

TICK-BORNE DISEASE

LYME DISEASE

In Lyme, Connecticut in 1975, Lyme disease was discovered among a group of children that had been diagnosed with juvenile rheumatoid arthritis. Due to the large number of cases in such a small area, public health officials and researchers looked for a different cause. They discovered a new bacterial disease that settled into the joints of the children causing arthritis-like symptoms. The disease was then named after the town it was discovered. Lyme disease has now been diagnosed in all 48 states in the continental U.S. and in Canada.

Lyme disease is a tick-borne disease caused by a spirochete, which is a type of bacteria. Deer ticks, as small as the head of a pin, attach themselves to your pet and pass on an organism called *Borrelia burgdorferi*. In other words, it's not the tick that causes Lyme disease, but the bacteria the tick carries. Once the tick is attached, the disease may be transmitted in as little as 12 hours.

SYMPTOMS:

Clinical illness usually occurs 2 to 5 months after initial exposure. The likelihood of disease and the severity of the disease vary with the animal's age and immune status. The characteristic "bull's-eye" rash does not develop in animals, so it is a little harder to diagnose. Dogs show several different

forms of the disease, the most common symptoms are:

- Fever between 103°F and 105°F (normal temperature for a dog/cat is 100.5-102.5°F)
- Shifting leg lameness
- Swelling in the joints
- Lethargy
- Loss of appetite

Arthritis may be a result of both short and long-term infections. Most dogs that are promptly diagnosed and treated do not appear to develop arthritis, but a few dogs that do not respond completely to treatment or were not treated may develop progressive degeneration of the infected joints. A few dogs develop severe progressive kidney disease following Lyme disease. In rare cases, kidney disease is non-responsive to treatment and death is generally the outcome.

TREATMENT:

Treatment for Lyme disease is very straightforward and consists of antibiotic therapy. The two most commonly used are oral Doxycycline or Amoxicillin. The antibiotics must be given a minimum of 14 days, but 30 days is recommended. Some studies have shown that some animals may not clear the infection after 30 days and may relapse once the antibiotic is discontinued. In these cases, the pet may have to be on the antibiotic for an extended period of time.

PREVENTION:

Prevention of Lyme disease involves the combination of both Lyme vaccination and tick control programs.

There are several whole-cell killed vaccines on the market, but total protection of a dog through vaccination is difficult. The vaccination cannot possibly protect against the many different strains of the bacteria. In addition, an animal is only protected against infection after receiving the vaccine. The vaccine will not treat an infection that is already present.

Tick control is the most important thing an owner can do to prevent Lyme disease. Ticks carry many other diseases besides Lyme disease. By preventing them from attaching to your pet, we may prevent all of these diseases. Avoiding areas of high tick infestation during periods when ticks are active (spring/fall) is one of the best ways to avoid contact. Using insecticides that repel ticks is another method. With the advent of once-a-month topical insecticides, tick control has become a lot easier and more effective. Frontline Plus® and Advantix™ are products we recommend using on your pet. They are both easy and safe to use.

While these methods of prevention are not a 100% guarantee against Lyme disease, when used properly they are the most effective products that are available today.

EHRLICHIA

Ehrlichia is an infectious disease of dogs. It first gained attention as a significant disease when infected military dogs returned from Vietnam during the 1970's.

Ehrlichia is a tick-borne disease caused by a *rickettsial* organism. Rickettsiae are similar to bacteria. *Ehrlichia canis* and *Ehrlichia equi* are the most common rickettsial species involved in this area. *Ehrlichia equi* has recently been renamed *Anaplasma phagocytophilum* so you may hear it be referred to as Ehrlichiosis or Anaplasmosis. To prevent confusion it will be referred to as Ehrlichiosis in this article.

The Ehrlichia organisms are carried by the brown dog tick. Once the tick is attached the disease can be transferred in as little as 12 hours, the same as Lyme disease.

SYMPTOMS:

There are three stages of Ehrlichiosis: acute (early disease), sub-clinical (no outward signs of disease), and chronic (long-standing infection). In the acute phase, most pets will start to show symptoms around 1-3 weeks after exposure. This is typically when they are brought into the clinic. In some cases it may take up to 2 months before symptoms show. The most common signs of infection are:

- High fever
- Lethargy
- Swollen painful joints
- Decreased appetite

- Shifting leg lameness
- Reluctance to move
- Vomiting, diarrhea, and neurologic signs (these are rare)

This stage may last two to four weeks.

The sub-clinical phase represents the stage of infection in which the organism is present, but not causing any sign of disease. Sometimes a dog will pass through the acute phase without its owner being aware of the infection. These dogs may become sub-clinical and develop laboratory changes yet have no apparent signs of illness. During this stage the dog may eliminate the organism, or it may progress to the next stage.

Clinical Ehrlichiosis occurs because the immune system is not effective in eliminating or controlling the organism. Dogs are likely to develop a variety of problems:

- Anemia
- Decrease in platelets (the blood clotting cells)
- Bleeding episodes
- Lameness
- Neurological problems
- Swollen limbs
- Eye problems

DIAGNOSIS:

It may be difficult to diagnose Ehrlichia during the early stages of infection. The immune system usually takes 2-3 weeks to develop antibodies, which is what most diagnostic test use. Other diagnostic tests include a complete blood count (CBC), and

chemistry profile. A CBC measures and evaluates the cells that circulate in the bloodstream. Most dogs with Ehrlichiosis will have abnormal cell counts. The platelets (the blood clotting cells) and the red blood cells are usually lower than normal. Chemistry profile evaluates internal organ function, making sure there is no damage.

TREATMENT:

The same treatment is used for Ehrlichiosis as Lyme disease. Doxycycline is given orally for 30 days. In some cases, symptoms may return after the course of antibiotics is complete. Your pet may need to be put back on the antibiotics for a longer period of time.

PREVENTION:

Unlike Lyme disease there is no vaccination available for Ehrlichia. The only means of prevention is tick control. It is very important to use a topical insecticide on your pet during tick season. The tick preventatives that we recommend are Frontline Plus® and Advantix™. Always check your pet over after they return from outdoors and remove ticks immediately before they can attach themselves.

TICK REMOVAL:

To remove an attached tick, use a pair of fine-tipped tweezers or special tick removal instruments such as the Tick Twister®. These special devices allow one to remove the tick without squeezing the tick body. This is important, as you do not want to crush the tick and force harmful bacteria to leave the tick and enter the dog's bloodstream.

1. Grab the tick by the head or mouth parts right where they enter the skin. Do not grasp the tick by the body.
2. Without jerking, pull firmly and steadily directly outward.
3. Using methods such as applying petroleum jelly, a hot match, or alcohol will NOT cause the tick to 'back out,' In fact, these irritants may cause the tick to deposit more disease-carrying saliva in the wound.
4. After removing the tick, place it in a jar of alcohol to kill it. Ticks are NOT killed by flushing them down the toilet.
5. Clean the bite wound with a disinfectant. If you want to, apply a small amount of a triple antibiotic ointment.
6. Wash your hands thoroughly.

Please do not use your fingers to remove or dispose of the tick. We do not want you in contact with a potentially disease-carrying tick. Do NOT squash the tick with your fingers. The contents of the tick can transmit disease.

Once an embedded tick is manually removed, it is not uncommon for a welt and skin reaction to occur. A little hydrocortisone spray will help alleviate the irritation, but it may take a week or more for healing to take place. In some cases, the tick bite may permanently scar leaving a hairless area. This skin irritation is due to the irritating and destructive tick saliva. It is not due to the tick losing its head, literally. Do not be worried about the tick head staying in; it rarely happens. The swelling is due to toxic saliva, not toxic heads.