Open Journal of
Clinical & Medical
Case Reports

Volume 6 (2020)
Issue 2

Clinical Image ISSN: 2379-1039

An old and cold heart

Luis Enrique Lezcano Gort*; Benjamín Roque Rodríguez; Zineb Kounka; Ana Isabel Fernández Chamorro

***Corresponding Author(s): Luis Enrique Lezcano Gort**
Department of Cardiology, Caceres University Hospital, Caceres, Spain
Email: lezcanogort@gmail.com

Description

An 80-year-old man with a history of recurrent orthostatic syncope was admitted to the emergency department after he had been found by family members lying indoors in a cold environment for an undetermined period. He was unconscious (Glasgow Coma Score 1-1-1), his core body temperature was 27ºC, and blood pressure 65/40 mmHg. Blood tests revealed normal values for sodium, potassium, and calcium, a creatine kinase level of 596 IU/L, troponin T 164.7 ng/ml, creatinine 1.31 mg/dL, and a serum pH of 7.04. A 12-lead electrocardiogram performed on admission is shown in Figure 1. ECG showed atrial fibrillation with ventricular response at 69 bpm, prolonged QRS duration (146 ms) and corrected QT interval (558 ms), and prominent Osborn waves, also known as J waves (Figure 1 - Arrows).

The patient was intubated and mecanically ventilated, and noradrenaline infusion was started. Based on his core body temperature, hypothermia was classified as severe, and active rewarming was immediately started, using hot air blankets and warm intravenous fluids. Cerebral CT scan was performed, excluding neurologic injury. During rewarming at the intensive care unit, patient´s ECG gradually normalized (Figure 2A), and 24 hours after his admission was in sinus rhythm (Figure 2B), breathing spontaneously, and hemodynamically stable without pharmacologic support. The cause of hypothermia remained unclear.

Eponymously associated with John Jay Osborn [1], Osborn waves has been described in hypothermia and other normothermic conditions like hypercalcemia, neurological insults, or Brugada syndrome. Hypothermia induces characteristic ECG changes because of slowed impulse conduction through potassium channels, resulting in prolongation of all the ECG intervals [2]. Osborn wave results from distortion of the earliest phase of membrane repolarization due to an increase in the activity of the cardiac transient outward potassium current, which is more prominent in the epicardium than in the endocardium [3]. The magnitude of Osborn waves is usually proportional to the degree of hypothermia.

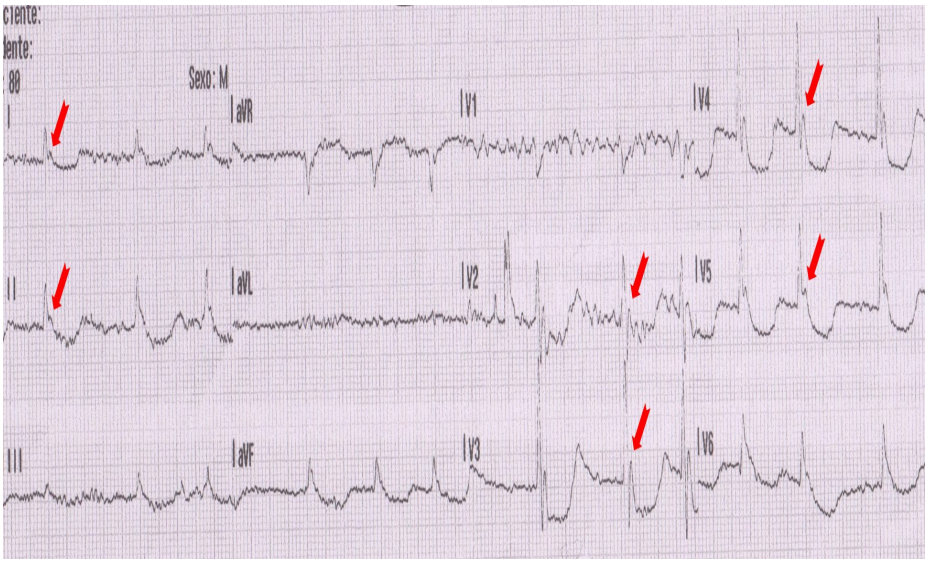

Figure 1: 12-lead electrocardiogram performed on admission, showing Osborn waves (Red arrows).

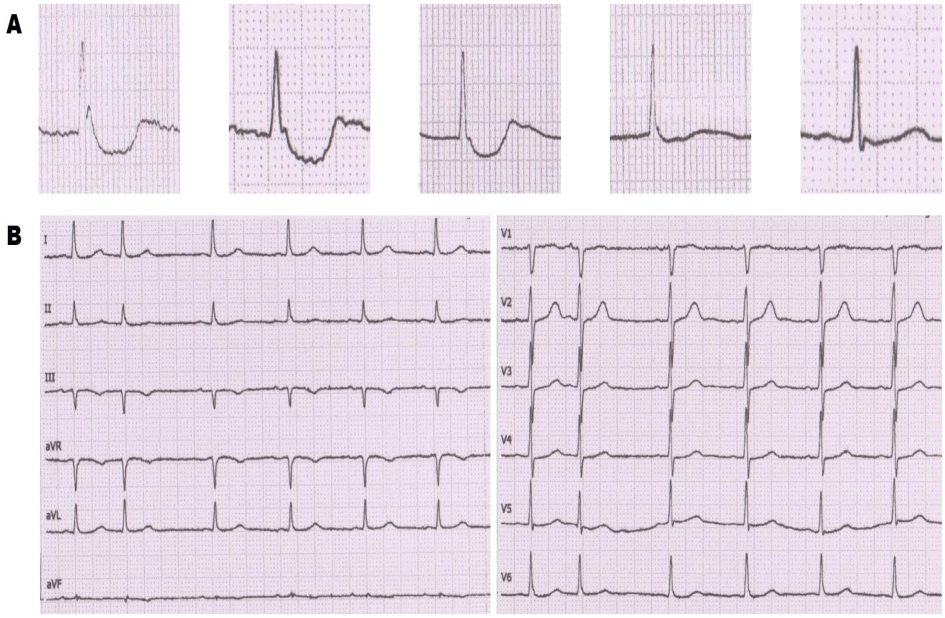

Figure 2: A Evolving changes in lead V5. 2.B ECG performed 24 hours later.

References

1. Osborn JJ. Experimental hypothermia; respiratory and blood pH changes in relation to cardiac function. Am J Physiol. 1953; 175: 389-398.

2. Doshi HH, Giudici MC. The EKG in hypothermia and hyperthermia. J Electrocardiol. 2015; 48: 203.

3. Antzelevitch C, Yan GX, Ackerman MJ, et al. J-wave syndromes expert consensus conference report: emerging concepts and gaps in knowledge. J Arrhythm. 2016; 32: 315–339.

Manuscript Information: Received: September 09, 2019; Accepted: January 23, 2020; Published: January 31, 2020

Authors Information: Luis Enrique Lezcano Gort*; Benjamín Roque Rodríguez; Zineb Kounka; Ana Isabel Fernández Chamorro
Department of Cardiology, Caceres University Hospital, Caceres, Spain.

Citation: Lezcano Gort LE, Rodríguez BR, Kounka Z, Fernández Chamorro AI. An old and cold heart. Open J Clin Med Case Rep. 2020; 1621.

About the Journal: Open Journal of Clinical and Medical Case Reports is an international, open access, peer reviewed Journal focusing exclusively on case reports covering all areas of clinical & medical sciences.
Visit the journal website at www.jclinmedcasereports.com
For reprints and other information, contact info@jclinmedcasereports.com