

Are the Clinical Signs of Lyme Borreliosis Really Understood in Horses?

Roberta Carvalho Basile*

Large Animals Clinical and Surgery, Descalvado, São Paulo, Brazil

*Corresponding author: Roberta Carvalho Basile, Professor of Large Animals Clinical and Surgery, Descalvado, São Paulo, Brazil, Tel: 5516 991649386, E-mail: basile.roberta@gmail.com

Received date: October 13, 2015; Accepted date: October 15, 2015; Published date: October 21, 2015

Copyright: © 2015 Basile CR. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Editorial

Lyme disease is the most common zoonosis transmitted by ticks in North America and Europe, which is caused by *Borrelia burgdorferi* sensu lato [1]. It is also diagnosed in Asia [2], Africa [3] and South America [4]. This kind of borreliosis is transmitted to mammals by ticks' exposure to nymph or adult stage as far as 24 hours adhesion in the host is established, which ensures the regulation of outer surface proteins that are responsible for their survival against the host immune system [5].

The disease was first described in horses by Van Heerden and Reyers (1984) and since then many studies have reported the occurrence of clinical signs associated with seropositive horses. These signs are often nonspecific and attributed to horses by analogy of the disease in humans, such as stiffness, lameness, myopathies, back soreness, lethargy, fever, swelling of limbs, encephalitis and behavioral changes [5]. There are also some reports of concomitant uveitis and presence of *Borrelia* in the ocular chamber [6] and pseudolymphoma, responsive to treatment with doxycycline [7].

However, there is only one work experimentally dedicated to the disease in horses [6,7]. In this study, ponies were experimentally infected by exposure to ticks containing *Borrelia burgdorferi* and they were observed for 9 months. Afterwards, they were carried out to euthanasia for molecular detection of the agent in various tissues. Moreover, ponies had detectable antibodies from five to six weeks followed the exposure, although they have not presented relevant clinical signs at any moment.

In this uncertain scenario, questions begin to be risen through the scientific community regarding the significance of Lyme disease in horses and the real importance of horses in the dissemination of the etiologic agent [8]. The set of scientific papers in this area is mostly composed by reports of individual cases, serological surveys and agent molecular researches [9-12].

The Lyme borreliosis will be better understood only in horses after presentation of clinical epidemiologic studies and their correlated risk factors, in addition to controlled experimental infections aiming a more precise description on how the disease evolves in horses.

References

1. Koedel U, Fingerle V, Pfister HW (2015) Lyme neuroborreliosis – epidemiology, diagnosis and management. *Nature Reviews: Neurology* 11: 446-456.
2. Hou X, Xu J, Hao Q, Xu G, Geng Z, et al. (2014) Prevalence of *Borrelia burgdorferi* sensu lato in rodents from Jiangxi, southeastern China region. *Int J Clin Exp Med* 7: 5563-5567.
3. Mediannikov O, Abdissa A, Socolovschi C, Diatta G, Trape JF, et al. (2013) Detection of a new *Borrelia* species in ticks taken from cattle in Southwest Ethiopia. *Vector Borne Zoonotic Dis* 13: 266-269.
4. Gonçalves DD, Moura RA, Nunes M, Carreira T, Vidotto O, et al. (2015) *Borrelia burgdorferi* sensu lato in humans in a rural area of Paraná State, Brazil. *Braz J Microbiol* 46: 571-575.
5. Divers TJ (2013) Equine Lyme disease. *Journal of Equine Veterinary Science* 33: 488-492.
6. Priest HL, Irby NL, Schlafer DH, Divers TJ, Wagner B, et al. (2012) Diagnosis of *Borrelia*-associated uveitis in two horses. *Vet Ophthalmol* 15: 398-405.
7. Sears KP, Divers TJ, Neff RT, Miller WH Jr, McDonough SP (2012) A case of *Borrelia*-associated cutaneous pseudolymphoma in a horse. *Vet Dermatol* 23: 153-156.
8. Bartol J (2013) Is Lyme disease overdiagnosed in horses? *Equine Vet J* 45: 529-530.
9. Barbieri AM, Venzal JM, Marcili A, Almeida AP, Gonzales EM, et al. (2013) *Borrelia burgdorferi* sensu lato infecting ticks of the *Ixodes ricinus* complex in Uruguay: First report for the Southern Hemisphere. *Vector Borne Zoonotic Dis* 13: 147-153.
10. Fukunaga M, Takahashi Y, Tsuruta Y, Matsushita O, Ralph D, et al. (1995) Genetic and phenotypic analysis of *Borrelia miyamotoi* sp. nov., isolated from the ixodid tick *Ixodes persulcatus*, the vector for Lyme disease in Japan. *Int J Syst Bacteriol* 45: 804-810.
11. Ivanova LB, Tomova A, González-Acuña D, Murúa R, Moreno CX, et al. (2014) *Borrelia chilensis*, a new member of the *Borrelia burgdorferi* sensu lato complex that extends the range of this genospecies in the Southern Hemisphere. *Environ Microbiol* 16: 1069-1080.
12. Nava S, Barbieri AM, Maya L, Colina R, Mangold AJ, et al. (2014) *Borrelia* infection in *Ixodes parvicinus* ticks (Acari: Ixodidae) from northwestern Argentina. *Acta Trop* 139: 1-4.