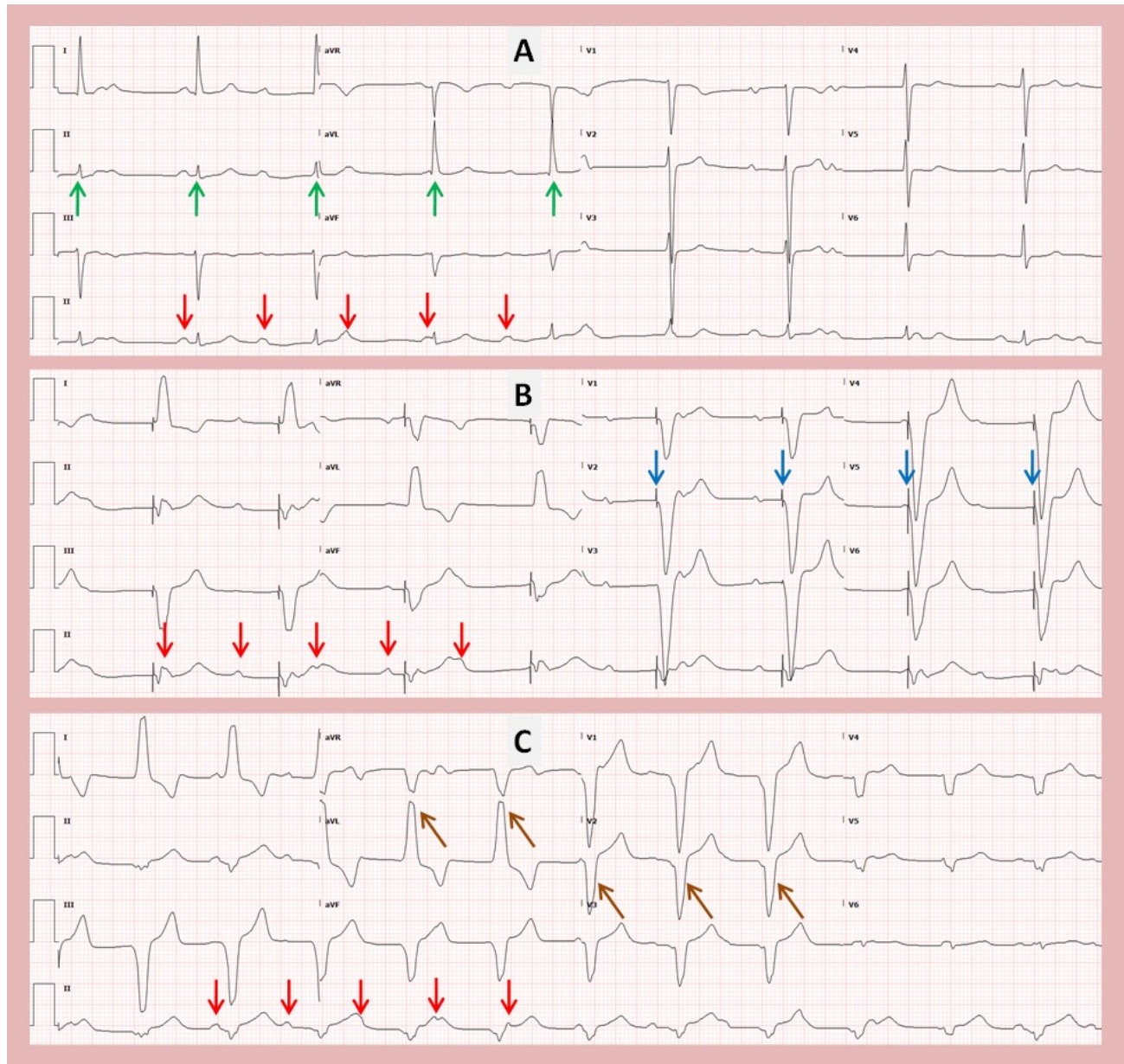


Invisible Pacing Spikes: *Pseudo LBBB!*

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Description

The above electrocardiograms (ECGs) reveal a case of complete heart block (CHB), with the P waves indicated by red arrows. Figure A reveals CHB with junctional escape beats (green arrows) at 53 beats per minute (BPM) and completed AV dissociation. Figure B shows temporary transvenous demand pacing at 50

BPM with manifest pacing spikes preceding paced complexes (blue arrows). Figure C, following insertion of a single-lead epicardial pacemaker, shows demand ventricular pacing at 70 BPM with paced beats lacking pacer spikes (brown arrows) and mimicking left bundle branch block (LBBB).

Discussion

Device implantation in general and pacemakers in particular, have gained widespread use due to a multitude of indications aimed at decreasing morbidity and mortality [1]. Traditionally a pacemaker consists of wires inserted through the left subclavian vein attached at one end to a generator implanted in the left upper chest wall while the distal end is fixed to the cardiac chamber intended to be paced. Variations to this, due to anatomic or infectious causes, include right-sided generator insertion [2], epicardial pacing [3], as in the images shown above, or leadless pacemakers [4].

It is imperative to be familiar with paced ECG interpretation to be able to troubleshoot pacemakers [5]. The absence of visible pacemaker spikes, as shown in the above discussed ECGs, does not exclude pacing [6]. Several factors can interfere with the amplitude of the pacemaker spike including the type of pacemaker, such as endocardial, epicardial or leadless; the mode of pacing, such as bipolar versus unipolar pacing; the pacing voltage, and other patient factors which may decrease the overall ECG signal including obesity, emphysema and anasarca [7].

Manuscript submitted Oct 8; accepted Oct 17, 2024
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KEYWORDS: Electrocardiography; Pacing; Complete Heart Block; Pacemaker Spikes.

Reference this article as:

Ruiz B, Riad M, Rahman M, Odigwe C, Malik H, Nagaraj S, As Sayaideh M, Parks A, Malozzi C, Omar B, Manoharan S. Invisible Pacing Spikes: *Pseudo LBBB!* Cardiofel Newslet 2024. Oct; 7(10):24– 25.