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Case Report

Primary omental torsion: a rare case report and an emergency diagnostic dilemma

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ABSTRACT

Primary omental torsion is an uncommon surgical condition resulting from the rotation of the greater omentum on its long axis, leading to vascular compromise and infarction. Clinically, it presents with nonspecific abdominal pain that mimics more prevalent acute abdominal conditions such as appendicitis, cholecystitis, or diverticulitis, often leading to diagnostic delays. We present a case of a 50-year-old male who experienced persistent, dull, left-sided abdominal pain for two weeks. Imaging with contrast-enhanced computed tomography (CECT) suggested omental torsion, which was confirmed on diagnostic laparoscopy. The affected, necrotic segment of the omentum was resected laparoscopically, and the patient had an uneventful postoperative recovery. Histopathology confirmed haemorrhagic infarction. This case underlines the importance of considering omental torsion in patients with unexplained abdominal pain and highlights the diagnostic value of cross-sectional imaging. Timely surgical intervention prevents complications such as abscess formation or peritonitis and can be effectively managed with laparoscopic techniques.

Keywords: Omental torsion, Acute abdomen, Primary torsion, Laparoscopic omentectomy, Abdominal pain, Case report

INTRODUCTION

Omental torsion is a rare cause of acute abdominal pain, first described by Eitel in 1899, involving the rotation of the greater omentum along its longitudinal axis. This rotation leads to vascular compromise, ischemia, and, eventually, infarction of the omental tissue.[1] It can be classified into primary torsion, which occurs without any predisposing pathology, and secondary torsion, often associated with intra-abdominal abnormalities such as adhesions, cysts, tumors, hernias, or previous surgeries.[2]

Primary omental torsion (POT) is more common in males and often occurs in the fourth and fifth decades of life.[3] Risk factors include obesity, sudden changes in body position, anatomical variations such as a bifid omentum, and strenuous physical activity.[4] Due to its rarity and nonspecific presentation, it is frequently misdiagnosed preoperatively, leading to unnecessary laparotomies. With the advent of advanced imaging, especially CECT, diagnosis of POT has improved, with characteristic findings such as the "whirl sign" of twisted omental vessels and surrounding fat stranding.[5] We present a rare case of primary omental torsion in a middle-aged male, emphasizing the need for clinical suspicion and appropriate imaging for early diagnosis and management.

CASE REPORT

A 50-year-old male presented to the emergency department with a two-week history of left-sided abdominal pain. The pain was dull, aching, and localized to the left upper quadrant, with no radiation. It worsened on movement but was not associated with fever, vomiting,

anorexia, or altered bowel habits. There was no history of trauma, prior abdominal surgeries, or significant comorbidities.

On general examination, the patient was afebrile and hemodynamically stable. Abdominal examination revealed localized tenderness and mild guarding in the left upper quadrant. There was no palpable mass or rebound tenderness. Bowel sounds were normal.

Laboratory investigations showed a normal white blood cell count and C-reactive protein (CRP). Abdominal ultrasonography was inconclusive. Subsequently, CECT of the abdomen was performed, which demonstrated an ill-defined, fatty mass with concentric streaks and swirling of vessels in the left upper quadrant, suggestive of omental torsion. There was moderate free fluid in the peritoneal cavity, but no evidence of appendicitis, diverticulitis, or cholecystitis.

The patient was taken for diagnostic laparoscopy, which revealed a twisted, edematous, and ischemic segment of the greater omentum measuring approximately 10×6 cm. There were no intra-abdominal adhesions, hernias, or other pathology. A laparoscopic omentectomy was performed, and the specimen was sent for histopathological examination. The postoperative period was uneventful, and the patient was discharged on the fourth postoperative day. At two-week follow-up, the patient remained asymptomatic. Histopathology confirmed haemorrhagic infarction of the omentum.

DISCUSSION

Primary omental torsion is a rare surgical entity, with an incidence ranging from 0.1% to 0.5% of all cases undergoing surgery for acute abdomen.[6] It predominantly affects males in the 30–50 age group and is more often right-sided due to the longer and more mobile right segment of the omentum.[7] However, our patient presented with left-sided omental torsion, which is uncommon and poses a greater diagnostic challenge.

Etiopathogenesis of primary omental torsion remains idiopathic in many cases but is thought to involve predisposing anatomical factors such as a narrow omental pedicle, accessory omentum, and redundancy of omental fat. Obesity is a well-documented risk factor.[8]

The clinical presentation is non-specific, often mimicking other causes of acute abdomen such as appendicitis, diverticulitis, or cholecystitis. As in our case, patients may present with localized pain without systemic signs of infection or inflammation. Laboratory parameters are usually normal or mildly altered, making clinical diagnosis unreliable.

Imaging, particularly contrast-enhanced CT, plays a critical role in preoperative diagnosis. The “whirl sign”, a hallmark finding, represents concentric layers of twisted omental fat and vessels. Several studies have emphasized the role of CECT in avoiding unnecessary laparotomy. In a retrospective review by Itenberg et al, preoperative CT had a diagnostic accuracy of 90% in identifying omental torsion.[9-11]

Historically, most cases were diagnosed intraoperatively during exploratory laparotomy; however, laparoscopy is now the diagnostic and therapeutic modality of choice.[12] It enables direct visualization, minimal invasiveness, and definitive treatment with laparoscopic omentectomy, resulting in faster recovery and lower morbidity.[13]

A similar case series by Park et al reported that early laparoscopic intervention in suspected omental torsion reduced the hospital stay and prevented complications such as abscess formation, peritonitis, or adhesions.[14]

Conservative treatment has been reported in select, stable patients where imaging is conclusive, but this approach may delay definitive management and is associated with risk of complications. Our patient underwent prompt laparoscopic omentectomy with good outcomes, confirming the reliability of early surgical intervention.

CONCLUSION

Primary omental torsion is an uncommon but important differential diagnosis in patients presenting with acute abdominal pain of uncertain etiology, particularly when common causes are excluded. Due to its vague clinical features, a high index of suspicion is necessary. CECT is the imaging modality of choice, with characteristic features allowing for preoperative diagnosis. Laparoscopic omentectomy remains the gold standard for management, offering both diagnostic and therapeutic benefits. Early diagnosis and timely surgical intervention ensure favorable outcomes and minimize unnecessary surgical explorations

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