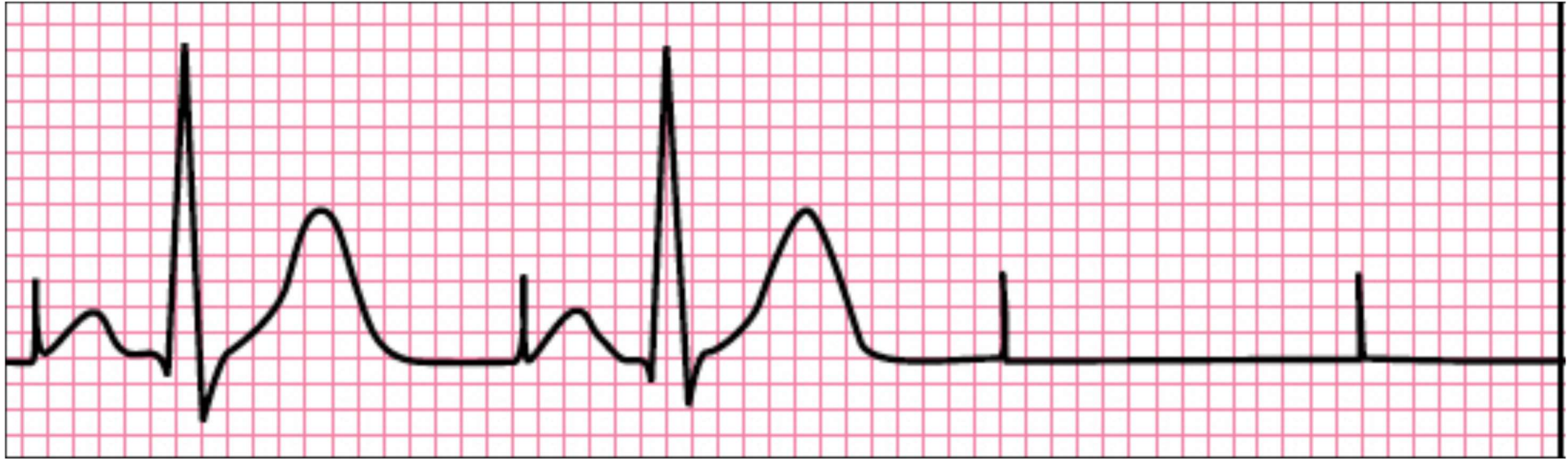


- Pacemaker malfunction, not consistently capturing - atrium or ventricle



- Pacing spike is not followed by appropriate depolarization (at a time when myocardium is not refractory)



- May be due to lead displacement, perforation, increased pacing threshold (from MI, flecainide, amiodarone, hyperkalemia), lead fracture or insulation break, pulse generator failure (from battery depletion), or inappropriate reprogramming

Rule out “pseudo-malfunction”: A ventricular pacing spike may fail to capture the ventricle and the pacemaker can still be functioning normally if the spike occurs when the ventricle is refractory (has just been activated by an intrinsic impulse, such as a sinus beat or VPC).



*Pacemaker pseudo-malfunction*

Paced fusion beats happen when a native beat and a paced electrical impulse occur simultaneously and fuse together. This can make it appear as though the pacemaker is not properly sensing and/or pacing but it is merely “completing” with and fusing with the native beats. This represents normal pacing behavior but can be referred to as pseudo-malfunction of the pacemaker.

Modern pacemakers are complex and are usually pacing correctly even though there is the appearance of failure to capture (or sense) on the ECG. It is important to methodically and thoroughly evaluate a paced ECG with knowledge of how the pacemaker is programmed to determine if the pacing behavior/function is normal before diagnosing pacemaker failure.