BACTERIAL DAMAGE TO CARCASSES AND INTERNAL ORGANS IN CATTLE ECHINOCOCCOSIS

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Summary. The article provides information on the spread of E.coli bacteria, staphylococci and salmonella in the carcass and internal organs of cattle infected with echinococcosis.

Keywords: Echinococcosis, E.coli, bacteria,muscle, liver, lungs.

БАКТЕРИАЛЬНОЕ ПОРАЖЕНИЕ ТУШ И ВНУТРЕННИХ ОРГАНОВ ПРИ ЭХИНОКОККОЗЕ КРУПНОГО РОГАТОГО СКОТА

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Резюме. В статье приведены сведения о распространении бактерий кишечной палочки, стафилококков и сальмонелл в тушах и внутренних органах крупного рогатого скота, зараженного эхинококкозом.

Ключевые слова: эхинококкоз, кишечная палочка, бактерии, мышцы, печень, легкие.

Relevance of the topic. Today, due to invasive diseases of farm animals, as a result of the death of animals or a decrease in their productivity, society is unable to obtain large quantities of livestock products [5]. Also, the issue of further improving the quality of livestock products remains relevant [6].

One of the factors reducing the quality of livestock products is diseases of farm animals [2]. However, not only the biological value of meat and meat products, but primarily their veterinary sanitary quality decreases [7].

Invasive diseases play a major role among the diseases that cause great economic damage to livestock and reduce the quality of meat and meat products [3,4]. Currently, echinococcosis poses a serious threat to human health and the economy, as well as in some regions of the country[1].

It is necessary to carry out systematic control of consumer markets to prevent the entry of poor quality meat and meat products due to diseases of farm animals [1]. Therefore, in improving the quality of livestock products in recent years, special attention is paid to the improvement of veterinary services, in particular, the improvement of veterinary sanitary examination.

Materials and methods. The research was carried out at the slaughterhouses of Samarkand district "Sam skin preparation", Samarkand city "Samarkand quality meat trade" in the carcass and internal organs of 145 locally infected cattle aged 2 to 5 years with echinococcosis. The above-mentioned internal organ and muscle tissue of 5 healthy animals were used as control. Bacteriological studies on the spread of *Escherichia coli* bacteria, staphylococci and salmonella to the body and internal organs «Uzstandard» 21237-75 «Meat. Methods of bacteriological analysis[2].

Results and their analysis. Studies have shown that these bacteria are most prevalent in the liver – 1,4%, and in the lungs – 1,2%. Bacteria belonging to the *E.coli* group were less common in the muscle tissue of infected animals, ie – 1,6%.

[1]A.M.Vaxidova, G.N.Xudayarova, K.S.Boltaev. Echinococcosis lungs, complicated by petsilomycosis. Monograph, published by "Global" Samarkand, 2020

[2] «Uzstandard» 21237-75 «Meat. Methods of bacteriological analysis. https://docs.cntd.ru/document/1200021646

Table 1
Distribution of *E.coli* group bacteria in internal organs and tissues in cattle echinococcosis

Examined tissues and internal organs	Number of samples tested	Bacteria isolated from intestinal rods	
		number	%
Liver	145	47	32,4
lungs	145	44	30,3
Muscle	145	21	14,4

The study of the intensity of echinococcosis in the internal organs and tissues of sick animals revealed that the liver and lungs were most affected by bacteria belonging to the *E.coli* group (Table 2).

Table 2
***E.coli* group bacterial damage of organs and tissues according to the intensity of invasion in echinococcosis of cattle**

The degree of damage by echinococcosis	Infected animals	Bacteria isolated from the *E.coli* group					
		Liver		Lungs		Muscle	
		number	%	number	%	number	%
Strong	46	19	41,3	15	32,6	7	15,2
Average	48	16	33,3	13	27,1	6	12,5
Weak	51	11	21,5	12	23,5	4	7,8
Healthy animals	5	-		-		-	

At the strong level of invasion, the most expressed bacteria were isolated from the liver – 41,3%, from the lungs – 32,6%. With moderate levels of echinococcosis, these bacteria were found to infect 33,3% in the liver and 27,1% in the lungs. Even at a weak level of echinococcosis, the spread of bacteria in the organs is close.

At the same time, bacterial damage to muscles was at a strong level of invasion – 15,2%, at a moderate level – 12,5% and at a weak level – 7,8%.

During the studies, the carcasses and internal organs of cattle infected with echinococcosis were also examined for staphylococcal infections. Studies have shown a significant prevalence of staphylococci in the internal organs and tissues of cattle infected with echinococcosis (Table 3).

Table 3
Distribution of staphylococcal pathogens in the internal organs and tissues of cattle infected with echinococcosis

Name of the samples tested	Number of samples tested	Isolated staphylococci			
		number	%	Enterotoxigenic strains	
				number	%
liver	145	22	15,1	6	27,2
lungs	145	17	11,7	5	29,4
muscle	145	7	4,8	1	14,2

Thus, the prevalence of staphylococci in muscles was 4,8%, in the liver – 15,1%, in the lungs – 11,7%. At the same time, enterotoxigenic strains account for 14,2% of muscle-derived staphylococci, 27,2% in the liver, and 29,4% in the lungs.

A study of the prevalence of these bacteria in the viscera and tissues of cattle infected with echinococcosis revealed staphylococci in the liver at a high level of invasion – 21,7%, moderate – 16,6%, weak – 9,8% (Table 4).

Table 4
Staphylococcal damage to the internal organs and tissues of cattle, depending on the intensity of echinococcosis

The degree of damage by echinococcosis	Number of samples tested	Isolated staphylococci					
		liver		lungs		muscle	
		number	%	number	%	number	%
Strong	46	10	21,7	11	23,9	3	6,5
Average	48	8	16,6	9	18,7	2	4,1
Weak	51	5	9,8	3	5,8	1	1,9
Healthy animals	5		-		-		-

The prevalence of staphylococci in the lungs of cattle with high intensity of echinococcus – 23,9%, average – 18,7%, weak – 5,8%.

The prevalence of staphylococci in the muscles of cattle with severe echinococcosis of the internal organs – 6,5%, moderate – 4,1%, weak – 1,9%. The spread of staphylococci in the internal organs and muscle tissue of animals in the control group was not observed.

It is well known that the main cause of food poisoning is salmonellosis, which in many cases is not an independent disease, but occurs in any existing pathological process. The data from the study showed that salmonella was significantly prevalent in the internal organs and tissues of cattle infected with echinococcosis (Table 4). Thus, salmonella was observed in the liver – 6,2%, in the lungs – 3,4% and in muscle tissue – 1,3%.

Table 4
An indicator of the spread of salmonella to the internal organs and tissues of cattle infected with echinococcosis

Name of the samples tested	Number of samples tested	Isolated salmonellae			
		sick animals		healthy animals	
		number	%	number	%
liver	145	9	6,2	-	-
lungs	145	5	3,4	-	-
muscle	145	2	1,3	-	-

The data presented in the studies showed that the greatest risk from a sanitary point of view was observed in strong and moderate levels of liver, lung and muscle tissue in cattle infected with echinococcosis. The results of the inspections are presented in Table 5.

Table 5
Damage to the internal organs and tissues of cattle with salmonella, depending on the intensity of echinococcosis

The degree of damage by echinococcosis	Number of carcasses inspected	Isolated salmonellae					
		liver		lungs		muscle	
		number	%	number	%	number	%
Strong	46	4	8,6	3	6,5	2	4,3
Average	48	3	6,2	2	4,1	1	2
Weak	51	1	1,9	1	1,9	-	-
Healthy animals	5		-		-		-

Thus, at a strong level of invasion, the prevalence of salmonella in the liver was 8,6%, in the lungs 6,5%, and in the muscles 4,3%. At the average level of echinococcosis, salmonella was found in the liver – 6,2%, in the lungs – 4,1% and in muscle tissue - 2%. At low levels of echinococcosis, the prevalence of salmonella was less pronounced, but in this case, too, in the liver and lungs – 1,9%. Salmonella was not detected in the muscle tissue of weakly affected animals.

In conclusion from the above results, echinococcosis of cattle causes high levels of damage to muscle tissue and internal organs by bacteria of the *E.coli* group, staphylococci and salmonella. In this case, the degree of spread of these bacteria in tissues and organs depends on the invasive intensity of echinococcosis.

Conclusion

The spread of bacteria in the organ and muscle tissues of cattle infected with larvae is directly related to the intensity of the invasion. Strong spontaneous infection of cattle with echinococcosis was observed in the muscle tissues and organs with high prevalence of *E.coli* bacteria, staphylococci and salmonella.

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