SEROLOGICAL EVIDENCE OF INFECTIOUS BURSAL DISEASE VIRUS INFECTION IN GREY BREASTED HELMET GUINEA FOWLS (Numida meleagris galeata Pallas) IN AN ARID ZONE OF NIGERIA.

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ABSTRACT
A survey of guineafowl sera from Maiduguri area of Borno State for antibody to infectious bursal disease (IBD) virus was carried out between the months of January to April, 1991. agar gel diffusion precipitation test (AGDT) was the serological method employed for the investigation. Out of the total of 196 sera tested, only 16 were found to contain precipitating antibody to IBD. This represents 9.1% infection rate.

INTRODUCTION
Viral diseases have been suggested as a significant limiting factor in the production of guineafowls in Nigeria (Durojaiye and Adene, 1988). In an attempt to overcome this obstacle, preliminary investigations have either been carried out or suggested on a number of viral infections of chickens which may possibly be of great economic importance in this species (Nawathe et al., 1978; Durojaiye and Adene, 1988). One of such viral infections is infectious bursal disease (IBD).

Infectious bursal disease is a viral infection of young chickens characterised by trembling, ruffled feathers, high morbidity, diarrhoea, low productivity, varying degree of mortality and increased susceptibility to a number of other diseases such as Newcastle disease, Escherichia coli infection, infectious bronchitis and mycoplasma infections (Allan et al., 1982; Okoye, 1984; Russel and Edington, 1985). The disease has a short incubation period of about 2 days, during this period, the affected birds often have high temperature but drop to below normal just prior to death (Okoye, 1984). Since the first report of the disease from Gumbo district of Delaware, in the United State of America (Cosgrove, 1962), its been reported in chickens from other parts of the world including Nigeria (Ojo et al., 1973; Onunkwo, 1975 and Okoye, 1984).

However, the disease is yet to be reported in guineafowls, (Nawathe et al., 1978; Durojaiye and Adene, 1988). This paper presents the finding of serological investigation of guineafowl sera for antibody to IBD virus in Maiduguri area of Borno state, Nigeria.

MATERIALS AND METHODS
Serum samples
A total of one hundred and seventy six serum samples were collected from apparently healthy adult guineafowls kept on free range in Maiduguri area of Borno state. The samples were collected between the months of January and April, 1991 and analysed for presence of precipitating antibody to IBD virus.

IBD virus antigen
The IBD virus antigen was prepared as described earlier by Nawathe et al., (1978). Twelve bursae were collected form chickens naturally infected with IBD virus. These were pooled, ground with sterile sand using pestle and mortar. Few drops of normal saline containing penicillin and streptomycin sulphate was added to make a 10% suspension of the sample. This was used as the antigen.

Serological procedure:
Preparation of agar gel
The agar used for the agar-gel diffusion precipitation test (AGDT) was prepared following the standard procedure described by Davies (1984). Briefly, it involved the mixing of the fol-
lowing chemicals: 1g of sodium chloride, 1g of agarose and 0.5ml of methiolate all in 100ml of distilled water. The mixture was then autoclaved at 121 lbs for 15 minutes. The molten agar was divided into 15ml and each dispensed into a petri dish, allowed to solidity by keeping the dish on a flat surface. The dishes were then stored in the refrigerator (4°C till required).

Agar gel diffusion precipitation test (AGDT)
Agar gel precipitation test was the test method employed for the screening of the sera for antibody against IBD virus. The standard procedure for the test as described by Board (1980) was used. This involved the following steps, the cutting of cylindrical wells in the agar, using a template. The plug was aspirated with a pasteur pipette and the bottom of the wells sealed with few drops of molten agar to prevent the mixing of the reagents under the wells rather than diffusing through it. The plates were inoculated by placing the antigen in the central well while the peripheral wells were filled with the test sera together with positive and negative controls. The inoculated plates were then incubated in a moist chamber at 37°C read after every 3 hours before the final result of the test was read after 72 hours of incubation.

RESULTS

Out of the 176 serum samples examined for the presence of antibody against IBD virus, 16 were found to be positive. This number represents 9.09% infection rate.

DISCUSSION

This study has demonstrated that unvaccinated guinea fowls within Maiduguri area were exposed to IBD virus, even though only a prevalence rate of 9.09% was observed. Nevertheless, the finding is in agreement with the report of Adewuyi et al., (1989) where up to 44.3% of the birds tested were found to contain IBD precipitating antibodies. The detection of IBD precipitating antibodies in guinea fowls in this investigation however, contradicts those reported by some earlier workers from some parts of the country namely Nsukka (Okoye, 1988), Vom and Jos areas (Nawathe et al., 1978). This may be attributed to the sample size analysed by the various workers. The prevalence rate of IBD virus infection recorded in the present investigation could be higher if the study is repeated during the rainy season. The seasonal variation in the prevalent rate of IBD virus infection has been documented earlier in chickens by Abdul et al., (1985) where they reported the highest prevalence rate during the rainy season.

In view of the fact that vaccination against IBD is not routinely carried out in this species of poultry, it is therefore assumed that infection resulted from field exposure. The source of the virus could be infected chickens as both chickens and guinea fowls are sometimes reared together under free range system and also in some semi-intensive farms (Abdul et al., 1985).

It is possible that guinea fowls are affected by a variant of the IBD virus. The role of this species in the epidemiology of IBD is yet to be determined.

REFERENCES


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