

Asymptomatic Erythematous Plaque in an Outdoorsman

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A middle-aged man presented with a well-demarcated, hyperpigmented, erythematous patch with an annular erythematous border that extended from the mid-back to the lower back. The patient was otherwise asymptomatic. He was an avid gardener who resided in South Carolina and had recently adopted 2 puppies.

WHAT'S YOUR DIAGNOSIS?

- allergic contact dermatitis
- cellulitis
- dermatophyte infection
- erythema migrans
- photosensitive drug eruption

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The authors report no conflict of interest.

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Cutis. 2024 April;113(4):183-184. doi:10.12788/cutis.0988

THE DIAGNOSIS: Erythema Migrans

The patient was clinically diagnosed with erythema migrans. He did not recall a tick bite but spent a lot of time outdoors. He was treated with 10 days of doxycycline 100 mg twice daily with complete resolution of the rash.

Lyme disease is a spirochete infection caused by the *Borrelia burgdorferi* sensu lato species complex and transmitted by the Ixodidae tick family. It is the most common tick-borne disease in the United States and mostly is reported in the northeastern and upper midwestern states during the warmer seasons, but it is prevalent worldwide. In geographic areas where Lyme disease is common, the incidence is approximately 40 cases per 100,000 individuals.¹ Our patient resided in coastal South Carolina. Lyme disease is more commonly reported in White individuals. The skin lesions may be more difficult to discern and diagnose in patients with darker skin types, leading to delayed diagnosis and treatment.^{2,3}

Patients may be diagnosed with early localized, early disseminated, or late Lyme disease. Erythema migrans is the early localized form of the disease and is classically described as an erythematous targetlike plaque with raised borders arising at the site of the tick bite 1 to 2 weeks later.⁴ However, many patients simply have a homogeneous erythematous plaque with raised advancing borders ranging in size from 5 to 68 cm.⁵ In a 2022 study of 69 patients with suspected Lyme disease, only 35 (50.7%) were determined to truly have acute Lyme disease.⁶ Of them, only 2 (5.7%) had the classic ring-within-a-ring pattern. Most plaques were uniform, pink, oval-shaped lesions with well-demarcated borders.⁶

The rash may present with a burning sensation, or patients may experience no symptoms at all, which can lead to delayed diagnosis and progression to late disease. Patients may develop malaise, fever, headache, body aches, or joint pain. Early disseminated disease manifests similarly. Patients with disseminated disease also may develop more serious complications, including lymphadenopathy; cranial nerve palsies; ocular involvement; meningitis; or cardiac abnormalities such as myocarditis, pericarditis, or arrhythmia. Late disease most often causes arthritis of the large joints, though it also can have cardiac or neurologic manifestations. Some patients with chronic disease—the majority of whom were diagnosed in Europe—may develop acrodermatitis chronica atrophicans with edematous blue-red plaques that become atrophic and hyperpigmented fibrotic plaques over the course of years.

Allergic contact dermatitis to a plant more likely would cause itchy or painful, oozy, weepy, vesicular lesions arranged in a linear pattern. A dermatophyte infection likely would cause a scaly eruption. Although

our patient presented with a sharply demarcated, raised, erythematous lesion, the distribution did not follow normal clothing lines and would be unusual for a photosensitive drug eruption. Cellulitis likely would be associated with tenderness or warmth to the touch. Finally, southern tick-associated rash illness, which is associated with *Amblyomma americanum* (lone star tick) bites, may appear with a similar rash but few systemic symptoms. It also can be treated with tetracycline antibiotics.⁷

Our case in South Carolina demonstrates the importance of keeping Lyme disease in the differential. Clinicians should remember to ask patients about their travel history. In endemic areas, patients with erythema migrans can be started on treatment without waiting for serology. Patients with early Lyme disease may or may not have positive serologies at the time of presentation.⁶ Guidelines for the treatment of Lyme disease have been revised in recent years to decrease patient antibiotic exposure by reducing the number of days of antibiotic therapy.⁸ A recent randomized controlled trial found no significant difference in recurrence for patients treated with 7 days of doxycycline compared with 14 days.⁹ We typically prescribe a 10-day course of doxycycline, which also is adequate for concurrent rickettsial disease. Patients who develop malarialike symptoms should be evaluated for babesiosis, which is treated with clindamycin.

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