CONCOMITANT HELMINTHIC AND ENTERO-PROTOZOAL INFESTATION IN INDIAN PEAFOUL

B. Dutta*, Shivaji Bhattacharya¹, J. Mukherjee, B.B. Roy and Malay Mitra

ABSTRACT : Concomitant infestation of *Ascaridia* spp. along with *Raillietina* spp. and *Eimeria* spp. has been identified in Indian Peafowl (*Pavo cristatus*) of Ramnabagan Mini Zoo, Burdwan, West Bengal, India.

Key words : *Ascaridia* spp., *Raillietina* spp., *Eimeria* spp., Indian Peafowl.
Carcass of an adult male Indian peafowl (*Pavo cristatus*), aged about 11 years of Ramanabagan Mini Zoo, Burdwan, West Bengal was sent to the Disease Investigation Laboratory, Institute of Animal Health & Veterinary Biologicals, Kolkata, West Bengal, India during winter for laboratory investigation. Necropsy revealed the carcass was emaciated, dehydrated with ruffled feathers. Small intestine was packed with semisolid faecal materials mixed with blood. A huge number of round worms and tapeworms also found in small intestine along with partly hemorrhagic and inflammatory changes in mucosal layer. Mucous exudates mixed with blood were present in the lumen of duodenum. Liver, spleen, thymus, kidney were found pale and atrophied. Lungs, trachea, brain were mostly

**Fig.1:** Necropsy of an adult Indian peafowl.

**Fig.2:** Worms found in small intestine of the Indian peafowl.

**Fig.3:** *Ascaridia* spp. and *Raillietina* spp. isolated from the Indian peafowl.

**Fig.4:** Oocysts of *Eimeria* sp. were detected from faecal sample of the Indian peafowl under microscope.
pale in colour. Heart was slightly enlarged and engorged with blood. No specific changes were found in other organs.

Microscopical examination of faecal sample and intestinal scrapping revealed coccidian oocyst, eggs of Ascaridia spp. and Raillietina spp. respectively.

Histopathological examination of the tissue materials revealed chronic proliferative enteritis characterized by hyperplasia of goblet cells, enlargement and ballooning of lining epithelium. Intracellular spaces of epithelium showed accumulation of oedematous fluid with pericellular infiltration of lymphocytes, mononuclear cells and fibroblastic proliferation. Intercellular spaces in between submucosa and muscularis layer infiltrated by few eosinophils, RBC and macrophages. The muscularis and serosal layer showed degeneration, accumulation of oedematous fluid and fibrocystic proliferation. Vascularisation of different layers showed proliferation, thickening and hyalinisation of arterial walls. Liver showed few necrotic foci along with degeneration and mononuclear cells. The portal triad showed proliferation of biliary epithelium and hepatic arterial endothelial hyperplasia. Spleen showed depletion of lymphodial follicles in germinal centre.

Finally Eimeria spp. along with Ascaridia spp. and Raillietina spp. were identified by microscopical and morphological study.

The oocysts of coccidia resemble to Eimeria spp. (Bhatia and Pande 1966) were ellipsoidal, smooth 18-27 µm by 13-20 µm having no micropyle. Bhatia and Pande (1968) describe the development in the peachick. This occurs beneath the host cell nucleus of the epithelial cell of the villi and crypts of Lieberkuhn of the anterior small intestine.

Morphological study revealed round worms, having large lips and oesophagus had no posterior bulb. Males were 50-75 mm and females were 72-110 mm long. Tail of the male had small alae bearing 8 pairs of short and thick papillae. There was circular precloacal sucker with thick cuticular rim. Spicules were sub-equal and 1-2.2 mm long. Eggs were oval with smooth shells measuring 74-90 by 46-52 µm and indistinguishable from Ascaridia spp. as described by Soulsby (1982).

Tapeworms were resemblance with Raillietina spp., measuring up to 20 cm in length and 1-1.4 cm in breadth. It was whitish in colour, highly elongated, dorso-ventrally flattened and entirely covered with a tegument. The strobila was composed of a series of ribbon-like body segments i.e proglottids which gradually enlarging from the anterior end towards the posterior (Mu et al. 2009). The scolex was smaller, bears apical rounded rostellum, armed with several minute hooks, surrounded by suckers and lined with spines (Kaufmann 1996). Each mature proglottid had a set of male and female reproductive organ and genital pores on one side. Testes are located on both sides of the ovary and behind vitellarium. Each egg capsule contained 4-10 eggs and many calcareous corpuscles, each of which is surrounded by a membrane. As the two reproductive systems matured, the proglottids became gravid after fertilization (Mu et al. 2009). The eggs are 28-40 µm in diameter. Raillietina spp. occurs in the posterior small intestine of the chicken and other gallinaceous birds throughout the world (Levine 1983). Saif et al. (2008) reported that ants also are the intermediate hosts of the related Raillietina spp. a parasite of chickens, turkeys, guineafowl and
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The intermediate hosts include grasshoppers, beetles, ants, house-flies, earthworms, slugs, snails and cray-fish (Wallach and Boever 1983). Peacock may get concomitant helminthic and entero-protozoal infestation through intermediate host or contamination inside the enclosure.

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REFERENCES


