

A Case of Acute Coronary Syndrome with Atypical Symptoms in a Female Patient

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Introduction

Acute Coronary Syndrome (ACS) refers to a spectrum of conditions caused by a sudden reduction or interruption of blood flow to the heart, leading to varying degrees of myocardial injury. It includes clinical conditions such as unstable angina, Non-ST-Elevation Myocardial Infarction (NSTEMI), and ST-Elevation Myocardial Infarction (STEMI). While the hallmark symptoms of ACS such as chest pain, shortness of breath, and sweating are well-known, a significant number of patients present with atypical or less common symptoms that can complicate diagnosis and delay treatment. Atypical symptoms in ACS are particularly common in certain populations, including women, elderly individuals, and people with diabetes. These patients may experience vague or nonspecific signs such as indigestion, fatigue, nausea, dizziness, or even upper back pain, which can easily be misinterpreted as non-cardiac in origin. The challenge in diagnosing ACS with atypical symptoms lies in the fact that these presentations may not immediately raise suspicion for a cardiac event, leading to under-recognition and delays in seeking appropriate care. The importance of recognizing ACS with atypical symptoms cannot be overstated, as prompt diagnosis and intervention are crucial for improving outcomes and preventing life-threatening complications such as cardiogenic shock or sudden cardiac death. Healthcare providers must maintain a high level of clinical suspicion, particularly when patients present with risk factors for cardiovascular disease or have a history of conditions that may obscure typical symptoms. This condition underscores the need for a more nuanced approach to diagnosis, incorporating advanced diagnostic tools such as Electrocardiograms (ECG), cardiac biomarkers, and imaging studies, along with careful clinical assessment. Awareness of ACS's diverse presentations is essential to ensure timely treatment and reduce the risk of adverse outcomes [1].

Description

A 58-year-old woman with a significant medical history of hypertension, type 2 diabetes mellitus, and hyperlipidemia presents to the Emergency Department (ED) with a two-day history of vague, non-specific symptoms. She reports increasing fatigue, nausea, and intermittent discomfort in her upper abdomen, which she initially attributes to indigestion. Over the last few hours, she develops mild dizziness and shortness of breath, particularly when lying flat. She dismisses these new symptoms as stress-related, due to the pressures from her recent work situation. Despite not experiencing typical chest pain, she mentions an occasional "pressure-like" sensation in her upper abdomen, which she believes could be related to dietary indiscretions. She also reports having occasional palpitations and a history of mild bilateral ankle swelling, which has been present for some time but has worsened recently. Her family history is significant for cardiovascular disease, with both her

mother suffering a stroke at age 65 and her father experiencing a Myocardial Infarction (MI) at age 60. This increases her risk for cardiovascular events, despite the absence of a prior diagnosis of Coronary Artery Disease (CAD) or a history of myocardial infarction. When the patient arrives at the ED, she appears mildly anxious but is otherwise alert and oriented. Her vital signs are stable, with a blood pressure of 145/85 mmHg, a heart rate of 88 Beats Per Minute (bpm), respiratory rate of 18 breaths per minute, and a temperature of 98.6°F (37°C). Her oxygen saturation is 97% on room air, which is within normal limits. On physical examination, she is noted to have mild tenderness on palpation over the epigastric region, but there is no significant abdominal distension, hepatomegaly, or murmurs. Importantly, there is no jugular venous distension (JVD) or signs of acute heart failure and lung auscultation are clear. Peripheral pulses are palpable, and her skin is warm and dry, though she has slight bilateral lower extremity edema, which is an important finding [2].

Given the patient's symptoms and risk factors, a broad differential diagnosis is considered. Potential gastrointestinal causes, including gastritis, peptic ulcer disease, or gallbladder pathology such as cholecystitis or biliary colic, are entertained. However, her cardiovascular risk factors such as hypertension, diabetes, and a family history of CAD prompt consideration of a cardiac etiology. Acute Coronary Syndrome (ACS) is high on the differential, particularly because her complaints of fatigue, nausea, and shortness of breath are suggestive of a possible ischemic event, even in the absence of typical chest pain. Other possibilities, such as respiratory causes like asthma or pulmonary embolism, are considered but are less likely given the absence of pleuritic chest pain or significant hypoxia. Metabolic causes such as electrolyte disturbances could also be contributing, particularly in the context of her diabetes, but the constellation of symptoms raises concern for a cardiac origin. Lastly, anxiety and stress-related symptoms are considered, although these would not fully account for the degree of physical symptoms observed. Given her risk factors and atypical presentation, there is a high suspicion for ACS, and early diagnostic workup is initiated. The first step is an Electrocardiogram (ECG), which reveals normal sinus rhythm with subtle T-wave inversions in the lateral leads (V4-V6). Although there are no obvious ST-segment changes, these T-wave inversions are suggestive of ischemia in the lateral wall of the left ventricle, warranting further investigation. Cardiac biomarkers are obtained to assess for myocardial injury. The troponin I level is elevated at 0.5 ng/mL (normal < 0.01 ng/mL), confirming myocardial injury. Additionally, the Creatine Kinase-MB (CK-MB) level is slightly elevated at 16 ng/mL (normal < 5 ng/mL), which further supports the likelihood of acute myocardial injury. These findings are consistent with a diagnosis of Non-ST-Elevation Myocardial Infarction (NSTEMI), a form of ACS [3].

A chest X-ray is performed to rule out pulmonary pathology, such as a Pulmonary Embolism (PE), and the results are unremarkable, with no signs of significant lung disease or consolidation. An echocardiogram is also done to assess for any valvular abnormalities or left ventricular dysfunction. The echocardiogram reveals no significant valvular issues or global left ventricular dysfunction, but it does show mild hypokinesis of the inferior wall, suggesting ischemia in the region supplied by the Right Coronary Artery (RCA). This finding raises concern for a potential myocardial infarction involving the inferior wall of the heart. Given the clinical and diagnostic findings, a coronary angiogram is performed to evaluate the coronary arteries directly. The angiogram reveals moderate stenosis (50%) in the Right Coronary Artery (RCA) and a distal branch of the Left Anterior Descending artery (LAD), which may not fully explain the patient's symptoms but is consistent with a diagnosis of NSTEMI. The moderate stenosis could contribute to restricted blood flow to the myocardium, leading to ischemia and injury. This case exemplifies how Acute Coronary Syndrome (ACS) can present with atypical symptoms,

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particularly in women, older adults, and individuals with multiple risk factors for cardiovascular disease. Classic symptoms such as chest pain, pressure, and radiating discomfort are often absent in these patients, making diagnosis more challenging. Instead, symptoms like fatigue, nausea, abdominal discomfort, and shortness of breath may predominate, which can easily be misattributed to non-cardiac conditions such as gastrointestinal or stress-related issues. This patient's presentation characterized by vague symptoms could have easily led to a misdiagnosis if her risk factors and the subtle ECG changes had not been carefully considered [4].

The management of this patient focuses on treating the NSTEMI and preventing further myocardial injury. Dual antiplatelet therapy is initiated with aspirin and clopidogrel to inhibit platelet aggregation and reduce the risk of further thrombotic events. Low-Molecular-Weight Heparin (LMWH) is administered to prevent clot formation and reduce the risk of recurrent ischemia. Beta-blockers, such as metoprolol, are started to reduce myocardial oxygen demand and improve outcomes by lowering heart rate and blood pressure. Statins are introduced to stabilize atherosclerotic plaques and reduce the risk of further cardiovascular events, especially considering her hyperlipidemia and the presence of CAD. Given the moderate stenosis in the RCA and LAD, the cardiology team discusses the possibility of Percutaneous Coronary Intervention (PCI) to alleviate the narrowing, though this decision is deferred for further clinical evaluation. The patient is admitted to the Coronary Care Unit (CCU) for close monitoring, including serial cardiac biomarker testing and continuous ECG monitoring to assess for any changes or progression of her condition. The decision to proceed with PCI or other invasive measures will depend on her clinical progress over the next several hours. This case highlights the importance of recognizing ACS, particularly in high-risk populations, such as women, older individuals, and those with underlying comorbidities like diabetes and hypertension. The atypical presentation of ACS, characterized by symptoms such as nausea, fatigue, and abdominal discomfort, is more common in these groups and can often be mistaken for non-cardiac conditions, leading to delays in diagnosis and treatment. Early identification and risk stratification are crucial for improving outcomes. In this case, prompt diagnostic workup, including ECG, cardiac biomarkers, and coronary angiography, allowed for timely identification and management of the NSTEMI, reducing the risk of further myocardial injury and improving the patient's prognosis [5].

Conclusion

This case serves as a reminder that acute coronary syndrome can present with a wide range of symptoms, some of which may be subtle and atypical, especially in women and diabetic patients. Healthcare providers must maintain a high degree of suspicion in high-risk populations and utilize a combination of clinical assessment, diagnostic tools, and timely intervention to optimize patient outcomes. Early recognition and management of ACS can significantly reduce mortality and morbidity associated with this potentially life-threatening condition.

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