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Short Communication

# Occurrence of Complicated Infectious Coryza in Desi Birds

**Y. Ravikumar*[1], K. Sandhyarani[2], M. Lakshman[3] and M. Srinivas[4]**

[1]Assistant Professor, Department of Veterinary Pathology, PVNRTVU, Hyderabad, INDIA
[2]Contract Teaching Faculty, Department of Veterinary Pathology, PVNRTVU, Hyderabad, INDIA
[3]Professor and Head, Department of Veterinary Pathology, PVNRTVU, Hyderabad, INDIA
[4]Assistant Professor, Department of Veterinary Microbiology, PVNRTVU, Hyderabad, INDIA

*Corresponding Author: ravikumaryadala@gmail.com

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## Abstract

*Infectious coryza is a highly contagious bacterial disease caused by Avibacterium paragallinarum. Total 5 samples were collected from different birds suspected for infectious coryza based on clinical signs like nasal discharge, conjunctivitis, face swelling and post mortem examination which revealed caseous or cheesy exudates in infra orbital sinus. Nasal swabs, eye swabs from live birds and infra orbital sinus cavity exudates from dead birds were collected on separate sterile cotton swabs. Cultural examination of peritoneum revealed E.coli infection with characteristic greenish metallic shiny colonies on EMB agar. The swabs collected from nasal passage and infra orbital sinus were subjected to PCR for confirmation of the disease and the samples were positive for Avibacterium paragallinarum.*

**Keywords:** *Avibacterium paragallinarum*, Complicated Infectious Coryza, Desi Birds, E.coli, EMB Agar, PCR

## Introduction

Infectious coryza is one of the major problems affecting commercial poultry industry in the country caused by *Avibacterium paragallinarum* (formerly called *Haemophilus paragallinarum*). It often affects the upper respiratory tract, including the involvement of nasal passages, infra orbital and paranasal sinuses of chickens (*Gallus gallus*) but has been also described in quails and parrots. Even though the disease is not associated with heavy mortality losses, it possesses significant financial liability to chicken farmers (Ali *et al.,* 2013). Endemicity of the disease is maintained by chronically infected birds or recovered healthy birds as they act as reservoirs of infection in a population (Muahamad and Sreedevi, 2015). In most of the developing countries including India, conventional diagnosis of infectious coryza is based on clinical signs, demonstration of satellite colonies by cultural examination and confirming them by biochemical tests. However, factors like simultaneous occurrence of combined respiratory infections, occurrence of nicotinamide adenine dinucleotide (NAD) independent strains, overgrowth of fast growing bacteria, which mask the growth of *A. paragallinarum*, requirement of special media for culturing, presence of different biovars, etc. make the confirmatory diagnosis of the disease difficult. When Infectious coryza is associated with other viral or bacterial infectious agents such as infectious bronchitis virus, *Escherichia coli*, *Mycoplasma gallisepticum*, *Avibacterium gallinarum* (previously named *Pasteurella gallinarum*), *Salmonella* spp. or *Pasteurella multocida*, the disease worsens and prolongs its course and is denominated "Complicated Infectious Coryza " (Hoerr *et al*., 1994). Hence, nucleic acid based techniques are considered as the best alternative tools for easy and rapid confirmatory diagnosis (Anjaneya *et al.,* 2014).

The present study was taken up to detect *Avibacterium paragallinarum* by polymerase chain reaction from five infectious coryza suspected unvaccinated poultry carcasses (13 weeks) received from 1000 flock sized organized poultry farm with morbidity and mortality of 23%.

## Materials and Methods

Total five samples were collected from different birds suspected for infectious coryza based on clinical signs and post mortem examination. Nasal swabs, eye swabs from live birds and infra orbital sinus cavity exudates from dead birds were collected on separate sterile cotton swabs. These swabs were sent to Department of Veterinary Microbiology for microbiological examination and to Avian Health Lab, Directorate of Poultry Research, Rajendranagar, Hyderabad for confirmation by direct polymerase chain reaction (PCR) performed as per the protocol reported by earlier workers (Chen *et al.,* 1996).

## Results and Discussion

In the present study, the disease was confirmed by clinical signs, postmortem examination, cultural examination and finally confirmation by PCR. Clinically, the birds showed severe congestion, nasal discharges, facial edema and swelling of infra orbital sinus (Fig. 1). The birds revealed caseous or cheesy exudates in infra orbital sinus, congestion of trachea, perihepatitis and peritonitis in postmortem examination (Fig. 2).

**Figure 1:** Sick bird showed severe nasal discharges, facial edema and swelling of infra orbital sinus.

**Figure 2:** The birds revealed presence of peritonitis and perihepatitis in postmortem examination.

Cultural examination of peritoneum revealed *E.coli* infection with characteristic greenish metallic shiny colonies on EMB agar (Fig. 3). The swab collected from nasal passage and infra orbital sinus were subjected to PCR for confirmation of the disease. The PCR was carried out as per the standard protocol, the size of the amplified product was analyzed by agarose gel electrophoresis using 100bp standard DNA molecular size marker. The size of the amplified product was found to be 500 bp (Fig. 4), which was the size of the amplicon defined by selected primers. Positive control showed amplification indicating that the amplified PCR product was specific to *Avibacterium paragallinarum*.

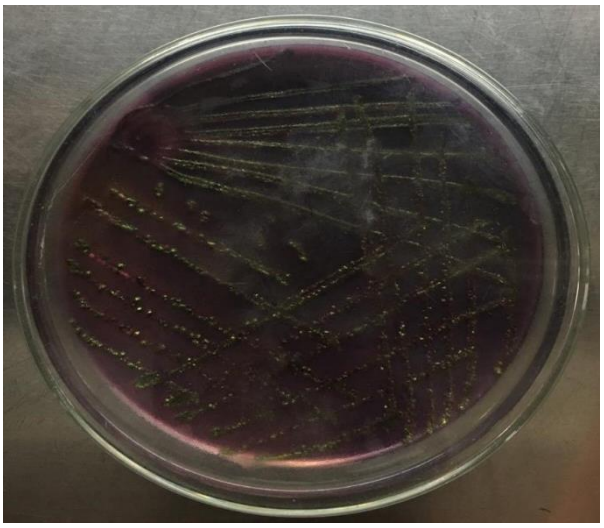

**Fig.3:** Cultural examination of peritoneum revealed *E.coli* isolated characteristic greenish metallic shiny colonies on EMB agar.

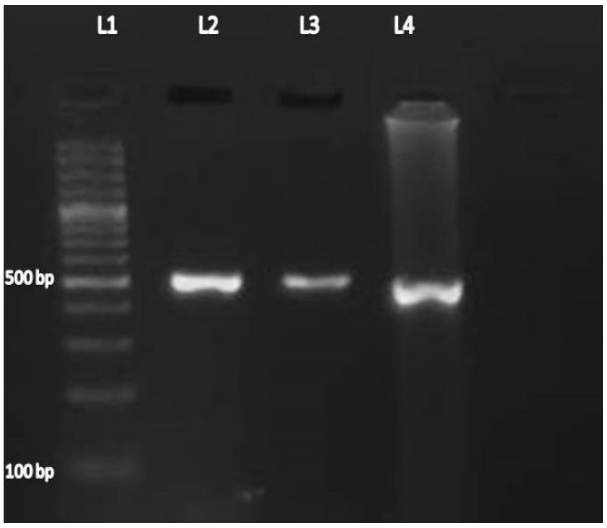


**Fig.4:** 500bp PCR amplified product of *Avibacterium paragallinarum* from infectious coryza suspected sample. L1: 100bp ladder, L2 and L3: positive samples, L4: positive control.

There is meagre information available on *Avibacterium paragallinarum* in India because the laboratory diagnosis of the infection is based mainly on demonstration and confirmation by isolation and identification of the organisms. During present study, an attempt was made to identify *Avibacterium paragallinarum* from the nasal swabs, eye swabs (from live birds) and caseous infra orbital sinus. Similar reports have been **shown** by Verma *et al*. (1985), Blackall *et al*. (1997), Sobti *et al.* (2001) and Sandeep Dwivedi *et al.* (2018).

## Conclusion

In conclusion, based on the clinical signs, gross lesions, cultural examination and PCR, the present condition was diagnosed as complicated infectious coryza caused by *Avibacterium paragallinarum* and *E.coli.*

## Conflict of Interests

The author expresses no conflict of interest with any other individual or organisation regarding the information discussed in the manuscript.

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