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EPIZOOTOLOGY OF ORIENTOBILGARCIOSIS OF SHEEP IN THE ARALSEEBUCHT

Erimov Sirojiddin Farkhodovich
Assistant at the department of "Veterinary Medicine and Food Safety" of the Nukus branch of the Samarkand State University of Veterinary Medicine, Animal Science and Biotechnology. erimovsirojiddin1@gmail.com.

Arislanbekov Ilkhambek Arislanbek o'gli
Student
ilkhambekarislanbekov67@mail.com

Annotation
In recent years, the decrease in the annual volume of water in the Amu Darya and the sharp drop in the level of the Aral Sea caused by the impact of anthropogenic factors have led to intensive study of the climate and natural biogeocenoses of the Republic of Karakalpakstan. Such an ecological crisis primarily negatively affects the areas adjacent to the drying up Aral Sea. This process also has an impact on the epizootology of the causative agents of Trematodoses, common among farm animals, which have been causing great economic damage to animal husbandry for many years.

Keywords: Trematoda, Orientobilharzia turkestanica, (Scriabin, 1913), Schistosoma turkestanica, Ovis Aries, Capra hircus, Lymnaea auricularia, miracidium, sporocistaga, furcocercariae.

Introduction:
The development of the sheep and goat breeding industry of animal husbandry in the conditions of our republic will contribute, first of all, to ensuring food security, increasing employment and real incomes of the population, the development of gray lands unused in agriculture, climatic and geographical conditions of which create a problem field for the maintenance of other animal species, as well as the use of sandy deltas as pastures. Due to the fact that most of the relief of the Republic of Karakalpakstan, located in the North-Western region of the Republic of Uzbekistan, consists of sand, in recent years, due to

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lack of water, many arable lands previously used in agriculture are now used for grazing and breeding livestock.

Resolution of the President of the Republic of Uzbekistan dated 03.07.2020 No. PP-4776 ”on additional measures to accelerate the development of the livestock industry in the Republic of Karakalpakstan“ is aimed at ”increasing the level of ensuring the needs of the population in livestock products and increasing income through the effective use of pastures and hayfields." In the effective implementation of this goal, representatives of the veterinary sphere face the task of identifying the epizootological status of diseases of sheep and goats and their prevention. Therefore, we have studied the epizootological status of Orientobilgarciosis of sheep and goats kept in the regions of the Republic of Karakalpakstan adjacent to the Aral Sea.

Relevance of the topic:

Orientobilharziosis of trematodes belonging to 4 species parasitizing the venous blood vessels of the liver, intestines and intestinal tract, pancreas, genitals, bladder, heart and kidneys, pancreas and intestinal walls of farm animals, as well as various wild mammals, Orientobilharzia turkestanica, (Scriabin, 1913), orientobilharzia dattai (Dutt et srivastava, born 1952), Orientobilharzia Bomfordi (Montgomery, 1906), Orientobilharzia Harinasutai Kruatrachue, Bhaibylaja, Harinasuta, 1965 (D.A.Asimov, U.A.Shakarbayev, E.B. Shakarbayev, F.D.Akramova 2012) - a disease occurring in acute and chronic currents.

These parasites are flatworms type– Plathelminthes Shneider,1873, class of Trematodes, category Schistosomatida (Skrjabin et Schulz, 1937) Azimov, 1970, and its his family Schistosomatidae Stiles et Hassall, 1899, generation Orientobilharzia Dutt et Srivastava,1955, the first type, orientobigarsia, is widespread on the territory of Uzbekistan.

O.turkestanica was first discovered by K.I. Scriabin in cattle on the territory of Kazakhstan and is called Schistosoma turkestanica in 1926 N.P.Popov in cats in the cape area on the Aral Sea coast, in 1927 L.G.Popov in cattle in Kazakhstan, N.V.And Badanin was found in sheep.

D.A.Azimov et al. (1986) noted that cattle kept in the conditions of the Republic of Karakalpakstan and Khorezm region – 43.7%, sheep - 20.9%, goats – 12.2%,

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camels – 8.3%, horses - 18.7%, pigs – 5.0% get orientobilgarciosis. The intensity of invasion ranged from 5 to 110 thousand parasites.

In the area of the Aral Sea coast O.turkestanica it was found that infection with parasitic cercariae of the intermediate host has been about 0.3 – 0.5 percent since June, while in July- August it increased to 3.8-5.5 percent and even reached 45.0 percent in some extremely unhealthy foci. Kegeylinsky district in 1984-1985, on some livestock farms, it was found that animals were 100% infected with orientobilgarciosis (D.A. Azimov, 1986, D. A.Azimov et al., 1990).

In their study conducted in the spring of 1990, B.S.Salimov and others found that about 100 percent of the aging cattle of the Khorezm region contained in the Kungrat district of the Republic of Karakalpakstan are susceptible to orientobilgarciosis and fascioliasis (F.gigantica), among which there were many deaths. The hepatic and intestinal plaques of each deceased cattle, blood vessels on the mucous membranes contain from 19460 to 100 thousand O.turkestanica, and up to 250 specimens of adult F.gigantica were found in the liver.

At the same time, in recent years it has been established that foci of orientobilgarciosis from this region through the market system and under the influence of some other anthropogenic factors arise in irrigated lowland biocenoses of the northeastern part of Uzbekistan, including near rivers and large reservoirs of the Tashkent and adjacent Syrdarya regions. Now the Angren River flowing through the Tashkent region, the village of Toitepa of the Sredne-Chirchik district, some reservoirs around the artificial Tashkent Sea have become new foci of orientobilgarciosis.In August, 3.8-4.6 percent of shellfish L. auricularia were infected with larvae of this parasite. (D.A.Azimov et al., 2008, 2014).

Based on the above data, the main region with a large number of biotopes of the disease is the Republic of Karakalpakstan. But the ecological crisis has reduced the range of freshwater babies, which are considered intermediate hosts of the disease. We found that in sandy desert pastures, where water supply is difficult, it is currently important to identify the epizootological status of the disease.

The purpose of the study

O.turkestanica is a trematode of a certain genus, like all schistosomatids. The shape of his body is oblong, threadlike, the color is white, milky. Males are larger than females, often males live clinging to females.

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O.turkestanica develops through two hosts. The freshwater mollusk – Lymnaea auricularia. O. participates in its development. The embryonic development of turkestanica occurs in endogenous conditions: female flukes pass directly into small blood vessels in places close to the intestinal wall, and secrete eggs that are not yet fully mature in these places. The further development of the egg and the formation of the miracidium inside the egg occurs in the host tissue. The egg, with the help of the loops it has, breaks through small blood vessels into the intestine and exits with feces into the external environment. As soon as such eggs get into the water, the miracidium in them leaves the eggshell and actively penetrates the body of the intermediate host. Its further development continues in the liver of the mollusk: the miracidium undergoes regressive metamorphosis and turns into a maternal sporocyst. From the embryonic cells of the same sporocyst, the third generation of larvae - daughter sporocysts - occurs by parthenogenetic reproduction. Larvae of the fourth generation of the parasite, cercaria, appear from the cells of these sporocysts. Since these cercariae have a separate tail, they are called furcocercariae.

Cercariae exit the mollusk's body into the water and actively penetrate into the body of the final host, piercing the animal's skin. In sheep, orientobilgarsias take 35-40 days to reach puberty. The release of mature eggs with feces is observed 50 days after infection.

Infection of animals with orientobilgarsia, depending on the climatic, geographical and environmental conditions of the area, occurs annually from April to May and lasts until October. Orientobilgarciosis spreads to areas that are healthy for it, mainly as a result of the migration of animals affected by its pathogen, partly through water runoff.

In experimental studies of D.A.Azimov (1986), sheep artificially infected with orientobilgaria, on the 10th-12th day of the disease, dermatitis, general hyperemia, increased body temperature, increased pulse and respiration, and during the growth and development of parasites in the vessels, significant violations of physiological processes were observed. In the third, that is, the acute stage of the disease – 5-6 weeks after infection– the animals have severe diarrhea, the appearance of blood and fibrin membranes in animal feces, pale conjunctiva, an increase in body temperature to 41.6 c, pulse up to 180 beats per minute, arrhythmia, death of severely affected sheep

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The mechanical effect of orientobilgaria on the body of the main host begins with the penetration of their cercariae through the skin. Subsequently, this effect is enhanced by the penetration of parasite larvae into the internal blood vessels and during the period of parasitization in them, the movement of eggs isolated by adult parasites back into the intestinal cavity, destroying blood vessels and tissues. With undesirable metabolic products of orientobilgartion, poisoning of the host organism occurs, which also leads to negative consequences. The destruction of the skin, intestinal mucous membranes and blood vessels by the larvae of the parasite, and blood vessels and tissues under the action of loops in its eggs provokes the ingress of harmful microbes into the body.

The body of an animal that died of orientobilgarciosis will be exhausted, anemic, fluid will accumulate in the body cavities (abdomen, chest, heart shirt). Anemic condition is observed in the lungs, relaxation of the cardiac and renal muscles, spot hemorrhages in the epicardium and endocardium, enlarged lymph nodes, edema. Pronounced pathological changes are noticeable in the small intestine and liver. The food mass in the intestinal cavity is liquefied, blood and fibrin membranes are mixed in it. There are hemorrhages in the intestinal mucosa, excessively enlarged intestinal glands. The liver increases in size, parasites enter the venous blood vessels of the intestine.

In regions unfavorable for orientobilgarciosis, all measures should be focused on protecting the main hosts from infection with the pathogen, and intermediate hosts from its miracidia, as well as on the fight against mollusks.

In order to protect animals from infection with diseases, pastures are primarily subjected to helminthological examination. To this end, all reservoirs are subjected to malacological examination, and in auricularia biotopes this species is examined under a microscope, cutting the mollusk into O. turkestanica parthenites and mature cercariae..

Identification of natural biotopes of the disease can prevent significant economic damage caused by Orientobilgarciosis in sheep breeding and allow controlling the disease.

Research objectives:

To identify the incidence of the O.turkestanica pathogen among sheep and goats irrigated from reservoirs formed as a result of the accumulation of high-

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temperature water flowing through artificially created “underground water pipes” for irrigation of livestock in the desert pasture areas of the Republic of Karakalpakstan adjacent to the Aral Sea, from the assessment of the defeat of O.turkestanica larvae in the biotope to the assessment consists of.

Materials and methods of research:

Our research was conducted in September at the Department of Veterinary Medicine and Nutrition of the Nukus branch of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology. Malacological observations in order to identify biotopes of the disease Taxtako'pir district Uchqirg'oq OPJ took out babies, which were collected from artificially created reservoirs with hot water on their territory. To do this, the mollusk was placed on a large mirror of the object, and a second mirror of the coating object was placed on top of it, the baby was crushed with fingers, and then furcocercariae were searched under a microscope. In sheep grazing around ponds where infected malus were found, clinical signs of the disease were observed. 10 heads of sheep aged 2-4 years were examined by a complete helminthological autopsy.

Analysis of the results obtained

Taxtako'pir district Uchqirg'oq OPJ of the ponds with hot water on the territory of only 306 liters. freshwater Baby auricularia was malacologically investigated, and 15% of them were found to have turkestanica partanets.

1-Figure. L. auricularia molluscus and O.turkestanica partenets

Of 360 heads of sheep and goats belonging to the livestock farm “Hurlimon charvasi”, specializing in the breeding of sheep and goats in the territory

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unfavorable for fluke, 60 heads during clinical examination showed severe weight loss, pallor of visible mucous membranes, decreased appetite, the presence of symptoms of dry cough, many of which lay behind the horse during grazing as a result of the malaise, it was found that the influx of animals to the moth has sharply decreased.

During the study by the method of complete helminthological autopsy of the 10th head of slaughtered sheep and goats, mortality was observed among animals that lay without getting up, it was found: a sharp loss of weight on the trunk, dry skin, subcutaneous tissue, abdominal cavity, fat deposits melted, the liver decreased in size, kidneys swelled, lungs whitish-brown, swollen and hardened, white solid foci when cut in the presence of a whitish substance, the presence of whitish spots in the upper part of the right heart, focal redness in the small intestine when the liver is compressed with fingers, and the E. coli turns out to be inside the blood vessels, many small whitish spots appear in the lungs O.turkestanica marites were found.

Interestingly, the literature data indicate that as a pathoanatomical change in the lung caused by the disease, it is in a state of animation, but in animals in which we have seen ruptures from the side, pulmonary edema is observed, the presence of a brownish-white hue, a whitish substance encapsulated during the cutting of lesions. It was found that these changes cause an intense accumulation of the pathogen in the lungs and resemble liming, which fascioles produce by accumulating in the liver. To clarify this situation, new studies are needed to determine the biomarker characteristics of helminths.

2-Figure. Pathological and anatomical changes in the internal organs of sheep susceptible to orientobilgariasis.

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In our opinion, flukes at different ages go through the stage of development of maritogony in the body of their final host, so they change their culminating location, but in order to survive as a species, they reach the organs of the digestive system, where it is convenient for them to release fertilized eggs, using the instinct formed in their evolutionary development.

Conclusion:

The decrease in the level of the Aral Sea in recent years has caused the global climate crisis, in particular, a sharp increase in the concentration of various turning metals and salts on the territory of the Republic of Karakalpakstan. This also negatively affected some species of mollusks, which were considered intermediate hosts of trematodes. But in our research Taxtako'pir district Uchqirg'oq OPJ it has been established that in some of its reservoirs formed by artificially created underground wells with hot water in a desert area, new pockets of O.turkestanica have formed.

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