

SKINimages

Vesiculobullous Erythema Migrans with Central Necrosis

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A 35-year-old male with no prior medical history presented with a three-day history of an expanding annular rash on his upper back. He reported that the rash had become increasingly painful, as well as new onset of systemic symptoms including fevers, chills, fatigue, and arthralgias. He lived in a wooded area but denied any known tick exposure. Physical exam revealed a large, erythematous targetoid patch with central necrotic bullae on his mid-upper back. The

patient's presentation was consistent with bullous Lyme disease and he was started on a four-week course of doxycycline. Several hours following his initial dose of doxycycline, he noted worsening of fevers and chills, rigors, and myalgias consistent with Jarisch Herxheimer reaction. At four-day follow-up he described near resolution of systemic symptoms, with sloughing and increased necrosis of his rash.

Lyme disease is most commonly reported in the summer months and is caused by the spirochete *Borrelia burgdorferi*. It is primarily transmitted through the *Ixodes* tick and is the most prevalent tick-borne disease in North America, Europe, and parts of eastern Asia. Lyme disease typically presents with erythema migrans at the site of inoculation and a flu-like illness. The most common appearance of erythema migrans is annular, expanding erythema, however the clinical presentation may vary. Ulceration, central hemorrhage, or necrosis may be exhibited, the rash may not have stereotypical central clearing, and a vesiculobullous component may be found in up to 8% of cases.^{1,2} Findings of vesicles or bullae may represent a strong immune response to the tick bite itself. When presenting atypically, the differential diagnosis may expand to include varicella zoster, herpes simplex, arthropod bite, Sweet syndrome, and necrotizing fasciitis.

Diagnosis of Lyme disease is primarily clinical, as histopathologic findings are non-specific and serologic tests, culture, and polymerase chain reaction have poor sensitivities, especially in the acute phase of the disease. Patient history may not be helpful towards this end, as many patients do not recall tick exposure and ticks may attach to bodily regions that are not visible to the patient. Thus, clinical recognition of erythema migrans is essential to prevent delayed diagnosis and potentially severe cardiac, neurologic, and rheumatologic sequelae. Notably, a Jarisch-Herxheimer reaction may occur early in the treatment course and may cause an increase in systemic symptoms and worsening of cutaneous disease.^{3,4}

This case highlights a seldom-seen form of cutaneous Lyme disease. Familiarity with the numerous morphologic variants of erythema migrans is vital to accurate identification and

timely initiation of treatment. Lyme disease itself is common and clinicians should maintain a high index of suspicion in patients with the appropriate clinical context. Additionally, dermatologists should have a low threshold for starting empiric treatment in patients with suspected Lyme disease in order to avoid long-term complications.

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