

## Lyme Carditis with Transient Complete Heart Block

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**Figure 1** Extremity rash consistent with erythema migrans

A healthy 37-year-old man presented to the emergency department complaining of 11 days of myalgias, fatigue, lightheadedness and rash. He was afebrile and hemodynamically stable. Scattered erythematous plaques on his trunk and extremities were consistent with erythema migrans (Figures 1). An electrocardiogram revealed complete heart block (Figure 2). His heart block persisted for 48 hours, fluctuating between third-degree and Mobitz type 1 and 2 second-degree atrioventricular (AV) block. Western Blot confirmed Lyme disease (LD), and IgM antibody levels suggested early disease.

In the United States, up to 10% of patients with untreated LD develop cardiac sequelae. These complications generally present during the early disseminated phase of illness, 1 to 6 weeks after the erythema migrans rash appears. Conduction disturbances predominate, most commonly complete heart block.<sup>1</sup> The degree of block can fluctuate rapidly, usually

progressing from high-level AV block through second-degree to first-degree heart block before complete resolution.<sup>2</sup> The AV node is most commonly involved, but any level of the conduction system can be affected. Clinical heart failure is observed in approximately 10% of patients, and dilated cardiomyopathy can be a long-term consequence of untreated Lyme carditis.<sup>1</sup> Other stigmata of carditis include diffuse T-wave flattening or inversion, ST-segment depression, decreased left ventricular function, and atrial and non-sustained ventricular tachyarrhythmias.<sup>2,3</sup> A single case report describes valvular destruction.<sup>3</sup> The prognosis LD is excellent. Complete heart block generally resolves within one week, and lesser conduction abnormalities usually normalize within six weeks. Early antibiotic treatment appears to prevent cardiac involvement but does not hasten recovery once cardiac symptoms are manifest.<sup>1</sup> Patients with hemodynamic instability sometimes require temporary pacemaker placement.<sup>2</sup>

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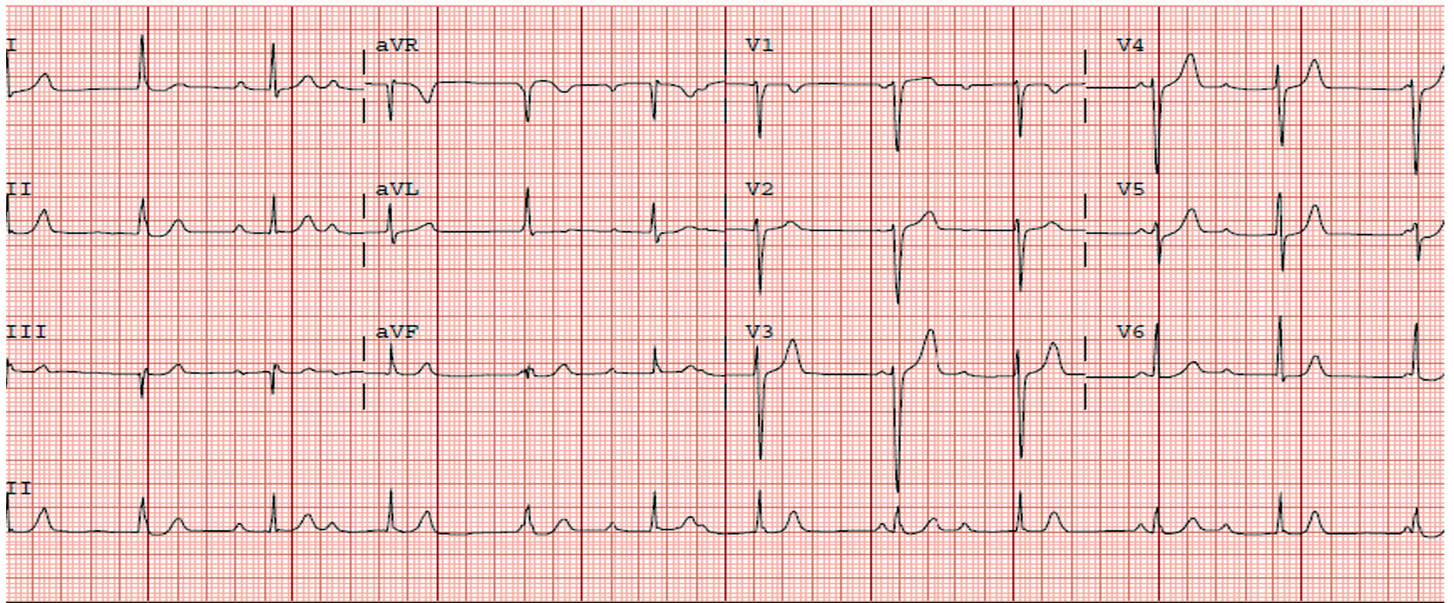
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**Figure 2** Admission electrocardiogram demonstrating complete heart block