

## Introduction

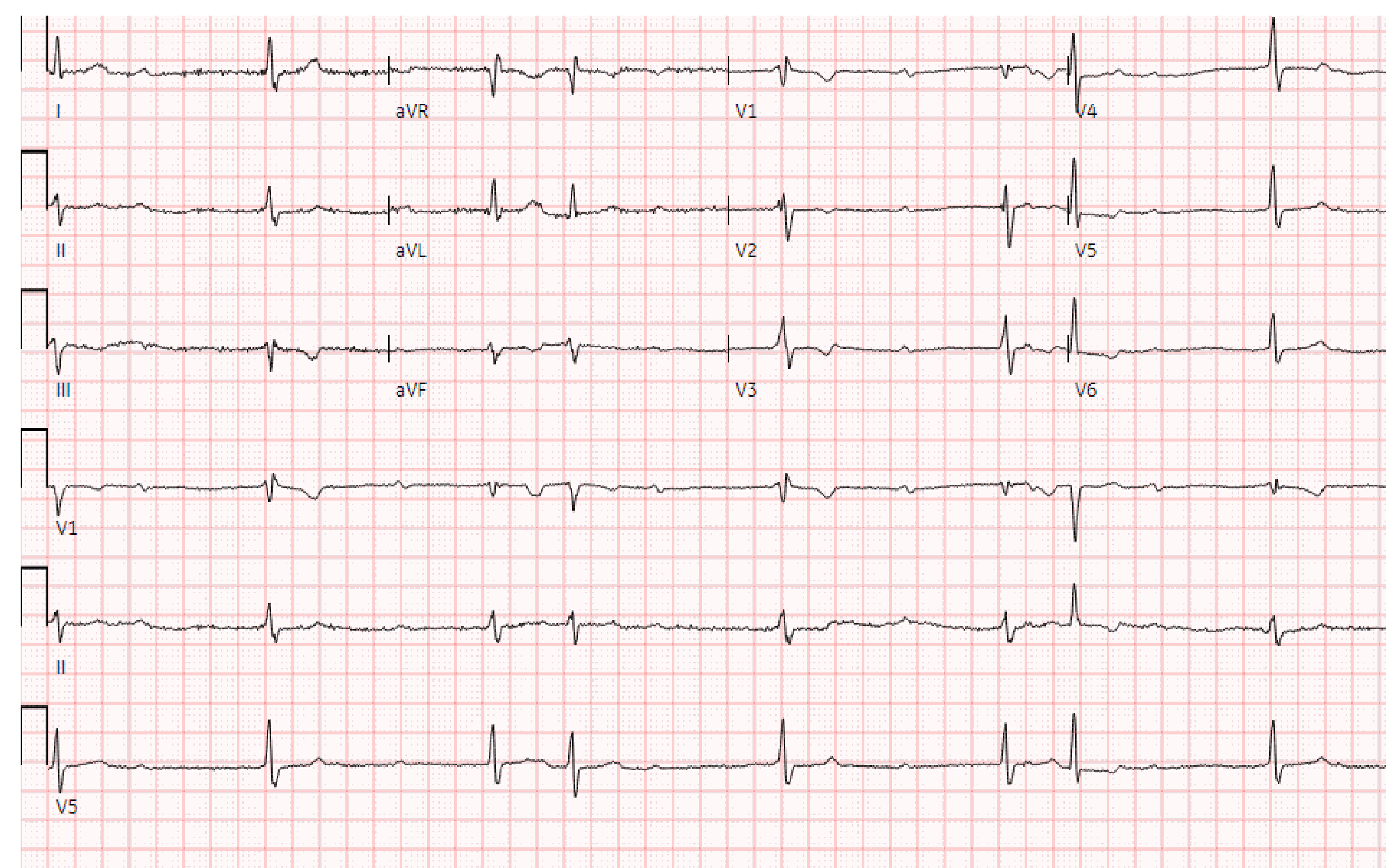
Lyme carditis (LC) is a rarer manifestation of Lyme disease, occurring in 1-5% of cases. In patients with high-degree heart block or hemodynamic instability, placement of a temporary pacemaker may be warranted, but permanent pacemaker placement is usually not recommended. Below, we present the case of a patient successfully diagnosed with Lyme carditis, thus avoiding an unnecessary permanent pacemaker placement.

## Case Presentation

A 50-year-old male presented to the hospital complaining of a few hours of dizziness, lightheadedness, and presyncope. History revealed that about two months prior to admission, the patient developed acute right upper quadrant pain, fevers, and a rash on his abdomen which had all resolved spontaneously. Physical exam demonstrated bradycardia but no evidence of residual rash or abdominal tenderness. Laboratory studies were unremarkable. Initial electrocardiogram (ECG) demonstrated second degree heart block type two. Repeat ECG showed that the patient had spontaneously converted to sinus rhythm with first-degree atrioventricular (AV) block.

## Case Presentation (continued)

The patient received a transthoracic echocardiogram which showed no structural abnormalities. Given the history of a recent rash, Lyme antibody testing was sent. Unfortunately, the patient subsequently developed multiple episodes of complete heart block complicated by 4-5 second ventricular pauses. Due to his new high-grade heart block, there were plans to proceed with permanent pacemaker placement (PPM). However, prior to PPM placement, the patient's Lyme antibody came back positive, and the procedure was aborted. The patient was treated with ceftriaxone. All episodes of heart block resolved. The patient was discharged on oral doxycycline. He completed a 21-day course of antibiotics.



**Figure 1. Electrocardiogram showing high grade heart block in patient with Lyme carditis**

## Discussion

The most common symptom of LC is conduction system disease. Patients with LC can rapidly develop complete heart block. Return of normal cardiac conduction usually occurs with administration of appropriate antibiotics. Because of this, early testing to rule out reversible causes of heart block should be done prior to placing a PPM.

## Conclusion

Patients with high grade heart block or hemodynamic instability can be treated with a temporary pacemaker while awaiting results of Lyme disease antibody testing. Permanent pacemaker placement should only be reserved for patients in whom cardiac conduction abnormalities persist despite appropriate antibiotic treatment.

## References

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