

ESCHERICHIOSIS INFECTION IN SHEEP ESCHERICHIA COLI

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Abstract

The article presents studies of infection from the first days of life of lambs and the course of the disease. Clinical signs, pathoanatomical autopsy are presented. Changes in lymph nodes and parenchymal organs, growth and development during bacteriological studies. Serogroup strains have been isolated.

Key words: Pathoanatomy, lymph, parenchyma, bacteriology, strains, serogroups.

Introduction

Escherichiosis proceeds mainly nozootically and more often occurs endogenously. The course of enzootic is characterized by a gradual increase in the number of sick and dead animals. Clinical signs of escherichiosis in young lambs are not the same and are characterized by some features. Thus, in lambs that fall ill in the first 20 days of life, in 35-40% of cases, the disease manifests itself as depression, refusal to suck queens, an increase in body temperature to 41 ° C and more, before death it decreases to normal. With the appearance of signs of the disease, disorders in the gastrointestinal tract are observed, diarrhea appears with a change in the color and consistency of excrement, hyperemia of visible mucous membranes, a weak rapid pulse, and sunken eyes. Such lambs, as a rule, die within 3 days [2; 8].

The body of newborn animals is not sufficiently adapted to environmental conditions and is most susceptible to the effects of adverse factors. Therefore, the morbidity and mortality of lambs in the first days of life is 60%-90% of the total mortality. This is due to the fact that, unlike adult animals, young animals have a weak secretion of hydrochloric acid in the abomasum, the skin and mucous membranes are easily vulnerable, the navel is not fully protected from the penetration of infectious pathogens. Due to these and other reasons, the so-called "factorial" infections specific to this period of life become widespread in young animals, to which older animals are little susceptible. Such infections include: salmonellosis and escherichiosis [3; 5; 7; 9].

According to the results of studies by various authors conducted in our country and abroad, it has been established that both concomitant and predisposing factors play a primary role in the occurrence of these diseases in newborn animals: errors in feeding and keeping, fatigue, dampness, drafts [1; 4; 6; 10].

Research results

Studies have established that escherichiosis is an acute, more often septic disease of lambs of different ages.

They get sick from the first days of life to a year, more often 3 - 5 menstruation. In disadvantaged flocks, adult sheep often get sick, especially during the period of pregnancy, in which abortions and the birth of dead fetuses are noted. Lambs are sick mainly in spring and in the summer-autumn periods, and in young sheep the disease is more observed in winter and early spring, which is associated with a decrease in fatness due to insufficient feeding and a decrease in the body's resistance.



In the rest of the lambs of this age, as well as in 3-12-month-old young animals and adult sheep, the disease is accompanied by acute intoxication and proceeds without diarrhea. It is very difficult to identify such patients during the clinical examination of flocks. Sick lambs lag behind the flock, the gait is wobbly, suddenly fall and die in the presence of clonic convulsions, pronounced salivation, bloating and foamy discharge from the oral and nasal cavities. All this occurs within 1-1.5 hours after the first clinical signs appear. In older lambs, the disease, as a rule, proceeds without diarrhea and resembles the course of similar diseases.

Pathoanatomical changes in lambs that died due to escherichiosis were not identical and depended on the duration of the disease, individual resistance of the body, its age, immunobiological characteristics and virulence of the pathogen.

During the autopsy of the corpses of lambs that died in the first weeks of life, the fatness is below average, the hair is slightly disheveled, the skin and hair around the anus, on the tail and hind limbs are stained with feces, the corpses are often swollen. The visible mucous membranes are pink, sometimes with a bluish tint.

The subcutaneous tissue is weakly expressed, the vessels are filled with dark, poorly coagulated blood, the superficial lymph nodes are moderately enlarged, juicy on the incision. Skeletal muscles are dry. In the thoracic cavity, the lungs are sometimes swollen, in some cases the tops of the anterior lobes are compacted. In the acute course of the disease, the coronary vessels are filled with blood, on the endocardium from single to multiple punctate or mottled hemorrhages.

In the abdominal cavity, the mucous membrane of the abomasum is swollen, reddened, covered with mucus, there are single or multiple punctate and fine-spotted hemorrhages on it.

The small intestine is moderately swollen, the vessels of the mesentery and intestines are filled with blood. In the lumen there are gases and liquid feed mass with mucus of gray-yellowish color, sometimes with an admixture of blood. The mucous membrane is swollen, covered with thick mucus, hyperemic in places, it has punctate or banded hemorrhages, sometimes significant throughout the intestine.

Mesenteric lymph nodes are swollen, juicy on the incision, often riddled with small hemorrhages. In the large intestine, the same changes, but they are less pronounced. The cecum is usually distended with gases, the mucous membrane is swollen and banded hyperemic, sometimes it has punctate and banded hemorrhages. The spleen usually had no changes, sometimes slightly enlarged, under the hemorrhage capsule, the pattern was preserved on the incision. The liver is somewhat anemic, sometimes under the capsule of hemorrhage. The gallbladder is filled with thick dark green bile. In the acute course of the disease, the kidneys are moderately swollen, there are sometimes hemorrhages under their capsule, juicy and hyperemic on the incision, but the pattern is preserved. The cerebral vessels are filled with blood, and there is a moderate amount of fluid in the ventricles.

In the disease of older young animals, which often proceeded in the form of colienterotoxemia, pathological changes had their own characteristics. The corpses of the fallen are swollen, the hair is disheveled, easily pulled out. The subcutaneous tissue in the neck and lower body is often reddened and swollen, the vessels are filled with dark blood. A reddish fluid is found in the thoracic and abdominal cavities. The lungs are in a collapsed state, sometimes the tops are compacted. There is a foamy fluid in the trachea, the mucous membrane is hyperemic. The vessels of the heart are full-blooded, the blood is poorly coagulated, dark in color, striped on the endocardium, and single or multiple punctate hemorrhages on the costal

pleura. In the abdominal cavity, mesenteric vessels filled with blood protrude sharply. On the serous covers of organs and peritoneum there are punctate and fine-spotted hemorrhages. The rumen is filled with feed masses, its epithelium peels off easily. In the abomasum, the mucous membrane is swollen, covered with mucus, and there are punctate hemorrhages on it.

In the small and large intestine, the mucous membrane is swollen, sometimes on the surface of hemorrhage, in the lumen of the intestine. The liver is unevenly stained, grayish areas are visible on the surface, full-blooded, the pattern is preserved.

The spleen is slightly swollen, sometimes under the hemorrhage capsule, the pattern is pronounced. The buds are cherry-red, the capsule is easily removed, juicy on the cut, dark red, the pattern is smoothed. The cerebral vessels are full-blooded, there is an increased amount of fluid in the ventricles.

In the process of performing our work, we subjected the pathological material of parenchymal organs and the brain of tubular bones, corpses of sheep, lambs and aborted fetuses to bacteriological studies. At the same time, *Escherichia coli* from 90 animals were identified. 69 adult sheep were studied, a significant part of which died after an abortion. From 37 animals, 37 strains of *Escherichia* were isolated, assigned to 5 sero-groups. Including: 078-16, 026-3, 041-5, 0127-3 and 02-2.

Out of 35 aborted fetuses, *Escherichia* cultures were isolated in 19 cases. 19 crops were identified, assigned to four sero-groups - 078-6, 041-4, 026-2 and 0126-2.

From the organs and marrow of the tubular bones, 72 lambs that died with signs of *Escherichiosis* in the first days of life and up to 3 months, *Escherichia coli* were isolated from 34 animals. A total of 28 strains have been identified, classified into six serological groups. Including: 041-10, 026-6, 078-6, 02-2 and 0127-2.

Table -1. Results of bacteriological studies of pathological material from sheep and lambs killed with signs of *escherichiosis*

№	Name of the farm	Object	Number of studied	From how many animals have cultures been isolated	Number of crops and their gray group affiliation
1	Gallyaaral Galyaaral	sheep	18	17	8-078, 8-026, 1-0126
		abortion. fetus	8	6	4-078, 2-041
		lambs	18	8	4-026, 2-041, 2-0126
2	Panjakent	sheep	16	8	3-041, 2-078, 3-026
		abortion. fetus	6	6	1-0126, 3-078, 2-041
		lambs	11	6	3-041, 3-078
3	Sherabad	sheep	4	4	2-078, 1-0127, 1-041
		abortion. fetus	3	3	1-078, 2-026

		lambs	8	5	2-078, 1-026, 2-02
4	Zerafshan Chirakchin	sheep	6	4	2-078, 0-126, 0-127
		abortion. fetus	-	-	-
		lambs	6	2	226 и 078
5	Koshrabad	sheep	4	-	-
		abortion. fetus	4	-	-
		lambs	6	2	041 и 026
6	Kamashin	sheep	6	2	0126, 041
		abortion. fetus	4	2	0126, 041
		lambs	6	2	0126, 041
<i>X</i>		sheep	54	35	
		abortion. fetus	25	17	
		lambs	55	25	

At the same time, it should be noted that from each animal *Escherichia* belonging to the same sero-group were distinguished, however, in some cases, especially from adult sheep, *Escherichia* belonging to two sero-groups were distinguished from the same animal.

The isolated *Escherichia coli* have characteristics characteristic of this type of bacteria. These are small gram-negative rods, stained negatively according to Gram, facultative aerobes, grow in anaerobic conditions, the most optimal growth temperature is 35-40°C. None of the studied strains formed a spore. They grew abundantly on MPA, MPB, MPPB, Endo, Ploskirev media, bactoagar at pH -7.2-7.4°, on MPA they formed transparent, grayish, smooth, juicy colonies. Intense uniform turbidity with grayish sediment was formed in the MPB, which broke into a uniform suspension when shaken.

On the MPJ, the injection grew in the form of a whitish thread, the milk was curdled, the litmus milk was stained pink. The isolated *Escherichia* decomposed lactose, glucose, maltose, galactose, mannitol, and sorbitol to form gas and acid. Adonite, inositol and urea were not decomposed. They formed indole, gave a positive reaction with methyl red, a negative Voges-Proskauer reaction. Simons did not grow on citrate medium, had pronounced pathogenic properties, and were toxic.

Conclusion

As a result of the research, the following conclusions can be drawn: The most pathogenic and toxic were cultures of *Escherichia* isolated from aborted fetuses, they caused the death of experimentally infected white mice in the first three days after the introduction of 500 million microbial bodies into the abdominal cavity.

Clinical signs of the disease, although they have some features, do not allow diagnosing mixed infections. The main signs are depression, fever, increased heart rate and respiratory movements, diarrhea, cough, conjunctivitis and refusal to feed. Pathological anatomical changes Found mainly in the gastrointestinal tract, liver, lymph, nodes and respiratory organs.



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