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Post Surgery Omental Infarction: A Case Report

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Abstract **Case Report**

A 63-year-old woman with history of umbilical hernia's surgery a year ago, presented with progressive diffuse abdominal pain. Computed tomography (CT) showed diffuse streaking of the greater omentum with a mass of fat density located anteriorly just below the umbilicus, showing a whirling pattern of concentric streaks. Surgery and pathology revealed torsion and infarction of the greater omentum. Because of its rarity and nonspecific clinical features, the diagnosis is seldom made preoperatively. We describe a patient with characteristic CT findings of omental torsion. Preoperative diagnosis is important since conservative management has been suggested.

Keywords: Omentum; Torsion; Infarction; Imaging; Computed tomography.

INTRODUCTION

Torsion of the greater omentum is a relatively rare clinical event, the cause of which remains elusive. First reported in 1899 by Eitel [1], omental torsion has consistently been confused preoperatively with acute appendicitis; patients often present with low-grade fever, leukocytosis and epigastric pain that migrates to the right lower quadrant [2]. Since the clinical findings are not specific and conservative treatment has been suggested [3, 4], knowledge of the characteristic computed tomography (CT) findings of omental torsion is essential for diagnosis.

The aim of this case report was to highlight an uncommon case of secondary omental infarction following surgery of abdominal hernia and avoiding overstretching, excessive torsion and kinking of omentum during abdominal surgery.

CLINICAL CASE

37-year-old woman presented to the emergency unit for persistent and increasing diffuse abdominal pain of 2 days duration. The pain was not related to meals and was increased upon every attempt to move her trunk. Patient present a surgical history of umbilical complicated hernia a year ago (Figure 1), No intake of medications and no relevant past medical could be elucidated.

On physical exam, the patient was afebrile with diffuse abdominal tenderness and peritoneal irritation. No masses or organomegaly were palpable and the bowel sounds were normal.

No tenderness was present. The CBC, BUN, creatinine, electrolytes, amylase and lipase serum levels were within normal limits. Urinalysis showed no abnormality.

A contrast-enhanced CT scan of the abdomen and pelvis (Fig 2) showed diffuse streaking of the greater omentum extending downwards and anteriorly, with a focal mass of fat density showing streaks in a whirling pattern. The fatty mass was located anteriorly in the greater omentum just below the umbilicus. There was no thickening of the adjacent bowel walls or abscess formation. No peritoneal fluid noticed.

The radiologic diagnosis was consistent with omental torsion and infarction. Exploratory laparotomy revealed diffuse infarction of the greater omentum with a focal mass of omental torsion located just inferior to the umbilicus. Excision of the omental mass, omentectomy was performed. At pathology, the omentum measured 37_9.5_0.7 cm. There were multiple areas of thickening and tan brown discolorations; however, no mass lesions or tumor masses were identified. Microscopically, the omentum showed extensive fat necrosis, acute and chronic inflammation,

Figure 1: Para Umbilical Hernia with Omental and Bowel Content with Signs of Complication (Bowel Thickning)

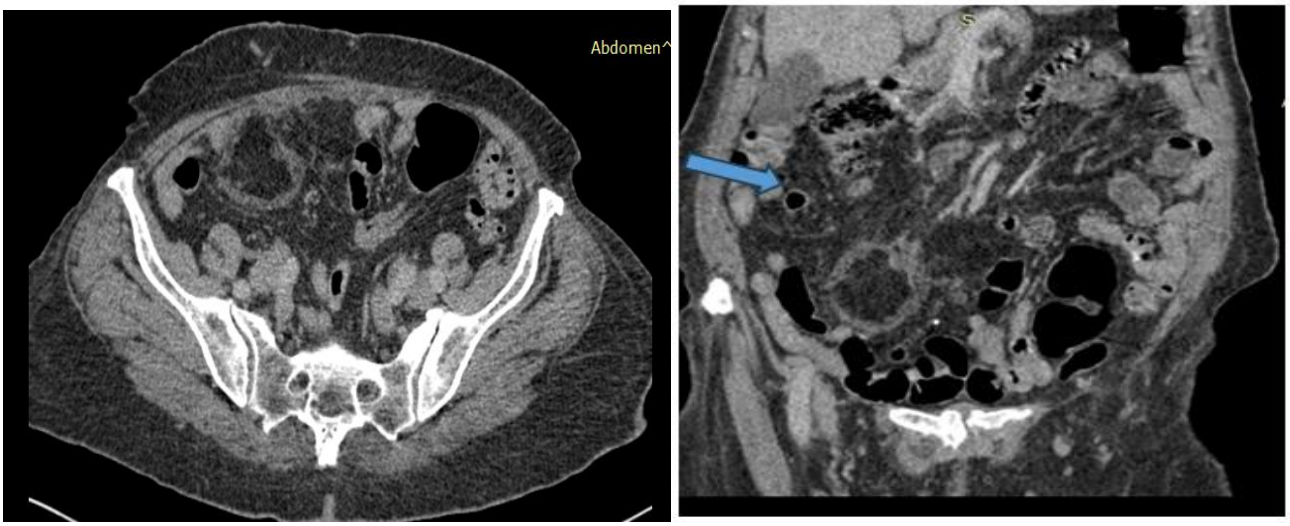

Figure 2: Contrast-Enhanced Ct Section of the Abdomen Demonstrating a Focal Mass (White Arrows) of Fat Density with Whirling Streaks

DISCUSSION

Torsion of the omentum is a rare disease that affects mainly young and middle-aged women [5]. It has also been described in children above the age of 4 years [6]. For primary torsion of the omentum to occur, there must be a redundant, mobile segment of tissue and a fixed point around which the segment can twist [6]. This is usually related to omental anomalies such as bulky bifid or accessory omentum, or to abnormally redundant omental veins.

Secondary torsion usually occurs in association with intraabdominal pathology such as hernia, tumor, cyst or adhesions [7]. Predisposing factors for primary or secondary torsion are similar including sudden increase in intraabdominal pressure following heavy meals, heavy exertion, change in the body position, coughing or sneezing and possibly use of occupational vibrating tools [8, 9]. In our patient, the surgical history was he primary factor predisposing to the omental infarction.

Torsion leads to omental infarction; however, omental infarction may be present without signs of torsion at surgery [7, 10, 11]. This may be associated with some possible predisposing factors, e.g., congestive heart failure, digitalis administration and occlusive vascular disease.

The great majority of cases of omental torsion and infarction reported in the literature were segmental involving the right side of the omentum with right lower quadrant or right para-umbilical pain mimicking perforated duodenal ulcer, acute appendicitis, acute cholecystitis, cecal diverticulitis or epiploic appendagitis [3,12]. Left-sided omental torsion is occasional but has been described [13]. Our case had diffuse infarction of the greater omentum with a focal area of omental torsion located anteriorly just below the umbilicus.

Since the great majority of patients present with acute abdomen a CT scan of the abdomen is the examination of choice [3, 8, 11]. By showing a normal appearing gallbladder and appendix, the CT scan will help in narrowing the differential diagnosis. In addition, CT findings suggestive of diverticulitis such as visualization of the inflamed diverticulum, marked wall

thickening and formation of paracolic abscess are not present in omental torsion. Although thickening of the adjacent bowel wall was thought to exclude the diagnosis of omental torsion [3], a single case of omental torsion with subtle and transient thickening of the wall of the transverse colon was recently reported by Garant *et al*., [14].

The authors hypothesize that the cause of the transient thickening of the bowel wall is associated with the spread of inflammation from the torqued omentum along its attachment on the tenia omentalis of the transverse colon; an ischemic event was deemed unlikely since the vascular supply of the transverse colon is different from that of the greater omentum [14]. Thickening of the adjacent bowel wall is not a constant feature of primary epiploic appendagitis either [15, 16]. However, the larger size and the medial location of the mass relative to the ascending or descending colon favor omental abnormality rather than primary epiploic appendagitis in which the omental abnormality is typically related to the colon [15]. The CT findings of fatty mass in the omentum may also suggest other diagnoses including lipoma, liposarcoma, angiomyolipoma, teratoma, mesenteric lipodystrophy, pseudomyxoma peritonii and segmental infarction of the omentum. The key to the diagnosis of omental torsion is the presence of concentric linear strands which are characteristic, this important radiological sign is not present in other omental diseases. Our patient had this characteristic CT feature. A similar whirling pattern may also be seen in small bowel volvulus but it is usually associated with small bowel obstruction and is centrally located in the mesentery [17]. It is worthnoting that this pattern was not described in all reported cases of omental torsion documented by CT [14]. In this situation, it is difficult to differentiate omental torsion from other omental diseases, especially segmental omental infarction and primary epiploic appendagitis. However, conservative management and prognosis are essentially the same in these three conditions.

Since the diagnosis of omental torsion was usually made at laparotomy, the traditional treatment was excision. However, Puylaert [3] described seven patients with right-sided segmental infarction of the omentum that were managed conservatively and in whom symptoms and ultrasound findings gradually disappeared. Although no surgical or histologic proof was present in these seven patients, the US and CT findings were considered consistent with the diagnosis. Others have suggested that surgical treatment may be limited to patients with complications [18]. In our patient, omental torsion and infarction was complicated by peritoneal fluid and irritation.

In summary, the radiologist should be familiar with the specific CT findings of omental torsion for establishing a correct preoperative diagnosis. This will help the patient avoid unnecessary surgery since conservative management has been suggested in the absence of complications.

CONCLUSION

Omental infarction is a rare disease and may mimic common causes of acute abdomen such as acute appendicitis, cholecystitis, diverticulitis, perforated duodenal ulcer, mesenteric thrombosis and twisted ovarian cyst.

Secondary omental infarction may result from the use of the omentum for or after hernia surgery. When the omentum is used for reconstructive surgery, utmost care must be taken in the handling of the omentum, ensuring that tension, twisting and kinking are avoided. It is worth noting that OI has a favourable prognosis when properly managed. Surgeons' awareness of OI, the use CT scan and laparoscopic approach to management is imperative [10]. OI has a favourable prognosis with early diagnosis and appropriate management.

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