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DIAGNOSIS OF INFECTIOUS NECROTIC HEPATITIS DISEASE

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Abstract: The article outlines laboratory techniques for diagnosing infectious necrotic hepatitis in sheep using pathological material. It also provides guidance on how to properly choose, package, and transmit the pathological material from deceased sheep to the laboratory. The process of isolating the causative agent of the disease and examining its cultural, morphological, and biological features. Additionally, a biological research method for studying this infection is also available.

Keywords: infected necrotic hepatitis, sheep, laboratory tests, pathological material, glycerin, Canning, causal, spore, gram method, Cl. novyi, microscopy, diagnostics, edema.

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Introduction

One of the current objectives is to ensure the development of livestock and the sufficient provision of high-quality meat, milk, and their products to the population of our country, as well as to supply the industry with livestock raw materials. Veterinary service workers maintain a steady and healthy state of most infectious diseases in exchange for the use of biological medications against infectious diseases in agricultural animals and novel healing chemical drugs in practice. Nevertheless, several highly perilous contagious illnesses manifest in sheep and lambs, and there is a notable surge in the expansion of sheep husbandry. The high incidence and death rate among sheep pose a significant challenge to livestock production and the improvement of product quality, resulting in reduced income and an increase in the sheep population. Of the various infectious diseases caused by anaerobic pathogens, the disease known as infectious necrotic hepatitis in sheep is particularly noteworthy. The primary economic damage caused by this disease stems from several factors: the inability to effectively treat sick sheep, resulting in their rapid demise; the unsuitability of the meat from forcibly slaughtered sheep for consumption; the fuel consumed in the process of burning these animals; and the expenses incurred in implementing preventive measures against the disease. Implementing preventive measures is crucial and essential in combating infectious necrotic hepatitis.

The diagnosis of infectious necrotic hepatitis, a highly perilous infectious disease affecting sheep in both commercial and personal farms across our country, continues to be a significant and urgent issue. This disease is prevalent in all developed countries that engage in sheep farming, with its occurrence varying according to geographical region and climate. The continued presence of this disease among sheep in certain instances results in a significant worsening of the condition. Minimizing the economic impact of infectious necrotic hepatitis disease is found to be crucial for the economic progress of our state.

Scientists conducting research in the veterinary field have an urgent task of accurately diagnosing this disease promptly. This task is closely connected to the collection and transportation of pathological samples, which are often obtained from sick or deceased animals for laboratory testing.

Exploration of academic resources and writing techniques. To detect infectious necrotic hepatitis, animals that were suspected of having the disease were isolated and closely monitored. Throughout the observation, we documented the progression and clinical manifestations of the disease, specifically focusing on the clinical parameters of the sheep, such as body temperature, heart rate, pulse, and breathing rate. Furthermore, an assessment was made of their overall physical state, mobility, any impairments in movement, appetite, and their reactions to external stimuli. When sick or diseased animals are discovered, their parenchymatous organs (heart, lungs, liver, kidney, spleen) and the injured area, as well as muscle fragments, are carefully removed and transported to the laboratory. These samples are placed in tightly sealed glass jars containing a 40-50% glycerin solution. To accomplish this, the samples were enclosed in glass jars with a securely sealed opening. Subsequently, an aqueous solution of glycerin was poured over the samples until they were completely submerged. The jar containing the samples was then transported to the laboratory, enveloped in 3-4 layers of gauze or fabric, and carefully positioned within a designated container. The pathological samples included documented investigative data such as the source of the number # of sheep, the age and sex of the sheep, the presence of obesity, antibiotic usage, time of death, and any known clinical indications of the disease.

When it was not feasible to transport pathological samples to the laboratory using glycerin, the materials were handled according to aseptic protocols and transported in separate two-layer polyethylene packaging. To identify the causal agent, the samples were inoculated into Kitt-Tarossi nutritional media and incubated in a thermostat at a temperature range of 37.5-38.0 degrees Celsius.

The study focused on examining the cultural, morphological, and biological characteristics of the causal agent obtained from sheep. Specifically, the Kitt-Tarossi nutrient medium, glucose-containing blood agar, gelatin, sucrose, milk, and guinea pigs were utilized. The study focused on examining the cultural and morphological characteristics of the pathogen. This involved observing its growth in nutrient media, as well as its impact on gelatin, sucrose, and milk. The study also investigated the pathogen's ability to produce toxins, separate gas, and its shape and location in a hanging drop. Other aspects examined included the pathogen's acidity, presence of hops, staining properties, spore formation, and shape according to the gram method.

The research on the released pathogen's biological properties involved the use of guinea pigs. In this instance, the severity and ability to cause disease of the microorganisms responsible, as well as the lethal dose of infection LD100, were assessed.

Results and Discussion

Observations of sheep in locations with infective necrotic hepatitis revealed that less active, obese sheep were the first to become infected. Older sheep were mostly affected when grazing, whereas smaller lambs became infected more rapidly when either grazing or kept in domesticated settings. The sickness was noticed throughout the year, however, it was more prevalent during cooler seasons such as autumn, winter, and spring. Through careful observation and study, it has been found that the act of sheep grazing on wet pastures and experiencing excessive cooling can significantly contribute to the occurrence of retribution.

Adverse environmental conditions diminish the inherent resilience of the sheep's body, allowing infections to proliferate in the mucous membranes of the digestive system. During the breeding process, Cl. novyi Basillas secrete a potent toxin that permeates the entire organism, resulting in poisoning. The toxin induces rapid mortality in the affected organism. Sheep affected by infectious necrotic hepatitis have been reported to raise their body temperature from 40.60°C to 41.80°C. They experienced tachypnea with a respiratory rate of 80-98 breaths per minute, and their heart rate ranged from 110-120 beats per minute. Observations revealed that sick sheep exhibited a state of lethargy, lacking vitality, and displaying indifference towards the external world. It was discovered that the mucous membrane of the eyes appears red, and a frothy fluid containing blood travels through the oral and nasal passages. They observed a significant decline in hunger, the lack of vomiting, the condition of atonia, and the entire absence of appetite in certain sheep. Recent research has discovered that certain sheep exhibit high levels of irritability and nervousness. These sheep have a peculiar mode of locomotion, characterized by hopping and jumping similar to deer. However, their movements are often uncoordinated and erratic, occasionally resulting in stumbling or swaying. Sheep were seen to exhibit increased recumbency and experience mortality within a time frame of 20-30 minutes, occasionally lasting for a duration of 12-14 hours. Several sheep were discovered to have hematochezia and abdominal distension, indicating rest (timpani), and edema in the mouth, neck, and thoracic cavity. Analysis of pathological samples obtained from extinct Sheep revealed that the greases derived from a one-day-old culture cultivated in a KITT-Tarosii nutritional medium had basil structures with semicircular chains of edges when observed under a microscope.

This microorganism is incapable of growing in basic nutritional media (GPQ, GPA). However, it can only thrive under anaerobic conditions, namely in the presence of Vaseline oil, within a Kitt-Tarossi nutrient medium. The microbiological boundaries exhibited a wrinkled or semicircular rod-like structure, arranged in chains consisting of 4-5 rather short rods. The rods were observed to be motile and exhibited positive staining according to the Gram method, while also producing spores. Liver feed proliferates efficiently in settings by inducing turbidity and gas bubble formation, and subsequently settles as sediment after 24 hours, facilitating microbial degradation and resulting in the clarification of the nutritive medium, as established by research. The cerebral nutritive medium did not undergo darkening due to microbial proliferation. The microorganism gradually caused the milk to coagulate, gradually dissolved the gelatin, and decomposed glucose and glycerin. Did not produce

indole and hydrogen sulfide. Lab testing has confirmed that the Cl. novyi bacteria is the cause of infectious necrotic hepatitis in sheep, based on the samples obtained.

When injected subcutaneously into guinea pigs with a dosage of 0.5 ml, this pathogen exhibited pathogenicity by causing recognizable illness symptoms and resulting in death within 24-72 hours. Extinct guinea pigs have exhibited pathologoanatomic ruptures that display characteristic alterations of infectious necrotic hepatitis. At the site of the trigger injection, there was a crimson coloration in the subcutaneous tissue, and the presence of a liquid with air bubbles was noted. Hemorrhage occurs in the subcutaneous tissues, accompanied by the presence of pus and the observation of muscular necrosis, which exhibits a high degree of extensibility. Research has revealed that wool is highly susceptible to minor abrasion.

Guinea pigs were re-isolated from individuals with parenchymatosis to demonstrate that this pathogen was indistinguishable from the causal agent employed to infect guinea pigs during research. The virulence of the etiological agent of the isolated ailment was ascertained in laboratory test subjects.

Conclusion

Therefore, while diagnosing infectious necrotic hepatitis in sheep, it is recommended to employ a comprehensive approach that includes analyzing the illness progression, clinical symptoms, pathological changes, and bacteriological tests.

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