

A Case Report: Acute Pericarditis Revealing Celiac Disease

Edgar Stroppa Lamas^{1,*}, Junior Luiz Pasin¹, Elio João Jaskulski², Ricardo Bononi³, Marly Mitico Kawahara¹

¹Department of Critical Care, Hospital 13 de Maio, Sorriso, Brazil

²Department of Endoscopy, Hospital 13 de Maio, Sorriso, Brazil

³Department of Echocardiography, Hospital 13 de Maio, Sorriso, Brazil

*Corresponding author: edslamas@gmail.com

Abstract Background: Acute pericarditis is usually attributed to viral etiology, but rarely proven. It can be the first manifestation of an autoimmune disorder such as celiac disease. In this context, there are just a few case reports demonstrating the association between acute pericarditis with celiac disease. **Case presentation:** We describe a case of 48-year-old male patient admitted with acute chest pain. Electrocardiogram showed classical patterns of acute pericarditis and no evidence of acute myocardial ischemia. Based on a history of iron deficiency anemia, refractory to oral therapy, further investigation with duodenal biopsy revealed celiac disease. Treatment was initiated with ibuprofen and colchicine showing a good clinical response. After the confirmation by duodenal biopsy, gluten-free diet was started, obtaining subsequent normalization of hematimetric parameters. **Conclusions:** The association of celiac disease and acute pericarditis reports are rare. Efforts are mandatory to investigate concomitant autoimmune systemic diseases, with impact on overall management of the patient and possible avoiding further pericardial events.

Keywords: pericarditis, celiac disease, iron deficiency anemia

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1. Background

Acute pericarditis is important differential diagnosis in acute chest pain, a frequent complaint in emergency department. In general attributed to viral etiology. However in many instances can be the first manifestation of an underlying systemic disease [1]. We present the case of 48-year-old man with acute chest pain with classical electrocardiogram findings of acute pericarditis. He presented an iron deficiency anemia, refractory to oral iron therapy. Therefore, it revealed an atypical presentation of a possible celiac disorder confirmed afterward with duodenal biopsy. The frequent autoimmune features of pericarditis must be considered, sharing clues to other autoimmune disorders like celiac disease, despite its atypical presentation in an older age [2].

2. Case Presentation

A 48-year-old man presented to emergency department with acute chest pain that had started 1 hour earlier. The pain was intense, irradiated to cervical region and associated with shortness of breath and diaphoresis. His prior medical history is remarkable only for a chronic anemia on oral iron supplementation treatment. He admitted on primary care hospital and then transferred to ICU (intensive care unit) in a tertiary center with hypothesis of acute coronary syndrome. On admission he was on regular status, blood pressure was 95/55 mmHg,

heart rate was 100 bpm, respiratory rate was 16/min, and pulse oximetry was 98% on ambient air. Heart and pulmonary auscultation were unremarkable. Chest radiograph was normal. Routine laboratory tests revealed a microcytic hypochromic anemia, high CPR level, and others tests were normal including cardiac biomarker and NT Pro-BNP levels. His electrocardiogram (ECG) on presentation is shown in [Figure 1](#).

ECG reveals a widespread concaved ST elevation with concordant T waves, reciprocal ST depression and PR elevation in lead aVR and PR depression in lead DII. An echocardiogram performed was unremarkable, including mild pericardial infusion and no regional wall motion abnormalities. Acute pericarditis presented as the principal diagnosis hypothesis. Ibuprofen and colchicine was started with good response and expected clinical and electrocardiographic classical evolution.

Additional laboratory revealed only iron deficiency anemia. Based on the finding of refractory anemia to oral iron therapy an upper gastrointestinal endoscopy was performed. No abnormalities were seen on direct visualization on endoscopy examination, and was collected specimens of gastric and duodenal mucosa for histopathology study. Duodenal mucosa architectural changes ([Figure 2](#)) were detected, as rudimentary villi, thickening of the basement membrane under the surface epithelium and increased numbers of intraepithelial lymphocytes, all corresponding classical histologic patterns of Celiac Disease. A gluten-free diet was started and posterior tests revealed normalization of hemoglobin levels and the iron kinetics. In the follow-up, there was no recurrence of pericarditis.

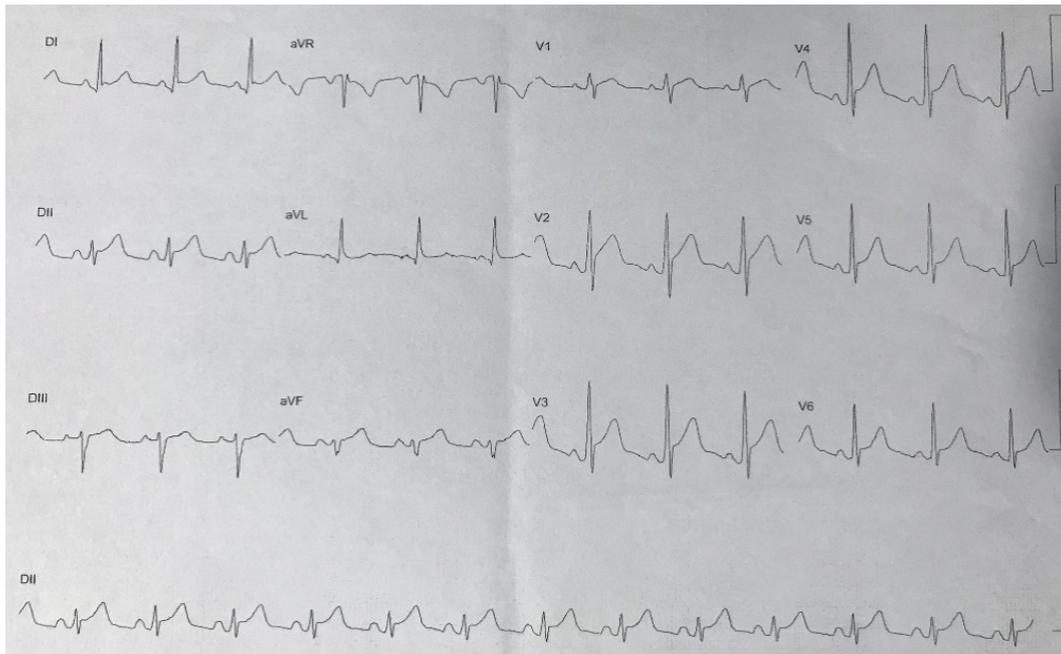


Figure 1. Initial ECG on presentation

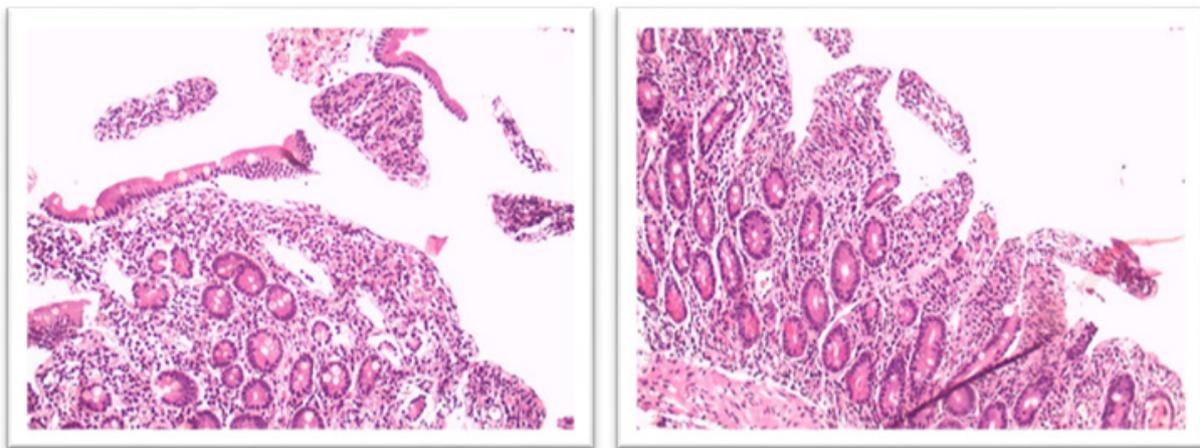


Figure 2. Duodenal mucosa histology

3. Discussion

Celiac disease is a common autoimmune disorder. The classical presentation is diarrhea, malabsorption syndrome and growth retardation, generally manifested at young age. Recently it is recognized that is linked to systemic disorders sharing autoimmune mechanisms [3].

Acute pericarditis is a frequent cause of acute chest pain in young age patients and it is usually idiopathic [1]. Viral etiology is generally considered, but rarely proven. In many instances, an autoimmune process is involved and an extensive evaluation is necessary to determine a specific disorder linked to the inflammatory pericardial condition [4].

The association of acute pericarditis and celiac disease is not a common presentation, only described in a few case reports [5,6]. Other pericardial syndromes like isolate pericardial effusion may be seen [7]. Recognize these conditions and adequate screening is very important avoiding further pericardial insults after appropriated treatment [8].

Probably, the main mechanism of pericardial involvement in celiac disease is related to a disturbed humoral and cell-mediated immunity. There is deposition of circulating immune complexes originating from the small intestine, which may resemble the etiology of pericarditis similar to the one encountered in serum sickness [9].

Iron deficiency is the most common cause of anemia worldwide. Celiac disease may be associated with iron deficiency anemia, refractory to iron therapy reassembling the importance of its recognition in unexplained iron deficiency anemia [10]. Anemia is the most common presentation of celiac disease in adults and it may be the only presentation of disease and iron deficiency is the major cause of this anemia. [11]

Our case highlights and shows the importance of this rare diagnostic association of acute pericarditis and celiac disease, and its respective impact on management, which includes gluten-free diet to prevent the development of both iron deficient anemia and possible new pericardial damages.

"Written informed consent was obtained from the patient for publication of this case report and any accompanying images."

Abbreviations

Intensive Care Unit (ICU).
Electrocardiogram (ECG).
C Reactive Protein (CPR).
Brain Natriuretic Peptide (BNP).

Ethics Approval and Consent to Participate

Hospital ethics committee has approval this paper.

Competing Interests

All the authors declare that we have no competing interests.

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Author's Contribution

ESL and JLP served as study coordinators. RB e MMK were members of the study team. ESL translated the paper into English. EJJ made the endoscopic examination. RB made the echocardiogram. All authors read and approved the final manuscript.

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