

## Short Communication

# Clinico-Therapeutic Observations on an Outbreak of Infectious Coryza

SAMEERA AKHTAR, ASIF RASOOL BHATTI† AND KHUSHI MUHAMMAD

Microbiology Section, College of Veterinary Sciences, Lahore-Pakistan

†Veterinary Officer at Veterinary Research Institute, Lahore-Pakistan

### ABSTRACT

A disease in commercial flock in Arifwala, Punjab (Pakistan) was reported. The birds were showing respiratory signs and their production was dropped from 85 to 60% in three days. Samples from the sick and dead birds were examined. The bacterial growth was only isolated from nasal swab on blood agar, chocolate agar and tryptose agar. The colonies appeared as small (1 mm) dew drops. History, clinical sign, symptoms, and isolation and identification of the causative agent revealed that the bacterium was *Haemophilus paragallinarum*.

**Key Words:** Coryza; Clinico-therapeutic

### INTRODUCTION

Infectious coryza is an acute respiratory disease caused by *Haemophilus paragallinarum*. It occurs in growing chicken and layer and results in the great economic losses due to an increased number of culls and marked reduction (10-40%) in egg production (Calneck *et al.*, 1991). This problem has become a constant threat to the poultry industry because of its frequent occurrence. To prevent the economic losses, it is necessary to diagnose the problem before it becomes serious and identify the potential carrier birds. This paper reports some clinico-therapeutic observations on a disease outbreak at a poultry farm.

**History.** The disease was reported from a commercial layer flock in Arifwala (total population 20,000 birds; Breed white leghorn). The age of the flock was 35 weeks. There was more than 50% flock showing respiratory signs. The history disclosed that the sick birds were dull and depressed. There was nasal/lacrimal discharge, facial swelling and open mouth breathing. There was delay in feed consumption. The production was dropped from 85 to 60% over three days of sickness.

**Clinical and laboratory findings.** A total of 10 birds, five each sick and dead were brought to the diagnostic laboratory of Microbiology Section, College of Veterinary Sciences, Lahore for confirmatory diagnosis.

Samples like visceral organs (liver, lung, heart, trachea) blood and nasal swabs were streaked on Blood agar, MacConky's agar, Chocolate agar, Nutrient agar, Simon citrate agar, Skim milk agar and Tryptose agar separately. These inoculated media (Difco) were incubated at 37°C for 24 h. The bacterial growth was only recovered from nasal swabs on blood agar, chocolate agar and tryptose agar. The colonies which were small (1 mm), dew drop like were subcultured on blood agar to purify the organism.

Purified growth was then studied for its morphological and biochemical characters. Morphologically the organism

revealed that it was coccobacilli, non-spore forming, non motile (hanging drop method). Capsule was undetectable. The staining results showed that the organism was Gram's negative (Gram's staining).

No growth was recovered from samples like liver, lungs, heart blood streaked on different agars. No hemolysis on blood agar was observed. These tests ruled out the possibilities of infection caused by *Pasteurella*, *Salmonella* or *Escherichia coli* species.

Moreover, different biochemical tests were employed to the organism like different Sugar's fermentation, Indol production, Voges-Proskauer, methyl red, Hydrogen sulphide production and nitrate reduction tests to confirm the pathogen as *Haemophilus paragallinarum* (Table I).

The disease birds were treated with single injection of gentamicin 0.2 mL/bird i/m and avil (5 drops/bird in drinking water) for five days and it showed recovery of birds from infection within three days.

**Table I. Biochemical reactions of the isolate**

Test	Result
Glucose	+
Sucrose	+
Lactose	+
Mannitol	+
Galactose	-
Sorbitol	-
Indol	-
Voges Proskauer test	-
Methyl Red test	-
H <sub>2</sub> S Production	-
Nitrate reduction test	+
Catalase	-
Motility	-
Hemolysis on blood agar	-
Requirement for factors X and V	+

Positive = +; Negative = -; The isolate was also subjected to antibiotic sensitivity test

## DISCUSSION

The birds in the infected flock had facial swelling, nasal and lacrimal discharge, open mouth breathing and mucoid discharge from the nares. The clinical signs are common features of coryza (Schalm & Beach, 1936; Droual *et al.*, 1990; Horner *et al.*, 1992; Mouahid *et al.*, 1992; Calnek *et al.*, 1991; Sandovel *et al.*, 1994).

The bacterium was recovered only from nares on serum, chocolate, blood and tryptose agar. The growth and morphology characteristics indicated that the organism isolated might be one of *Haemophilus* species, which was later on confirmed by biochemical tests. Similar observations were recorded by Mifflin *et al.* (1995), Chen *et al.* (1993), Quinn *et al.* (1994), Blackall *et al.* (1989), Zaini *et al.* (1991) and Keslerk (1997). Pathological changes revealed catarrhal inflammation of air sac along swelling and hyperplasia of cell with abundant heterophils and mast cells infiltration in mucous membrane of the nasal cavity. The growth on serum agar indicated that the local isolate was independent of NAD V-factor. Product of bacteria stimulate the local mast cells in the nares, eye and induce its degranulation. The excretory products of the granules like histamine) of these cell are responsible for external inflammation and lacrimal and nasal discharge (Sawata *et al.*, 1985). Therefore, administration of anti-histamic drugs like avil and nascids facilitate/potentiate recovery of the infected birds.

The affected flock was treated with gentamicin, which was the most effective antibiotic as displayed in the antibiogram assay (Table II). This treatment controls the problem but it does not eliminate the carrier status of birds.

**Table II. Antibiogram assay of the isolate**

Antibiotic	Sensitive/resistant
Gentamicin	++++
Tylosin	---
Amoxicillin	++++
Enrofloxacin	+-
Chloramphenicol	+---
Norfloxacin	----
Tribiseen	----

+ = Sensitive; - = Resistant

As reoccurrence has been recorded in the infected flock. It is advisable to vaccinate the birds with inactivated coryza vaccine to prevent economic losses. However, detailed investigation is required to isolate and characterized the locally prevalent serotypes of *H. paragallinarum*.

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