

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

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Electrocardiogram Quiz – Case 22

A 77-year-old man with an unremarkable past medical history, presented to the emergency department with palpitations of a few days duration. The patient was hemodynamically stable and afebrile. The 12-lead surface ECG is depicted in figure 1.

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Questions

- What abnormalities are depicted on the 12-lead ECG (fig. 1)?
- What is the clinical significance of the depicted abnormalities?

atrial rhythm, is an atrial arrhythmia that occurs when the natural cardiac pacemaker site shifts between the sinoatrial node (SA node), the atria, and or the atrioventricular node (AV node). This shifting of the pacemaker from the SA node to adjacent tissues is identifiable on ECG lead II by morphological changes in the P-wave; sinus beats have smooth upright P-waves, while atrial beats have flattened, notched, or diphasic P-waves.

Comment

A wandering atrial pacemaker (WAP), also termed multifocal

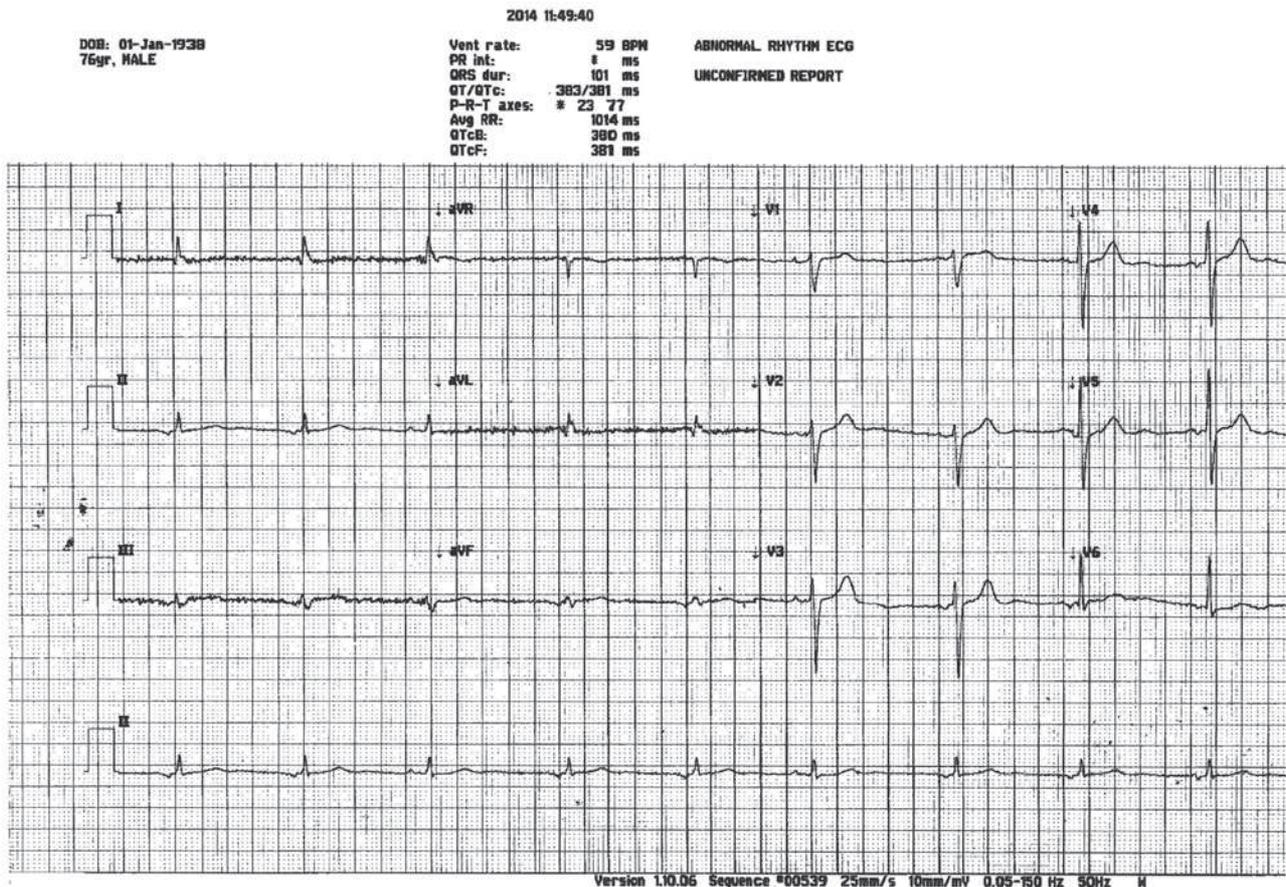


Figure 1

Wandering pacemaker is usually caused by varying vagal tone. With increased vagal tone the SA node slows, allowing a pacemaker in the atria or AV nodal area, which may briefly become slightly faster. After vagal tone decreases, the SA node assumes its natural pace. Sympathomimetic drugs are known to induce WAP. The mechanism, in that case, is thought to be due to SA node and atrial tissue sensitivity to α - and β -adrenergic stimuli, as well as to decreased cardiovagal reflex.

In WAP, the RR intervals have variable cycle lengths since the ectopic foci exhibit differences in automaticity and rates of impulse generation. Therefore, the rhythm is irregularly irregular, and it can be confused with atrial fibrillation (AF). However, in contrast to AF, distinct P-waves are present. Sinus arrhythmia may also be irregularly irregular; however, one P-wave morphology and PR interval are seen in this situation. This arrhythmia may also be confused with sinus rhythm with multifocal premature atrial contractions, although in this situation a dominant sinus P-wave can be identified and there are periods of RR interval regularity. Ventricular conduction is normal in WAP, and thus the QRS complex is normal.

Patients with WAP are usually asymptomatic. Treatment is not usually necessary, but there may be a co-existing condition that

requires attention. For example, if the WAP occurs at the same time as either a tachycardia, or a bradycardia, an artificial pacemaker may be implanted to regulate the heartbeat.

References

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