

LYME BORRELIOSIS, THE PRESENT DIAGNOSTIC CRITERIA

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ABSTRACT

Recent clinical experience and literature sources have shown the co-incidence with multiple tick-borne pathogens resulting in Lyme disease, and ehrlichiosis and/or babesiosis. Diagnosis and differential diagnosis of these diseases require attention to the possibility of the presence of mixed infection. Lyme borreliosis risk prevalence, is common with other tick-borne disease and is closely relating to the ecology of an area. These phenomenon indicate a need to monitor cases with Lyme disease for all currently known tick borne pathogens.

Key words: babesiosis; dogs; ehrlichiosis; Lyme disease; ticks

INTRODUCTION

Lyme disease is a systemic diseases in man and animals, caused by *Borrelia burgdorferi* sensu lato, transferred by ticks from *Ixodes ricinus* in European conditions.

The environmental conditions and pathogenesis of Lyme borreliosis are not fully explained. It is possible to see the significant importance of variety of interrelations: of 11 genospecies of *Borrelia burgdorferi* sensu lato, their geographical distribution, ticks infestation, and so on. Tick saliva contains multiple pharmacologically active molecules with an immunosuppressive effect (8). The mechanisms of immunosuppression play an important role in the pathogenesis

of arthritis. Lyme borreliosis (LB) can manifest in three stages. In a range of three to five days after a tick bite *erythema chronicum migrans* can develop which is an early stage of LB. In the next stage anorexia, weakness, vomitus, and so on can be present. The second stage, chronic borreliosis, can develop after one or two months post infection. Lyme arthritis is the most often occurring musculoskeletal symptom of LB. The third stage, chronic neuroborreliosis, is the final stage of LB.

Most of studies in humans as well as in animals showed the possibility of the coincidence of multiple tick borne diseases. It can be in a mixed infection developing at the same time, which could be presented with individual clinical signs, non-characteristic symptoms and with decreased sensitivity to standard diagnostic kits (3, 5).

MATERIAL AND METHODS

A clinical and laboratory examination focusing Lyme borreliosis (LB), haematological, examination including blood smear and urine samples, CSF, and samples for aspiration cytology, were completed at the 1st Internal clinic of UVM, Košice and at the multiple private clinic in Czech Republic: Olomouc, Brno and Prague in dogs with a history data of tick infestation. From the differential diagnosis point view USG, RTG, ECG, endoscopy and so on were used. Serological examination for the detection of antiborrelia IgG antibodies were completed using the ELISA method (7) used for diagnosis in the Institute of Parasitology SAS, Košice and Faculty of Medicine UK, Prague.

RESULTS AND DISCUSSION

From the 650 examined dogs included in the trial 38.6 % dogs showed the presence of antiborrelia IgG antibodies. Clinical signs did not correlate always with the presence of antiborrelial IgG antibodies. The common findings included locomotory system disorders with clinical manifestation of chronic arthritis and pododermatitis. In a case of 28 % of seropositive dogs arthritis was the most often and common form of borreliosis in dogs seen clinically with movement anomalies, reluctance to move, lethargy and so on. These signs have been shown also by other authors (1, 2). Clinical signs were recurrent and variable with a variety of complication in some of cases diagnosed months after the primary infection. LB showed significant leukocytosis. The presented work showed the importance of *Giardia* spp. and *Babesia* spp. in coincidence with immunosuppression in the aetiology of complicated cases.

For the **treatment** of LB penicillin and tetracyclin preparate are recommended. The later stages: cardiolo-gical, joint, neurological, and many other complications requires oral or intravenous application of antibiotics including cephalosporines.

Prevention: individual protection, protection of environment from ticks and effective immunization together with the usage of immunomodulators and other additives are discussed (2, 3, 5).

CONCLUSION

At present, several cases of Lyme borreliosis have a complicated course. The possibility of coincidence of multiple pathogens transmitted by ticks such as *Giardia* spp. in seropositive cases of LB has shown the importance in the development of GIT complication the early detection of these cases requires selected diagnostic approaches (4, 6, 7).

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