



Lyme Disease in Horses: More Questions than Answers

Veterinarian Amy Grice says it often starts with a vague phone call from a horse owner:

“My horse hasn’t been himself the last couple of days, and it seems like he’s lost weight.”

“He was off just a little on the right hind yesterday, but today it seems like the left hind.”

“My mare normally loves to be groomed, but was flinching, pinning her ears and kicking out at me today.”

As ambiguous and varied as the reported clinical signs are, they often spark at least the possibility of Lyme disease (also called Equine Borreliosis) for Grice, especially if there are no other presenting signs.

“The challenge with identifying Lyme disease in horses is that the clinical signs can range from changes in behavior to lameness in different limbs to weight loss,” says Grice, who works at Rhinebeck Equine in Rhinebeck, N.Y.

Joe Bertone, DVM, professor of equine medicine at the College of Veterinary Medicine at Western University of Health Sciences, concurs. “It becomes a ‘rule out’ diagnosis. Lyme disease can present as so many things – lameness in more than one leg, muscle pain, muscle wasting, depression, changes in behavior, etc. It’s very difficult to identify from just clinical signs alone.”

So how do horses get this mysterious disease that is so elusive to diagnose? The same way as humans do, through the spirochete (spirally twisted bacterium) *Borrelia burgdorferi*.¹ The ticks that transmit the bacteria are the deer tick on the East Coast and black-legged tick in the Western half of the United States.²

The ticks go through various life cycles on different animals, including the larval and nymph stages while they feed on white-footed mice,² where they pick up the organism. If the adult feeds on a horse next, it transmits the organism.

If an infected tick is able to feed for long enough on a horse, *B. burgdorferi* travels through most soft tissues and the bloodstream. Many patients can deal with small numbers and overcome the infection, according to Bertone. However, others do not. *B. burgdorferi* isn't very destructive, but the patient's immune system may get mixed signals and begin to respond as if the patient is the enemy. "Basically, the immune system turns on itself," says Bertone.

Besides making a presumptive diagnosis based upon exposure to ticks, clinical signs and the elimination of other diseases, veterinarians can also do bloodwork. Currently, the Equine Lyme Multiplex Assay developed by Cornell University can provide some level of certainty about the presence of the organism.

Due to the difficulty in diagnosing, there are no definitive statistics available regarding the number of horses impacted by this disease every year. Treatments are traditionally through courses of antibiotics; however, there can be long-term debilitating effects if a horse has had the disease. Bertone says Lyme disease manifests in equids much like it does in humans.

Currently, there is no USDA-approved vaccine for Lyme disease prevention for use in horses. However, horse owners can take some precautions. Grice says as soon as ticks become active in any geographic area, horse owners should assume they will start finding them on their horses. One precaution she recommends is to use a fly spray proven effective on ticks very generously, especially on horses' legs.

"There are some vaccines on the horizon," says Bertone. "But until then, horse owners should be vigilant about helping protect their horses."

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¹Lyme disease multiplex testing for horses. Cornell University College of Veterinary Medicine. Animal Health Diagnostic Center. Available at: https://ahdc.vet.cornell.edu/docs/Lyme_Disease_Multiplex_Testing_for_Horses.pdf. Accessed April 10, 2014.

²Lyme disease. American Lyme Disease Foundation, Inc. Available at: www.aldf.com/lyme.shtml. Accessed April 7, 2014.