Lyme disease and the heart, when AV block progresses rapidly

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https://danielcameronmd.com/lyme-disease-heart-block-can-progress-rapidly/

Lyme disease can trigger various heart problems, including Lyme carditis, which typically occurs early on in the disease. “Lyme carditis is an important reversible cause of heart block, especially in endemic areas,” wrote Aljadba et al. in their article, “Lyme carditis manifesting as Wenckebach heart block.”¹ “Prompt recognition of this potentially lethal condition, with appropriate initiation of antibiotics, can improve clinical outcomes and avoid unnecessary pacemaker implantation.”

72-year-old man: heart block worsens overnight

A 72-year-old man presented to the emergency department with left-sided chest tightness, lightheadedness, presyncope and a mild shortness of breath. While hospitalized, the man’s condition quickly escalated. Overnight, he developed symptomatic bradycardia with his heart rate dropping to 30 - 40 beats per minute.

His initial EKG was normal but a repeat test showed “sinus bradycardia with Mobitz type 1 (Wenckebach) heart block and progressive prolonged PR interval,” the authors wrote.

A Western blot test was positive for Lyme disease with 10 out of 10 bands reactive.

The man was treated successfully with IV ceftriaxone.

“At Lyme carditis typically resolves with antibiotic treatment alone and cardiac intervention is often not needed.”¹

After 7 days of treatment with IV antibiotics, the patient’s heart block and bradycardia resolved completely without the need for a temporary pacemaker.

An atrioventricular (AV) block can present with varying degrees of severity. Although an AV block is typically mild, it can progress rapidly, as demonstrated in this case.

“[Lyme carditis] should be on the differential [diagnosis] and appropriate workup done when a patient presents with a heart block, especially in an endemic area.”¹

Lyme carditis may be the initial presenting symptom and typically occurs 1-2 months after the infection. Although rare, it can also manifest as endocarditis, myocarditis, pericarditis, dilated cardiomyopathy, and heart failure.

33-year-old woman: third-degree heart block within hours

The study, “Lyme Carditis: An Interesting Trip to Third-Degree Heart Block and Back” by Afari and
colleagues² demonstrates the importance of reviewing a patient’s travel history during their medical workup and providing prompt treatment.

A young woman, age 33, presented to the emergency department during the summer, complaining of intermittent, dull chest discomfort, which had occurred over a 3-day period. She also exhibited a shortness of breath and lightheadedness.

Three weeks earlier, she had been admitted to the emergency department with photophobia, headache and fever (101.4°F).

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One month prior to her onset of symptoms, the woman had been hiking in the New Hampshire mountains.

A spinal tap was negative for Lyme disease. But the patient had a 5cm circular EM rash on her neck.

“An initial electrocardiogram showed a first-degree AV block,” the authors wrote. “A presumptive diagnosis of early disseminated phase of Lyme disease was made, and the patient was admitted to the cardiac telemetry floor.”²

Several hours after she was admitted to the hospital, the woman developed second-degree heart block and shortly afterwards, complete heart block.

Lyme disease tests were positive by Western blot. (IgG bands: 28, 30, 39, 41, 45, and 58 and IgM: 39 and 41)

The woman was diagnosed with Lyme disease based on the presence of an EM (erythema migrans) rash and a positive Western blot test.

“As demonstrated in this case, the worsening of the degree of AV block may occur within minutes.”²

After receiving three doses of ceftriaxone, tests revealed that the complete heart block had regressed back to Mobitz Type 1 AV block and then first-degree AV block.

One month after treatment, the patient’s symptoms had completely resolved.

According to the authors, this case highlights:

- How rapidly the conduction disorder in Lyme carditis can fluctuate; thus it is very important that patients carrying this diagnosis are admitted to the telemetry unit;
- The importance of considering Lyme disease as an etiology of acute AV nodal conduction disorders in patients who present with cardiac symptoms;
- The importance of taking a good travel history.
The importance of appropriate and timely therapy to prevent unnecessary interventions such as permanent pacemaker insertion.

Related Articles:

- Lyme carditis causes heart block in 26-year-old man
- Temporary pacemaker effective in acute Lyme carditis patient with severe heart block
- First case of reversible complete heart block due to Lyme disease reported in Canada

References: