LYME DISEASE

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged ticks. Incidence of Lyme disease is high in Columbia, Greene and neighboring counties. Typical symptoms include fever, headache, fatigue, and a characteristic "BULL'S EYE" skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system. The diagnosis of Lyme disease is based on symptoms, physical findings (e.g., rash), and the possibility of exposure to infected ticks; laboratory testing is helpful if used correctly and performed with validated methods. Most cases of Lyme disease can be treated successfully with a few weeks of antibiotics. Steps to prevent Lyme disease include using insect repellent, removing ticks promptly, applying pesticides, and reducing tick habitat. The ticks that transmit Lyme disease can occasionally transmit other tick-borne diseases as well. These include Ehrlichiosis, babesiosis, rocky mountain spotted fever (RMSF) and other spotted fevers.

Signs and Symptoms of Lyme Disease

Early localized stage (3-30 days post-tick bite)

- Red, expanding rash called erythema migrans (EM)
- Fatigue, chills, fever, headache, muscle and joint aches, and swollen lymph nodes

Some people may get these general symptoms in addition to an EM rash, but in others, these general symptoms may be the only evidence of infection.

Some people get a small bump or redness at the site of a tick bite that goes away in 1-2 days, like a mosquito bite. This is not a sign that you have Lyme disease. However, ticks can spread other organisms that may cause a different type of rash. Rash is not common in the other common tick borne disease in Columbia and Greene Counties called Anaplasmosis (formerly Human Granulocytic Ehrlichiosis) but may be seen in some patients.

Erythema migrans (EM) or "bull's-eye" rash

- Rash occurs in approximately 70-80% of infected persons[1] and begins at the site of a tick bite after a delay of 3-30 days (average is about 7 days).
- Rash gradually expands over a period of several days, and can reach up to 12 inches (30 cm) across. Parts of the rash may clear as it enlarges, resulting in a “bull's-eye” appearance.
- Rash usually feels warm to the touch but is rarely itchy or painful.
- EM lesions may appear on any area of the body.

Early disseminated stage (days to weeks post-tick bite)

Untreated, the infection may spread from the site of the bite to other parts of the body, producing an array of specific symptoms that may come and go, including:

- Additional EM lesions in other areas of the body
- Facial or Bell's palsy (loss of muscle tone on one or both sides of the face)
- Severe headaches and neck stiffness due to meningitis (inflammation of the spinal cord)
- Pain and swelling in the large joints (such as knees)
- Shooting pains that may interfere with sleep
- Heart palpitations and dizziness due to changes in heartbeat

Many of these symptoms will resolve over a period of weeks to months, even without treatment. However, lack of treatment can result in additional complications, described below.

Bell's (facial) palsy

Loss of muscle tone on one or both sides of the face is called facial or “Bell's” palsy.

Late disseminated stage (months-to-years post-tick bite)

Approximately 60% of patients with untreated infection may begin to have intermittent bouts of arthritis, with severe joint pain and swelling. Large joints are most often affected, particularly the knees[3]. Arthritis caused by Lyme disease manifests differently than other causes of arthritis and must be distinguished from arthralgias (pain, but not swelling, in joints).

Up to 5% of untreated patients may develop chronic neurological complaints months to years after infection. These include shooting pains, numbness or tingling in the hands or feet, and problems with short-term memory.

Arthritis

Pain and swelling in the large joints (such as knees) can occur.

Post-Treatment Lyme Disease Syndrome

Approximately 10 to 20% of patients treated for Lyme disease with a recommended 2-4 week course of antibiotics will have lingering symptoms of fatigue, pain, or joint and muscle aches. In some cases, these can last for more than 6 months. Although often called "chronic Lyme disease," this condition is properly known as "Post-treatment Lyme disease Syndrome" (PTLDS).

The exact cause of PTLDS is not yet known. Most medical experts believe that lingering symptoms are due to residual damage to the tissues and the immune system that occurred during the infection. Similar complications and auto-immune responses are known to occur following other infectious diseases.

In contrast, a few health care providers tell patients that these symptoms reflect persistent infection with *Borrelia burgdorferi*. However, there is no credible scientific evidence that PTLDS is caused by persistent infection. **More importantly, studies have shown that patients treated with prolonged courses of antibiotics do not do better than patients treated with placebo. Studies have shown that continuing antibiotic therapy is not helpful and can be harmful for persons with PTLDS.**

You may be tempted to try treatments that are unproven or non-standard in order to feel better. Unfortunately, many fraudulent products claiming to treat "chronic Lyme disease" are available on the internet or through some providers. These products have not been shown to help and can be toxic and even deadly.

The good news is that patients with PTLDS almost always get better with time; the bad news is that it can take months or even years to feel completely well. If you have been treated for Lyme disease and still feel unwell, see your doctor to discuss how to relieve your suffering. Doctors may want to treat you in ways similar to patients who have fibromyalgia or chronic fatigue syndrome. This does not mean that your doctor is dismissing your pain or saying that you have these conditions instead. It simply means that the doctor is trying to help you cope with your symptoms using the tools available.

ANAPLASMOSIS (Human Granulocytic Ehrlichiosis)

Anaplasmosis is a tick-borne disease caused by the bacterium *Anaplasma phagocytophilum*. It was previously known as human granulocytic ehrlichiosis (HGE) and has more recently been called human granulocytic anaplasmosis (HGA). Anaplasmosis is transmitted to humans by tick bites primarily from the black-legged tick (*Ixodes scapularis*) and the western black-legged tick (*Ixodes pacificus*). Typical symptoms include: fever, headache, chills, and muscle aches. Usually, these symptoms occur within 1-2 weeks of a tick bite. Anaplasmosis is initially diagnosed based on symptoms and clinical presentation, and later confirmed by the use of specialized laboratory tests. The first line treatment for adults and children of all ages is doxycycline. Anaplasmosis and other tick-borne diseases can be prevented by avoiding tick bite.

References:

1. www.cdc.gov/lyme/
2. Correspondence. The Presenting Manifestations of Lyme Disease and the Outcomes of Treatment. N Engl J Med 2003; 348:2472-2474, June 12, 2003.
3. Allen C. Steere, Jenifer Coburn, Lisa Glickstein. The emergence of Lyme disease. J. Clin. Invest. 2004; 113(8):1093.
4. Steere, AC, Schoen, RT, Taylor, E. The clinical evolution of Lyme arthritis. Ann. Intern. Med. 1987. 107:725-731.
5. Auwaerter PG, Aucott J, Dumler JS. Lyme borreliosis (Lyme disease): molecular and cellular pathobiology and prospects for prevention, diagnosis and treatment. Expert Rev Mol Med. 2004 Jan 19;6(2):1-22.
6. Marques, A. Chronic Lyme disease: a review. Infect Dis Clin North Am 2008; 22:341-60.