

Original Research Article

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Rare Outbreak of Fowl Cholera in Waterfowls in Dal Lake Area of Kashmir, with Isolation, Antibiogram and Successful Treatment - A Report

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ABSTRACT

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This article summarizes the rare outbreak of Fowl Cholera in waterfowls (geese) in an area around the Dal Lake of Kashmir in winter month. There were reports of sudden deaths in waterfowls and utmost importance was to detect the causative agent to prevent further mortality. Avian cholera, highly contagious disease of poultry was diagnosed based on history and clinical examination. *Pasteurella* was isolated and affected birds were successfully treated with antibiotics based of *in-vitro* anti-microbial sensitivity test.

Introduction

Fowl cholera, also called as avian cholera or avian pasteurellosis, is a contagious and economically important disease of poultry particularly chicken, turkeys, ducks and geese (Rimler and Glisson, 1997). It is caused by *Pasteurella multocida*, a small gram-negative bacteria, which inhabits the upper respiratory tract of the many avian species as commensal (Rimler and Glisson, 1997). It has been seen that outbreaks occur in cold and wet weather and in wild birds this disease is most commonly associated with wetlands that act as reservoirs of the bacterium. The disease presents in two very different forms: acute and chronic. The disease in acute form is characterized by sudden onset with high

morbidity and mortality. Infected birds may die within 8–12 hours after contracting the bacterium (Christiansen *et al.*, 1992).

Most common signs found in protracted cases are depression, anorexia, discharged from the mouth, diarrhea, and pneumonia. In chronic cases, signs and lesions are generally related to localized infections of the wattles, joints, tendon sheaths and foot pads. The present paper reports the typical outbreak of avian pasteurellosis in waterfowls from Dal Lake area and the successful treatment after isolation and antibiotic sensitivity against the *P. multocida*.

History and Clinical examination

There were reports of dead birds (waterfowl/geese) and more than 7 birds were found dead in a period of two days. The cases were reported from in and around the Nigeen area of Dal Lake, Kashmir in the month of January. Affected birds were examined and dead birds were sent for postmortem examination (Fig 1, 2). After thorough examination, affected birds only showed signs of anorexia and depression without any signs of prolonged illness. Carcasses were in good condition and only slight enlargement of liver and spleen was visible with no lesions in intestine or respiratory tract. Postmortem findings revealed small petechiae in the epicardial fatty tissue. History, signs, and lesions tentatively suspected acute form of avian pasteurellosis. To confirm the diagnosis, isolation of *Pasteurella multocida* was attempted from the heart, liver, spleen and lung collected from the waterfowls suspected to have died of avian pasteurellosis. Impression smears were prepared from the liver, spleen and heart confirmed bipolar organism *Pasteurella multocida* by using Giemsa and Wrights stain. Tissues were inoculated in blood agar and nutrient broth. Incubation was done at 37⁰C with 5 % CO₂ for 24 h for the isolation of organism. Grams

staining of the smears revealed characteristic gram negative bipolar cocco-bacillary organisms. The colonies suggestive of characteristic bipolar *P. multocida* were subjected to biochemical tests for identification and confirmation. The biochemical tests were positive for indole production, oxidase and catalase production.

In-vitro and *In-vivo* Antibiogram

The *in-vitro* antibiotic sensitivity test of the organisms was conducted as per Bauer *et al.*, (1966) on Mueller-Hintonagar using antibiotic discs of Ciprofloxacin - 5mcg, Enrofloxacin - 10 mcg, Oxytetracycline - 30 mcg, Trimethoprim 10 mcg, Ampicillin - 10 mcg, Penicillin - 10 units, Chloramphenicol – 50 mcg, Gentamicin - 10 mcg and Amikacin – 30 mcg (Hi-Media).

Antibiotic sensitivity tests revealed that all the isolates showed sensitivity to a wide range of antibiotics namely Enrofloxacin (100 %), Ciprofloxacin (100 %), Gentamicin (100 %) and Amikacin (100 %), whereas isolates were resistant to Ampicillin (100 %) and Chloramphenicol (100 %), and partially resistant to Oxytetracycline (50 %) and Trimethoprim (50 %).

Fig.1 Fowl cholera affected waterfowl



Fig.2 Dead bird sent for postmortem examination



On the basis of *in-vitro* results, affected birds were treated with enrofloxacin (Floxidin oral solution 10% w/v) at the rate of 10 mg/kg body weight (2ml/ Lt of water) in drinking water for a period of four days. In severely affected birds parenteral shots of enrofloxacin at the dose rate of 10 mg/ kg body weight were given for three days. Mortality and other clinical signs stopped within one week, with the chances that bacteria might be present in the flock.

Results and Discussion

Birds with chronic avian cholera act as carriers of the disease and are considered to be major sources of infection in poultry (Rimler and Glisson, 1997) including waterfowl population (Purushothaman *et al.*, 2008). Sometimes finding a large number of dead birds without previous signs is usually the first indication of disease. Blanchong *et al.*, (2006) determined that wetlands act as short term reservoirs, recording large amounts of the bacterium in the soil and water through the duration of the outbreak. Dal Lake acts as an abode to many migratory waterfowl species in winter season, giving them a chance to intermingle with locally found ducks and geese. Therefore chances of transmission of avian pastuerellosis are quiet possible in the areas around Dal Lake.

Pasteurella multocida has been isolated from the heart blood, spleen, liver and lung collected from turkeys and chicken, suspected to have died of avian pasteurellosis (Balakrishnan and Roy, 2012). The biochemical tests were positive for indole production, oxidase and catalase production coinciding with the earlier findings of Quinn *et al.*, (1994) and Kawamota (1990). Antimicrobial therapy has been used extensively in the treatment of fowl cholera with varying success depending mainly on the kind of drug used (Rimler and Glisson, 1997). However prevention is prerequisite of this disease and can be accomplished using good management practices and use of fowl duck cholera vaccine. Effective immunity against different serotypes of *P multocida* can be obtained by using Killed vaccines.

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