Mastitis

General name given to the inflammation of the breast.

Inflammation covers breast parenchyma, milk ducts and interstitium.

Therefore, inflammatory changes in the parenchyma, mastitis,

the milk channels are defined as galactophoritis.

But often both are seen together.

Predisposing factors

1. Developmental disorders in breast, nipple, ductus papillaris

- Big pendulous tits,
- The head of the nipple as a funnel,
- Short non-closing closure papillaris et al. disorders.

Predisposing factors

2. Incorrect applications

Ductus papillaris epithelium is rich in fatty acids. It has bactericidal effective secretions. For example, lactine If the ductus papillaris epithelium is damaged during operation or unnecessary cannula insertions, this effect is reduced or lost.

Bacteria enter the nipple more easily; can multiply in channels and spread to breast

Especially in narrow breasted animals, full milking is not done and some milk remains in the breast. The milk accumulated in the breast in such a faulty milking is a good food for the growth of bacteria.

Predisposing factors

3. Sensitivity of the body

Age and lactation period are related to the development of mastitis. For this reason, lactating period or high-milk cows are more prone to Streptococcus agalactiae infection.

4. Malnutrition, malnutrition

Lack of nutrition (weakness) decreases the body's resistance and increases susceptibility to infections. In addition, the intense intake of protein-rich foods, such as continuous feeding of sugar beet malnutrition also makes the breast predisposing mastitis.

5. Environmental effects

Irritant contact with the nozzle, cold, humid windy weather
Stable and filthy stables
Injuries to the breasts in barbed pastures, especially marsh flies that intensify in the marsh areas damage to the breasts.

6. Other effects

Wound on the nipple, graze
Inflammation of mammary skin (foot and mouth disease)
Generalized infections affecting the breast or breaking the body resistance

Routes of Contamination

Galactogen infection

The infection is more shaped in a breast lobe. Predisposing factors are also responsible for its formation. Factors such as Streptococcus agalactiae and Streptococcus aureus generally prefer this route.

Percutan infection

It is the result of injury to the breast skin (wound infection). The agents enter and spread to the breast tissue as lymphogen (via lymph).

Hematogen infection

The fact that the agents come from other organs by blood is rare compared to galactogen infection. Mastitis occurs in multiple breast lobes. It is generally shaped in septicemia holding the breast;

CLASSIFICATION OF MASTITIS

MORPHOLOGICAL CLASSIFICATION	AETIOLOGICAL CLASSIFICATION
Catarrhal - purulent mastitis and galactophoritis	Streptococcal mastitis
Mastitis Purulenta and Apostematosa Bovine Subclinic Mastitis	Staphilococcal mastitis
Mastitis acuta gravis (Kötü huylu mastitis)	Coli mastitis
Mastitis İnterstitials	Actinomyces (Corynobacterium) pyogenes Mastitisi
Mastitis Granulomatosa	Mycopasma Mastitisi
	Nocardiose

Catarrhal - Purulent Mastitis and Galactophoritis

Catarrhal - Purulent Mastitis and Galactophoritis

Disperse into one or more breast complexes.

Short course. However, it is not treated, if it does not improve, it becomes chronic.

Morphological findings of the strain to the species of the agent; pathogenicity and virulence; depending on the susceptibility of the organism to the resistance of the different (degree, severity) happens.

In some cases, subclinical is observed without showing any signs. In such cases, it causes economic loss due to low productivity.

Aetiology

Streptococc sp. Staphylococci takes first place. Mycoplasma sp. are also important factors.

Especially β-Streptococci in cows; Str. agalactiae, Str. uberis and sometimes Str. Staphylococcus aureus is important with dysgalactiae.

M bovis, Acheloplasma laidlawii purulent, forms apical mastitis and tends to spread to all breast lobes. Mycoplasma bovis on the other hand causes enzootic mastitis in cows. In this case, most animals of the herd are resistant to treatment and have a chronic course of mastitis.

Apart from these, Chlamydia sp., Coxiella burnetti, Leptospira sp., Fungi (Candida, Saccharomyces sp. Vd.), And mostly indirectly a number of viruses (Foot-and-mouth disease virus, enterovirus, stomatitis-vesicularis, parainfluensa-3, IBR-IPV -virusu, or their primary and secondary infections.

Pathological Findings

Acute Mastitis

Macroscopic Findings

Fire is localized in one or several breast complexes (lobes). Secret (milk) is thinly juicy, contains coagulated milk masses.

Purulent mastitis is reddish yellow or blurred yellow.

Infection with lopps is mild or severe swelling. It hardens by losing its spongy consistency; becomes easily cut off. Obsolete red color.

Breast skin is stretched. On the cross-sectional area, the parenchyma (gland alveoli is a mildly scalp, fuzzy dark pink in serous-katarrhal mastitis type, blurred gray when purulent is colored and plastered in the face of the knife.

The channel and sisterna also have similar apparently content. Subcutis and interstitiel regions have varying degrees of edema. Subramamal lymph nodes are bulging; The section is hyperemic and humid.

Pathological Findings

Histopathological Findings

Katarrhal - purulent mastitis and galactophoritist are defined according to the following findings accompanied by the indicated points.

Hyperemia, edema, fullness in lymph vessels, enlargement in interstitial region; Inflammatory cell infiltration, mostly consisting of neutrophil leukocytes, is observed. The glands of the gland (alveolar) are swollen; it causes desquamation by dropping into place (mostly degeneration of vacuoles).

In the lumen of the glands, bluish pink or pink edema fluid, or partially desquamized milk mixed with epithelium and neutrophil leukocytes are found. Changes in channels also display similar (galactophoritist)

It is also possible to observe a large number of factors in the interstitium of the channels, in the lumen of the alveoli or in its immediate vicinity. If he progresses, the inflammation spreads to the entire lobe or other lobes.

Pathological Findings

Chronic Mastitis

The inflammatory changes in the cisterna, milk channels and interstitium are in the foreground. The interstitiel region becomes clear as the connective tissue increases

Macroscopic Findings

Initially, the cysterna mucosa is swollen due to edema and is granular. In the lumen of the channels and glands there is a secreted or fissile particle containing pus.

As the disease becomes chronic, the connective tissue increases in the interstitium. The consistency of such breast lobes is hardened. As a result of increased connective tissue, the milk ducts are blocked. The connection between the ducts and the glands is cut. In the glands and glands, the secretion accumulates and retention cysts are formed (see microscopic findings).

Pathological Findings

Chronic Mastitis

Microscopic Findings

The increase in connective tissue creates two types of changes in the breast volume.

The first is the collapse of the parenchyma due to the collapse of the connective tissue and then the collapse of the collagen yarns increased and the breast (breast lobe) is getting smaller by shrinking. In this case
Mastitis catarrhalis chronica atrophicans (mastitis catarrhalis et interstitialis chronica atrophicans).

Second, if the connective tissue increases further, if the hypertrophy of the intact glands is added to it, the mammal is enlarged. Such chronic mastitis is defined as mastitis catarrhalis chronica (mastitis catarrhalis et interstitialis chronica hypertrophicans).

Mastitis Purulenta and Apostematosa

Mastitis Purulenta

Microscopic Findings

in the Startup
Signs of acute period such as inflammatory edema and hyperemia of the vessels are regressed. In addition to neutrophil leukocytes in the region, mononuclear cells (lymphocyt, plasma cells and macrophages [monocyt from blood and histiocytes in tissue]) also appear.

After a while
The number of mononucleated cells passes through neutrophil leukocytes. Meanwhile, connective tissue cells (fibrocyt and their activated form of fibroblasts) begin to proliferate. Cloth and canal lumens are still similar to those in the acute phase.

Further period
Concentration of connective tissue. Mononuclear cells are multifocal lymphocytes, while the histiocyte clusters (foci) are tissue-like.

Mastitis Purulenta

Apostematous Mastitis

Katarrhal purulent mastitis progresses to the emergence of abscess occurs. Thus, according to their course, they include subacute and especially chronic mastitis period.

The abscess is distributed in a few lobes of the breast. Lentil, hazelnut, fist size or larger. The numbers are one or more.

The surface of the tissue can be detected externally, but the small ones are palpated, or the tissue is visible in the cross-section.

Their consistency is soft at first, increasing over time. Some of the skin is fistulized. In the section of the breast, abscesses are surrounded by capsules of connective tissue. There is a pale yellowish color in the creamy consistency.

Cattle's Summer Mastitis

Purulent mastitis, also known as mastoid mastitis, Holstein breast disease, pyogen mastitis, is important in cows. The disease is in acute and chronic form. The acute form is also known as summer mastitis.

Arcanobacterium (Actinomyces) pyogenes in most of the causative events. However, other anaerobic, aerobic bacteria (such as anaerobic Peptostreptococcus indolicus, Fusobacterium necrophorum aerobic Streptococcus dysgalactiae S. uberis S. acidominimus) are also included.

Purulent mastitis and glaktoforitis.
Chronic form is characterized by abscess.
Peas in the breast, the size of the nut; encapsulated circles; In the yellowish greenish colored creamy consistency, pus with abscesses is encountered. Abscesses are fistulated to the skin. Other parts of the parenchyma are normal. The milk channels and cistern are filled with yellowish-greenish content.

Subclinic Mastitis

It is mostly a clinical description. It is a different type of Katarrhal interstitiel mastitis in terms of morphology.

The milking machines are formed by the addition of '-Streptococci, especially Streptococcus aureus, to the predisposing factors such as faulty milking.

Milk yield is reduced. There is no clinical and necropsy findings. Only the amount of cells in the milk is over 250 000 cells / ml; In the histological examination, the diagnosis is made with mild focal inflammatory changes.

Histopathological examination: Neutrophil leukocytes in acute period; In the chronic period, an increase in connective tissue cells is observed with mononuclear cells.
Because of mononuclear cells in the interstitium, and then the increase of the connective tissue, nonpulcentent interstitial mastitis is likened to and accepted as the subtype of it.

Mastitis Acuta Gravis

It is mostly defined as mastitis based on clinical feature. Because it is quite acute, it draws a serious picture; treatment is not satisfactory and often results in death.

From the morphological aspect, mastitis phlegmonosa, mastitis necroticans, mastitis gagrenosa; clinical features of mastitis paralytica are considered.

Necrotic and gangrenous mastitis form is more common in sheep and goats than cows. The necrotic regions that survive or survive for a while result in sequesterisation. Nerotic mastitis occurs as a lot of problems in sheep and often results in death.

Etiologically, E. coli mastitis from Coliform bacteria is the prototype of this form. Also, Fusobacterium necrophorum, Bac. Subtilis, Bac cereus, Hemophilus simnus Nocardia asteraides Streptococcus and Staphylococcus spies with Actinomyces (Corynebacterium) pyogenes, Klebsiella sp, (Klepsiella pneumonia) Pasteurella sp. (especially in sheep), Pseudomonas aeruginosa and Clostridium sp. Other factors such as usually mixed infection are responsible for this form.

Clinic and Pathological Findings

The general condition of the animal is impaired in the clinic. The inflamed areas of the breast are swollen and painful. The breast skin is red-violet and stretched.
Milk secretion decreases and stops. Exudate from the nipple: A small amount of watery, bloody-pus and smelly; fibrin masses.
In the necropsy, the above morphological changes are encountered. It is noteworthy that subcutaneous tissue expands due to edema when the breast is sectioned. Edema, gelatin is in appearance; sometimes contains gas bubbles. In the section of the breast, the interstitial is tissue-like, edematous; The parenchyma is also covered with diffuse necrotic areas of various widths. If there is bleeding, these regions are brownish red. In this case, hemorrhagic necrotic mastitis is mentioned. Gas bubbles may also be present according to the type of agent. In survivors, necrosis parts become sequestrant.

Mastitis phlegmonosa form is characterized by diffuse purulent inflammation of the interstitial tissue of the subcutaneous loose connective tissue in severe cases. Breast is hyperemic, bulging and painful.

Microscopic examination also shows a large amount of neutrophil leukocyte infiltration in the loose tissue ranges related to the phlegmone. Other findings are more severe but similar to catarrhal purulent mastitis

Mastitis acuta gravisin necrotic and especially gangrenous forms of mastitis killer Lesions, according to the path of infection is located in one or several breast complexes.

Histopathological Findings

Veins are hyperemic. Thrombosis is also evident in some of the blood and lymph vessels. Small or large areas of necrosis, sero-fibrinous exudation, reddish-colored plasmatic masses, spilled cells and neutrophil leukocytes in the glands and channels. Sometimes gas bubbles are found.

- E. coli comes from the galactogen, hematogen pathways in the breast. Gangrenous mastitis occurs in the confluence of pyrogen or other saprophytic bacteria.
- Streptococcus aureus is more likely to settle in the breast parenchyma in sheep and goats, leading to malodorous changes. The breast skin is tense due to severe edema; dark red, mostly violet. Edema is spread to the vulva below the abdomen.

- Pasteurella hemolytica mostly develops in the case of a lopping setrce swelling. Suskutan, interstitiel tissue is edematous.

- Clostridium perfringens and Clostridium septicum are mostly found in the breast skin wound and sometimes as a galactogenous breast. Cow causes hemorrhagic or gangrenous mastitis in sheep. Red gelatine infiltration in the subcutaneous tissue, necrosis in the parenchyma and gas bubbles are seen. The breast takes on a spongy appearance. Subramamal lymph nodes and necrosis and gas bubbles are seen.

Mastitis İnterstitialis

In clinical terminology, changes in milk secretion have been considered and ına parenchymatouse mastitis res has been defined as the inflammation of the parenchyma. However, the presence of the parenchyma in the fire, damage to the parenchyma is also encountered in other mastitis. For this reason, such a naming was not adopted in terms of pathology.

Some of the other mastitis agents may also be involved in the etiology of interstitiel mastic. However, more viral etiology is emphasized. Maedi-Visna virus in sheep and caprine encephalitis-arthritis virus in goats are important factors of this type. Brucella sp., Listeria sp, Leptospira hardjo, some algae (Prototheca species) are some of the main factors causing this type of mastitis in some conditions.