

UC Irvine

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health

Title

Mistaken ST-Elevation Myocardial Infarction

Permalink

<https://escholarship.org/uc/item/404710jk>

Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 16(7)

ISSN

1936-900X

Author

Wolk, Brian J.

Publication Date

2015

DOI

10.5811/westjem.2015.9.28631

Copyright Information

Copyright 2015 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Mistaken ST-Elevation Myocardial Infarction

Brian J. Wolk, MD*

*Loma Linda University School of Medicine, Department of Emergency Medicine,
Loma Linda, California

Section Editor: Sean O. Henderson, MD

Submission history: Submitted September 9, 2015; Accepted September 19, 2015

Electronically published November 12, 2015

Full text available through open access at http://escholarship.org/uc/uciem_westjem

DOI: 10.5811/westjem.2015.9.28631

[West J Emerg Med. 2015;16(7):1203.]

A 66-year-old female was transferred from an outside hospital for possible ST segment elevation myocardial infarction (STEMI). The patient reported feeling poorly for the last day, with epigastric pain, nausea, and multiple episodes of vomiting. Patient's medical history was significant for diabetes mellitus, hypertension, atrial fibrillation, and multiple sclerosis. Electrocardiogram (EKG) was as noted (Figure). Initial troponin was 0.14 (<0.03ng/mL). The patient was taken emergently to the cardiac cath lab for possible posterior STEMI. Angiogram demonstrated no significant evidence of coronary artery disease, with an EF of 75%.

Digoxin concentration subsequently returned at 8.8ng/mL (reference range 0.5-1ng/mL). The ST segment changes gradually improved as the digoxin concentration declined. An echocardiogram demonstrated moderate concentric left-ventricular hypertrophy with estimated ejection fraction of 80%, rheumatic heart disease, and possible hypertrophic obstructive cardiomyopathy physiology. Troponin peaked at 0.29ng/mL and then returned to baseline. Creatine kinase remained within normal limits.

DISCUSSION

Digoxin may cause a multitude of EKG changes including

ST depression and numerous cardiac dysrhythmias.^{1,2} Differentiation of ST depression in patients with ischemic heart disease and digoxin presence may be feasible in patients undergoing stress testing using heart rate analysis,² but the critical nature of a potential acute myocardial infarction patient likely prohibits this in-depth analysis. ST depression may appear indistinguishable from ischemic changes, and the history of digoxin use or digoxin concentration testing should be considered in a patient with nausea and vomiting and signs or symptoms of acute coronary syndrome with marked ST depression.

Address for Correspondence: Brian J. Wolk, MD, Loma Linda University School of Medicine, Dept. of Emergency Medicine, 11234 Anderson St., MC-A108, Loma Linda, CA 92354 . Email: BWolk@LLU.edu.

Conflicts of Interest: By the WestJEM article submission agreement, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. The authors disclosed none.

Copyright: © 2015 Wolk. This is an open access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) License. See: <http://creativecommons.org/licenses/by/4.0/>

REFERENCES

1. Bremner WF, Third JL, Lawrie TD. Massive digoxin ingestion. Report of a case and review of currently available therapies. *Br Heart J.* 1977;39(6):688-692.
2. Sundqvist K, Jogestrand T, Nowak J. The effect of digoxin on the electrocardiogram of healthy middle-aged and elderly patients at rest and during exercise—a comparison with the ECG reaction induced by myocardial ischemia. *J Electrocardiol.* 2002;35(3):213;221.

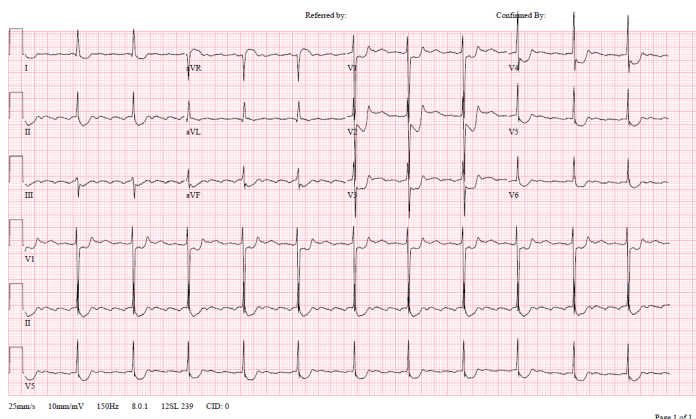


Figure. Initial electrocardiogram of patient with elevated digoxin concentration