Tremor-Induced ECG Artifact Mimicking Ventricular Tachycardia

Wichit Srikureja, MD; Dawood Darbar, MD; Guy S. Reeder, MD

A 56-year-old woman presented for an evaluation of a tremor. In the course of her evaluation, her serum potassium was found to be 2.5 meq/L (normal range, 3.6 to 4.8 meq/L); this was probably secondary to diuretic therapy. She was subsequently admitted to the hospital for potassium replacement and further evaluation of the tremor. Physical examination was remarkable only for a high-amplitude left upper extremity tremor. The patient’s blood pressure was 120/70 mm Hg. An ECG (Figure 1) suggested ventricular tachycardia, and the patient was transferred to the coronary care unit for further observation. In the unit, the patient was hemodynamically stable and had no complaints. Her pulse was 72 bpm and regular. When a repeat ECG was performed (Figure 2), the possibility of a tremor-induced artifact was raised. This was confirmed as the cause of the ECG findings when a third ECG (Figure 3) was performed while holding the patient’s left upper extremity.

The possibility of artifact as a cause of ECG findings should always be considered in an otherwise asymptomatic patient who is hemodynamically stable. In our patient, a cursory overview of the ECG suggested ventricular tachycardia. However, close scrutiny, particularly of lead V2 on Figure 2, clearly shows the QRS complexes buried in the wide amplitude, repetitive electrical activity. Tremor-induced ECG artifact should always be considered as a cause of bizarre ECG changes. The ECG should always be interpreted in the context of the patient’s condition and any other extraneous factors present at the time of the recording.
Figure 1. Initial admission ECG, which raised concerns about ventricular tachycardia.

Figure 2. Repeat ECG, which led us to suspect a tremor-induced artifact.

Figure 3. ECG done while holding the patient’s tremulous left upper extremity.
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