

Case Report

Spontaneous omental torsion: a case study and review of clinical challenges

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ABSTRACT

Omental torsion (OT) is one among the rarest causes of abdominal pain, with very few cases reported in the literature. Its presentation is usually seen in the fourth and fifth decades of one's life span. We report one such case, wherein a 36-year-old male presented with acute abdominal pain, particularly on the right iliac fossa (RIF), resulting in the clinical suspicion of appendicitis. Computed tomography findings were suggestive of a diagnosis of OT. Histopathology results revealed omental ischemia, thus confirming this diagnosis.

Keywords: Torsion abnormality, Laparoscopy, Omental torsion, Omentectomy

INTRODUCTION

Omental torsion (OT) is an uncommon cause of acute abdominal pain. OT is commonly classified as primary OT (POT) or secondary OT (SOT). POT is the result of the rotation of an omental segment around an adjacent fixed point especially without another basis or due to any other intra-abdominal disease. On the other hand, SOT is due to an existing intra-abdominal cause, like neoplasms, with inguinal hernia being the most common.¹

Through this case report, we aim to showcase the different diagnostic modalities and the challenges in the treatment of such rare pathologies.

CASE REPORT

A 36-year-old male visited the emergency department due to acute right-sided, non-migratory abdominal pain since 3 days. The patient stated mild pain initially which

increased in severity the following day. Nausea, vomiting and mild fever were also present. As the past medical and surgical history was unremarkable, the patient was transferred to the surgical department.

The patient's vitals were a pulse of 90 beats/min, blood pressure of 125/80 mmHg and a temperature of 37°C. Abdominal examination revealed tenderness on the right lumbar region, localized rebound tenderness on the RIF and guarding around these areas. Obturator and psoas signs were negative.

Blood investigations showed moderate leukocytosis, WBC of $17.3 \times 10^9/L$ with predominant neutrophilia, and a CRP count of 42 mg/L. The unremarkable ultrasonography was followed by an abdominal computed tomography (CT) scan displaying increased attenuation in the intra-abdominal fat on the right abdomen, anterior to the caecum and ascending colon. The adjoining bowel loops appeared normal with minimal fluid in the RIF and

pelvis. These features were consistent with RIF inflammation, an OT probability and the absence of appendicitis (Figures 1 A-C).

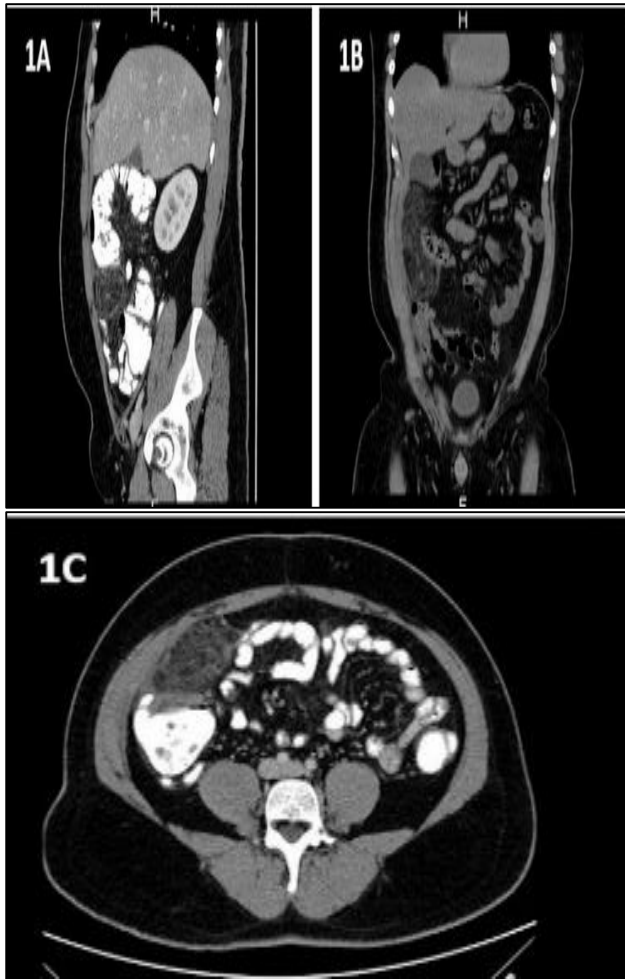


Figure 1 (A-C): A sagittal section of an abdominal CT after injection of contrast, showing a fatty mass in between the ascending colon and anterior abdominal wall, classical whirl sign noted. A coronal section of plain abdominal CT, showing the increased attenuation of fat anterior to the ascending colon. An axial section of abdominal CT after injection of contrast, whirl sign noted anterior to ascending colon.

High inflammatory markers and severe pain prompted the need for surgery. Gross peritoneal inflammation was discovered via laparoscopy, predominantly in the parietal peritoneum around the anterior abdominal wall, adjacent to the caecum level. The full omental length was almost involved and entangled around its longitudinal axis (Figures 2 A and B).

Discoloration and inflammation of the omentum were noted distal to the twisted segment, (Figure 2 C), necessitating the excision of the involved portion. A segmental omentectomy was performed. The appendix was retained due to its normal appearance.

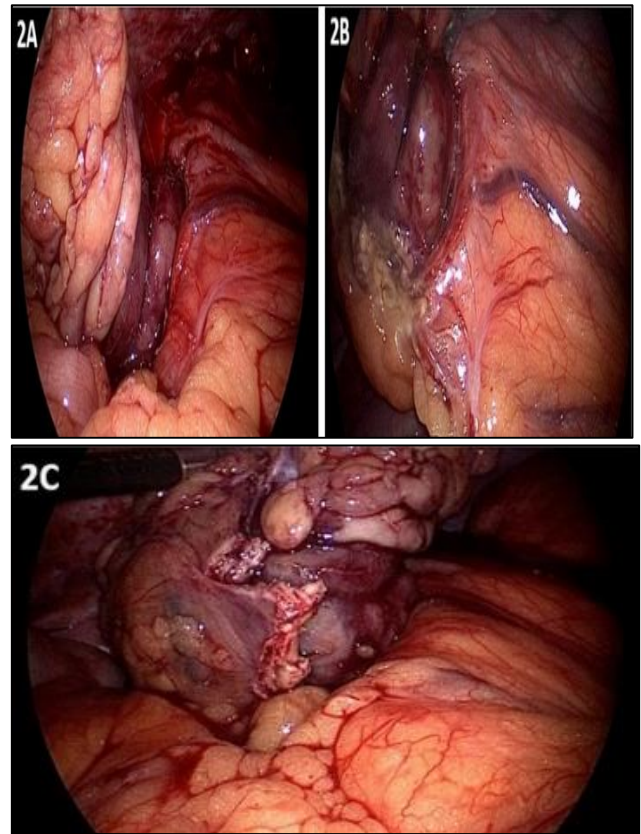


Figure 2 (A-C): Omentum before resection shows congested, distorted omentum. Extensive inflammation and discoloration were noted distal to the base of torsion.

Histopathology of the surgical specimen showed fat necrosis, inflammation and vascular congestion on omentum fragments. The diagnosis was OT.

The patient's postoperative period was uneventful hence, discharged the next day.

DISCUSSION

First described in the literature in 1899, OT is an atypical cause for acute abdominal pain. However, its exact incidence remains a dilemma.²

The greater omentum, consisting of four layers, is derivative of the dorsal mesoderm. It is attached to the greater curvature of the stomach, duodenum and transverse colon. It continues with the gastrosplenic and the splenocolic ligaments on the left edge. Blood supply is received from the gastroepiploic arteries, both right and left.³

OT is categorized into POT or SOT. In POT, omentum has a free distal end and, therefore unipolar. Alternatively, SOT may be bipolar as well, with both ends adherent because of other pathological reasons. While POT occurs in the absence of pathogenic etiology, SOT is observed in patients with relaparotomy and

diffuse intra-abdominal diseases but is commonly clinically neglected to focus on primary pathology. Hence, SOT may be encountered more frequently than the rates reported in the literature. Our case was devoid of other abdominal pathology causing torsion; therefore, we concluded that it was spontaneous. Our patient was a 36-year-old male, well within the normal occurrence age range of 30-50 years alongside male predominance.^{2,4}

The twisting of the omentum about a fixed locus along its axis causes OT. The distal right gastro-omental artery is the most likely locus for torsion, for its length and flexibility on the right omental side.⁵ The subsequent venous obstruction, results in vascular compromise and edema, eventually causing adhesion formation and necrosis.⁶ As per the CT findings of our patient, the torsion was located anterior to the caecum and ascending colon.

Clinical presentation of both POT and SOT are typically alike with pain resembling appendicitis i.e., in the RIF. However, its concomitant gastrointestinal symptoms like vomiting, nausea and anorexia are absent.⁷ An 8000-case appendectomy review by Kimber et al concluded that one in every 600 surgeries for probable appendicitis was diagnosed as OT with a normal appendix.⁸ Our case presented with abdominal pain associated with mild nausea and vomiting, further complicating the picture and adding in favor of misdiagnosis as acute appendicitis.

Ultrasonography may display hypoechoic zones, tangled masses of solid material and fluid in the peritoneal cavity. Contrastingly, CT scan may provide sensitivity by displaying the omental mass however, not enough for OT diagnosis. Traditional CT sign of OT is the whirl sign at the greater omentum i.e., adipose mass with concentric linear stranding. In OT, blood vessels curling about the locus are visualized as these strands. Nevertheless, differential diagnosis of such fat stranding may be fat-containing tumors, omental hernia, panniculitis or epicolic appendage inflammation.⁷ Ultrasonography was inconclusive in our case too, however, CT scan displayed increased attenuation of intra-abdominal fat on the right abdomen, and the whirl sign was noted.

Currently, laparoscopy is both diagnostic and therapeutic which may proceed into laparotomy, the goal being the identification and removal of the infarcted omentum segment. A normal gallbladder and appendix with a fluid-free pelvic cavity increase the likelihood of an OT diagnosis. Another typical finding is the presence of free serosanguineous fluid in the peritoneal cavity due to hemorrhagic extravasation. Additional incidental appendectomy is the treatment of choice in the literature to avoid further diagnostic issues.⁹

CONCLUSION

Although rare, OT presents with non-specific abdominal symptoms, steering towards a misdiagnosis. This case highlights the necessity of maintaining high suspicion for OT in patients with acute abdominal pain, especially when typical presentations do not correlate with common diagnoses. Our case stresses the importance of considering this condition in differential diagnoses. Further awareness and education regarding OT can enhance diagnostic accuracy and optimize management strategies in other similar clinical scenarios.

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