

## ETIOLOGY, DIAGNOSIS, AND TREATMENT OF MASTITIS

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**Abstract:** This article explores the etiology, clinical signs, pathogenesis, diagnosis, and treatment of mastitis.

**Keywords:** Mastitis, etiology, pathogenesis, diagnosis, clinical, laboratory, intoxication, staphylococcus, streptococcus, Magda.

**Relevance of the Topic:** Mastitis in cows is prevalent worldwide, affecting 20–50% of the cattle population. In our country, this figure ranges from 3% to 30%. The incidence of mastitis in cows is 36.2% during lactation, 22.6% during the drying-off period, 15.8% after drying off, and 25.3% during the first milking period.

The economic damage caused by mastitis includes premature culling of cows, reduced milk productivity, decreased milk quality, increased incidence and mortality of newborn calves, treatment costs, and other expenses. Milk from infected cows poses health risks, especially to children. When one quarter of the udder is affected by mastitis, annual milk yield can decrease by 10–20%.

**Mastitis Disease:** Mastitis is an inflammation of the udder and can affect all farm animals, though it is most common in cows, particularly during the first half of the lactation period. In cows, mastitis usually affects one quarter of the udder, though two or more quarters can also be involved.

**Types of Mastitis by Course:**

- Serous mastitis
- Catarrhal mastitis
- Fibrinous mastitis
- Purulent mastitis
- Hemorrhagic mastitis

**Economic Impact of the Disease:** The economic impact of mastitis is significant, especially in breeding farms. It leads to early drying off, a sharp decline in milk production, calf mortality when fed with infected milk, and a 15–20% reduction in milk yield and a 0.8–1% decrease in milk fat content. The productive lifespan of high-yielding cows is reduced to 6–8 years.

**Etiology and Causes:** The causes of mastitis are diverse. It develops when housing conditions do not meet veterinary and sanitary standards, after infectious diseases (such as brucellosis and cowpox), due to mechanical injuries, microbial contamination (staphylococci, streptococci), aseptic trauma to the udder, internal intoxication, and improper milking practices.

**Clinical Signs:** The clinical signs of mastitis include classic signs of inflammation: redness, swelling, increased local temperature, and tissue damage. As the disease progresses, general symptoms appear, such as fever, loss of appetite, lethargy, and, eventually, udder-specific

changes like circulatory disorders, udder enlargement, decreased milk production, or complete cessation of milk flow. Chronic cases may lead to sepsis.

**Diagnosis:** Diagnosis is based on anamnesis, clinical signs, pathological changes, and laboratory tests.



**A** **Figure 1 (A and B):** Sample collection process for diagnostic (clinical and laboratory) examination.

**Differential Diagnosis:** Mastitis must be differentiated from udder furunculosis, udder hyperemia, dermatitis, cowpox, and brucellosis.

**Treatment:** Effective treatment requires eliminating the underlying causes of mastitis. Regardless of the primary cause—whether inflammation, intoxication, or the presence of pathogenic microbes in the udder—addressing the causative factors alongside symptomatic treatment ensures positive outcomes. Affected cows should be kept in calm, dry conditions with special attention to their diet. Since mastitis causes circulatory disorders and severe pain in the udder, successful diagnosis and treatment require udder nerve blockade using 0.5% novocaine or 2% lidocaine (30–40 ml) following the Magda, Lagunov, or Bashkirov methods.



**A**

**B**

**Figure 2 (A and B):** Anesthesia and drug administration to the udder using the Magda method. In cases requiring anesthesia via the Lagunov method, particularly in catarrhal and serous mastitis, the addition of 300,000–500,000 IU of antibiotics (penicillin, streptomycin) to every 100 ml of novocaine produces rapid results. To reduce inflammation and prevent secondary infections, intramammary preparations like Mastisan and Mastilex are administered, while systemic antibiotics such as Penstrip 400 or Limoxin are injected intramuscularly.



**Figure 3 (A, B, and C):** Modern pharmaceutical preparations used for treatment.

**Prevention:** Preventive measures are essential to avoid mastitis. This includes maintaining proper housing conditions, isolating and treating infected animals, conducting monthly udder health checks, and adhering to veterinary and sanitary requirements during milking.

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