

Borrelia (Lyme disease)

About

Lyme disease (Lyme borreliosis) is an infectious disease caused by at least three species of bacteria belonging to the genus *Borrelia*. It is transmitted via the bite of an infected tick.

Borreliosis is caused by ***Borrelia burgdorferi*** and spread by ***Ixodes pacificus*** on the West coast of the United States and by ***I. scapularis*** (deer tick) in the rest of the U.S.

The first known existence of the *Borrelia* bacteria dates back to up to 20 million years ago. The disease is named after the towns of Lyme and Old Lyme, Connecticut, US, where a number of cases were identified in 1975. It was established to be a tick-borne disease in 1978, and the bacterium responsible was identified in 1981 by entomologist Dr. Willy Burgdorfer.



Symptoms

Signs and symptoms include:

- ⇒ fever,
- ⇒ joint swelling and pain, l
- ⇒ ameness, and swelling of the lymph nodes.

Vaccination

Currently, three Lyme disease vaccines are available.

1. **LymeVax**, formulated by Fort Dodge Laboratories, contains intact dead spirochetes which expose the host to the organism.
2. **Galaxy Lyme**, Intervet-Schering-Plough's vaccine, targets proteins OspC and OspA. The OspC antibodies kill any of the bacteria that have not been killed by the OspA antibodies.
3. **Canine Recombinant Lyme**, formulated by Merial, generates antibodies against the OspA protein so a tick feeding on a vaccinated dog draws in blood full of anti-OspA antibodies, which kill the spirochetes in the tick's gut before they are transmitted to the dog.



Epidemiology

Tests on pet dogs, carried out throughout the country in 2009 indicated that around 2.5% of ticks in the UK may be infected, considerably higher than previously thought. It is thought that global warming may lead to an increase in tick activity in the future, as well as an increase in the amount of time that people spend in public parks, thus increasing the risk of infection.

Prognosis

In dogs, a serious long-term prognosis may result in glomerular disease, which is a category of kidney damage that may cause chronic kidney disease.

Dogs may also experience chronic joint disease if the disease is left untreated. However, the majority of cases of Lyme disease in dogs result in a complete recovery with, and sometimes without, treatment with antibiotics.

In rare cases, Lyme disease can be fatal to both humans and dogs.

Prevention

Prevention of Lyme disease is an important step in keeping dogs safe in endemic areas. Prevention education and a number of preventative measures are available. First, for dog owners who live near or who often frequent tick-infested areas, routine vaccinations of their dogs is an important step.

Another crucial preventive measure is the use of persistent acaricides, such as topical repellents or pesticides that contain **triazapentadienes** (Amitraz), **phenylpyrazoles** (Fipronil), or **permethrin** (pyrethroids). These acaricides target primarily the adult stages of Lyme-carrying ticks and reduce the number of reproductively active ticks in the environment.

Formulations of these ingredients are available in a variety of topical forms, including spot-ons, sprays, powders, impregnated collars, solutions, and shampoos.

Examination of a dog for ticks after being in a tick-infested area is an important precautionary measure to take in the prevention of Lyme disease. Key spots to examine include the head, neck, and ears.



Treatment

Antibiotics are the primary treatment. The specific approach to their use is dependent on the individual affected and the stage of the disease.

Oral administration of doxycycline is widely recommended as the first choice, as it is effective against not only *Borrelia* bacteria but also a variety of other illnesses carried by ticks.

However, some preliminary studies show that some animals may not even clear the organism after 30 days and will relapse once the antibiotic is discontinued. In these cases, the animal may have to be on the antibiotic for much longer. Despite the fact that some animals may develop chronic infections, the vast majority of infected dogs respond rapidly and satisfactorily to doxycycline treatment. In some animals with severe arthritis, pain relievers may also be used in addition to antibiotics. **The use of steroids in this disease is definitely contraindicated.**

From our experience we recommend this dosage of 100mg/kg of doxycycline every 24 hours for 28-30 days and also administrate oral or injectable prevent vomiting medicine at the first (and second) administration of the antibiotic. Most of the dogs may vomit the pills.

Depends on the stage of the disease it can also be administrated oral or injectable vitamins.

You may find the antibiotic in stores as 50mg/pill , 100mg/pill or 250mg/pill. All the dosage and treatment depends on the dog's health and your vet recommendation.

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