

Original Research Article

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Incidence of Caecal Coccidiosis in Adult Layer Chicken

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ABSTRACT

Keywords

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Caecal coccidiosis was diagnosed in Rajasri birds of nineteen weeks age presented for routine postmortem examination at Department of Veterinary Pathology, College of Veterinary Science, Hyderabad. Clinically birds showed inappetence, depression, ruffled feathers, bloody diarrhea, anemia and mortality of about 21 birds out of 65 birds (32.3%) for a period of two weeks. Grossly, extremely ballooned caeca, white necrotic foci visible from outside of caeca, haemorrhagic enteritis, watery ingesta mixed with mucus and blood were observed. Upon opening of the caeca, semi liquid bloody mass was observed and liver was pale. Faecal smear examination revealed coccidial oocyst. Histopathological examination of caecum revealed coccidian lifecycle stages with destruction of different layers of the caecum.

Introduction

Coccidiosis one of the most economically important parasitic diseases in poultry in modern poultry production especially in litters. Coccidiosis is caused by species of intracellular protozoan parasites belonging to the genus *Eimeria* (Phylum Apicomplexa) (Shirley, 1995). It causes high mortality in young chicks between the age of 3 and 18 weeks (Nematollahi *et al*, 2009). Despite of advances made in the field of diagnosis in prevention, treatment and control through managerial and nutritional practices, avian

coccidiosis remains one of the major diseases in chicken (Sawale *et al.*, 2018). Economic losses to the poultry industry is due to high morbidity and mortality. Infection is transmitted through horizontal course by ingestion of coccidial oocyst contaminated feed and water. Bad management (such as wet litter that encourages oocyst sporulation, contaminated drinkers and feeders, bad ventilation, and high stocking density) can exacerbate the clinical signs (Ruff, 1993). The short, direct life cycle and high reproductive potential of coccidial organisms in poultry often leads to severe outbreaks of the disease

in small backyard flocks or in the modern poultry house (McDougald and Fitz-Coy, 2008).

Avian coccidiosis is classified into caecal and intestinal forms. Caecal coccidiosis is an acute disease caused by *Eimeria tenella* characterised by bloody droppings and anemia (Whitmarsh, 1997). Clinical signs include dysentery, enteritis, emaciation, drooping wings, poor growth and low production. Grossly, caecum appears to be enlarged with clotted blood, haemorrhagic spots on caecal wall, inflammation, necrotic patches and dilation of caecum with consolidation of caecal contents (Adamu *et al.*, 2013 and Sharma *et al.*, 2015).

Microscopically, disruption of caecal mucosa, clusters of oocysts, marked haemorrhage, necrosis of caecal mucosa and massive infiltration by heterophils and mononuclear cells (MNC) are characteristic (Amer *et al.*, 2010). The present paper discusses an incidence of caecal coccidiosis in Rajasri birds of nineteen weeks age. A detailed gross and microscopic examination was discussed.

Materials and Methods

A sudden mortality in nineteen weeks old Rajasri birds was reported at Poultry Research Station (PRS) Rajendranagar, College of Veterinary Science, Hyderabad. Caecal coccidiosis was diagnosed in 21 out of 65 birds evaluated for a period of two weeks. Faecal smears from caecum were prepared by adding a small quantity of faeces on a clean microscope slide, mixed with a few drops of water thoroughly and covered with coverslip and examined under microscope.

Intestine slices (1×1 cm³) were collected and fixed in 10% neutral buffered formalin (NBF) soon after necropsy. The samples were processed, sectioned (5 µm) and stained with Haematoxylin and Eosin (H&E) for

histopathological examination as per the standard procedure (Luna, 1968)

Results and Discussion

Caecal coccidiosis was diagnosed in 21 out of 65 birds presented for routine necropsy examination in a period of two weeks. Clinically birds showed inappetence, depression, ruffled feathers, bloody diarrhea and anemia. Gross examination revealed extremely ballooned caeca, severe haemorrhages on the caecal mucosa, watery ingesta mixed with mucus and blood and haemorrhagic enteritis was seen (Fig. 1). Upon opening of the caeca, bloody mass was noticed and severe haemorrhages on the caecal mucosa were prominent (Fig. 2) and liver was found to be pale with rounded edges (Fig. 3). *Eimeria tenella* is easily identified by its predilection site (caeca). Faecal smear examination revealed presence of unsporulated ovoid oocysts of coccidia (Fig. 4). Histopathology of caecum revealed severe destruction of different layers of the caecum with desquamation of enterocytes, presence of oocysts and schizont stages in the submucosa with massive mononuclear cell infiltration (Fig. 5).

Caecal coccidiosis was diagnosed through demonstration of postmortem changes recorded in dead birds. The gross and necropsy changes revealed extremely ballooned caecum, haemorrhages, necrotic patches and dilation of caecum with consolidation of caecal contents. Pale liver and anemia could be due to extensive blood loss. Similar gross lesions of caecal coccidiosis in chicken were reported by Adamu *et al.*, (2013) and Sharma *et al.*, (2015). Faecal smear examination revealed numerous oocysts of *Eimeria tenella* and histopathological findings showed presence of oocysts and schizont stages in the submucosa which were in accordance with the findings of Amer *et al.*, (2010) and Adamu *et al.*, (2013).



Fig.1 Ballooned caeca with watery contents mixed with blood and mucus



Fig.2 Severe haemorrhages on the caecal mucosa



Fig.3 Pale liver with rounded edges

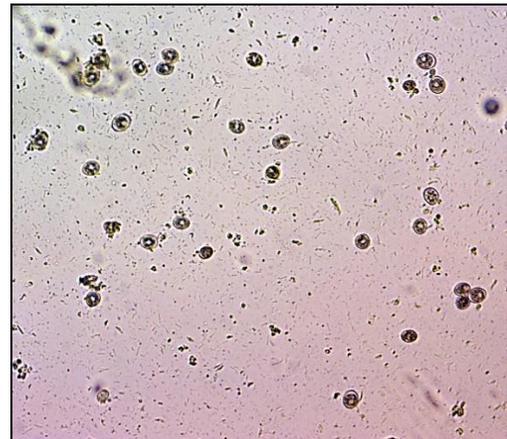


Fig.4 Faecal smear examination showing numerous unsporulated ovoid oocysts of coccidia x100

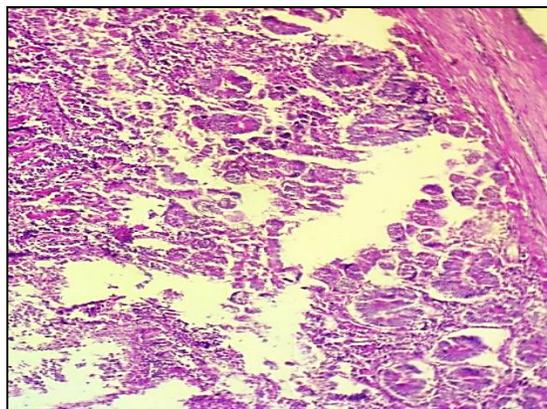


Fig.5 Destruction of different layers of caecum with desquamation of enterocytes, presence of oocysts and schizont stages in the submucosa and massive mononuclear cell infiltration (H&E x100)

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