Prevalence of Babesia microti-like infection in red foxes (Vulpes vulpes) from Portugal

Abstract

The prevalence of piroplasm (order Piroplasmida) infection was assessed in blood and bone marrow samples from 91 red foxes (Vulpes vulpes) from northern, central and southern Portugal by means of molecular methods. PCR for the 18S rRNA gene of Babesia spp. followed by sequencing revealed 63 foxes positive for the Babesia microti-like piroplasm (syn. Theileria annae) (69.2%; 95% confidence interval [CI]: 58.7–78.5%) and one fox positive for Babesia canis (1.1%; 95% CI: 0.0–6.0%). Positivity to the B. microti-like piroplasm or B. canis in 43 blood samples (83.7%) was significantly higher (p < 0.001) than in 43 paired bone marrow samples (20.9%). There were no statistically significant differences in the prevalence of infection between genders (p = 0.219) or age groups (<2 years vs. ≥2 years) (p = 1.0). This is the first report of the B. microti-like piroplasm in foxes from Portugal as well as the first report on detection by PCR and genotyping of B. canis in a red fox worldwide. A natural cycle of the B. microti-like piroplasm is suggested in red fox populations based on the high prevalence of the protozoan. Red foxes might be a reservoir of the B. microti-like piroplasm and a source of infection to dogs.

Keywords

Babesia canis;

Babesia microti-like piroplasm;

Portugal;

Red fox;

Theileria annae;

Vulpes vulpes