

- Pacemaker malfunction, not consistently sensing - atrium or ventricle



*Failure to sense a P wave, resulting in failure to pace the ventricle*



*AFIB with oversensing resulting causing inappropriate inhibition of ventricular pacing*

- Pacemakers in “inhibited” mode: failure of pacemaker to be inhibited by an appropriate intrinsic depolarization
- Pacemakers in “triggered” mode: failure of pacemaker to be triggered by an appropriate intrinsic depolarization
- Pacemaker timing is not reset by intrinsic or ectopic beat, resulting in asynchronous firing of pacemaker (paced rhythm competes with intrinsic rhythm)
- Occurs with low amplitude signals (especially VPCs) and inappropriate programming of the sensitivity. All causes of failure to capture can also cause failure to sense.

Can often be corrected by reprogramming the sensitivity of the pacemaker.

Watch for “pseudo-malfunction” (i.e., pacer stimulus falls into refractory period of ventricle).

Premature depolarizations may not be sensed if they:

- Fall within the programmed refractory period of the pacemaker
- Have insufficient amplitude at the sensing electrode site

Any stimulus falling early within the QRS complex probably does not represent sensing malfunction; commonly seen with right ventricular electrodes in RBBB.

Modern pacemakers are complex and are usually pacing correctly even though there is the appearance of failure to sense (or capture) 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.