

## OUTBREAK OF RESPIRATORY SYNDROME IN CHUKAR PARTRIDGE (*ALECTORIS CHUKAR*)

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### ABSTRACT

On a visit to a farm, most of the birds (*chukar partridge*) in releasing pens were with symptoms of dullness, depression and emaciation. On postmortem examination severe enteritis, carcass emaciation and pus in the ocular and nasal sinuses was observed. Bacterial cultures obtained from the pus have cocci, coccobacilli and rods like morphological characters suspecting of salmonellae, streptococci, staphylococci, bacilli and mycoplasmae species. Before proper diagnosis, birds were given tentative medication followed by the treatment based on laboratory investigations. Certain managerial programmes were also advised to the farmer as preventive measures.

**Key Words:** Respiratory syndrome; Chukar partridge; depression; emaciation

### INTRODUCTION

The chukar (*Alectoris chukar*) is a mountain height partridge living on barren, rocky slopes and in riverines, sparsely dotted with stunted grass and bushes. In winter it comes down to elevations of 1200 to 1500 meters, but reascends with the advancement of summer to 2500 meters. It commonly stays to the neighborhood or terraced wheat fields on the hillsides and also works its way down to feed in cultivated mountain valleys. It is found throughout the mountainous region of Pakistan including Northwest region, Baluchistan, Sindh and Salt range. In Pakistan, three races are recognized with minor differences of size and shades of coloration (Anonymous, 1990). Chukars are susceptible to several avian diseases such as Mycoplasmosis, Newcastle and Coccidiosis etc. (Petra, 1982; Calnek *et al.* 1991; Cole *et al.*, 1995; Roskopf and Woerpel 1996;). *Mycoplasma gallisepticum* infection probably depends upon the concomitant presence of other pathogens including nutritional deficiency, excessive environmental ammonia, dust and social stress associated with intensive management (Jordan, 1990). It might act as vector for infection that can be passed from avian hosts to human such as chlamydia, when raised in game situation (Christensen, 1996 and Erbeck and Nunn, 1999). Wild birds may play vital role in dissemination of diseases. Little information on diseases in wild birds is available in the literature. Therefore, this article document an outbreak of respiratory disease in chukar.

### MATERIALS AND METHODS

#### a. History And Symptoms

Different releasing pens for chukars in wild were established in June, 1996 and 350 birds were

released in different lots from July 20, 1996 to December 16, 1996. In addition, there were more than 100 birds of chukar which were retained in different releasing pens to ensure acclimatization of birds. A visit was paid on Chaudhery Habib-Ur-Rahman farm at Kathwai about 30 km from Jauharabad, District, Khushab (Punjab, Pakistan) on January 24, 1997. At the time of visit most of the birds in releasing pens were with symptoms of dullness, depression and emaciation. There was nasal and ocular discharge accompanied by watery whitish diarrhea. Corner huddling with ruffled feather was common in most of the birds. Similar signs and symptoms were also observed in few released birds. A commercial poultry feed (21 per cent proteins) was being offered to the birds that were released in wild twice a day @ 6kg at 6.00 A.M. and @ 4 kg at 3.00 P.M.. While chukars kept in the pens were offered feed and water *ad libitum*.

Live infected and dead birds were sent to the laboratory for postmortem. Fecal samples were also taken for microscopic examination.

#### B. DIAGNOSTIC TESTS

**Postmortem Finding:** Severe enteritis was observed and carcasses were found emaciated with pus in the ocular and nasal sinuses.

**Bacterial Culture:** Ocular and nasal swabs were examined for the suspected bacterial isolates (Buxton and Fraser, 1977). Samples were cultured on the nutrient broth, PPLO (Mycoplasma broth base), broth and selenite broth. Later the cultures were transferred to nutrient agar, blood agar and MacConky's agar plates for the isolation and purification of bacterial cultures. Bacterial isolates were identified according to the methods described by Holt *et al.* (1992).

On the basis of morphological and cultural characteristics, the isolates of bacteria were identified up to genus level (Table 1).

**Table 1. Identification characteristics of different isolates from chukars with respiratory syndrome.**

Samples	Morphological character	Gram's staining reaction	Suspected bacterial isolate
Ocular Secretion	Cocco-bacilli (motile)	G – ive	Salmonella spp. Escherichia spp.
	Cocci	G+ ive	Streptococci/ Staphylococcus spp.
Nasal Secretion	Rods	G + ive	Baccillus spp.
	Cocco-bacilli (motile)	G – ive	Salmonella spp.
	Cocci (Pleomorphic)	G – ive	Mycoplasma spp.

**Antibiotic Sensitivity Test:** All five different types of bacterial isolates tentatively identified were examined for antibiotic sensitivity test (Natl. Committee. Clin. Lab. Standards, 1990). The isolates were completely susceptible to Norfloxacin, Tylosin and Gentamicin, whereas, they were moderately resistant to Penicillin, Streptomycin, Ampicillin and Tetracycline.

#### **Test For Coccidiosis:**

Faecal droppings and intestinal contents of chukars were subjected to examination for coccidia and found negative for any type of oocyst (FAO, 1998).

#### **c. Treatment and Prevention**

After the initial observations and sampling following tentative medication was initiated:

TM-200 @200 gm /kg of feed (Pfizer, Pakistan)

N-Fac 1000 @ 2lb / ton of feed (Livestock Int.Inc)

Vitasol Super @ 1table spoon/ 8 lit. drinking water. (Welcome, Pakistan)

The treatment was continued for 2 days and little improvement in the condition of the birds was observed. Upon looking on the managemental and laboratory investigations, following treatment, prevention and control programme was advised:

1. After giving rest to the birds for 2 days following treatments was started for further four days only:

a. Norfloxacin (Tarobina) 200 @ 12mg/kg-bw.

b. Vitasol Super as above.

2. One chukar requires about 5sq ft. If mass bred i.e. three male plus nine females, require 60sq. ft. (5ft width, 12 ft. length), therefore, birds were adjusted accordingly.

3. Poultry farmers around the area were asked to burry deep or burn properly the dead birds to avoid spread of disease, if any.

4. Disinfect the releasing pen areas by spraying Sanitizer (Big Bird, Pakistan) @ 1-lit/50 lit. of water for 10,000 sq.ft.

5. Disinfect the water from any pathogen by adding potassium permanganate @ 10gm/200 lit water for three days.

## **RESULTS AND DISCUSSION**

The most frequent clinical problems of cage and aviary birds are posed by infectious diseases (Roskopf and Woerpel, 1996, Cooper, 1983). The diagnosis of which is sometimes difficult and its origin is impossible to trace. The most common source of bacterial infection in birds may be a bird's own commensal microorganisms. These organisms may cause disease, when the environment of bird is changed, or shifted from one place to other (Cannon, 1996) or even pattern of life is otherwise disturbed (Petra, 1982).

In the present study, microbiological examination revealed the involvement of mixed bacterial infection, with moderately resistant form of bacteria to antibiotics while bacterial isolates were fully susceptible to some antibiotics. Mycoplasma species were also isolated which could be the major etiological factor for clinical disease outbreak in chukar. This kind of infection may pose further threats to the surrounding birds. It needs prompt detailed examination of possible source of highly resistant bacterial infections either from water; dead carcass or even the feed elements may be included as one of the possible source of infection. Direct contact of susceptible birds with infected carrier chickens or turkeys causes outbreaks of the diseases. It is further postulated that it also spread by air-borne dust or droplets (Calnek *et al.* 1991).

CRD is found in a large number of wild birds such as the turkey, pheasant, chukar partridge, peacock, pigeons, quails, guinea fowl etc. The disease may be transmitted through carrier birds (Calnek *et al.* 1991). Avian Mycoplasmosis has been reported in wild turkeys (Davidson *et al.* 1982) *Mycoplasma gallisepticum* from peafowl (Tripathy *et al.*, 1972) and *M. gallisepticum* *M. synovae* and *M. meleagridis* from various wild birds and also have been associated with respiratory infection of migratory birds (Mathur *et al.* 1972). Similar signs and symptoms as recorded in the respiratory syndrome has been described by Cole *et al.*, (1995) and Roskopf and Woerpel, (1996). In conclusion, on the observations of

signs and symptoms and based on diagnosis, the most probable disease to the flock might be a form of chronic respiratory disease.

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