Pasturellosis as the Most Common Infection Affecting the Respiratory System of Calves in Southern Kazakhstan


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Abstract: This article presents data on the characteristics of flow and pathological changes in pasturellosis in calves on farms in South Kazakhstan region. Calves up to 1 month old age disease characterized by acute form of illness. During the acute course circulatory disorders in the form of hemorrhage and inflammation in the gastrointestinal tract were found. Calves older disease characterized by sub acute and chronic course, while developing lobar pneumonia with necrosis, serous-fibrinousplevritis and pericarditis, hemorrhagic diathesis, serous inflammation of the bronchial and mediastinal lymph nodes, focal necrosis in the liver, kidneys, acute catarrhal gastroenteritis. Bacteriological examination revealed that the acute course of the disease corresponds to serotype B, subacute and chronic course of the remaining serotypes A, B and mixed.

Key words: Pasteurella multocida • Pasteurellosis • Pathomorphology • Hemorrhagic Gastroenteritis

INTRODUCTION

Respiratory disease of calves causes huge economic losses to livestock [1-4]. In origin of bronchial pneumonia in cattle, an important role plays members of the family Pasteutellaceae- gram-negative, facultative anaerobic, rod-shaped bacteria that are commensally inhabitants of mammals and birds, which are capable of cause secondary infection and disease [5]. The family includes several genera: Mannheimia, Pasteurella, Haemophilus, Actinobacillus, Lonepinella, Phocoenobacter [6, 7, 8]. In the etiology of respiratory diseases fattening calves and dairy increasingly involved *P. haemolytica* A1 and A2 and *P. multocida* A and D [9-12].

At this moment for prophylaxis of pasturellosis in our country, used vaccine and hyperimmune serum against Pasteurellosis, but at the same time there is a case of pneumonia pasturellosis etiology [13]. This is explained by the fact that pathogenic *Pasteurella*, long preserved in the body and not only recover from the former in contact with them healthy animals, as well as in the body of commensal animals and birds, creating a kind of stationary hearth epizootic arise against effects on animals of various unfavorable factors [14]. The presence of natural foci of disease agent determines the need to develop specific measures and prevention of pasturellosis, which must take account of the spread of serotypes *Pasteurella* in a particular geographic zone. This question is very important in the formation of groups of animals and achieves prosperity for epizootic pasturellosis, especially in large specialized farms. To fight with pasturellosis in animals this require deep knowledge of disease epizootology, serotypes of pathogen circulating in the region, climatic characteristics of the terrain and methods of animal husbandry.

In our country, large outbreaks of pasturellosis are marked among of Caspian seals in 2001, 2007, 2009, 2011, as well as in 2010-2011 years among of saiga in West Kazakhstan region [15]. Great importance in the epizootiology of this disease has microbial reservoir of Pasteurella that in disadvantaged households among the cattle as high as 70%, sheep- 50, pigs- 45, rabbits - more than 50 and among the hens - 35 to 50% [16].
Histological study of the interaction of the escherichia with epithelium of the small intestine of rats

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Abstract. Provides data for the study of morphological changes in interaction of pathogenic and conditionally pathogenic microorganisms with the intestinal epithelium. Ability of strains of E. coli to infestations in the gastrointestinal tract in laboratory animals was studied. Studies in rats found that E. coli penetriruated crypt cells. Thus, E. coli penetrate into the cell of rats, after violating the integrity of plasma membrane. Indicated that they are located in cytoplasm freely, not in the original vakuola as guinea pigs.

Key words: pathogenesis, virulent strains E. coli, enterocits, cells of Paneta, pathogeneity, epithelial cells, dystrophic changes.

INTRODUCTION

Modern theories of the pathogenesis of infectious disease explain the specificity of morphological changes of the biological properties of specific pathogens. Naturally, much attention is given to the stage of interaction of the body's cells, which marks the beginning of the infectious process and during which the pathogen penetrates into the cells. The study of the interactions of microbes with the cells of animals allows a deeper understanding of the pathogenesis of some infectious diseases. Of particular interest is the study of the interaction of pathogenic and conditionally pathogenic microorganisms with the intestinal epithelium, performs an important barrier function in the body [1, 2]. In recent years, the spread of the leading hypothesis significance in the pathogenesis of enteric infection ability of E. coli penetrate the intestinal epithelial cells and reproduce in them. The ability of virulent strains of E. coli to the invasion is an important feature of these bacteria [3].

Essential conditions for the effective development of animal husbandry are: maximum saving newborn young farm animals and reduce their incidence. Among the diseases young animals are widespread and cause the most economic damage of gastro-intestinal illness, causing a large loss, which accounts for more than 80% of the total deaths, lack of growth and development, the leading place in the registered pathologies lambs takes escherichiosis [4, 5].

Escherichiosis widespread infectious disease of young farm animals, causing high mortality rate, as well as growth and declining productivity from having sick animals. Causative agents of diseases are representatives by Escherichia, 170 more than 10000 and serogroup of serological results [6]. Diseases of young farm animals continue to be one of the major reasons hampering the development of livestock and causing him significant harm. In recent years, on the territory of Kazakhstan and abroad escherichiosis is almost universally [7, 8].

One of the most common ways infectious diseases occur in otherwise healthy farms is through the introduction of clinically healthy vectors. Coliinfection, etiologically related to enteropathogenic E. coli (EPEC) is a persisting problem in a number of countries [9, 10, 11, 12].

The purpose of this study was to examine the features of direct interactions of E. coli with enterocits of the ileum of rats.

Technique. In the experiments used the 12 rats, of which 3 were in the control group. Rats of test groups were infected orally by 12 hour's bouillon culture of E. coli in the dose of 200 CFU. Animals slaughtered through 24 hours after infection. In all cases carried out morphological study.

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