

The rhythm is **WANDERING ATRIAL PACEMAKER** (WAP) which is analogous to MAT (multi-focal atrial tachycardia: 3 or more different P wave morphologies, differing P-P, PR, and R-R intervals with narrow QRS complex, in "simplest" form) but slower. Usually much slower.

It seems to be a rhythm that has not attracted a lot of attention or interest or even firm definition. Some authors define it with cyclical rhythmicity (see Libby/Braunwald below, which is the way I learned it about the time Braunwald was still a young attending cardiologist); others do not. Our patient did not manifest any such cyclical characteristics. Browsing on the internet and in cardiology texts brings up the same type of “Ho-hum, WAP again, is it?” response.

There is general agreement that it can be a benign rhythm, especially in the (otherwise asymptomatic) young. It can be, as in our patient, a concomitant of other conducting disease that requires treatment. WAP does not require treatment in and of itself although its associated condition may. Our patient left the hospital with a pacemaker, NOT for the WAP but for brady-tachy syndrome.

The following is from Libby: Braunwald's Heart Disease, online at the mdconsult.com site, accessed June 9, 2009:

“WANDERING PACEMAKER.

This variant of sinus arrhythmia involves passive transfer of the dominant pacemaker focus from the sinus node to latent pacemakers that have the next highest degree of automaticity located in other atrial sites (usually lower in the crista terminalis) or in AV junctional tissue. The change occurs in a gradual fashion over the duration of several beats; thus, only one pacemaker at a time controls the rhythm, in sharp

contrast with AV dissociation. The ECG (Fig. 35-46) displays a cyclical increase in the R-R interval—a PR interval that gradually shortens and can become less than 120 milliseconds and a change in the P wave contour, which becomes negative in lead I or II (depending on the site of discharge) or is lost within the QRS complex. Generally, these changes occur in reverse as the pacemaker shifts back to the sinus node. Wandering pacemaker is a normal phenomenon that often occurs in the very young and particularly in athletes, pre-sumably because of augmented vagal tone. Persistence of an AV junctional rhythm for long periods, however, may indicate underlying heart disease. Treatment is not usually indicated but, if necessary, is the same as that for sinus bradycardia.



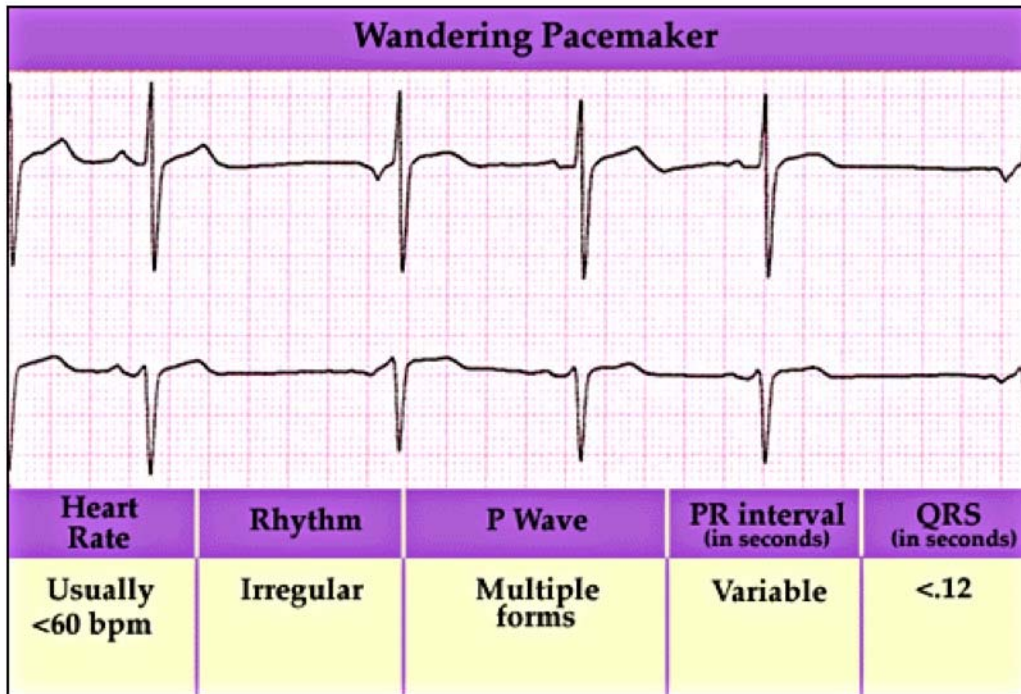
FIGURE 35-46 Wandering atrial pacemaker. As the heart rate slows, the P waves become inverted and then gradually revert toward normal when the heart rate speeds up again. The PR interval shortens to 0.14 second with the inverted P wave and is 0.16 second with the upright P wave. This phasic variation in cycle length with varying P wave contour suggests a shift in pacemaker site and is characteristic of wandering atrial pacemaker.

FIGURE 35-46 Wandering atrial pacemaker. As the heart rate slows, the P waves become inverted and then gradually revert toward normal when the heart rate speeds up again. The PR interval shortens to 0.14 second with the inverted P wave and is 0.16 second with the upright P wave. This phasic variation in cycle length with varying P wave contour suggests a shift in pacemaker site and is characteristic of wandering atrial pacemaker.”

The following strip is also from mdconsult online, the textbook Park: Pediatric Cardiology for Practitioners:



And this strip is from The University of Utah, Spencer S. Eccles Health Sciences Library:



Wandering Atrial Pacemaker - Marquette

Marquette Electronics Copyright 1996

http://library.med.utah.edu/kw/ecg/mml/ecg_wander.html

Finally, from mdconsult online, Goldberger: Clinical Electrocardiography: A Simplified Approach, 7th ed.:

Wandering atrial pacemaker (sometimes abbreviated as WAP) is an arrhythmia that is somewhat difficult to classify. As shown in Figure 20-15, this rhythm is characterized by multiple P waves of varying configuration with a relatively normal or slow heart rate. This pattern reflects rapid shifting of the pacemaker between the sinus node and different ectopic atrial sites, and

sometimes the AV junction. Wandering atrial pacemaker may be seen in a variety of settings. Occasionally, it develops in normal persons (particularly during sleep). It may also occur with digitalis excess or certain other drug toxicity, sick sinus syndrome, and different types of organic heart disease.

Wandering Atrial Pacemaker

Lead II (continuous)

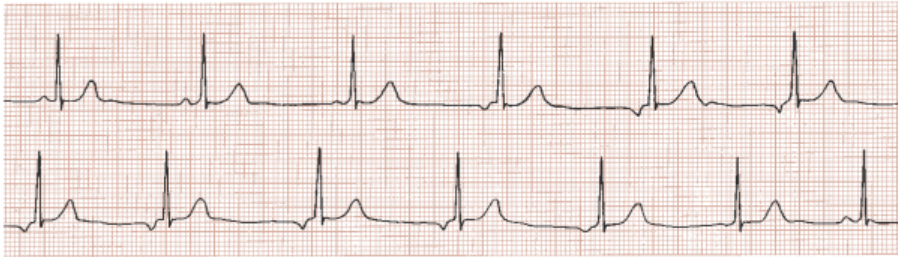


FIGURE 20-15 The variability of the P wave configuration in this lead II rhythm strip is caused by shifting of the pacemaker site between the sinus node and ectopic atrial locations.