

## **Don't be misled: patients can have both mono and Lyme disease**

**Monday, October 29, 2018**

<http://danielcameronmd.com/dont-be-mislead-patients-can-have-both-mono-and-lyme-disease/>

by Daniel J. Cameron, MD, MPH

These conditions are typically thought to occur separately with several published reports describing each illness as mimicking the other. But a [new article by Koester and colleagues](#) details the first cases of acute Lyme and EBV infections reportedly occurring concurrently.

“We describe the clinical presentation of two children with confirmed early Lyme disease and features suggestive of infectious mononucleosis, including one case of probable Lyme and EBV co-infection,” writes Koester from the Denver Health Medical Center at the University of Colorado School of Medicine in the journal *Clinical Medical & Research*. [1]

### **Case 1: Five-year-old boy**

A 5-year-old boy who lived in a Lyme endemic region complained of abdominal pain, intermittent fevers, neck pain, fatigue, and sore throat. He had no known tick bite or rash. He was tested for both mononucleosis and Lyme disease.

After the heterophile antibody test results came back positive, the boy's diagnosis of Lyme disease was dismissed. The positive IgM immunoblot (bands 23, 39, 41 kDa) was thought to be secondary to cross-reactive antibodies.

However, 2 days later the patient returned with “multiple erythema migrans indicative of early disseminated Lyme disease,” explains Koester and colleagues.

He was prescribed 14 days of amoxicillin. Within 4 days of starting treatment, his symptoms had resolved almost completely.

**It is tempting to dismiss serologic tests for Lyme disease if mono is suspected.** As Koester points out, “Significant cross-reactivity is known to occur between Lyme and EBV serologic assays complicating the diagnosis.”

“Our patient was fortunate in that he did not develop severe sequelae,” explains Koester. “In two prior reports severe disease including carditis and brachial plexopathy developed after the misdiagnosis and delay in antibiotic initiation.”

### **Case 2: Eight-year-old boy**

An 8-year-old boy living in a Lyme endemic region developed fevers, headache, sore throat, abdominal pain, fatigue, myalgia, and joint pain. There was no history of a rash or tick bite. Tests for Group A

Streptococcus pharyngitis and heterophile antibodies (suggestive of mononucleosis) were negative.

Mono and Lyme disease share many characteristics, making a diagnosis to distinguish between the two particularly challenging.

The boy was diagnosed and treated for Lyme disease after testing positive on the enzyme immunoassay (EIA) screening and IgM Western blot. He was prescribed amoxicillin but one week later complained of ongoing fevers and worsening abdominal and joint pain.

“The presence of sore throat, severe cervical lymphadenopathy, ultrasound confirmed splenomegaly, and atypical lymphocytes in Case 2 is highly suggestive of active EBV infection,” writes Koester.

The boy was diagnosed with mono (VCA IgM and EA-D IgG antibodies) and repeat Lyme serology showed evidence for sero-conversion (bands 28, 39, 41, 58, 66, 93 kDa).

After 21 days of amoxicillin the boy made a complete recovery.

This is not the first time patients have been identified with a serologic evidence of both mono and Lyme disease. “In a retrospective review of laboratory data at Marshfield Clinic Health System from 1999-2017, we identified 52 patients with positive Lyme IgM, along with positive heterophile antibody test or EBV VCA IgM within a 2 week window,” writes Koester.

**[These findings raise new questions for patients with mono and Lyme disease and highlight the importance of not ruling out one illness over the other.](#)**

Some studies have shown that a false positive Lyme IgM test can occur when an EBV infection is present, Koester points out. In turn, these results may be dismissed causing a delay in diagnosis and treatment for Lyme disease.

Heterophile antibody and EBV testing, Koester writes, should not be used to exclude the diagnosis of Lyme disease.

“It is possible that EBV or Lyme infection renders the host more susceptible to co-infection, particularly in the setting of treatment with corticosteroids for EBV,” writes Koester. “However, this has not been studied.”

**Related Articles:**

[When Lyme disease causes a positive test for mononucleosis](#)

[Is your fibromyalgia patient a candidate for Lyme disease treatment?](#)

**References:**

1. Koester TM, Meece JK, Fritsche TR, Frost HM. Infectious Mononucleosis and Lyme Disease as Confounding Diagnoses: A Report of 2 Cases. Clin Med Res. 2018.

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