



The Effect of Anthelmintics in the Fight Against Cysticercosis in Sheep

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Received: 2024 19, Sep

Accepted: 2024 28, Sep

Published: 2024 18, Oct

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Abstract. This article provides a brief overview of the causes, biology, and effectiveness of anthelmintic drugs in combating cestodosis of sheep (*Cysticercus tenuicollis*).

Kalit so'zlar: *Taenia hydatigena*, scolexes, hermaphrodites, *Cysticercus tenuicollis*.

Relevance of the topic Our government is adopting a number of regulations to address the problem of stabilizing epizootic peace among livestock while providing the population with meat, milk and other livestock products in sufficient quantities and on the basis of food security. In particular, a new version of the Law of the Republic of Uzbekistan "On Veterinary Medicine" was adopted, the Resolution of the President of the Republic of Uzbekistan dated March 17, 2017 No. RP-2841 "On additional measures to deepen economic reforms in animal husbandry", Resolution No. RP-4243 dated March 18, 2019 "On measures for further development and support of the livestock industry", Resolution No. RP-5696 dated March 28, 2019 "On measures to radically improve the public administration system in the field of veterinary medicine and animal husbandry", Resolution No. RP-4254 dated March 28, 2019 "On the organization of the activities of the State Committee for the Development of Veterinary Medicine and Animal Husbandry of the Republic of Uzbekistan", Resolution No. RP-4576 dated January 29, 2020 "On additional measures of state support for the livestock industry", the Decree of the President The Republic of Uzbekistan dated January 28, 2022 No. DP-60 "On the development strategy of the new Uzbekistan for 2022-

2026", and in accordance with the decision DP-5017 announced in 2021, it is planned to ensure stable supplies of meat, milk, eggs and other livestock products to the consumer markets of the republic, as well as expand the feed base in the areas of livestock, poultry and fisheries.

In particular, changes in the form of livestock farming and livestock farming technology, changes in their natural resistance to regional diseases, as well as changes in the distribution and epizootology of diseases, including changes in zoonoses, their distribution and epizootology, improvement of methods of treatment and prevention against them, development of new systems of measures suitable for modern conditions, and requires calculation of the economic effect of prevention, that is, the damage that can be prevented, and its reduction.

According to T.N. Sivkova, E.A. Doronin-Dorgelensky (2018), in a number of countries around the world this disease affects, including 26.0% of sheep in Eastern Ethiopia, 23.0% in Western Australia, and 23.0% in Saudi Arabia.

According to A.O. Oripov et al. (2016), it was found that in our republic this disease occurs in 70-80% of sheep and goats.

That is why, in the fight against these diseases, it is important to constantly deworm dogs, which are the main hosts of pathogens.

The main stages of research in this area will be, first of all, determining the degree of infection of sheep with cysticercosis, diagnosing the disease during the life of the animal, as well as creating special and general prevention methods aimed at preventing the disease.

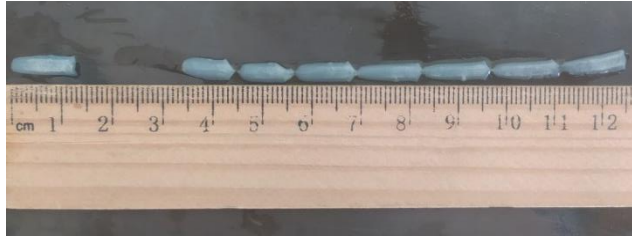
Ovine cysticercosis (*Cysticercus ovis*) is a subclinical cestodiasis that parasitizes sheep mainly in fatty tissues. The disease is caused by the larval form of *Taenia hydatigena*, *Cysticercus tenuicollis*. The main host of the pathogen is a dog, wolf, jackal and other predators. The disease is characterized by an allergic reaction of the body. In the initial (acute) period of the disease, gastrointestinal disorders (constipation), increased body temperature, weakness, and pain during palpation of the abdominal wall are observed. In a later period, clinical signs are not noticeable, the animal loses weight and anemia of the visible mucous membranes is observed.

Cysticercus tenuicollis is a round or oval light cystic larva with a one-armed scolex, attached to the cyst membrane in a clear liquid. Cysticerci are called thin-necked cysticerci because they look like they are hanging on the abdomen and abdominal fat, internal organs (lungs, liver, heart) - on a thin neck.



The adult form of **Taenia hydatigena** - (*Cysticercus tenuicollis*) lives as a parasite in the

small intestine of dogs, wolves, jackals and other predators. It is 5 m long and 7.5 mm wide. It is a ribbon-like cestode divided into segments. The scolex of tapeworms is covered with 26-44 loops of different sizes, arranged in two rows. The scolex serves only to absorb the mucous membrane of the host's organs and firmly adhere to them. The part after the scolex is the parasite's neck, which is the growth zone. From there, new joints (roots) slowly begin to grow. Each joint has a system of organs.



Biology of the pathogen. The adult parasite (*Taenia hydatigena*) excretes mature clutches containing thousands of eggs with the feces of animals. Sometimes joints in the intestine crack and the parasite eggs are excreted with the feces. The released joints move, burst and spread the eggs into the environment. Sheep, considered intermediate hosts, are infected through contaminated feed and drinking water, as well as its eggs. Separating from the tapeworm eggs that have entered the gastrointestinal tract, they pierce the mucous membrane of the small intestine, enter the capillary vessels and settle with the blood and lymph flow in muscle tissue, heart, liver, abdominal cavity, where they develop and after 3 months the cysticercus of the urinary bladder is formed.

Dogs, wolves, jackals and foxes become infected by eating cysts of cysticerci, and the parasite turns into an adult form within 1-3 months and can live in the body for many years.

Purpose of the study. It consists of testing new anthelmintic drugs for the purpose of studying, preventing and combating the epizootological situation with *Cysticercus tenuicollis*, which is considered one of the main cestodiasis among sheep in specialized sheep farms of our republic.

Object and methods of research. Our research was conducted in the experimental animal storage room of the Helminthozoonoses laboratory at the Veterinary Research Institute and in the autopsy room using the incorrect method of helminthological autopsy by K.I. Scriabin.

Research results. Since sheep cysticercosis cannot be diagnosed in a living animal, a definitive diagnosis is made when cysticercosis is detected after the animal is slaughtered. Therefore, in the course of our research, in order to study the degree of infection of sheep with cysticercosis, we conducted a study of the internal organs of sheep slaughtered in several small animal slaughterhouses located in the city of Tashkent.

Table 1

Cestode infestation of sheep slaughtered in Tashkent enclosures

	Total number of heads	LLC “Status tubarro”		LLC “Bizness fenikss”		LLC “Halol gosht servis”		LLC “Rozine-mat”		LLC “Shonazir gosht sanoati”		General infection with cysticercosis	
		183 heads		146 heads		147 heads		96 heads		62 heads			
		n=	%	n=	%	n=	%	n=	%	n=	%	n=	%
Cysticercosis infection	634	16	8,7	12	8,2	14	9,5	-	-	1	1,6	43	6,7

During our research, 643 sheep slaughtered in 5 small cattle slaughterhouses were examined using an incorrect helminthological method. Cysticercus cysts were found in 16 heads (8.7%) of 183 slaughtered sheep in "Status tubarro" LLC, in 12 heads (8.2%) of 146 slaughtered sheep in "Business fenikss" LLC, in 14 heads (9.5%) of 147 slaughtered sheep in "Halol gosht servis" LLC, and in 1 head (1.6%) of 62 slaughtered sheep in "Shonazir gosht sanoati" LLC. No cysts were found in the studies of 96 slaughtered sheep in "Rozinemat" LLC. It was found that 43 heads (6.7%) of 643 slaughtered sheep were infected with cysticercosis.

In connection with the above-mentioned incidence of sheep, we conducted research to test new anthelmintic drugs to combat and treat this disease. Our scientific research was conducted on 9 sheep in the experimental section of the laboratory "Helminthozoonoses" in the research institute of veterinary science. The experimental sheep were divided into 3 groups. They were inoculated with adult *Taenia hydatigena*, which were kept in special cages in the laboratory and were separated from artificially infected dogs with cysticerci.

In the 1st experimental group - 3 sheep were infected with 3 joints of adult *Taenia hydatigena*;

In the 2nd experimental group - 3 sheep were infected with 6 joints of adult *Taenia hydatigena*;

In the 3rd group - 3 sheep were infected with 9 joints of adult *Taenia hydatigena*.

During the study, sheep in the experimental control group were given 3 different doses of the suspension “EVER&PRZIQ” (ivermectin 1% + praziquantel 2.5%) produced in China to treat the disease after 90 days.

In the 1st experimental group, 3 sheep were given orally at a rate of 5 ml per 100 kg of live weight;

In the 2nd experimental group, 3 sheep were given orally at a rate of 10 ml per 100 kg of live weight;

In the 3rd experimental group, 3 sheep were given orally at a rate of 15 ml per 100 kg of live

weight.

24 hours after the administration of the anthelmintic drug to the experimental sheep, in order to determine the effectiveness of the drug, the sheep were slaughtered in the autopsy room of the Helminthozoonosis laboratory and the parenchymatous organs were examined using the method of irregular helminthological dissection of K.I. Scriabin.

According to the results of examinations, 2 cysticercic cysts were found in 1 of 3 heads of slaughtered sheep of the 1st experimental group, and 3 cysticercic cysts were found in 2 heads, a total of 8 cysticercic cysts. When checking the viability of cysticercal cysts, 5 cysts were found to be dead, and the remaining 3 were found to be viable.

Of the 3 slaughtered sheep of the 2nd experimental group, 5 in 2 and 4 in 1, a total of 14 cysts of cysticerci were found, 10 of them were found dead, and the remaining 4 were alive.

In total, 8 cysts of cysticerci were found from 1 slaughtered sheep of the 3rd experimental group and 7 from the remaining 2 heads, a total of 22 cysts of cysticerci were found. Of the cysts found, 18 were dead, and 4 cysts were viable.

During our experiments, we found that the effectiveness of the drug "EVER&PRZIQ" was 62.5% for sheep of the 1st experimental group, 71.4% for sheep of the 2nd experimental group and 81.8% for sheep of the 3rd experimental group.

CONCLUSIONS.

- Of 643 slaughter sheep examined at small animal slaughterhouses, 43 heads, or 6.7%, were found to be infected with cysticercosis.

- Based on the research results, we can conclude that high efficiency was achieved by introducing the drug "EVER&PRZIQ" against cysticercosis in sheep at a rate of 15 ml per 100 kg of live weight.

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