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Incidence of concurrent infection of Coli-Septicaemia and Infectious Bronchitis in an organised layer farm

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Abstract

An outbreak of IB with colibacilosis and its diagnosis and management is reported. In an organised farm, the affected flock had a complaint of anorexia, dyspnoea, and weight loss and misshappened eggs. On examination of serum samples, IB showed HI titre of 64 with a GM value of 24.3 where as heart and liver swabs revealed the presence of *E.coli* organisms. ABST of the organism revealed sensitivity to Gentamicin, Cephalexin and intermediate sensititive to Enrofloxacin and Ciprofloxacin and resistant to Oxytetracycline. Based on the clinical signs, lesions and laboratory tests the outbreak was diagnosed as Infectious Bronchitis and Colisepticaemia and remaining flock was successfully managed with Gentamicin 4 mg/kg body weight twice daily at 24 hours interval along with supportive drugs. Biosecurity measures were advised to prevent subsequent infection.

Keywords: Infectious Bronchitis, Layers, Colisepticaemia, Antibiogram Studies

Introduction

Infectious bronchitis is an extremely contagious respiratory disease of chickens, caused by avian infectious bronchitis virus (IBV). *Escherichia coli* infection is the most common infectious disease in poultry and usually seen along with corona viral infection such as infectious bronchitis. Although *Escherichia coli* is present in the intestinal tract as normal microflora and other host mucosal surfaces and in the bird's environment. Few of these strains possessing specific virulence attributes, designated as avian pathogenic *E. coli* (APEC), are able to cause disease (Maryvonne, 1999). APEC is mostly associated with extra intestinal infections, principally of the respiratory tract or systemic infections, and result in a variety of diseases which are responsible for severe economic losses. Whereas Infectious bronchitis virus (IBV) is one of the foremost causes of economic loss within the poultry industry (Nakamura *et al.*1992). It affects both the performance of meat-type and egg-laying birds. The virus replicates not only in the epithelium of upper and lower respiratory tract tissues, but also in many tissues along the alimentary tract and elsewhere e.g. kidney, oviduct and testes (Dave, 2007). It can be detected in both respiratory and faecal material. Therefore the present study was carried out to assess the Incidence of concurrent infection of Coli-Septicaemia and Infectious Bronchitis in an organised layer farm.

Materials and Methods

This incidence was reported in the organized giriraja poultry farm located in Orathanadu region of Tamilnadu. In this farm, a total 956 numbers of parent stocks of giriraja birds were maintained. The whole flock was vaccinated against Marek's disease, Newcastle disease, Infectious Bursal Disease, Infectious Bronchitis and Fowl Pox. The giriraja birds were maintained under deep litter system of rearing. Among 956 birds, (125) 13% of the birds showed loss of appetite, unthriftness, dyspnoea, weight loss and misshappened eggs. Frequently, drop in egg production was observed without any incidence of poor egg shell quality before the occurrence of clinical disease. The dead birds were subjected to necropsy to find lesions and the faecal samples were examined for the detection of parasitic ova.

Swabs were collected from dead birds for screening of bacterial agents. The samples were placed in Brain Heart Infusion (BHI) broth and incubated at 37°C for 24 hours and cultured aerobically in sheep blood agar, MacConkey agar and eosin methylene blue agar (EMBA) for isolation of bacteria. Bacterial isolates were identified on the basis of their morphology, growth characteristics, sugar fermentation and biochemical characteristics (Barrow and Feltham, 1993).

Results and Discussion

Severely affected birds such as those with colisepticemia are often dull, lethargic, and unresponsive when approached. Fecal material is often green with containing white-yellow urates due to anorexia and dehydration. Dehydrated birds typically have dark dry skin which is more noticeable on shanks and feet. At necropsy trachea showed mild to moderate congestion with mucus exudates. Air sacs were cloudy and thickened. Moderate to severe fibrinous pericarditis, perihepatitis were observed (Fig.1). Typically, affected chicks initially show darkened lungs and enlarged spleens (splenomegaly) and this picture progresses into one of fibrinous pericarditis, pleuritis, peritonitis and air sacculitis.

Lungs were congested with patches of consolidation. Liver was congested, enlarged, friable in consistency and the gall bladder was distended with greenish yellow bile. Caecal tonsil and cloacal mucosa revealed petechial haemorrhages. Ovarian follicles were misshappened and congested (Fig.2).

Fig.1: Affected birds showed pericarditis and perihepatitis

Fig.2: Affected birds misshappened ovarian follicles with congestion

According to Bradburg and Janet (2008) the gross lesions of birds affected with colibacilosis can include generalized polyserositis with various combinations of pericarditis, perihepatitis, air sacculitis and peritonitis. Whereas Nolan *et al.* (2013) stated that the common post-mortem findings in cases of colibacilosis include fibrin, yolk debris, or milky fluid in the peritoneal cavity, in and around joints, and on the surfaces of multiple organs. In cases of peritonitis, there are accumulations of caseous (cheese-like) exudate in the body cavity resembling coagulated yolk material , this is commonly referred to as egg yolk peritonitis. Butcher *et al.* (1990) reported that the infectious bronchitis (IB) is highly infectious viral disease of poultry and characterized by respiratory symptoms, increased

mortality and decreased egg production. Whereas Rikula *et al.* (1993) reported that IB is most prevalent disease in poultry industry especially layer breeds.

On examination of serum samples, IB showed HI titre of 64 with a GM value of 24.3 where as heart and liver swabs revealed the presence of *E.coli* organisms. Antibiotic sensitivity test (ABST) of the organism revealed sensitivity to Gentamicin, Cephalexin and intermediately sensititive to Enrofloxacin and Ciprofloxacin and resistant to Oxytetracycline. Based on the clinical signs, lesions and laboratory tests the outbreak was diagnosed as Infectious Bronchitis and Colisepticaemia and remaining flock was successfully managed with Gentamicin 4mg/kg body weight twice daily at 24 hours interval along with supportive drugs.

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