

# More Trouble from Ticks

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

[Maureen Marshall] Hi, I'm Maureen Marshall and today, I'm talking with CDC's Dr. Chris Paddock, a rickettsiologist and infectious disease pathologist. Our conversation is based on a study about a newly recognized disease in Argentina caused by a tick-transmitted bacterium, *Rickettsia parkeri*. The study appears in the July 2011 issue of CDC's journal, Emerging Infectious Diseases.

[Maureen Marshall] Welcome Dr. Paddock.

[Chris Paddock] Thank you for having me.

[Maureen Marshall] Dr. Paddock, how many different infections can people get from ticks?

[Chris Paddock] There are more than 30 different infections that people get from ticks and this list continues to grow. These include diseases caused by viruses, bacteria, and parasites. Some of these infections, such as Lyme disease in the United States, and tickborne encephalitis in Europe, are relatively common and widely recognized. Others, such as Rocky Mountain spotted fever in North and South America, are less common, but potentially life-threatening, and are therefore very important from a public health standpoint.

[Maureen Marshall] Please tell us something about the history of *Rickettsia parkeri*.

[Chris Paddock] *Rickettsia parkeri* is a bacterium that is closely related to the bacterium that causes Rocky Mountain spotted fever. These two organisms, along with many others, are known as "spotted fever group Rickettsiae." Collectively, these cause about half of all the described tick-transmitted diseases in the world. *Rickettsia parkeri* was first identified by scientists more than 70 years ago, but it was not until 2004 that it was shown to cause a distinct infection in humans. In the United States, more than 30 cases of disease caused by *Rickettsia parkeri* have been identified during the past decade but there are probably many more cases that we have not heard about. Interestingly, at CDC we've been made aware of a few cases only because the patient has contacted us directly through the Internet to describe their illness. These cases have been found primarily in people living in states that border the Gulf Coast and across the Atlantic seaboard. The reason for this is that the tick that carries and transmits this bacterium is distributed in this same region. It is called *Amblyomma maculatum* and is also known as the Gulf Coast tick. The disease caused by *Rickettsia parkeri* shares some features with Rocky Mountain spotted fever, although there are several important differences.

[Maureen Marshall] What are the differences between Rocky Mountain spotted fever and the disease caused by *Rickettsia parkeri*?

[Chris Paddock] Both infections cause fever, headache, malaise, and a generalized rash. However, Rocky Mountain spotted fever is a far more severe disease, and if patients are not

treated with an appropriate antibiotic, the disease can affect the heart, lungs, kidneys, and brain and lead to death. *Rickettsia parkeri*, on the other hand, is a milder disease. Only a few patients have been hospitalized and there have been no known deaths. Furthermore, *Rickettsia parkeri* causes a skin lesion known as an eschar, which is a dark scab that forms at the site where the tick injects the bacteria into the patient's skin. This type of lesion is seen only rarely in patients with Rocky Mountain spotted fever. The appropriate antibiotic for both of these diseases, and for all tick-transmitted spotted fever group rickettsiae, is doxycycline.

[Maureen Marshall] Your article discusses new *Rickettsia parkeri* cases in Argentina. Do we know how it was spread to there?

[Chris Paddock] In all likelihood *Rickettsia parkeri* has been in Argentina, and in several other countries of South America including Uruguay and Brazil, for as long, or possibly longer, than it has existed in the United States. In these South American countries, it is transmitted by a different species of tick that is closely related to the Gulf Coast tick. The relationships between ticks and spotted fever group rickettsiae are probably very ancient, so it's impossible to say at this point to say where *Rickettsia parkeri* first appeared. However, for almost 100 years, all tick-transmitted rickettsial diseases in North and South America were thought to be Rocky Mountain spotted fever. We now know that in this hemisphere, as in all other parts of the world, several different types of tick-transmitted rickettsiae can cause several different diseases in the same area. The main drivers for identifying this occurrence are smart doctors who see these differences and interested scientists who endeavor to specifically identify the cause of each unique disease. In that context, this disease has only 'spread' to Argentina because doctors there had patients with eschars and arranged for appropriate testing that ultimately identified *Rickettsia parkeri* as the cause.

[Maureen Marshall] Dr. Paddock, how can people protect themselves from ticks?

[Chris Paddock] If you plan to spend time outdoors in the spring and summer months, when the feeding stages of the ticks that carry these infections are most active, you can't entirely remove the risk of being attacked by ticks. However, there are several steps that you can take to reduce this risk. First, use of insect repellent, applied especially to the lower parts of your body where most ticks will initially attach. Also, wear light colored clothing, and long pants, whenever possible. Doing this improves your chances of seeing crawling ticks before they attach to your skin. Most importantly, perform a thorough inspection of yourself, and especially young children, immediately following activities that are likely to place you in contact with ticks, such as hiking, camping, fishing, or working in brushy or forested areas. If you find an attached tick, remove it immediately by grasping the body firmly with tweezers, as close to the skin as possible, and gently pulling the tick out of the skin. This is the best method to remove the entire tick without damaging the tick or the surrounding skin. Never place a lighted match, or kerosene, or other noxious substance on the tick to attempt its removal. Keep the tick in your freezer, and check the bite site for a dark scab that may indicate an eschar during the next two weeks. If this occurs, or if you develop a fever or rash, seek medical attention and be certain to remind your doctor that you were recently bitten by a tick.

[Maureen Marshall] Thanks, Dr. Paddock. I've been talking with Dr. Chris Paddock about a paper that appears in the July 2011 issue of CDC's journal, Emerging Infectious Diseases. You can see the entire article online at [www.cdc.gov/eid](http://www.cdc.gov/eid).

If you'd like to comment on this podcast, send an email to [eideditor@cdc.gov](mailto:eideditor@cdc.gov). That's e-i-d-editor - one word - at c-d-c-dot-gov. I'm Maureen Marshall, for Emerging Infectious Diseases.

*[Announcer] For the most accurate health information, visit [www.cdc.gov](http://www.cdc.gov) or call 1-800-CDC-INFO, 24/7.*