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Case Report

OCCURRENCE OF EGG IMPACTION AND PERITONITIS IN A FLOCK OF COMMERCIAL LAYING HENS IN DAMATURU NIGERIA

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SUMMARY

Some reproductive disorders in poultry which include peritonitis, salpingitis and impaction of oviduct are described as 'egg peritonitis' (Jordan, 1990). Egg peritonitis can occur as a severe flock problem and when it does it is usually associated with poor management (Jordan, 1990). Flock egg peritonitis outbreaks are often accompanied by cannibalism and vent pecking. Multiple etiologic factors have been ascribed to egg peritonitis problem. However, *Escherichia coli* is often incriminated as one of the etiologic agents of egg peritonitis (Hofstad *et al.*, 1984) colibacillosis, coligranuloma, Hjärre's disease, salphangitis, synovitis, omphilitis and air sac disease in pre- and- laying hens. Other organisms frequently involved are *Staphylococci* and *Streptococci* spp (Jordan, 1990). Egg peritonitis and related effects are responsible for major economic losses to poultry industry (Hofstad *et al.*, 1984). Economic losses resulting from mortality and egg losses were recorded in the flock under consideration. These were due to egg peritonitis, impaction and mortality in laying hens which were otherwise in good bodily condition and had full crops. The mortality was sudden with no premonitory signs except when accompanied by cannibalism and vent pecking. In this article clinico-pathological report on egg peritonitis and impaction in a flock of commercial laying hens is presented and assessment of causal factors and control measures are highlighted.

KEY WORDS: Egg peritonitis, Colisepticemia, Vent pecking, *E. coli*, Laying hens

CASE HISTORY

Shika brown chicks were obtained at one week old from a branch of ECWA hatchery at Potiskum in Yobe state, Nigeria. They were housed on deep litter and were reared under standard conditions and transferred to a final laying pen as layers. The birds were vaccinated against Infectious Bursal Disease and Newcastle Disease at the ages of 2 and 4 weeks respectively and thereafter, did not receive boosters. Sporadic mortality was noticed during early laying period (between 20-30 weeks) and reported for veterinary investigation at the State Veterinary Clinic, Damaturu, Nigeria. Twenty five carcasses submitted for postmortem showed typical egg peritonitis, impaction and lesions of colisepticaemia. Treatment of colibacillosis in the remaining live birds was successfully achieved with Oxytetracycline and Vitalyte[R] (multivitamin preparation).

Necropsy

Dead birds were opened and examined, lesions of colisepticemia were observed. Samples were collected for bacterial culture.

Bacteriological Examination

Heart, liver samples and milky some fluid aspirated from peritoneal cavity were inoculated in blood and MacConkey Agar and incubated at 37°c for 24 hours, fine growth of pure colonies which appeared pink on MacConkey Agar, revealed gram negative bacilli after culture smearing and staining. Colonies were sub cultured on Eosin Methylene Blue for further Identification.

DISCUSSION

Clinical and Pathological findings

Clinical signs observed were mainly the presence of distended abdomen with a palpable fully formed egg, scooting stance and blood-stained eggs were laid. The gross pathological lesions include presence of yolk debris, insipated yolk, caseous material in abdominal cavity, milky fluid in peritoneal cavity due to ruptured preformed eggs, enlargement of ovaries as well as impacted preformed and formed eggs in the oviducts and or cloaca. Peritonitis as well as trauma and bruises on the cloaca with persisting haemorrhage, swollen cloaca and enlargement of oviduct were observed at necropsy. Majority of birds necropsied had full crops and were in good bodily condition.

In this case report, trauma and bruises on the cloak (vents) of both live and dead birds were observed. Injuries on the vent could lead to inflammatory condition which will hinder egg laying, as such; impaction and rupture of eggs could lead to peritonitis and death of chickens. The injuries to the vents are largely due to cannibalism which is as a result of over crowding. Correct stock density is imperative to reduce the incidence of cannibalism as explained by Abraham and Tauson (1998) and North (1984). Indeed, Damme (1994) showed that cannibalism could be effectively controlled through appropriate beak trimming.

Bacterial Culture

The liver and heart blood cultures yielded pure *Escherichia coli*. The growth on Eosin Methylene Blue had greenish metallic sheen with purple centres. Cultures of heart blood after Oxytetracycline therapy for five days did not yield any bacterial growth. *Escherichia coli* is one of the major agents influencing heavier losses and drop in egg production. Zanella *et al.,* (2000) reported 5-10% mortality due to E. coli infections with no pronounced signs, suggesting that the infection could not be easily detected until regular tests are performed for its identification. *E. coli* will not only result in reduced egg production and mortality, it could be a predisposing factor for other complications like egg peritonitis as observed in this outbreak. Thus, it is important to control *E. coli* infections in chicken, thereby preventing losses due to this disease and other associated conditions.

In this case sudden deaths of layers with no premonitory signs were observed. However, egg impaction and peritonitis were observed at necropsy and colisepticemia was also confirmed by isolation of *Escherichia coli* from the cultured materials collected during post mortem. In this case report, colisepticemia was successfully controlled by antibiotics and multivitamin therapy, mortality of chicken declined and ceased after antibacterial therapy. An unusual increase in mortality of birds in early lay has been reported (Craig and Muir, 1993).

In conclusion, the relationship between causal factors such as cannibalism, overcrowding and ascending or descending *E. coli* infection have been established as a cause of egg peritonitis in commercial layer hens during the early lay period. We suggest prompt investigation and strict application of chemotherapy and good management would drastically reduce the incidences of egg impaction, peritonitis and colisepticemia in commercial laying hens.

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