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BIOMORPHOLOGICAL CHARACTERISTICS OF "RABBIT OTODECTOSIS", ITS PLACE IN SYSTEMATICS, LABORATORY DIAGNOSIS

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Abstract
Rabbit otodectosis is characterized by the appearance of various inflammatory foci due to parasitism of very small, microscopic itchy mites belonging to the suborder Acariformes in the auditory organs, in particular, in the auricle, auditory canal, and tympanic membrane, and the rabbit breeding *network* It is one of the factors hindering the development. In the article, the clinical signs of the disease in rabbits, course, bio-ecology, morphology, laboratory diagnosis, and zoological systematics of the causative agent are covered.

Key words: Acariformes, Alopex lagopus, Vulpes fulvus, Raccoon, A rthropoda, Chelicerata, Arachnida , Acari , (Acarida , Acariformes, Sarcoptiformes, Sarcoptoidea, Psoroptidae, Otodectes, Otodectes cynotis

Introduction

In recent years, special attention has been paid to the development of agriculture, especially rabbit breeding, which is considered one of its important branches. For this, special programs are being developed and a number of conveniences are being created for representatives of the industry.
Human health primarily depends on the quality of food products, and in the recommendation of the World Health Organization on the standard of dietary

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meat consumption, it is stated that 5% of the meat products consumed by a person during the year should be rabbit meat.

In terms of nutrition, 1 kilogram of rabbit meat is equal to 1.45 kilograms of the best beef, and it differs from sheep, cattle and other animals in terms of its cholesterol content. 90 percent of the protein content is fully absorbed by the human body, it is rich in minerals, calcium and phosphorus.

According to the analysis of the world experience, rabbit farming is considered one of the most effective branches of animal husbandry, and the main factor of its development is carried out in private and corporate farms. The development of rabbit breeding has a high potential due to its biological characteristics. It matures the fastest among domestic animals, for example: if the weight of a calf doubles in 47 days, a baby rabbit will achieve this result in 6 days, female rabbits can give birth up to 7 times a year from the age of four months, as a result, up to 42 rabbits can be obtained. This means up to 100 kilograms of meat, 42 pieces of natural and valuable fur. 2,000 meters of high-quality thread can be obtained from one kg of rabbit wool, and the fact that one kg of rabbit brain powder is valued at up to 30,000 US dollars in the world market is of urgent importance in ensuring food security and increasing the export potential of Uzbekistan.

Relevance of the subject: Based on the development of this prospective direction in our Republic, the President of the Republic of Uzbekistan dated 18.03.2019 "On measures to further develop and support the livestock sector" No. PQ-4243, 07.06 .On the implementation of the program "Every family-entrepreneur" in 2018 No. PQ-3777, dated 08.02.2022 "On the development of the livestock sector and its branches in the Republic of Uzbekistan 2022-2026 Decision No. PQ-120 "On Approving the Program for 2019" and No. 647 of the Cabinet of Ministers of August 2, 2019 "On Measures to Further Improve Scientific Activities in the Field of Rabbit Breeding in the Republic", Decision No. 29 of January 18, 2022 "On additional measures to further develop and support the rabbit breeding industry in the Republic" is considered to be a valid program.

But there are many problems in turning rabbit farming into a fully profitable industry infectious and parasitic diseases take an important place among them,

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and autodectosis is especially important due to the fact that it occurs in all seasons of the year.

American mink (Mustela vison), blue arctic fox (Alopex lagopus), silver-black fox (Vulpes fulvus), ferret, ferret, nutria, raccoon are grown industrially in fur breeding, which is considered the main area of livestock potential of many countries. and cats and rabbits, domestic dogs and cats are prone to disease, and as a result, a lot of economic damage is seen. (Galina Ya.S., Ilyasova ZZ Moscow, 2018.)

Also, in the field of cynology, hearing loss or loss of hearing in service dogs caused by this disease, changes in the behavior of dogs due to severe irritation and itching, becoming aggressive, severe pain due to increased internal ear pressure, eczema , formation of festering and black sores, inability to perform special duties due to deterioration of the sense of smell, cases of disobedience to orders are observed.

When rabbits are used as experimental animals in the laboratory, if the rabbit is infected with otodectosis and the process is subclinical, it will have a negative impact on the evaluation of the results of the investigation, it will cause errors and false conclusions.

The purpose of the research: to change the biological and morphological characteristics of the causative agent of rabbit autodectosis in the conditions of Karakalpakstan. In order to achieve this goal, it is necessary to perform the following tasks.

Research tasks:

- separation of rabbits naturally infected with otodectosis into separate groups;
- to determine the zoological systematics of the pathogen;
- study of the biological development of itchy mites in the body of rabbits;
- study of the morphological characteristics of the stimulus isolated from the ear canal and ear canal of rabbits;

Research materials and methods: Our research is Samarkand State Veterinary Medicine, animal husbandry and biotechnology It was carried out in March-April 2023 in 14 rabbits of different ages naturally infected with autodecdosis

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kept in the experimental laboratory and vivarium of the Nukus branch of the University. To identify the disease, all the rabbits in the barn were caught one by one, and the ears were carefully examined by palpation and visual methods, and those with clinical signs of infection were placed in separate cages.

, scrapings were taken from the inside of the auricle of these clinically diseased rabbits on a glass slide using a special spatula. Samples from the ear canal were taken from the gray-brown mass of skin using a cotton swab 15-20 cm long, and then applied to the specimen window. A couple of drops of water and glycerin were dripped on the remnants of the wound and mixed with a stick, then a second cover glass was placed on it and lightly crushed, and the pathogen and its eggs of different sizes were observed under a microscope.

Analysis of the obtained results. Otodectosis (ear scabies) is an acute, subclinical and chronic disease caused by scabies-producing arthropods of the *Sarcoptoidae family, Otodectes cynotis.*

The trigger takes place in the systematics of the animal world as follows. Arthropods - The phylum ***Arthropoda*** includes more than 70 percent of all animal species. According to the structure of the organs of movement and breathing, these species are divided into:

- *those who breathe with injury* - ***Bronchiata*** ;
- *Chelicerata* - ***Chelicerata;***
- *tracheals* - ***Tracheata*** divided into subtypes.

Of these, the subphylum ***Chelycerales now*** has the class *Arachnid , which has* its own from 40 thousand more than type takes _ C inf is made up of 12 categories , among them , mites *Acari*- has more than 10,000 species and *Acariform* and *Parasitic* mites are divided into subcategories.

Acariform mites - *Acariformes* representatives of the genus are very small , microscopic mites , consists of the following 3 large families: *Sarcoptiformes, Trombidiformes, Oribatei.*

The superfamily ***Sarcoptiformes consists of the subfamilies*** *Sarcoptoidea* (small scabies mites), *Analgesoidea* (scab mites), and *Tyroglyphoidea* (thyroglyphoid mites).

And the subfamily ***Sarcoptoidea*** *Psoroptidae and Sarcoptidae* composed of families.

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Psoroptidae includes 3 genera: *Psoroptes, Chorioptes and Otodectes.*

Among the representatives of the genus ***Otodectes , there is*** one species Otodectes cynotis (ear flea) .

Sarcoptid, psoroptid, chorioptid mites are permanent internal or external parasites that multiply in the host's body.

Thus, the causative agent of the disease "Otodectosis" in rabbits is described as follows:

type ***:*** arthropods - Arthropoda
subtype: Chelicerata - ***Chelicerata***
class: arachnids – ***Arachnida***
Category : ***Acari (Acarida)*** _
Suborder: Acariformes **-** ***Acariformes***
large family: small scab - ***Sarcoptiformes***
subfamily : ***Sarcoptoidea***
family: ***Psoroptidae***
Genus : ***Otodectes***
species : ***Otodectes cynotis***

Morphology and biological characteristics of the plant . Young animals are more susceptible to the disease, and it is transmitted through contact with infected mother and other rabbits passively (when adult animals come into contact with a sick animal, equipment, objects contaminated with ticks). Mite eggs can enter the rabbit hutch from outside with the owner's shoes and clothes. At the initial stage of infection, the animal does not show any noticeable symptoms (subclinical period), only after the disease has progressed, specific clinical symptoms appear: head shaking, frequent scratching of the ear not only with paws, but also at surrounding objects, resulting in scratches occurs, serous clear-colored fistulas form in places where the integrity of the skin is broken, exudate accumulates in the external auditory canal. The skin of the auricle is irritated due to severe itching, becomes aggressive, appetite decreases, tendency to cannibalism increases, weight loss, pain occurs in the inner and outer ear due to the inflammatory nature, as the lesion expands, a over time, fistulas and scabs form, when secondary infection is added to the wounds, the consequences of the disease worsen, necrotic processes expand in the auricle, in the most severe

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cases, the development of otitis ends with inflammation of the brain and even death.

Otodectes cynotis pierces the epidermis with its chelicerae located in the front part of the body , feeds on the resulting lymph and tissue fluid, penetrates under the skin of the auditory canals and constantly affects the external receptors, resulting in hyperemia, swelling, expanding fistula and black sores. creates. As a result, the dead epidermis mixes with the yolk of the ear glands and dries up, forming dark brown scabs and crusts on the inside of the ear. Mites released from the infested auricle of an infected host can survive for up to 22 days at 3-7 °C and in fistulae (up to 24 days). It dies in 1-5 days in cold temperatures of 5-20 °C, in 30 seconds in hot water (70 °C), and instantly in boiling water.

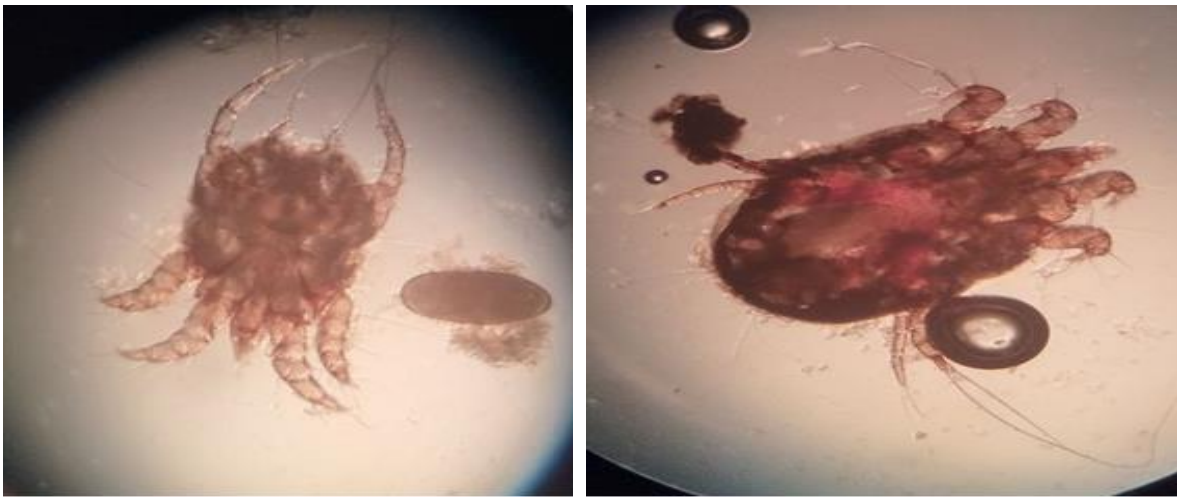

Figure 1. (left) A mature male form of ***Otodectes cynotis*** and its fertilized egg **(original copy)** (right) A mature female form of ***Otodectes cynotis*** . **(original copy)**

The following morphological aspects were observed when the pathological samples prepared from the reddened, scabbed areas of the skin of the auricle and auditory canal of clinically sick rabbits were examined in laboratory conditions. 0.32-0.75 mm larger than males , and males are 0.2-0.6 mm, so they cannot be seen with the naked eye. Mature mites are oval or scaly in appearance , white and slightly reddish in color, with dense areas of chitin layer having a brown color. The head, thorax and abdomen are not segmented and are united into a whole body . On the front side of the body, the main joints of the pedipalps grow

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together and become a khartum (hobotoca), the chelicera is sharp and it is adapted to pierce the host's skin .

of females is rounded at the back , and males have two abdominal muscles on the back , four pairs of legs on the ventral side (the fourth pair of legs in females is rudimentary , and the body slightly protruding from the edges). On the upper part of the shoulder shields there is a pretar (sucker or ambulacra) with a soft mesh. Teats are large, cup-shaped, short unsegmented . Females have suckers on the front two legs, and males on four pairs of legs . The anal and copular opening are located at the back end of the body. Sexual dimorphism is not expressed in autodects. In females, the oviduct opening is located on the ventral side of the middle part of the idiosoma. The female lays several dozen to hundreds of eggs during her lifetime. Eggs are oval in shape, covered with a thin shell, 0.18-0.2 mm in length and 0.08-0.09 mm in maximum width .

Under favorable conditions, larval nymphs hatch in 3-4 days. After a few days, the larvae turn into protonymphs, and after 3-4 days of hatching, they turn into telenymphs, which in turn hatch and turn into large parasites. Protonymphs and teleonymphs do not have a fourth pair of legs. Under favorable conditions, the development from an egg to a sexually mature mite lasts 15 days, but often due to adverse environmental factors it can be extended to 18-25 days.

Mites have a metabolic effect on the body of their definitive host in addition to mechanical damage. The ears of rabbits are well supplied with capillaries of different sizes, which form a blood-vascular tangle. In rabbits infected with itch mites, absorption of metabolic products of the causative agent into the blood from the tangle of capillaries causes its composition to change. Based on literature sources, depending on the intensity of invasion, the amount of erythrocytes (26.3%), hemoglobin decreases to 36.8% in animals. The following changes are observed in the leucoformula: eosinophils up to 12%, basophils up to 1.5% and monocytosis, as well as the number of young neutrophils increase up to 3.3%, a significant increase in creatinine in the blood of animals up to 77.8 mmol / l (sog compared to 66.7 mmol / l in healthy animals) increases, urea increases to 6.4 mmol / liter compared to 5.2 mmol / liter, which indicates impaired kidney function. During otodectosis, body temperature rises slightly only when complications occur with secondary microflora. (Galina Ya.S., Ilyasova ZZ2018)

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The initial diagnosis is based on characteristic clinical signs , and the acute diagnosis is made by finding the causative agent in laboratory conditions.

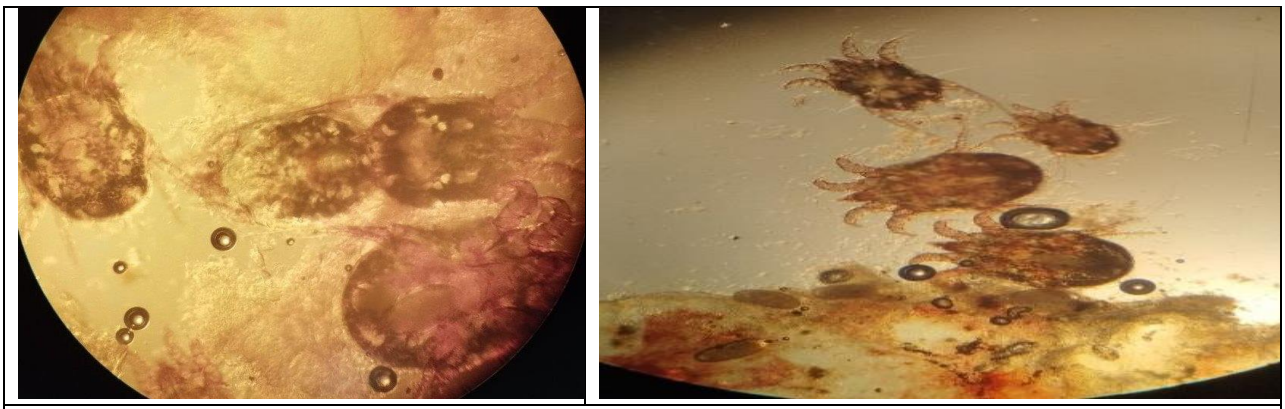

Figure 2. left: *Otodectes cynotis* hatching process. right: view of male and female *Otodectes cynotis* instars and fertilized eggs at different biological stages . **(original copy)**

Summary :

Otodectosis (scabies of the ear skin) is acute, subclinical, and chronic. Microscopic-sized Otodectes cynotis itch mites live in swarms in the rabbit auricle and auditory canal at various stages of their biological development, causing inflammation. as a result of damage scab crop does.

If the disease is recorded among rabbits of all ages at all times of the year, as a result of deep morphological, immunological, and pathological changes caused by the invasion, it causes great economic damage to the farm, and when rabbits with a subclinical form of the disease are used as experimental animals in laboratories, it leads to erroneous evaluation of the analysis results. ladi _

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