

DIAGNOSIS, CLINICAL SIGNS, AND PATHOMORPHOLOGY OF LUMPY SKIN DISEASE IN CATTLE

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Abstract

This article examines the etiology, clinical signs, diagnosis, and pathomorphological changes associated with lumpy skin disease in cattle. Lumpy skin disease is an infectious condition caused by a virus of the *Poxviridae* family and *Capripoxvirus* genus; it is characterized by the formation of distinctive skin nodules, fever, lymph node enlargement, and a deterioration in general health. The disease can lead to reduced milk and meat productivity, skin lesions, and reproductive impairment. Early and accurate diagnosis is crucial for controlling the disease and preventing its spread.

Keywords: Cattle, nodular dermatitis, Capripoxvirus, clinical sign, diagnosis, PCR, disease, pathomorphology, skin, necrosis, virus.

Introduction

Аннотация

В статье рассматриваются этиология, клинические признаки, диагностика и патоморфологические изменения узелкового дерматита у крупного рогатого скота. Узелковый дерматит — это инфекционное заболевание, вызываемое вирусом семейства Poxviridae, рода Capripoxvirus, и характеризуется образованием характерных узелков на коже, лихорадкой, увеличением лимфатических узлов и ухудшением общего состояния. Узелковый дерматит может привести к снижению молочной и мясной продуктивности, поражениям кожи и нарушению репродуктивной функции. Ранняя и точная диагностика важна для контроля заболевания и предотвращения его распространения.

Ключевые слова: Крупный рогатый скот, узелковый дерматит, Capripoxvirus, клинические признаки, диагностика, ПЦР, болезнь, патоморфология, кожа, некроз, вирус.

Introduction

Today, nodular dermatitis of cattle is one of the urgent problems facing veterinary science and practice. Because the disease is highly contagious, it spreads rapidly, diagnosis is difficult, and the course of the disease, clinical symptoms, and pathoanatomical changes are similar to those of a number of diseases. Nodular dermatitis is one of the most economically important infectious diseases of cattle. The causative agent is the nodular dermatitis virus, a member of the Capripoxvirus genus of the Poxviridae family. Once the virus enters the body, it spreads through the lymph and bloodstream to various tissues, causing characteristic pathological changes in the skin and subcutaneous tissue. Nodular dermatitis is one of the urgent problems in the fight against this disease, its prevention, and the development of modern methods of treatment.

Materials and Methods

In the study of nodular dermatitis, the general clinical condition of sick animals, body temperature, changes in the skin and lymph nodes, the location, number, size, density, and developmental stages of nodules on the skin are observed during clinical examination. Samples from affected skin and nodules are examined for laboratory diagnosis. Polymerase chain reaction (PCR) is used to detect the viral genome, as well as virological and histopathological examinations as needed. A pathomorphological examination studies macroscopic and microscopic changes in the skin and subcutaneous tissue.

Practical result of the study

Clinical signs of the disease, Clinical signs of nodular dermatitis in cattle initially begin with an increase in the body temperature of the sick animal. There is evidence that an increase in the number of nodules formed on the skin later is one of the main clinical signs. The Virus spreads throughout the circulatory system after ingestion into the animal's body and causes pathological processes at the site of localization-including respiratory, digestive, blood systems-and other azos

have been observed to manifest in tissues, nose, oral cavity, visual azo large as they cause infiltrative signs

Initially, the nodules protrude from the surface of the skin and have a dense consistency. Later, as a result of impaired blood circulation in the affected areas, necrosis may develop, the skin may crack, and ulcers may form. In some cases, scars remain after the affected areas heal. In addition, enlargement of the lymph nodes, discharge from the eyes and nose, swelling of the legs, difficulty breathing and general movement may be observed. Milk production in cows decreases.

Diagnosis: Nodular dermatitis is initially suspected based on clinical signs. The characteristic appearance of skin nodules is an important diagnostic feature in identifying the disease. However, in some diseases, differential Diagnostics is also necessary, as changes in the appearance of nodules or scars on the skin can be observed.

The PCR method plays an important role in laboratory confirmation. To confirm the diagnosis, samples are taken from skin lesions, biopsy material, or other affected tissues. PCR is used to detect the genetic material of the pathogen.

Histopathological examination also helps to clarify the diagnosis. This shows degenerative, inflammatory, and necrotic changes in the epidermis and dermis.

Pathomorphological changes: in nodular dermatitis, the main pathological changes are observed on the skin. The skin thickens, swells, and dense nodules of different sizes are formed in it. Dense skin and subcutaneous tissue, edema, and necrotic foci may be detected on the surface of the incision.

Microscopic examination reveals degenerative changes in epidermal cells, intercellular edema, inflammatory infiltration, and necrosis. Vascular damage, vasculitis, and thrombotic changes may develop in the dermis. In some cases, virus-specific cytoplasmic inclusion cells are also identified.

In the later stages of the disease, parts of the skin that have undergone necrosis are separated and wound surfaces are formed. During the healing process, granulation tissue develops, which can later lead to scarring.

Discussion:

Timely detection of clinical signs of nodular dermatitis is of great importance in limiting the spread of the disease. In particular, the appearance of a large number

of characteristic nodules on the skin of the body, fever, and enlarged lymph nodes are grounds for suspecting the disease.

However, it is not advisable to make a final diagnosis based on clinical signs alone. Laboratory tests, particularly PCR, are important in confirming the diagnosis. Pathomorphological examination allows you to determine the features of the development of the disease in tissues and to distinguish it from other skin diseases.

In farms where the disease has been detected, it is necessary to carry out appropriate quarantine and veterinary and sanitary measures by veterinary specialists, to combat insects involved in the spread of the disease, and to regularly monitor the condition of animals.

Conclusion:

Nodular dermatitis of cattle is a viral disease that is clinically manifested by fever, weakness, enlargement of lymph nodes, and the formation of characteristic nodules on the skin. The disease is characterized by pathomorphological changes in the skin and subcutaneous tissue, such as inflammation, vasculitis, thrombosis, and necrosis. In the definitive diagnosis of nodular dermatitis, it is advisable to use PCR and histopathological methods in addition to clinical examination. Early detection of the disease and timely organization of veterinary and sanitary measures will help reduce its spread and the economic damage it causes to livestock.

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