

The prevalence of *Dirofilaria repens* in cats, healthy dogs and dogs with concurrent babesiosis in an expansion zone in central Poland

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Dirofilaria repens is a mosquito-transmitted, filarial nematode parasitizing carnivores. Recently, this parasite has spread through central Europe. The aim of the present study was to estimate the prevalence of *D. repens* in cats and dogs in different regions of Poland and to investigate the occurrence and consequences of co-infection with the tick-borne parasite, *Babesia canis*. In the period 2013–2015, 147 blood samples from cats from central Poland and 247 blood samples from dogs from central, northern, southern and western Poland were collected. The prevalence of *D. repens* was determined by amplification and sequencing of the 12S rDNA gene fragment. Additionally, cats were examined for the endosymbiotic bacterium *Wolbachia*. Among dogs, 94 samples originated from clinically healthy dogs from central Poland (Masovia) and 58 samples originated from dogs that were infected with *B. canis*. The prevalence of *D. repens* was compared between these two groups of dogs.

D. repens was identified for the first time in a cat from central Europe (0.7%). *Wolbachia* DNA was detected in two cats (1.4%). In dogs, the parasite was detected only in samples from central Poland (Masovia) (local prevalence = 38%). The prevalence of *D. repens* was significantly higher in dogs with babesiosis (90%). Co-infections of *D. repens* and *B. canis* were confirmed by sequencing in 30 dogs with babesiosis, but no co-infections were identified in healthy dogs from Masovia. Dogs with co-infections tended to suffer more severe anemia and thrombocytopenia, but presented milder changes in biochemical parameters (i.e. less elevated concentration of alkaline phosphatase [ALP] and serum urea), suggesting a lower risk of hepatic or renal failure compared to dogs infected only with *B. canis*. These findings are important considering the spread of dirofilariosis and babesiosis in central Europe, as microfilaraemic dogs seem to be more prone to babesiosis. The possible protective effect of the nematode infection against hepatic or renal failure in canine babesiosis and its mechanisms requires further investigation.

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