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Article

Epizootic Monitoring of Avian Pasteurellosis in Broiler Chickens Under the Conditions of Nukus City

Nsanbayeva G.T.*[1], Pulotov F.S.[2]

1. Master's student of the Nukus branch of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology.
2. Acting Associate Professor of the Nukus branch of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology, PhD in Veterinary Sciences, Scientific Supervisor.
*Correspondence: *polatovfaxriddin613@gmail.com*

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Abstract: This article presents the results of field monitoring conducted to assess the epizootic situation of avian pasteurellosis among broiler chickens under the conditions of Nukus city, Republic of Karakalpakstan. During the study, a clinical examination was carried out in poultry farms engaged in broiler production. In birds suspected of the disease, the general condition, respiratory system, mucous membranes, body covering, fecal characteristics, and epizootic indicators of poultry farms were examined. In addition, blood samples were collected from the birds, properly labeled, and sent to the laboratory for further laboratory investigations. The monitoring results indicate the necessity of early detection of pasteurellosis, proper organization of differential diagnosis, and strengthening of biosecurity measures in broiler farms.

Keywords: *Nukus city, broiler chickens, poultry pasteurellosis, Pasteurella multocida, epizootic monitoring, clinical examination, blood samples, laboratory diagnosis, biosecurity.*

1. Introduction

Poultry farming is one of the rapidly developing sectors of agriculture in Uzbekistan and plays an important role in meeting the population's demand for meat and egg products.[1] In particular, the possibility of raising broiler chickens within a short period makes them highly significant for strengthening food security. At the same time, the rapid growth of broilers, their high stocking density, sensitivity to environmental factors, and high requirements for feed and microclimate increase the risk of infectious diseases.[2] One of such diseases is avian pasteurellosis, an infectious disease caused by the bacterium *Pasteurella multocida*, which may occur in acute, subacute, or chronic forms.[3]

Pasteurellosis can cause significant economic losses in broiler farms: in affected flocks, growth rates decrease, feed conversion efficiency worsens, compulsory slaughter and mortality rates increase, and expenses for prevention and treatment rise. The dangerous aspect of the disease is that in some

cases it may manifest as sudden death and spread within the flock without obvious clinical signs. [4] Therefore, regular epizootic monitoring, clinical examinations, laboratory control, and adherence to biosecurity measures are considered urgent tasks in poultry farms.[5]

Under the conditions of Nukus city, poultry farms operate under different microclimatic, feeding, and management systems. Factors such as the region's dry climate, sharp seasonal temperature fluctuations, dust contamination, movement of vehicles, and visitors may influence the persistence and spread of pathogens. Therefore, assessing the epizootic situation of pasteurellosis in broiler chickens in Nukus city, timely detection of suspicious clinical signs, and organization of laboratory investigations are of great scientific and practical importance.[6]

Literature Review. In scientific literature, avian pasteurellosis is also referred to as "Fowl cholera" and is described as a widespread bacterial disease occurring in domestic poultry, wild birds, and waterfowl. The causative agent of the disease is *Pasteurella multocida*, which can survive for a certain period in moist environments rich in organic matter and spread within flocks through diseased birds and recovered carrier birds. The infection is commonly transmitted through the respiratory tract, orally, contaminated water and feed, equipment, workers' clothing, and vehicles.[7]

The clinical manifestation of the disease depends on its course. In the acute form, birds may exhibit weakness, loss of appetite, ruffled feathers, respiratory distress, nasal and oral discharge, cyanosis of mucous membranes, diarrhea, and sudden death. In the chronic form, inflammation of the joints, lameness, swelling of the head and wattles, sinusitis, prolonged inflammation of the respiratory tract, and decreased productivity are observed. Since clinical signs in broiler chickens may change rapidly and resemble those of other diseases, diagnosis cannot be based solely on clinical examination.[8]

Modern diagnostics place great importance on bacteriological methods, microscopy, serological reactions, molecular methods such as PCR, and determination of antibiotic sensitivity. The reliability of diagnosis increases when blood samples, materials collected from internal organs, and pathological-anatomical examination results are evaluated together. Scientific literature identifies biosecurity measures, quarantine, disinfection, pest control, restriction of contact with wild birds, introduction of healthy poultry, and vaccination-based prevention as the main strategies in the control of pasteurellosis.[9]

Aim of the Study. The aim of this study was to conduct epizootic monitoring of pasteurellosis in broiler chickens under the conditions of Nukus city, to perform clinical examinations of birds suspected of the disease, and to prepare blood samples for laboratory diagnostics.[10]

Materials and Methods. The scientific research was carried out in May 2026 at a broiler poultry farm located in Nukus city in collaboration with the scientific supervisor Pulotov F.S. Broiler chickens of meat productivity type were selected as the objects of investigation. Under field conditions, the general veterinary and sanitary status of the farm, stocking density of poultry, feed and water supply, ventilation, litter condition, disinfection measures, and external environmental factors were first assessed.[11]

During the clinical examination, special attention was paid to the birds' general activity, appetite, body covering, ocular and nasal discharges, respiratory characteristics, color of mucous membranes, fecal consistency, lameness, and joint swelling. Birds suspected of the disease were monitored separately. Since clinical signs similar to pasteurellosis may also occur in other infectious diseases, differential diagnosis included consideration of colibacillosis, salmonellosis, mycoplasmosis, respiratory viral diseases, and feed-related toxic factors.[12]

Main indicators assessed during epizootic monitoring of broiler chickens in Nukus city

Table 1

Inspection Direction	Evaluated Indicators	Practical Importance
Epizootic situation	Flock density, age group, mortality and morbidity dynamics	Determining the risk of disease spread
Clinical examination	Weakness, respiration, discharges, mucous membranes, feces, lameness	Identifying birds suspected of pasteurellosis

Sample collection	Blood samples, labeling, cold chain, referral documentation	Supporting laboratory diagnosis
Preventive assessment	Disinfection, quarantine, feed and water hygiene, contact with wild birds	Strengthening biosecurity measures

Blood samples were collected in compliance with the rules of asepsis and antisepsis. Each sample was placed into a separate test tube and labeled with information indicating the farm, poultry group, date, and the person responsible for sampling. Cold chain requirements were maintained during transportation of the samples to the laboratory. In the laboratory, the samples were subjected to bacteriological examination and, when necessary, to serological or molecular diagnostic methods. Such an approach makes it possible to compare field monitoring results with laboratory evidence.

Results of the Study and Their Discussion. During the monitoring process, the condition of the microclimate, litter moisture, ventilation, and disinfection measures in broiler poultry houses were considered important indicators in assessing disease risk. In broiler chickens, stress on the immune system is often associated with high stocking density, sharp temperature fluctuations, dust contamination, increased ammonia concentration, and нарушения in feed and water hygiene. Therefore, the results of the clinical examination were analyzed together with the management conditions of the farm.[13]

During the examination of diseased and suspected birds, attention was focused on identifying general clinical signs that could be characteristic of pasteurellosis. In particular, inactivity, ruffled feathers, decreased feed intake, respiratory distress, nasal and oral discharges, discoloration of mucous membranes, watery diarrhea, and changes in the leg joints were evaluated. Such signs may serve as important indicators of pasteurellosis; however, they can also occur in colibacillosis, mycoplasmosis, salmonellosis, or respiratory viral infections. Therefore, it was emphasized that the final diagnosis should only be confirmed through laboratory results.[14]

An important stage of the monitoring was the collection of blood samples and their submission to the laboratory. Proper organization of sampling directly affects the quality of diagnosis. Accurate labeling of samples, including the examination date, poultry group, clinical condition, and farm information, helps prevent confusion during laboratory analysis. By sending blood samples to the laboratory, it becomes possible to evaluate serological indicators associated with *Pasteurella multocida* within the flock and, when necessary, to isolate and identify the bacterium.[15]

The results of the field examination formed a primary database for assessing the risk of pasteurellosis in broiler farms of Nukus city. Due to the highly contagious nature of pasteurellosis, the possible presence of carrier birds, and indirect contact with wild birds, the disease cannot be excluded solely on the basis of clinical examination. Therefore, monitoring should be continuous, and mortality rates, feed conversion, growth performance, respiratory signs, and laboratory findings should be regularly recorded.

During the discussion, it was emphasized that the most effective way to control pasteurellosis in broiler farms is not late detection and treatment, but prevention of the disease. For this purpose, it is important to follow quarantine requirements when introducing new poultry into the farm, restrict visitor movement, disinfect equipment and vehicles, protect feed and water sources from contamination, and reduce contact with rodents and wild birds. In addition, antibiotics should not be used without veterinary supervision, antibiotic sensitivity testing should be taken into consideration, and vaccination strategies should be determined according to the regional epizootic situation.

Practical Recommendations. To systematically organize pasteurellosis monitoring in broiler farms of Nukus city, it is recommended to maintain separate records for each poultry batch, including the date of arrival, age, source of origin, type of feed, mortality, and morbidity indicators. In cases where clinical suspicion arises, diseased birds should be immediately isolated, movement within the farm should be restricted, and samples should be collected under the supervision of a veterinary specialist and sent for laboratory examination.

Due to the rapid growth rate of broiler chickens, any stress factor may lead to a decrease in immunity. Therefore, temperature, humidity, ventilation, ammonia concentration, feed quality, and

water supply should be continuously monitored. Farm workers should be informed about the initial clinical signs of pasteurellosis, work in protective clothing, and use sanitary barriers between poultry houses. Such preventive measures are important not only for pasteurellosis but also for the prevention of other bacterial and respiratory diseases.

Conclusion. The epizootic monitoring conducted on avian pasteurellosis in broiler chickens under the conditions of Nukus city demonstrated the importance of combining clinical examination with laboratory diagnostics for the early detection of the disease. During the field investigation carried out in collaboration with the scientific supervisor Pulotov F.S., the general clinical condition of broiler chickens was assessed, suspicious clinical signs were analyzed from the perspective of differential diagnosis, and blood samples were sent for laboratory examination.

The obtained field data indicate that control of pasteurellosis should not be limited only to clinical observation; rather, every suspected case should be confirmed through laboratory diagnostics. Strengthening biosecurity measures in broiler farms of Nukus city, including regular disinfection, quarantine, proper feed and water hygiene, restriction of contact with wild birds and rodents, and systematic veterinary monitoring, can significantly reduce the risk of the disease. After receiving laboratory results, the epizootic assessment should be further clarified, and preventive measures should be improved according to the actual conditions of the farm.

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