

## Temporary pacemaker effective in acute Lyme carditis patient with severe heart block

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<http://danielcameronmd.com/temporary-pacemaker-effective-in-acute-lyme-carditis-patient-with-severe-heart-block/>

by Daniel J. Cameron, MD MPH

The patient presented with a syncopal episode with no prodrome, shortness of breath and weakness, according to the case study, entitled [Electrocardiographic progression of acute Lyme disease](#). “Three weeks prior to the presentation, he had experienced an “insect bite” on his calf after being outside. A week later, he developed chills, sweats, myalgia, back pain, headache and fatigue,” according to Fuster and colleagues, from Kingston General Hospital, Queen's University. [1]

Lyme carditis was diagnosed based on the history, a pulse rate of 38 bpm, a high degree AV block, and the absence of ischemia. A temporary transvenous pacemaker was placed through the jugular vein, and the man was admitted to the cardiac unit for monitoring and treatment. Intravenous ceftriaxone was prescribed.

Most patients presenting with Lyme carditis and new onset arrhythmia do not remember when they have been bitten or they do not have a clear history of tick bite, according to researchers.

The Lyme carditis resolved without the need for a permanent pacemaker. The EKG progressed from a high degree AV block that rapidly evolved into 3rd degree AV block with a junctional escape rhythm to 2:1 AV block with a narrow conducted QRS by Day 5.

The temporary pacemaker was removed on Day 6. By the second week, the EKG had returned to normal sinus rhythm. The man was discharged and instructed to complete 4 weeks of antibiotics. “This is the first case in the literature that has captured the electrocardiographic evolution of Lyme carditis, day by day until complete resolution,” states Fuster and colleagues.

According to Fuster, “Most patients presenting with Lyme carditis and new onset arrhythmia do not remember when they have been bitten or they do not have a clear history of tick bite, therefore it is a reasonable decision to investigate those patients for suspicious Lyme disease especially in high-risk areas or in patients with pathognomonic symptoms like erythema migrans (characteristic migrating rash).” In fact, “only 40% of patients with Lyme carditis report having erythema migrans rash, as compared with 70%–80% of patients overall.”

The authors recommend hospitalization, because a temporary pacemaker may be required. “Hospitalization is recommended for patients with 2nd or 3rd degree AV block, and for patients with 1st degree AV block and a PR interval > 300 ms.” [1]

Fuster and colleagues point out several of the following observations and recommendations made by the

Centers for Disease Control and Prevention (CDC): [2]

1. [Males are disproportionately affected by Lyme carditis.](#)
2. Lyme disease patients [ages 15 -45](#) develop Lyme carditis more frequently.
3. Only 40% of patients with Lyme carditis report having erythema migrans rash, as compared with 70% - 80% of patients overall.
4. Patients with suspected Lyme disease should be evaluated for cardiac symptoms, including palpitations, chest pain, lightheadedness, fainting, and shortness of breath.
5. ECG is mandatory if Lyme carditis is suspected.
6. Ask patients with unexplained heart block about possible exposure to infected ticks.

This case demonstrates the importance of investigating patients with heart block for Lyme disease, given that carditis can be a complication of the disease. It occurs when the Lyme spirochete invade the heart at different levels. The most common clinical manifestation of Lyme carditis is AV block, which can vary between 1st, 2nd and 3rd degree block. Progression to 3rd degree [AV block can be rapid and fatal if left untreated.](#)

#### References:

1. Fuster LS, Gul EE, Baranchuk A: Electrocardiographic progression of acute Lyme disease. Am J Emerg Med 2017.
2. Centers for Disease C, Prevention: Notice to readers: final 2012 reports of nationally notifiable infectious diseases. MMWR Morb Mortal Wkly Rep 2013, 62(33):669-682.

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