

Practical Recommendations for the Prevention of Mastitis in Dairy Cows

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Abstract:

If measures are taken to prevent mastitis among dairy cows in the farms, prevention works will be effectively organized by detecting mastitis among dairy cows in the subclinical period.

Keywords: mastitis, hidden mastitis, milk, cow, lactation period.

In recent years, the Government of our Republic has been paying serious attention to bringing in breeding cattle from countries where cattle breeding has developed and organizing breeding. According to the information of the Ministry of Agriculture of the Republic of Uzbekistan, during 2021-2023, a total of 367,745 high-yielding cattle were imported from Ukraine, Belarus, Poland, Austria, Germany, Holland and other European countries. Meeting the growing demand of the population of our republic for livestock products depends on the rapid development of livestock breeding and the increase of product production. The production of livestock products mainly corresponds to the share of farms and the private sector. More than 90% of livestock products are produced in households. According to the forecast indicators of increasing the production of livestock products in our country in 2016-2020, it was planned to increase the number of cattle to 148,000, sheep and goats to 23,187, and poultry to 92,000 by 2020, and these results were achieved. Production of livestock products: meat (t/weight) - 2500, milk - 13000, fish - 150, honey - 23.0 thousand tons, eggs - 9600 million. delivered to the grain. Regular provision of quality livestock products to the population of the Republic is an urgent task of veterinary science and practice.

The development of animal husbandry, along with all areas of agriculture, providing the population with high-quality livestock products and industrial raw materials is an urgent demand of the present

time. One of the main factors for the development of the industry is the creation of a solid feed base, improvement of livestock breeds, and improvement of livestock technology. At the same time, obstetric and gynecological diseases, which are widespread among livestock and cause great economic damage, including mastitis of cows, prevent the increase of milk productivity and the number of mother cows in livestock breeding, and have a negative effect on the quality of milk. Currently, our government is developing a number of measures to increase the number and productivity of livestock in our country, to provide them with feed products, and to improve the quality of manufactured products.

Review of literature: Mastitis is an inflammation of the mammary gland, which develops under the influence of mechanical, thermal, chemical and biological factors. A. P. Studensov states that the course and consequences of mastitis depend on the location of the pathological process and the pathogenicity of the causative agent, as well as on the state of the organism and the reactivity of the mammary tissue. Mastitis can occur during lactation and weaning.

Inflammation of the mammary glands - mastitis occupies the main place among the diseases of cows that are accompanied by a decrease in milk productivity and a decrease in its sanitary-technological quality. The incidence of cows with mastitis is 28-30%, and the annual yield of milk obtained from them decreases to 15-20%. The content of somatic cells (SC), protein, chlorides, alkalinity, density, bacterial damage increases, and the content of fat, lactose, dry skimmed substances and bactericidal activity decreases in the content of milk milked from injured udder.

Mastitis is currently one of the most common diseases among cows in cattle breeding. Due to mastitis, great economic losses are caused to livestock, which include:

1. The total amount of milk obtained is 15-20% and its fat content is reduced to 0.8-1%;
2. The period of use of highly productive animals in the farm is reduced to 6-8 years;
3. The sanitary quality of milk decreases, that is, dairy products made from such milk are of poor quality;
4. Cows become barren.

Mastitis occurs in all domestic animals. They are especially common in cows and mainly in the first half of the milking period (when the mammary gland is working hard). In cows, often one quarter of the udder, sometimes two or more quarters, is damaged by mastitis.

Inflammation of the udder in cows often takes the form of subclinical mastitis. It occurs in 21.4% of cows in the milking period, 24.6% near weaning, 28.9% in the weaning period, and 23.4% in the newborn period. Clinically invisible mastitis occurred in 4.6-6.2% of cows during these periods.

In addition, it was found that the origin of mastitis depends on the age of the animal. For example, 12.1% of cows under 5 years old, 63.6% between 5-10 years old, 10 years old and older - 24.3% were infected. The disease is mainly caused by a decrease in the body's natural resistance. The main causative agents of the disease can be staphylococcus in 26.9% of cases, streptococcus in 25% of cases, *Escherichia coli* in 28.2%, as well as salmonella, diplococcus, proteus, corynebacteria and fungi. These microorganisms pass to the udder mainly through the udder teats (galactogen), blood vessels (hemotogen) and lymphatic channels - (lymphogen). Mastitis is acute (up to 5-7 days), semi-acute (up to 3 weeks) and chronic (up to 20-25 days and more).

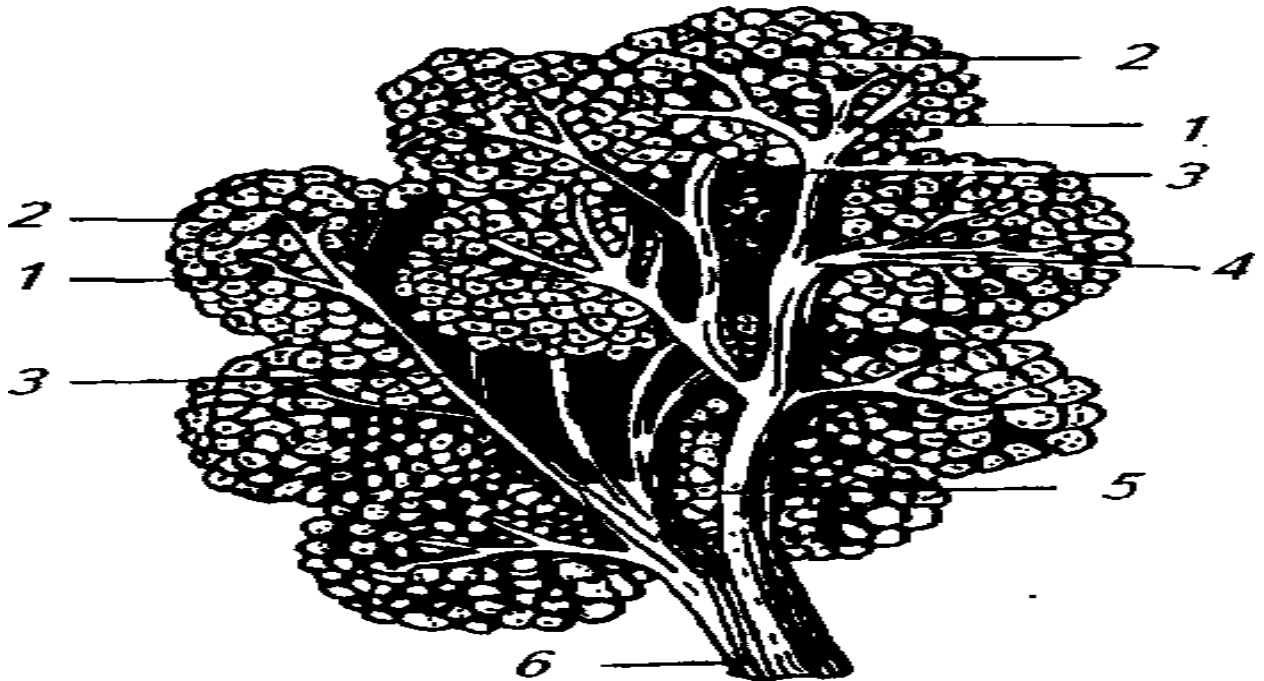
The classification of mastitis is favorable compared to others: 1) serum mastitis; 2) catarrhal mastitis (catarrh of the milk cistern, milk ducts and alveoli); 3) fibrinous mastitis; 4) purulent mastitis (purulent-catarrhal mastitis, udder abscess and udder phlegmon); 5) bloody mastitis; 6) specific mastitis (udder protein, actinomycosis, udder tubercle); 7. Complications of mastitis (udder induration, udder gangrene).

The udder is surrounded by a thin and elastic skin covered with wool on the outside. The back surface of the udder is called the mirror of milk, it has well-defined longitudinal skin folds. There are sweat and sebaceous glands in the skin of the udder.

Under the skin of the udder is the superficial fascia, and under it is the deep udder fascia, which is a continuation of the yellow abdominal fascia. Between the two parts of the umbilical cord, there are two elastic sheets (ligam. suspensorium uberis) going from the white line of the abdomen to the base of the umbilical cord.

The milk cistern (Sinus lactiferus) is a space bounded by the teat walls and the lower part of the udder. It serves as a milk reservoir. Usually there is one cistern in each sucker. The cavity of the cistern is covered with a mucous membrane, the folds of this mucous membrane are located in different directions.

Udder nipple (papillae uberis) consists of three layers: 1) inner layer, that is, from the mucous



membrane of the cistern and milk duct; 2) middle layer, i.e. consists of elastic connective tissue and muscles, and 3) outer layer, i.e. elastic connective tissue and skin. At the end of the udder, muscle fibers form a circular (circular) layer, which is a sphincter that closes the udder canal. The length of the teats of the umbilical cord is 4-10 cm, the length of the teat sphincter is 5-10 mm, and the diameter is 2.5-3 mm.

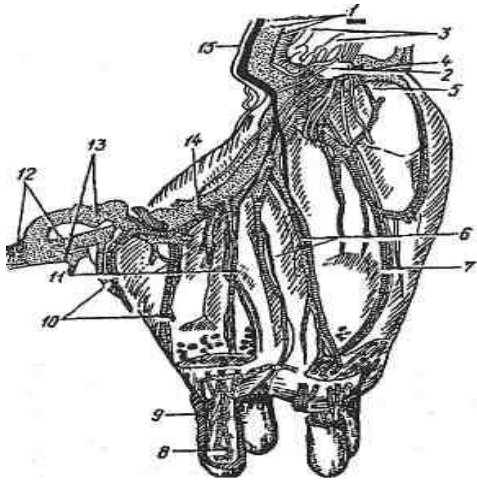
Picture 2. Scheme of the structure of the mammary gland: 1-3-4-5-6- milk ducts; Alveoli connected to the 2nd milk cistern.

There are many blood vessels in the udder, where arterial and venous capillaries form a thick network around each alveolus. Blood supply to the uterus depends on its functional state. During the cow's weaning period, 0.8-1 liter of blood flows from the udder in 1 minute, and up to 4 liters during the lactation period.

Each half of the udder is mainly supplied with blood by the external pubic artery (a. pudenda externa), which passes from the abdominal cavity to the udder through the umbilical canal. In dairy cows, the diameter of this artery reaches 2 cm. After exiting the external pubic artery, it gives anterior and posterior branches for the anterior and posterior udder quarters (a. basifares cranialis et caudalis). Then the external pubic artery enters the parenchyma of the corresponding half of the

mammary gland and divides into two branches: the anterior mammary artery (a. mammaria cranialis) that goes to the front quarter of the udder and the posterior udder artery (a. mammaria caudalis) that supplies blood to the rear quarter of the udder.

Blood flows from the udder through the external and internal pubic veins (v. pudenda et interna)



and the subcutaneous mammary vein of the abdomen (v. subcutanea abdominalis). This vein goes from the womb on both sides of the abdominal wall to the thyroid gland of the sternum. The mammary vein can be palpated under the skin in the abdominal wall. When this vein comes below the 8th rib, it passes from the side of the thyroid tumor of the chest to the chest cavity through a separate hole called the "milk well" on the abdominal wall (Fig. 3). It is possible to think about the productivity of a cow depending on the development of the milk vein and the size of the milk well.

Recommendations for preventing mastitis in dairy cows

1. Carrying out educational activities among cattle breeders and explaining that the basis of milk production is the rapid breeding of animals;
2. Ensuring the work of highly qualified specialists and organizing continuous improvement of their qualifications;
3. To provide the field with all the necessary resources and achieve rapid use of animals;
4. Organizing the work of specialists, dairy farmers, and milkers based on their interest in increasing the production of high-quality milk and the production of calves;
5. Introduction of intensive technologies consisting of a set of sanitary measures aimed at preventing diseases of the mammary glands in the cultivation of livestock products;

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