Protecting Your Dog from Lyme Disease

The information about testing, vaccination and treatment of Lyme disease in this article was gathered from a lecture by Steven Levy, V.M.D., with his permission by R.K. Reynolds, D.V.M.

Ticks are everywhere, and if they aren’t there yet, they will be soon. According to an article in the Pennsylvania Outdoor News, 30,000 human cases of Lyme disease were reported to the CDC (Center for Disease Control) last year. The Ohio Department of Health reported that unlike neighboring Pennsylvania, which annually has 4,000 to 5,000 cases of Lyme disease yearly, Ohio has not been a hotbed for tick-borne illness. That is changing, as the number of black-legged ticks has blossomed in the last couple of years.

A one-year study, funded by the AKC Carmine Health Foundation, is investigating how undetected infections that are transmitted by tick and flea vectors may contribute to immune-mediated conditions, such as hemolytic anemia, thrombocytopenia, and/or joint pain as reported in Purina’s Pro Club Update for Summer 2013.

Canine Lyme Disease (LD) is caused by Borrelia burgdorferi (Bb) which infects immature ticks when they feed on infected reservoir hosts and after molting. They then infect dogs when they feed in their next stage.

Use of the in-office tests kits provides veterinarians with an immediate assessment of a dog’s Lyme infection status. Positive dogs that have been infected by Bb develop antibodies after a 4 to 6 week lag phase.

Reasons for a positive Abaxis Lyme Rapid Test or Snap C4 test in a dog:
1. The dog was never immunized against Lyme and had no immunity when bitten by a Bb-infected tick.
2. The dog was immunized but had been bitten by a Bb-infected tick prior to immunization or before developing a protective immune response.
3. The dog was immunized in a timely fashion but the vaccine used produced a weak, short-lived response.
4. The dog was immunized with a highly immunogenic and effective vaccine but the dog failed to develop a protective response.

Dr. Levy recommends vaccinations be instituted when risk of infection is detected rather than waiting until clinical LD is diagnosed. Dogs that will be traveling to areas of higher risk should be immunized before they are exposed to vector ticks.

Lyme vaccine should be a core vaccine in areas of high risk. A multigenic (Osp A and Osp C) vaccine should be used that is safe, immunogenic, and effective. Vaccine studies showed 92% efficacy for the multigenic vaccine, compared to a 60% efficacy for the OSP A vaccine alone.

Pre-vaccination testing of young pups is not recommended because of the 4 to 6 week latent period of the infection. Pups as young as 8 to 9 weeks can begin the standard 2-dose series before they are exposed to ticks.

Healthy adult dogs should be tested and a 2-dose series given followed with an annual booster.

Lyme positive asymptomatic dogs that are healthy should be started on a 28 day course of doxycycline or amoxicillin and a 2-dose vaccine series. While antibiotic therapy has not been demonstrated to clear Bb infection, treating asymptomatic infected dogs can reduce the number of spirochetes and lower the titer of the infection specific antibodies in treated dogs.
Experimentally infected dogs treated with antibiotics and then immune suppressed had recrudescence of Bb but not arthropathy. In the same study when dogs were not pre-treated with antibiotics they had recrudescent infection and also arthropathy.

Lyme negative dogs are started on a 2-dose vaccine series without any antibiotic therapy.

Tick control is a must. The product must act rapidly and prevent tick attachment and feeding to be most effective in prevention of disease transmission. The long period of activity of Ixodes ticks in some areas of the United States and the overlapping seasonal and geographic ranges of various other vector species make tick control a year round protocol in many, if not most, areas of the U.S. Any period of attachment and feed by ticks opens the door to organism transmission.

Vaccination in general has been demonstrated to be very safe. In most cases the risk/benefit is far weighted to the benefit side. Newer multigenic bacterins have been developed that are aimed at reducing soreness, local swelling, and urticaria and facial swelling, while keeping your dog protected from Lyme disease.