

Lyme disease infection triggers heart block in young man

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If left untreated, Lyme disease can progress causing heart block and other cardiac problems, such as cardiomyopathy and myocarditis “due to spirochete infiltration of cardiac and pericardial structures,” according to the authors of a newly published case report.¹

“Clinical suspicion of early disseminated Lyme carditis is essential in patients presenting with new-onset high-degree AV [heart] block,” writes Kerndt et al. in their article “[Early Disseminated Lyme Carditis Inducing High-Degree Atrioventricular Block.](#)”

20-year-old camp counselor develops heart block

The authors’ case report describes a 20-year-old camp counselor in Wisconsin, who developed a circular rash on his arm, extreme fatigue, and a fever of 101°F.

When admitted to the hospital, the man complained of malaise and lightheadedness. He also developed “intermittent symptomatic bradycardia with an average heart rate of 40 bpm, one episode of severe bradycardia with a nadir of 15 bpm over a period of five seconds,” the authors write.

His exam revealed multiple rashes on his arms, legs and back. The lesions had raised borders and a central clearing consistent with an erythema migrans or Bull’s-eye rash indicating a Lyme disease infection.

An electrocardiogram (ECG) demonstrated sinus bradycardia with first-degree AV [heart] block. “Transthoracic echocardiogram demonstrated a normal ejection fraction of 73% with no regional wall motion abnormalities,” writes Kerndt.

Doctors suspected Lyme disease had induced the heart block and prescribed a 28-day course of intravenous (IV) ceftriaxone.

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Western blot test results came back positive for Lyme disease with reactivity of IgM to Band 23, 39 and 41. IgG was reactive to Band 18, 23, 39, 41 and 93.

“Given the ECG findings and serology, the patient was diagnosed with early disseminated Lyme carditis,” the authors write.

Early diagnosis prevents long-term complications

Within days of initiating treatment, the heart block, caused by Lyme disease, progressively improved

from high-grade AV block to second-degree AV block.

On follow-up, the patient reported a complete resolution of symptoms, and ECG results now “showed a normal rate and sinus rhythm with complete resolution of the previous AV block,” the authors write.

“While patients with early disseminated Lyme carditis carry a good prognosis, delayed management can result in long-term complications and poor cardiac outcomes.”

Therefore, it’s imperative that clinicians identify patients early on to avoid potentially devastating sequelae, such as neurologic impairments, chronic arthritis, and infection-induced heart block, Kerndt explains.

Scoring system helps identify Lyme-induced heart block

If Lyme carditis is not diagnosed and treated in its early stage, it can result in the patient needing a permanent pacemaker implanted.

In 2018, an evidence-based scoring system was developed to help identify Lyme carditis patients. The system entitled Suspicious Index in Lyme Carditis (SILC) includes parameters such as sex, age, outdoor activity, endemic exposure, known tick bites, or an erythema migrans rash and symptomology.

“The cumulative score categorizes patients based on level of suspicion for Lyme disease as the etiologic cause of AV block,” writes Kerndt.

The 20-year-old man had a score of "9" which placed him within the "high suspicion category" of early disseminated Lyme carditis.

The authors suggest, “SILC scoring can be a useful tool in the evaluation and treatment of suspected Lyme-induced heart block.”

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References:

1. Kerndt C. Early Disseminated Lyme Carditis Inducing High-Degree Atrioventricular Block. Case Reports in Cardiology, Volume 2020, Article ID 5309285, <https://doi.org/10.1155/2020/5309285>.

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