

Case Report

HIGHLY PATHOGENIC AVIAN INFLUENZA IN WATER FOWLS IN ZARIA, NIGERIA

WAKAWA^{1*}, A.M., SA'IDU², L., KAZEEM³, H.M., FATIHU³, M.Y., ADAMU³, J., MAMMAN³, P.H., ABDU², P.A., BELLO⁴, M. and KWANASHIE⁵, C.N.

¹Department of Veterinary Surgery and Medicine, ²Veterinary Teaching Hospital.

³Department of Veterinary Pathology and Microbiology, ⁴Department of Veterinary Public Health and Preventive Medicine, Ahmadu Bello University, Zaria, Nigeria

*Corresponding author: E-mail; drsaniwakawa@yahoo.com, Tel: +234 803 704 4713

INTRODUCTION

Highly pathogenic avian influenza (HPAI) is a viral disease that affects almost all species of birds and all ages are susceptible, but it is more serious in young birds (Alexander, 2000). The disease affects digestive, nervous, respiratory and reproductive systems of birds leading to nervous and respiratory signs. If the reproductive system is involved, there is drop in egg production to complete cessation of egg production (Alexander, 2000). In some cases, the eggs are white, shellness, misshapen and smaller in size. In Nigeria, the disease was first reported in January, 2006 and subsequently confirmed in February, 2006 (Adene *et al.*, 2006; Kumbish *et al.*, 2006a). Domestic birds and other water birds may be infected without showing clinical signs and may serve as reservoirs of the disease for domestic chickens (Trevor *et al.*, 2004). However, in Nigeria, during the 2006 HPAI outbreaks, the ducks and geese were found to be more susceptible to the disease and die acutely resulting to near absence of clinical signs and gross lesions (Kumbish *et al.*, 2006b). Geese and mallard ducks production is becoming highly fashionable among Nigerians. Some poultry farmers also keep geese and mallard ducks on their farms. This report presents some clinical and postmortem lesions of HPAI in a backyard flock of water fowls. This case further exemplified the danger of introducing new birds into an already existing flock and the significance of geese and other water fowls in the epidemiology of HPAI.

KEY WORDS: Avian influenza, Water fowls, Clinical signs, Epidemiology, Zaria, Nigeria

CASE HISTORY

On the 27th of April, 2007, a flock of Anseriformes comprising two Muscovy ducks, 2 mallard ducks and 12 geese were reported to be dying in a backyard flock. All the different species were housed in the same pen and maintained on corn bran and kitchen leftovers. The disease onset was first noticed on the 25th of April, 2007, after the Muscovy ducks were introduced from a live bird market in Samaru, Zaria, Nigeria into the flock. A total of 8 birds had died by the day the case was presented to the Avian Clinic of Veterinary Teaching Hospital, Ahmadu Bello University,

Zaria, Nigeria. The newly introduced Muscovy ducks and one goose died on the 25th of April, 2007. On the 26th of April, 2007, two geese died, and on the 27th of April, 2007, 3 geese died. While

all the mallard ducks remained apparently healthy (Plate 1).

Clinical Signs

The clinical signs exhibited by the birds were; depression (Plate 1), haemorrhages on the shanks and webs, (Plate 2) torticollis, ataxia (Plate 3), excitation, cyclic movement, opisthotonus, tremor, paddling, prostration, greenish-yellow diarrhea, dullness and inappetance.

Postmortem Lesions

Postmortem examination was conducted on 2 dead geese and the lesions observed were: congested skeletal muscles, haemorrhages on the shanks (Plate 3) and muscles, haemorrhages in the intestines, congestion of the liver, spleen, myocardium, kidneys and lungs, and thickened proventricular mucosa.



PLATE 1: Depression showed by a goose (right). Note the Mallard ducks in the background (arrows)

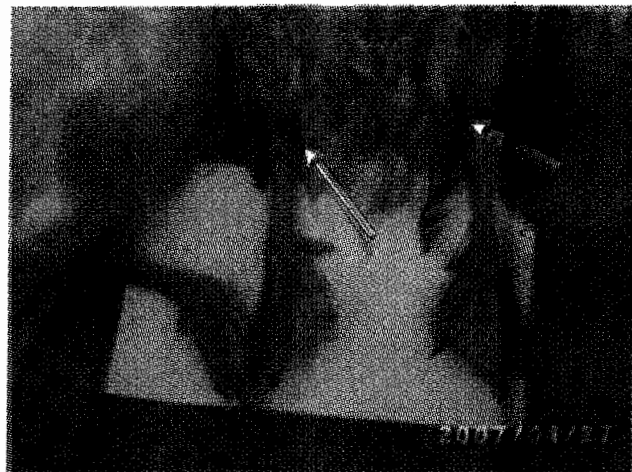


PLATE 2: Haemorrhages on the shanks and webs of the geese (arrows)



PLATE 3: Torticollis and ataxia exhibited by a sick goose

Diagnosis

A tentative diagnosis of HPAI based on the observed clinical signs and postmortem lesions was made. Newcastle disease was excluded because water birds and especially geese are considered to be refractory to the virus (Alexander, 1997). While confirmatory diagnosis by rapid antigen detection test (immunochromatographic assay) conducted on the cloacal swab using AI type A antigen test kit (manufactured by Symbiotic Corporation, San Diego, USA) yielded positive result. All the samples tested positive for AI type A antigen. Furthermore, a paired sample of the liver, spleen, kidneys and intestines were submitted to the National Veterinary Research Institute

(NVRI), Vom, for RT-PCR and viral isolation. The result indicated a highly pathogenic avian

influenza (HPAI) H5N1 subtype.

Management/Advice

The case was reported to the Zonal Veterinary Officer, who liaised with the Federal Department of Livestock and Pest Control Services (FDL&PCS) office, for statutory management and all the remaining birds were immediately depopulated on the 27th of April, 2007. The premises of the poultry house were disinfected with Morigad® (Dichloroxylenol + Chlorophenol) (Manufactured by Morris Industries Ltd, Lagos) on the same day the birds were depopulated. The Client was advised to avoid introduction of new birds into his flock in the future.

DISCUSSION

The HPAI subtype H5N1 has devastated the poultry industry in the last 2 years of the outbreak. The present documented case has further implicated the involvement and circulation of the virus among different species of water fowls. The introduction of two Muscovy ducks into an already existing flock of geese and mallard ducks from an open live bird market implied possible causal relationship to the outbreak. The clinical signs and high mortality rate observed in the water fowls during the outbreak showed that these species respond differently to the HPAI H5N1 subtype. The absence of clinical signs in the mallard ducks despite the close contact with the muscovy ducks and the geese further demonstrated the high resistant nature of these birds in the phase of the outbreak, and may play an important role in the epidemiology and possibly the maintenance of the virus in nature (Morris and Jackson, 2005). Perhaps there is an urgent need to study the roles of mallard ducks as reservoirs of the HPAI H5N1 subtype.

It is worthy to note that the outbreak occurred in the hot month of April which was a departure from the earlier outbreaks recorded during cooler months of January and February, in Nigeria (Adene *et al.*, 2006; Kumbish *et al.*, 2006a). The importance of this outbreak in April which falls outside the cold windy harmattan period suggest that the disease may be becoming endemic in Zaria. The Mallard ducks that were infected but did not show clinical signs may serve as reservoirs of the virus and might play significant roles in the transmission of the virus to other susceptible species. Nigeria as a country may have to revisit the strategy for HPAI H5N1 control if more towns/states report similar trends of outbreak of the disease in different months of the year.

In view of the potential roles of geese and other waterfowls in the epidemiology of HPAI, individuals and farmers interested in keeping geese and other species of ducks should be vigilant and consult with the nearest Veterinarian.

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