ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 07,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

UO'K. 619:636.5: 616. 93: 616.002

PATHOMORPHOLOGY OF MAREK'S DISEASE IN POULTRY FARMING FARMS OF KARAKALPAGISTIAN AND MEASURES TO COMBAT

Abatbaeva A. M., Reypnazarova N.E.

Master's Student Of The Nukus Branch Of SAMDVMCHBU

***Akhmedov B.N.**, V.F.S., Senior Researcher*

***Murodov X.U.**, V.F.S., Junior Researcher*

VITI Kashkadarya Scientific Experimental Station

Summary: This article examined the prevalence of Marek's disease among poultry, as well as its etiological factors. For this purpose, the epizootic situation was checked for infectious diseases found in individual poultry farms of the republic and among the poultry population. They were selected for verification on the recommendation of employees of the veterinary service of poultry farms. At the plants, all birds underwent clinical examination, patients were isolated and treated, dead or forcibly slaughtered birds were subjected to pathoanatomical studies. We got acquainted with the level of organization of veterinary and sanitary, feeding, and security measures. The diseases were diagnosed based on the results of epizootological, clinical, pathoanatomic, bacteriological, virological, and ELISA examinations. According to the results of an analysis conducted on the available poultry stock in individual poultry farms, farms, clusters, LLC companies and private entrepreneurs of our republic, it was found that the incidence of birds in the areas examined for Marek's disease is 2-5 percent compared to the total number of 15400 heads examined, while the mortality rate from this disease is about 13.2 percentages.

Key words: Marek, immunoglobulin, vaccine, immunity, immunophone, antigen, epizootology, clinical, pathologoanatomics', bacteriologist, virologist, epidemiology, pathobiology.

Relevance of the topic. 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”, No. PQ-238 dated June 27, 2024

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 07,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

“On measures to further support the poultry sector, introduce modern genetic technologies and a cooperation system "On" and other legal and regulatory documents related to this area.

According to researchers, Marek's disease (Morbus Marek, avian neurolymphomatosis) is a highly contagious infectious disease of poultry, which multiplies in the nuclei of affected cells, especially among chickens, which causes great damage to the economy of many poultry farmers. This disease is the most common among poultry. The mortality rate of poultry infected with the above-mentioned disease is 55-60% [2., 4].

Marek's disease occurs in all seasons of the year, often in combination with other infectious and invasive diseases. If effective measures are not taken to combat Marek's disease, it has a high incidence (50-55%) and mortality (24-30%) and becomes a stationary state. It has been studied that mortality is high among poultry kept in cages[1., 3].

No special comprehensive methods and tools have been developed for the diagnosis, treatment and prevention of this disease. A lot of time and currency must be spent on the use of biological preparations produced in foreign countries.

The purpose of the study is to improve the pathomorphological diagnostics of Marek's disease in poultry in certain regions of our Republic and measures to combat it

Object and methods of research. The experimental part of the scientific research was conducted in 2024-2025 on the basis of experiments on the prevalence of Marek's disease among chickens and the methods of diagnosing the disease in poultry farms in certain regions of the Republic of Karakalpakstan, the Republican State Center for Diagnosis of Animal Diseases and Food Safety, and the VITI Kashkadarya Scientific Experimental Station.

Laboratory experiments were conducted on adult "Loman Brown classic and Loman LSL classic" chickens, infected and not infected with Marek's disease in natural conditions, as well as on local breeds.

In order to study the pathomorphological changes in internal organs, histopreparations were prepared from them based on general rules and changes were identified.

Results of the study. The prevalence and etiological factors of Marek's disease among poultry were studied. For this, the epizootic situation of infectious diseases among poultry in some poultry farms and households was examined. Poultry factories were selected for examination based on the recommendations of veterinary service employees. All poultry in the factories underwent clinical examination, sick ones were isolated and treated, and dead or forcibly slaughtered poultry underwent pathological and anatomical examinations. The level of organization of veterinary and sanitary, feeding, and care measures was examined. The diseases were diagnosed based on the results of epizootological, clinical, pathological and bacteriological, and virological IFA examinations. According to the results of the analysis, based on the results of studies conducted on poultry in some poultry farms, farms, Cluster, LLC and private entrepreneurs, it was determined that the incidence of Marek's disease in the examined regions was 2-5% of the total number of 15,400 heads examined, and the mortality rate from the disease was around 13.2%. According to the results of the study, the widespread prevalence of Marek's disease in the regions of the region, especially among young chicks, was 12-25%, of which 12-15.5% of deaths were observed. It was practically explained to poultry specialists, and timely rapid diagnosis of diseases in PCR (the presence or absence of the disease was determined) and the correct implementation of measures against them was achieved.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 07,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

Recommendations were given to LLCs and poultry specialists in the population on the prevention and control of Marek's disease in poultry.

In our research, the following clinical signs were observed in poultry infected with Marek's virus: the latent period of the disease lasted from several hours to 5-15 days. The disease occurred in an acute, acute, subacute form. The chronic form of Marek's disease manifests itself in the form of enzootic or sporadic cases, and the acute form in the form of epizootic. At the first occurrence of the disease, almost all susceptible poultry become ill. In stationary unhealthy farms, only unvaccinated young poultry become ill.

Depending on the virulence of the Marek's disease virus strains, the incubation period lasts from 4 days to 6 months, and the disease occurs in an acute and chronic form. Birds from avirulent strains become infected in a latent (asymptomatic) form.

In the chronic form, the incubation period is 14-20 days. Ataxia is more common in chickens older than 3 months, when running fast, they run with their legs raised, lameness, paresis and paralysis of the legs, wings, neck and tail are observed. The diseased bird loses its appetite, the crown, ears, mucous membranes are pale, the feathers are uneven, the fingers are tangled and become lame. The bird moves by leaning on its lame fingers or knee joints. In severe cases of bilateral paralysis, sick chicks take a penguin pose, stretching one leg forward and the other back or to the side, lying on their chest or on their side. In birds aged 5-6 months, the eye is injured. The appearance of the iris changes sharply, initially turning from greenish or yellowish to gray with foci. Later, the depigmentation spot spreads over the entire surface of the iris, staining it completely gray (the clinical sign of the disease is “gray eyes”). The pupil changes to a pear-shaped, slit-shaped shape, sometimes narrows, can completely close, and partial or complete blindness occurs. The disease lasts 4-10 weeks. Death occurs due to exhaustion and emaciation, and the mortality rate is 1-30%. In the chronic form, mass mortality of chickens can be observed at the beginning of the egg-laying period.

In the chronic form of the disease, the following pathoanatomical changes are detected: diffuse focal thickening of the neural tubes, especially the brachial and lumbar ganglia, their discoloration, and tumors in the internal organs (up to 20%), mainly in the ovaries and testicles. Hyperemia of the blood vessels of the brain and spinal cord, swelling and focal softening of their tissues, resulting in an uneven surface and dense consistency, are observed.

The acute form of the disease is more common in birds aged 1-5 months. It appears suddenly, spreads widely and proceeds very quickly. Within 5-7 days, almost all chicks aged 1-2 months become ill, but the mortality rate is low. In the acute form, the symptoms of the disease are not characteristic - weakness, depression, emaciation. Nervous manifestations are relatively rare, but at the beginning of the enzootic period, there is a limitation of gait, mass paresis and paralysis of the legs and wings. The fingers of the affected legs are splayed or relaxed, stretched forward or backward, the wings are drooping, and general weakness is observed. Mortality increases within 2-6 weeks as a result of damage to the internal organs by new tumors of lymphoid origin. Ataxia, shortness of breath, dehydration, and emaciation are observed in sick birds. The highest mortality (30%) is observed 1-1.5 months after the onset of the disease. Marek's disease is often complicated (complicated) by infectious bronchitis, respiratory mycoplasmosis, coccidiosis, and is very severe when combined with leukemia. In such cases, the mortality rate reaches 65-70%. In the acute form of the disease, tumors are detected in the internal organs, skin, muscles, and changes in the tissues of the central and peripheral nervous system. The affected nerves are thickened, swollen, and yellowish. Changes in the internal organs appear

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 07,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

before the onset of symptoms of the disease and are characterized by lymphoid-cellular proliferation of the affected organs and tissues. In peripheral nervous tissues, edema, diffuse-focal lymphoid-cellular infiltration of the neural tube and its connective tissue sheath are detected. A characteristic sign of this course of the disease is the damage to the iris, which acquires a yellowish-brown, sometimes greenish-gray color (normally, the iris of the chicks is gray-blue, in 4-month-old chicks it becomes orange). The epithelial layer of the iris is infiltrated with lymphoid and pseudoeosinophilic cells, sometimes plasma cells. Often, the iris merges with the eyeball. An optic nerve tumor is detected. In the epithelia of the hair follicles, kidneys, pancreas, intranuclear inclusions of type A Cowdry bodies and cytoplasmic inclusions are detected.

Measures for the prevention and control of Marek's disease are carried out as follows.

Restrictions are imposed on poultry farms with a confirmed diagnosis of Marek's disease. In accordance with the requirements of the restriction, taking into account the course of the disease, comprehensive veterinary and sanitary measures are taken to eliminate the disease. In the case of an epizootic course of Marek's disease (infection and spread of the disease in a large number of poultry):

a) the sale of live poultry and hatching eggs is prohibited;

b) the acceptance of young poultry for breeding and incubation is suspended;

c) all poultry from an unhealthy poultry house (workshop, farm) is slaughtered in the aviary of the farm or meat processing enterprise;

d) the incubator, poultry house, auxiliary buildings, equipment, inventory, vehicles and production areas are disinfected and cleaned.

Chicks can be introduced into breeding 1 month after the completion of sanitation work on the farm. Young chicks being accepted are vaccinated against Marek's disease at the age of one day (in accordance with the vaccine application instructions).

When young chicks brought to the farm are raised for up to 6 months, the restrictions on the farm are lifted.

If sporadic cases of Marek's disease are detected on the farm and there is no tendency for its spread, the farm systematically culls and slaughters sick and suspected poultry. In order to eliminate the disease and prevent its spread, complex veterinary and sanitary measures are carried out.

If there is no tendency for the disease to spread widely, it is allowed to sell incubation eggs from the farm after disinfection with formaldehyde vapors. 1-day-old chicks vaccinated against Marek's disease can be sold to farms with the same epizootic situation for Marek's disease.

If no cases of Marek's disease in poultry are observed, the farm is exempted from restrictions.

In unhealthy farms, current and final disinfection of poultry houses, incubators, equipment, inventory, auxiliary buildings, production areas, vehicles, etc. is carried out in accordance with the current instructions for veterinary disinfection, disinfestation, disinfestation and deratization, as prescribed in the case of poultry pox.

Litter and bedding are biothermally disinfected.

Eggs taken from unhealthy farms are disinfected with formaldehyde vapors in accordance with current requirements in the following order:

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23

American Academic publishers, volume 05, issue 07,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

a) incubation eggs are disinfected 4 times: 1 - 1-1.5 hours after laying; 2 - before placing in the incubator; 3 - 6 hours after heating in the incubator; 4 - in hatching cabinets (immediately after the eggs are transferred).

b) food eggs - once before release for sale.

When slaughtering poultry from poultry houses that are not healthy for Marek's disease, all internal organs are removed and destroyed, and the carcass is sent to public catering establishments or for the preparation of sausages (canned food). If there are tumors on the skin or muscles of the poultry body, it is sent for technical destruction.

Feathers and feathers taken during the slaughter of poultry infected with or suspected of having Marek's disease are disinfected in accordance with the instructions for measures to combat poultry pox.

Conclusions: In the diagnosis of the disease, great importance was attached to the epizootic situation, clinical signs, pathoanatomical and pathogistological changes of the disease. The identification of the causative agents of the disease was carried out on the basis of bacteriological and virological, IFT and PCR methods. As a result, our scientific research revealed that the course of Marek's disease in young chicks is much more severe and complicated than in chickens under natural conditions.

In poultry farms, the following vaccines were used to vaccinate one-day-old chicks against Marek's disease: 1) liquid culture virus vaccine from the FS-126 strain of turkey herpesvirus; 2) dry culture virus vaccine from the FS-126 strain of turkey herpesvirus; 3) bivalent liquid culture virus vaccine prepared from the pathogenic strain of Marek's virus VNIVIP and the avirulent FS-126 strain of turkey herpesvirus; it was determined that the birds vaccinated with the vaccine retained immunity throughout their lives.

List of used literature:

1. Akhmedov B.N., Niyazov F.A., Ashurov S.A., Deystvie immunostimulatora kavilona na syplyat. // Veterinaria. – M. 2001.-№9. – P.22-23.
2. Akhmedov B.N. Muradov H.U. Scientifically based system for diagnosis of marek's disease of birds and measures to combat it. // Samarkand-2019.
3. Barhoom S., Dalab A. 2012. Molecular diagnosis of explosive outbreak of Marek by polymerase chain reaction in // Palestine. Proc Elev Vet Sci Conf. :-R. 100–129.
4. Korovin R.N. Development of effective methods and means of diagnosis, prevention and complex meropriyati po borbe s boleznyu Marek and adenovirus infection // Osnovy profilakt. ill Selskokhoz.ptits sb. Nauch.tr. VNIVIP. Leningrad - 1989. S-3-9.