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Identification of infectious laryngotracheitis virus infection in a desi chicken co reared with broilers

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Abstract

Infectious Laryngotracheitis virus belonging to the Gallid Herpes virus 1 of Herpesviridae family causes Infectious laryngotracheitis (ILT), a viral infection causing respiratory illness in chicken. In this report, the incidence of ILT in a desi chicken farm in Dindigul district of TamilNadu is reported. This study found out the ILTV infection in desi bird co reared with a few broiler chickens, which highlighted the importance of disease management and vaccination policies to be followed in small holding chicken farms. Ocular discharge with respiratory symptoms in the ailing birds led to the tentative diagnosis with the postmortem examination revealing fibrinous exudates in the tracheal passage. The etiology was further confirmed by PCR which targets the ICP 4 gene. Reports of ILTV in desi chicken co reared with broilers warrant stringent supervision with better disease management and immunization practices to avoid recombination events between field strains and vaccine strains which could result in the emergence of more virulent strains in the field.

Keywords: ILT, ILTV, infectious laryngo tracheitis, desi chicken, icp4 gene, recombination, virulent strain

1. Introduction

Poultry production is a flourishing enterprise in Dindigul district of TamilNadu where every household in the rural area houses a few poultry. Apart from organized, well established and maintained layer and broiler farms, the practice of rearing desi chicken along with some broilers and other avian species like turkeys, quails, ducks, ornamental birds, etc, poses a risk of disease transmission between these mixed species and draws immense attention while the disease control aspects are concerned.

ILTV - Gallid Herpesviridae 1 of Iltovirus genus of Alpha Herpesvirinae family is the etiological agent of Infectious Laryngo tracheitis in chicken ^[1]. The organ of predilection for ILTV is the upper respiratory tract and tracheal mucosa, whereas the virus actively affects the conjunctival mucosa also. The only possible way of transmission is the direct contact between the birds which actively induced disease in the birds of all ages. Morbidity is high ranging from 90-100% with mortality of 10-20% in most cases establishing a rapid transmission dynamic ^[2, 3]. In case of mild infections, the morbidity and mortality are considerably lower and goes unnoticed in many instances ^[4].

Clinical signs include gasping, moist rales and conjunctivitis along with expectoration of bloody mucous, depression and decreased weight gain. Inflammation of tracheal lining with ciliostasis is the important pathological changes induced by the infection of ILTV with hyperplasia of tracheal epithelium ^[5, 6]. Though intranuclear inclusion bodies in the tracheal epithelial tissue are pathognomonic, it is rare to appreciate in routine histopathology.

Live vaccines are available in market which can confer immunity to the vaccinated birds. But the recombination of live vaccine virus from a vaccinated bird with field strain or serial transmission from the vaccinated bird to other birds (passive passage) may lead to the emergence of virulent strain in the field ^[7, 8].

This study reports the incidence of Infectious Laryngotracheitis (ILT) in a desi chicken reared with broilers in a small unorganized household farm in Dindigul district of TamilNadu.

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2. Materials and Methods

2.1. History and sample collection:

The disease was suspected from a farm located in N.Panjampatty village, Dindigul district of TamilNadu. The disease was reported by the farmer as a part of routine farm management. It was reported that the ailing desi chicken along with 10 other desi birds were reared with 15 broiler chickens in the same enclosure.

Post mortem examination was done in the ailing bird and tracheal epithelial samples were collected in phosphate buffered saline for agent identification.

2.2. DNA extraction

DNA extraction was carried out using QIAamp DNA Mini kit (Qiagen) from the tracheal tissue as per the protocol specified by the manufacturer. The DNA was eluted and stored in -80 °C.

2.3. PCR and agent identification

DNA extracted from the tracheal tissue samples were subjected to PCR targeting ICP4 gene. The following primers were used for the amplification of the target gene (OIE, 2021):

Forward primer: 5'-ACT-GAT-AGC-TTT-TCG-TAC-AGC-ACG-3'

Reverse primer: 5'-CAT-CGG-GAC-ATT-CTC-CAG-GTA-GCA-3'

The PCR was carried out at an annealing temperature of 57°C and the products were clarified in 1% agarose gel (ethidium bromide stained) by electrophoresis.

3. Results

The affected birds in the flock showed clinical signs of dull depressed state with delayed weight gain along with labored breathing, the signature pump-handle breathing. Lacrimation with conjunctivitis was evident in some birds but expectoration of bloody fibrinous exudates was not found though it was well documented in many outbreak investigations in case of virulent disease.

Post examination revealed profound lesions in the respiratory tract. The trachea showed intense inflammatory changes with hemorrhagic exudates with clotted blood throughout the passage. The inflammatory changes were not severe upto the extent to occlude the tracheal passage.

PCR amplification yielded a 688 bp product from the DNA extracted out of the tracheal tissues.

4. Discussion

The investigation reports an acute, mildly virulent ILTV infection in a desi chicken farm in Dindigul district of TamilNadu. The array and severity of the clinical signs in this small holding farm of 25 birds were acute and moderately virulent as the ailing birds show mild to moderate moist rales with no expectoration from the tracheal passage, although conjunctivitis with lacrimation was clearly evident. In severely affected farms, expectoration of hemorrhagic and fibrinous exudates is commonly seen with locked eyes as reported in many instances^[9, 10, 11]. Post mortem examination revealing inflammation of tracheal epithelium without advancement to the extent of formation of pseudo membranes also suggest an infection established by a mild virulent strain of ILV in an acute stage. Pseudomembrane formation with

caseous exudates in the tracheal passage is associated with chronic/ established course of the disease, perhaps it was not recorded in this case^[12, 13]. Furthermore, confirmation by PCR targeting the ICP4 gene yielded a 688 bp product, confirming the etiology as ILTV. ILTV can infect almost all age groups ranging from 9-55 weeks. In this case, the age of the affected bird was 12 weeks and the farm housed a mixed age population with varying ranges of initial symptoms ranging from lacrimation and labored breathing to mild pathological changes in the upper respiratory passage. But the virus has multi organ tropism and can affect multiple organ systems in advanced disease manifestations^[13]. Thus, it can be inferred that in a naïve small holding farm with mixed age groups, the disease spread and severity would be acute and mildly virulent, if the population would not harbor a virulent field strain. Hence, the probable cause could be attributed to the unprecedented spill over of live ILTV from the vaccinated broiler birds co farmed in the enclosure. Further molecular investigation is needed to confirm whether the infection is in fact caused by the live vaccine virus excreted from the vaccinated broilers to the naïve desi birds in the farm premises or not.

This study, apart from concluding the spread of ILTV in a mixed farm of desi and broiler chicken, also suggests the importance of understanding the disease dynamics in a rural set up with minimal disease management practices. Strict biosecurity measures apart from immunization strategies are noteworthy to avoid these circumstances in small rural holdings. This poses severe risk of emergence of a virulent field strain in a particular locality if the virus strain is sustained in the same locality for a considerably longer time when the disease gets unnoticed or unattended.

Thus, the current study emphasizes the continuous monitoring and molecular identification of ILTV in rural small holdings of desi chicken when co-reared or reared nearby the broiler chicken which are vaccinated with live ILTV vaccine.

Conflict of Interest

Not available

Financial Support

Not available

References

1. May HG, Tittsler RP. Tracheo-laryngitis in poultry. *Journal of the American Veterinary Medical Association*. 1925;67:229-231.
2. Hinshaw WR. A survey of ILT of fowls. *Californian Agricultural Experiment Station Bulletin*. 1931;520:1-36.
3. Seddon HR, Hart L. The occurrence of infectious laryngotracheitis in New South Wales. *Australian Veterinary Journal*. 1935;11:212-222.
4. Raggi LG, Brownell JR, Stewart GF. Effect of infectious laryngotracheitis on egg production and quality. *Poultry Science*. 1961;40:134-140.
5. Bagust TJ, Jones RC, Guy JS. Avian infectious laryngotracheitis. *Revue Scientifique et Technique-Office International des Epizooties*. 2000;19:483-492.
6. Hidalgo H. Infectious laryngotracheitis: a review. *Brazilian Journal of Poultry Science*. 2003;5:157-168.
7. Dufour-Zavala L. Epizootiology of infectious laryngotracheitis and presentation of an industry control program. *Avian Diseases*. 2008;52(1):1-7.
8. Lee JY. Host-virus interaction of infectious laryngotracheitis virus infection in cultured cells. *USA:*

University of Arkansas; 2012.

9. Gowthaman V, Kumar S, Koul M, Dave U, Murthy TG, Munuswamy P, *et al.* Infectious laryngotracheitis: etiology, epidemiology, pathobiology, and advances in diagnosis and control—a comprehensive review. *Veterinary Quarterly*. 2020;40(1):140-161.
10. Gowthaman V, Singh SD, Dhama K, Barathidasan R, Mathapati BS, Srinivasan P, *et al.* Molecular detection and characterization of infectious laryngotracheitis virus (Gallid herpesvirus-1) from clinical samples of commercial poultry flocks in India. *Virus Diseases*. 2014;25:345-349.
11. Jaisree S, Shoba K, Ramesh A, Vijayarani K, Vairamuthu S, Bharathi R. Detection and molecular characterization of avian infectious laryngotracheitis virus isolated from a breeder flock. *Journal of Animal Research*. 2021;11:257-262.
12. Sivaseelan S, Rajan T, Balasubramaniam GA, Madheswaran R. Pathobiology of infectious laryngotracheitis virus in chicken using different tissue staining techniques. *Indian Journal of Veterinary Pathology*. 2013;37:168-171.
13. Sivaseelan S, Rajan T, Malmarugan S, Balasubramaniam GA, Madheswaran R. Tissue tropism and pathobiology of infectious laryngotracheitis virus in natural cases of chickens. *Israel Journal of Veterinary Medicine*. 2014;69:197-202.

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