

Images

Seizure activity demonstrated on electrocardiogram

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A 65-year-old man with a history of right middle cerebral artery stroke and atrial fibrillation presented to the emergency department with a chief complaint of left-sided weakness. His symptoms began approximately 60 minutes before his arrival, and an emergent stroke assessment was initiated. On examination, the patient's pulse was 89 beats/min, his respiratory rate was 12 breaths/min, his blood pressure by palpation was 160 mm Hg and his blood glucose was 7.2 mmol/L. Physical examination was significant for left-sided hemiparesis and gaze preference. Computed tomography revealed no intracerebral hemorrhage. Shortly after this imaging study, an electrocardiogram (ECG) was performed (Fig. 1), during which the patient was noted to have tonic-clonic movements of his left leg followed

again by hemiparesis. The electrical activity from the seizure was visualized on ECG as separate from the cardiac tracing (lower amplitude electrical complexes indicated by arrows on Fig. 1).

The patient was given lorazepam with resolution of the seizure, and the ECG was repeated with only cardiac electrical activity seen (Fig. 2). The patient rapidly returned to his baseline nonfocal neurologic examination. The patient was admitted for electroencephalographic monitoring with a presumed diagnosis of Todd paralysis (i.e., loss of motor function temporarily following seizure activity). He was discharged without any neurologic sequelae.

Standard electroencephalography traces both neurologic and cardiac electrical activity to determine whether arrhythmias are the etiology of seizure activity. How-

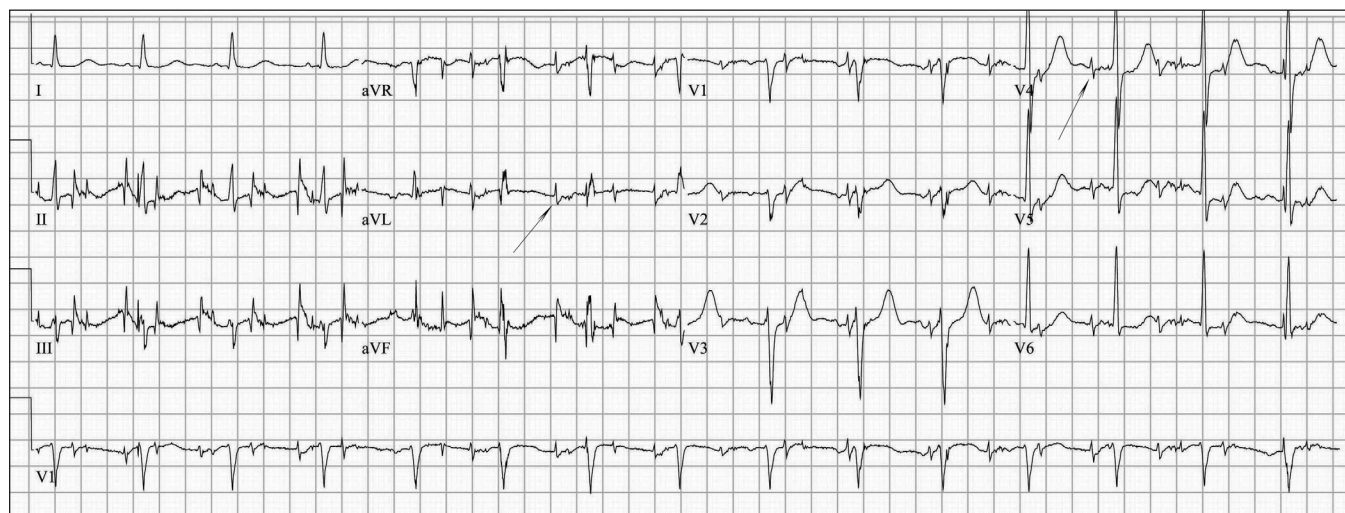


Fig. 1. Initial electrocardiogram showing both cardiac and epileptiform electrical activity.

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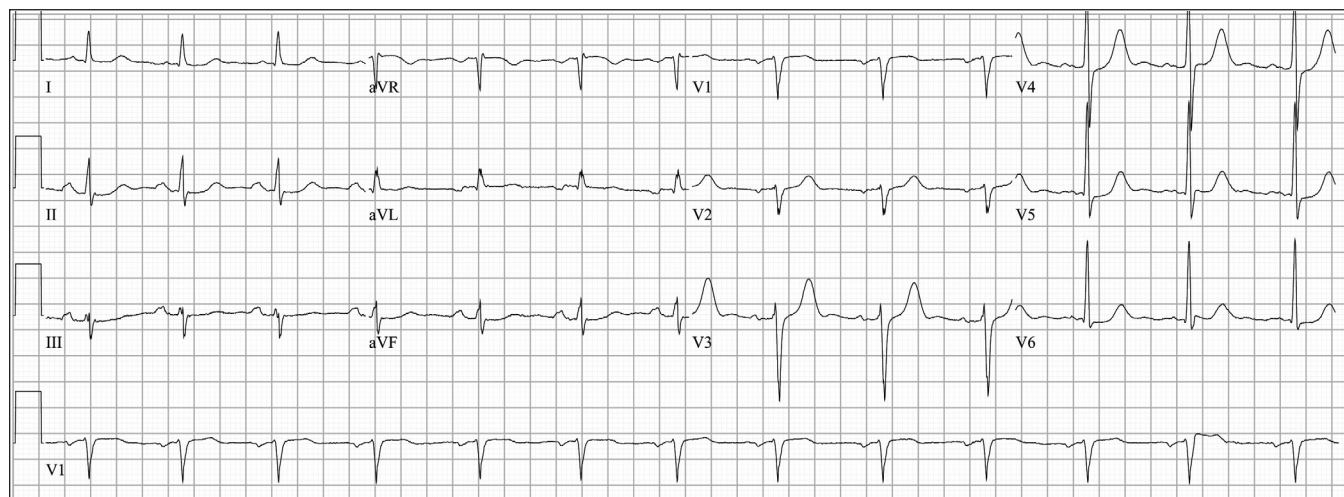


Fig. 2. Repeat electrocardiogram showing cardiac electrical activity only.

ever, it is unusual in the emergency department to visualize the electrical discharge from epileptiform activity unless an ECG is being obtained during seizure onset.

Keywords: seizure, electrocardiogram

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