

Medicine by John Grauerholz, M.D.

Lyme disease makes the big time

Due to environmentalist-inspired curbs on pesticides, the carriers of this serious disease have greatly increased.

From an obscure beginning in eastern Connecticut in 1975, Lyme disease has grown to become the leading vector-borne disease in the United States, and cases have been reported from France, Germany, Switzerland, and Australia. While the greatest impact is in the northeastern and north central U.S., where over 90% of all cases occur, over 4,600 cases were reported in 1988 from a total of 43 states.

The main reason for the spread of this disease is the increasing population and spread of its vector, the deer tick, *Ixodes dammini*, commonly found in the eastern United States. The western, black legged tick, *Ixodes pacificus*, specific to the western United States, also carries the causative organism, a spiral-shaped bacterium, or spirochete, called *Borrelia burgdorferi*.

This spirochete has been grown from deer and mice, which are the preferred hosts for the ticks in question. Ticks are not actually insects, but are related to spiders and mites. They usually feed three times during their two-year life cycle. They feed once during each stage of their development and can bite humans or animals at any stage.

The ticks pick up the disease-causing spirochete by feeding on an infected host, and pass it on at subsequent feedings. Younger ticks, known as nymphs, which are no bigger than a pinhead, represent the greatest risk for transmission of the infection, since in the adult stage, only the female is likely to transmit the organism.

While adult male ticks may attach

to the skin, they do not feed, and thus are unlikely to transmit infection.

Ticks can be found in almost any outdoor setting, from backyards to wooded areas. They stay at the end of tall grasses or other plants awaiting a suitable host.

Ticks identify their hosts by smell and then cling to humans or animals and crawl upwards to find a place to attach and feed. It usually requires several hours for an attached tick to transmit disease.

Symptoms of the disease can appear days to years after being bitten by an infected tick. The characteristic lesion is a flat, red, ringlike area surrounding the tick bite. This ringlike area expands and the central area may clear, remain red, or become more red and firm.

About one-half of infected individuals will develop anywhere from a few, or up to 100, additional lesions on the rest of the body. These secondary rashes resemble the initial one except that they lack the central firm area associated with the insect bite.

The skin lesions may be painful or painless and can feel itchy or hot to the touch. In the majority of cases they are accompanied by flu-like symptoms, including headache, fatigue, a low-grade fever and aching muscles and joints.

After three to four weeks, approximately 10% of patients develop involvement of the heart or nervous system. Heart involvement usually consists of abnormal heartbeats and, occasionally heart failure, but tends to resolve in three to four weeks.

Neurological involvement can be

quite variable, and while most patients recover fully in six to eight months, a few have persistent weakness, sensory changes, and behavioral and mental abnormalities.

The most characteristic long-term effect of Lyme disease, however, is arthritis, which develops in about 60% of untreated patients.

In contrast to the heart and nervous system involvement, which occurs within a few weeks of infection, arthritis may develop weeks to months to years later. After several months of acute episodes of arthritis, involving one or more joints, a few patients develop chronic arthritis, most commonly in one or both knees.

Early treatment with antibiotics shortens the course of the early infection and almost totally eliminates the long-term problems associated with the disease. Because of this it is important to seek medical attention if any of the acute symptoms, especially a skin rash, develop after exposure to ticks.

The diagnosis can be confirmed by a blood test.

The major method of prevention is to avoid exposure to ticks. Prospects for a vaccine are remote, since the organisms alter their immunologic profile like a number of other organisms.

Since satisfactory biological approaches to tick control are presently unavailable, and since the present environmentalist mania militates against the use of chemical pesticides, which have been proven to reduce the abundance of infected ticks, it's every man for himself.

So if you are going to enjoy unspoiled nature, wear light-colored clothing so you can see ticks on it; wear long-sleeved shirts and long pants tucked into socks; use a suitable commercial insect repellent (before they are banned on some specious pretext), and locate and remove attached ticks promptly.