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PATHOLOGY OF CESTODE INFECTION IN INDIGENOUS AND EXOTIC LAYERS

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Gross lesions caused by the cestode infection in indigenous and exotic layers included nodule formation on the intestinal mucosa, thickening, ulceration, pale and rough mucosa of intestines. Histopathological lesions were the villous atrophy, catarrhal enteritis, granuloma formation. in duodenum, desquamation of villi and submucosal glands, congestion, inflammatory reaction and vacuolation of epithelial cells.
Key words: cestode infection, gross lesions, histopathology, indigenous and exotic layers

INTRODUCTION

The poultry industry has been confronted with various parasitic diseases of economic significance. Endoparasitism is more important and occurrence of different species of cestodes in poultry has been reported (Fatihu et al., 1991; Khan et al., 1994; Ibrahim et al,, 1995; Amin-Babjee et al., 1997). Endoparasites dilate the intestine, produce nodules and severe enteritis, thus impairing the absorbing power of intestine for nutrients and vitamins from the host. The resultant situation leads to loss of body weight, retarded growth, reduced egg production, weakened body resistance and even death (Hayat and Hayat, 1983). The cestodes inflict gross lesions including formation of nodules in intestinal mucosa, inflammation, congestion and pin point haemorrhages (Bhowmik and Sinha, 1983). Microscopically, catarrhal enteritis with severe destruction of villi, degeneration and desquamation of epithelial cells arid ulceration have been reported with different species of cestodes (Padhi et al., 1986; Samad et al,, 1986). The present paper describes the gross and histopathological lesions of cestode infection in indigenous and exotic layers.

MATERIALS AND METHODS

The investigation included 500 guts each of indigenous and exotic layers collected from poultry markets of Faisalabad. The guts were incised and those positive for cestodes were examined for gross pathological lesions (Kaushik and Deorani, 1971). For histopathology, 5 mm thick pieces of infected guts were cut and preserved in 10 % formalin solution and dehydrated through ascending grades of alcohol, Two steps in xylol for one and two hours were followed for clearing. Infiltration was performed by two consecutive changes in melted paraffin (56 ·C) for eight hours each, and embedded in paraffin blocks (Jha et al., 1981). Tissue sections (6 ll) were allowed to float in water bath (4 ·C) and put on glass slides smeared with thin film of Mayer's albumin. The staining of the specimens was done according to Humason (1972), Coles (1974), Culling (1974) and mounted in Canada balsam.

RESULTS AND DISCUSSION

The gross lesions of cestode infected guts included nodule formation on duodenal mucosa in *Raillietina echinobothrida* infection, pin point haemorrhages with *Raillietina tetragona* infection. Rough and pale mucosa of duodenum was observed in *Amoebotaenia cuneata* infection. No gross lesions were seen on the guts infected with *Choanotaenia infundibulum, Hymenolepis carioca* and *H. contaniana.* These observations agree with Padhi et al. (1986) and Bybee (1996) who reported similar pathological lesions on the guts infected with *R. tetragona, R. echinobothrida* and *A. cuneata.* Bhowmikand Sinha (1983) had also reported the granuloma formation in intestines having *R. echinobothrida* infection.

The histopathological lesions are listed specieswise in Table 1,. In general, the lesions included the villous artophy and' desquamation of epithelium, catarrhal enteritis, granuloma formation in duodenum, congestion, cellular infiltration, desquamation of submucosal glands and haemorrhagic exudate caused by the prevalent cestode species. Several workers have mentioned the various pathological lesions caused by different cestode species. For instance, Samad et al. (1986) had reported villous atrophy, granuloma formations

Table 1. Histopathological lesions in cestode infected guts of indigenous and exotic layers

	R. echinobothrida		*R. tetragona*		*R. cesticillus*		*A. cuneata*		*C. infundibulum*		*H. carioca*		*H. contaniana*	
	Ind.	Em	Ind.	Em	Ind.	Em	Ind.	Em	Ind.	Em	Ind.	Em	Ind.	Em
Villous atrophy	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Catarrhal entritis	+	+	+	-	-	-	-	-	-	-	-	-	-	-
Desquamation of villi	-	-	+	+	+	+	+	-	+	-	-	-	-	-
Congestion	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Cellular infiltration	+	+	+	-	-	-	-	-	-	-	-	-	-	-
Granulomas	+	+	+	-	-	-	-	-	-	-	-	-	-	-
Desquamation of submucosal glands	-	-	+	-	-	-	+	-	-	-	-	-	-	-
Epithelial cell vacuolation	-	-	-	-	+	+	-	-	-	-	-	-	-	-
Haemorrhagic exudate		-	-	-	-	-	-	-	-	-	+	-	-	-

Ind. = Indigenous layers; Exo. = Exotic layers; + = Lesion present; - = Lesion absent.

in duodenum and enteritis in *R. echinobothrida* infection. Pin point haemorrhages, destruction of villi, desquamation of epithelial cells and congestion with *R. tetragona* infection and desquamation of epithelium and thickening of mucosa and submucosa of intestine with *R. cesticillus* infection (Padhi et al., 1986). Bhowmik and Sinha (1983) also reported haemorrhagic exudate with *H. carioca* infeetion. The findings of the present investigation are partially in line with the observations of the above mentioned earlier studies. Some variation in the pathological lesions could be attributed to the use of different anthelmintics and a degree of resistance of different breeds of poultry to cestode infection.

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