

Infectious Laryngotracheitis (ILT) in Poultry

Infectious laryngotracheitis (ILT) is an acute, highly contagious respiratory disease primarily affecting chickens.



ILT is caused by *Gallid herpesvirus type 1*, an enveloped DNA virus. Different strains show marked differences in virulence. Respiratory symptoms can therefore range from mild to severe. Flocks affected by ILT may show mortality and/or reduced egg production in layers. Although there is no treatment for ILT, vaccines can be used to prevent infection.

Occurrence

ILT is present worldwide in areas where dense poultry production takes place. Chickens are the natural host for the virus, but pheasants can also be affected. It most commonly affects chickens older than 20 days of age, but it can also affect younger birds in areas with high bird density.

Transmission

Contaminated equipment, contaminated premises (litter), or carrier birds can bring viable viral particles into contact with naïve animals. It is thought that air currents play an important role in the transmission of this disease. The portal of entry for the ILT virus is the ocular and upper respiratory mucosa, where the virus replicates without evidence of viremia. Incubation is relatively long in field cases, about 1-2 weeks from the introduction of the virus to the appearance of clinical signs.

Clinical signs

For infections involving low pathogenic strains of ILT, clinical signs may be the same as those for many other respiratory diseases of poultry (non-specific upper respiratory signs). Watery eyes, lacrimation, swollen eyelids, oral and nasal discharge, and/or inflamed infraorbital sinuses are seen in combination with rales and coughing. For infections involving more pathogenic strains of ILT, dyspnea (difficulty breathing) is evident. Birds may extend their necks to facilitate the air transit through the inflamed and mucus-filled trachea while making loud wheezing sounds. Affected birds may cough and shake their heads and necks in an attempt to eliminate the tracheal secretions. Consequently, blood can be seen in the beak and feathers of some animals. Decreased egg production and mortality vary depending on the pathogenicity of the strain. For uncomplicated infections, birds generally recover after 2 weeks.

Necropsy findings

For infections involving low pathogenic strains of ILT, common lesions include edema of the conjunctiva, nasal turbinates, sinuses, larynx, and trachea. The tracheal mucosa may have some marked congestion with mucoid exudate. For infections involving highly pathogenic strains of ILT, it is common to find hemorrhage of the mucosal surfaces of the trachea (Figure 1). Tracheal mucus is often mixed with blood and necrotic epithelial cells. On occasion, this material hardens, forming tracheal plugs that lead to suffocation.





Figure 1. Trachea of a broiler chicken presenting edema, congestion, and petechiae. Photo credit: Dr. G. Lorenzoni.

Diagnosis

With pathogenic strains of ILT, clinical signs and necropsy findings are sufficient for a presumptive diagnosis. However, in cases involving milder ILT strains, clinical signs may not clearly indicate ILT. The most classic test for diagnosis of ILT is microscopic examination of the trachea (histopathology). In positive samples, multinucleated epithelial cells with eosinophilic intranuclear inclusion bodies can be detected. The virus can also be isolated into chicken embryos.

Relevant differential diagnoses

Pox, avian influenza, Newcastle, and infectious bronchitis.

Prevention

Avoid mixing susceptible animals with those that have previously recovered from ILT, or with those that have been vaccinated with live vaccines of ILT, as recovered/vaccinated birds can be expected to be asymptomatic carriers.

Vaccination of layers in endemic zones is a common practice. Several types of vaccine are available: chick embryo origin (CEO), tissue culture origin (TCO), and Pox-vectored. The CEO vaccine is quite effective, but there is a risk for this strain to become more pathogenic as it multiplies in birds. It can also have a negative impact (full-blown disease) in unvaccinated birds that are housed in proximity with the vaccinated flocks. Show birds should be vaccinated with TCO several weeks before taking them to the show. Due to the slow replication of this virus, vaccination of unaffected birds in the face of an outbreak can be effective to stop the disease, but this requires early diagnosis. Broilers can be vaccinated in the case of a regional outbreak.

If the premises have been affected by an ILT outbreak, disinfect the buildings and wait 3-4 weeks before repopulating. Most commercially available disinfectants, used at recommended concentrations, will inactivate the virus. The agent is heat-labile and can be destroyed by increasing the

temperature of the barn to 38 °C (approx. 100 °F) for 3 consecutive days. Composting of the litter inside the barn can be useful to bring the temperature of the building up, which will inactivate the virus.

References

Diseases of Poultry, 13th ed. Chapter 4. Infectious bronchitis. Avian Diseases Manual. 7th ed. The American Association of Avian Pathologists.

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