

Infectious Coryza: An Old Disease with Continuing Challenges

Dr. R. Suresh¹ and *Durgam Ajay²

¹Assistant Professor, Veterinary Clinical Complex, College of Veterinary Science,
Korutla, Telangana, India

²Final Year BVSc & AH Student, College of Vet. Science, Korutla, Telangana, India

*Corresponding Author's email: ajaynethadurgam@gmail.com

Respiratory diseases are a major challenge to profitable poultry farming, particularly in backyard flocks where biosecurity measures are often limited. **Infectious Coryza** is a highly contagious bacterial disease of chickens caused by *Avibacterium paragallinarum*. It primarily affects the upper respiratory tract and is characterized by facial swelling, conjunctivitis, purulent nasal discharge, sneezing, respiratory distress, reduced feed intake, poor growth and a decline in egg production. Although mortality is generally low, the disease spreads rapidly within a flock, causing significant economic losses through reduced productivity, increased treatment costs and secondary bacterial infections. A backyard chicken presented to the Veterinary Clinical Complex, College of Veterinary Science, Korutla, exhibited classical clinical signs that enabled prompt diagnosis and timely treatment. Appropriate antimicrobial therapy, supportive care and flock-level management resulted in rapid clinical recovery. This article discusses the epidemiology, clinical presentation, diagnosis, treatment and preventive measures for Infectious Coryza, highlighting the importance of early recognition, prompt veterinary intervention and effective biosecurity in minimizing disease spread and economic losses.

Keywords: Infectious Coryza, *Avibacterium paragallinarum*, poultry, chicken, respiratory disease, facial oedema, biosecurity, backyard poultry

Introduction

Poultry farming plays a vital role in ensuring food security and improving rural livelihoods. However, respiratory diseases remain a major challenge, reducing flock productivity and causing significant economic losses. Among these, **Infectious Coryza** is one of the most important bacterial diseases affecting chickens worldwide (Swayne et al., 2020).

Infectious Coryza is caused by *Avibacterium paragallinarum*, a Gram-negative bacterium that primarily infects the upper respiratory tract, leading to inflammation of the nasal passages, infraorbital sinuses, and conjunctiva. The disease spreads rapidly through direct contact, contaminated drinking water, equipment, and carrier birds. Layers and breeders are more commonly affected, although birds of all ages are susceptible under poor management and biosecurity conditions (Blackall & Soriano-Vargas, 2020; WOA, 2023). A distinctive feature of Infectious Coryza is the sudden development of **facial swelling accompanied by purulent nasal discharge**, making it one of the easiest respiratory diseases to recognize under field conditions. Early diagnosis and prompt treatment are essential to limit flock-wide spread and reduce production losses.

The present case from the Veterinary Clinical Complex, College of Veterinary Science, Korutla, presented with classical signs of Infectious Coryza, including facial oedema, conjunctivitis, purulent nasal discharge, respiratory distress, anorexia and greenish-white diarrhoea, facilitating timely diagnosis and successful clinical management.

Etiology

Infectious Coryza is caused by *Avibacterium paragallinarum*, a Gram-negative, non-motile, pleomorphic coccobacillus belonging to the family *Pasteurellaceae*. The organism is fastidious, requiring **nicotinamide adenine dinucleotide (NAD; V factor)** for growth, and is classified into **three major serogroups (A, B and C)** based on the Page classification (Blackall & Soriano-Vargas, 2020). After entering through the respiratory tract, the bacterium colonizes the nasal passages and infraorbital sinuses, producing acute catarrhal inflammation with oedema and mucopurulent exudate. Disease severity is often increased by concurrent infections with *Mycoplasma gallisepticum*, *Escherichia coli* and *Ornithobacterium rhinotracheale* (Swayne et al., 2020).

Transmission

Recovered **carrier birds** are the primary source of infection, as they continue to shed *A. paragallinarum* in nasal and ocular secretions despite appearing clinically healthy (Blackall & Soriano-Vargas, 2020). The disease spreads rapidly through:

- Direct contact with infected or carrier birds
- Aerosol droplets from sneezing and coughing
- Contaminated drinking water, feeders and equipment
- Farm workers, clothing and footwear acting as mechanical vectors
- Introduction of infected replacement birds into healthy flocks

The incubation period is typically **24–72 hours**, allowing rapid flock-to-flock transmission. Poor ventilation, overcrowding, environmental stress and concurrent respiratory infections favour disease outbreaks. Although vertical transmission has not been conclusively established, movement of infected carrier birds remains the most important route for introducing the disease into previously disease-free flocks (WOAH, 2023).

Pathogenesis

Avibacterium paragallinarum enters the body through the upper respiratory tract and rapidly colonizes the nasal mucosa, infraorbital sinuses, and conjunctiva. The organism multiplies locally, causing acute inflammation, vascular congestion, and oedema. Within 24–48 hours, serous exudate accumulates and gradually becomes thick, mucopurulent, leading to the characteristic facial swelling, conjunctivitis, nasal discharge, sneezing, respiratory rales and open-mouth breathing (Blackall & Soriano-Vargas, 2020). Concurrent infections with *Mycoplasma gallisepticum*, *Escherichia coli*, *Ornithobacterium rhinotracheale*, IBV, or NDV can aggravate disease severity and prolong recovery (Swayne et al., 2020). Although clinical signs resolve with treatment, recovered birds often remain chronic carriers, intermittently shedding the organism and serving as a source of infection for susceptible flocks.

Clinical Signs

The incubation period of Infectious Coryza is 24–72 hours, after which affected birds develop sudden respiratory illness that spreads rapidly within the flock. The most characteristic sign is unilateral or bilateral swelling of the infraorbital sinuses, producing the typical "swollen face" appearance. This is commonly accompanied by watery eyes, which progress to purulent conjunctivitis, thick foul-smelling nasal discharge, sneezing, respiratory rales and open-mouth breathing. In the present case, the chicken exhibited marked facial swelling, purulent nasal discharge, conjunctivitis, Pus in the peri orbital sinuses, respiratory distress, open-mouth breathing, torticollis, anorexia and greenish-white diarrhoea, enabling prompt clinical diagnosis of Infectious Coryza (Fig. 1. & 2).

Diagnosis

Diagnosis of Infectious Coryza is primarily based on flock history, characteristic clinical signs, and laboratory confirmation.



Fig. 1. Swollen infraorbital sinus and purulent conjunctivitis in a chicken with Infectious Coryza

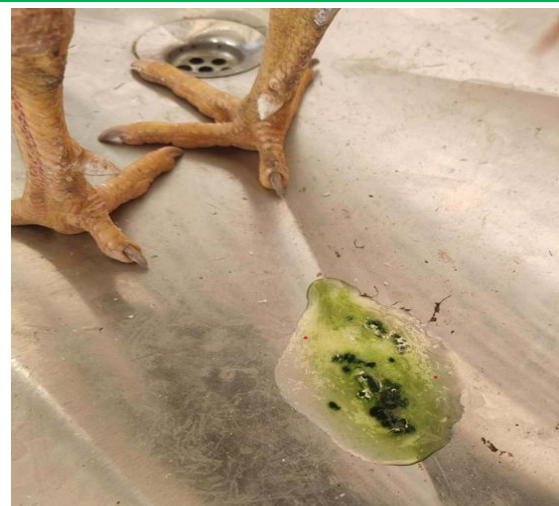


Fig. 2. Greenish-white fecal droppings in a clinically affected chicken, indicating anorexia and systemic illness associated with Infectious Coryza.

Clinical Diagnosis

A presumptive diagnosis can be made during outbreaks by observing the typical signs of acute facial swelling, enlarged infraorbital sinuses, purulent nasal discharge, conjunctivitis, sneezing, respiratory rales, open-mouth breathing, reduced feed intake and a sudden drop in egg production. These characteristic findings enable rapid field diagnosis and early treatment.

Laboratory Diagnosis

Definitive diagnosis is confirmed by isolation and identification of *Avibacterium paragallinarum*. Common diagnostic methods include bacterial culture on NAD-supplemented blood agar, Gram staining, PCR or real-time PCR, multiplex PCR, haemagglutination inhibition (HI) test, ELISA and antimicrobial susceptibility testing. Among these, PCR is the preferred diagnostic method owing to its high sensitivity, specificity, and rapid turnaround time (WOAH, 2023; Swayne et al., 2020).

Differential Diagnosis

Several respiratory diseases can mimic Infectious Coryza and should be considered before confirming the diagnosis. These include:

- Mycoplasmosis (*Mycoplasma gallisepticum*)
- Infectious Bronchitis (IB)
- Newcastle Disease (ND)
- Infectious Laryngotracheitis (ILT)
- Avian Influenza (AI)
- Fowl Cholera (*Pasteurella multocida*)
- *Ornithobacterium rhinotracheale* infection
- Chronic Respiratory Disease (CRD)
- Swollen Head Syndrome

Among these conditions, the combination of acute facial swelling, enlarged infraorbital sinuses, and thick, foul-smelling purulent nasal discharge is highly suggestive of Infectious Coryza and helps distinguish it from other respiratory diseases (Swayne et al., 2020; WOA, 2023).

Treatment

Early diagnosis and prompt treatment are essential to reduce clinical severity, limit disease spread, and minimize production losses. Because antimicrobial resistance among *Avibacterium paragallinarum* isolates has been increasingly reported, antimicrobial selection should preferably be guided by bacterial culture and antimicrobial susceptibility testing whenever facilities are available (Blackall & Soriano-Vargas, 2020; WOA, 2023).

In the present case, the affected bird responded well to injectable oxytetracycline, tylosin and Meloxicam followed by flock medication through drinking water, supportive therapy and improved management practices, resulting in rapid clinical recovery.

Recommended Antimicrobial Therapy

Drug	Recommended Dose
Oxytetracycline	20 mg/kg BW IM, once daily for 3–5 days
Doxycycline	10 mg/kg BW PO, once daily for 5 days
Tylosin	10–20 mg/kg BW IM or 0.5–1 g/L drinking water for 3–5 days
Amoxicillin	15–20 mg/kg BW PO, twice daily for 3–5 days (susceptible isolates)
Sulphadimidine + Trimethoprim	30 mg/kg BW PO, once daily for 3–5 days
Erythromycin	25–40 mg/kg BW PO, once daily for 3–5 days
Tiamulin Hydrogen Fumarate	25 mg/kg BW PO or as per label for 3–5 days

Supportive Therapy

Successful recovery depends not only on antimicrobial therapy but also on appropriate supportive care. Recommended supportive measures include:

- Electrolyte supplementation to prevent dehydration.
- Vitamin C (**200–300 mg/L drinking water**) to reduce stress.
- Multivitamins (especially vitamins **A, D₃, E and B-complex**) to enhance mucosal healing and immunity.
- Liver tonic during prolonged antimicrobial therapy.
- Probiotics after completion of antibiotics to restore intestinal microflora.
- Improve ventilation and reduce dust and ammonia levels.
- Immediate isolation of affected birds and strict sanitation.

Prevention and Control

Successful control depends on integrating biosecurity, vaccination and sound management practices.

Biosecurity Measures

- Purchase birds only from certified disease-free flocks.
- Quarantine newly introduced birds for **at least 2–3 weeks**.
- Immediately isolate clinically affected birds.
- Maintain an **all-in/all-out** production system whenever possible.
- Restrict movement of people, equipment and vehicles between poultry houses.
- Dispose of litter safely and maintain dry bedding.

Good Management Practices

- Prevent overcrowding.
- Maintain adequate ventilation.
- Minimize ammonia accumulation.
- Provide balanced nutrition.
- Ensure uninterrupted access to clean drinking water.
- Reduce stress associated with transportation and vaccination.

Vaccination

Vaccination is recommended in endemic regions, particularly for commercial layer and breeder operations. Inactivated bacterin vaccines containing locally prevalent serovars should be incorporated into the flock health programme under veterinary guidance. Vaccination should complement, rather than replace, strict biosecurity (Swayne et al., 2020; WOA, 2023).

Conclusion

Infectious Coryza continues to be a significant bacterial respiratory disease affecting poultry production worldwide. Although the disease rarely causes high mortality, its high morbidity, rapid flock transmission and adverse effects on growth, egg production and flock uniformity result in substantial economic losses. The clinical case described in this report reinforces the importance of recognizing characteristic signs such as **facial oedema, conjunctivitis and purulent nasal discharge**, which enable rapid field diagnosis and timely therapeutic intervention. Prompt antimicrobial therapy, supportive care, flock-level treatment and improved management led to successful clinical recovery in the affected bird. Nevertheless, because recovered birds may remain lifelong carriers, sustainable control depends on comprehensive biosecurity, appropriate vaccination, careful flock management and ongoing veterinary surveillance.

References

1. Blackall PJ, Soriano-Vargas E. 2020. Infectious Coryza. In: Swayne DE, Boulianne M, Logue CM, et al., editors. *Diseases of Poultry*. 14th ed. Wiley-Blackwell.
2. Merck Veterinary Manual. 2024. *Infectious Coryza in Poultry*. MSD Animal Health.
3. Swayne DE, Boulianne M, Logue CM, et al. 2020. *Diseases of Poultry*. 14th ed. Wiley-Blackwell.
4. World Organisation for Animal Health (WOAH). 2023. *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals: Avibacterium paragallinarum (Infectious Coryza)*. Paris, France.
5. Jordan FTW, Pattison M, Alexander DJ, Faragher T. 2021. *Poultry Diseases*. 7th ed. Elsevier.
6. Blackall PJ. 1999. Infectious coryza: overview of the disease and new diagnostic options. *Clinical Microbiology Reviews*. 12(4):627–632.
7. Soriano-Vargas E, Blackall PJ. 2019. Infectious coryza. In: *Diseases of Poultry*. Relevant updated chapters and diagnostic guidance.