

The tachycardic schizophrenic

Ryan J. Hoefen

University of Rochester, USA

A 35 year-old man with a long history of schizophrenia being treated with antipsychotic medications came to the emergency department complaining of rigidity. While awaiting neurologic consultation, telemetry alarms signaled sudden tachycardia at over 200 beats per minute (Fig. 1). The rhythm was interpreted as supraventricular tachycardia. Intravenous adenosine was administered, firstly

6 mg, then 12 mg, without any apparent change in the electrocardiogram. At that point, intravenous metoprolol (5 mg) was given, again without effect. A 12-lead electrocardiogram was obtained (Fig. 2) and cardiology consultation was requested.

The patient's blood pressure remained stable in the 120 s/70 s throughout the episode. On examination, a Parkinsonian tremor of the left upper ex-

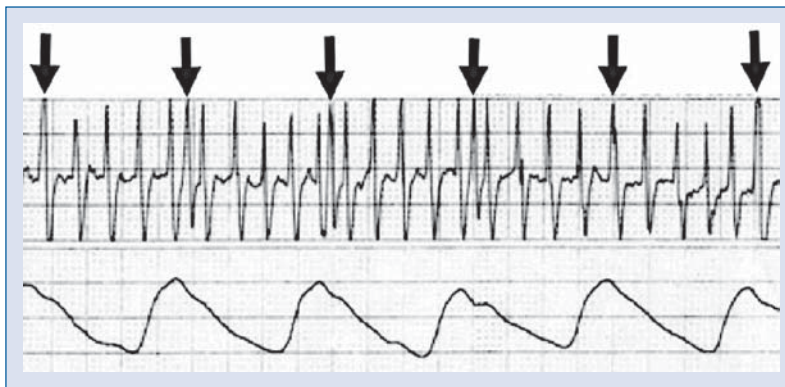


Figure 1. Telemetry strip showing artifactual rhythm that was mistakenly interpreted as sustained ventricular tachycardia at nearly 300 beats per minute. Note that the true cardiac rhythm is seen underlying the tremor as widened or triplet spikes (arrows) and is synchronous with the pulse oximetry recording.

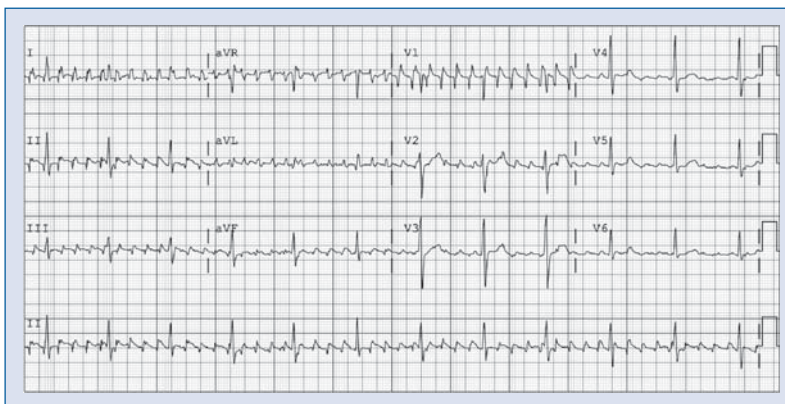


Figure 2. 12-lead electrocardiogram showing prominent artifact in leads placed near the patient's pectoralis muscle, while the true sinus rhythm is apparent in more inferiorly and laterally-placed leads, such as V6.

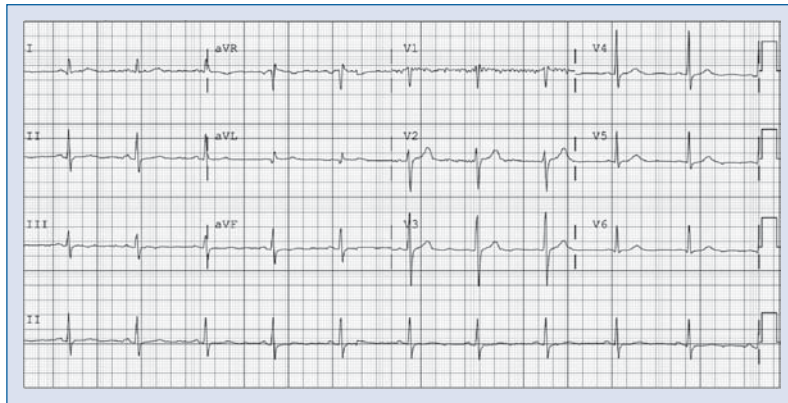


Figure 3. 12-lead electrocardiogram obtained while providing gentle support and extension of the left upper extremity, showing normal sinus rhythm.

tremity was noted and palpation over the left pectoralis muscle revealed rhythmic beating at the same rate as the rhythm seen on telemetry.

Telemetry artifact often occurs as a result of patient movement, tremor, poor lead contact with the skin or interference with electrical equipment. Misinterpretation of artifact has resulted in the unnecessary administration of medication, central line placements, admissions to intensive care unit, permanent pacemaker placements, and internal cardiac defibrillator placements [1]. Thus, it is important for clinicians to be aware of, and be able to recognize, artifact.

Parkinsonian tremors can often cause ‘pseudoatrial flutter’ due to the similarity in frequency of the tremor to that of typical atrial flutter [2]. This patient’s 12-lead electrocardiogram produced such a pattern (Fig. 2). However, it is somewhat rarer for a tremor to result in the high voltage spikes seen in these rhythm strips that were mistaken for QRS complexes, giving the impression of supraventricular tachycardia (Fig. 1).

Clues to the artifactual nature of this patient’s tremor include the improbability of maintaining a narrow complex rhythm at over 300 beats per minute and the regular occurrence of triplet spikes and widened spikes resulting from interposition of

the true QRS complexes, occurring at the same frequency as the pulse oximeter plethysmogram, indicating the true heart rate (Fig. 1).

Cardiac telemetry is associated with a high resource cost because of the demand it places on nurses and can have adverse effects, as illustrated by reports of inappropriate therapeutic decisions resulting from its use. Thus, its injudicious use should be avoided.

With the artifactual nature of this patient’s rhythm being recognized by the consulting cardiologist, a repeat 12-lead electrocardiogram was obtained while providing gentle extension of the left upper extremity, which showed the underlying normal sinus rhythm (Fig. 3).

Acknowledgements

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References

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