



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2018; 6(5): 2128-2129

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Received: 18-07-2018

Accepted: 20-08-2018

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Colibacillosis in Emu Chicks

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Abstract

Colibacillosis is an economically important bacterial infection in emu birds. A case study was conducted in the emu chicks reared under uniform management condition. Some of the emu chicks were exhibited clinical signs of anorexia, dullness, reluctant to move, respiratory distress and dyspnoea. Two emu chicks were found dead at the age of 32 and 47 days old respectively. Necropsy was conducted on dead chicks and the gross lesions were recorded. On necropsy, the emu chicks were found with air sacculitis, pericarditis, perihepatitis, congestion of proventriculus and gizzard. The exudates from lungs, peritoneal fluid and heart blood swab were collected from the affected birds and causative organism was isolated. The pure culture of *Escherichia coli* was isolated from the peritoneal fluid collected from the affected emu bird. The remaining affected birds were treated with Enrofloxacin at a dose rate of 10 mg/kg body weight through drinking water for five days and witnessed remarkable survival from colibacillosis infection.

Keywords: Colibacillosis, Emu chicks, *Dromaius novaehollandiae*, *Escherichia coli*

1. Introduction

Emu (*Dromaius novaehollandiae*) belongs to ratite group which also includes Ostrich, Cassowary, Kiwi and Rhea. The Emu farming is becoming popular due to its hardy nature, adaptability to harsh climatic conditions and its economic returns. The emus are reared commercially for their meat, oil and skin ^[1]. *Escherichia coli* is a normal inhabitant of the intestinal tracts of animals and birds and it is harmless as long as it is kept in check by other intestinal bacteria ^[2]. Colibacillosis is a bacterial infectious disease caused by *Escherichia coli*, which is considered as one of the principal causes of morbidity and mortality in birds. Colibacillosis is associated with heavy economic loss to the avian industry by its association with various disease conditions, either as a primary pathogen or as a secondary pathogen. Colibacillosis is characterized in its acute form by septicaemia resulting in death and in its sub-acute form by pericarditis, air sacculitis and perihepatitis ^[3]. The present study was contemplated to investigate the *Escherichia coli* infection in emu chicks, maintained in an organised farm.

2. Materials and Methods

2.1. Study population

Emu chicks in the age group of one to two months were maintained under standard managerial practices at TANUVAS-Regional Research Centre, Pudukkottai, Tamil Nadu. The emu chicks were fed with brooder mash containing 17.8 per cent Crude Protein and 2780 Kcal Metabolizable Energy. Feed and water were provided *ad libitum*.

2.2. Clinical investigation

Two emu chicks were exhibited clinical signs of anorexia, dullness, reluctant to move, respiratory distress and dyspnoea. These two affected emu chicks were died on subsequent days at the age of 32 and 47 days old respectively. The necropsy was conducted on dead chicks and the gross lesions were recorded. The exudates from lungs, peritoneal fluid and heart blood swab were collected from the dead birds and the samples were inoculated in MacConkey's agar.

2.3. Laboratory investigation

On cultural examination, the colonies of different types of bacteria were isolated by sub culturing in nutrient agar and cultures were preserved in nutrient agar salts containing 1.5 per cent agar. On the basis of morphology, staining, colony characteristics and biochemical

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reactions the bacteria were isolated. The morphological characteristics of the isolates were studied after staining the fresh culture smears by Gram's staining method. Morphological characteristics like shape, size, arrangement and staining reaction of the organisms were recorded according to Bonia *et al.* [4].

3. Result and Discussion

Two emu chicks aged about one to two months old were exhibited clinical signs of anorexia dullness, reluctant to move, respiratory distress and dyspnoea. This is similar with the statement of Lutful-Kabir [5]. On necropsy, the emu chicks were found with air sacculitis, pericarditis, perihepatitis, congestion of proventriculus and gizzard as depicted in Fig.1 which is in agreement with Jordan [6] who recorded colibacillosis in chicken. The pure culture of *Escherichia coli* was isolated from the peritoneal fluid collected from the affected emu bird as shown in Fig.2. This finding is similar to Tully *et al.* [7] Whose research findings revealed that emu birds were more susceptible to *Escherichia coli* gastroenteritis infection compared to other ratite species. The transmission of *Escherichia coli* might be occurred via faecal route. The poor air quality and other environmental stress factors might also predispose to *Escherichia coli* infection. Appropriate treatment with antibiotic is essential in treating the *Escherichia coli* infection in ratite species. The remaining birds were treated with Enrofloxacin @ 10 mg/kg body weight through drinking water for five days evinced remarkable recovery.



Fig 1: Emu chicks with pericarditis and perihepatitis



Fig 2: Culture plate showing *Escherichia coli*

4. Conclusion

Escherichia coli affects the emu birds of various age groups with varied clinical manifestations. Intensive system of rearing birds in overcrowding condition imposes a stress on the birds. This stress favours the normal *E.coli* population of the gut to assume a pathogenic role. Hence, it is concluded that avoid stress and overcrowding in all possible ways and maintain adequate sanitation and ventilation measures in emu farms in order to prevent Colibacillosis infection.

5. Acknowledgement

The support extended by the Director, Centre for Animal Production Studies, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) is duly acknowledged.

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