

OMENTAL INFARCT: AN UNCOMMON ETIOLOGY OF ACUTE ABDOMEN

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ABSTRACT

Omental infarction is a very unusual cause of acute abdomen in which there is a disruption of the omentum's blood supply and the resulting ischemic necrosis of fat tissue. It can be a secondary phenomenon to torsion, venous thrombosis or trauma and often resembles other more common surgical conditions like appendicitis. The large size of the greater omentum may lead to abdominal pain of omental infarction to appear in any part of the abdomen. Here is a case report about a 48-year-old male patient presenting to the outpatient department (OPD) with a 2-month history of intermittent abdominal pain which gradually worsened and became localized in the right iliac fossa. Initial clinical evaluation indicated an inflammatory cause, but computed tomography (CT) scan of the abdomen showed typical features of omental infarction in the right iliac fossa. Given the continued symptoms, the patient then successfully underwent laparoscopy for resection of the infarcted omentum, and had a complete resolution of symptoms during the post-operative period. This case highlights the importance of considering omental infarction in the differential diagnosis of chronic right iliac fossa pain. It focuses on the important role of CT imaging in making the diagnosis and managing the patient according to clinical presentation.

INTRODUCTION

Acute abdomen may be caused by spontaneous omental infarction, which is rare. The condition can be primary or secondary. Secondary omental infiltration usually results from torsion of the omentum which can be caused by a variety of factors including tumors, hernias, localized inflammation, trauma, postoperative adhesions, and less frequently, hypercoagulability, vasculitis, and thrombophilia ^[1]. Greater omentum is a large apron, which falls and rises to join the transverse colon. The pain from greater omental infarction can manifest in different areas of the abdomen because of its wide distribution. Therefore, omental infarction is a condition that needs to be taken into account when making the diagnosis of other common surgery-induced conditions ^[2].

Omental infarction was first reported in the medical literature in 1896. It is now known to be a rare condition and an uncommon cause of acute abdominal pain ^[3]. Management is a conservative approach when diagnosis is definite and patient is clinically stable based on imaging. If there is any doubt on diagnosis or if the patient becomes more unstable, however, then laparoscopy may be required. The prompt identification is essential to keep the morbidity down and prevent unnecessary invasive procedure or treatment ^[4].

With the development and improvement of imaging technology, the number of cases diagnosed with omental infarction (OI) by abdominal ultrasonography and computed tomography (CT) is on the rise, and it is increasingly common that imaging studies are performed before the surgery. Both ultrasonography and CT scans are very accurate diagnostic tests; however, CT is more effective and reliable for the diagnosis of omental infarction ^[5].

A case of the omental infarction presented with intermittent abdominal pain for 2 months and was confirmed by CT.

Case Presentation

A 48-year-old man came to the outpatient department (OPD) with two-months of gradually worsening intermittent abdominal pain. It was insidious onset, non-radiating and generalized, and got to the point of seeking medical advice. He did not have any fever, weight loss, loss of appetite, jaundice, urinary complication, recent fall or any previous similar cases of abdominal pain.

There were no known comorbidities (diabetes, hypertension or thyroid disorders). He admitted nothing to do with alcohol or any smoking products. No family history of gastrointestinal, metabolic or malignant disorders. He had no past medical/surgical history of note.

The initial clinical diagnosis of acute appendicitis was made and a non-contrast computed tomography (CT) scan of the whole abdomen was performed. The axial images were reconstructed from the diaphragm to the symphysis pubis while the coronal and sagittal images were reconstructed for a complete evaluation of the abdominal and pelvic organs.

The lower thorax showed no evidence of pleural effusion. Free fluid was not found in the abdominal and pelvic cavity. Liver size, shape, contour, and attenuation were normal, and the density of the liver's parenchyma was homogeneous. There was no focal lesion in the liver or intrahepatic biliary dilatation found. There were no gallstones or mass lesions of the gall bladder and it was normally distended with a thin smooth wall. Fat planes around the gallbladder were well preserved.

The pancreas demonstrated normal morphology, size, and attenuation, with no dilatation of the main pancreatic duct, and intact peripancreatic fat planes. There was no evidence of calcifications or focal lesions of the pancreas. Spleen size and attenuation were normal with no focal abnormalities. Normal size, shape, position and corticomedullary differentiation of both kidneys, no renal calculi, hydronephrosis or focal parenchymal lesions. There was no significant perirenal fat planes. No thickening and nodularity was observed in the adrenal glands. The urinary bladder did not have any focal intraluminal lesions, and the bladder wall contour was normal. The prostate was normal sized and the perivesical fat planes were

intact.

There was no evidence of any bowel loops being thickened or obstructed, nor were there any inflammatory changes. The appendix was located in a retrocecal position, about 2 mm in diameter, and was not remarkable, and there was no thickening of the appendix's mucosa, fat stranding around the appendix, or fluid in the area to suggest acute appendicitis. The bones were not particularly significant.

An important finding on CT was a focal area of inflammatory fat stranding involving the omental fat in the right iliac fossa (RIF), measuring approximately 61 × 28 mm. This was a localised area of fat attenuation, which was consistent with inflammatory changes of the omentum. A small phlebolith was also found in the right hemipelvis next to the vesicoureteric junction, which is not clinically relevant. The results indicated right iliac fossa omental infarction, which is uncommon and often underdiagnosed cause of right lower quadrant abdominal pain and is often confused for acute appendicitis. This was important because there was no sign of inflammation of the appendix, and the typical features of local omental fat stranding helped make the diagnosis. These findings are illustrated by representative CT images in Figures 1 and 2.

Initial management was by conservative measures, analgesics and close clinical monitoring. Despite continued severe abdominal pain despite conservative care, it was felt that laparoscopy should be performed following a full pre-anaesthetic assessment.

This was done under general anaesthetic, and was uncomplicated. Intraoperatively, an infarcted area of the greater omentum was found and removed. There were no intra-operative complications. Postoperative recovery was uneventful with resolution of the symptoms. The patient was discharged in stable condition and was not re-hospitalized or readmitted during follow-up (to be specified, e.g., 3 months or 6 months), as well as without any symptoms of recurrence, thus, it was concluded that the surgical procedure was successful.

DISCUSSION

The greater omentum is a double sheet of peritoneum that contains fat, connective tissue and lymphatic vessels, which are derived from the greater curvature of the stomach and the duodenum. It reaches to enclose most of the intestine and has been called "the abdominal policeman" because of its ability to move in the abdomen and control intra-abdominal infections ^[2,6]. Omental infarction is an uncommon cause of acute abdomen and its diagnosis may be difficult due to the lack of specificity in the clinical picture ^[1].

Non-radiating abdominal pain that suddenly develops is the most common symptom of omental infarction, and is more often localized on the right side of the abdomen. In up to 88% of cases, the right side is involved, which is thought to be due to the longer, more mobile right side of the omentum, which is more prone to torsion and vascular compromise ^[7,8]. Omental infarction was classified as either primary or secondary, but the etiology is still uncertain. The following mechanisms have been suggested: congenital vascular anomalies, and embryological variations in the blood supply of the greater omentum. Other factors cited as potential risk factors include obesity, trauma, intense coughing and overfeeding ^[9–12].

However, due to the improvements in imaging methods, omental infarction is more often diagnosed in the pre-operative period than at surgery ^[9]. The imaging modality of choice is computed tomography (CT), which usually shows a focal collection of inflammatory fat stranding, and a swirling pattern of omental vessels in cases of torsion. The characteristic findings differentiate omental infarction from other common causes of acute abdominal pain like diverticulitis and appendicitis ^[1,13]. While ultrasonography may show a hyperechoic, non-compressible omental lesion, the imaging modality of choice is CT. In children, ultrasonography is used whenever possible, as it does not involve the use of radiation, and low-dose CT protocols should be used when CT is indicated ^[14]. In Asian populations, right-sided colonic diverticular disease should also be considered in the differential diagnosis of right iliac fossa pain ^[15].

The treatment of omental infarction is individualized and will depend on the clinical condition and

imaging results ^[9]. Analgesics, anti-inflammatory drugs and, if necessary, antibiotics are suitable for addressing clinically stable patients ^[16]. Surgical intervention is indicated however, when symptoms persist or are not diagnosed or when the patient's condition deteriorates. Laparoscopic removal has been shown to have benefits of reduced postoperative pain, shortened hospital stay, faster recovery and prevention of complications including adhesions, abscess and progression of necrosis ^[17,18]. In this particular case, despite conservative management, symptoms did not resolve and laparoscopic resection was required, with total relief of abdominal pain.

CONCLUSION

To conclude, omental infarction is an uncommon cause of acute abdomen resulting from impaired vascular supply to a segment of the omentum, leading to ischemic necrosis of fat tissue. This case report showcases the importance of accurate diagnosis through imaging and early surgical intervention that facilitates rapid recovery and reduces hospital stay, thus underscoring the role of minimally invasive surgery in managing omental infarct.

Patient consent:

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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FIGURES AND LEGENDS

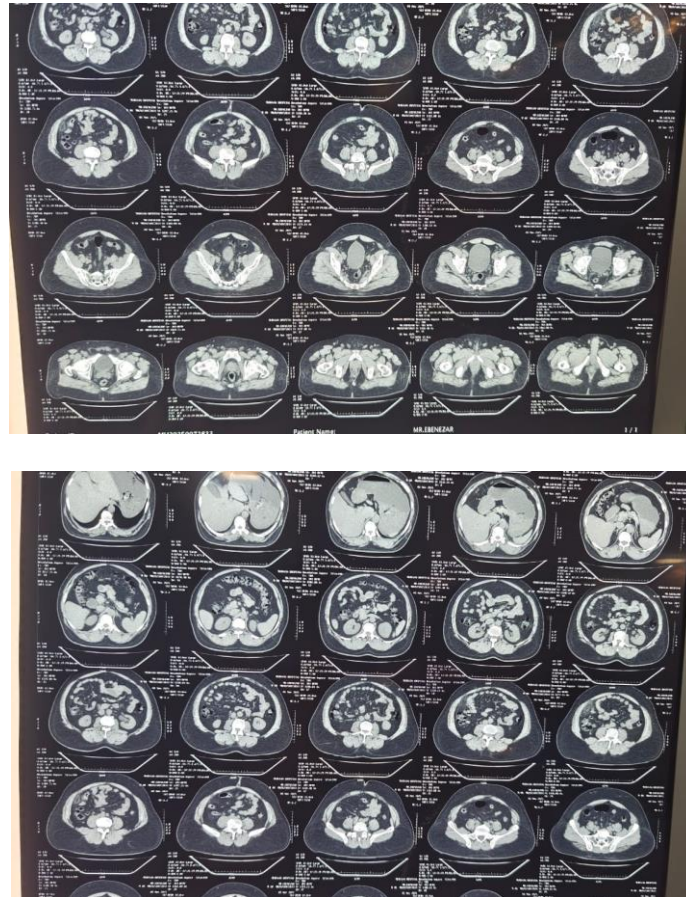


Figure 1: CT scan showing localized fat stranding and inflammatory changes consistent with omental infarction.

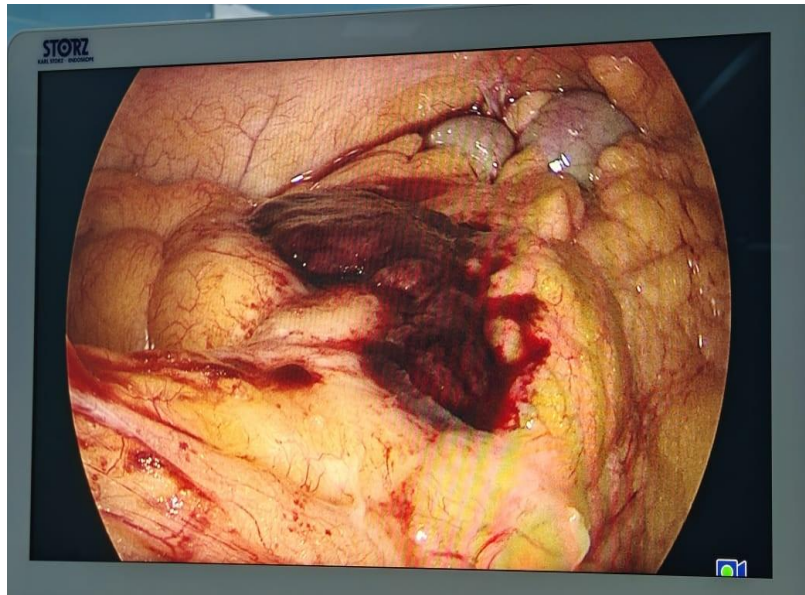


Figure 2: Laparoscopic view displaying necrotic omental tissue with hemorrhagic appearance.

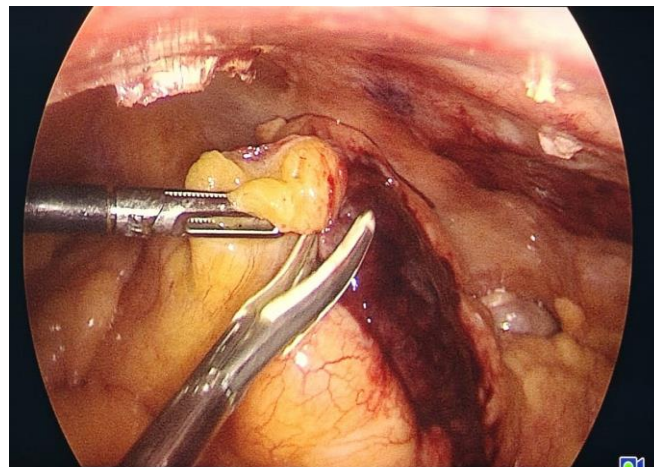


Figure 3: Laparoscopic dissection and resection of the infarcted omental segment.