Volume 3, Issue 11, November - 2025
ISSN (E): 2938-3781

Web of Agriculture: Journal of Agriculture and Biological Sciences
webofjournals.com/index.php/8

LET'S PROTECT BAYAD BREED SHEEP FROM PASTERELLIS DISEASE

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Abstract
In Karakul farming, especially among sheep and lambs, the death of sheep and lambs as a result of the spread of pasteurellosis in natural conditions is causing great damage to the economy of many Karakul farmers. Therefore, it is necessary to protect Bayad sheep imported from Mongolia from pasteurellosis. As a result of these diseases among sheep, the mortality rate of sheep is 30-70%. This article provides a detailed description of the development of pasteurellosis pathogens, epizootological data, clinical signs, pathomorphological changes in each organ, methods of diagnosis, treatment, prevention and control.

Keywords: Pasteurella multocida, contagious, Giemsa-Romanovsky, bacterioscopy, hemorrhagic, blood burn, dystrophy, necrosis, atrophy, inflammation, hyperemia.

Introduction

It is well known that pasteurellosis, which occurs in sheep and lambs, is one of the major problems in livestock farming, causing significant economic losses. The fact that these diseases naturally enter the body through feed, resulting in the death of livestock, especially sheep, complicates the problem in the veterinary field. The lack of effective biological and chemical drugs in the veterinary field further complicates the problem and contributes to the wider spread of diseases. A large amount of money is spent on the treatment of sick sheep and lambs and measures to combat the disease.

The President of the Republic of Uzbekistan paid a state visit to Mongolia on June 24-25, 2025. Cooperation in such areas as agriculture, animal husbandry, veterinary medicine, and plant quarantine within the framework of the comprehensive partnership established between Uzbekistan and Mongolia was discussed.

In order to ensure the implementation of the tasks set by the Decree of the President of the Republic of Uzbekistan No. PD-15 dated January 30, 2025 “On measures to introduce modern mechanisms for the protection and rational use of pastures” and the Order of the Committee for the Development of Veterinary and Livestock No. 106 dated July 18, 2025 and the expanded meeting of the management staff and employees of the veterinary system organizations on July 7, 2025 research work is being carried out on the acclimatization of Bayad breed sheep in the conditions of Uzbekistan.

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Nowadays, protecting Bayad sheep and lambs from pasteurellosis, timely treatment, and control are of great importance.

Relevance of the topic

In Central Asia, with a growing interest in hardy and productive animal breeds, special attention is being paid to breeds that can adapt to arid climates, food shortages, and temperature extremes. The Bayad sheep breed, imported from Mongolia, is one of the oldest breeds known for its endurance, robust health, and adaptability to harsh conditions. Increasing meat production based on studying the adaptation characteristics of this breed to the climatic conditions of Uzbekistan is one of the current challenges.

Pasteurellosis is widespread in cold, wet, windy seasons, especially in spring and autumn. Poor ventilation, overcrowding, and malnutrition exacerbate the disease. Pasteurellosis is a highly contagious disease that can spread to the entire herd in a short time. This leads to mass outbreaks. Although vaccines exist, their effectiveness depends on external factors. It is necessary to carry out comprehensive preventive measures every year. Due to the emergence of new strains and antibiotic-resistant forms, in-depth study of this disease, development of new vaccines and diagnostic methods are urgent issues in veterinary science.

Pasteurellosis is a contagious infectious disease of mammals and poultry, characterized by hemorrhagic septicemia, croupous pneumonia, pleurisy and edema in many parts of the body in the acute course, and purulent-necrotic pneumonia in the lungs, keratoconjunctivitis, arthritis, mastitis and hemorrhagic enteritis in the subacute and chronic course.

Source of the disease and routes of transmission. The main source is sick or latent carriers of the disease. The disease is transmitted by airborne droplets, direct contact, or through contaminated feed, water, and equipment. It can also be transmitted during transportation, markets, and fairs.

Epidemiological data. All types of domestic and wild mammals and birds are susceptible to pasteurellosis. This disease also occurs in humans. The source of the disease is sick and recovered carriers of pasteurellosis. The duration of the carrier state of pasteurellosis is 1 year. Healthy animals are characterized by the fact that they carry the pathogen for a long time. Cattle and sheep are affected at all ages, but young animals are more susceptible.

Pasteurellosis occurs mainly in secondary conditions. For example, from viral diseases, sheep pox, adenovirus infections, and sheep viral pneumonia. From parasitic diseases, dictyocaulosis and monesiosis. From non-infectious diseases, bronchopneumonia, enterotoxemia, and severe decreases in immunity occur.

For this reason, this disease is also called a "secondary infection." That is why we are conducting research on the development and pathomorphological differential diagnosis of pasteurellosis secondary to the effects of dictyocaulosis in sheep.

The trigger. Pasteurella multocida is a small, gram-negative, non-motile, non-spore-forming bacterium that often occurs singly, in pairs, and occasionally in chains.

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Passing. The latent period lasts from a few hours to 2-3 days. It depends on the age of the animal, its resistance, the amount of the pathogen, and its virulence.

In the acute course of the disease, they experience general malaise, lethargy, anorexia, and fever up to 41° C. The nasal cavity is cold and dry, chewing and milk production cease, and at the beginning of the disease, bowel movements and defecation slow down, feces become liquid, and in some cases, bloody, even bloody fluid from the nose, conjunctivitis, and hematuria are observed.

In the subacute form of the disease, local changes in addition to fever occur in 3 forms: edema (watery edema), chest and intestinal forms. In the edema form, a rapidly increasing, painful, hot fluid accumulation is observed under the skin of the jaw, neck, abdomen, and legs. If this phenomenon occurs in the tongue and throat, breathing becomes wheezing and breathing becomes difficult, water flows from the nose, sticky saliva flows from the mouth; numerous hemorrhages are observed on the mucous membranes. In the chest form, croup is fibrinous pneumonia, depression, anorexia, atony, difficulty and rapid breathing, painful cough, serous, bubbling fluid flows from the nose. At the end of the disease, bloody diarrhea is observed and death occurs within 5-8 days. In the intestinal form, the main symptoms are characterized by severe damage to the digestive system, signs of pneumonia are not well manifested, but developing anemia and general weakness are observed.

If the disease is chronic, signs in the respiratory and digestive organs are weaker than in the intestinal form, but diarrhea leads the animal to cachexia.

Pathoanatomical changes. These changes depend on the course and form of the disease. In the acute and subacute stages, hemorrhagic diathesis is observed in animals that die (hemorrhage and inflammation of organs, mucous and serous membranes), liver and kidney damage, the spleen is slightly swollen, lymph nodes are swollen, dark red in color, and serous-fibrinous infiltrates are noticeable in the subcutaneous tissue, especially in the edematous form of the disease, in various parts of the body. Pathoanatomical and pathomorphological changes in sheep and lambs are somewhat different.

In sheep - In acute, subacute, and chronic forms of the disease, pathological changes in the parenchymal organs are different.

The lungs are swollen, the blood vessels are filled with blood, and when cut, the bronchi and olaveolae are filled with a liquid mixed with mucus. In the lungs of some sheep, especially when they are sick, hepatization and giardiasis foci are formed. In some sheep, it is determined that croupous pneumonia has passed into a necrotic and purulent state.

The liver is enlarged, the blood vessels are filled with blood, the consistency is pale, some sheep have numerous foci in the liver, and when cut, it is visible that the foci of blood penetrate deep into the parenchyma.

The kidneys are swollen, pale, and have congestion in the blood vessels. When cut, the renal parenchyma is swollen, the border between the cortex and the brain is not clear. In a state of hyperemia. The coronary and small blood vessels are in a stagnant state, the myocardium is pale, often resembling cooked meat. Dotted hemorrhages in the endocardium, and in some sheep, speckled hemorrhages are very common.

The blood vessels of the mucous membranes of the spleen are stagnant, in some places they are

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dotted, in some sheep there are spot-like hemorrhages, erosions and ulcers. The spleen is enlarged, in some it is dark red, and there is a lot of mucus. There are small pinpoint hemorrhages on the surface.

A very foul-smelling liquid mass and gas accumulated in the small intestines, the intestinal walls were thinned. The mucous membranes of the large intestine of some sheep suffered from catarrhal-hemorrhagic inflammation.

Diagnosis. Pasteurellosis is diagnosed based on clinical signs, epizootological data, pathological and anatomical changes, and of course the results of bacteriological examination (bacterioscopy and isolation of Pasteurella culture). Spleen, liver, kidney fragments, affected lung fragments, lymph nodes and scapula are sent to the laboratory. These patmaterials should be taken no later than 3-5 hours after the death of the animal and without treatment. Small animals are sent whole. In the summer months, the patmaterial is preserved in a 40% solution of glycerin in water and sent to the laboratory with a referral letter.

Treatment. Treatment of the disease should begin with the isolation of sick animals from the herd and the elimination of the factors that cause the disease. Sick animals should be kept in quiet, warm, dry buildings, and provided with a nutritious diet. Modern antibiotics can be used: oxytetracycline, penicillin, streptomycin, enrofloxacin penstrip-400 and tylosin. That is, they can be used even after the sensitivity of the pathogen to the above antibiotics has been determined.

Hyperimmune serum against pasteurellosis is effective when used at the onset of the disease, when the first clinical signs appear, during the acute course of the disease. The serum is administered subcutaneously or intravenously in two prophylactic doses (1.5-2 ml/kg). The effectiveness of the treatment increases if the serum is combined with antibiotics penicillin and streptomycin..

Prevention. The secondary development of pasteurellosis takes advantage of the weakened state of the organism and manifests its pathogenic properties. Therefore, in the prevention of pasteurellosis, the main attention should be paid to strengthening the immunity of animals, reducing stress, and preventing viral and parasitic diseases.

Only sheep and feed from farms that are healthy in terms of pasteurellosis should be purchased, sheep should be kept in pastures (on a rotational basis), and fed with a diet rich in nutritious and high-quality feed. If this disease has been detected on the farm before, sheep should be vaccinated against pasteurellosis throughout the year and only vaccinated sheep should be allowed into the farm. Sheep coming from other farms must be under preventive control for 1 month.

Immunity. To prevent the disease, lambs up to 6 months of age are vaccinated with the polyvalent GOA formalin vaccine against pasteurellosis, the first time 1 ml, and the second time 2 ml after 14 days. For older sheep, the first time 2 ml, and the second time 14 days later, 3 ml should be vaccinated subcutaneously. Immunity appears after 14 days and lasts for 12 months.

Countermeasures. In the event of laboratory detection of pasteurellosis among cattle and sheep and goats on a farm, the area is declared unhealthy for this disease by a decision of the authorities based on the act of the chief veterinarian of the district (city) and restrictions are imposed on it.

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All animals on the farm are clinically examined, sick animals are isolated and treated separately, and the rest are vaccinated against pasteurellosis. Current disinfection is carried out every 10 days after each sick animal is detected and until the restrictions are lifted. The bodies of dead animals are cremated. After all animals have been vaccinated and the final disinfection has been carried out, the restrictions are lifted after 14-21 days.

Conclusions

Recommendations were given to farm specialists on the protection of Bayad sheep imported from Mongolia to Uzbekistan from pasteurellosis and their timely diagnosis, treatment and prevention. Pathomorphological changes in sheep infected with pasteurellosis were expressed in hemorrhages in all parenchymatous organs, catarrhal-fibrinous pneumonia in the lungs and vascular congestion, edema, catarrhal-hemorrhagic gastroenteritis in the stomach and intestines. It was found that due to the high virulence of pasteurellosis in sheep infected with these diseases, changes characteristic of pasteurellosis were clearly manifested.

Pasteurellosis has been found in almost all breeds of sheep and in the Bayad breed. It is also necessary to comply with veterinary sanitary rules on the farm and vaccinate animals against the disease in a timely manner. It is better to prevent the disease than to treat it.

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