

# Disseminated Lyme Disease: Atypical Rash Without Initial Erythema Migrans

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## Background

- The words “lyme disease” often invokes images of outdoor hiking and gardening. It is caused by the spirochete (*Borrelia burgdorferi*), and is transmitted by the deer tick, *Ixodes scapularis*, which is endemic to the Northeast US. Many people often do not remember a tick bite, and presentations may be atypical.
- The typical erythema migrans skin lesion is associated with early localized disease, however, multiple lesions are considered a finding of disseminated disease (Godar, Sanchez, Tibbles).
- In this case, we discuss a rather unusual neurologic and dermatologic presentation of disseminated Lyme disease that was initially missed due to such an atypical presentation.

## Case

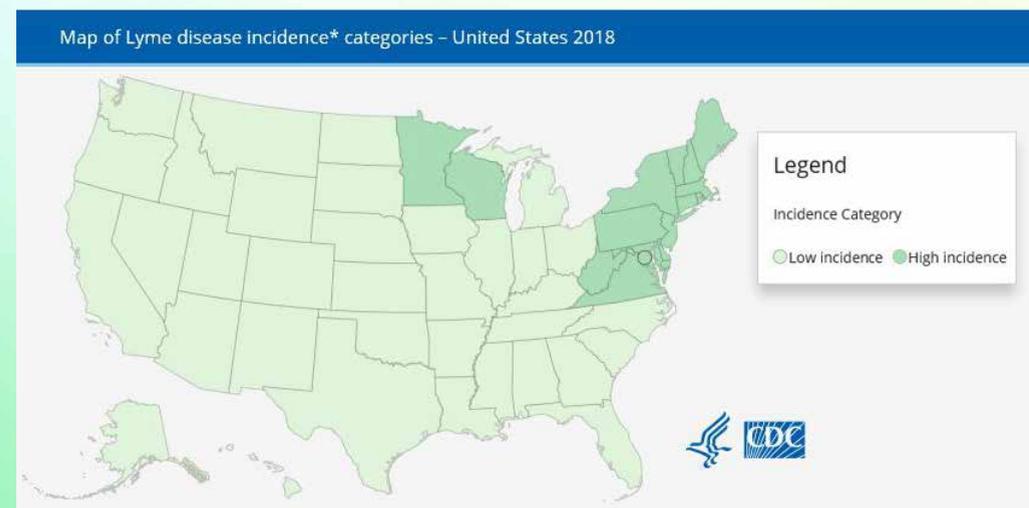
- A 58-year-old male with a history of diverticulitis, bowel perforation with ostomy and reversal, and perianal fistulotomy presented with lower abdominal pain and numbness.
- One week before admission, he consumed unpasteurized milk with subsequent abdominal pain and paresthesia, raising suspicion Guillain Barre syndrome.
- However, his physical exam was significant only for decreased sensation in the lower abdomen and bilateral upper thighs, associated with a well demarcated blanchable circumferential rash extending from his left lower leg to the lateral abdomen

and flank region, with normal reflexes and strength of the lower extremities.

- Labs were significant for WBC 12.1, a stool panel was negative, and CT scans revealed no evidence of colitis. MRI of the spine showed enhancement of the cauda equina dorsally concerning for infectious process versus inflammatory process versus Guillain Barre syndrome
- Upon further evaluation, the patient revealed that he was a frequent hiker and increased his outdoor activity recently due to the COVID-19 pandemic. He also noted he recently completed a course of cephalexin for presumed cellulitis of his left lower extremity shortly after his hiking activity. He denied any history of tick bites or target-like lesions but had noted several red, raised lesions several centimeters in diameter on his arms and back that resolved toward the end of his cephalexin course.
- Lumbar puncture done during admission revealed elevated WBC with normal glucose and elevated protein likely due to Lyme disease. Serology with both ELISA and western blot confirmed the diagnosis and the patient was started on IV ceftriaxone inpatient, with gradual but dramatic improvement of his rash. Upon discharge, he had improved paresthesia and was given a 28-day course of doxycycline and advised to follow up with neurology.

## Discussion

- This case demonstrates the challenges of diagnosing Lyme in patients with unusual neurologic and dermatologic symptoms suggestive of alternative etiologies.
- In endemic regions such as the Eastern coast of the US, patients with clinical symptoms and imaging inconsistent with common medical diagnoses should be considered for Lyme disease.
- With the increase of outdoor activities due to COVID-19, providers may consider empirically treating for Lyme disease in patients even if erythema migrans is not seen.



Enhancement of the dorsal nerve roots of the cauda equina

## WORK CITED

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