

Research Article

The Lancet Liver Fluke *Dicrocoelium dendriticum* (Trematoda: Plagiorchiida, Dicrocoeliidae) in Wild Animals of Belorussian Polesie

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Abstract

The results of the helminthological investigation of wild animals on infestation by the lancet liver fluke in Belorussian Polesie during 1980-2016 are presented. Seven species of animals are established as hosts of this helminth. A total the lancet liver fluke were found by helminthologists in nine species of wild animals in Belorussian Polesie. Their participation in the formation of the centers of dicrocoeliosis and create a threat of infection for susceptible hosts.

INTRODUCTION

The fluke *Dicrocoelium dendriticum* (Rudolphi, 1819) (syn: *D. lanceatum* Stiles et Hassall, 1896) is a common, widely distributed parasite of the liver of wild and domestic ruminants and hares [1-4]. The infection of agricultural ruminants (cattle, goats, sheep) is noted in many countries of the world [4]. Intermediate hosts participate in its life cycle. The first intermediate hosts are the gastropods (more than 90 species), the second intermediate hosts are the ants of the family Formicidae Latreille, 1809 (more than 30 species) [2,5,6]. The lancet liver fluke parasitize humans. People can get infected by accidentally ingesting of ants with vegetables, berries, meadow grasses. Cases of human infection with fluke *D. dendriticum* are described mainly in Central Asia [5]. For example, at the autopsy of 13 287 corpses during 1968-1986 in Uzbekistan, adult flukes *D. dendriticum* were found in the liver of 37. The infection was detected in the collectors of mulberry fruits (ants crawled into these trees, and metacercariae of this parasite were found in numb ants collected from fruits).

This report includes the research data on infection with the lancet liver fluke of wild animals in Belorussian Polesie.

MATERIALS AND METHODS

In the period 1980-2016 we carried out helminthological examination (dissection and organ compression) of 35 red squirrels (*Sciurus vulgaris* Linnaeus, 1758), 20 Eurasian beavers (*Castor fiber* Linnaeus, 1758), 24 European hares (*Lepus europaeus* Pallas, 1778), 57 gray wolves (*Canis lupus* Linnaeus, 1758), 108 red foxes (*Vulpes vulpes* Linnaeus, 1758), 79 racoon dogs (*Nyctereutes procyonoides* Gray, 1835), 18 elks (*Alces alces*

Linnaeus, 1758), 16 roe deer (*Capreolus capreolus* Linnaeus, 1758), 16 red deer (*Cervus elaphus* Linnaeus, 1758) and 14 wild boars (*Sus scrofa* Linnaeus, 1758) in order to reveal the hosts of the lancet liver fluke (*D. dendriticum*) among wild animals in Belorussian Polesie (south part of the Republic of Belarus; territories of Brest and Gomel regions).

The animals were killed by hunters. Some specimens of squirrels and foxes were fatally traumatized by land transport.

RESULTS AND DISCUSSION

The fluke *D. dendriticum* was found in the bile ducts of the liver of seven species of wild animals. All infected animals were adults. The results of helminthological examinations are presented in Table 1. High rates of infection of red deer and wild boars (25.0 % and 42.9 %, the number of helminths reached 40 and 120 in infected individuals, respectively).

Also the lancet liver fluke were found in 30.0 % of European bison, 1.9 % of roe deer in Belovezhskaya Pushcha (western part of Belorussian Polesie [7]), and in 6.7 % of roe deer, 5.6 % of elks, 9.1 % wild boars in Polesie State Radiation Ecological Reserve (eastern part of Belorussian Polesie) [8,9].

Wild animals infected with the lancet liver fluke contribute to the formation of the centers of dicrocoeliosis, create a threat of infection to intermediate hosts (molluscs, ants), from which they later become infected themselves. Infection of people by this fluke from ants is unlikely in Belorussian Polesie. There is a big chance of getting infected in wild and domestic animals.

The role of wild artiodactyls (especially wild boars, European

Table 1: *Dicrocoelium dendriticum* infection of wild animals in Belorussian Polesie.

Species of animals	Prevalence (%)	Range
Red squirrel	11.4	1-22
Eurasian beaver	15.0	1-8
European hare	8.3	4-30
Red fox	3.7	1-4
Roe deer	6.3	3
Red deer	25.0	20-40
Wild boar	42.9	4-120

bison and red deer), as well as European hares, as one of the main among the wild animals of the spreaders of *D. dendriticum* eggs in the ecosystems of Belorussian Polesie is evident. Importance in this, probably, belongs to the red squirrels and the Eurasian beavers.

CONCLUSION

The lancet liver fluke parasitize 9 species of wild animals (red squirrel, Eurasian beaver, European hare, red fox, European bison, roe deer, red deer, elk, wild boar) in Belorussian Polesie. These animals take part in the formation of the centers of dicrocoeliosis and create a threat of infection for susceptible hosts.

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