INFECTIOUS LARYNGOTRACHEITIS
(ILT; LT; Laryngotracheitis)

DEFINITION

Infectious laryngotracheitis (ILT) is an acute viral disease of chickens, and, rarely, pheasants, and peafowl characterized by marked dyspnea, coughing, gasping, and expectoration of bloody exudate.

OCCURRENCE

ILT is worldwide in distribution. Most outbreaks in chickens occur in broilers more than 4 weeks of age or in mature or nearly mature chickens, although all age groups are susceptible.

ETIOLOGY

1. ILT is caused by a herpesvirus. The virus is readily destroyed by many disinfectants and is not highly resistant outside of the host. There appears to be only one immunologic strain, although strains vary considerably in pathogenicity. Most strains are rather pathogenic, although there are some strains of low pathogenicity.

2. Herpesvirus infection leads to the formation of type A intranuclear inclusions during the first few days of infection. The inclusions may be observed in scattered groups of tracheal epithelial cells and, occasionally, in conjunctival epithelium. Similar inclusions occur in the infected chorioallantoic membrane of embryonating chicken eggs and in chick embryo cell cultures.

EPIZOOTIOLOGY

Some recovered chickens and vaccinated chickens become carriers and shed virus for long periods of time or much later can shed virus following stress-induced reactivation of latent infections, thus exposing other susceptible birds. Mechanical transmission of virus via fomites also is possible. The disease spreads horizontally via the respiratory tract after it has been introduced. However, spread is often less rapid than with other viral respiratory diseases of chickens. There is no evidence of vertical transmission.

CLINICAL SIGNS

Signs of markedly pathogenic ILT

1. There is marked dyspnea, often with loud gasping sounds and coughing. Severely affected chickens often raise and extend their head and neck during inspiration [Fig. 1; Infectious Laryngotracheitis; AAAP] and make loud wheezing sounds.

2. Expectoration of bloody mucus [Fig. 2; Infectious Laryngotracheitis; Cornell U] may occur as a consequence of coughing and head shaking. Beaks, faces, or feathers of occasional birds may be bloody.

3. High morbidity and considerable mortality are common. Morbidity as high as 50-70% has been reported but mortality usually is in the 10-20% range. There is also lowered egg production. The disease often persists for as long as 2-4 weeks in the flock, a course longer than that of most viral respiratory diseases of chickens.

Signs of ILT of low pathogenicity

Signs often include hemorrhagic conjunctivitis with watery eyes, lacrimation, persistent nasal discharge [Fig. 3; Infectious Laryngotracheitis; AAAP], swollen infraorbital sinuses, generalized unthriftiness and lowered egg production.
INFECTIONOUS LARYNGOTRACHEITIS

LESIONS

1. Lesions are most common in the conjunctiva, larynx and trachea. Severe ILT often presents with bloody exudate or diphtheritic changes in the trachea [Fig. 4; Infectious Laryngotracheitis; AAAP]. Lesions may vary from mucoid inflammation to severe degeneration of the mucosa with hemorrhage. Inflammation may extend into bronchi and air sacs. Dead birds may have an occluding pseudomembrane or caseous plugs in the trachea, with death having occurred from suffocation.

2. Infected birds often have a bloody beak or blood on the face, head, or feathers.

3. In less pathogenic outbreaks, mild conjunctivitis and sinusitis may be the only lesions.

4. Microscopic examination of the trachea of birds killed during the first few days (1-5) of the disease may reveal intranuclear inclusion bodies in epithelial cells [Fig. 5; Infectious Laryngotracheitis; AAAP]. Similar inclusions can be demonstrated in the chorioallantoic membrane of infected chicken embryos and in infected tissue culture cells. Inclusions disappear as the disease progresses due to necrosis and desquamation of the epithelial cells.

DIAGNOSIS

The signs and lesions of the pathogenic type of ILT are distinctive enough to incite suspicion of ILT. However, there may be few signs and lesions with ILT of low pathogenicity. ILT can usually be confirmed by one or more of the following steps:

1. Demonstration of intranuclear inclusions in the trachea (by histopathologic means) during early stages of the disease.

2. Demonstration of viral antigen in clinical samples, usually tracheal epithelium, by the use of the fluorescent antibody, immunoperoxidase, electron microscopy, DNA hybridization techniques, antigen capture ELISA and PCR.

3. Growth of the virus on the chorioallantoic membrane of embryonating chicken eggs. Typical plaques are produced and inclusion bodies can be demonstrated in them by histologic means and by the fluorescent antibody technique.

4. Exposure of known-immune and known-susceptible chickens to virus. The virus can be inoculated into either the infraorbital sinus, trachea, or the bursa of Fabricius and the reaction or lack of reaction can be observed.

CONTROL

1. Avoid adding vaccinated, recovered, or exposed birds to a susceptible flock because these birds may include recovered carrier birds with latent infections. Better yet, raise susceptible flocks in strict quarantine and never add birds of any kind.

2. Premises contaminated with laryngotracheitis virus should be depopulated, cleaned, disinfected, and left vacant for 4-6 weeks before being used again. Due to the heat-labile nature of the virus, virus destruction is enhanced by heating the contaminated poultry house (95-100 F for 72 hours).

3. In areas where ILT is endemic, vaccination of layers is frequently practiced and is quite effective. Attenuated vaccines are available and can be administered by eye drop, in the drinking water, or by aerosol spray. Drinking water vaccination may not be reliable because it depends upon the vaccine contacting nasal epithelium with high virus titers. Birds vaccinated prior to 10 weeks of age should be revaccinated at
INFECTIOUS LARYNGOTRACHEITIS

10 weeks of age or older to confer lifelong immunity. Vaccination of broilers, when indicated, should be
done before 4 weeks of age to minimize losses from severe vaccine reaction. Do not mix ILT vaccines
with other vaccines.

4. Rarely, clinical ILT, indistinguishable from the natural disease, may occur 1-4 weeks after vaccination.
These vaccine-related episodes are usually characterized by low morbidity and mortality.

5. ILT is a reportable disease in some states.

TREATMENT

Treatment is of little or no value and not practical. However, vaccination of unaffected birds and those in
other houses on an infected farm may provide protection and stop the outbreak.