

Life-threatening bradycardia with narrow QRS complex, secondary to severe hyperkalemia

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A 64-year-old male presented to the emergency department complaining of weakness of approximately 8 hours duration. He gave a history of ischemic cardiomyopathy, non-insulin dependent diabetes mellitus, hypertension and chronic obstructive pulmonary disease. His medications included acetylsalicylic acid, amlodipine, metoprolol, furosemide and quinapril; as well as topical nitrates, inhaled bronchodilators and an insulin regimen. He specifically denied any chest pain or palpitations.

Assessment of his presenting vital signs revealed an irregular bradycardia with a heart rate of 40 beats/min and a blood pressure of 83/50 mm Hg. He soon became increasingly drowsy, with worsening bradycardia and hypotension. He was given 2 doses of atropine 0.5 mg, without response. External pacing was initiated with inconsistent

capture, immediately followed by insertion of a temporary floating pacer wire. During pacer wire insertion, he had a minute-long period of asystolic cardiac arrest. He was treated to external cardiac compression, endotracheal intubation and administration of 1.0-mg of epinephrine, and had rapid return of spontaneous circulation. A pre-arrest ECG is shown in Fig. 1.

What is the most likely immediate cause of this patient's bradycardia?

- A. Myocardial ischemia
- B. Medication toxicity
- C. Hyperkalemia
- D. Vasovagal effect

For the Answer to this Challenge, see page 219.

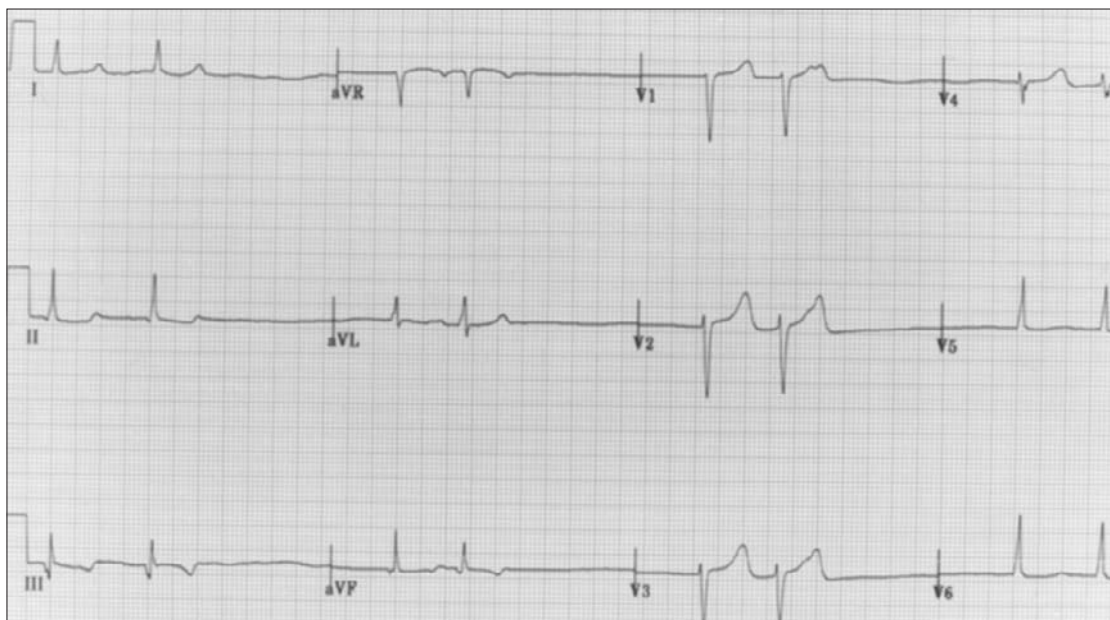


Fig. 1. Twelve-lead ECG showing junctional "bigeminy" with narrow QRS complex and evidence of old inferior myocardial infarction.

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