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ОБНАРУЖЕНИЕ ЯИЦ *DIOCTOPHYME RENALE* (GOEZE, 1782) В АРХЕОЛОГИЧЕСКОМ МАТЕРИАЛЕ ИЗ МАНГАЗЕИ (ЯНАО)

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Аннотация

Паразитологические исследования материала из археологических объектов позволяют установить не только диету и состояние здоровья населения и животных, но и проследить некоторые культурные и даже социальные изменения. Нами проведен паразитологический анализ 29 образцов копролитов собак, культурного слоя и навоза из раскопок города Мангазея – первого русского заполярного города XVII века, располагавшегося на севере Западной Сибири в зоне вечной мерзлоты. Установлено, что в 26 (89,66%) пробах содержатся хорошо сохранившиеся яйца гельминтов, позволяющие провести их идентификацию по морфологическим признакам. Помимо прочего, в копролитах собак впервые для данного археологического объекта обнаружены 5 яиц нематоды *Dioctophyma renale* (Goeze, 1782) (4,17%). Яйца имеют длину около 60–70 микрометров, вытянутую форму, с двумя пробочками на противоположных полюсах, толстую оболочку с характерной орнаментацией и коричневато-желтый цвет. По морфологическим характеристикам они полностью соответствуют современным описаниям. Находку яиц почечного гигантского свайника в культурном слое Мангазеи можно объяснить завозом его жителями с собаками из района Москвы и северных регионов России, где были и существуют в настоящее время природные очаги диоктофимоза.

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Ключевые слова: Мангазея, археология, собаки, диоктофимоз

DETECTION OF *DIOCTOPHYME RENALE* (GOEZE, 1782) EGGS IN ARCHAEOLOGICAL MATERIALS IN MANGAZEYA (YAMALO-NENETS AUTONOMOUS OKRUG)

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Abstract

Parasitological studies of material from archaeological sites make it possible to establish not only the diet and health status of the population and animals, but also to trace some cultural and even social changes. We have conducted a parasitological analysis of 29 samples of dogs` coprolites, cultural layer and manure from the excavations of Mangazeya, the first Russian transpolar city of the 17th century located in the north of Western Siberia in the permafrost zone. It was found that 26 (89.66%) samples contained well-preserved helminth eggs that allowed their identification by morphological characteristics. Among other things, for the first time for this archaeological site, 5 eggs of the nematode *Dioctophyma renale* (Goeze, 1782) (4.17%) were discovered in coprolites of dogs. The eggs were about 60–70 micrometers long, elongated in shape, with two plugs at opposite poles. They had a thick shell with characteristic ornamentation and a brownish-yellow color. In terms of morphological indicators, they fully correspond to modern descriptions. The discovery of the eggs of the giant kidney worm in the cultural layer of Mangazeya can be explained by the importation by its residents with dogs from the Moscow Region and the northern regions of Russia, where natural foci of dioctophimosis were and currently exist.

Keywords: Mangazeya, archeology, dogs, dioctophimosis

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Introduction. Archaeological research which was conducted on the territory of Western Siberia makes it possible to trace changes both in the environmental aspect and in various spheres of culture. One of the most important moments in the history of Siberia is its development. Mangazeya was founded in 1601-1607 and a large Russian population settled there. It is logical to assume that the incoming population brought many various infections. Consequently, the study of invasions in archaeological material is very important in science as well as practical medical and biological interest.

Materials and methods. Mangazeya is the first Russian city in the Siberian Arctic, founded in 1601 on the Taz River. We examined 29 samples including manure (4 samples), dogs` coprolites (24 samples) and cultural layer (1 sample). Each sample was placed in a sterile plastic bag, labeled and delivered to the parasitological laboratory of the Faculty of Veterinary Medicine and Zootechnology of the Perm State Agro-Technological University, where their weight was determined using a BW500 scale (China), morphological composition, and a standard parasitological study was also carried out [3]. The preparations were viewed using a Meiji microscope (Japan) with x 100 and x 400 magnification and photographed using a Vision camera (Canada).

Results. During the paleoparasitological analysis of 29 samples of dogs` coprolites, manure and cultural layer, parasite eggs were found in 26 (89.66%), the total number of which was 87,084 pieces. The discovery of 5 (4.17%) eggs of the nematode *Dioctophyma renale* (Goeze, 1782) in coprolites of dogs is one of the most interesting points.

The eggs are about 60–70 micrometers long, elongated, with two plugs at opposite poles. The shell is thick, has a characteristic ornamentation and a brownish-yellow color (Fig. 1.). According to morphological indicators, the eggs which were found in the archaeological materials are fully complying with modern characteristics (Fig. 2.).

A previously conducted helminthological analysis of the cultural layer and coprolites from Mangazeya revealed invasions with *Opisthorchis felineus, Fasciola hepatica, Diphillobothrium latum, Toxocara canis*, and *Trichocephalus* sp. [1].

Until now, *D. renale* has not been described in the YNAO. In recent years, monitoring has been carried out in this region mainly for opisthorchiasis and diphyllobothriasis [2]. Dioctophimosis is spread throughout the world, in at least 33 countries. In Russia, they can be found in river basins or lake systems. The northern point of detection of dioctophimosis in Russia is Karelia, Leningrad and Arkhangelsk Regions. The discovery of the eggs of the giant kidney worm in the cultural layer of Mangazeya can be explained

Fig. 1. *D. renale* egg from dog coprolite. Mangazeya. Magnification x 400

Fig. 2. *D. renale* egg egg from urine sediment [4]

by their importation by its residents with dogs. The main flow of migrants to Mangazeya was from the Moscow Region and the northern regions of Russia where natural foci of dioctophimosis were and still exist.

Conclusions. During the study of coprolites of dogs from excavations of the oldest Russian settlement in the North of Siberia, the city of Mangazeya, eggs of the giant worm *D. renale* were discovered. This fact allows a conclusion that the settlers brought infected animals with them from areas for which dioctophimosis is a natural focal helminthiasis. Thus, population migration contributed to the expansion of the range of this parasite.

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