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Case Report

Omental torsion: a diagnostic challenge

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ABSTRACT

Torsion of the greater omentum is a rare acute abdominal condition that is seldom diagnosed preoperatively. We report a case of surgically proved right-sided torsion of the greater omentum that occurred secondary to recurrent inguinal hernia. A 39-year-old man presented to our hospital with abdominal pain.He had been diagnosed with right indirect inguinal hernia many years back for which herniorrhaphy was done. Contrast-enhanced Computed Tomography (CT) of the abdomen showed omental torsion with extension in the right inguinal hernia, mild ascites with subtle layering of blood. Exploratory laparotomy revealed torsion and gangrene of the greater omentum with small bloody ascites. An omentectomy was performed. Post-operative period was uneventful. Omental torsion is a rare cause of acute abdominal pain but should be included in the differential diagnosis of acute abdomen, especially in patients with untreated inguinal hernia. Knowledge of this pathology is important to the surgeon as it mimics common acute surgical abdomen. For this reason, in the absence of diagnosed preexisting abdominal pathology including cysts, tumors, foci of intra-abdominal inflammation, post-surgical wounds or scarring, omental torsion can present a surprise. Exploratory laparotomy represents the diagnostic and definitive therapeutic procedure.Presently laparoscopy is the first choice procedure. A rare and unique case of omental torsion with gangrene presenting with abdominal signs of peritonism without leucocytic reaction is being reported.

Keywords: Omental torsion, Inguinal hernia, Acute abdomen, Exploratory laparotomy

INTRODUCTION

Four layered fatty sheet of peritoneum is known as omentum which suspends from the greater gastric curvature to surrounding organs with attachments to the diaphragm.[1] Omental torsion is caused by twisting of sections of the omentum along its long axis resulting in vascular compromise.

First described by Eitel in 1899, it is a rare cause of the acute surgical abdomen.[2,3] Fewer than 250 cases have been described in the literature so far. Omental torsion is rarely diagnosed preoperatively and may lead to spontaneous clinical deterioration of the patient.[2,4] Laparoscopy is the current choice for diagnosis and management.[5]

CASE REPORT

A 39-year-old man presented to our hospital with dull aching abdominal pain since 5 days. He was a sportsman and had been diagnosed with a right complete indirect inguinal hernia at the age of 13 years. Herniorrhaphy was done at the age of 19 years.

Patient was haemodynamically stable. The abdomen was soft, not distended, with tenderness to the right side of umbilicus with right-sided inguinal hernia with peritonism. Accompanying symptom was loss of appetite.

Patient had no nausea, vomiting, constipation or urinary complaints except for mild grade fever since 3 days. Ultrasound of abdomen revealed minimal amount of free fluid in Morrison's pouch with right-sided reducible inguinal hernia containing omental fat. Patient was managed conservatively with analgesics and IV antibiotics. However, his symptoms did not resolve the next day and he developed continuous dull aching, non-radiating pain which aggravated with movements. Follow up ultrasound showed moderate free fluid with ill marginated bowel lump in right paraumbilical region with increased mesenteric fat echogenicity with thickened bowel wall - ? Mesenteric Ischaemia.

Contrast-enhanced Computed Tomography (CT) of the abdomen showed omental torsion with extension in the right inguinal hernia, mild ascitis with subtle layering of blood.

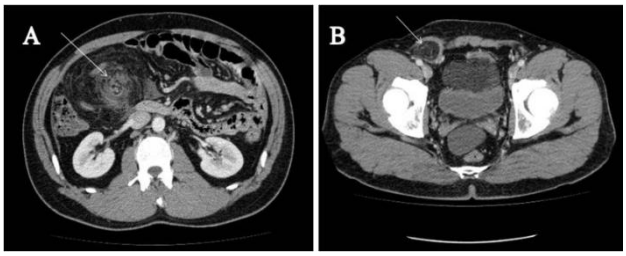

Figure 1: (A) and (B) contrast-enhanced CT scans show a hazy fat-density mass in the right side of the abdomen, with concentric linear strands (white arrow) in the greater omentum. These strands represent blood vessels twisted around a central vascular pedicle.

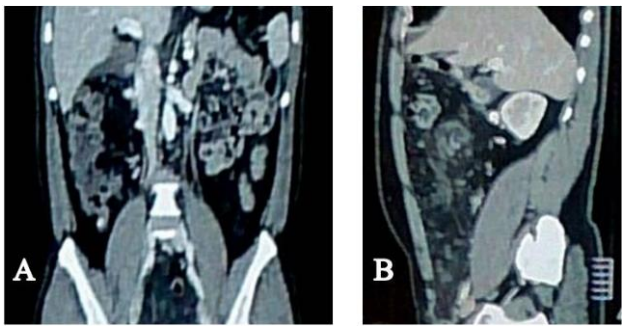

Figure 2: Coronal (A) and (B) Sagittal section showing omental Torsion on the right side.

Apart from anaemia (Hb 8.8 gm/dL), the blood count and serum biochemistry were normal.

Laparoscopy performed which showed gangrenous whole of omentum with free fluid.

Exploratory laparotomy was performed, which revealed torsion of the greater omentum with small amount of bloody ascites (Figure 3).

Figure 3: Coronal (A) and (B) sagittal section showing omental torsion on the right side greater omental torsion with gangrene.

The greater omentum was twisted clockwise into two and a half circles and was gangrenous (Figure 4).

Figure 4: Gangrenous greater omentum after untwisting.

It was untwisted and omentectomy done. Resected omentum was submitted for pathological examination which showed hemorrhagic infarction. Post-operative course was uneventful, and the patient has remained healthy with no clinical evidence of recurrent disease since then.

DISCUSSION

Omental torsion is a rare cause of abdominal pain presenting mainly in the 3rd to 5th decade of life with a slight male predominance (male:female = 3:2).[5,6] The omentum twists around its long axis, clockwise, at a pivotal point. Consequently, vascularity is compromised, resulting in haemorrhagic extravasation, serosanguineous fluid production, necrosis & adhesion formation. Omental torsion may be primary or secondary. One third of the cases are a result of primary torsion, which is unipolar with no underlying pathology or distal fixation.[5-7] In primary torsion, the volvulus occurs more commonly around the right distal epiploic artery due to greater size

and mobility of the omentum in this region.[1,2] Factors such as anatomical variations in the omentum (bulky, bifid or accessory omentum or abnormally redundant omental veins) and actions that displace the omentum, such as trauma, exercise or hyperperistalsis predispose to torsion. The precipitating factors include sudden increase in intra-abdominal pressure following a heavy meal or exertion, change in body position, coughing or sneezing, and occupational use of vibrating tools.[8,9]

Obesity has also been implemented as a risk factor.[1,10] Secondary torsion is more common and a result of underlying abdominal pathology (e.g. cysts, adhesions, hernial sacs) resulting in a distal fixation point (bipolar torsion).[2,7]

In some cases the omentum may infarct without torsion due to hypercoaguable state or vascular abnormalities predisposing to thrombosis, which is known as primary idiopathic segmental infarction.[6] Patients with omental torsion present with constant, non-radiating pain of increasing severity, nausea and vomiting.

Clinically, 50% of patients have a low grade fever and leukocytosis.[4,5] These findings are non-specific, making pre-operative diagnosis of omental torsion a challenge.

The majority of cases present with a single episode of abdominal pain but recurrent pain may suggest intermittent torsions.[4,11] On examination, 50% of patients present with an abdominal mass and localised peritonitis.[5,7] Common differential diagnosis include appendicitis, cholecystitis and twisted ovarian cyst.[2] In general, patients with omental torsion are less systemically unwell compared to acute appendicitis and the disease process extends over a longer period of time.[6]

Laboratory findings include moderate leukocytosis in 50% cases.[2] Imaging investigations such as ultrasonography and CT have been suggested in literature.[12] On ultrasonography, a complex mass consisting of hypoechoic and solid zones may be identified, but this imaging technique is operator dependent with limited sensitivity due to overlying bowel gas. On CT, omental torsion is characterised by diffuse streaking in a whirling pattern of fibrous and fatty folds.[2,12] The whirling pattern may not be apparent in cases where the axis of rotation is not perpendicular to the transverse scanning plane. With increased use of CT, pre-operative diagnosis of omental torsion may increase in frequency and lead to conservative management in patients without complications.[10,12-14] The current investigation tool and therapeutic management of choice is laparoscopy proceeding to laparotomy, identifying and removing the infarcted section of omentum. Normal appendix, gallbladder and pelvic cavity make the diagnosis of omental torsion likely. Free serosanguineous fluid as a result of haemorrhagic extravasion is a characteristic finding in the peritoneal cavity. In the literature the treatment of choice included additional appendicectomy to prevent future diagnostic problems. Successful conservative management has also been reported.[5,15]

Histology findings of haemorrhagic infarction and fat necrosis confirm the diagnosis with the presence of fibrosis indicative of a longer disease process.[4] The prognosis for primary omental torsion is good with fast post-operative recovery and minimal morbidity. The natural disease progress if left untreated will result in fibrosis, necrosis and occasional autoamputation and clinical improvement.[7,16] Prognosis in secondary torsion depends on the underlying pathology. Left sided omental torsion may be commonly misdiagnosed as diverticulitis and managed conservatively, resulting in less common diagnosis.[7]

CONCLUSION

Omental torsion presents with non-specific symptoms of an acute abdomen and is mainly diagnosed intraoperatively during diagnostic laparoscopy. Awareness of omental torsion as a differential diagnosis in the acute abdomen and careful inspection of omentum in a "negative laparoscopy" are recommended for appropriate management of the surgical patient [4]. However uncomplicated cases, may be managed conservatively in future.[12]

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