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CLINICAL SIGNS, DIAGNOSIS AND PREVENTION OF NODULAR DERMATITIS IN CATTLE

A.S.Mengliyev

Termez State University Of Engineering And Agrotechnology. (Ph.D)

Alimengliyev1972@Gmail.Com

I.Kh.Salimov,

Veterinary Research Institute, Senior Researcher, Deputy Doctor Of Science.

I.N. Siddikov,

Senior Lecturer (Veterinary Research Institute, "Food Safety And Technology"), Samarkand Agroinnovations And Research Institute. (Ph.D)

I.S.Kho'jakulov, D.S.Sodiqova., D.A.Daliyev.

Students Of Termez State University Of Engineering And Agrotechnology.

Annotatsiya. Ushbu maqolada O'zbekistonda hozirgi kungacha olimlarimiz tomonidan кам o'ganilgan bugungi kunda dolzarb muommo bo'lib kelayotgan kasalliklardan biri bo'lgan qoramollarning nodelyarniy dermatit kasalligining klinik belgilari,diagnostikasi va oldini olish vazifalari belgilab berilgan.

Аннотация. В статье изложены клинические признаки, диагностика и профилактика нодулярного дерматита крупного рогатого скота – заболевания, которое мало изучено нашими учеными в Узбекистане и в настоящее время является актуальной проблемой.

Annotation. This article outlines the clinical signs, diagnostics, and prevention of nodular dermatitis in cattle, a disease that has been poorly studied by our scientists in Uzbekistan and is currently a pressing problem.

Kalit so'zlar: qoramol,infeksiya,virus,isitma,teri tugun, yallig'lanish,teri bo'rtmasi,davolash va oldini olish, сўлак, уруғ, сут, кўз ва бурун,суюқлик, трансмиссив йўл, ҳашаротлар, ўчоқли тери қопламида бўртмалар, думалоқ, сон, қўлтиқ, кўз атрофи, тумшуқ, елин.

Ключевые слова: крупный рогатый скот, инфекция, вирус, лихорадка, узелок на коже, воспаление, кожная сыпь, лечение и профилактика, слюна, сперма, молоко, глаза и нос, жидкость, путь передачи, насекомые, локализованная кожная сыпь, пах, бедро, подмышечная впадина, вокруг глаз, морда, крестец.

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Key words: cattle, infection, virus, fever, skin nodule, inflammation, skin rash, treatment and prevention, saliva, semen, milk, eyes and nose, fluid, transmission route, insects, localized skin rash, groin, thigh, armpit, around the eyes, snout, rump.

Introduction. Lumbar dermatitis of cattle (Dermatitis nodularis bovum; contagious nodular dermatitis) is a contagious viral disease that knows no borders, characterized by persistent fever, necrotizing focal skin rashes (lumpy swelling), widespread lymphadenitis, lesions of the mucous membranes of the eyes, respiratory and digestive organs. Sheep, goats and buffaloes can also sometimes be infected with this disease.

The somewhat complicated epizootic situation with lumpy dermatitis of cattle in the world, the proximity of its distribution area to the border regions of our country and the potential danger require the provision of information about this disease.

Relevance of the topic. Lumpy skin disease (LSD) of cattle was recorded in Central and Southern African countries, Madagascar, and India. Later, in the Middle East, during 2014-2016, LSD of cattle was recorded in Turkey, Azerbaijan, Lebanon, Iraq, Iran, Egypt, Cyprus, the Russian Federation, the Republics of Dagestan, Chechnya, Armenia, Greece, Bulgaria, Macedonia, Serbia, Montenegro, Albania, and Kazakhstan. This disease also causes serious damage in Uzbekistan.

Course and clinical signs. The incubation period of the disease is 3-30 days, the incubation period in natural conditions is 2-4 weeks, and in experimental conditions it is 7-8 days. Usually, when the virus suspension is infected subcutaneously and between the skin, in cattle, after 4-7 days, the inflammatory process begins at the site of damage and spreads to the epidermis, dermis, and nearby muscles. Exudate accumulates in the bumps that appear, then necrosis develops. Injured areas of the skin will be painful. Intensification of these processes occurs 7-19 days after the animal is infected, and fever is observed. The virus can be detected in the blood 3-4 days after the body temperature rises and the rash appears. The virus spreads through the blood throughout the animal's body over 1-2 weeks, penetrating the tissues of the oral cavity, nose, eyes, vagina, prepuce, salivary and mammary glands, testicles, and other organs, causing necrotic inflammation.

In the acute course of the disease, the body temperature rises to +40°C and remains at this level for 4-14 days, there is a decrease in appetite, discharge from the eyes, mucous or purulent discharge from the nose and mouth, and after 48 hours, the formation of focal skin rashes is observed. These rashes are slightly raised above the skin surface, round, clearly demarcated, 0.2-7.0 cm in size, and depending on the course of the disease, their number can range from a few to several hundred. They are located throughout the body, mainly on the thighs, armpits, around the eyes, on the muzzle, and on the groin.

In severe cases, the lesions may also be located on the mucous membranes of the mouth and nose, and on the labia minora. Nodular lesions may form on the eyelids, causing blurred vision and partial or complete blindness. 1-3 weeks after the lesions appear, the tissue inside them becomes completely necrotic, forming sequestrations. Later, the lesions rupture, releasing a foul-smelling, viscous mucus.

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As the swellings rupture and heal, the bumps and their signs of inflammation disappear (within 4-6 weeks). The wool in their place falls out. The bumps sometimes harden and can remain in this state for up to a year. Eventually, they either resorb or, more often, undergo necrosis, forming a dry scab, under which granulation tissue forms. During the healing and scarring process, these wounds are often contaminated with various secondary microflora, which leads to complications. Lymph nodes, especially the prescapular and axillary lymph nodes, enlarge. Sick animals lose weight quickly, their productivity decreases. In dairy cows, due to injuries to the udders, the milk thickens, acquires a pinkish color, is milked in drops, and when heated, turns into a jelly-like state.

The disease progresses with damage to the respiratory, digestive, reproductive organs and joints, and may be accompanied by abdominal-type difficulty breathing, profuse salivation, mucous or mucopurulent conjunctivitis, clouding of the conjunctiva, and enlarged lymph nodes. In cows, abortion, mastitis, and impaired reproductive function may occur, and in bulls, temporary impotence or complete infertility may occur.

In calves, ND can occur without visible lesions of the skin. In this case, the disease is characterized by fever, diarrhea with mucus and blood. In the subacute course, no significant lesions of the skin are observed. The disease is accompanied by short-term fever (2-5 days), loss of appetite. The disease can also occur without clinical signs, in which case the disease is diagnosed only by detecting the DNA of the causative virus in the polymerase chain reaction (PCR) or by the presence of virus-neutralizing antibodies. Infected animals without clinical signs in the affected herd can reach up to 50%.

Diagnosis. A preliminary diagnosis is made based on clinical signs (clearly demarcated lesions on the skin, in severe cases, lesions on the mucous membranes, lesions clearly demarcated from healthy skin, superficial lymph nodes are involved), analysis of epizootological data (the disease occurs suddenly on several farms at once, the number of infected animals increases rapidly, sometimes reaching 70%), and pathological changes.

The final diagnosis is made on the basis of laboratory tests. Rashes are used as pathological material for virus isolation, viral nucleic acid in rash scabies can be detected by PCR for 3 months. Cell culture and neutralization reaction are used to isolate and identify the virus. Currently, molecular genetic methods are used for diagnosis. In cases where the virus or antigen, genome of ND is detected, the final diagnosis is considered to be made. For this purpose, reactions such as PCR, IFA and RSK (RDSK) are used.

Differential diagnosis. Animal ND should be differentiated from dermatophilosis (a chronic skin lesion characterized by the formation of scaly, raised papules on the surface of the skin); from the cutaneous form of tuberculosis (the lesions are located under the skin along the joints and cervical lymph nodes and persist for a long time); from the skin reaction to insect bites (painful lesions are well felt, the inflammation is not limited to the papule, the lesions are soft and spread), from protein, sheep bluetongue, demodicosis, smallpox, infectious rhinotracheitis, and helminth larvae lesions.

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Specific prophylaxis. Animals that have recovered from the disease do not become infected with ND again. According to some scientists, immunity in animals that have recovered from the disease lasts for 11 months.

For active specific prophylaxis, a homologous live attenuated virus vaccine from the Neethling strain and a heterologous live attenuated virus vaccine from strains of capripoxviruses isolated from sheep and goats are used. All strains of capripoxviruses used as vaccines can cause a strong local reaction at the injection site. The vaccination dose with the nodular dermatitis virus vaccine is 2.5 lg50/cm3, and the vaccination dose with the vaccine prepared from the sheep and goat pox virus is 5 lg50/cm3.

For specific prophylaxis, the first scheduled vaccination is carried out on 3-month-old young animals. Revaccination is carried out after 12 months. In unhealthy areas and farms in risk zones, all healthy animals are vaccinated, regardless of the period of previous immunization. Young animals up to 6 months of age are vaccinated 2 times with an interval of 14 days.

Prevention and control measures. There is no ND in Uzbekistan and has never been. However, as noted above, this disease is present in some countries of Asia, Europe, and Africa, so the risk of the disease entering the country remains. The way to protect susceptible animals is to strictly monitor the dangerous border area, cattle crossing the border and their products, immediately report any suspicions, and conduct clinical and laboratory examinations of newly arrived animals during preventive quarantine. The main attention should be paid to preventing the introduction of the pathogen from foreign countries. Cattle imported into the country, their meat, dairy products, and semen should be purchased from countries that are healthy in terms of ND. Cattle should be tested for ND during a 30-day preventive quarantine, and only healthy animals should be allowed onto the farm. It is not advisable to keep cattle and sheep and goats in border areas with foreign countries.

Organizing farms as a closed enterprise, organizing entrances to buildings through disinfectants, feeding animals with nutritious feed, housing them in accordance with zoohygienic standards, timely isolating, keeping and treating sick animals, keeping the farm area clean, and conducting disinfection and disinfestation measures on the farm based on a plan will help prevent this disease.

If this disease is detected in cattle by one of the clinical, pathological and laboratory methods, within the framework of the Veterinary Law, the farm or settlement is declared unhealthy by the decision of the khokim based on the act of the chief veterinary inspector of the district (city) and quarantined as an exotic disease. All quarantine measures are taken in the unhealthy settlement and measures are taken to prevent the spread of the disease. All types of animals, unauthorized persons, and mixing groups of animals are prohibited from entering and leaving the farm.

When ND is first detected among cattle, sick animals and those in direct contact with them are isolated in the epizootic focus, they are killed by a bloodless method, and the carcasses are destroyed. Sick animals that died, uneaten feed and bedding are burned in the territory of the unhealthy point. Milk obtained from animals in the epizootic focus is sold without

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restrictions after boiling for more than 5 minutes on site or pasteurization at a temperature of +850C for 30 minutes.

In the epizootic focus, buildings and pastures where sick animals are kept, as well as vehicles with manure, are disinfected and disinfested every week. Special clothing and rubber boots of farm workers are disinfected with formaldehyde vapors in a special chamber.

The border of the danger zone (3 km) is determined, and disinfection, disinfestation and vaccination of conditionally healthy animals are carried out there to prevent the spread of the disease. Until the quarantine is lifted, susceptible animals are clinically examined daily in all livestock farms, regardless of their form of ownership. In the surveillance zone (10 km), cattle are clinically examined daily and disinfested weekly.

Quarantine is lifted 30 days after the death or loss of the last sick or suspected animal from a farm (population settlement) that is not healthy according to the ND of cattle, after all measures specified in the current regulations have been carried out and a commission report has been submitted confirming their completeness and quality.Карантин бекор қилингач 1 йилга чеклов қўйилади ва шу муддатда қорамолларни гўштга топширишдан ташқари, носоғлом пункт ҳудудидан чиқариш ва реализация қилиш тақиқланади.

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