

Can Lyme disease trigger an autoimmune disease?

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<https://danielcameronmd.com/can-lyme-disease-trigger-an-autoimmune-disease/>

Adult-onset Still's disease (AOSD) is often thought to be an autoimmune disease, but is, in fact, a systemic auto-inflammatory condition, believed to be caused by an over-reactive immune response to an infection, such as Lyme disease. As Cimmino points out, both diseases share several clinical characteristics.¹

Still's disease can cause "a triad of high fever, salmon-colored nodular rash and arthritis and/or arthralgia," explains [Ocon in the British Medical Journal](#).² Lyme disease can also present with fevers, atypical rashes and arthritis and/or arthralgias.

Both conditions were first identified in children. Still's disease was initially considered a severe version of juvenile idiopathic arthritis (JIA), while Lyme disease symptoms were originally attributed to juvenile rheumatoid arthritis (JRA).

Lyme disease and autoimmune diseases

A growing number of studies indicate that Lyme disease may trigger an autoimmune response in some individuals or symptoms may mimic an autoimmune disease.

Cross et al. describe the case of a [Lyme disease patient with persistent neuropsychiatric symptoms](#) who developed an autoimmune disorder, known as [Pediatric Acute-Onset Neuropsychiatric Syndrome \(PANS\)](#).³ The patient recovered following treatment with intravenous immunoglobulin (IVIG).

Investigators report the case of an elderly woman whose [Lyme disease symptoms mimicked dermatomyositis](#) (DM), a serious autoimmune disease which typically requires immunosuppressive therapy. The patient was eventually diagnosed with Lyme disease and recovered completely with antibiotic treatment.

The authors suggest, "[Lyme disease] could be a great mimicker of other [autoimmune diseases](#) like DM."

Case Presentation: Still's disease

A 61-year-old man presented with a "complaint of intermittent spiking fevers, night sweats, generalised malaise, as well as a history of erythematous circular rashes on his right upper extremity," writes Ocon.²

He was diagnosed clinically with Lyme disease and received two 10-day courses of doxycycline, but continued to suffer from fevers, chest pressure, a dry cough, along with malaise and arthralgia.

The man was subsequently diagnosed with Still's disease, as he met the criteria with a fever greater than 102.2°F for at least 1 week; a characteristic rash; a white cell count of at least 10,000; lymphadenopathy,

and elevated liver transaminases.

He was treated successfully with intravenous steroids and anakinra (a humanised interleukin-1 receptor antagonist), which is used to modulate the immune system.

Author's Takeaway:

"For the first time, we describe a case of AOSD precipitated by Lyme disease."

"Lyme disease is a rare trigger of adult-onset Still's disease, likely mediated via immune system inflammatory activation."

"AOSD presented with a rare manifestation of haemorrhagic pericarditis and tamponade."

"We believe that the immunological response to Lyme disease may have triggered AOSD via a hyper-activated immune system."

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References:

1. Cimmino MA, Trevisan G. Lyme arthritis presenting as adult-onset Still's disease. *Clin Exp Rheumatol.* 1989;7(3):305-308.
2. Ocon AJ, Kwiatkowski AV, Peredo-Wende R, Blinkhorn R. Adult-onset Still's disease with haemorrhagic pericarditis and tamponade preceded by acute Lyme disease. *BMJ Case Rep.* 2018;2018:bcr2018225517. Published 2018 Aug 16. doi:10.1136/bcr-2018-225517
3. Cross A, Bouboulis D, Shimasaki C, Jones CR. Case Report: PANDAS and Persistent Lyme Disease With Neuropsychiatric Symptoms: Treatment, Resolution, and Recovery. *Front Psychiatry.* 2021 Feb 2;12:505941. doi: 10.3389/fpsy.2021.505941. PMID: 33603684; PMCID: PMC7884317.

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