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# CLINICAL SIGNS AND PATHOMORPHOLOGY CHANGES OF INFECTIOUS LARYNGOTRACHEITIS IN POULTRY FARMERS

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**Summary.** The incidence and prevalence of infectious laryngotracheitis in farms and individual poultry farms of the Kungrad district of the Republic of Karakalpakstan, LLC Karakalpak Productari of the Amudarya region, LLC Nurummat Kurbanov of the Ellikkalinsky district were studied. In total, more than 17600 poultry have undergone clinical trials for pathomorphological, bacteriological, immunological, hematological and statistical analyses. Blood samples were taken from 155 poultry heads from these farms and tested for enzyme immunoassay. A pathoanatomic analysis based on the cumulative selection of the bird, whose blood tests were examined, and bacteriological studies showed that 3.65% were infected with laryngotracheitis.

**Key words:** Laryngotracheitis, vaccine, immunity, immunophone, antigen, epizootology, clinical, pathologoanatomic, bacteriological, virological, epidemiological, pathobiology.

Relevance of the topic. One of the diseases that currently causes considerable damage to the poultry industry is infectious laryngotracheitis - an infectious viral disease of poultry, characterized by damage to the mucous membranes of the upper respiratory tract of chickens, turkeys and geese.

Poultry farming occupies a special place in the agricultural sector of the economy of our republic, and our government attaches great importance to the development of this sector.

In recent years, our government has developed a number of resolutions in order to ensure food security for people in our country, develop poultry farming, and meet the demand for livestock products (meat, milk, eggs). In particular, the Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022 “On the Development Strategy of the New Uzbekistan for 2022-2026”, No. PQ-4015 dated November 13, 2018 “Additional measures for the further development of poultry farming”, No. PQ-187 dated March 31, 2022 “On measures to further improve the system of personnel training in the veterinary and livestock sectors”, No. PQ-281 dated June 15, 2022 “On measures to further improve the system of state support for the poultry sector”, and other legal and regulatory documents related to this sector will serve to a certain extent in the implementation of the tasks set out in this document.

According to studies conducted in poultry factories of Samarkand, Surkhandarya and Kashkadarya regions of our republic, the percentage of chickens infected with laryngotracheitis and colibacillosis in poultry farms was 12-15 percent [5; 7-8-p., 9; 18-20-p ].

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According to researchers, the causative agent of the disease is a DNA-containing herpesvirus (Herpesviridae), belonging to the Alphaherpes viridae family. The virion is spherical in shape, with a diameter of 87-97 nm. The virus is stored in the trachea and tracheal fluid for 86 days, indoors at a temperature of 2-4 ° C for up to 30 days, and in eggshells for up to 24-29 hours. One of the difficult aspects of the ILT causative agent is that it consists of a capsid and a shell with capsomeres on the outside. Therefore, chemical and physical methods are used for disinfection [6.].

According to some data, ILT-virus is characterized by rapid spread and mortality rates exceeding 50%. Infected birds become lethargic, often exhibit moderate to severe conjunctivitis with swollen eyelids and increased lacrimation. In birds, a loud noise is observed due to the formation of a gurgling sound during the expulsion of blood clots in the trachea.

In the laboratory, necrotic organs of infected birds with intranuclear pseudoeosinophilic inclusions in the epithelial cells of the larynx, trachea, conjunctiva, nasal passages and lung mucosa were examined, and the virus was detected in pathological samples on days 4-6 of chicken embryos, primary cell membranes of fibroblasts, chick embryo kidneys and chicken kidneys [7.].

The latent period of ILT varies from 6 to 14 days. 2 days after the spread of the virus, the following clinical signs begin to appear in the poultry body; a sharp increase in the number of daily deaths indicates a latent or acute form of the disease, the virulence of the virus, stress conditions and the presence of other pathogens, which leads to a decrease in the body's immunity [8.].

The purpose of the study is to improve the pathomorphological diagnosis and control measures for infectious laryngotracheitis in poultry in some regions of the Republic of Karakalpakstan.

Methods of conducting research. The experimental part of the scientific research was conducted in the laboratory and vivarium of the Nukus branch of the Samarkand State University of Animal Husbandry and Biotechnology, in the Laboratory and Food Safety Center of the Republic of Karakalpakstan on the basis of experiments on the methods of prevention and treatment of infectious laryngotracheitis among chickens in poultry farms, as well as methods of diagnosing the disease.

Laboratory experiments were conducted on adult "Loman Brown classic and Loman LSL classic" chickens, naturally infected and uninfected, as well as on local breeds. In order to prevent infectious laryngotracheitis, pathomorphological changes were detected in them based on general rules, as well as measures were taken to diagnose and combat the disease.

Blood samples were taken from the birds and examined using special reactions: immunodiffusion, immunoglobulin-Idm, immunoglobulin-IgG, S-reactive protein (CBR) using generally accepted methods of immunoenzymatic analysis (IFT).

Results obtained and their analysis:

The incidence and prevalence of infectious laryngotracheitis in the farms of "Golden IGG" in Kungrad district of the Republic of Karakalpakstan, "Karakalpoq izvestiya" LLC in Amudarya district, "Nurummat Kurbanov" in Ellikkala district and private poultry belonging to the population were studied. A total of more than 17,600 birds were clinically examined for pathomorphological, bacteriological, immunological, hematological and statistical analyses. Blood samples were taken from 155 birds from these farms and tested for immunoenzymatic analysis. Based on a general selection of birds examined for blood tests, pathological anatomical autopsy and bacteriological examinations revealed that 3.65% were infected with laryngotracheitis.

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According to the results of scientific research, infectious laryngotracheitis in poultry farms and poultry belonging to the population of the Republic of Karakalpakstan was detected by immunoenzymatic analysis. When studying these areas, the incidence of infectious laryngotracheitis in poultry was observed mainly in 6 farms, and in 4 of them it was found that the disease was found among poultry in farms and private households of the population affected by mixed infection with infectious laryngotracheitis and colibacillosis. In our research work, the following clinical signs were observed in poultry infected with the infectious laryngotracheitis virus: the latent period of the disease lasted from several hours to 2-3 days. The disease occurred in a subacute, acute, subacute form. In the acute course, mainly chicks suddenly fell ill and the clinic of ILT was observed. They suddenly became lethargic, and their body temperature rose rapidly (up to +43.5 - +44°C). Infected birds had a frothy exudate on the inner surface of the eye, pus discharge from the nose, deep wounds in the trachea and bronchi, yellow purulent exudate and hemorrhages in the larynx and mucous membrane, and sometimes damage to the eyeball, cornea, sinusitis, rhinitis, and increased heart rate and breathing due to the accumulation of caseous mass in the eye sacs. Sick chicks became weak and only lay down, their beaks were dry, and hemorrhages were observed on the mucous membranes of the eyes. They were in a coma for 1-2 days, and the process ended in death.

According to the data, the occurrence and spread of the disease is associated with unfavorable environmental factors, as well as the fact that hot and humid conditions create opportunities for the constant circulation of pathogens of upper respiratory tract diseases in the external environment, as well as poor sanitary conditions in most poultry farms and other circumstances. The dynamics of infection and mortality of poultry with infectious laryngotracheitis in some districts of the Republic of Karakalpakstan are associated with the seasonal nature of laryngotracheitis infection. For example, in our studies, the disease was mainly manifested in the spring months of April-May and the highest rates in the autumn months of October-November. Out of 17,600 (100%) poultry examined during the study, 616 (3.5%) birds fell into this period. The incidence increased from April to June, decreased again from June, and increased again from October to November, with the incidence in April-November accounting for 2.0-3.0% of the total number of birds. This was recognized as the highest result in our studies.

In the acute form of ILT in adult chickens of the Amudarya district “Karakalpak Products” LLC, characteristic shortness of breath was observed, initially the infected birds were less active, after 4-6 days the body temperature rose, the trachea was filled with blood and exudate, as a result of which clinical signs leading to difficulty breathing and hoarseness of the voice were observed during the studies. The acute form of the ILT pathogen in poultry was accompanied by lesions of the trachea and eye epithelial layer, and in young birds, along with bleeding on the first day, clinical and pathological changes in the liver tissue, the presence of necrotic nodes in some areas, which increased by 1-1.5 times compared to their size, with completely hyperemic edges (Fig. 1).

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**Figure 1. Pathological condition in the liver.**

In chickens infected with infectious laryngotracheitis, catarrhal or fibrinous inflammation of the trachea was observed, as well as hemorrhages in the nasal mucosa, catarrhal-hemorrhagic inflammation, and signs of enteritis, cloacitis, sinusitis, bronchitis, and bronchopneumonia (Figure 2).

In poultry belonging to the farms and residents of the Ellikkala district "Nurummat Kurbanov", the presence of fibrinous-caseous mass in the trachea and the semi-full obstruction of the laryngeal cavity were found to be a clinical sign specific to these regions, and the pathological anatomical signs of infectious laryngotracheitis were determined: in infected chickens, there was a state of catarrhal and fibrinous inflammation, hemorrhages in the nasal mucosa, catarrhal-hemorrhagic inflammation, and enteritis, cloacitis, sinusitis, bronchitis, and bronchopneumonia were observed. Histological examination of the trachea revealed tissue infiltration and desquamation of the tracheal mucosa.

**Figure 2. Appearance of the trachea infected with the ILT virus**

In the climatic conditions of Karakalpakstan, in some districts, poultry infected with infectious laryngotracheitis (ILT) virus showed pus discharge from the nose with foamy exudate on the inner layer of the eye, deep wounds in the trachea and bronchi, yellow purulent exudate in the larynx and mucous membrane, and thrombi of varying degrees due to blood clots. Sometimes, clinical signs such as eyeball and corneal damage, sinusitis, rhinitis, and accumulation of caseous mass in the optic sacs were observed. Conclusions. Analysis of the pathomorphological changes developing in infectious laryngotracheitis in natural conditions showed that the inner layer of the eye of birds was covered with foamy exudate, pus was discharged from the nose, deep wounds were also observed in the trachea and bronchi, yellow purulent exudate and hemorrhages were observed in the larynx and

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mucous membrane, and sometimes damage to the eyeball, cornea, sinusitis, rhinitis, and accumulation of caseous mass in the optic sacs were noted.
When carrying out epizootic measures against infectious laryngotracheitis of birds, using AVIVAK-ILT, starting from the first days of the chicks' life, gives effective results. It is advisable to carry out regular disinfection measures to prevent the disease.

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