

Pulsing Palpitations

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Vignette

An 82-year-old woman with a history of cardiomyopathy and stable congestive heart failure complains of recent onset of uncomfortable palpitations and prominent neck pulsations. An electrocardiogram (ECG) is obtained (Figure 1).

Questions

1. What is the cardiac rhythm?
2. Can her complaint of neck pulsations be explained?

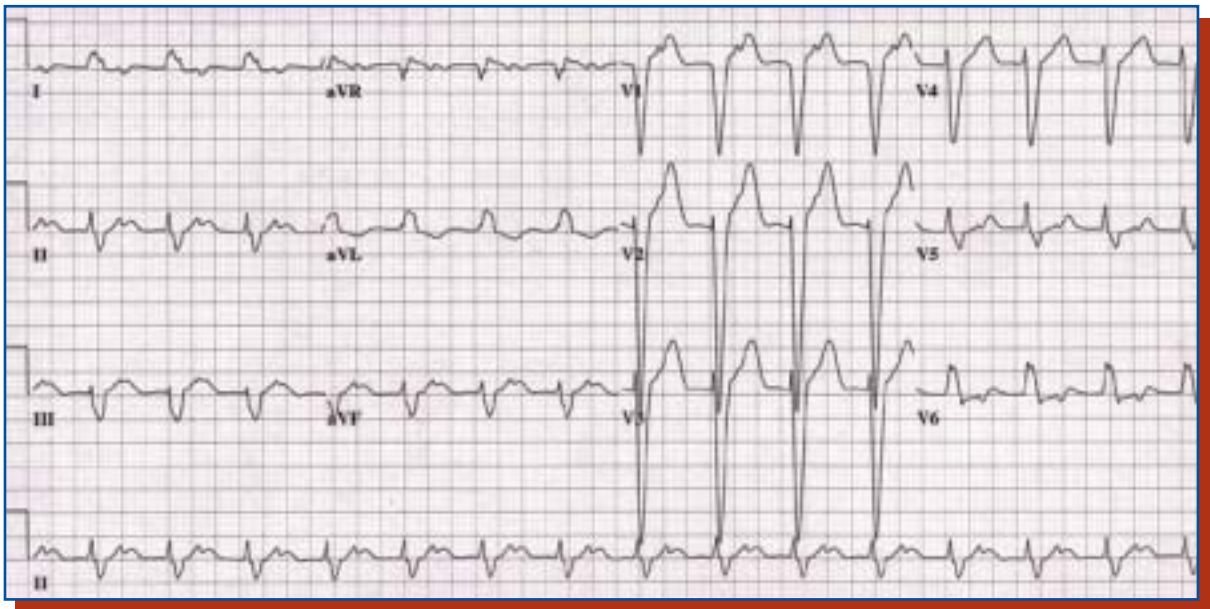


Figure 1. ECG.

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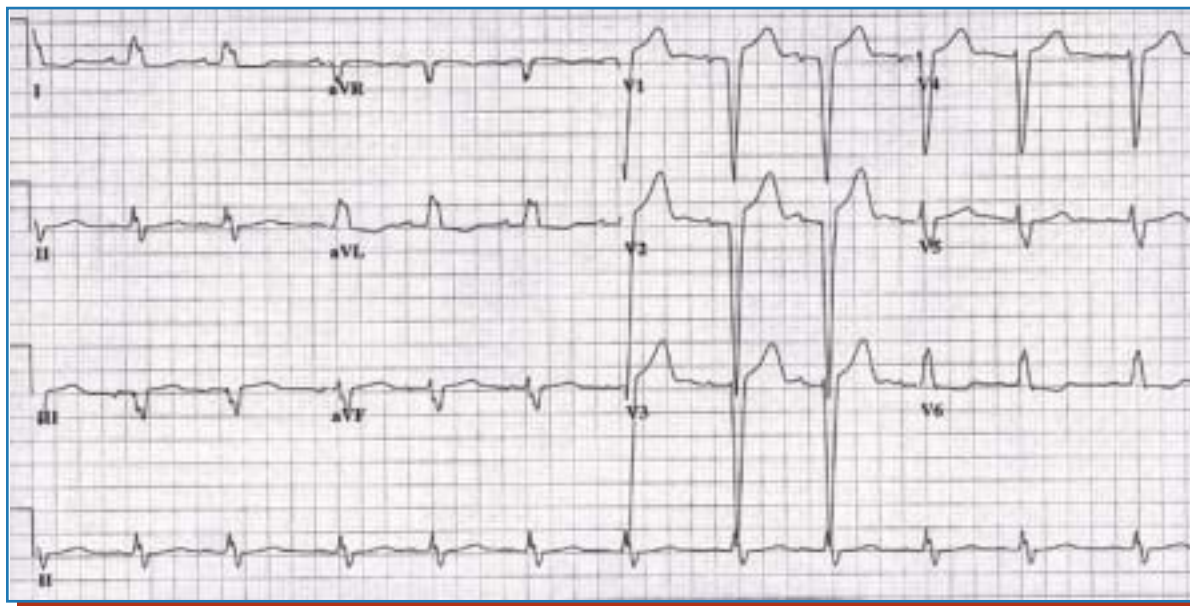


Figure 2. Patient's previous ECG.

Answers

1. The ECG shows a regular wide QRS complex tachycardia at a rate of 90 beats per minute. The QRS configuration is a fairly typical left bundle branch block (LBBB) pattern. There are consistent small deflections in the ST segments, shortly after the QRS complex, suggestive of P waves indicating atrial activity. The differential diagnosis includes an accelerated idioventricular rhythm with retrograde 1:1 atrial conduction, a junctional rhythm with LBBB and retrograde atrial conduction and possibly sinus rhythm with an unusually marked first degree atrioventricular block and LBBB.

Review of a previous ECG (Figure 2) confirmed that the LBBB pattern was longstanding. In addition, the PR interval at that time was not unduly prolonged, suggesting that sinus rhythm with very marked first degree block would be very unlikely. Given the unchanged LBBB pattern of the QRS complexes, an accelerated idioventricular rhythm is

also improbable. One would expect the QRS morphology of a rhythm arising in the ventricles to be different from that of conducted sinus beats. Accordingly, this is most likely a junctional rhythm with retrograde atrial conduction and pre-existing LBBB.

2. The neck pulsations described are probably atrial "cannon" waves in the jugular veins. Because the atrial contractions are occurring after ventricular depolarization, the tricuspid valve is closed and the result is a prominent jugular venous wave. This phenomenon is usually seen in patients with paroxysmal supraventricular tachycardia due to atrioventricular node re-entry, in which situation atrial contraction also closely follows ventricular activation. **Dx**