



ISSN: 2456-2912

VET 2024; 9(1): 01-02

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www.veterinarypaper.com

Received: 02-11-2023

Accepted: 05-12-2023

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***Escherichia coli* infection in farm birds**

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Abstract

In a poultry farm, few cases of *Escherichia coli* (E. coli) infections in poultry birds was observed in all age group birds. It is characterized by sudden mortality at the rate of five percent in the first week and in adult birds also. *Escherichia coli* (E. coli) infection in birds causes heavy losses in its productivity due to its high mortality rate. First-week mortality in chicks caused serious problem to the poultry farmers. This organism causes various manifestations in poultry, including mushy chick disease (Septic omphalitis). The acute colibacillosis may lead to death, while sub-acute form may cause pericarditis, air sacculitis, Peri hepatitis and egg peritonitis. Based on specific lesions which are of pathognomonic importance, it was diagnosed as colibacillosis infection. This investigation describes the observation of *Escherichia coli* (E. coli) infection and associate changes in chicken.

Keywords: *Escherichia coli*, egg peritonitis, chicken, gross pathology

Introduction

The bacterial infections occurs worldwide and causes extensive losses to the poultry (Nhung *et al.*, 2017) [6] and leading cause of first week mortality (Karunaratna *et al.*, 2017) [4]. It is the commonest bacteriological pathogen responsible for economic consequences (Landman & van Eck, 2015) [5]. E. coli organism of family enterobacteriaceae is commonly present in the intestinal tract and spreaded through its droppings (Dho-Moulin M & Fairbrother JM, 1999) [1]. Its transmission occurs horizontally (either directly or indirectly) among breeders and its progeny. Its pathogenesis often attributed to respiratory route (Dho-Moulin M & Fairbrother, JM, 1999) [1]. At times, ascending infections via the oviduct as important routes of infection (Wideman RF, 2016) [9]. Chicks also get the infection immediately after hatching within first few days.

The other forms of colibacillosis including egg peritonitis, perihepatitis, pericarditis, synovitis and salpingitis (Dho-Moulin M & Fairbrother JM, 1999) [1]. Decades of studies have documented devastating effect of E. Coli on productivity, impaired welfare, carcass condemnation, antibiotic use and mortality (Vandemaele *et al.*, 2002) [8].

Case history and observations

In a commercial form located near to Hyderabad with around 1000 birds was reported with 5% mortality in first-week old chicks and also heavy mortality in adult birds. The birds showed symptoms like severe depression, dyspnoea, lethargy and anorexia in adults while the one week old chicks showed dullness and heavy mortality. The dead bodies were examined for any pathognomonic lesions based on history. Immediately opening the carcass of chicks, it revealed omphalitis with thick yellowish and brown colored navel and in adult birds, it indicated pericarditis, perihepatitis, air sacculitis and egg peritonitis.

Based on these observations it has been confirmed as *Coli bacillosis* and advised for better farm practices

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Fig 1: Showing egg peritonitis, perihepatitis and coli granuloma in colibacillosis.

Results and Discussion

The first week mortality as reported by earlier workers (Heier *et al.*, 2002) [3] and in adult birds, perihepatitis and egg peritonitis is observed. Post hatch mortality may elevate up to 10-20% for 2 to 3 wks. Because of septicaemia. The chicks unabsorbed yolk sacs indicate yolk sac entry of bacteria.

Prevention and control

Minimizing the bacterial infections by using immune modulatory strategies as an alternative to antibiotics helps in obtaining high performance of broiler chicken in terms of body weight, weight gain, improving egg quality and finally increasing farmers profitability. To reduce the first week mortality, bio-security measures may achieve the best results.

Summary

Based on the history, symptoms, mortality pattern and gross findings, the disease was diagnosed as *E. coli* infection and the farm owner was advised for maintaining hygienic measures, separation of sick birds, selection strategy at the time of buying new chicks, regular vaccination, balanced feed ratios for best results.

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