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Clinical and Pathomorphology Diagnosis and Measures to Combat Cattle Leukemia in the Republic of Karakalpagistan

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Annotation: *This article studied the prevalence of leukemia among cattle, as well as its etiological factors. To do this, the epizootic situation was checked for infectious diseases of cattle in 5 farms of the Republic of Karakalpakstan. Selected for examination on the recommendation of veterinary staff. A scientific and practical explanation of the incidence of leukemia in livestock farms, farms, clusters, LLC and private entrepreneurs of the Republic of Karakalpakstan was carried out*

Keywords: *Leukosis, vaccine, immunity, immunophone, antigen, epizootology, clinical, pathologoanatomics', bacteriologist, virologist, epidemiology, pathobiology.*

INTRODUCTION

Livestock breeding 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 livestock breeding, and meet the demand for livestock products (meat, milk, etc.). 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-2841 dated March 16, 2017 “On additional measures to deepen economic reforms in livestock breeding”, No. PQ-4576 dated January 29, 2020 “On additional measures to support the livestock breeding sector by the state”, No. PQ-121 dated February 8, 2022 “On measures to further develop livestock breeding and strengthen the food base”, No. PQ-120 dated February 8, 2022 “On the development of the livestock breeding sector and its sectors in the Republic of Uzbekistan It will serve to a certain extent in implementing the tasks set out in the resolutions "On Approval of the Program for 2022-2026" and other legal and regulatory documents related to this area.

Purpose of the study The aim of the project is to study the epidemiology of bovine leukemia in the Republic of Karakalpakstan, as well as to improve clinical and pathomorphological diagnostics and control measures.

Research object and methods. The experimental part of the scientific research will be carried out in the laboratory and vivarium of the Nukus branch of the Samarkand State University of Veterinary Medicine and Animal Husbandry and Biotechnology in the territories of the Republic of Karakalpakstan during 2024-2026, in the laboratory and vivarium of the Nukus branch of the Samarkand State University of Animal Husbandry and Biotechnology, in livestock farms at the Laboratory and Food Safety Center of the Republic of Karakalpakstan. Measures to prevent and combat bovine leukemia and methods for diagnosing the disease will be carried out based on general rules.

Results of the study. The prevalence and etiological factors of leukocytosis among cattle were studied. For this, the epizootic situation of infectious diseases in cattle in 5 farms of the Republic of Karakalpakstan was examined. They were selected for examination based on the recommendations of veterinary service employees. A scientific and practical explanation of leukemia was carried out in livestock farms, farms, Cluster, LLC and private entrepreneurs of the Republic of Karakalpakstan.

Clinical diagnosis. Clinical signs of leukemia are most common in animals aged 4-7 years and depend on the organ in which the tumor process is located. In most cases, hypotonia in the large abdomen of cattle, as a result of impaired sexual function and weakening of the cardiovascular system, fluid accumulation (edema) is observed between the lower jaw, under the neck and chest. When clinical signs characteristic of leukemia appear, superficial subcutaneous lymph nodes (under the jaw, near the ear, in front of the shoulder blades, above the scapula, above the knee joint) are enlarged when palpated with the hand (Fig. 12). In the terminal period of the disease, the above-mentioned nodes are very large - 25x30 cm, mass - 7-8 kg). During this period, some cattle develop one or both eyes swollen shut due to lymphoid cell tumors, i.e., a bull's eye, and usually unnoticeable enlargement of the subcutaneous lymph nodes in the neck, back, and upper abdomen. Many veterinary specialists consider this to be a sign of a disease.

When examining cows rectally, it is necessary to pay attention to the size of the pelvic lymph nodes and thickening of the uterine walls.

Clinical and hematological processes in leukemia occur in a wave-like manner, that is, after a period of exacerbation of the disease, periods of clinical and hematological remission (improvement of the clinical and hematological condition, approaching the norm) of varying duration may begin. The alternation of these periods in some cases leads to a short-term crisis. In this case, cattle show indifference to external influences, refusal to feed, excessive salivation, diarrhea (in some cases with blood), tremors, and a decrease in body temperature by 1-2° C. If too many immature lymphoid cells are released into the blood during a crisis, the animal will die, but if this period passes peacefully, the condition of the sick animal will improve somewhat and remission will begin again.

In the final stage of the disease, when clinical signs appear, the animal becomes very thin, the milk of sick cows decreases, they do not become fat, and in some cases the spleen becomes enlarged, ruptures and

bleeds, or when tumorous changes are observed in the heart, lungs, kidneys and liver, the sick animal may die suddenly.

5. Pathomorphological diagnosis

All forms of leukemia (true leukemia - lymphoid, myeloid leukemia and reticulosis - hemocytoblastosis, lymphosarcoma, reticulosarcoma and lymphogranulomatosis) are characterized by varying degrees of enlargement of the lymph nodes. In true leukemia, they are uniformly enlarged, not fused with adjacent organs and tissues, their capsules are easily removed, and when cut, they are fluid-gray, oily.

In tumor leukemia (reticulosis), the lymph nodes are rough, their capsules are fused with the parenchyma, and when cut, hemorrhages and necrosis are observed. In the serous membrane of the abdominal and pelvic cavities, diffuse or nodular tumors of various shapes and sizes are found.

The spleen is enlarged and soft, red-brown, brown-brown in 100% of cases in true leukemia and in 40-60% in lymphogranulomatosis. In lymphoid and myeloid leukemia, the spleen is greatly enlarged. In the final stage of the disease, the border between the red and white pulp is not clearly visible, that is, they have merged.

In all forms of leukemia, focal or diffuse white-gray or reddish-gray tumors can be seen in the liver, kidneys, heart, digestive organs, uterus.

Histological examination. Pathological material for histological examination; first of all, from various lymph nodes, spleen, bone marrow (dummy), then from internal organs with observed and undetected changes, should be taken from dead and forcibly slaughtered cattle no later than 12 hours. Pieces of pathological material should be 2x1.5 cm in size and placed in 10% neutral formalin or 96° ethyl alcohol and sent to a veterinary institute or laboratory with a referral letter. The amount of liquid (formalin, alcohol) must be 10 times greater than the amount of material. The referral letter indicates the ownership of the cattle, age, breed, inventory number, results of serological and hematological, pathoanatomical and clinical examinations.

Prevention of bovine leukemia includes the following measures:

-annually, in spring and autumn, testing animals older than 6 months for leukemia;

-compulsory blood sampling of purchased animals and sending them for leukemia testing only to veterinary medicine laboratories;

-keeping healthy animals separate from sick animals and preventing their contact;

-The most reliable way to eliminate the focus is the rapid absorption of nitrogen and carrying out appropriate disinfection measures;

-The causative agent of bovine leukemia is extremely unstable in the external environment, dies in 76 and 16 seconds. Boiling water kills it instantly. It is destroyed by various disinfectant compounds:

2-3% sodium hydroxide solution;

3% formaldehyde;

2% chlorine solution.

-It also dies under ultraviolet rays in 30 minutes. In direct sunlight - 4 hours. Sensitive to various solvents - acetone, ether, chloroform. Farms affected by this disease are taken under control and are out of operation. According to the rules for combating bovine leukemia, a number of restrictions are imposed on them to reduce the spread of infection. Quarantine measures do not allow:

Drive livestock within settlements without the permission of a veterinarian.

Free mating of cows with bulls-producers.

Use of contaminated equipment when treating animals and premises.

Keeping healthy and sick together.

Free import and export of animals.

Measures for bovine leukemia provide for the quarantine of all newly arrived livestock. The sale of meat and dairy products is carried out only with the permission of the veterinary station.

During the quarantine period, premises where livestock and items intended for animal care are stored are regularly disinfected.

Conclusions. Cattle leukemia is not curable, and even the most modern veterinary science and practice do not have effective drugs against this disease, so timely immunodiagnosis of cattle is carried out. As a result, the disease is detected only by infection with the leukemia virus, without clinical and morphological changes in the body. To protect healthy farms from this disease, it is necessary to examine cows and heifers

once a year, and breeding bulls twice a year using the Immunoenzyme Analysis (IFA) reaction. As a result, the IFA reaction identifies the causative antigen or a specific antibody formed against it in a relatively short time.

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