



LYME DISEASE

Lyme disease is one of the world's most common infectious diseases and the incidence is growing. In fact, it's the leading tick borne disease in the United States.

Lyme disease came to the forefront in the late 70's with an outbreak of puzzling proportions in the wooded areas in and around Lyme, Connecticut, a sleepy town on the coast of Long Island Sound.

Lyme disease is introduced to both animals and people by small deer ticks or wood ticks. Undetected and untreated, Lyme disease can cause devastating damage to a dog's health. Today, there are very few areas in the country that are still considered to be free of infected ticks and it's believed they've been dispersed throughout the country by clinging to birds making their seasonal migration. In the nation's warmer, more temper-

ate zones, the risk remains high throughout the year, while in the northern sections of the country, it's contracted most often from late spring through late summer.

Lyme disease is a difficult disease to pinpoint because initial symptoms, which appear as a variety of combinations, are often regarded as symptoms for a number of other conditions. The early symptoms of lethargy, stiffness, diminished appetite and rising temperature are fairly common and can be mistakenly attributed to other common ailments in dogs.

The symptoms of Lyme can be enigmatic. I once had a Dachshund patient who appeared to have a back problem. I do spinal manipulations and I'm a certified acupuncturist so you can just imagine how many Dachshunds I see with back problems. When this dog didn't respond to treatment, I tested him for

*facts
you
should
know*



By Deva Khalsa DVM

Lyme disease and he was positive. Fortunately, treating him for Lyme disease resolved the problem entirely.

I routinely see dogs who have been vaccinated for the disease contract it post vaccination, so vaccinated dogs should also be checked for Lyme disease if they present with any symptoms.

Detecting Lyme Disease

Nowadays, people are very aware of the threat of tick borne diseases and most test their dogs on a yearly basis. The tests available for Lyme disease have changed over the years and are vastly improved. As vaccinated dogs can still get Lyme disease, it's important to use a test that can differentiate between natural exposure and vaccination induced disease and there are several tests available that do this. It's important to note that the IDEXX in house SNAP test will only determine if your dog has been infected naturally. Vaccinated dogs typically do not get positive test results. This is good because you want to find out if your dog has been infected naturally and if the test is also positive for vaccinated dogs it can confuse things. The older tests would come back positive for both vaccinated dogs and naturally infected dogs.

I recommend following up on a positive IDEXX in house SNAP test with the C6 Antibody test by IDEXX (this one must be sent out to the laboratory), because it actually gives you a quantitative number. Why is that important? Let's say you bring your dog in for a routine, in office, Lyme SNAP test and it's positive. There is no way to determine the extent of the infection because the darkness of the spot on the SNAP test doesn't indicate the degree of infection – just like the color on a pregnancy test doesn't indicate how pregnant you are. It simply gives a yes or no answer. The C6 antibody test however, will give you a quantitative answer. If it comes back high, you need to be proactive in treating Lyme disease. The higher the number, the higher the immune response, showing which dogs will benefit from more aggressive treatment.

Another important use of the C6 test is for monitoring the response to treatment. You use the test to monitor the dog's progress by looking for at least a 50% reduction in the result. Testing a few months after completion of treatment will often let you know how successful the treatment has been. Additionally, it's important to know if your dog has a new infection or if the SNAP test is simply registering the old infection. Not all dogs will stay positive forever but some retain an immune response, so this test is more effective in monitoring for subsequent re-exposure to infection than the in house SNAP test.

AccuPlex4 by Antech Laboratory has five different antibodies that check for a number of factors. The test will determine whether the Lyme disease is via natural or vaccine induced infection, it can differentiate between early and chronic infection

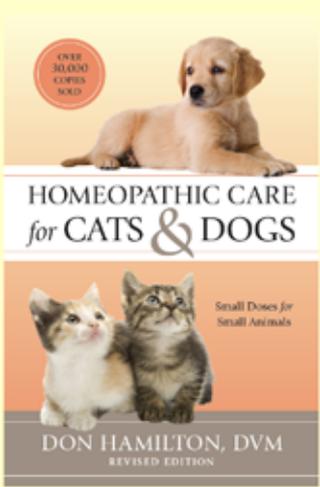
and even multiple combinations thereof. Early infection, combined with a particular vaccine, may cross react, however, giving erroneous results.

At times, the AccuPlex4 test will show dogs who have been vaccinated for Lyme disease as being unvaccinated. This brings into question the efficacy of either the test or the vaccine (or both). This test can be confusing at times for the veterinarians that use it and the jury is still out on how effective it is.

Five different tests perhaps do what one C6 Antibody test does but for those who avoid over vaccination, measuring immune memory to the Lyme vaccine is a moot point.

Lyme Disease And Auto Immunity

The microorganism that causes Lyme disease is *Borrelia burgdorferi*. This is a spirochete, a spiral shaped bacterium. Spirochete bacteria also cause diseases such as syphilis and can remain hidden in the tendons, muscle tissue, lymph nodes, brain, heart, joint fluid, nervous tissue and other parts of the body and remain dormant for years. This is part of the reason diseases caused by spirochete bacteria can be difficult to clear completely from the body.



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The same ticks that carry the *Borrelia burgdorferi* bacteria can also carry mycoplasmas. These tiny infectious pathogens have no cell wall, making them stealth pathogens and masters of disguise that are very difficult for the immune system to find. Like *Borrelia burgdorferi*, mycoplasmas can also create autoimmune disease.

“ An unfortunate consequence to the cloak and dagger presentation of Lyme spirochetes and mycoplasmas is that the immune system may eventually begin to malfunction. While it desperately seeks out the pathogens, it can actually destroy the tissues that they are hiding in. This is what creates the autoimmune complications that accompany Lyme disease. ”

A Norwegian researcher was looking for the spirochete bacteria in the tissue of people infected with Syphilis and was surprised he could not see the flagellates swimming around. In fact, he saw funny little pearl like structures on the nerve tissue and realized that the spirochetes had wrapped their tails around themselves and had effectively hidden from the immune system in a self fashioned cocoon.

The immune system must not only eradicate the Lyme pathogen if cure is to happen, but it must also deal with any mycoplasmas introduced by the tick at the same time. Because these organisms can hide in the body tissues and disguise themselves, the immune system has quite the job cut out for it. Moreover, as the immune system searches for these foreign invaders, they constantly move from tissue to tissue, making them that much more resistant. Consequently, both antibiotics and the immune system are faced with quite a challenge.

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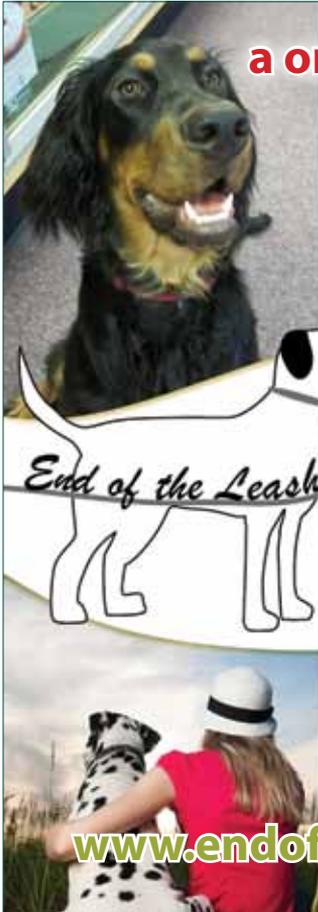
Lyme Disease And Vaccination

The only Lyme vaccine approved for humans, LYMERix was removed from the market after just three years of production. Smith Kline, the vaccine manufacturer, stated in 2002 that they

would stop production due to “insufficient demand” although a class action lawsuit was filed against them in 1999, claiming that patients developed an incurable form of autoimmune arthritis that produced symptoms worse than those caused by the disease.

Lyme Nephritis (sometimes called Protein Losing Nephropathy) is another autoimmune disease commonly caused by Lyme disease or Lyme vaccination. It usually progresses slowly, enabling the dog to compensate for the kidney damage, so the disease is usually well advanced before pet owners notice symptoms and bring them to the attention of the vet. Unfortunately, by this time it’s often too late.

Every dog that has tested positive for Lyme disease should have a routine urine analysis done every year to check for elevated protein in the urine. The reason for this is to proactively watch for kidney damage. The kidney has tubules called glomeruli and these tubules sift bodily wastes through the kidneys and into the urine. The antigenic makeup of the tubules is very similar to the tail of the bacteria that cause Lyme disease and the immune system can confuse the two. When the immune system attacks these tubules, they develop unnaturally large openings which allow bigger protein molecules to slip out into the urine. In an



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effort to destroy the Lyme disease, the kidney tissue is damaged by the immune system. Much later, even years later, the kidney markers in the blood elevate and signs of kidney failure can occur.

If you find high protein levels in a routine urine test, a second urine sample should be sent out to the laboratory for a specific test called a Protein/Creatinine Ratio test. This will identify quantitatively exactly how much protein is spilling out into the urine. Routine blood tests that check kidney levels will not indicate any problem in the beginning stages of this disease. Only high protein in the urine will. Much later, the kidney enzymes in the blood will elevate. This happens only when the disease has progressed and is very severe and usually, by this time, your dog has lost weight and is not feeling well at all. This disease is often fatal so catching it early is essential.

Treatment Options For Lyme Disease

Although Lyme disease can be successfully treated without antibiotics, the most typical treatment for Lyme disease is Doxycycline. If your vet chooses to use antibiotics as treatment, there are steps you can take to help.

Give your dog magnesium in the beginning stages of treatment. This will lure the bacteria out of the tissues so the antibiotic can get to it. Give the human recommended dose for a Golden Retriever sized dog and calculate how to increase or decrease the dose for your dog, based on his size.

Nux vomica can be given to help detoxify your dog's body from the antibiotic.

A probiotic should be given to restore healthy gut flora during treatment and both a probiotic and prebiotic should be given for two months after ending the antibiotic.

Ledum has been used to treat Lyme disease homeopathically instead of with antibiotics, with good results. There is also a Lyme disease nosode which has been used by many vets with good success. I have found that using sequentially higher potencies of a homeopathic remedy made from the *Borrelia* works well in avoiding, minimizing and reducing autoimmune reactions.

If there is Lyme nephritis, *Apis mellifica* works incredibly well to decrease the protein loss in the kidneys. This can be an important remedy to prevent and treat spilling of protein in the urine. This remedy may need to be used for many months, depending on the extent of the problem. Although Lyme disease is on the rise, understanding the symptoms, and knowing when and how to act will help decrease the risk of major long term damage in your dog. 🌿

Since beginning her holistically oriented veterinary practice over 25 years ago, Dr Khalsa has been incorporating homeopathy, acupuncture, Chinese Herbs, nutritional advice, allergy-elimination techniques such as NAET and also JMT into her approach. Dr. Khalsa is a Fellow and Professor of the British Institute of Homeopathy.



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