



## Incidence of Intestinal Coccidiosis in Desi Chickens

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### ABSTRACT

A field investigation was carried out to find out etiology for high morbidity and moderate mortality (7.50 %) in a desi chicken farm with strength of 3000 birds at the age of 12 weeks, which were reared in the deep litter system at Perambalur district, Tamil Nadu, India. The clinical signs noticed were ruffled feathers, weakness, anorexia and blood stained whitish to brownish diarrhoea and sudden mortality of healthy birds at the age of 12 weeks. Autopsy revealed that distended small intestine with red and white focal lesion on the serosal surface, filled with blood, mucus and tissue debris. The microscopic examination confirmed the presence of *Eimeria necatrix*. The flock was treated with amprolium hydrochloride with vitamin K and the mortality reduced and the flock recovered completely on 5<sup>th</sup> day of treatment. Though, the desi chicken is deemed to be resistant to coccidiosis, the breed upgradation, wet deep litter condition and poor ventilation might play the important role in the coccidiosis outbreak among desi chickens.

**Keywords:** Amprolium, Desi chicken, *Eimeria necatrix*, Mortality, Oocyst

Coccidiosis is an economically important disease of chicken, caused by parasite of the genus *Eimeria*, one of the most severe and frequently recorded diseases of poultry throughout the world (Ahamad *et al.*, 2000). In chickens, seven *Eimeria* species were reported of which *E. acervulina* and *E. mitis* were rather less pathogenic; whilst *E. praecox* is regarded as the least pathogenic (Shirely, 1986). Mortality and economic losses are very high in young chicks because most of the *Eimeria* species affect the birds of age between 3 to 18 weeks (Toulah, 2007; Nematollahi *et al.*, 2009). In non-immune young birds (3-8 weeks), occurrence of sudden outbreak was noticed following ingestion of high doses of the sporulated oocyst over a short period of time (David, 2000). The species could be identified by nature and location of the lesions caused during multiplication since the different species tend to develop in different parts of intestine (Long *et al.*, 1976). However, a definitive identification requires additional laboratory investigation since, the coccidiosis in

desi chicken have not so far been recorded in Perambalur district of Tamil Nadu.

Objective of the present study was to identify the *Eimeria* species using conventional methods and to control the mortality by treating with anticoccidial drug. Although, vaccine is available to prevent the coccidiosis in chicken, the cost of vaccine is not affordable for desi chicken rearing.

### MATERIALS AND METHODS

A desi chicken farm with strength of 3000 was reported with sudden mortality at the age of 12 weeks. The clinical signs of ruffled feathers, weakness, anorexia and blood stained whitish to brownish diarrhoea. The farm was visited for disease investigation and the autopsy was carried out in 10 dead birds. The diagnosis was made as per location and characteristics of intestinal lesions described by Long and Reid (1982).



Deep scrapings from small intestine and wet smears were examined at Department of Veterinary Parasitology, Veterinary College and Research Institute, Namakkal for the confirmation of the *Eimeria* species by oocyst morphology viz., size, shape, colour, appearance of the wall, presence or absence of micropyle and micropylar cap and its shape as described by (Lima, 1979; Soulsby, 1982; Smith and Sherman, 1994). Impression smears were made from intestine and stained with Giemsa stain (Osorio *et al.*, 2010).

Amprolium hydrochloride (20%) with vitamin K (2%) was administered at the dose rate of 1 gram per litre of drinking water for 5 days to the flock to control the mortality.

## RESULTS

### Gross Lesions

During autopsy examination of the dead birds, distended small intestine with red and white focal lesion on the serosal surface and clotted blood, mucus and tissue debris in the lumen were noticed (Fig. 1). The gross lesions observed were suggestive of intestinal coccidiosis.



Fig. 1: Clotted blood in small intestine

### Laboratory findings

Wet smear under microscopic examination showed *Eimeria* oocysts and intestinal scrapings smear stained with Giemsa revealed large schizonts (> 50 µm in diameter) and 17 to 22 µm long oocysts in the caecum (Fig. 2).

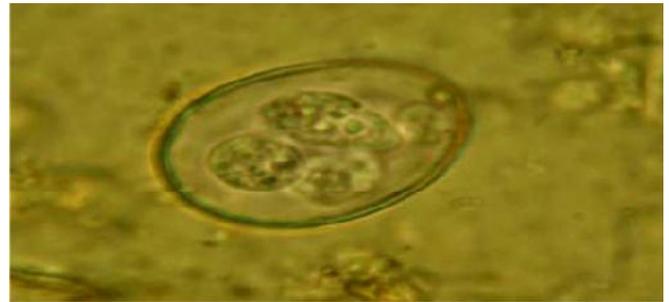


Fig. 2: *Eimeria necatrix* oocyst

## DISCUSSION

A tentative diagnosis of coccidiosis could be made based on farm history, clinical symptoms, autopsy examination and a minimal parasitological examination under field conditions (Adene and Oluleye, 2004). The lesion of distended small intestine with black and red focal lesions on the serosal surface particularly in midgut associated with necrosis and sloughing of the intestinal mucosa occurred due to *Eimeria necatrix* infection (David, 2000; Adene and Oluleye, 2004) which is in agreement with the observation in the present study.

High stocking density and intensive husbandry practices were facilitated the outbreak (Etuk *et al.*, 2004; Nnadi and George, 2010). The oocyst of affected birds could be disseminated to healthy birds through contaminated equipment, feed, feed containers, personnel, rodents and insects that lead to high mortality due to short incubation period (5 days) as reported by Chookyinox *et al.* (2009). Ruff *et al.* (1993) reported that Amprolium could reduce the number of oocysts shed by *Eimeria acervulina*, *E. maxima*, *E. necatrix* and *E. tenella* in chicken thereby prevent the spread and mortality which showed congruity in current study.

## CONCLUSION

Present study revealed that the infection was high due to poor managerial practices, malnutrition and non-inclusion of coccidiostats in feed as preventive measure. Warmth and moisture environment favoured greater transmission and contamination of oocysts.

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