

## Tick-Borne Diseases

By Susan Camp

Jim and I spent Sunday afternoon clearing up dead limbs and branches from the fallen redbud tree, then scabbled around in the leaf litter to gather the small twigs. When I came into the house, I showered and checked for ticks. Sound familiar? If you are a gardener, you know this routine.

Last Thursday evening, I participated in a Tick Forum, presented by Mathews-Middlesex and Gloucester Master Gardeners. Faculty members and graduate students from Old Dominion University presented the latest information on tick identification, bite prevention, removal, and tick-borne diseases.

Ticks are arachnids; their cousins include spiders, chiggers, and mites—not a family we willingly embrace. Ticks thrive especially well in warm, humid climates. They provide a vital protein source for many mammals, marsupials, birds, even amphibians and reptiles.

According to the Virginia Department of Health (VDH) website, three species of tick in Virginia carry most of the disease-causing microorganisms: the lone star tick, the black-legged or deer tick, and the American dog tick. The brown dog tick also is found in Virginia, but is uncommon and not considered a carrier of disease.

Ticks are external parasites that feed on blood. When a tick bites a human, disease-causing microorganisms can be transmitted into the person's bloodstream.

The lone star tick, so called because of the white spot on the back of the adult female, is prevalent in eastern Virginia. Both the nymph, or immature tick, and the adult carry the bacteria that causes ehrlichiosis. The tick must remain attached for at least 24 hours to transmit the disease. Signs and symptoms of ehrlichiosis, which appear one to two weeks after a bite, include fever, headache, muscle aches, and malaise, or weakness. A blood test is available and the illness is treated with an antibiotic.

The 2 to 3 mm-long adult female and the tiny nymph of the black-legged tick, formerly called the deer tick, carry Lyme disease, another bacterial illness. The black-legged tick must feed for at least 36 hours for disease transmission to occur. Lyme disease symptoms occur between 3 and 30 days after a tick bite. A large, circular, red and white “bull's-eye” rash may appear. Clinical manifestations include flu-like symptoms. If left untreated, joint, heart, or nervous system problems can occur weeks to months after the bite. Lyme disease is diagnosed with a blood test, and antibiotic treatment is used. Black-legged ticks also carry organisms that cause anaplasmosis, a bacterial disease similar to ehrlichiosis.

The American dog tick carries an organism that causes Rocky Mountain spotted fever. Fever, headache, muscle pain, and other flu-like symptoms appear first, often followed by a red rash on the hands and feet. It is diagnosed with a blood test and treated with an antibiotic.

Several other diseases are carried by these three ticks, including southern tick-associated rash illness, or STARI; tularemia, or rabbit fever; Powassan virus illness (POW); and babesiosis, a

protozoan disease that causes malaria-like symptoms. These illnesses generally are not seen in our region.

A new problem that has arisen in recent years from the bite of the lone star tick is “alpha gal” allergy. It is not a disease, but a delayed allergic reaction to a sugar found in red meat. Several hours after eating red meat, the person suffers an allergic reaction that can be life-threatening. Some people can resume eating meat after months or years.

If you find a tick attached to your body, especially if you suspect that it has been attached for several days, place it in a zip lock plastic bag, labeled with your name and the date it was removed, and take it with you to your doctor if you show any signs of illness. The vast majority of people who get bitten by ticks do not become ill.

In addition to the VDH website, the Centers for Disease Control and Prevention (CDC) website offers extensive information on tick-borne diseases.

Next week, I will look at tick bite prevention and tick removal.

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