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Two Cases of Latency Noted on Electrocardiogram

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Abstract | **Case Report**

Latency, also known as pacemaker exit block, occurs when there is a delay between a stimulus from a pacemaker and atrial or ventricular depolarization. It can be associated with various conditions. In this report, we describe two cases of latency identified on electrocardiogram. In our cases, the patient and/or family declines comprehensive workup of the findings of latency. Routine outpatient follow-up was scheduled instead.

Keywords: Latency, Electrocardiogram.

INTRODUCTION

Latency is the time in between pacemaker stimulus and depolarization of the atria or ventricles [1]. When the aforementioned time exceeds 40 ms, latency is said to occur [2]. Latency can be noted in the setting of chronic atrial pacing when there is severe atrial disease [1]. It may also be seen in cases of toxicity from anti-arrhythmic agents, atrial muscle damage, substantial myocardial disease, hypokalemia, and myocardial infarction [1]. Latency is also known as pacemaker exit block [1]. We present two cases of latency noted on electrocardiogram (ECG).

CASE PRESENTATION

Case 1: An 83-year-old male with sick sinus syndrome (SSS) with dual chamber pacemaker, paroxysmal atrial fibrillation (PAF), and heart failure with mildly reduced ejection fraction (HFmrEF) presented to the cardiology clinic for a routine device check. His ECG showed an atrial paced rhythm with an atrial latency of 200 ms (Figure 1). He was not taking any anti-arrhythmic medications and his laboratory results did not reveal any electrolyte abnormalities. Given that he was asymptomatic, he declined further workup of the atrial latency. He was scheduled for a routine cardiology follow up appointment.

Case 2: A 91-year-old male with SSS with dual chamber pacemaker, HFmrEF, and PAF presented to the hospital due to dysuria. ECG revealed an atrial paced rhythm with an atrial latency of 160 ms (Figure 2). His laboratory results were notable for a urinary tract infection but negative for electrolyte abnormalities. He was not receiving any anti-arrhythmic medications. During the hospitalization, his urinary tract infection was successfully treated with intravenous ceftriaxone. The patient's family decided against further workup of the latency, so he was scheduled for outpatient follow up.

Figure 1

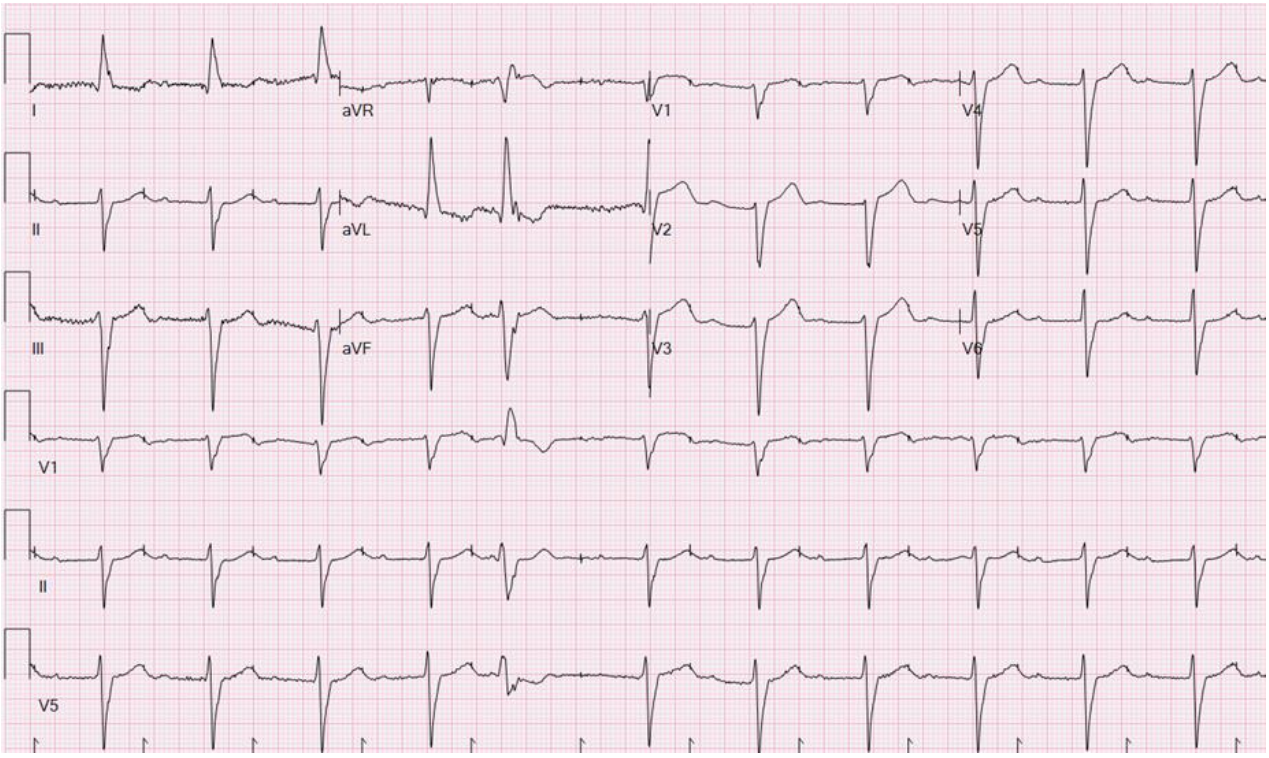

Figure 2

DISCUSSION

There are three main types of pacemakers exit block [2]. First-degree pacemaker exit block occurs when the impulse sent by the pacemaker slows down transmission to the tissue of the myocardium [2]. Second-degree pacemaker exit block occurs when part of the impulse from the pacemaker does not get captured [2]. Third-degree pacemaker exit block, the impulse from the pacemaker does not get captured [2]. Of these, second-degree pacemaker exit block is the most likely to be detected on ECG [2].

While the incidence of this condition is low, it is important for clinicians to recognize its presence [2]**.** In our cases, the pacemakers were functioning normally; however prolonged atrial latency was noted with extended duration between the pacing spike and the P wave. Atrial pacing spikes falling on T waves can be misinterpreted as failure to capture [3]. While we were

able to determine that the ECG finding were attributable to latency, we did not pursue further workup due to patient and/or family preference.

CONCLUSION

Latency can be a sign of an underlying health condition. It is important for clinicians to recognize latency and address the underlying cause. At the same time, it is also important to respect patient and family wishes, in the event they do not want further workup conducted.

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