Notes from the Field

Rickettsia parkeri Rickettsiosis — Georgia, 2012–2014

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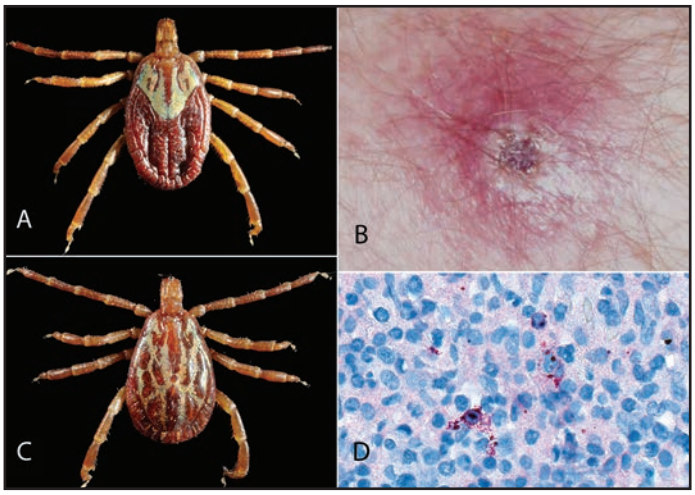
During 2012–2014, five cases of *Rickettsia parkeri* rickettsiosis were identified by a single urgent care practice in Georgia, located approximately 40 miles southwest of Atlanta. Symptom onset occurred during June–October, and all patients had a known tick bite. Patients ranged in age from 27 to 72 years (median = 53 years), and all were male. The most commonly reported initial signs were erythema (n = 3) and swelling (n = 2) at the site of the bite. Two patients reported fever and a third patient reported a rash and lymphadenopathy without fever. Other symptoms included myalgia (n = 3), chills (n = 3), fatigue (n = 2), arthralgia (n = 2), and headache (n = 2). Eschar biopsy specimens were collected from each patient using a 4-mm or 5-mm punch and placed in 10% neutral buffered formalin or sterile saline. These specimens were tested by immunohistochemical (IHC) stains, quantitative polymerase chain reaction (qPCR) assays, or cell culture isolation to determine if there was evidence of infection with a *Rickettsia* species (*1*). IHC evidence of spotted fever group rickettsiae was found in the eschar biopsy specimens in all five cases. In four cases, the biopsy specimens were also positive for *R. parkeri* by qPCR. The fifth case (specimen positive only by IHC testing) was considered a probable *R. parkeri* case based on clinical signs and symptoms. *R. parkeri* was grown in cell culture from one specimen from which isolation was attempted. All patients were treated with oral doxycycline (100 mg twice daily) for a minimum of 10 days, and all recovered.

R. parkeri, recently recognized as a pathogen of humans, is transmitted by *Amblyomma maculatum* (Gulf Coast) ticks (Figure). The disease in humans is most commonly characterized by a necrotic, ulcerated, or scabbed lesion at the tick bite site, known as an inoculation eschar (Figure), which is generally followed by the patient experiencing some combination of fever, headache, malaise, and a sparse maculopapular or vesiculopustular rash (*1*). The first confirmed human infection with *R. parkeri* was described in 2004; through June 2016, a total of 39 cases, predominantly from the southeastern United States, have been documented in the scientific literature or confirmed by laboratory assays at CDC (*2*,*3*). The incidence of *R. parkeri* rickettsiosis in the United States is unknown. Serological assays currently used to diagnose spotted fever group rickettsial infections lack species-specificity, and there is considerable cross-reactivity among pathogens. It is likely that some, or possibly many, of the approximately 13,500 noncharacterized cases of spotted fever group rickettsioses reported in the United States during 2008–2012 were caused by *R. parkeri* (*4*).

FIGURE. Female (A) and male (C) Gulf Coast ticks (*Amblyomma maculatum*); (B) necrotic, ulcerated or scabbed lesion at the tick bite site, known as an inoculation eschar; and (D) immunohistochemical stain indicating the presence of a spotted fever group *Rickettsia* species in the tissue



The identification of five cases of *R. parkeri* rickettsiosis from one medical practice during a 3-year interval suggests that this disease is underrecognized in Georgia. During 2012–2014, a total of 335 cases of spotted fever group rickettsiosis were reported in Georgia, including 38 from the health district where the urgent care practice is located.* Four cases of *R. parkeri* rickettsiosis recently were diagnosed by one clinician in southern Mississippi (*5*), indicating that the disease might be more common throughout the range of *A. maculatum* than currently realized.

The recognized range of *A. maculatum* has increased considerably during the past 70 years and now includes most states in the southeastern United States (*1*). Clinicians should suspect *R. parkeri* rickettsiosis in patients who have febrile illnesses after being bitten by a tick, particularly in patients with an eschar at the bite site. Eschar biopsy samples are the most versatile diagnostic specimen and can be tested by IHC stains,

* Data from the State Electronic Notifiable Disease Surveillance System, Georgia Department of Public Health Epidemiology Section (https://dph.georgia.gov/epidemiology).

qPCR assays, or cell culture isolation techniques; alternatively, a sterile swab of the eschar can be tested using qPCR and is less invasive than a biopsy (*6*). These tests are not widely available but can be performed at CDC and some academic hospitals (*3*). Because different spotted fever rickettsioses vary greatly in severity, species-specific diagnoses provide more accurate determinations of hospitalization and case-fatality rates associated with each disease. Doxycycline is the recommended treatment for all patients with a tickborne rickettsial infection, including *R. parkeri* rickettsiosis (*3*). Infection with *R. parkeri* rickettsiosis and other tickborne rickettsial diseases can be minimized by avoiding contact with ticks and by promptly removing attached or crawling ticks after exposures to tick-infested habitats. Persons should use Environmental Protection Agency–approved repellent products and check themselves, their children, and their pets after spending time in tick-infested habitats (*3*).

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