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Case Report

Atypical myocardial infarction masquerading as gastroenteritis

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ABSTRACT

Acute coronary syndrome (ACS) encompasses unstable angina and myocardial infarction (MI). MI typically presents as chest pain that may radiate to the arm or jaw and is described as dull, heavy, tight, or crushing. However, it may present atypically with symptoms other than chest pain including epigastric pain, often described as burning in character or like indigestion. This is a case of a 51-year-old patient who presented with symptoms of epigastric pain, nausea and vomiting resembling gastroesophageal disease. The patient was initially evaluated by a physician as a non-urgent case of gastroenteritis. Following further assessment due to ongoing symptoms, he was diagnosed with ST elevation MI (STEMI) and treated according to ACS treatment guidelines. To accurately diagnose ACS, clinicians must demonstrate competent communication, history taking and physical examination skills, identify red flags and make use of appropriate investigations. Correct medications and timely referral to secondary care services is vital to prevent morbidity and mortality.

Keywords: Atypical MI, ECG, Gastroenteritis, SBAR

INTRODUCTION

Gastroesophageal reflux disease (GERD) is a public health problem amongst adults in the Arabian Gulf region with a prevalence of 67.8%.[1] The 0.82% of male primary care patients present to their clinicians complaining of nausea and vomiting each year. This may be accompanied with diarrhoea, abdominal pain and heartburn in 38.5%, 7.1% and 2.4% of cases respectively.[2]

The 20.2% of all patients admitted to hospital with an eventual diagnosis of acute MI present atypically with symptoms other than chest pain, including dyspnoea (69.4%), nausea (37.7%), diaphoresis (25.2%), syncope (10.6%), or pain in the arms (11.5%), epigastrium (8.1%), shoulder (7.4%), or neck (5.9%).[3,4]

When evaluating patients with chest pain, the ability of primary care physicians to exclude ACS based on signs and symptoms alone is unreliable, with sensitivity of 69% and specificity of 89%.[5] This would imply that ACS patients presenting with atypical symptoms are at an even greater risk of an incorrect diagnosis.

ACS causes significant morbidity and mortality, and early diagnosis is crucial to improve patient outcomes. Primary care physicians must be familiar with atypical presentations of ACS.

CASE REPORT

A 51-year-old male patient of Indian origin presented to the primary health care center complaining of epigastric pain along with nausea and vomiting.

Patient's preferred language was Urdu and he spoke a little English. As per the health center's triage policy for walk-in patients, he was seen by a nurse to decide if his condition was emergency, priority/ routine presentation. He appeared unwell enough to be directed to treatment room to be seen by on-call emergency doctor.

The patient was assessed by the on-call emergency doctor, in English, despite the presence of Urdu speaking colleagues available to translate and diagnosed with acute gastroenteritis. This was considered to be a priority but not an emergency presentation, and so the patient's care was handed over via a nursing colleague to a second physician who was responsible for managing priority cases. No discussion or handover took place directly between physicians.

A more detailed assessment was carried out by the second physician in Urdu, including a history, examination, and electrocardiogram (ECG). The patient reported ongoing symptoms that began two hours earlier of epigastric pain without radiation to the neck, jaw, or arms. The pain was burning in character. Associated symptoms included nausea and vomiting. No additional symptoms were reported.

The patient had no known medical condition and was taking no regular medication. There was no record of any past laboratory investigations. He smoked ten cigarettes per day but did not drink alcohol. Of note, his father had suffered an MI at the age of fifty years.

Examination

On examination, the patient appeared uncomfortable and diaphoretic. His blood pressure was recorded as 118/58, his pulse was 81 beats per minute and regular, his respiratory rate was 18 breaths per minute, his oxygen saturations were 98% on air and his temperature was 37.3^0 C. On auscultation, heart sounds were normal with no audible murmur. Chest was clear with good bilateral air entry and no palpable tenderness. Abdominal examination including the epigastrium was unremarkable.

An ECG revealed sinus bradycardia with a heart rate of 53 beats per minute and T-wave inversion in leads aVL, V2 and V3. A provisional diagnosis of ACS was made although aspirin withheld due to diagnostic uncertainty. He was transferred to secondary care facility via ambulance service for further assessment and management.

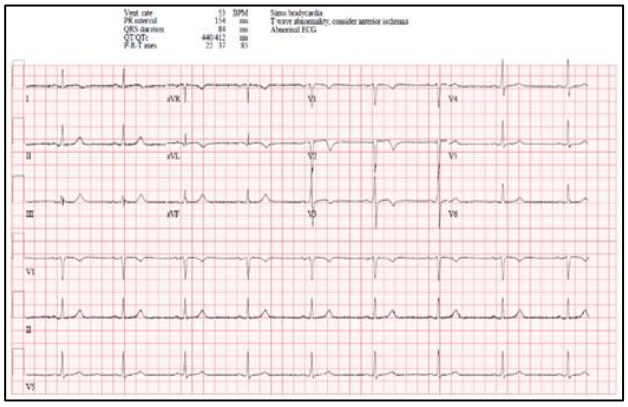

Figure 1: Presenting ECG.

Investigations and management

The patient was received at the emergency department where an ECG showed ST elevation in leads V1-V3. A diagnosis of STEMI was made, and the patient was given 300 mg of aspirin, 600 mg of clopidogrel and 5000 IU of intravenous heparin immediately. The patient was transferred to a cardiac catheterization laboratory for coronary angiography which demonstrated 99% stenosis of the proximal left anterior descending artery (LAD) and 50% stenosis of the mid second obtuse marginal artery (OM2). Two drug eluting stents were placed at the proximal-mid and mid LAD.

Blood tests recorded on the day of admission included raised cardiac enzymes (Troponin I 0.239 ng/ml rising to 0.72 ng/ml, troponin T 82.5 ng/l and CKMB of 21.9 ng/l). Random blood glucose was measured at 4.7 mmol/l, HbA1c 5.6%, total cholesterol 5.2mmol/l, HDL 0.6 mmol/l and LDL 4.13 mmol/l. Both renal and liver function were normal. Multiple ECG's post percutaneous coronary intervention (PCI) showed sinus Bradycardia with T-wave inversion in leads aVL and V2.

Over the next two days, troponin T levels peaked at 91.2ng/l before decreasing to 40.8 ng/l. Likewise, CKMB levels peaked at 18.6ng/l before falling to 9.8ng/l. Troponin I level fell to 0.69 ng/ml. An echocardiogram showed overall normal left ventricular (LV) function with ejection fraction (EF) of 50-55%. However, a segmental wall motion abnormality (SWMA) was seen in the form of hypokinetic anterior LV wall motion. Prior to discharge, an ECG showed normal sinus rhythm with T-wave inversion in leads aV and V2.

He was discharged home on aspirin 100 mg daily, ticagrelor 90 mg twice daily, rosuvastatin 20 mg nocte and GTN spray. He was given smoking cessation advice and a follow up appointment for two weeks.

DISCUSSION

Although epigastric pain along with nausea and vomiting are commonly associated with gastrointestinal disorders such as gastroesophageal reflux disease (GERD) and gastroenteritis, they may less commonly be due to ACS. As mentioned previously, a fifth of patients admitted to hospital with an eventual diagnosis of acute MI present with atypical symptoms, of which nausea (37.7%), diaphoresis (25.2%) and epigastric pain (8.1%) were present in our patient.[3,4]

A language barrier is likely to have been one factor contributing to the initial assessment as gastroenteritis. Miscommunication due to language barriers or translational difficulties can compromise the quality of history taking.[6] In Qatar, Urdu speakers were found to be more vulnerable to health disparities when accessing healthcare as compared to mainstream Arabic or English speakers.[7] Time pressure is a major barrier to

communication between patients and family physicians, especially in walk in settings.[8]. A deficiency in the patient's ability to recall or convey their symptoms accurately, and lack of clinician knowledge and experience also increases the risk of errors and misdiagnosis.

An ECG should have been considered at the initial presentation by the first physician given the presence of traditional cardiac risk factors of male gender, Indian ethnicity, a smoking habit and a father having had an MI before the age of 55 years. The Primary Health Care Corporation (PHCC) ACS guidelines as well as the American college of cardiology (ACC) and the American heart association (AHA) guidelines recommend that an ECG be done within ten minutes of a patient presenting with acute chest pain or suspected cardiac ischemia.[9,10]

Effective clinical handover is an essential component of safe patient care to ensure reduction in errors and patient harm. The SBAR (situation, background, assessment, recommendation) tool is regarded as a communication technique that increases patient safety and is current 'best practice' to deliver information in critical situations.[11] This could have been utilized together with direct communication between physicians.

In the above case, Aspirin was not given due to fear of exacerbating a possible gastrointestinal disorder such as gastric or peptic ulcer disease. However, PHCC ACS guidelines as well as the National Institute of Care Excellence (NICE) guidance recommends that's once ACS is suspected, despite an inconclusive ECG, a single loading dose of 300 mg aspirin as soon as possible unless there is clear evidence of allergy to it.[9,12]

CONCLUSION

Atypical presentation of MI is not uncommon and is associated with increased morbidity and mortality. ACS patients presenting without chest pain but with epigastric pain, nausea and vomiting, may be misdiagnosed as gastroesophageal diseases such as gastritis, GERD or gastroenteritis.

A detailed history and examination are required to aid diagnosis. An ECG should be carried out promptly and timely treatment initiated including giving Aspirin, and referral to secondary services.

Communication between patient and physician, and between physicians is a crucial component in the assessment and management of such atypical cases.

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