

Severe Symptoms of Lyme Borreliosis Caused by the Bacterium Borrelia Burgdorferi

Mumba Willer*

Department of Parasitology, University of Zurich, Zurich, Switzerland

DESCRIPTION

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and, less frequently, Borrelia mayonii.. Infected blacklegged ticks bite humans to spread the disease. Fever, headaches, exhaustion, and an identifying skin rash known as erythema migraines are typical symptoms [1].

SYMPTOMS

Neurological conditions, Migraines with erythematous rash, Inflammation of the brain and spinal cord, fever, chills, headache, exhaustion, and enlarged lymph nodes are some of the symptoms of EM.

Other symptoms include episodes of fainting or shortness of breath, severe headaches, stiff necks, and further EM rashes on other regions of the body, Sporadic discomfort in the tendons, muscles, joints, and bones, Arthritis with agonising joint pain and swelling, particularly in the knees.

Lyme disease is categorized as a zoonosis because ticks that feed on both small mammals and birds and humans can contract it from these natural reservoirs, Ixodes hard-bodied ticks are the carriers of Lyme disease. The majorities of infections are brought on by ticks in their nymph stage because they are so tiny and can feed covertly for extended periods of time. Nymphal ticks occasionally have a dark head and a translucent body. Although deer are the preferred hosts for adult deer ticks and tick numbers are significantly reduced when deer are absent, ticks often do not pick up Borrelia from deer; rather, they do so from infected small animals [2].

Despite the immune system producing *B. burgdorferi* antibodies, the bacteria may stay in the body for months or even years if left untreated. By inhibiting the expression of surface proteins that antibodies targeting, antigenic variants of the VlsE surface protein, inactivating essential immunological components like complement, and hiding in the extracellular

matrix, the parasitic organisms may be able to evade the immune response [3].

LABORATORY TESTING

ELISA and Western blot testing for blood antibodies are used as the most common methods for diagnosing Lyme disease. The more specific Western blot test should next be performed if the sensitive ELISA test is positive or ambiguous, according to the Centers for Disease Control and Prevention (CDC). Over time, the immune system produces a huge number of antibodies. IgM and IgG antibodies frequently appear 2.4 and 4.6 weeks, respectively, following the beginning of a Lyme infection and peak at 6-8 weeks. It is therefore advised to forego testing and base the diagnosis only on the presence of the EM rash. IgM or IgG antibody testing can confirm a suspected Lyme infection up to 30 days after the infection started; after that time, only IgG antibodies should be considered. A positive IgM and a negative IgG test result after the first month of infection often indicates a false-positive result. IgM antibody levels normally fall within 4-6 months of an infection, although IgG antibody levels may persist for years. After making first contact with the skin, ticks might take up to 24 hours to begin feeding on the blood of their host [4].

For the tick to successfully transmit the bacteria that causes Lyme disease to humans, the skin-contact must last for 48 to 72 hours. The transmission of infection takes place a considerable time after the tick makes its initial contact with its host. If the tick is removed before it becomes engorged; the risk of contracting Lyme disease after being bitten by a tick is very low. As a result, it is helpful to thoroughly check for ticks after being outside even though a tick that has not bitten cannot spread Lyme disease [5].

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Correspondence to: Mumba Willer, Department of Parasitology, University of Zurich, Zurich, Switzerland, Email: mumbawillermw@gmail.com

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