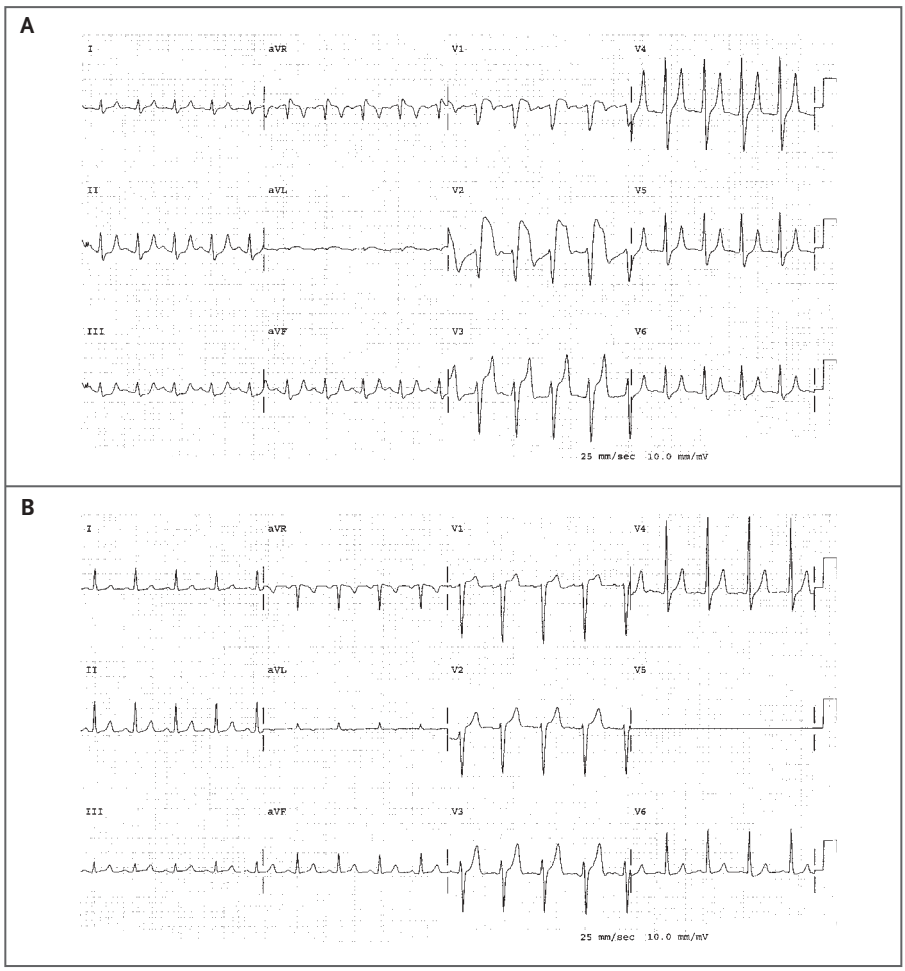
IMAGES IN CLINICAL MEDICINE

"Pseudoinfarction" Pattern Due to Hyperkalemia



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A 38-YEAR-OLD MAN PRESENTED TO THE EMERGENCY DEPARTMENT WITH NAUSEA, VOMITING, AND EPIGASTRIC PAIN. The patient had type 1 diabetes mellitus and was being treated with insulin. He was also taking lisinopril for the treatment of hypertension.

The initial electrocardiogram (Panel A) revealed sinus tachycardia and ST-segment elevation in leads V_1 to V_3 — findings highly suggestive of acute anteroseptal myocardial infarction. Peaked T waves were noted in leads II, III, aVF, and V_3 to V_6.

The serum glucose concentration was 839 mg per deciliter (46.6 mmol per liter), the arterial blood pH was 7.21, and the serum potassium concentration was 7.9 mmol per liter. The diagnosis of diabetic ketoacidosis was made. When the electrocardiogram was repeated several hours later, after the potassium concentration was lowered to 5.1 mmol per liter with treatment (Panel B [lead V_5 is not placed]), the ST-segment elevation disappeared completely, as did the peaked T waves. This case is an example of hyperkalemia causing a "pseudoinfarction" pattern. The clue to the correct diagnosis is the T wave in V_4, which is tall, narrow, and pointed, with a short QT interval. The tall T waves that are characteristic of hyperacute ischemic changes tend to be associated with a long QT interval, and the T waves are broad rather than narrow and pointed.