ter. Direct approximation of the wound lips occurs with a minimum amount of tissue adhesive as well as a minimum of complication in 90 % of the cases.

BOLBOL (A.E.), AL-GASNAWY (Y.A.). Clinical use of tissue adhesives in the closure of udder wounds in lactating ewes and goats. *Revue Élev. Méd. vét. Pays trop.*, 1991, **44** (4) : 409-411
Twenty-seven udder wounds in lactating goats and ewes were treated and closed with synthetic tissue adhesive. Twenty-four healed by primary intention (89 %), two wounds were partially healed by primary intention and partially by second intention and a wound failed to heal and developed milk fistula. In general, non suture closure of skin wounds using tissue adhesive proved to be satisfactory and highly efficient in small ruminants. *Keys words* : Ewe - Goat - Tissue adhesive - Udder - Wound - Saudi Arabia.

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First report of an infectious bursal disease outbreak in a vaccinated chicken flock in Anambra State, Nigeria

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ONUNKWO (O.), OKOYE (J.O.A.). Première relation d'un foyer de bursite infectieuse (maladie de Gumboro) dans l'État d'Anambra au Nigeria. *Revue Élev. Méd. vét. Pays trop.*, 1991, **44** (4) : 411-414
La maladie de Gumboro est apparue dans un élevage de poulets déja vaccinés et âgés de sept semaines. Les signes cliniques et les modifications décelées post-mortem ont été classiques, tout comme la pathologie de la bourse à l'examen microscopique. Des broyats homogénéisés de bourse provenant d'animaux morts, ont réagi positivement à l'antigène viral en cause avec le test d'immunodiffusion en gélose (IDG). Des sérums de convalescents obtenus 14 jours après l'apparition des signes cliniques ont également donné une réaction positive au test IDG. Des animaux sensibles, âgés de sept semaines, infectés par voie intramusculaire avec 0,1 ml d'une préparation de bourse provenant du même foyer, ont développé, dès le 3e jour, les signes cliniques de la maladie et sont morts au sixième jour. La réaction du contenu de la bourse était également positive à l'antigène viral en milieu IDG. Ceci constitue la première observation d'un foyer reconnu de maladie de Gumboro au Sud-Nigeria, consécutif à l'injection d'un vaccin produit localement. *Mots clés* : Volaille - Poulet - Maladie de Gumboro - Vaccin - Virus sérotype 1 -Nigeria.

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Introduction

Infectious bursal disease (IBD) has been reported in Nigeria in chickens as young as 9 days and as old as 20 weeks (5, 6). For protective inoculation, both imported and locally produced live vaccines are available.

Field outbreaks of IBD in vaccinated flocks cause considerable concern and panic in the poultry industry especially in developing economies where the cost of inputs is high. IBD outbreak in chickens has been reported in Northern Nigeria following inoculation with imported and locally produced vaccines (1, 4), but in the Southern part of the country, such confirmed cases had never been previously recorded. This paper reports the first outbreak of IBD in Southern Nigeria in a flock of chickens 35 days after inoculation with a locally produced vaccine.

Materials and Methods

Flock history

The affected birds were 7-week-old hybrid layer chicks hatched locally and reared commercially on deep litter. They were vaccinated against Newcastle's disease when day-old and against IBD at 12 days of age.

Clinical signs

On the 35th day of inoculation against IBD, about 90-95 % of the birds became depressed, lost interest in feed and water and developed a shaggy puffed-up plumage and yellowish watery faeces. Prostraton was generally followed by death and mortality was 15.7 %.

Post mortem and histological changes

A large majority of the dead birds were examined for gross lesions and the Fabricius bursa was processed for histopathology.

Bacteriology and parasitology

Heart blood and bursal preparations were cultured on blood agar and portions of the intestine examined for helminth ova and protozoa.

Virus isolation

Bursae of 15 dead birds were prapared in phosphate buffered saline and tested for IBD virus antigen by agar gel diffusion test. A known positive IBD antigen and antiserum were incorporated into the tests.

Serology

Twenty-five convalescent serum samples, taken from survivers 14 days after the onset of the clinical signs, were inactivated at 56 °C for 30 min and examined for IBD virus antibody in AGDT.

Disease reproduction test

Bursae of dead birds, prepared in an antibiotic solution, were inoculated intramuscularly with 0.1 ml per bird, into the thigh of fifteen 7-week-old susceptible chicks. One group of five birds used as controls was similarly injected with the diluent alone and another group with a known IBD challenge virus.

Results

Post mortem changes

Haemorhage was common in the pectoral and femoral muscles and in the proventriculus. The bursa was oedematous, its mucosa was haemorrhagic and the serosa covered with a thin slimy dirty-yellow false membrane. Spleens were slightly swollen and the kidneys moderately enlarged with urate deposits.

Histopathology

There were oedema, hyperplasia and folding of the mucosal epithelium and fibroplasia in the interfollicular spaces. Glandular follicles were clearly evident (photo 1). There were also necrosis, lymphocytic depletion and pyknosis as well as hyperplasia of the reticular cells within the follicles (photo 2).

Bacteriology and parasitology

There were no significant findings.

Virus isolation

All the bursal homogenates tested for serotype 1 IBD virus antigen in AGDT showed precipitation lines within 30 h. The lines persisted for 72 h at room temperature.

Serology

The convalescent serum samples examined for IBD virus antibody also gave positive precipitation lines within 30 h.

Disease reproduction test

All the 15 exposed chicks fell sick on the 3rd day with symptoms clinically similar to those seen in the field outbreak. All the birds were dead by the 6th day after the onset of clinical signs. The gross lesions were almost the same as in the field outbreak, and bursal preparations from dead birds showed clear precipitin lines on agar gel within 24 h.

The birds injected with known IBD challenge virus showed typical signs on the 4th day and were all dead by the 7th day. The control group inoculated with the diluent alone remained normal.

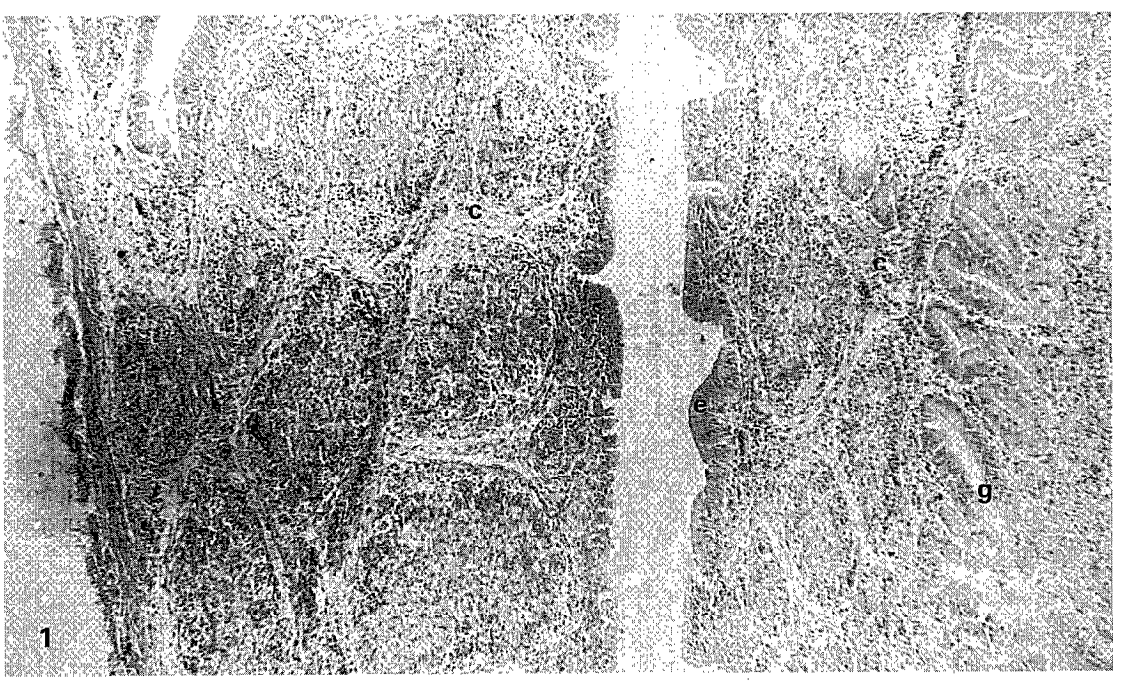

Photo 1 : Bursa of chicken that died of IBD showing hyperplasia and folding of the mucosal epithelium (e), oedema and fibroplasia in the interfollicular spaces (c), glandular follicles (g). (H & E x 100.)

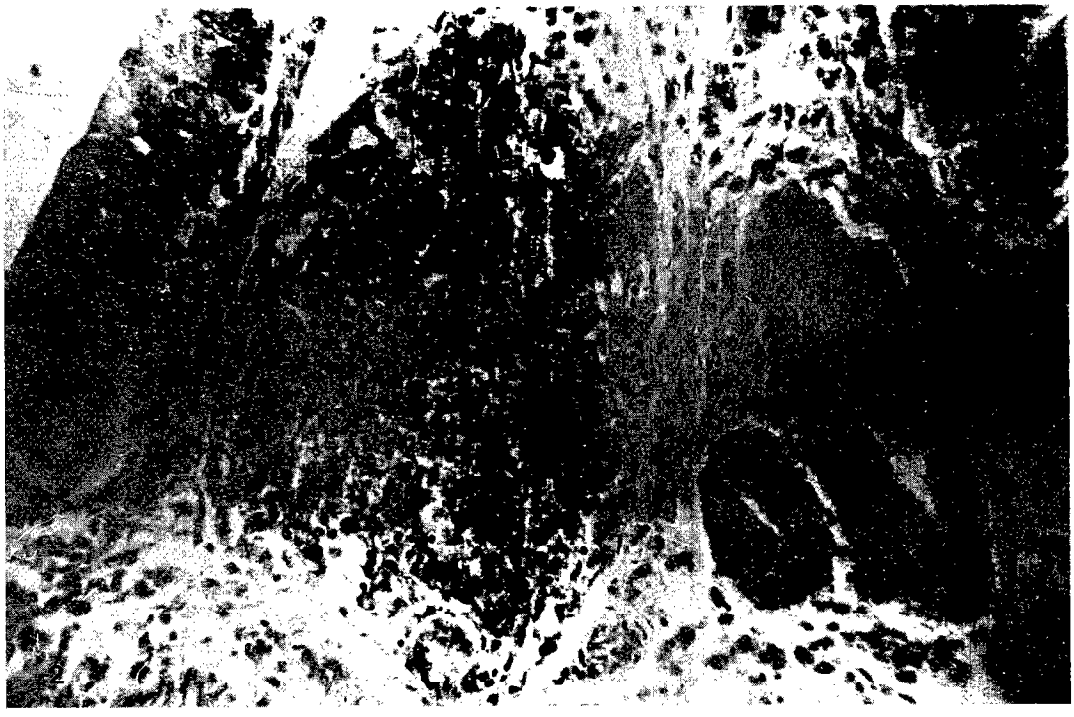

Photo 2 : Higher magnification of a section of the bursa in photo 1 showing lymphocyte depletion, necrosis and hyperplasia of reticular cells in the follicle (f). (H & E x 400.)

Discussion

The age at infection, clinical signs, morbidity and mortality pattern and necropsy lesions were characteristic of IBDV infection. Results of the laboratory tests provided confirmatory diagnosis.

The chicks involved in the outbreak received IBD vaccine at a time when maternal antibody is expected to be high. Although immune suppression by maternal antibody is a recognised phenomenon, it was considered unimportant in this outbreak since the chicks affected were all derived from dams which had never been previously exposed to IBD vaccination or to field infection.

In the USA, significant antigenic differences were noted among serotype 1 IBD virus strains, within which six subtypes were further identified (2). In the UK, some local IBD field isolates were found antigenically unrelated to a vaccine strain of serotype 1 IBD virus (3). These findings suggest that immune response following IBD vaccination is largely a function of the degree of antigenic relatedness between the local field virus and the vaccine strain. Furthermore, the inoculation at one day of age with the Newcastle disease vaccine could induce an immunodepressive effect resulting in a poor response to IBD vaccination.

Conclusion

Outbreaks of infectious bursal disease among vaccinated chickens in Nigeria may be difficult to eliminate, due largely to inadequate knowledge of some properties of the local disease agent. To achieve effective control by vaccination, more research is needed on the epidemiology or prevalence of IBD virus serotypes in Nigeria and on the antigenic characteristics of field and vaccine virus strains. Also, studies are required to investigate the possibility that day-old vaccination against Newcastle disease could predispose birds to unfavourable response to IBD inoculation.

Further trials seem to be necessary to assess the response of chicks to challenge with locally identified wild strains of IBD virus following inoculation with the vaccines presently available in Nigeria. The results of these investigations will contribute to the formulation of guidelines and standards on local vaccine development, importation and use.

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ONUNKWO (O.), OKOYE (J.O.A.). First report of an infectious bursal disease outbreak in a vaccinated chicken flock in Anambra State, Nigeria. *Revue Élev. Méd. vét. Pays trop.*, 1991, **44** (4) : 411-414

Infectious bursal disease was reported in a flock of 7-week old vaccinated chickens. Clinical findings and post-mortem changes were classical as well as the microscopic pathology of the bursa. Bursal homogenates from dead birds were positive for IBD virus antigen in agar gel diffusion test (AGDT). Convalescent sera obtained from birds 14 days following the onset of clinical signs were also positive for IBD virus antibody in AGDT. Seven-week old susceptible birds, each infected i/m with 0.1 ml of a bursal preparation from the outbreak, showed clinical signs of IBD on the 3rd day and were all dead by the 6th day. Their bursae were also positive for IBD virus antigen in AGDT. This is the firt recorded outbreak of IBD in Southern Nigeria following inoculation with a locally produced vaccine. *Key words* : Fowl - Chick - Infectious bursal disease - Serotype 1 virus - Nigeria.

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