

LESSER OMENTAL INFARCTION PRESENTING WITH ST-SEGMENT CHANGES ON ELECTROCARDIOGRAPHY IN A 37-YEAR OLD MALE: COINCIDENCE OR CAUSATION?

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ABSTRACT Background: Omental infarction is a rare cause of acute abdominal pain. While the clinical presentation and diagnostic workup of omental infarction have been well-described in the literature, there is currently no published data on the relationship between omental infarction and Electrocardiogram (ECG) changes. **Case presentation:** A 37-year-old male presented with acute onset of epigastric pain, He had associated ECG changes, including ST elevation in V1 (1 mm), ST depression in leads II, aVF, and V4, so he was diagnosed with omental infarction after exclusion of acute coronary syndrome (ACS) via cardiac catheterization and echocardiography. The patient was managed conservatively with pain control and close observation and was discharged home in stable condition, The ECG changes resolved on follow-up 2 weeks later. **Conclusion:** Omental infarction should be considered in the differential diagnosis of patients presenting with acute abdominal pain and ECG changes. Further studies are needed to elucidate the pathophysiology of ECG changes in omental infarction and develop optimal management strategies for these patients.

KEYWORDS Omental Infarction, ECG changes, Abdominal pain

Introduction

Omental infarction (OI) is a rare but significant cause of acute abdominal pain (1). It occurs when a segment of the omentum, a peritoneal structure composed of fat, experiences ischemic necrosis due to a lack of blood flow. The omentum is anatomically divided into the greater and lesser omentum and is a remnant of embryological development (2). Omental infarction is often underdiagnosed or misdiagnosed as it can mimic other more

common causes of acute abdominal pain, such as appendicitis, cholecystitis, or diverticulitis (3).

Often, omental infarction presents as acute, localised, and continuous abdominal pain, sometimes radiating to the back or chest. Nausea, vomiting, and low-grade fever may also be present, but these symptoms are nonspecific and not helpful in differentiating omental infarction from other abdominal pathologies(4). To date, ECG changes have not been reported in the literature. Herein, we report a case of a 37-Year-Old man who presented with acute onset abdominal pain and ST changes and was subsequently diagnosed with omental infarction.

Case report

A 37-year-old male with no significant past medical or surgical history presented with a 4-day history of colicky epigastric pain. The pain was described as constant and debilitating, with a squeezing and twisting sensation that did not improve with rest or over-the-counter pain medications. There was no apparent association with time of day, food, or activity, and no history

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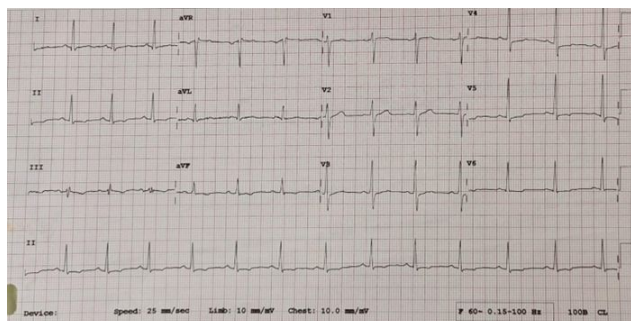
of trauma. He denied experiencing other symptoms, including vomiting, hematemesis, melena, fever, chills, jaundice, palpitations, chest pain, loss of consciousness, diaphoresis, shortness of breath or cough. Upon arrival at the emergency room, laboratory investigations ruled out pancreatitis. However, the patient's C-reactive protein (CRP) was elevated at 78 mg/L. An ECG revealed ST changes and troponin levels were negative. (Figure 1)

Based on these findings, the patient was admitted as a case of atypical acute coronary syndrome. Further investigations, including echocardiography and coronary catheterisation, were performed during admission, and results showed no evidence of ischemic heart disease. Throughout his stay, the patient's pain persisted and was noted to worsen after meals with radiation to the left shoulder. His CRP levels continued to trend upward, reaching 200mg/L, so septic workups were taken, including brucellosis, was negative and abdominal ultrasound revealed no biliary or evident abdominal pathologies. Lastly, the abdominal Computed Tomography (CT) scan revealed areas of mixed fat and soft tissue densities located posterior to the gastric antrum and duodenal bulb, measuring 4 cm, indicating omental infarction in the area of the lesser omentum. (Figure 2)

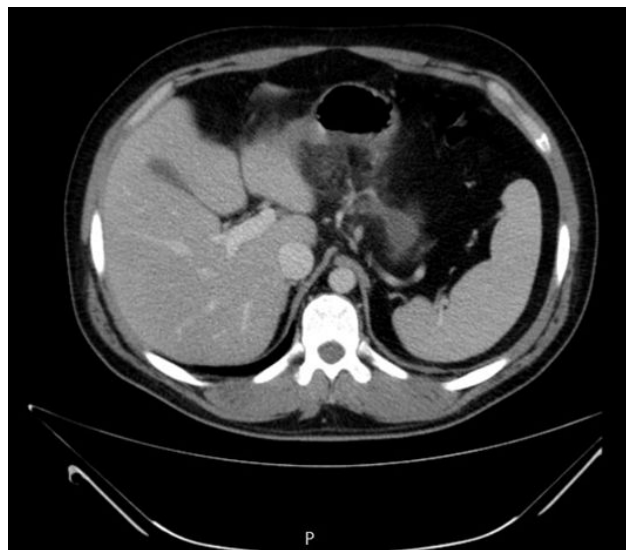
The patient was managed conservatively with fasting, intravenous fluids, and analgesia unless he developed acute pain or deterioration, which would require an exploratory laparotomy. He responded well to treatment, and his symptoms improved within a few days without complications. The patient was discharged in good health with a follow-up plan to monitor for recurring symptoms.

At his follow-up visit 2 weeks after discharge, the patient reported no recurrent abdominal pain or other symptoms. A repeat electrocardiography was performed, which revealed a complete resolution of the previously observed ST-segment changes in the inferolateral leads. This finding supports the hypothesis that the ST-segment changes observed during the patient's initial presentation were more likely related to the omental infarction than a coincidence. While the patient's electrocardiography findings resolved, it is essential to note that this does not necessarily indicate a complete resolution of the omental infarction. Long-term follow-up and monitoring are required to prevent recurrent symptoms or complications associated with the omental infarction. In conclusion, this case highlights the importance of considering non-cardiac causes of ST-segment changes in patients with chest pain or other cardiac symptoms, particularly when there is no clear evidence of ischemic heart disease.

Figure 1: Sinus, regular, narrow QRS, ST elevation in V1 (1 mm), ST depression in leads II, aVF, and V4.



Figures 2: Abdominal CT scan without contrast showing areas of mixed fat and soft tissue densities located posterior to the gastric antrum and duodenal bulb, measuring 4 cm, indicating omental infarction in the area of the lesser omentum.



Discussion

The lesser omentum is a peritoneal reflection that extends between the lesser curvature of the stomach and the free edge of the liver. It is composed of adipose tissue, lymphatics, and vessels. Infarction of the lesser omentum is a rare cause of abdominal pain that is part of the Intraperitoneal Focal Fat Infarction (IFFI) spectrum, with a reported incidence of approximately 0.1% in a study of 10,000 emergency department admissions for acute abdominal pain (5,6). Omental infarction has been reported to affect both paediatric and adult populations, with approximately 15% of cases occurring in children (7).

Primary causes of omental infarction are related to vascular incidents, while secondary causes can result from trauma or previous surgeries (8).

Patients with infarction of the lesser omentum present with sharp epigastric pain that worsens over time. Vomiting is uncommon, but nausea can occur. Physical examination may show a benign-looking abdomen, with pain out of proportion to tenderness, but can later progress to focal irritation and signs of peritoneal inflammation. Leukocytosis and a modestly elevated C-reactive protein levels are frequently seen (5).

CT and ultrasound are sensitive and specific imaging modalities for diagnosing omental infarction. In addition, CT findings are more reliable and precise, and can confidently rule out other pathologies. A fatty inflammatory lesion in the lesser omentum's anatomic area is always seen on CT. Another typical appearance is hyperattenuating streaks, which most likely are fibrous bands or dilated thrombosed arteries.

The primary responsibility of the radiologist is to confirm the accurate diagnosis and prevent unnecessary surgical interventions because conservative medical therapy results in favourable clinical outcomes (5). Conservative management is usually the first-line treatment for omental infarction, as it is a self-limiting condition that usually resolves within 1-2 weeks with analgesia and supportive care. However, surgical intervention may be required in cases of persistent or severe pain or concern for an alternate diagnosis (3,8).

Few cases of lesser omental infarction have been reported in the literature, and no clear relationship between lesser omental infarct and ECG changes has been established. However, few reported greater omentum infarctions addressed normal ECG results. Our patient had ST changes at the time of presentation which warranted further echocardiography and catheterization with normal results. Further investigations revealed a diagnosis of lesser omental infarction.

Conclusion

Lesser omental Infarction is a rare entity that usually presents with acute abdominal pain and nonspecific gastrointestinal symptoms. While ECG changes are not reported in cases of omental infarction, it is still possible for patients with this condition to exhibit ECG abnormalities, particularly if the infarction is severe or underlying cardiovascular risk factors.

However, such ECG changes are likely nonspecific and may not indicate omental infarction in the absence of other clinical findings. In conclusion, this case of a 37-year-old male with lesser omental infarction presenting with ST-segment changes on electrocardiography raises the question of whether this was a coincidence or causation. While the exact mechanism of the observed ST-segment changes, in this case, remains unclear, it is important to consider the possibility of non-cardiac causes of ST-segment changes when evaluating patients with chest pain or other cardiac symptoms. Clinicians should be aware of the potential for abdominal pathologies, such as omental infarction, to manifest as ST-segment changes on electrocardiography and consider this in their differential diagnosis. Further studies are needed to explore the relationship between omental infarction and ST-segment changes and to establish appropriate management strategies for patients with similar presentations.

Conflict of Interest

The authors declare no conflict or competing interests.

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