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FASCIOLA HEPATICA INFECTION IN GOATS IN POLAND

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Background: Fasciolosis caused by digenic trematode *Fasciola hepatica* is a parasitic disease occurring in a wide range of mammals, including goats and other domestic ruminants. Life cycle of this parasite is indirect with water snails of the superfamily Lymnaeidae serving as an intermediate host. Adult flukes reside within biliary tract of a definitive host and induce its progressive damage. Disease course may be acute or chronic, however chronic fascioliasis is the most common form of the disease in goats. Distribution of *F. hepatica* depends on the occurrence of intermediate hosts, and the suitable combination of moisture and temperature. Although *F. hepatica* has great veterinary and public health importance, there is a paucity of reports on the prevalence of this parasite in goats and no data on prevalence of *F. hepatica* infection in Polish goats are available. Therefore, our study aimed to shed light on these issues.

Methods: The study was carried out in 2014-2016. *F. hepatica* infection was diagnosed using two methods. First, the standard fecal sedimentation was performed in 1880 goats from 172 herds scattered all over Poland. Moreover, serum samples were collected from 901 adult goats (>6 months of age) from 20 herds and were tested using a commercial ELISA (Monoscreen Ab-ELISA *Fasciola hepatica* indirect double wells kit, Biox Diagnostics, Rochefort, Belgium). The ELISA detected antibodies against excretory-secretory antigens and was performed according to manufacturer's instruction. The herds were located in areas with an increased risk of *F. hepatica* occurrence according to the *F. hepatica* spatial distribution model developed within the frame of the Gloworm project. Only herds practicing seasonal grazing were enrolled in the study.

Results: Three of 901 goats (0.3%; CI 95%: 0.1% – 1.0%), each from a different herd (15% of 20 herds) were seropositive for *F. hepatica*. Two herds were located in the north-eastern and one in the southern Poland. Liver fluke eggs were detected in only 1 of 1880 fecal samples (0.05%; CI 95%: 0.01% – 0.30%). The goat positive in fecal sedimentation and serology was examined using a complete blood count and serum biochemical analysis, whole-body computed tomography, and abdominal ultrasonography. Imaging diagnostic tests

revealed massive liver cirrhosis as well as fibrosis and calcification of the bile ducts. The goat was humanely euthanized and subjected to autopsy. The post-mortem examination confirmed massive liver damage with numerous adult forms of the liver fluke present in the bile ducts and gall bladder.

Conclusions: *F. hepatica* is a very rare parasite in Polish goat population.

Keywords: ELISA, goats, liver flukes, liver cirrhosis, trematodes

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