



Short Communication

Mixed infection of coccidiosis and necrotic enteritis in Giriraja birds

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ABSTRACT

Keywords

Giriraja,
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In district livestock farm Orathanadu, a total of 972 numbers of giriraja birds were maintained in poultry farm. At the age of 8th week, the chicks showed the clinical signs of emaciation, depression, anorexia, ruffled feathers and bloody diarrhea. The lesions recorded were ballooning of the small intestine filled with gas and brown coloured fluid, necrosis in liver and necrotic and diptheritic enteritic lesions. In the present study it has been confirmed that the occurrence of intestinal coccidiosis concurrent infection with necrotic enteritis in giriraja birds was ascertained through demonstration of oocysts in mucosal scrapping from small intestine, feces and postmortem lesion recorded in dead birds and isolation of the organism. The affected birds were treated with anticoccidials and antibiotics to control bacterial infection.

Introduction

Coccidiosis is a disease caused by protozoan parasites of the genus *Eimeria*, developing within the intestine of most domestic birds. It is primarily causing severe enteritis and typhilitis with haemorrhages, tissue damage and severe metabolic disturbances (Rajkhowa *et al.*, 2012). Although coccidiosis is known for many years it is still considered as the most economically important parasitic condition affecting poultry production worldwide. Coccidiosis and necrotic enteritis are globally common and intercurrent, diseases of poultry. In general, the giriraja birds are resistant to most of the diseases, but the incidence of coccidiosis complicated with necrotic

enteritis is a frequently occurring condition in deep litter system of management. So that, a detailed study of clinical signs, postmortem lesions and diagnoses of coccidial oocysts were done in the giriraja birds affected with intestinal coccidiosis and necrotic enteritis mixed infection.

Results and Discussion

A small poultry farm of 972 giriraja parent stock birds in District livestock farm, Orathanadu Thanjavur district of Tamilnadu had witnessed an outbreak of bloody diarrhoea with 55% mortality and 13% morbidity. The giriraja birds were

maintained under deep litter system of rearing. All the birds were vaccinated against ranikhet and infectious bursal disease. All the affected birds were in the age group of 8th week and all the clinical signs showed were recorded. The dead birds were subjected to necropsy to find lesions and the faecal samples were examined for the detection of parasitic ova and the coccidial oocyst. Microbiological examination was carried out to identify the bacterial organism. The birds were treated with anticoccidial drugs and followed by antibiotic to control necrotic enteritis.

The general clinical signs observed were loss of appetite, unthriftiness, huddling together, emaciation, depression, anemic comb and wattles, immobility, closed eyes and ruffled feathers. The degree of intestinal signs ranged from bloody mucoid diarrhoea followed by dark brown coloured diarrhea as observed by Williams (2005) and Sivaseelan *et al.* (2012). And some of the birds showed sticky droppings adhering to the cloaca may be the sign of necrotic enteritis (Van der sluis, 2000). Gut damage caused by coccidial infection sometimes predispose birds to Clostridial infection and necrotic enteritis (Hermans and Morgan, 2003). Certainly coccidial infection stimulates proliferation of intestinal *Clostridium perfringens* (Bradley and Radhakrishnan, 1973). Clinical coccidiosis predisposes birds to the infection of necrotic enteritis as reported by Ross breeders, 1999.

On post mortem examination, the skin and muscles appeared pale and anemic. Small intestine showed petechial haemorrhages and haemorrhagic plug in the lumen. Intestinal lumen was distended with gas and

brown coloured fluid was noticed. The intestinal wall was edematous, thickened showed necrosis and sloughed epithelium (Fig. 1) (Rajkhowa, 2012). In the liver, multifocal whitish foci were noticed. Histopathologically necrotic and diphtheritic lesions, atrophy or absence of villi with infiltration of lymphocytes and macrophages in the intestine, multifocal lymphocytic infiltration with necrosis of hepatocytes in the liver were observed as mentioned by Williams (2005). The characteristic lesion of necrotic enteritis was an intestinal mucosal necrosis (Al Sheikhly and Truscott, 1977a). The intestinal epithelium eroded and detached (Kaldhusdal *et al.*, 1995) a diphtheritic membrane of dead mucosal enterocytes trapped in fibrin and the gut was friable, detached and gas filled with foul smelling liquid contents (Broussard *et al.*, 1986). Atrophy of the bursa of fabricius noticed indicating the immune suppression due to infection with necrotic enteritis (Frame and Bickford, 1986).

Examination of faecal samples of affected birds and intestinal scrapings from dead birds revealed the unsporulated oocysts of *Eimeria nicatrix*. The isolation and identification of the organism revealed *Clostridium perfringens* as diagnosed by Williams (2005). The affected birds were treated with anticoccidials such as sulphaquinaxaline and diaveridine (Chapman, 2003) followed by broad spectrum antibiotic for 5–6 days to control bacterial infection (Brennan *et al.*, 2001). Supportive therapy given to birds with vitamin A and E helps to enhance epithelialization of intestinal mucosa and immunity (Colnago *et al.*, 1983).



Fig.1 Photograph showing the necrotic lesions with brown coloured fluid in the portion of small intestine.

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