

Lyme Disease

Overview

Lyme Disease is a bacterial infection caused by the spirochete, *Borrelia burgdorferi*, and is transmitted by ticks, mainly the deer tick, also known as the black legged tick (*Ixodes scapularis*). The bacteria reside in the tick's salivary glands, and are passed to the host – rodents and wild animals, domestic animals, and humans – when the tick feeds on the host's blood. Lyme disease has become more and more prevalent over the past 2-3 decades, in both the dog and human population. For more than 10 years, veterinary hospitals have been able to screen for Lyme positive animals in conjunction with annual heartworm testing. The number of Lyme positive animals has steadily risen and today nearly 25% of dogs screened are Lyme positive.

It is important to note that Lyme disease manifests very differently in dogs than it does in humans. While many dogs test positive on the screening test, most of them do not show clinical signs of the disease and many never will. In the dogs that do show signs, development of clinical disease is usually weeks to months after infection, whereas in humans, symptoms begin much sooner after the tick bite. Fortunately, cats rarely develop Lyme disease but they can bring infected ticks indoors.

Clinical Signs

The most common clinical signs of Lyme disease in dogs are:

- lameness
- fever
- lethargy
- decreased appetite

The bacteria usually infect a joint or multiple joints causing a painful arthritis (inflammation of the joint) with or without an accompanying fever. Neurological and heart issues are rare in dogs as compared to humans. The most serious long-term risk for dogs (which is also very rare) is glomerular disease. This is a type of immune-mediated kidney damage caused over time by chronic, often sub-clinical Lyme infections. Any of the tick-borne infections can cause chronic inflammation resulting in uveitis, lymph node or spleen enlargement. Most dogs exhibiting signs of Lyme disease respond rapidly to treatment with an appropriate course of antibiotics.

Treatment

The antibiotic of choice for treating Lyme disease is Doxycycline; a 30 day course is usually prescribed. Even though improvement of clinical signs is generally seen within 48 hours of starting the medication, it is important to give the full course of antibiotics. Doxycycline can sometimes cause gastrointestinal upset (vomiting, diarrhea, or decreased appetite), but otherwise is quite safe and also cost effective. Please let your veterinarian know if your pet experiences any adverse effects to the medication, as an alternative may be prescribed.

Prevention

1. Tick control remains the most important method of Lyme disease prevention, and to prevent several other tick-borne infections such as *Ehrlichia*, *Anaplasma* and Rocky Mountain Spotted

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Fever. These other infections cannot be prevented by vaccination, so tick control is the only way to reduce your pet's risk of exposure. Numerous topical flea and tick preventatives are available, and should be applied any time when there is not full snow cover. In many areas, tick control should be used year-round. Property sprays are also available from lawn care companies and can help decrease your yard's tick burden.

2. A Lyme vaccine has been developed, and is highly recommended as a secondary preventative for all dogs, especially those that are frequently outdoors.
3. Checking your pet over closely, especially after long walks or hikes in the woods is also a good way to detect and eliminate ticks. An infected tick can transmit *Borrelia* within 24 hours of attaching to the host.

Testing

An in-house immunological antibody test (4Dx test) can screen for Lyme disease. It requires only a small amount of blood and takes just 10 minutes to run. Most dogs are screened for Lyme disease annually as it is part of a combination test with heartworm. Also included on the blood test are screenings for *Ehrlichia canis* and *Anaplasma phagocytophylum*. The portion of the test for Lyme disease shows a positive result only for dogs that have been infected, not for dogs that are vaccinated.

Dogs will test positive within 3-5 weeks of infection by a tick bite, but will stay positive for over a year and even for many years. For this reason, the 4Dx test cannot distinguish between active infection and exposure, and in dogs that are positive year after year, we do not know if the test results represent the initial infection or re-infection. A more precise test (C6) is available to determine quantitative antibody levels.

What to do if your dog tests Lyme positive

Now that the veterinary community has been testing for Lyme disease annually, many dogs are found to be positive at their annual exam despite not showing any clinical signs. How to treat these cases is controversial in the veterinary community and recommendations differ from region to region, practice to practice, and even doctor to doctor. Because the test cannot distinguish between active infection and exposure (ie. the animal was previously infected but has already cleared the disease on its own), whether or not to treat non-clinical positive dogs is not straight-forward. Our veterinarians may recommend treating a newly positive dog, in other words, dogs that test positive for the first time. For dogs showing a positive Lyme test in subsequent years, the decision to treat is based on the patient's clinical signs, if any, and the exposure risk. As Lyme Disease is a bacterial infection, dogs with positive tests can still be re-infected. We recommend continuing to vaccinate all dogs, regardless of their 4Dx results. Individual recommendations will be made based on your dog's overall health.

Our veterinarians and technicians are happy to answer any questions you have regarding this information or about your pet. We can be contacted by telephone at (603) 889-5442 or by email at Staff@AmherstAnimalHospital.com.

Our Pet Health Information Series is provided as part of an on-going effort to improve our services and support the bond between you and your pet.