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CASE STUDY

PRIMARY OMENTAL TORSION: A CASE REPORT

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ABSTRACT

A 60-year-old man was admitted and underwent laproscopic surgery with a provisional diagnosis of acute appendicitis. During surgery, omental torsion was diagnosed and the involved omentum was resected. The patient had no previous surgical history. Omental torsion is a rare cause of acute abdomen in children and adults who may present with various signs and symptoms; a preoperative diagnosis may therefore be difficult and can usually only be established during surgery.

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INTRODUCTION

Omental torsion is a rare cause of acute abdomen. When the greater omentum is twisted around its axis, perfusion defects and vascular impairment of the organ are possible. As a result, different pathological modifications are possible, from simple edema to ischemia and gangrene of the omentum (Adams, 1989). Omental torsion can be either primary (idiopathic) or secondary, depending on the predisposing factors that cause it. Primary torsion of the omentum was first described in 1899 (Eitel, 1899). However, very few cases have been reported in adults (Basson and Jones, 1981) and children (Karayiannakis *et al*., 2002; Ozbey *et al*., 1999; Saraç *et al*., 1997; Sweeney *et al*., 1983; Kimber *et al*., 1996). This case report describes a case of a male adult who presented with acute abdomen and in whom omental torsion was the definitive surgical diagnosis at the time of laproscopy.

Case report

A 60-year-old male presented in the Emergency Department complaining of abdominal pain. The pain, which started 2 days earlier, was constant and mainly located over the upper abdomen and right lumber region which increased in intensity for last 24 hrs. The patient also had a history of loose motions 3 days back for a single day which was relieved on medications. He had a past history of severe pain in abdomen 2 years back and was diagnosed as having Sub-acute intestinal obstruction which was relieved on medications and patient refused to undergo further definitive management for the same. On physical examination, tenderness was present over the upper abdominal area and in right lumber region. A biochemical analysis revealed normal leukocyte counts (10,800/mm^3) with 72% neutrophils. Rest all investigations were within normal limits. Abdominal computed tomography (CT) was performed which revealed acute appendicitis (Figure 1). With the diagnosis of appendicitis, the patient was taken up for Laproscopicappendicectomy. On putting the laproscope in the peritoneal cavityomentum was seen adherent to ascending colonwith torsion of the right part of the omentum that was twisted several times around its long axis in a clockwise manner (Figure 2). Omentum was oedematous and black at places suggesting gangrene. Appendix was normal. Distal part of omentum was excised and delivered out of abdominal cavity in an endo-bag, the postoperative recovery of the patient was uneventful and he was discharged 3days later. The pathologist confirmed the diagnosis of omental torsion.

DISCUSSION

Omental torsion is a rare condition and difficult to diagnose preoperatively. It can mimic various other causes of acute abdomen; surgeons should always consider it in the differential diagnosis of acute abdominal pain. Unfortunately, the symptoms and clinical findings do not present in any characteristic pattern that suggests the diagnosis. The differential diagnosis includes acute appendicitis, acute cholecystitis and cecal diverticulitis (Adams, 1989; Theriot *et al*., 2003). Omental torsion has an incidence of 0.0016%-

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0.37% when compared with appendicitis (ratio of less than 4 cases per 1000 cases of appendicitis) (Kimber *et al*., 1996; Itenberg *et al*., 2010; Pinedo-Onofre and Guevara-Torres, 2007). The correct etiology is not clear in idiopathic omental torsion. No pathological findings can be found in the abdomen of the patient; sometimes surgeons observe a large and mobile omentum which has been rotated one or more times around a fixed spot, usually the right epiploic artery (Adams, 1989; Theriot *et al*., 2003). Infarction of the right side of the omentum is more frequent because of its greater length and mobility (Puylaert, 1992). Other authors explain this as being due to a different embryological origin of the right side of omentum with congenitally anomalous fragile blood vessels (Beattie and Irwin, 2005). "Bifid omentum" is an accessory omentum originating from a narrow route and excessive adipose tissue accumulation on the omentum.

Figure 1. CT Scan revealed a mildly thick walled enhancing fluid filled blind loop tubular structure in Right Iliac Fossa arising from anteroinferior wall of caecum and lying just beneath anterior abdominal wall with mild soft tissue stranding in adjacent omentum& Right Paracolic gutter ? PYO/MUCOCELE of APENDIX

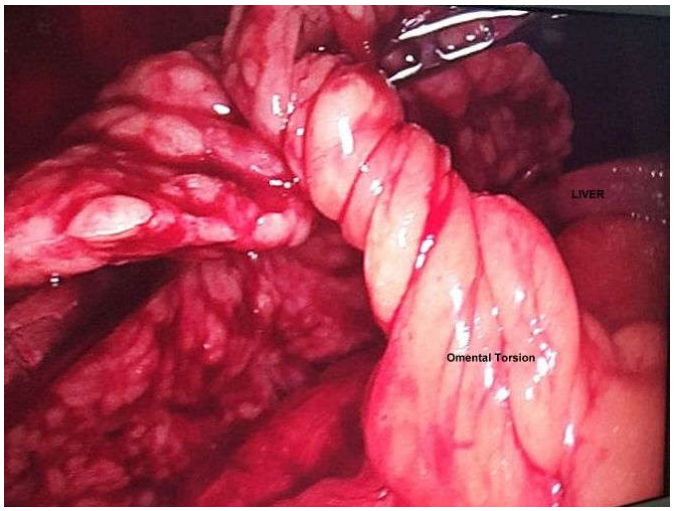

Figure 2. Omental Torsion

Factors that predispose a patient to torsion include anatomic variations of the omentum itself, such as accessory omentum, bifid omentum, irregular accumulations of omental fat (in patients who are obese), and narrowed omental pedicle. Any redundancy of omental veins may lead to kinking and twisting around the shorter and tenser arteries. The higher incidence of torsion on the right side of the omentum is related to the greater size and mobility of that side. Precipitating factors are those causing displacement of the omentum, including trauma, violent exercise, and hyperperistalsis with resultant increased passive movement of the omentum (Beattie and Irwin, 2005; Young *et al*., 2004; Zager *et al*., 1999; Reurings *et al*., 2011). Secondary torsion is more common than primary torsion and is associated with preexisting abdominal pathology, including cysts, tumors, foci of intra-abdominal inflammation, postsurgical wounds or scarring, and hernial sacs. Most cases of secondary torsion occur in patients with inguinal hernias (Kayan *et al*., 2013). Clinical presentations vary; they include a sudden increase of pain on the right side enhanced with abdominal movements, with signs of peritoneal irritation in the right upper quadrant. If the omentum involved is a large part, a mass might be palpable. Other symptoms may be present, such as nausea and vomiting, fever and leukocytosis. Many authors have stressed the importance of imaging in the diagnosis of omental torsion. Abdominal ultrasound is important to exclude acute cholecystitis and shows an ovoid or cake-like hyperechoic mass adherent to the peritoneum located in the umbilical region or anterolaterally to the right half of the colon (Puylaert, 1992; Schlesinger *et al*., 1999). Doppler sonography sometimes shows vessels within the mass and peripheral hyperaemia (Baldisserotto *et al*., 2005). CT scans play an important role in the diagnosis of torsion of the greater omentum (Poujade *et al*., 2007; Kim *et al*., 2003; Rimon *et al*., 2009). Omental torsion can be easily differentiated from acute cholecystitis, appendicitis and cecum diverticulitis which have different characteristics. In the case of omental torsion, the CT-scan shows an infarcted omentum as an area of high-attenuated fat containing hyperattenuated streaks just beneath the parietal peritoneum with thickening of the overlying anterior abdominal wall[22]. Another finding can be a whirling pattern of the mesentery or fluid accumulation within the abdomen. Unfortunately, all these findings can be observed in various other conditions, such as in lipoma, liposarcoma, angiomyolipoma, teratoma, mesenteric lipodystrophy, pseudomyxomaperitonei, epiploicappendagitis, segmental infarction of the omentum and intestinal volvulus.

To make the correct diagnosis, some authors recommend laparoscopy as the diagnostic and therapeutic method of choice in cases of omental torsion (Itenberg *et al*., 2010; Mallick *et al*., 2006; Chan *et al*., 2007; Kavalakat *et al*., 2008). In many reports of individual cases as well as larger series of patients with omental torsion, the diagnosis was mainly based on CT findings and the treatment was frequently conservative. Miguel Perelló *et al* reviewed six patients who were diagnosed with primary omental torsion based on CT scans and thereafter underwent conservative treatment (Miguel Perelló *et al*., 2002). In addition, Abadir *et al* reported that 12 of 15 patients who had primary omental torsion were diagnosed using a CT scan and were managed without surgery (Abadir *et al*., 2004). In our case, no predisposing factors could be identified. Acute appendicitis was the initial clinical possibility. The CT findings were not diagnostic and the diagnosis was finally established intraoperatively. Traditionally, the standard treatment for omental torsion is a resection of the involved segment of omentum (Karayiannakis *et al*., 2002). However, with the success of imaging tools there are many reported cases of omental torsion that have been successfully managed by conservative treatment, especially in patients with no associated complications (Itenberg *et al*., 2010; Rimon *et al*.,

2009; Mallick and Al-Bassam, 2006; Chan *et al*., 2007; Kavalakat and Varghese, 2008; Miguel Perelló *et al*., 2002; Abadir *et al*., 2004). In conclusion, primary omental torsion appears with a wide variety of clinical manifestations. It can mimic various other causes of acute abdomen; surgeons should always consider it in the differential diagnosis of acute abdominal pain. A preoperative diagnosis in most cases is difficult. For an early preoperative diagnosis, a high index of suspicion is required as well as abdominal CT scans. In the majority of cases, the surgical removal of the diseased omentum remains the treatment of choice. Patients with uncomplicated omental torsion can be safely managed with conservative treatment.

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