



LYME DISEASE

What is Lyme disease?

Lyme disease is the most common tick-borne disease in North America and Europe. It is an infection caused by the bacteria *Borrelia burgdorferi* and is transmitted to human and animals by the bite of infected ticks. In the United States, most cases occur along the Atlantic coast, north central area (Minnesota and Wisconsin), and less commonly on the Pacific Coast (Oregon and California). The deer tick, a common tick associated with Lyme disease, is much smaller than the common dog tick and normally feeds on the white-footed mouse, the white-tailed deer, other mammals, and birds. Most cases occur between April and October.

What are the symptoms?

The clinical course of Lyme disease is divided into 3 stages. The *early localized stage* begins 3-31 days (usually 7-10) after exposure to a tick. This means that within several days of a tick bite, a red papule with a clear center lesion, called an erythema migrans or “EM” may appear. Extreme fatigue, fever, headache, mild neck stiffness and joint pain may occur. If untreated, these symptoms may persist for several weeks and progress to another stage. Only 25-30% of people with Lyme disease recall exposure to ticks.

The most common symptom of the next stage, *early disseminated*, is multiple lesions of erythema migrans. The onset of these lesions is generally 3 to 5 weeks after a bite of an infected tick. Other signs of infection may occur with or without the rash. Meningitis, conjunctivitis or paralysis of the facial nerves may occur. Muscle and joint pain, headache, and fatigue are also common.

Signs of *late disease* occur months to years after initial exposure to an infected tick. This stage is characterized most commonly by recurrent (intermittent) arthritis that mostly affects the large joints, particularly the knees. Arthritis may occur without a history of early stages of the disease.

Diagnosis is best made during the early stage of the disease by recognizing the distinctive rash (erythema migrans). Blood tests are available, but are poorly standardized. False results and misinterpretation of results can be serious problems.

Lyme disease has many nonspecific (or vague) symptoms that often are found in other conditions, such as viral infections, various joint disorders, fibromyalgia, chronic fatigue syndrome and even depression. Sometimes, these common conditions are misdiagnosed as Lyme disease.

How is it transmitted?

There is no evidence that Lyme disease is spread person-to-person. Individuals who live, work or play in areas surrounded by woods or overgrown brush infested by ticks are at risk of exposure to Lyme disease. Persons who participate in recreational activities such as hiking, camping, fishing and hunting and persons who are in outdoor occupations, such as landscaping, brush clearing, forestry, and wildlife and parks management in high incidence areas may also be at risk of exposure to infected ticks.

How is Lyme disease treated?

People who develop erythema migrans or symptoms of Lyme disease should be advised to seek early medical attention. Most people with Lyme disease can be successfully treated with appropriate antibiotics when diagnosed in the early stages. Length of treatment is often prolonged and response to therapy is often complicated in later stages of infection. Currently, there is no vaccine available.

With appropriate treatment, most people completely recover. A small number of patients (especially those diagnosed in the later stages of the disease) have persistent complaints after treatment.

How can Lyme disease be prevented?

Transmission of *B. burgdorferi* is unlikely to occur in the first 36 hours of tick attachment. Therefore, routine inspection for and prompt removal of any attached ticks are essential in the prevention of infection. Common-sense precautions are important. Remove ticks by using gentle, steady traction with forceps (tweezers) applied close to the skin. Avoid leaving mouth parts of the tick in the skin. Following removal, thoroughly cleanse area with soap and water.

Tips for Prevention

- Avoid exposure to area where ticks live, if possible. Stay away from wooded and bushy areas with high grass and leafy ground cover. Walk in the center of trails.
 - Wear light-colored clothing (so ticks can be more easily seen)
 - Wear long sleeves, long pants, shoes or boots, and socks
 - Tuck pants into socks. Long-sleeved shirts should be buttoned at the cuff.
 - Apply DEET- containing tick repellents to skin and repeat every 1 to 2 hours for maximum effectiveness. (Follow product instructions. Use special care with young children)
 - A repellent that contains permethrin can be sprayed on clothing and gear, such as boots, socks, and tents to reduce tick attachment. It remains protective through several washings. Do not apply permethrin directly to skin.
 - Regular daily checks of body areas for any attached ticks. Do not neglect hairy areas.
 - Examine gear and pets. Ticks can ride into the home on clothing and pets, and then attach to a person later, so carefully examine pets, coats, and back packs. Tumble clothes in a dryer on high heat for an hour to kill any remaining ticks.
- Remove ticks promptly and completely. Use of fine-tipped tweezers, applying steady upward pressure, will help to remove a tick that has attached to the skin. When the entire tick is removed, clean the area well with soap and water.

FOR MORE INFORMATION:

SCPH Communicable Disease Unit 330-375-2662
Centers for Disease Control and Prevention (www.cdc.gov)
Mayo Clinic (www.mayoclinic.com)
Minnesota Department of Health (www.health.state.mn.us)