Short Communication

*Bordetella avium* Infection in Chickens and Quail in Nigeria: Preliminary Investigations


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INTRODUCTION

*Bordetella avium* is the aetiological agent of avian bordetellosis, a highly contagious upper respiratory disease of young poultry. The syndrome was first reported in 1967 in Canada and has since been reported from the United States, Israel and most European countries (Blackall and Doheny, 1987). Its prevalence among domesticated turkeys is well known (Lister and Alexander, 1986; Raffel *et al.*, 2002), but information on the prevalence of this bacterium in other farmed birds is limited. *B. avium* may occur as an opportunistic pathogen in farm birds other than turkeys (Jackwood *et al.*, 1995). Economically, the disease is usually characterized by high morbidity and low mortality. Mortality rates are influenced by the presence of intercurrent viral or bacterial infections and poor management. Infection can be transmitted horizontally via aerosol droplets. There are also reports of infection being associated with contaminated drinking water. The bacterium is often resistant *in vivo* to regular antibiotics. Autogenous inactivated and live temperature-sensitive mutant vaccines have been tested with limited success (Swayne *et al.*, 1998). This communication describes an outbreak of avian bordetellosis in chicken and quail flocks that was characterized by high morbidity and case-fatality rates.

CASE REPORT

In April 2003, an outbreak of upper respiratory disease occurred in a poultry research and production farm in Vom, north central Nigeria. At the time of the outbreak, the farm was housing a flock of 240 chickens (Yaffe breed) and a flock of 1800 quail (*Coturnix coturnix japonica*).
The affected chicken flock was reared on deep litter from day old to 16 weeks, after which they were transferred to battery cages where they were kept in pairs. The first clinical signs of upper respiratory disease were observed in 14-week-old chickens. The clinical signs included sneezing, clear oculo-nasal discharge that was mostly unilateral, and submandibular oedema. As the case progressed (chronic), the discharges became purulent resulting in unilateral blindness (Figure 1) and emaciation. Previous disease history indicated that the flock had a mild Newcastle disease virus infection at 8 weeks. The total morbidity during the reported 20-day period was 61.3%; the case-fatality rate was 9.5%.

![Figure 1. A 14-week-old chicken with unilateral ocular lesion](image)

The affected quail flock was reared on deep litter and presented a similar clinical picture as those of the chickens, with the outbreak affecting 9-week-old quails (Figure 2). The disease resulted in poor feed and water consumption as well as a general poor performance in egg production. Most of the dead birds were those with ocular lesions, loss of weight and emaciation. During the first 14 days of the outbreak, the morbidity and case-fatality rates in the affected quail flock were 3.5% and 1.2%, respectively.

Clinical symptoms observed in both diseased flocks included sinusitis, mucoid exudates and, in severe cases, tracheal collapse. Antibiotic susceptibility of the *B. avium* isolate was assessed by the modified Kirby–Bauer disc diffusion technique as approved by the National Committee for Clinical Laboratory Standards (2001). On the basis of the *in vitro* antibiotic sensitivity results, the affected birds were medicated in drinking water (100 mg gentamicin sulphate and 50 mg doxycycline mixture,