

# Diarrhea in a Patient With 3 Vessel Disease: A Case of Atypical Myocardial Infarction

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**Abstract-** Acute myocardial infarction (AMI) typically presents with retrosternal chest pain exacerbated by exertion and relieved by rest or nitroglycerin. However, this case describes an 81-year-old male who presented with Diarrhea and generalized weakness, an unusual manifestation of AMI. This highlights the importance of recognizing atypical symptoms, particularly in elderly patients with comorbidities, to ensure timely diagnosis and intervention.

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## Introduction

The main symptoms of acute myocardial infarction (AMI) include neck, jaw, or back discomfort; chest pressure or discomfort; sudden arm or shoulder pain; sudden dyspnea; weakness; nausea; or cold sweats (1). Typical AMI presents with retrosternal chest pain or discomfort, which might radiate to the jaw and arms and is aggravated with activities and dismissed with rest or nitroglycerine (2,3). The atypical presentations are often misdiagnosed (45.1% of symptoms truly related to heart attacks) or neglected since the manifestations and the current knowledge are inadequate, especially for gastrointestinal presentations like abdominal pain and nausea or vomiting (4,5). According to epidemiological reports from Iran, most of the patients diagnosed with AMI in ED presented primarily with chest pain and prehospital delay, commonly associated with a lower educational level, and unawareness of coronary symptoms (6). Here, we present a case of atypical AMI presented with Diarrhea in the setting of diabetes, in an

old man. To date, this is the second case presenting with Diarrhea as an atypical feature of AMI (7).

## Case Report

An eighty-one-year-old man presented at the emergency ward of Imam Reza Hospital with a chief complaint of massive noninfectious watery Diarrhea before the general weakness for three days. The patient did not give any history of dyspnea, nausea and vomiting, sweating, or pain, as well as chest pain at all. The patient was not a smoker and had a past medical history of poorly controlled diabetes for more than 10 years, and used 30 units of NovoRapid and 10 units of glargine insulin to control his diabetes. A month ago, the patient was also admitted and treated for dysuria and UTI. At the time of entrance, the vital signs showed a Pulse rate of 85, Blood pressure of 110/75, respiratory rate of 24, temperature of 36.5 axillary, and a SpO<sub>2</sub> of 98%. The cardiorespiratory examination did not reveal any pathologic signs. The abdominal examination was also normal, except for

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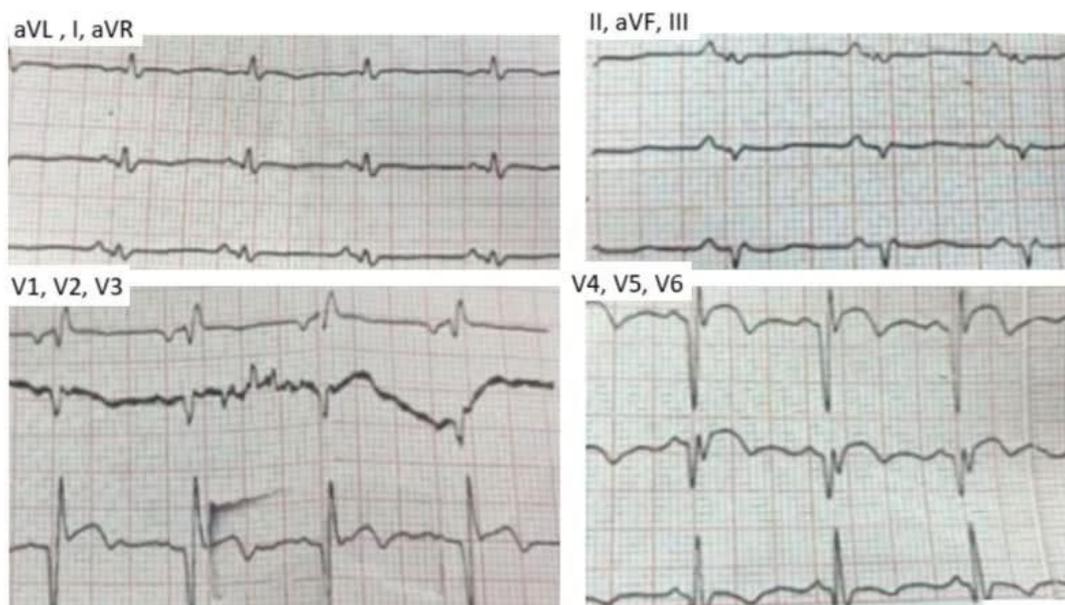
increased bowel sounds on auscultation. The musculoskeletal and neurologic examination showed decreased force at the proximal and distal joints (about 4/5), without any change in muscle tone or reflexes. The patient had pitting edema up to the ankles about one plus.

Regarding the edema, the generalized weakness accompanied by gastroenteritis, the enteropathy losing protein, and electrolyte disturbances with dehydration are considered. In the primary order cardiac monitoring and pulse oximetry, the routine and required laboratory tests (CBC/Diff, Na, K, BUN, Cr, PT, PTT, INR, Ca VBG, U/A, AST, ALT, ALP, BS, Alb, and Total protein.), serial ECG in 0, 30 and 60 minutes, bedside glucometer and q8hours, stool exam, chest x-ray, with primary interventions including IV fluid Normal Saline 500 cc IV infusion to manage dehydration considered. The patient also received regular Insulin with a modified dose based on the chart.

The requested laboratory test results were within normal limits, except for anemia (RBC:  $4.2 \times 10^6/\mu\text{L}$ , Hb: 9.8 g/dL, Hct: 32.3%, RDW-CV: 15.4%) and

hypoalbuminemia (3.4 g/dL, with normal total protein). The bedside glucometer results were 86 mg/dl, and the reported laboratory BS was 82 mg/dl.

The stat ECG showed an RBBB pattern with ST elevation in V3-V5 leads and prominent P waves for inferior leads (Figure 1). To further confirm the condition, highly sensitive cardiac troponin I was requested, and the result was positive (patient's TPI: 57.90; normal range: 0-29.7). As the ECG and Troponin I suggested STEMI, the patient was managed on the first hand with heparin Bolus dose 4000 IU, aspirin tablet 300 mg, Ticagrelor tablet 180 mg, Atorvastatin tablet 80 mg, pantoprazole Ampule 40 mg IV bolus dose, and admitted to the Cath lab with D/C shock monitoring based on the cardiologist's consult results. The coronary angiography via radial artery reported three-vessel disease (subtotal stenosis at the midpart of LAD, diffuse proximal stenosis of OM, dominant and diffuse multiple stenosis of RCA). Based on the results, POBA via LAD was suggested. Finally, the patient was stabilized and then referred to the coronary care unit.



**Figure 1.** ECG shows an RBBB pattern with ST elevation in V3-V5 leads and prominent P waves for inferior leads

## Discussion

According to Møller *et al.*, among Patients with MI calling for help, there is a 24% chance of AMI, and the proportion of patients has higher long-term mortality and a lower chance of receiving emergency dispatch (8). The atypical symptoms are usually seen in older women, and DM or HTN are comorbidities. These clues are more

common in NSTEMI than in STEMI (9).

A systematic review included 52 case reports to analyze the presentation of atypical AMI and revealed that most cases occur without chest pain. 86% of cases had comorbidities, and the most frequent were diabetes 30.35%, hypertension 25%, dyslipidemia 21.43%, smoking 17.87%, and coronary artery disease 12.5%, respectively. The most frequently mentioned atypical

symptoms were Gastrointestinal discomfort, atypical chest pain, Syncope, Cough or breathlessness, throat pain, Otagia, Fatigue, Dizziness, Hiccups, Anxiety, Fever, Palpitation, Mid-back pain, and Headache. The usual presentation for atypical AMI according to this study is a 50-year-old man with comorbidities and prodromal symptoms (10). A similar study from Ghazzay *et al.*, mentioned a 55-year-old male with noninfectious Diarrhea, mild abdominal pain, and nausea with diabetes melitus, dyslipidemia, and smoking as comorbidities, who underwent routine tests and in the Stat ECG, incidentally revealed ST elevation in all leads with prominent R anteroseptal leads and ST depression with T wave inversion in posterior leads, the patient admitted to CCU and with the initial cardiac management diarrhea ceased (7).

Our case presents an old male with Diarrhea, edema, and general weakness without any other cardiac symptoms and diabetes mellitus as a comorbidity, diagnosed as atypical myocardial infarction. Since the whole presentation and examination brought us to suspect electrolyte disturbances such as hypokalemia (caused by dehydration), AKI, and infectious Diarrhea at the bottom of our differential diagnosis, the tests requested and the ECG incidentally revealed the underlying pathology. Severe hypokalemia can also mimic the MI symptoms even when the MI is not happening at all; however, our case had a potassium of 4.2 mEq/L. In a similar report to our case presentation, a 33-year-old male with a past medical history of possible food poisoning and repeated episodes of abdominal discomfort, Diarrhea, and vomiting with subsequent dehydration presented to the ED for 2 days of general weakness and chest pain, with a Stat ECG showing ST-segment depression in leads II, III, aVF, V1 -V6. Troponin level was normal, and the patient was hypokalemic (1.8 mmol/liter). Potassium was modified, and the symptoms were revealed (11). The consequent autonomic disturbances related to the comorbidities could be the possible explanation, but there is no evidence or confirmed theory to date to figure out the exact cause of Diarrhea. Research about the relationship between Diarrhea and AMI is recommended.

In our study, a patient with AMI presented with Diarrhea and general weakness. It is noteworthy to mention that the presentation of AMI is extensive, and any symptoms could be considered as the atypical manifestation of AMI. So it is better to consider the ECG an easy, readily available tool for primary evaluation of

the possibility of AMI.

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