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PATHOMORPHOLOGICAL CHANGES IN POULTRY PODODERMATITIS IN COWS

Batiyor Zokirovich Mukhtorov*; Nasriddin Bobokulovich Dilmurodov**

[1,2]Samarkand Institute of Veterinary Medicine,
UZBEKISTAN

ABSTRACT

The pathomorphological changes in the hoof were studied in case of purulent pododermatitis in productive cows. It was revealed that with pododermatitis in the pathological focus of the hoof, the blood vessels in a state of acute hyperemia, the development of emigration of erythrocytes and leukocytes, around the vessels - blood plasma, numerous leukocytes and single erythrocytes in the exudate, destroyed tissues, disordered arrangement of reticular cells and threads atrophied tissues.

KEYWORDS: *Purulent Pododermatitis, Productive Cows, Pathomorphological, Erythrocyte, Leukocyte, Pathological Focus, Hyperemia, Exudate, Reticular Cell, Connective Tissue, Necrosis, Dystrophic, Granulation.*

INTRODUCTION

Timely diagnosis of purulent-necrotic pathologies of the distal limbs, common in productive cows, the pathogenesis of the disease, the identification of pathomorphological changes in the hooves in the development of effective methods of treatment.

Surgical diseases of the legs were studied in dairy cows [4, 8, 9, 10], and surgical diseases in high-yielding cows accounted for 84% of the total number of diseases. In most cases, bursitis, especially bursitis of the tarsal joint, is noted. Blood serum biochemical tests showed an increase in total protein, globulins, urea, cholesterol and phosphorus.

Scientific studies have been conducted to determine the effect of motor activity on the quality of cow hooves, [6] and high physical activity reduces the thickening of tubes and long-term erosion. In cows with Rustergolz's ulcer, a decrease in motor activity was observed by an average of 36% as a result of the decomposition of the hoof substance, and in pododermatitis by an average decrease in motor activity by 56%.

The inclusion of natural sorbent diatomaceous earth in the treatment of cows with lesions in the distal part of the legs has led to the restoration of clinical indications in animals. When using this experimental scheme of treatment, the duration of treatment was reduced by 2-3 days [1, 7].

Scientific research has been conducted on the diagnosis of diseases of the legs of cattle with farm conditions [2], precarpal bursitis in 10 cows, whey-fibrinous fibrinosis of the calf joint in 14 cows. According to the authors, acute aseptic subcutaneous bursitis is characterized by swelling, pain and fluctuations, passive movement, numbness, elastic edema in chronic serum-fibrinous bursitis, crepitation in perforation, bursolitis and fibrin in the bursa wall, fibrin in the bursa wall. observed. Purulent bursitis has been found to be primary or secondary as a result of metastases and infection of surrounding tissues.

The etiological structure of pathogens in purulent-necrotic lesions of the distal part of the skin of the horns of cattle has been studied [3, 5], and studies have shown that the distal part of the legs of cows is purulent (67%), purulent-necrotic (P8%). (49.3%), Staphylococcus epidermitis (42.7%), Proteus vulgaris (38.4%), Streptococcus pyogenes (27.8%) were identified.

Object and methods of research. Scientific research on the etiology of purulent pododermatitis in productive cows, pathomorphological changes in the hooves.

Results obtained and their analysis. As a result of the development of hoof diseases in productive cows, they have their own pathomorphological changes. In particular, as a result of changes in the shape of the hooves, the development of deep pathomorphological changes in the hoof wall, hoof heel, at the base of the hoof skin and hoof bone was observed. This is a major factor in the development of hoof diseases. Weakening of the protective layer of the hoof wall, hoof heel, soft foot under the influence of external factors leads to the formation of lesions, foci of necrosis, the development of purulent pododermatitis and other diseases. Studies have shown that in productive cows with pododermatitis, the pathological process is exacerbated by necrosis of the skin base of the hoof, the tips of the hooves, the hooves, the soft hoof and the hoof bone.

The clinical status of animals in the pre-treatment groups was typical for purulent pododermatitis, with purulent-fibrinous inflammatory process.

When the hooves of sick cows were visually examined, they were found to have defects in the palms and in the following cases: erosion of the stratum corneum, the formation of pathological ducts leading to the skin of the hoof, from which a large amount of odorous exudate. Inflammatory tumors formed in the surrounding tissues and spread to the soft palate and the surrounding area, causing local fever and redness of the skin.

Destructive and dystrophic changes are developed in the underlying skin and surrounding tissues, in which the process of necrosis and necrobiosis spreads to the epidermal, dermal and hypodermal layers. Pathological tissue with necrosis under the fibrin sheaths was formed in large numbers around the defects of the hoof sole. It was observed that the resulting discharge is purulent, exudate containing a large number of leukocytes, inflammatory infiltration has the property of aggressively spreading from the hoof to the deep layers of the drug. The microhemodynamic type in the dermal and hypodermal layers is similar to venous-capillary vessels filled with blood.

Signs of depolymerization were detected in the connective tissue of the mature granulation tissue near the base of the wound.

Cows with purulent pododermatitis in the experimental group developed a strong support by the seventh day, and hyperthermia and tumors developed in the tissues of the pelvic area. Despite the exudative process in the tissues, it was found that the intensity of inflammation decreased.

On the fifteenth day, a positive dynamics was observed in the process of finishing the hooves of the cows in the experimental group, which shows that the condition of the animals has changed in a positive way. Palpation revealed a decrease in pain in the surrounding tissues, although it was limited, and the hoof was noticeable, mainly in the palm. Examination of the hoof bandage showed a decrease in the amount of exudate released, which is a characteristic feature of the dehydration stage. Defects in the palmar part of the hoof revealed the formation of healthy granulation tissue.

Visual examination of the hooves of cows with purulent pododermatitis in the control group revealed the formation of atypical granular tissue with swollen granules in the lower extremities. This tissue was characterized by the presence of a turbid fluid and a layer of fibrin on the surface, which bleeds rapidly, and the appearance of wounds on the surface. Therefore, they noted a slow maturation process and no significant changes in the general condition of the animals.

By the twenty-first day, it was found that the morphofunctional changes in the pathological process shifted to the positive side. The condition of the animals in the experimental group was satisfactory, swelling, local temperature and pain were reduced. Morphological examination of the tissues revealed that reparative-regenerative processes and defragmental epithelialization were clearly visible on the surface of the wound in the hoof defects.

Cows with purulent pododermatitis in the control group were observed for 24-25 days, their general condition and appetite were satisfactory, there was no support, and the cows moved completely on the affected hooves. Local heat and pain are not felt when the hooves are swollen and palpated in the surrounding tissues. Defects in the hoof palm were completely covered with healthy granulation tissue, and due to the completion of the epithelialization process, the growth of newly formed horn tissue at the edge of the wound was observed to close it.

It was found that cows with purulent pododermatitis in the control group had a partial pathological granulation in the hoof defects, which lasted for 4-5 days. Therefore, for 24-25 days in this cow, as a result of partial growth of the horn tissue around the wound, its complete closure was not observed, as the regeneration process was slower than in the experimental group.

One week after treatment, different stages of healing of purulent pododermatitis were identified in all experimental animals. In animals, strong whitening, the formation of fine-grained granulation tissue in the solid foci in the injured foci was noted. Partial bleeding was observed when the hooves were cleaned. In some animals, purulent exudate components were observed on the surface of the wound. In other animals in the experimental group, improvement in general condition, weak lameness, correct position of the legs were found. A dry, weakly painful, branched substance was found around the injured tissue.

Two weeks after treatment, it was found that in some animals, the injured lesion was filled with granulation tissue, and a purulent coating formed on its surface. Part of the wound is filled with horny tissue, hard, partially painful when pressed, lameness is weak. In other cows in the experiment, the purulent-necrotic lesion was filled with dry, completely granulation tissue. A partial painful reaction in the pathological lesion, the general condition of the cows was found to be good, no lameness.

On the 21st day of treatment, the same characteristic changes were observed in 4 heads of cows in the first experimental group: formation of branched tissue in the wound, growth of granulation tissue at the site of inflammation, surrounded by a hard-to-move film. This condition was characterized by the shrinkage of the injured furnace.

A complete recovery was detected on day 21 of treatment in 4 head of cows in the first experimental group. In the remaining head, it was noted that open wound defects were formed, filled with bright red granulation tissue, and a branched layer was formed around it.

Examination of the hooves of cows in the second experimental group revealed the following changes in the hoof wall and heel heel: foci of animals with purulent podadermatitis were found to have foci of necrosis in the stratum corneum and purulent discharge in some, from which white-yellow pus flowed.

Pathohistological examination revealed acute hyperemia of the blood vessels in the pathological lesion, the development of emigration of erythrocytes and leukocytes, different manifestations of blood plasma and trace elements around the vein and purulent exudate foci, as well as the presence of large numbers of leukocytes, numerous erythrocytes and connective tissue in the exudate. fibers and reticular cells were found to be disordered and atrophied.

Connective tissue cells are broken down, in case of necrosis, the fibers are divided into fragments, as well as fibrinoid and mucoid swelling in collagen and elastic fibers, mucoid and fibrinoid substances are absorbed in the fiber walls, the fibers are broken into fragments.

The foci of necrosis are painted a bright red in the eosin, and the nuclei appear in a state of rexis and picnosis. Dystrophic changes in the cells, the walls of the connective fibers are indistinguishable and necrotic.

Collagen fibers are swollen, mostly fibrinoid necrosis, hyperplasia of elastic fibers and accumulation of fibrin between collagen fibers, hyalinosis, fibrinous changes in connective tissue, the formation of hyaline in the connective tissue instead of broken collagen fibers, elastic muscle dystrophy, smooth muscle cells it was noted that most elastic fibers were eroded.

It was found that serum fluid and large amounts of polymorphonuclear leukocytes emigrated from the vascular walls.

Dystrophic and atrophic changes were observed in the suction layer of the dermis and in the epidermal layer. Dystrophic changes in vascular endothelial cells, foci of necrosis and microabscesses, infiltration of polymorphic cells in some areas of the incision, and acute inflammation characterized by neutrophil granulocytes were detected.

On the third day of the experiment, fibrin was absorbed at the site of inflammation, purulent necrotic tissue was limited, and tissue hypoxia led to the development of tumors. Hygropic

dystrophy in desquamated epithelial cells, hyperemia of collarbone vessels under ruptured tissue, interstitial hemorrhage were observed.

On the seventh day of the experiment, not only quantitative changes in cell composition but also qualitative changes were detected. Absorption of degraded tissue occurred as a result of increased blood circulation. Multiple hemorrhage of the sinusoidal capillaries was observed, and some collagen fibers were not formed by uninjured tissue as a result of cessation of exudative inflammation. In the control group, leukocyte infiltration and advanced hemorrhage were observed under the foci of necrosis.

On the fourteenth day of the experiment, qualitative development of granulation tissue, no fibrin coatings on the surface of the wounds were observed, leukocyte infiltration between the nuclei was observed.

In the control group, necrosis and fibrosis in the center of the wound foci, and in the granulation tissue were noted inflammatory infiltrates rich in plasma cells, lymphocytes, neutrophils.

At the end of the experiment it was found that complete epithelialization develops on the wound surface, granulation tissue between the epithelial components, connective tissue formed inside the wound, lymphoid infiltrates at the edges, fibrous structure developed, in the control group vascular density, scarred epithelial cells recovered.

CONCLUSION:

- The development of tissue necrosis as a result of the development of a complex necrotic process in the palms of the hooves of productive cows with purulent pododermatitis, circulatory disorders lead to the spread of pathological processes and the addition of microorganisms to it causes purulent pododermatitis;

- purulent pododermatitis in the pathological foci of the hoof, the presence of acute vascular hyperemia, the development of emigration of erythrocytes and leukocytes, various manifestations of blood plasma and trace elements around the vein and purulent exudate foci, as well as the presence of large numbers of leukocytes, erythrocytes and erythrocytes characterized by irregular placement of connective tissue fibers and reticular cells, atrophy.

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