

The Incidence Rate of Echinococcosis in Uzbekistan.

Shavkat Avazimbetov

Samarkand State University of Veterinary Medicine, Livestock and Biotechnologies Nukus Branch

Sardor Sulaimonov

Samarkand State University of Veterinary Medicine, Livestock and Biotechnologies Nukus Branch

Begzod Sultonov

Samarkand State University of Veterinary Medicine, Livestock and Biotechnologies Nukus Branch

Corresponding author email: sulaymanovsardor410@gmail.com

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Annotation: these products quality are varying.

Today quality control of meat and meat products is very important in slaughterhouses in terms of safety. The conducted studies of the meat of healthy and echinococcosis animals allow us to conclude that this disease has some influence on some parameters that determine the quality of meat. According to a study of 1679 cattle slaughtered in slaughterhouses in the Samarkand region of Uzbekistan, the average incidence of

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INTRODUCTION

Providing the population with food and healthy nutrition is an important and urgent task of national importance. Social stability of society and health of the population is impossible without

its solution. In recent years, in connection with the change in the nature of the domestic market, measures have been taken to integrate the Uzbek economy into the world one. When solving this important state task, the requirements of environmental and sanitary control imposed on Uzbekistan by the member countries of the World Trade Organization are taken into account.

The concept of healthy nutrition of the population and the state policy for creating the foundations of biological safety in our country involve the modification of the legislative framework and regulatory and methodological support of state supervision over the quality of animal products, the harmonization of which with international standards is an urgent area of veterinary sanitary examination and food safety of Uzbekistan [1,2,22].

In this connection, it is necessary to constantly improve and test modern scientific achievements and carry out systematic control aimed at preventing substandard products from entering the sale, in case of animal helminthiasis, in order to eliminate harmful effects on human health [11,13].

Echinococcosis - are chronic helminthiases characterized by destructive lesions of the liver, lungs and other organs, allergization of the body and severe complications, often leading to disability and death. [6,17,18]. It is a new disease in many parts of the world, especially in the countries of the former Soviet Union, Eastern Europe and Asia [21,23].

There are difficulties in early diagnosis, surgical interventions are carried out in advanced stages, there are certain difficulties in carrying out comprehensive preventive measures that are associated with serious economic problems [4].

WHO and the International Bureau of Epizootic have included echinococcosis in the list of diseases subject to radical eradication [3,14]. In a number of countries (New Zealand, Argentina, Greece, Turkey, Spain, Italy, etc.), for which echinococcosis is a marginal pathology, its elimination has been raised to the rank of a state task, special national programs are being developed to control and prevent the disease. Thanks to such programs, in a number of countries previously unfavorable for echinococcosis (Iceland, Norway, Australia, and Tasmania), the disease has practically been eradicated [24]. Echinococcosis not only harms the health of animals and humans, but also causes economic damage, and therefore continues to be an important public problem [5,7,8,9,10,].

Thus, given that animal husbandry is a traditional branch of agriculture, and meat products constitute a significant proportion of the population's diet, research and development of scientifically grounded criteria for assessing the quality and safety of cattle slaughter products in case of echinococcosis in Uzbekistan remains a problem, the relevance of which is beyond doubt, which determined the purpose of these studies.

The aim of the study was to determine the quality and safety of meat and meat products from cattle infected with echinococcosis.

MATERIALS AND METHODS

Post mortem examination

Post-slaughter veterinary and sanitary inspection of carcasses and organs of slaughtered livestock are carried out in accordance with the requirements of the Cabinet of Ministers on the "On measures to further improve the system for streamlining the activities of specialized enterprises for slaughtering livestock and delivering meat and meat products to the consumer market" by the chapters 4-5 of decision № 386 accepted on May 8 in 2019.

Data analysis

Basic data entry and handling were done using MS Excel (2010). The significance of differences among chemical values of each sample was determined by analysis of variance (ANOVA) and t-test. Prevalence of echinococcosis was calculated as the number of cattle found infected with echinococcus expressed as the percentage of the total number of slaughtered. Differences were considered significant at $p < 0.05$ level.

RESULTS

Post mortem examination

In the process of post-mortem veterinary and sanitary examination, echinococcal blisters of various sizes were found in the liver and lungs, the affected organs had a hard consistency and a bumpy surface. The condition of patients with echinococcosis and healthy animals was average.

At postmortem examination, a visual inspection was made of the condition of the carcass, the head and regional lymph nodes. In carcasses of healthy animals, the muscles were well developed, thoracic and lumbar vertebrae, hips were allocated not sharply; the neck, scapula's, forward ribs and legs, the pelvic cavity and area of a groin had fat deposits in the form of small sites. In terms of organoleptic indicators, the meat of sick animals did not differ from that of healthy animals: the carcasses of the animals had a dark red color, with a specific smell, dense consistency; the cut surface was moderately moist.

In carcasses of animals, infected by echinococcosis, there were less developed muscles, prominent spinous processes of vertebrae; a poor development of the fatty layer was noted.

During the study, from 1679 cattle obtained from the slaughterhouse, 145 (8.6%) animals were positive for echinococcosis. Contamination by echinococcosis of cattle had rather stable character and slightly varied depending on a season of slaughter of cattle (Table 1).

Table 1. Dynamics of echinococcosis infection of cattle on seasons of year (2020)

Seasons	Number of cattle		Prevalance %
	Investigated	Infected	
Winter	485	47	9.6
Spring	326	36	11
Summer	418	28	6.6
Autumn	450	34	7.5
Total	1679	145	8.6

In the winter the contamination of cattle was, on the average, 9.6%. The infection prevalence was rather high during the spring period and reached 11 %. In the summer and autumn the prevalence was lower, 6.6% and 7.5%. The average level of contamination of cattle was 8.6%.

Infection of the internal organs of cattle with echinococcosis indicates that in most cattle only 67.6% had liver damage. Simultaneous damage to the liver and lungs was 31.0%. The kidneys, liver and lungs of cattle were simultaneously damaged by 1.4% (Table 2).

Table 2. Distribution of echinococcosis cysts on organs of the infected cattle (n = 145)

Organs	Distribution of echinococcosis
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	Number of animals	%
Liver	98	67.6
Liver, lungs	45	31.0
Kidneys, liver, lungs	2	1.4

DISCUSSION

Our research demonstrated that the average contamination of echinococcosis of slaughtered cattle aged 2 to 5 sold through the market in the Samarkand region of Uzbekistan is 8.6%. The incidence of echinococcosis infection in adult cattle did not display large fluctuations on seasons of the year. In our opinion, this is explained by the constant character of the invasion by oncospheres during the life time of the cattle. Accordingly, the lowest prevalence of infection of cattle established during summer and autumn seasons of year. Parasites are mainly found in liver and lungs (in 98.6% of animals). In other isolated cases there were observed multiple echinococcosis with simultaneous infection of kidneys or spleens.

Studies of the chemical composition of meat and meat products of sheep infected with echinococcosis established that the maintenance of protein and fat decreases, and moisture increases (Z.Valieva et al.,) [26].

CONCLUSION

Studies on the meat of healthy and echinococcosis-infected cattle have led to the conclusion that it affects some parameters that determine meat quality. According to organoleptic tests, the meat of healthy animals is no different from the meat of animals infected with echinococcosis.

PRACTICAL SUGGESTIONS

Based on the results obtained, it was revealed that echinococcosis causes a complex of physicochemical, biochemical changes and is the reason for a decrease in the biological and nutritional value of the slaughter products of invaded cattle.

Carcasses of cattle infected with echinococcosis regardless of the degree of invasion, it is recommended to send for industrial processing with heat treatment for the manufacture of boiled and boiled-smoked sausages, and internal organs for technical disposal.

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