

Diagnosis, treatment and prevention of turkey histomonosis

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Abstract. The scientific significance of the research results lies in the analysis of the epizootological features of helminthiasis and histomoniasis of turkeys in farms and private farms engaged in turkey breeding, the clinical course of the disease, hematological and biochemical changes in the body of turkeys when using some new anthelmintics and vitamin complexes, theoretical and practical justification for the effectiveness of the drugs. The practical significance of the research results lies in the fact that with widespread helminthiasis and histomoniasis in turkeys, the use of antiparasitic drugs and vitamin complexes in turkey farms leads to the recovery of turkey poults, an increase in their viability, growth and development, weight gain, and the achievement of an increase in productivity for through their use in disease prevention. The epizootology and causes of the spread of helminthiasis and histomonosis of turkeys in turkey poultry farms managed by farmers and private individuals of the republic were identified. The use of vitamin complexes in addition to antiparasitic drugs is scientifically substantiated in order to reduce the duration of treatment for turkey histomoniasis, their positive effect on the hemomorphological and hemobiochemical parameters of turkeys. Practical recommendations for the diagnosis, treatment and prevention of turkey histomoniasis have been developed for the widespread use of effective, cost-effective diagnostic methods.

1 Introduction

Ensuring food safety at the international level is one of the urgent tasks of the agrarian sector of all countries, in particular, the producers, specialists and researchers of livestock, including poultry industries. Poultry farming (chicken farming, turkey farming, etc.) is considered one of the most profitable industries and has a significant share in providing the world's population with meat and meat products and egg and egg products. At the moment, improving the diagnosis, treatment and prevention of various diseases of poultry, providing effective practical recommendations will be the main scientific directions of researchers in this field - the demand for network production.

In recent years, the increase in the extensiveness of the spread of parasitic diseases in small poultry farms, the development of poultry farming in farms and personal auxiliary

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farms, the lack of demand for the preservation and feeding of poultry in these poultry farms in the context of an increase in the interest of the population in poultry farming, the absence of, particular attention is paid to the research of the diagnosis and epizootology of the disease histomonosis of turkeys and the development of treatment and preventive treatments, taking into account the insufficient study of the prevalence of histomonosis in particular.

2 Materials and methods

Foreign scientists such as A.A. Kiriev, M.K. Kozhokov, E.V. Zhashueva, N.V. Bogach, Yu.A. Prikhotkov, A.V. Zaykina, G.Z. Khaziev, A.S. Sogatov, Z.I. Dzarmatova, R.R. Gizzatulina, L.R. McDougald, Tyzzer and Fabyan, Cushman, Graybill and Smith, Callait-Cardinal, Honigberg and Bennett, M.Hess, D.Gerbod, Keeling, R.W.Gerhold, was A number of studies have been conducted on helminthiasis and histomoniasis of turkeys and important scientific results have been achieved on the causative agents of these diseases, the epizootological state, their control and preventive measures. However, in our republic there is almost no research on the study of helminthiasis and histomoniasis in turkeys; in recent years, such a branch of poultry farming as turkey farming has been actively developing, therefore, there is a need to identify the prevalence of common invasive diseases among turkeys, identify their causative agents, and develop new modern methods of treatment and prevention.

The studies used generally accepted clinical, epidemiological, pathological, microscopic, biochemical, helminthological, parasitological and statistical methods. The reliability of the research results is justified by conducting research using modern methods and means, processing and scientific analysis of primary data, compliance of theoretical results with experimental data, conducting in-depth scientific analysis of the results of our own, as well as foreign and domestic research, research works and primary material, introducing the results of scientific research into production .

3 Results and Discussion

Histomonosis – *Histomonas meleagridis* is a protozoan disease caused by simple animals, characterized by purulent necrotic licking of the blind intestinal part of the colon tumor and damage to the liver tissue. When a disease is detected in Turkey farms, the economic damage caused by the death of poultry (up to 40%) is of great value at the expense of the growth of chicks lagging behind development, diagnostic examination, treatment procedures, spending on conducting veterinary sanitary measures. In combination with this, histomonosis is a dangerous disease of the liver and rapidly spreading epizootics.

It is the source of invasion and is considered to be diseased birds that release a disease emitter into the external environment and a heterakis egg through the fecalium. The main route of damage is through the intestinal system of the stomach. Poultry are damaged by swallowing a disease caller and a heterakis egg. In the blind intestine of poultry, histomonads are released from the larvae of heterakis and reproduce by simple bifurcation. Serous enteritis develops as a result of the discovery of histomonads in the blind intestine. After 7-10 days, severe inflammation in the blind intestine occurs in the form of necrosis. In 10 days, this appearance envelops the liver.

Causative agent – *Histomonas meleagridis* belongs to the Trichomanadida generation of the Histomonas type. Its development is carried out in 2 stages: with hops and amoeba (without hops). The round shape of the parasite is 12-21 μm in diameter, 1-4 rivets in a riveting stage. There is no corrugated membrane, axostyle and cystosome. amoeboid

parasites are found in the affected tissues of infected poultry. Parasites enter the tissues using pseudopody (false limbs) during the invasion phase, filling the inter-tissue space, and division into 2 is active.

Histomonads are facultative anaerobes and grow in artificial environments. *H. meleagridis* days after being infected it is excreted outside with the fecalium, or it is detected by culturing the grease from the avian cloaca in an artificial environment.

As a result of introduction from the external environment and under the influence of disinfectants, the disease agents quickly dies, but heterakis eggs can be stored for a long time.

Diagnosis of histomonosis is made on the basis of microscopic examinations, with an emphasis on epizootological, clinical and pathologoanatomic indicators. Under laboratory conditions, data for diagnosis and differentiation by light microscopy is introduced into avian histomonosis.

Clinical signs. The plumage of turkeys with histomonosis is yellow with a reduced wing area. The glare of feathers and feathers disappears. Clinical indications in chickens are poorly defined compared to turkey, in some cases unknown, but histomonosis can cause much harm. Fecalium in the blind intestine may be mixed with blood. The appearance of histomonosis negatively affects the development of poultry, but leads to a decrease in the productivity of poultry at the time of laying eggs.

Clinical signs of the disease appear on the 7th - 14th day after damage, clinical signs appear on the 5th-19th day when damaged in an experimental case. Histomonose invasion to detection by field observations is eymeriosis (mainly *E. tenella*) when it occurs in combination with an exacerbation of clinical signs.

Microscopic examination. It is necessary that the prepared sample is examined as much as possible, together with the material of the sample obtained, which is the disease caused by the movement of the caller and the entry of the cell into the circle, which causes difficulty in issuing the obtained uniform result.

A crumb is removed from the mucous membrane of the sinus. The environment of the blind intestine, excrement and liver is put in a saline solution with a pH of - 7.2 and a temperature of 38-40°C.

A crushed drop is prepared from the mass of the blind intestine. A drop from the blind intestinal mass is placed on the glass of the object, covered with a covering window, and a crushed drop is prepared, and then viewed on a small, medium-sized microscope.

A scrape is taken from a healthy and damaged border section on the mucous membrane of the blind intestine.

From the mucous membrane of the blind intestine, 3-4 thin greases are prepared from the affected part of the sinus and liver.

For the purpose of differentiation, a drop of unconserved rabbit blood is added to a drop of the resulting grater, which is mixed then a thin grease is prepared.

The prepared grease is dried in air, fixed using methyl alcohol and painted for 3-5 minutes or 20-25 minutes using ethyl alcohol in the Romanovsky Gimza method for 40-50 minutes. (1-2 drops of Azure eosin dye are dissolved in 1 ml of distilled water, in a pH-7.0-7.2 medium at a temperature of 18-20°C). It is washed with distilled water, dried and treated with a microscope in the immersion system.

When viewed under a microscope, histomonades with and without rivets are visible in painted smear. In a living histomone, it is in a circular or uneven moving state. In the larval stage, the parasite will appear oval-shaped with a diameter of 12-21 µm, with 1 Partial 3-4 larval. The non-threaded stage is oval or circular in shape. The size of 8-30 µm will be similar to amoeba. Histomonads are parasites of the parasite in the invasion phase. The cytoplasm of histomonas is colored blue, the nucleus is dark red, and the chicks are colored

pink. The nucleus of histomonads is for the most part centrally located, occurring in an irregular circular or wedge-shaped pattern.

Pathologoanatomic changes. The intestines become enlarged in the form of sausages, the outer side is rough-here, in some cases in the form of mar-mar, the intestinal walls are thick, the union of the large intestine with the small intestine and the peritonitis (peritonitis) is often noted. The blind intestinal mass will stick to the walls of the intestine as if it were a curd film, when removed, ulcers will appear on the mucous membrane. The small part of the intestine will be full of coffee-colored liquid. The liver is enlarged, from millet grain, white yellowish-colored necrotic foci in the volume of forest nuts are visible. The following clinical signs are manifested in the stage of invasion damage of turkeys with histomonosis.

Lower stage damage - necrotic foci like small millet grains in the liver, the walls of the blind intestine are reddened gout-here in some cases nodules are visible. The blind intestine is filled with a yellow foamy substance.

Mid-stage damage - foci of necrosis in the liver the red-striped blind intestine is full of a Malla-colored silky-smelling casein mass, an inflammatory condition is observed in neighboring organs.

Severe stage damage – in the liver, the foci of necrosis are enlarged, the walls of the blind intestine are thickened with a pressed part of the surface of the liver, the intestine is filled with a curd necrotic substance.

Diagnosis of histomonosis. According to pathologo- anatomical studies from the following infectious diseases are result ; it is necessary to distinguish between salmonellosis and eymeriosis, which H.negative conditions triggered by meleagridis can be seen (the presence of mass in the blind intestine in all three diseases). Concomitant liver damage to the blind intestine refers to histomonosis. In addition, differentiation from trichomonosis, coligranulomatosis, pullorosis, typhus, tuberculosis, leukosis is necessary.

Microscopic studies have found that histomonade causative agents should be differentiated from trichomonose causative agents and eymeriosis. In differentiation, attention is paid to the location of the disease caller and its morphological indicators. The difference between histomonads in signs from trichomonads is the absence of the first membrane, the axostyle and the cystosome. The trichomonad movement is partially recessed, but this is due to the fact that the histomonad has a circular shape.

Diagnosis of lesion with the nematode heterax (*Hetercis galinarum*) is examined using the fougillborn method, while in histomonosis the prepared grease is detected using a slightly heated method.

Table 1. Differentiation of histomonosis by differential diagnostic symptoms.

The causative agent	Morphology	Location
Histomonad	The riveted form is oval in shape, mostly one, in some cases there are 3-4 rivets, while the riveted ones are oval and circular in shape	In the blind intestine, sinus and liver
Trichomonada	In a circular shape, there are rivets of undular membrane and there is an axostyle	In the blind intestine, sinus and liver
Eymeria	The oocyst is an oval circular endogenous formation of the schizont cell, with merazoites in it. Merazoid cell in nucleated appearance	In the intestines and liver

Treatment methods. The development of tick histomonosis is observed in cases of mono or mixed invasion. Prevention of the spread of helminthoses and histomonosis among turkeys can be achieved through timely chemoprophylaxis measures, improved feeding and storage conditions.

For the purpose of chemioprophylaxis of histomonosis, the use of metronidazole (with 0.5 g/kg of feed), furazolidone (with 0.5 g/kg of feed) preparations and the biosupervet neo vitamin complex with 0.5 ml/L of drinking water has high efficiency. The result that is expected from the use of vitamin complexes for the treatment and prevention of turkey histomonosis to reduce toxic processes in the liver, to increase its viability, provides high efficiency.

Prevention measures. Turkeys have a high tendency to develop invasive diseases among domestic poultry. Malnutrition, poor maintenance, inadequate veterinary sanitation activities are among the main etiological causes of histomonosis among turkeys.

To ensure the prevention of the disease, it is recommended to follow the following rules:

- Separately preserve turkeys of different ages.
- Not to keep turkey chicks dense among themselves.
- Not keeping poultry of different species together.
- Conducting preventive maintenance of scheduled chemistry.

4 Conclusion

In the Prevention of the disease. Who used a wire floor in the preservation of turkeys. It is necessary to carry out deworming in time against heterachidosis and other invasive diseases. Some of the arthropods parasitize in aviaries-various helminthiasis diseases are also a major factor in the spread of histomonosis. Due to the problems described above, the use of complex preparations of high efficiency in poultry houses in the preservation and storage of young turkey chicks, in fixed quantities, is the main factor in the prevention of the disease. Full-value nutrition should include proteins, fats and carbohydrates necessary for turkeys, as well as microelements and vitamin complexes. They improve metabolism, ensure the formation of the bone and muscle system in chicks, their growth in moderation and weight gain.



Fig. 1. on the mucous membrane of the blind intestine of turkeys blood clots and inflammations.

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