

THE PRESENCE OF EGGS OF GEOHELMINTHS IN THE SANDBOX OF THE CITY

Bozhko G. G., Voevodina V. R.

State Budgetary Educational Institution of Higher Professional Education "Pacific State Medical University", Vladivostok, e-mail: s7577a557z@yandex.ru

In large cities, the number of domestic and homeless animals is increasing. Invasive animals pollute the environment with helminth eggs. On average, 66% of cases of toxocarosis are recorded annually. Environmental assessment of soil and sand contamination of geohelminths eggs is relevant at present. The sand selected by us was investigated by Romanenko method (1996). The results showed that sand from the sandboxes of different parts of the city is contaminated with geohelminth eggs – 81% toxocara (*Toxocara canis*, *Toxocara mystans*), and 6.2% hepaticola (*Hepaticola hepatica*). Hepaticoleosis in humans is rare, but the contamination of sandboxes you may experience mikstin vazy, this knowledge is important in the diagnosis and treatment.

Keywords: pollution of the sand, toxocara, hepaticola, extenuate, prevention.

Every year in Russia is registered about 30 thousand cases of infection with geohelminths [3]. In cities, the number of invasive domestic and homeless animals that pollute the environment with helminth eggs is increasing. The study of dog walking grounds showed that the main source of soil contamination is dogs [1,2]. Geohelminths constantly ranks second among helminth infections in Primorsky region. Cases of toxocarosis were registered in 5 territories, including 61.4% in Vladivostok [5]. Environmental assessment of soil and sand contamination of geohelminths eggs is relevant at present.

Purpose of research

To check the degree of contamination of the sandbox city eggs of geohelminths.

Material and methods

A study of sand from different areas of the city in June 2018 by the method of Romanenko (1996). They took 4 combined samples of 25 g of sand from a depth of 10 cm, poured 3% solution of potassium alkali, centrifuged at 800 vol./ min. the Sedimentary fluid was drained and the sand was washed 3 times until a clear liquid was obtained. Then, a saturated solution of sodium nitrate (density 1.38-1.4) was added, the sand was stirred and the mixture was centrifuged. Helminth eggs floated and concentrated in the surface film, which was covered with a slide. The slide glasses were microscopic at 80 – 400 magnification (to determine the degree of egg development).

Research result

Our research has shown that the sandbox city is contaminated with eggs of geohelminths from the type of the roundworms – toxocara (*Toxocara canis* and *Toxocara mystax*), and hepatica (*Hepaticola hepatica*). Hepaticoleosis is characterized by parenchymal damage to the liver.

Hepaticola has a peculiar life cycle that involves two hosts. The first owner is a rat, the second will be the one who eats the first—a rat, a dog, a cat, a pig, etc. [4]. When swallowing Mature eggs in the cecum of rats out of the egg larva, which migrates to the liver and there develops into a Mature form, hatching immature eggs in the liver parenchyma. Sexually Mature forms and immature eggs do not leave the liver of the owner. The second host after eating the first allocates with feces into the environment immature eggs. In the soil for 4 to 6 weeks the eggs Mature and become infective. Human infection occurs when swallowing Mature eggs with dirty hands, seeded vegetables, not boiled water taken from open water, when dealing with animals, or in contact with the soil. At risk are children under 14 years of age, who have poorly developed personal hygiene skills. The degree of pollution from all the surveyed sandboxes eggs toxocara is 81%, and hepaticola of 6.2%. Eggs of geohelminths remain viable in the soil from three to ten years and if you do not change the sand, the invasiveness of the remains and accumulates. Hepaticoleosis in humans is rare, but the contamination of sandboxes you may experience mikstin vazy, this knowledge is important in the diagnosis and treatment.

Conclusion

The state of the sandbox of the city according to the degree of epidemiological danger is presented in SanPiN 2.1.7.1287 – 03 "Sanitary epidemiological requirements to soil quality the territory of populated areas", is located within the boundaries of the category high to extremely dangerous. To prevent these diseases it is necessary to fight with the rats, solve the problem of stray animals and to observe the rules of keeping dogs.

References

1. Alyautdina L. V., Semenova T. A., Zabaykin V. D. Heterogeneity of parasitic contamination of the soil of the metropolis // Medical Parasitology and parasitic diseases. - 2011. - No 2. – P. 7 – 10.
2. Bozhko G. G., Maslennikova L. A., Goncharova T. A., Nadelyaev.V. E. The Occurrence of eggs Toxocara in the sandbox city // Modern problems of science and education. - 2016 . - No 4.
3. Erofeeva.V.V., Doronina G. N. Threat of distribution of helminth eggs in soils of urban areas // Young scientist. - 2017. - No 22 (156). - P. 222 -224.
4. Fuehrer H.-P., Igel P., Auer.H. Capillaria hepatica in man—an overview of hepatic capillariosis and spurious infections // Parasitol Res – 2011 – No 109. – P. 969 – 979.
5. Zakharova G. A., Nesterova, Y. V., Bartkova A. D. About the epidemiological situation of geohelminthoses in Primorsky region // Health. Medical ecology. Science. - 2013. – No. 2 – 3 (52). P. 82 – 85.