

## Editorial

# About Helminth Zoonoses, Their Causative Agents and Human Health

Vladimir Shimalov\*

The Polesie Agrarian Ecological Institute, Belarus

**Abstract**

The problem of helminth zoonoses, the influence of their causative agents on human health is discussed.

More than 340 species of helminths parasitize humans in the world. The vast majority of them are causative agents of helminth zoonoses, they infect humans and vertebrate animals. These are quite insidious organisms that can parasitize wild and domestic animals, as well as infect humans. Dogs, cats, farm animals can be hosts of such helminths [1].

A person is very vulnerable to many parasitic organisms that can localize in his organs and tissues, cause diagnostic difficulties and serious health problems. This is syndromes of visceral, ocular and cutaneous larva migrans, opisthorchosis, cysticercosis, echinococcosis, trichinellosis, and many others.

Human infection with helminths can occur from intermediate hosts (flukes *Dicrocoelium dendriticum*, *Metagonimus yokagawai*, *Clonorchis sinensis*, *Opisthorchis felinus*; tapeworms *Dipylidium caninum*, *Hymenolepis diminuta*, *Diphyllobothrium latum*; roundworms *Trichinella spiralis*, *Eucoleus aerophilus*, *Anisakis simplex*, *Dirofilaria repens*, *Setaria labiatopapillosa*; thorny-headed worms *Corynosoma strumosum*, *Moniliformis moniliformis*, *Macracanthorhynchus hirudinaceus*; and others), at non-observance of hygiene rules (tapeworms *Echinococcus granulosus*, *Echinococcus multilocularis*, *Taenia crassiceps*, *Taenia martis*, *Taenia taeniaeformis*; roundworms *Toxocara canis*, *Toxascaris leonina*; and others), with active penetration of larvae in or through the skin (shistosomatid flukes; hookworm *Ancylostoma caninum*), as well as with food (flukes *Metagonimus yokagawai*, *Clonorchis sinensis*, *Opisthorchis felinus*; tapeworm *Diphyllobothrium latum*; roundworm *Trichinella spiralis*; and others). There have been cases of transplacental and transmammmary larvae migration of roundworm *Toxocara canis* [2].

Some species of helminths of animals were found in humans in the 21st century. So, metacestode of tapeworm *Taenia martis* were localized in the brain and eyes of the inhabitants of France and Germany [3,4]. Obligatory definitive hosts of this helminth are martens.

Human contact with animals is huge, which increases the

**\*Corresponding author**

Vladimir Shimalov, The Polesie Agrarian Ecological Institute of the NAS of Belarus, Moskovskaya street, 204/1-1, 224020 Brest, Bela-rus, Tel.: +375-162-523329; Fax: +375-162-413428; E-mail: mailto:shimalov@brsu.brest.by

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risk of infection with various species of helminths. Animals are imported by man, migrate, including from other regions, populate new territories, bring new species of helminths, contribute to the formation of centers of helminthoses, including centers of zoonoses. Other species of helminths circulate among animals, pose a threat to human infection, and they are not even aware of their existence. So, I discovered in 2017 a new causative agent of helminth zoonosis for Belarus – the thorny-headed worm *Moniliformis moniliformis* (the host is a striped field mouse).

A total more than 80 species of helminths – causative agents of helminth zoonoses have been revealed in Belarus [5]. Thirty two species of helminths – causative agents of helminth zoonoses parasitize wild carnivores of families Canidae and Mustelidae with a high infection rate (38.5-72.3 % in representatives of the Mustelidae family; 75.4-85.2 % in representatives of the Canidae family) have been established by me for the period 1980-2016 in the Belorussian Polesie (southern part of Belarus). Besides, in the stomach of two great cormorants killed by hunters in the Brest district (south-western part of Belarus) in 2017, I identified roundworms *Eustrongylides* sp. (family Dioctophymidae) and *Contracaecum* sp. (family Anisakidae). Fish participate in the life cycle of these helminths. Larvae are localized in their body and represent a danger to humans.

Such helminth zoonoses as opisthorchosis, hydatidosis, trichinellosis, dirofilariosis, larval toxocarosis are the most relevant for the public health of Belarus in the 21st century. Medical statistics also registered cases of fasciolosis, diphyllobothriosis, sparganosis (larval spirometrosis), hymenolepiosis (*Hymenolepis diminuta*), *Taenia solium* cysticercosis, alveolar echinococcosis among local residents [6-9].

Medical workers should be aware that the causative agents of helminth zoonoses can make a difference in the pathology of a person of unexplained etiology.

Let's be attentive to our health. We will try to do everything to ensure that helminths do not appear in our bodies and cause diseases.

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