Dokri	130	79	60.77
03	Ratodero	120	66	55.00
04	Larkana	150	91	60.67
	Mean	500	293	58.6

CONCLUSIONS AND RECOMMENDATIONS

In the present study, it was found that indigenous (Desi) chicken maintained in Larkana district were severely infected with cestodes, because they are basically scavenger and subsisting on waste grains and other feed sources like worms, maggots, insects, cow/buffalo dung and kitchen waste, thus resulting in lower rate of egg and meat production. To minimize the risk of cestodes in indigenous (Desi) chickens, it is suggested that management practices be improved by better sanitation, balanced feeding, provision of clean drinking water, proper use of anthelmintics, etc.

ACKNOWLEDGEMENT

The authors thankfully acknowledge provision of excellent research facilities during course of this study by Parasitology section of Central Veterinary Diagnostic Laboratory (CVDL) Sub-Center Larkana, Pakistan.

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