

Lyme Disease

Overview

What is Lyme disease?

Lyme disease is an infection caused by a kind of bacterium (germ) called a spirochete (say: spy-ro-keet). The disease is carried by deer ticks (found in the northeastern and north-central United States) and western black-legged ticks (found mostly on the Pacific Coast). These ticks can spread the disease to animals and humans through tick bites. These ticks are typically about the size of a sesame seed.

Lyme disease is most common in rural and suburban areas in the northeastern and midwestern states. Lyme disease is also found in other parts of the United States, as well as in Europe, Asia and Australia.

Symptoms

What are the symptoms of Lyme disease?

One sign of Lyme disease is a rash, which may appear 3 to 30 days after the tick bite. This rash usually starts at the site of the tick bite. It may begin as a small red spot and grow larger. The center may fade, creating a "bull's eye" or ring appearance, but this is not always the case. Some people with Lyme disease have many red spots. The rash may be tender or feel warm to the touch.

Other symptoms of Lyme disease in its early stage include:

- Fever
- Chills
- Headache
- Fatigue
- Joint and muscle aches

Rarely, early-stage Lyme disease can spread to the heart or the nervous system. If Lyme disease spreads to the heart, the person may feel an irregular or slow heartbeat. The spread of Lyme disease to the nervous system can cause the face to droop (a condition called [Bell's palsy](#)), numbness in your arms and legs or swelling of the membranes surrounding the brain (called meningitis).

What about the later stages of Lyme disease?

If Lyme disease isn't treated, it can spread to other parts of the body. The symptoms of late-stage Lyme disease include arthritis (painful, swollen joints) and nervous system problems. Lyme arthritis often affects only one of the large joints, such as the knee. Sometimes it may affect more than one joint.

Although rare, the symptoms of the nervous system disorder caused by late-stage Lyme disease may include:

- Trouble concentrating
 - Changes in mood
- Changes in sleep habits
 - Loss of memory
 - Muscle weakness

Causes & Risk Factors

Who gets Lyme disease?

People who spend time in areas where ticks are common (either for work or recreation) are at higher risk of getting tick-borne diseases. Ticks usually wait near the top of grassy plants and low bushes for people or animals to brush up against their perch. Ticks will often crawl upward on people's clothes or bodies for up to several hours or more before attaching to the skin.

Diagnosis & Tests

How can my doctor tell if I have Lyme disease?

The best way to find out if you have Lyme disease is to talk to your family doctor about your symptoms. Blood tests aren't always necessary to make the diagnosis. They can often give false results, especially in early-stage Lyme disease.

People who have been sick with Lyme disease for less than a month often don't yet have antibodies to the disease. This means they won't have a positive blood test. Also, if a person with early Lyme disease takes antibiotics, he or she may never have a positive Lyme disease test. However, the blood test is almost always positive in people who have been sick for over 4 weeks and haven't taken antibiotics.

People who have joint swelling or nervous system problems may need to have special tests. Your doctor may need to take some fluid from the swollen joint or the spine to check for clues to your condition.

Treatment

What do I do if I find a tick on my skin?

Don't panic. Using a pair of fine-tipped tweezers, grasp the tick body as close to your skin as possible. Pull in a steady upward motion until the tick comes out. Be careful not to squeeze or twist the tick body. If any tick parts remain in the skin, you can leave them alone or carefully remove them the same way you would a splinter. Then apply an antiseptic to the bite area and wash your hands with soap and water.

After the tick is removed, call your doctor and report the tick bite. Your doctor may have you bring the tick in so he/she can identify it and estimate how long it may have been attached to your skin. Watch the bite area and the rest of your skin over the few months. If you get a rash, see your doctor. Be sure to tell your doctor that you were bitten by a tick and when it happened.

How is Lyme disease treated?

Lyme disease is treated with antibiotics.

In most areas of the United States, the only people who need antibiotics are those who get sick and/or get a rash after being bitten by a tick. In a few areas of the country where Lyme disease is more common, an antibiotic to prevent Lyme disease can be given when a deer tick is estimated to be attached for more than 36 hours. These areas include Minnesota, Wisconsin, and some parts of New England and the Mid-Atlantic states.

If you are bitten by a tick and don't get sick or get a rash, you don't need antibiotics.

Early-stage Lyme disease responds very well to treatment. In most cases, 14 to 30 days of treatment with an antibiotic kills the bacteria. Your doctor will tell you how many days to take the antibiotic. It's important for you to take all the medicine your doctor prescribes to prevent the spread of Lyme disease to your joints, nervous system or heart. If you have problems with the medicine, do not quit taking it. Call your doctor and talk to him or her about your side effects.

Late-stage Lyme disease is also treated with antibiotics. It may be necessary to give the antibiotics intravenously (through an IV) at this stage. Medicine that reduces swelling and pain can ease arthritis associated with late-stage Lyme disease. If necessary, excess fluid can be drained from the affected joints.

Prevention

How can I prevent Lyme disease?

The best way to prevent Lyme disease is to avoid being bitten by ticks. When you are outdoors, follow these guidelines:

1. Use tick repellents according to their instructions to help prevent bites. Use an insect repellent containing 20% to 30% DEET. Tick repellents that contain DEET can be put directly on your skin or on your clothing before going into tick-infested areas. Apply DEET sparingly to skin according to directions on the label. Don't apply it to the face and hands of children and don't use it on infants younger than 2 months of age. Repellents containing permethrin should be put **only** on clothing. Make sure to talk to your doctor before you use any tick repellent on your child. Your doctor can give you more information on what type and strength of repellent is safe to use.
2. Wear light-colored clothing that covers most of your skin when you go into the woods or an area overgrown with grass and bushes. This makes it easier to see and remove ticks from your clothing. Wear a long-sleeved shirt and wear pants instead of shorts. Tuck your pant legs into your socks or boots for added protection.

Remember that ticks are usually found close to the ground, especially in moist, shaded areas. Check your entire body for ticks after you have been in tick-infested areas, and check your children and pets for ticks. Common tick bite locations include the back of the knees, groin area, underarms, ears, scalp and the back of the neck.

3. Remove any attached ticks as soon as possible. To remove an attached tick, use fine tweezers to grab the tick firmly by the head (or as close to the head as possible) and pull. Do not use heat (such as a lit match), petroleum jelly or other methods to try to make the tick "back out" on its own. These are not effective ways to remove a tick.
4. Wash the area where the tick was attached thoroughly with soap and water. Keep an eye on the area for a few weeks and note any changes. You should call your doctor if you develop a rash around the area where the tick was attached. Be sure to tell your doctor that you were bitten by a tick and when it happened. Only people who get sick and/or get a rash after being bitten by a tick need antibiotics. If you are bitten by a tick and don't get sick or get a rash, you don't need antibiotics.

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