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Short Communication

MANAGEMENT OF CAECAL COCCIDIOSIS OUTBREAK IN SIX DAYS OLD BROILER CHICKS

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SUMMARY

The present study reports caecal coccidiosis in a flock of six days old broiler chicks. Out of a flock of 5500 birds, a total of 200 birds were affected and 120 birds were found dead within two days. On the basis of necropsy findings, impression smear of caecal contents and histopathological examination, the disease was confirmed as caecal coccidiosis. The disease was successfully treated by using amprolium (20%) at the rate of 1.25 gram/litre of water for four days.

Key words: Caecal coccidiosis, broiler chicks, management

Coccidiosis is a protozoan disease of poultry caused by seven species of *Eimeria*. Most of the *Eimeria* species affects birds between the age of 3 and 18 weeks (Musa *et al*., 2010). Chickens are highly susceptible to obligate intracellular parasite of the genus *Eimeria* (Alberta, 2007). Among the diseases, protozoan parasites of the genus *Eimeria*, which resides and multiplies in intestinal mucosa characterized by dysentery, enteritis, emaciation, drooping wings, poor growth (Hadipour *et al*., 2011) and low production (Rehman *et al*., 2010) with a high rate of mortality and morbidity. *Eimeria* species affecting poultry are strictly host specific and various species parasitize the different parts of the intestinal tract. Coccidia transmitted through oral-fecal ingestion, is a disease common in intensively managed farms, especially where management or hygienic standards are not adequate (Adene and Oluleye, 2004).

Six-days old chicks from a flock of 5500 birds were brought to Disease Investigation Laboratory of the Department of the University in the month of December, 2015 with a history of melena and mortality of 120 out of 250 affected chicks for disease investigation. The necropsy was carried out, gross lesions were recorded and representative tissue samples of caecum were preserved in 10% buffered formalin. After proper fixation, these were cut into small sections with thickness of 2-3 mm and processed. The paraffin embedded tissues were cut into 4 µ thick sections and stained with Haematoxylin and Eosin (Luna, 1968). Detection of coccidia oocysts was done by microscopic examination of impression smear of caecal contents.

Necropsy examination revealed anaemia**,** pale liver, distended caeca with frank blood, petechial haemorrhages, sloughing of the mucosa and tissue debris (Fig. 1). The oocysts of *Eimeria* species were observed in the impression smear of caecal contents (Fig. 2). Two types of oocysts were observed in impression smear so it could be diagnosed as mixed infection of *Eimeria* species. Morphometric measurement of the oocysts was not done in this study. The sections of the caecum revealed schizonts, numerous macro and micro gametocytes in epithelial cells, denudation of mucosal epithelium, haemorrhages and infiltration of lymphocytes in mucosa, submucosa and muscular layer (Fig. 3). Based on the history, clinical signs, gross lesions and laboratory investigation, it could be diagnosed as caecal coccidiosis. Birds were treated with amprolium (20%) at the rate of 1.25 gram/ litre of water for four days.

E. tenella parasitizes the caecum while *E. necatrix* is responsible for the mid-intestinal lesions that are associated with the sloughing of the intestinal mucosa (David, 2000; Adene and Oluleye, 2004). However, in India the total losses due to poultry coccidiosis has been found to be of Rs. 1.14 billion (approx) per year (Berra, 2010). Due to higher stocking densities and intensive husbandry practices, its incidence is being increased in poultry (Nnadi and George, 2010). Possibly oocysts from previous flock were present in the shed; suitable conditions like high moisture content and warmth of 25-30°C favoured oocyst sporulation and infected young broiler

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Fig.1 : Chicks showing petechiae and distended caeca with blood

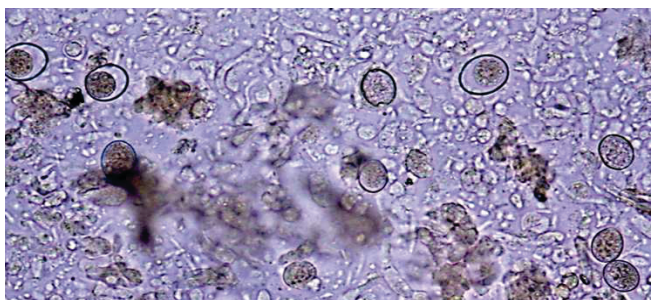

Fig.2 : Caecal contents showing oocysts of Eimeria spp. ×100

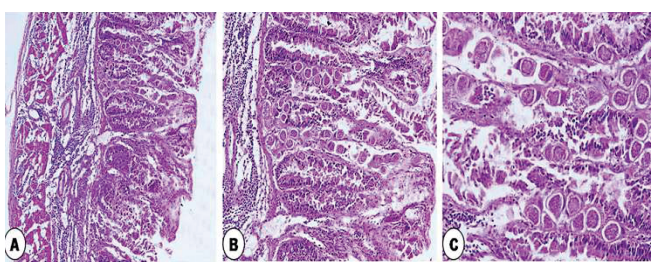

Fig.3 : Section of caecum showing different stages of coccidia, denudation of mucosal epithelium and infiltration of lymphocytes in mucosa, submucosa and muscular layer. [H. E. ×100 (A), 200 (B) and 400 (C]

chicks on day one. Temperature of 95°F during first week of life of chicks and winter season were also conducive for this outbreak. Deep litter system and use of same litter of previous flock could also be one of the reasons responsible for this outbreak.

Alternatively, contaminated equipments, feed containers, personnel, rodents and insects have been incriminated in the spread of coccidiosis (Abdu *et al*., 2008). Previous flock was also affected with coccidiosis which could be the reason of current outbreak. The short, direct life cycle and high reproductive potential of coccidia intensifies the potential for severe outbreaks of disease.

The field outbreaks of coccidiosis in birds less than 3 weeks of age had rarely been reported but the present communication reports an outbreak of caecal coccidiosis in a flock of six days old chicks as earlier reported by Soomro *et al.* (2001) and Sood *et al*. (2009) Further it may be concluded that, possibly the oocysts from previous flock were present in the shed along with the poor management condition that led to the outbreak. Amprolium (20%) @ 1.25 gm/litre of water should be given continuously for 3-5 days. It was recommended to change the place of rearing of chicks and to use fresh litter. Farmer was also advised to avoid use of vitamin B group in drinking water.

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