

ECG CLINIC

Tachycardia

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Vignette

The electrocardiogram (ECG) shown in Figure 1 was taken on a 62-year-old man two days after an orthopedic procedure for a fractured leg. The tracing shown in Figure 2 was taken two days earlier.

Question

What is your electrocardiographic diagnosis?

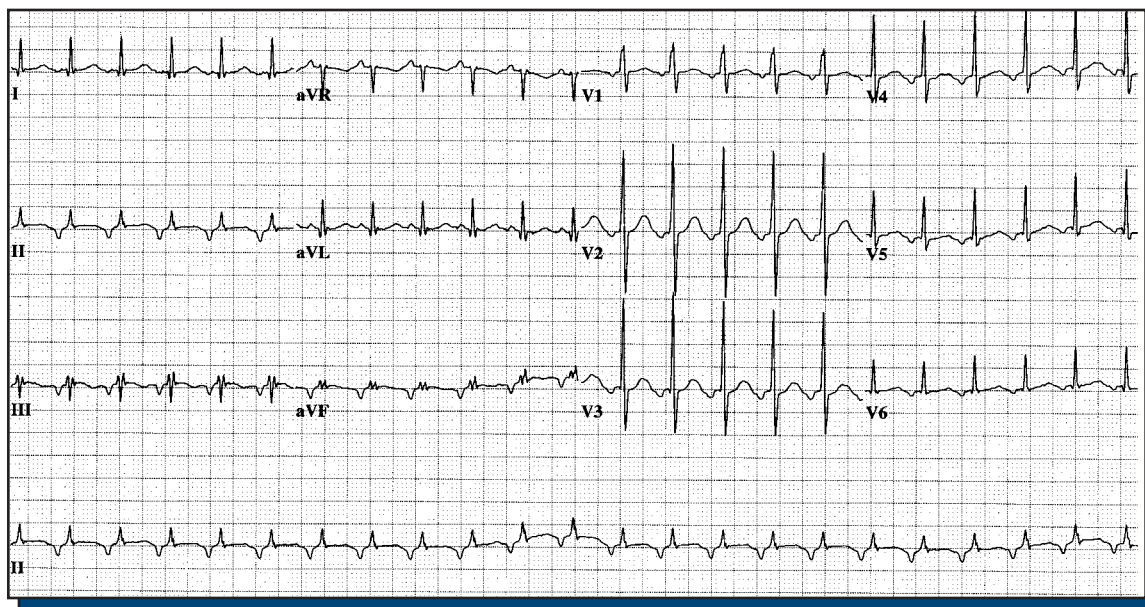


Figure 1

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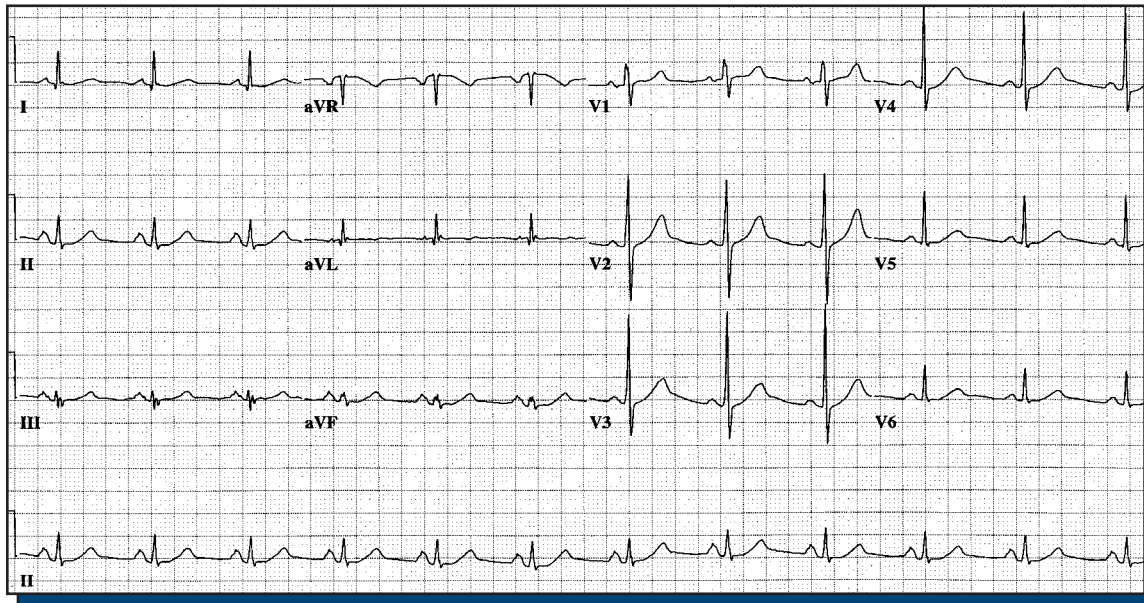


Figure 2

Answer

The most recent electrocardiogram shows tachycardia at a rate of 135 beats per minute. Every QRS complex is preceded by a P wave, and the QRS complexes are narrow. The P waves, however, are negative in leads II, III, AVF and in all of the precordial leads. This indicates a reversal in the direction of activation of the atria, characteristic of junctional rhythms. In contrast, the earlier ECG (Figure 2) clearly shows normal direction of the P waves. The rate of 135 beats per minute suggests this is a paroxysmal high A-V junctional tachycardia. The term “high” may be used to indicate the site of impulse production is closer to the atrial side, as opposed to “low” junctional rhythms, in which the P waves are found after the QRS complexes.

Both ECGs show conspicuous R waves on leads V₁ through V₃. The significance of this finding is unclear. Sometimes it is due to a myocardial infarction of the far lateral (“true posterior”) region of the left ventricle. In other cases, it may be indicative of right ventricular hypertrophy. The latter possibility would be supported by the taller than usual P waves on leads II, III and AVF in the earlier ECG. These changes, however, may also be caused by body habitus, so their interpretation should be guided by consideration to other elements in the medical history, and in the physical examination. **Dx**

