

PATHOLOGY OF CAECAL COCCIDIOSIS IN JAPANESE QUAILS (*Coturnix coturnix japonica*)

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Abstract: Coccidiosis is one of the most important common protozoal disease in poultry caused by various *Eimeria* species. The present study deals with scrapings from intestinal caeca exhibited numerous coccidial unsporulated oocysts and morphometry study showed the presence of *E. bateri* (++) oocysts in coccidia affected birds. At necropsy, the caecum showed ballooned appearance with severe serosal and mucosal congestion and its lumen contained foul smelled necrotic materials admixed with blood. Histopathological examination of caecum revealed focal necrosis of villi, desquamation of epithelium and various developmental stages of *Eimeria sp* in the intestinal epithelium.

Keywords: Japanese quails, Caecum, *Eimeria bateri* and Pathomorphology.

Introduction

Quail production is considered as a branch of the modern poultry industry. In India, quails are reared mostly in battery system; hence there is only little report about their disease. However, most studies have been published on Japanese quail nutrition and very few researches about quail diseases. Among the avian diseases, coccidiosis affects bird development as well as production. Three *Eimeria* species have been identified in Japanese quails *Eimeria uzura*, *E. bateri* and *E. tsunodai* (Gesek *et al.*, 2014) [2]. Coccidiosis very often a hidden disease in quails causes severe economic losses by increased mortality, decreased productivity and act as a predisposing factor for necrotic enteritis develop as a secondary infection. Hence, the objective of the present study to identify the *Eimeria species* and pathomorphological changes in caecum of Japanese quails naturally infected with coccidiosis.

Materials and Method

Nine carcasses and two ailing breeder Japanese quails were presented to the Department of Veterinary Pathology, Veterinary College and Research Institute, Namakkal for post mortem examination. Clinical signs exhibited by ailing quails were recorded and also their faecal samples were collected. Detailed necropsy was conducted and gross lesions were

observed. The scraping from the small intestine and caecum were collected for oocyst examination. The faecal samples and intestinal contents were processed by sedimentation and floatation techniques for demonstration of oocysts as described by Urquhart *et al.* (1987) [7]. The oocyst positive samples were diluted into 2.5% aqueous potassium dichromate solution and kept in petri dishes at room temperature for oocysts sporulation. The morphometry of the sporulated oocysts were determined by using the method for species identification as described by Harper and Penzorn (1999) [3]. The calculated oocysts shape index (length/width) values were then compared with the standard diagnostic guide provided by Teixeira *et al.* (2004) [5] to determine the species encountered in the study. The caecum showing lesions were collected and fixed in 10% formalin for routine histopathological examination. The processed tissues samples were embedded in paraffin blocks and the sections (4 μ m) were stained with Haematoxylin and Eosin.

Results and Discussion

The ailing birds showed dullness, depression, somnolence, anaemic and blood mixed droppings. Similar clinical signs were also observed by Teixeira (*loc. cit.*) (2004) [5]. The gross lesion of caecum showed ballooned appearance with serosal congestion. Mucosa of caeca revealed severe congestion and its lumen contained foul smelled necrotic materials admixed with blood (Fig.1).

The scraping from caeca revealed numerous coccidial unsporulated oocysts of *Eimeria sp.* Morphology of *Eimeria bateri* oocyst was ovoid, subspherical and presence of polar granules can be observed. *Eimeria bateri* with shape index of 1.36 conformed to the guidelines of Teixeira *et al.* (*loc. cit.*) [5].



Fig: 1. *Eimeria bateri*: Caecal mucosa showing severe congestion and lumen containing necrotic materials admixed with blood

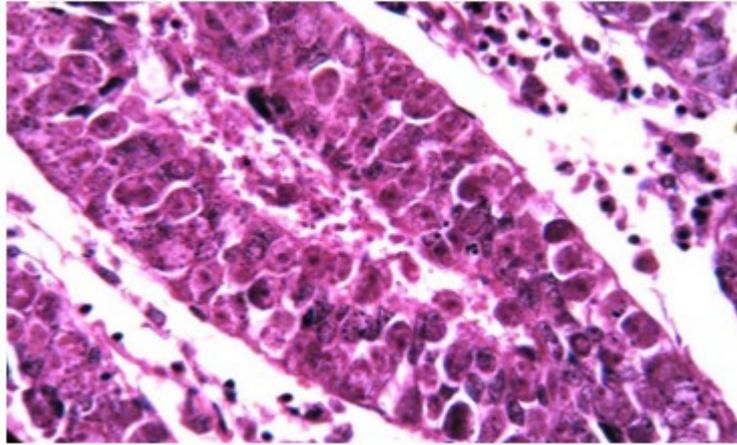


Fig.2. *Eimeria bateri*: Caecum showing various stages of *Eimeria bateri*.
H&E x 1000

The histopathological examination of caecum showed focal necrosis and desquamation of intestinal villi along with various developmental stages of schizonts, macro and micro gamont (Fig.2). Similar types of gross and histopathological lesions were also observed by Umar *et al.* (2014) [6] and Anbarasi, *et al.* (2016) [1]. The caecal mucosa, villi and crypt epithelial cells were damaged by proliferation and multiplying of endogenous stages of coccidia and high number of oocysts (Teixeira and Lopes, 2002) [4].

Summary

The present observation also revealed that the gross and histopathological changes in intestinal tract pointed to the serious effect of *Eimeria bateri* species in Japanese quails. Coccidiosis in Japanese quails remains a significant problem because the coccidia are resistant to popular antiprotozoal drugs. Hence need for further discussion and advanced research on poultry feeding supplementation with coccidiostats.

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