Acute Lyme Disease in an American Tourist Returning from Germany

SIR—Lyme disease, caused by infection with the tick-transmitted spirochete *Borrelia burgdorferi*, is the most commonly reported arthropod-borne disease in the United States, with ~9,000 cases reported annually [1]. Lyme disease also occurs in Europe, the Commonwealth of Independent States (the former Soviet Union), northern China, and Japan [2]. We report a case of acute Lyme disease in a Wisconsin resident who acquired the infection while visiting Germany.

A 43-year-old woman from Milwaukee discovered a tick attached to her right upper arm on 29 June 1990 while visiting relatives in Bergkirchen, Germany, northeast of Munich. The tick was removed and discarded without identification. Her relatives' home was at the edge of the village, in a heavily wooded area. She had been hiking in the surrounding mountains 2 days before the tick was noticed. On 12 July a circular lesion of 2–3 cm in diameter appeared at the bite site, and the woman experienced nausea and malaise. She returned to Milwaukee without medical evaluation. On 28 July the patient noted extreme fatigue, headache, neck pain, and anorexia. She was examined by her personal physician on 31 July. No definitive clinical diagnosis was made, and no treatment was prescribed. A serum sample was reportedly negative for antibodies to *B. burgdorferi*. The rash then expanded and became more erythematous.

On 14 August a dermatologic consultant noted an elliptical 10 × 8–cm erythematous plaque on the right deltoid region. A reddened margin and irregular areas of partial central clearing were present. Lymph nodes were palpable in the right anterior cervical and axillary regions. The patient's temperature was 99.9°F. A clinical diagnosis of early Lyme disease with erythema migrans was made. No rheumatologic, neurological, or cardiac signs of Lyme disease were present. A 4-mm punch biopsy specimen was obtained from the leading edge of the skin lesion, placed in 7 mL of Barbour-Stoenner-Kelly (BSK) medium [2a], and shipped overnight to the Centers for Disease Control and Prevention (Diagnostic and Reference Laboratory, Bacterial Zoonoses Branch, Fort Collins, Colorado).

Treatment was begun with amoxicillin and probenecid (500 mg of each, administered three times a day by mouth). The patient experienced chills the first evening after beginning therapy with amoxicillin, but there was no other evidence of a Jarisch-Herxheimer reaction. The skin rash resolved within 6 days of the initiation of treatment, but constitutional symptoms resolved more slowly. Eight days after treatment was begun, a maculopapular rash developed, which was suspected to be the result of an allergic reaction to amoxicillin. Treatment was then changed to a regimen of doxycycline (100 mg twice a day by mouth). Doxycycline therapy was continued for a total of 7 weeks, after which the patient was asymptomatic and the rash and adenopathy had disappeared. She has remained asymptomatic.

The culture of the skin biopsy sample obtained on 14 August was positive for *B. burgdorferi*. Results of an enzyme immunoassay for antibodies to *B. burgdorferi* in serum drawn on 17 September 1990 were equivocal; a whole-cell sonicate of an American reference strain (B31; provided by Dr. Alan G. Barbour, University of Texas, San Antonio) was used. A repeated assay on 5 December 1990 was unequivocally negative, and the patient was still seronegative when the test was performed once again in March 1991; these results suggest that antibiotic treatment aborted an antibody response to infection [3].

It is important that physicians consider the diagnosis of Lyme disease in patients who have traveled to Europe or northern Asian countries, including Japan, particularly those who traveled during spring or summer and who participated in activities that may have exposed them to ticks. It is also important to consider that patients who develop erythema migrans usually do not have a tick attached at the time the rash develops and may not have observed the tick that transmitted the infection or its bite [3]. Such patients frequently do not have detectable antibodies against *B. burgdorferi* [3]. As the present case and other studies have shown, culture of a punch biopsy specimen [4–6] or of aspirate [7] from an erythema migrans lesion can be useful to confirm a clinical suspicion of Lyme disease.

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