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Mapping of Borrelia in Exotic Farm Animals of Czech Republic

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Abstract

Borreliosis is a disease caused by bacteria of the Borrelia burgdorferi sensu lato complex. It can cause severe disease in humans, and usually milder, chronic disease in some animals. In central Europe Borrelia is predominantly spread by the tick Ixodes ricinus. The effect of Borrelia infection on animals exotic to Europe has been previously studied on various zoo animals. Many positive samples were detected during wide-scale samplings in Germany and Czech Republic. Susceptibility of the zoo animals to the pathogen has varied between species and individuals but the studies pointed out the necessity to further investigate the impact of Borrelia on exotic animals. We have collected samples from several smaller-scale farm facilities keeping exotic animals either for meat or milk production, as a tourist attraction, or for research purposes. The sampled species included ostriches, Carpathian and milk buffalo, dromedary and Bactrian camels, alpaca llamas and finally giant eland antelopes. From these samples we have discovered an unexpectedly high prevalence of Borrelia bacteria in the blood serum of the exotic animals. The giant elands were displaying the highest overall prevalence. This fact was surprising since only 2 live ticks were found during collections in surrounding areas and on the pasture. This preliminary result leaves us with a question about the mode of transmission of this bacterium between the antelopes. Transovarial transmission has been only scarcely suggested in the scientific community, but it might explain the paradox of low tick numbers and high Borrelia prevalence on the giant eland farm. The research continues and more tick and serum samples are being collected to further deepen the reliability of outcoming data. We hope to shed more light on the paradigm of the mode of transmission of Borrelia between animals and also to provide the data for the monitoring of overall Borrelia prevalence in Czech Republic.

Keywords: Borreliosis, exotic animals, Ixodes ricinus, ticks

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