

# A VIRAL OFFENDER: COMPLETE HEART BLOCK AND CARDIOGENIC SHOCK DUE TO COXSACKIEVIRUS

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## BACKGROUND

*Coxsackievirus* infection causes myocarditis which may present as a third-degree atrioventricular block (AV) and cardiogenic shock [1]. We present a case of *Coxsackievirus*-induced third-degree AV block, highlighting the serious complication of myocarditis.

## HOSPITAL PRESENTATION AND COURSE

An 18-year-old female who recently immigrated from Mexico, with no prior cardiac history, presented with epigastric and right upper quadrant abdominal pain, nausea, and vomiting. She was afebrile, the ECG revealed sinus tachycardia with a heart rate of 105 beats per minute, AST 167 U/L, ALT 62 U/L, and lactate of 3.79 mmol/L. Within hours, she developed bradycardia and hypotension with a heart rate of 53 beats per minute. ECG revealed third-degree AV block. A temporary pacemaker was placed. High sensitivity troponin T was 2200 ng/L. Echocardiogram showed a left ventricular ejection fraction of 60-65% with severe hypokinesis of the mid-to-apical right ventricular free wall and pulmonary artery systolic pressure of 30 mmHg. Cardiac catheterization showed normal coronary arteries, mild pulmonary hypertension with pulmonary capillary wedge pressure of 18mmHg, a Fick-estimated cardiac output of 3.37 L/minute, cardiac index of 1.85 L/min/m<sup>2</sup>, and a pulmonary artery pulsatile index of 0.70. She progressed to severe cardiogenic shock requiring vasopressors and inotropic support. Eventually, serology was positive for *coxsackievirus*. Steroid therapy led to the resolution of heart block and improvement in cardiac hemodynamics. She was discharged home in stable condition after a few days.

*Coxsackievirus* induced fulminant myocarditis progresses to **third-degree heart block** in a young patient, highlighting the rapid and severe cardiac complications of **viral myocarditis**.

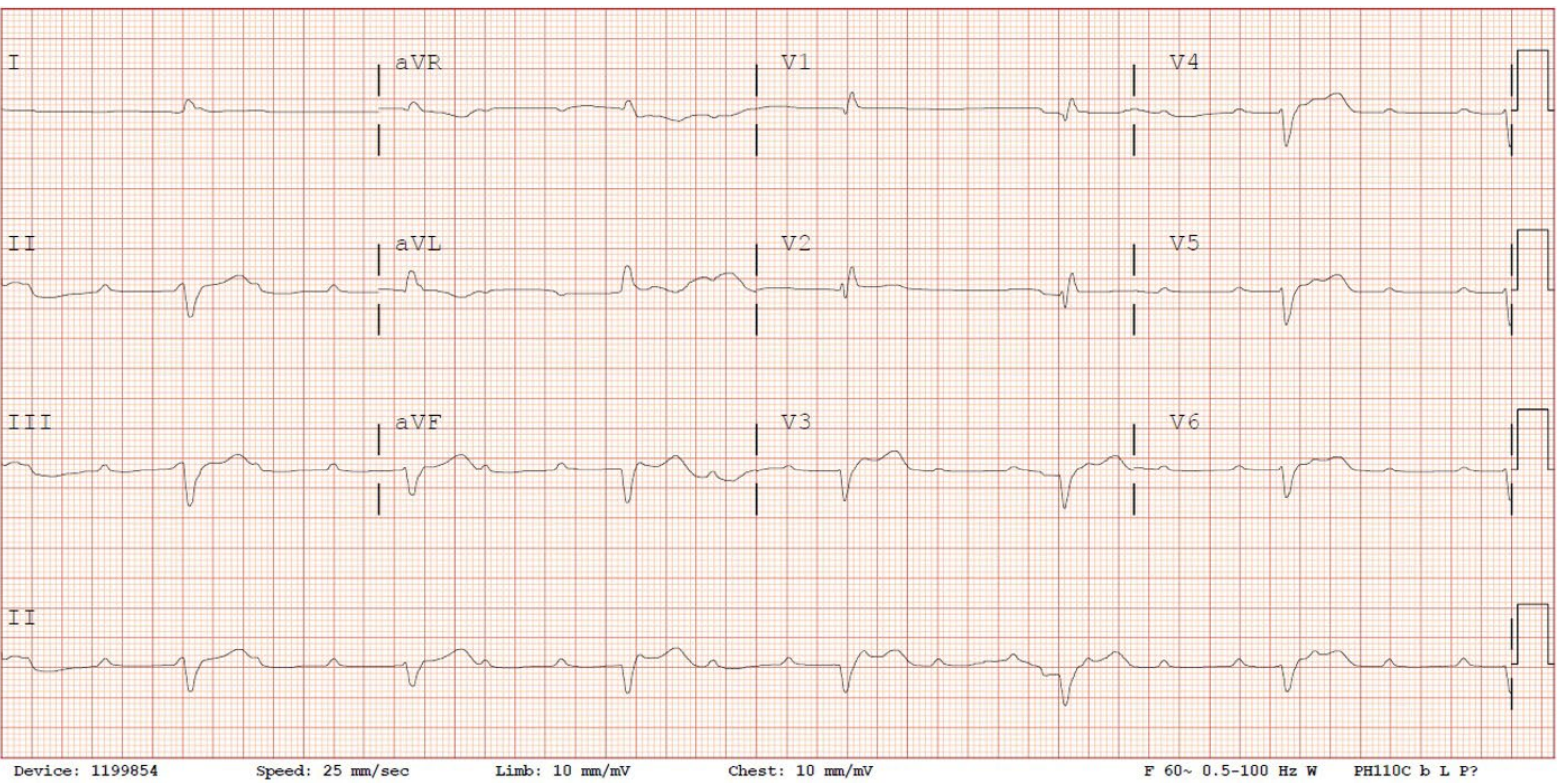
**Timely intervention in *Coxsackievirus*-induced heart block saves lives, emphasizing the need for rapid diagnosis and targeted treatment.**



## DISCUSSION

ECG abnormalities are usually the first sign of *coxsackievirus*-induced myocarditis. It includes sinus tachycardia, supraventricular tachycardia, atrial flutter, ventricular tachycardia, and complete AV block [3]. Complete heart block is a serious arrhythmia observed in fewer than one-third of cases presenting with myocarditis [2]. Temporary transvenous pacing is recommended for patients with complete AV block to prevent hemodynamic compromise and further decline in ventricular function. Clinical vigilance in our case brought a positive outcome that underscores the importance of a thorough diagnostic approach and individualized treatment strategies.

## ELECTROCARDIOGRAPHY



## CONCLUSION

This case illustrates the severe cardiac complications, such as complete heart block, that can arise from *Coxsackievirus* infections. Prompt diagnosis and treatment are crucial for managing this life-threatening condition. Effective management involves temporary pacing, anti-inflammatory treatment, and supportive care. The positive outcome in this case underscores the importance of a thorough diagnostic approach and individualized treatment strategies. Further research is needed to understand the long-term effects of viral myocarditis and to refine management protocols for these complications.

## REFERNCES

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