



# Osborn J wave in hypothermia

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Received: Sep 05, 2019

Accepted: Oct 28, 2019

Published Online: Nov 02, 2019

Journal: Journal of Case Reports and Medical Images

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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## Clinical Image

### Description

Hypothermia is defined as body temperature lower than 35°C and there are some electrocardiographic alterations associated. Osborne waves or J waves were first described in 1938 by Tomaszewski [1]. The J wave is a positive convex deflection that occurs at the junction of the QRS complex and ST segment. They occur most prominently in the inferior leads: II, III, and a VF and the precordial. Although the pathophysiology of the J wave is not completely understood but seems that hypothermia increases repolarization in phase 1 due to effects on the potassium channels. Although typically associated with hypothermia, the Osborn waves are not pathognomonic [2]. There is still controversy about the role of these waves in the emergence of arrhythmias, however, these patients need to be under observation and should be heated to solve the arrhythmia.

We present the case of an 88 years old man that was brought to the emergency department due to prostration and refusal to eat in the last two days and had been found conscious but unresponsive at home. He had previous history of diabetes mellitus and hypertension. On the arrival he had normal blood glucose measurement, hypotension and a body temperature of 32°C. His ECG showed arrowhead waves after Q wave, in the terminal portion of the QRS complex at its site with the ST segment, a designated site of J. External heating was used to achieve normothermia and the patient was kept under surveillance.



**Cite this article:** Juliana SA, Branco A, Evangelista. Osborn j wave in hypothermia. J Case Rep Clin Images. 2019; 2(1): 1027.

Nome:  
Apel: Sexo: Male  
ID: Idade: 88 yr  
DdN:  
Notas:  
CPL: Serv:

Vent rate: 61 BPM  
PR Int: 0 ms  
QRS dur: 133 ms  
QT/QTc: 263/266 ms  
P-R-T axes: 999 28 0  
Avg RR: 973 ms  
QTcB: 266 ms  
QTcF: 265 ms



**Figure 1:** ECG obtained on presentation.

### References

1. Sisko M, Peckler BF. ECG J waves. *J Emerg Trauma Shock*. 2008; 1: 128.
2. David S. The EKG and Hypothermia. *Am J Emerg Med*. 2002; 22: 87–91.