

CLINICAL IMAGE

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Electrocardiogram changes mimicking ventricular tachycardia, ventricular fibrillation and torsades de pointes in a patient with Parkinsonism

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CASE REPORT

A 79-year-old man with hypertension, permanent atrial fibrillation, and status post-bypass surgery presented to emergency department with fatigue. The diagnosis of ventricular tachycardia (Figure 1) was made by the emergency physician. The patient was seen in emergency department as per planned cardiology consultation. On questioning it appeared that the patient had no palpitations but had the diagnosis of Parkinsonism. His blood pressure was 130/70 mmHg and pulse rate was 70 bpm with irregularly irregular rhythm. When electrocardiogram (ECG) was analyzed in detail, it was clear that ECG changes were secondary to tremor due to Parkinsonism, not ventricular tachycardia. He was hospitalized for rhythm follow-up. During hospitalization, further rhythm records showed that he had further artifacts mimicking torsades de pointes (Figure 2) and ventricular fibrillation (Figure 3). Electrocardiogram strips during minimal tremor showed that he has no ventricular arrhythmia but only atrial fibrillation (Figure 4). Tremor was more prominent in the right hand and all the recordings mimicking ventricular arrhythmias were best seen in all the extremity leads except DIII. On the other hand, tremor was less prominent in left hand and the artifacts were not seen in lead DIII (Figures 1 and 3), which connects left hand to foot. All of these features indicated that his ECG changes were due to tremor-induced artifacts, but not ventricular arrhythmias.

If artifacts is suspected to be responsible for ECG changes, the ECG should be re-taken after the underlying

cause of artifacts is corrected. The cause of artifacts was tremor in this patient and repeated ECG during minimal tremor showed no ventricular arrhythmia-like appearance.

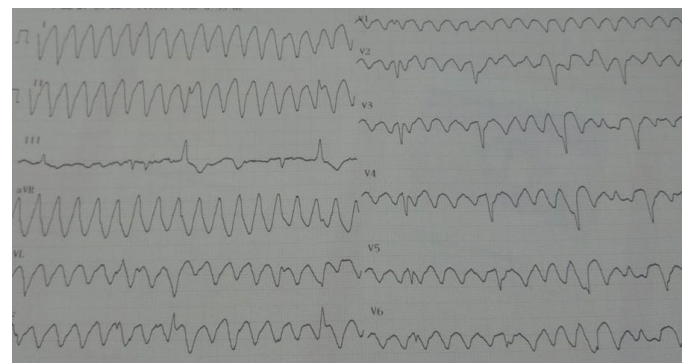


Figure 1: ECG taken during the initial presentation to the emergency department. ECG changes mimic ventricular tachycardia.

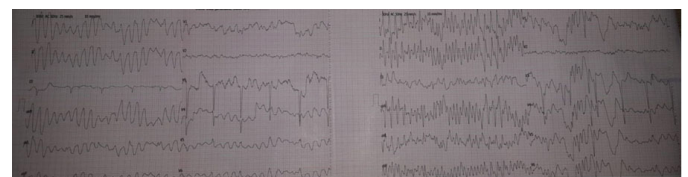


Figure 2: ECG changes mimicking torsades de pointes.

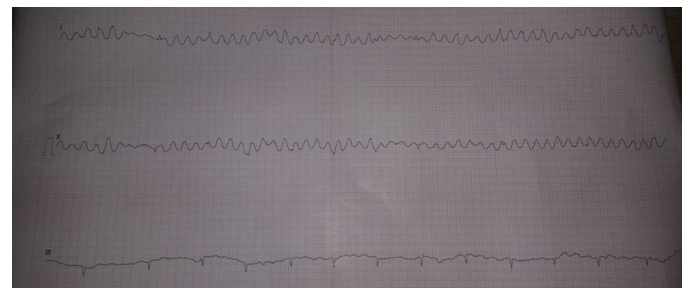


Figure 3: ECG changes mimicking ventricular fibrillation.

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DISCUSSION

Artifacts may cause some ECG changes that look like rhythm disturbances. Tremor, electromagnetic

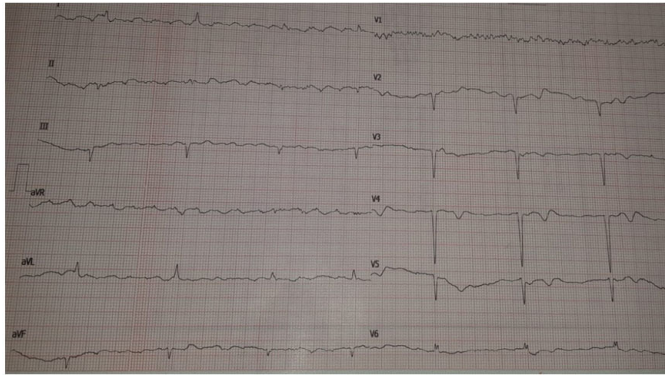


Figure 4: ECG during minimal tremor shows atrial fibrillation.

interference and cell phones are the most common causes of artifacts. Several previous reports have indicated that tremor may cause ECG or telemetry changes mimicking arrhythmia [1–4]. Malik and Nahed [1] presented telemetry changes mimicking polymorphic ventricular tachycardia in a patient with coronary artery disease and Parkinson's disease undergoing glioma resection. Gunawardena [2] and Bergin and Lynch [3] reported ECG changes mimicking torsades de pointes. In another case report, atrial flutter/fibrillation or ventricular tachycardia like appearances were reported in a patient with tremor [4]. Here, we report a case of Parkinsonism presenting with tremor-induced ECG changes mimicking different types of ventricular arrhythmias.

CONCLUSION

Instead of just looking at laboratory test results, doctors have to talk to the patients about their symptoms and medical histories and also examine them in order to give the correct diagnosis because we need to treat the patients but not their laboratory findings.

Keywords: Artifacts, Electrocardiogram changes, Parkinsonism, Ventricular arrhythmias

How to cite this article

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Author Contributions

Mehmet Ozaydin – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

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None.

Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Author declares no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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