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An Outbreak of Caecal Coccidiosis in a Broiler Flock Post Newcastle Disease Vaccination

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Abstract: This study reports a natural outbreak of acute coccidiosis in a broiler flock of 250 birds, in the hot and humid region of Nigeria. The birds which had, on day 10 received infectious bursal disease vaccine started dying a day after the administration of Newcastle disease vaccine. The clinical signs, postmortem findings and response to treatment were used to confirm coccidiosis. The rapid onset of the clinical disease and the high modality rate (33% over a period of 4 days) was considered to have been induced by the Newcastle disease vaccine administration. A diagnosis of sub-clinical coccidosis and institution of prophylactic anticcocidial therapy before Newcastle disease vaccination would have obviated the clinical disease.

Key words: Coccidiosis, modality, vaccine, diagnosis, prophylactic, newcastile

INTRODUCTION

Avian coccidial infection is endemic in most of the tropical and subtropical regions where ecological and management conditions favour an all-year round development and propagation of the causal agent: *Eimeria* sp. Coccidiosis in the domestic chicken is an enteric disease. The destruction of the epithelial lining of the intestine is often accompanied by some degree of inflammation, resulting in local pathological changes[1], dehydration and diarrhea[2].

There are 8 species of *Eimeria* known to occur in the chicken: *E. tenella*, *E. mitis*, *E. acervulina*, *E. maxima*, *E. nicatrix*, *E. praecox* and *E. brunette*[3]. *E. tenella* is the cause of caecal coccidiosis[3,4] characterized by the accumulation of blood in the caeca, and bloody droppings[5,6]. The initial signs of infection are huddling and anorexia[7]. Blood loss and the associated intestinal membrane damage, dehydration, diarrhea and maldigestion are the major causes of death[8,9].

The clinical manifestation of coccidiosis is known to depend on several factors among which are those of the invading parasites, the host and the environment[5,9]. This study reports an increased mortality to caecal coccidial infection precipitated by the administration of Newcastle disease vaccine (LaSota) (NDV (L)) in a flock of broiler birds.

History of the outbreak: The outbreak occurred at the Faculty of Agriculture Farm, University of Uyo. Two hundred and fifty day-old broiler birds (Anak breed) were procured from a local distributor and brooded conventionally.

Gumboro vaccine was administered on the 10th Day, and live New castle disease vaccine (Lasota) (NDV, (L)) on Day 23. Only two birds had died (Day 2) before the administration of NDV (L). A day after the administration of NDV (L), 4 birds died (Day 24) and 72 birds by Day 25, while 5 and 1 died by Days 26 and 27 respectively. The outbreak was reported at the peak of mortality (Day 24), at which point the history and signs were documented and post mortem examination carried out. The only anti coccidial medication given the birds before the outbreak was a one-day dose of Embacycline Hcl (Embazine Forte® May and Baker PLC, Nigeria), which was administered three days before the LaSota vaccine (Day 20).

The true picture of morbidity could not be ascertained because veterinary attention was called for after many of the sick birds had died (Day 24; 72 dead) and about 3 h after the institution of treatment. Majority of the surviving birds were, however, seen huddling along the sides of the pen, diarrheic (bloody) and anorectic. All the dead birds were in very good body condition. Post mortem examination revealed caeca heavily distended with blood, and without affection of the small intestines and with numerous necrotic patches in the caecal wall Fig. 1a. The dissected caecum was inflamed and had pronounced caecal chores Fig. 1b.

The diagnosis of caecal coccidiosis in this clinical entity was purely based on the clinical signs and the post mortem lesions which were, to a large extent, pathognomonic[3]. The management status of the flock appeared sound up till the time of the

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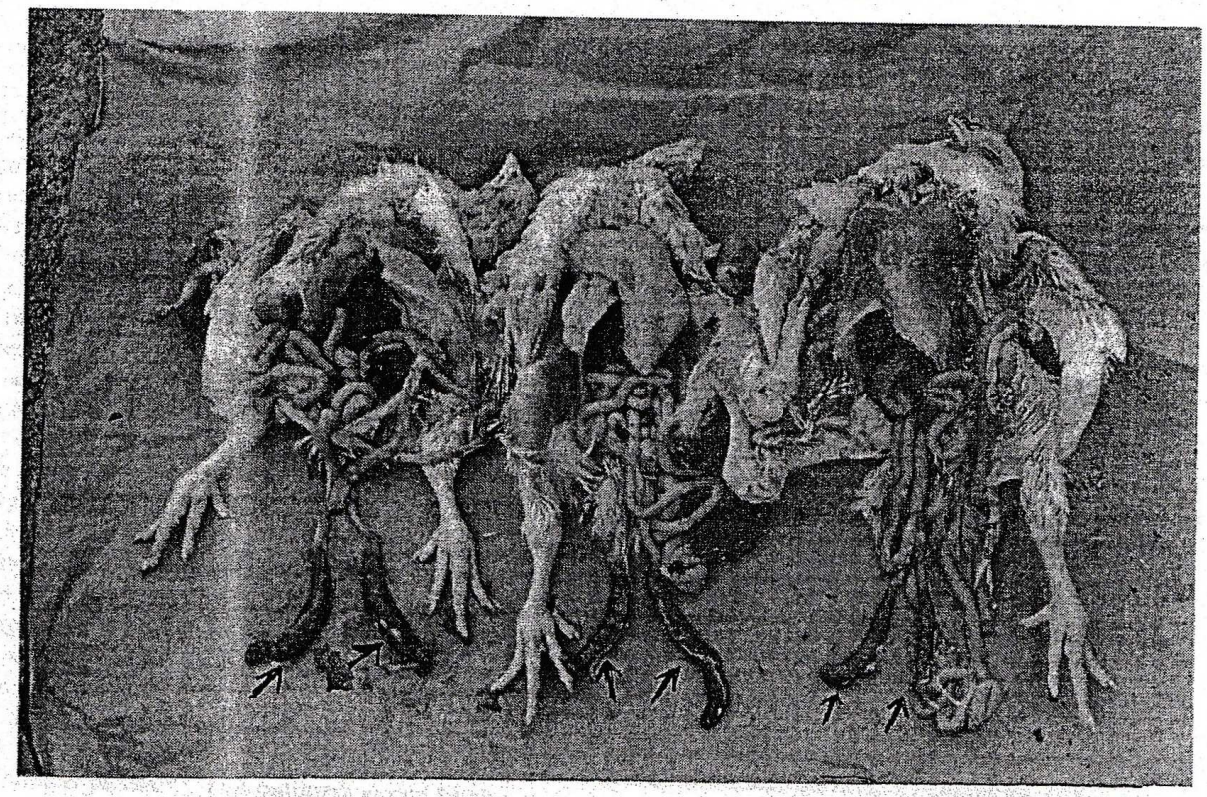

Fig. 1a: *Caeca* Distended with blood

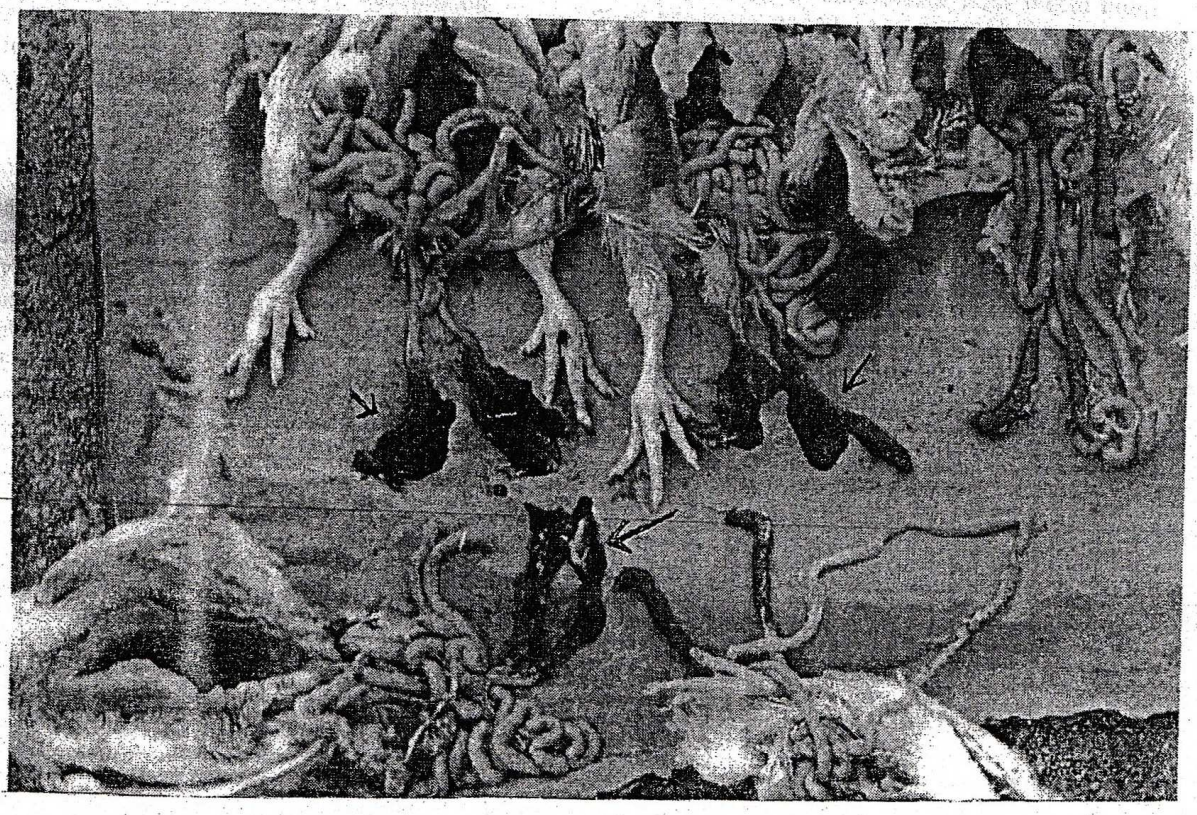

Fig. 1b: *Caeca* lacerated to reveal *Caecal chores*

crises (Day 25). There had been only 2 mortalities which occurred on Day 2. The cause of mortality was not ascertained. There was no incident associated with the administration of Gumboro vaccine (Day 10). Gordon[10] reported that *E. tenella* has a prepatent period of 123 h. It was likely that the birds had not been infected at the time, or the infecting dose may have been negligible. A mortality rate of 1.6 and 29% were recorded on Days 1 and 2 respectively post NDV (L) administration. The total mortality rate due to the outbreak was 33 % over a period of 4 days. Incidentally, the stock manager reported that the birds appeared healthy on the day of NDV (L) administration. The acute onset of the clinical disease and mortality rate may have been precipitated by the stress of vaccination. Incubatory and latent disease conditions are known to be quickened by vaccination[5]. Vaccination is indicated only in healthy flocks. The administration of live NDV (L), a lentogenic strain, may be accountable for the acuteness and severity of the syndrome. New castle disease virus and infectious bronchitis virus have been noted to aggravate the symptoms of coccidiosis[11,12]. Stress-inducing factors are known to alter the clinical manifestation of coccidiosis[5,9,13].

Prompt treatment with anticoccidial of proven efficacy and record fast action may have reasonably mitigated the clinical picture[14]. This outbreak would likely not have occurred had sub clinical coccidiosis (coccidiasis) been diagnosed and vaccination rescheduled. Anticoccidial prophylaxis was also not instituted earlier in spite of the consistent record of coccidiosis cases in all previous productions[14].

CONCLUSION

Coccidiosis has remained the most important poultry disease in Nigeria. Although there is dearth of accurate data to quantify the economic impact, records of losses due to the disease (clinical and sub clinical) and the cost of applied control measures appear appreciable and reprehensible. Prompt diagnosis of the condition and recourse to non-drug based control measures, may, in the long run, prove very rewarding.

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