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EC CARDIOLOGY
Case Report

Ruptured Abdominal Aortic Aneurysm as a Cause of Electromechanical Dissociation

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Abstract

Abdominal aortic aneurysm is a relatively common disease in the older adult, which usually occurs asymptomatic but is potentially fatal and can lead to a type of arrest called Electromechanical Dissociation. The objective of the present work is to present a clinical case of abdominal aortic aneurysm simulating a cardiac infarction that led to an Electromechanical Dissociation leading to the death of the patient. The autopsy revealed ruptured abdominal aortic aneurysm with the presence of a large amount of retroperitoneal hematoma that was the cause of severe hypovolemia that caused the death of the patient.

Keywords: *Ruptured Aortic Aneurysm; Aortic Aneurysm, Abdominal; Heart Arrest*

Introduction

The abdominal aortic aneurysm (AAA) is the pathological dilatation of the infra-diaphragmatic aorta [1]. It is a complex disease, relatively frequent and often catastrophic in the elderly [2].

The exact cause of this condition is unknown. It happens due to a weakness in the wall of the artery. Factors that may increase the risk of developing the aortic problem include: Smoking, high blood pressure, male sex, genetic factors. Abdominal aortic aneurysm is almost always seen in men older than 60 years who have one or more risk factors [3].

Most AAAs are asymptomatic and their finding is casual [4]. Although the onset may present more severe clinical manifestations, such as abdominal pain with subsequent onset of hypovolemic shock and sudden death in case of rupture [2]. The larger the aneurysm, the greater the chance that a rupture or tear will occur [3].

The severe hypovolemia that is produced by this aortic rupture can cause one of the rare forms of cardiac arrest that is electromechanical dissociation, which occurs when spontaneous and organized electrical cardiac activity is present in the absence of sufficient blood flow to maintain consciousness and Adequate perfusion of organs [5].

The diagnosis of this type of arrhythmia is very difficult, since there is no pulse, heartbeat or heart sounds. When the cause is unknown, the treatment of asystole is applied [6].

Presentation of the Case

A patient of 80 years of age with a history of health and of being an inveterate smoker who went to the body of the Martyrs Hospital guard on April 9 because from a few hours before he began with pain in the left hypochondrium irradiated to the precordial region and back, accompanied by sweating, blood pressure 110/70 is checked, pulse 83 beats per minute, electrocardiogram is performed which was normal, interconsultation with surgery and at the moment being examined, the patient begins with pallor, intensification of sweating and loss Sudden awareness At the physical examination at that time, there is no presence of absent central and peripheral heart sounds and pulses. Electrocardiogram is performed again in which sinus tachycardia is observed (Figure 1).

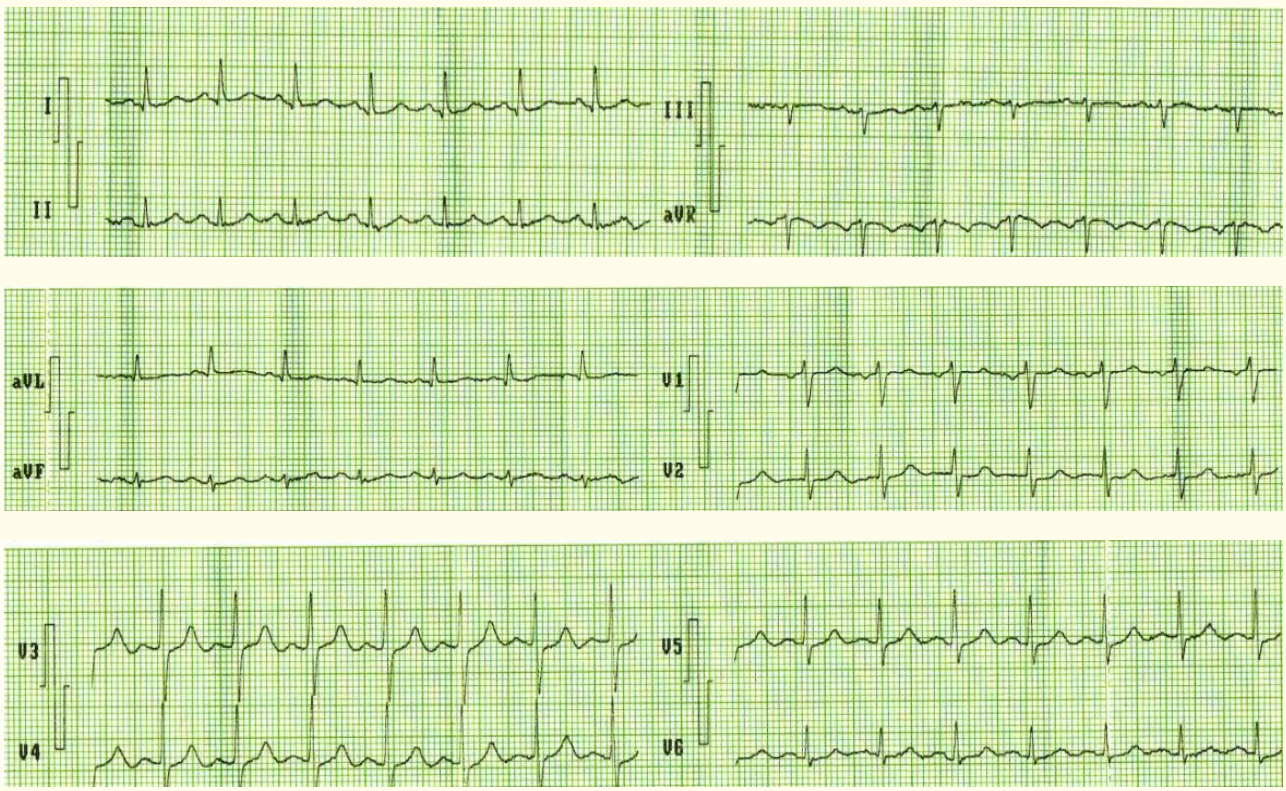

Figure 1: *Electrocardiogram.*

Cardiopulmonary resuscitation (CPR) begins with monitoring of electrical activity. After 15 minutes of start, isoelectric line appears on the monitor. Resuscitation is continued without obtaining results, so the patient's death is declared 30 minutes after CPR has begun. The physical examination of the patient shows: No presence of respiratory activity, no audible heart sounds, absence of pulses, midrhythmic pupils, absence of corneal reflex.

In the necropsy performed on the patient, the cause of death is confirmed:

- Severe atherosis of the aorta and its branches.
- Atherosclerotic aneurysm of a ruptured abdominal aorta.
- Large retroperitoneal hematoma.
- Which was the cause of the Hypovolemic Shock with Electromechanical Dissociation.

Discussion

In this case, the patient suffered from asymptomatic abdominal aortic aneurysm, which is the most common form of existence of this disease, according to studies by several authors [1,2,4]. Of the risk factors described for this disease, it was older than 65 years and the male sex, as well as being a smoker, which is described as one of the independent risk factors that most affects this disease [4,7].

Diagnosis can occur by chance during a routine examination, or as a finding in a radiological or ultrasound study performed for another reason or simulating another disease [7], as in this case, the clinical picture upon arrival at the guardroom simulated a heart attack acute myocardium, by the presence of localized pain in the precordial region, left hypochondrium and back, accompanied by sweating.

The most frequent cause of Electromechanical Dissociation is the rupture of the free wall of the left ventricle [8], although it can also be seen in severe hypovolemia mainly caused by the rupture of an aortic aneurysm [5]. This being the cause of what happened to our patient. There are few studies on Electromechanical Dissociation caused by ruptured aortic aneurysm, possibly because this event leads quickly to death and in very few cases an electrocardiogram is recorded at the time of rupture where the electrical activity of the heart without blood flow is evident, but in the reviewed works all coincide in the lethality of this type of events [5,7]. It is very difficult, even being in a hospital unit with all available resources, to reverse the rupture of a vessel as large as the abdominal aorta with a massive hemorrhage, when this has already happened. The best treatment is the early diagnosis of the existence of the aneurysm and act accordingly to avoid rupture.

Conclusions

This patient presented ruptured abdominal aortic aneurysm, which is one of the most frequent and serious complications of this disease. Despite being in a hospital center, the massive hemorrhage caused by this complication caused the electromechanical dissociation that, although it was diagnosed opportunely, caused the death of the patient. The best treatment in this case is the timely diagnosis of the existence of the aneurysm to treat properly before complications occur, which are almost always fatal.

Bibliography

1. de la Torre C., *et al*. "Enfermedades vasculares periféricas y niveles de calidad de vida en el municipio Diez de Octubre". *Revista Cubana de Angiología y Cirugía Vascular* 18.1 (2017): 1.

2. Hermida JA. "Aneurisma de aorta abdominal infrarrenal, lumbalgia crónica, dislipidemia y enfermedad pulmonar obstructiva crónica". *Medicina General y de Familia* 5.2 (2016): 59-63.

3. Deepak MD. "Aneurisma aórtico abdominal". Medline Plus. Biblioteca Nacional de Medicina de los EE. UU. (2015).

4. Alvarez J., *et al*. "Despistaje de aneurisma de aorta abdominal en Atención Primaria". *SEMERGEN-Medicina de Familia* 43.1 (2017): 13-19.

5. Myerburg RJ., *et al*. "Pulseless Electrical Activity. Report From A National Heart, Lung And Blood Institute Workshop". *Circulation* 128.23 (2013): 2532-2541.

6. González BM. "Paro Cardiorrespiratorio". En: Peña EV, *et al*, editores. Medicina Interna. Diagnóstico y Tratamiento. 2nd edition. La Habana: Editorial Ciencias Médicas: (2016): 189-193.

7. Bandrés B., *et al*. "Aneurisma de aorta abdominal". Diagnóstico por imagen (2016).

8. Caballero A. "Reanimación cardiopulmocerebral. Paro cardiorrespiratorio". En: Caballero A., *et al*/Cheping N. Terapia Intensiva Volume 2. 2nd edition. La Habana: Editorial Ciencias Médicas (2007): 708-745.

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