

# Omental Torsion

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## ABSTRACT

Torsion of greater omentum is one of the rare causes of acute abdominal pain. It can be primary or secondary. Primary Omental Torsion (POT) occurs because a mobile, thickened segment of omentum rotates around a proximal fixed point in the absence of any associated or secondary intra-abdominal pathology. Secondary omental torsion is associated with a number of pre-existing conditions most common among them is inguinal hernia, other causes include tumours, cysts, internal or external herniation, foci of intra-abdominal inflammation and postsurgical wound or scarring. Torsion of omentum causes twisting of omentum along its long axis resulting in impaired blood supply. This rare condition is more predominant in middle-aged males. It clinically mimics acute appendicitis. It should be kept in mind as a differential diagnosis for acute abdomen. Laparoscopy can aid in diagnosis and management but explorative laparotomy is the definitive and therapeutic procedure of choice. However the condition is not life threatening as omentectomy reduces the inflammation and focus of adhesions within the abdomen.

**Keywords:** Appendicitis, Primary torsion, Secondary torsion

## INTRODUCTION

Torsion of the greater omentum is rare cause of abdominal pain. It is very difficult to diagnose torsion clinically. It mimics acute appendicitis in nearly all cases reported in surgical literature [1]. Eitel first described omental torsion in 1899. Omental torsion is rarely diagnosed pre-operatively, knowledge of this pathology is important to the surgeon because it mimics the common causes of acute surgical abdomen [2]. The pathogenesis of omental torsion has not been established. Anatomical and vascular malformations may be the predisposing factors. Omental Torsion (OT) is a condition in which a pedicle of the omental apron twists on its longer axis to such an extent that its vascularity is compromised. Eitel [2] first reported a case of omental torsion unassociated with a hernia. Since that time many reports have appeared in the literature, notably that by Morris [3] in which 164 authentic cases of torsion of the omentum were gathered from 1905 to 1930. Omental torsion (OT) may be Primary Omental Torsion (POT) because a mobile, thickened segment of omentum rotates around a proximal fixed point in the absence of any associated or secondary intra-abdominal pathology. Anyone can be affected by this disease but it is mainly seen in the age group of 30 to 50 years with male predominance [3]. However few cases have been reported in adults and children [4,5]. Secondary Omental Torsion (SOT) is mostly associated with some predisposing pathology. Morris [3], Adam [1] and Barcia and Nelson [6] emphasized the fact that the hernias were of the right inguinal variety, scrotal type, of long duration, easily reducible, and that they almost invariably contained omentum. In this condition, patients suffering from recurring abdominal pain may have temporary twists of the omentum. The "omental ball" and the omental fibrotic thickenings occasionally found, resulted from these recurring attacks of incomplete OT. A certain number of OT are caused due to inflammatory foci within the abdominal cavity, which produce an inflammation by contiguity in the neighbouring omentum.

This may be true in cases of mild or subsiding appendicitis or cholecystitis in which the original focus subsides, but the changes induced in the omentum persist [7].

## DISCUSSION

Omental torsion is a rare pathology. Patients commonly present with right iliac fossa pain resembling appendicitis, but they lack the associated gastrointestinal symptoms of nausea, vomiting, or anorexia [8]. Kimber et al., reviewed over 8000 cases of appendectomies, quoting omental torsion as the finding in one out of every 600 operations for presumed appendicitis, where the appendix was found to be normal [9]. Primary omental torsion can mimic a variety of other acute abdominal conditions such as cholecystitis, acute diverticulitis, acute appendicitis, meckel's diverticulum [10].

The pathogenesis of POT with infarction has not been completely established. Some anatomical malformations and anomalies of the great omentum like presence of tongue like projections bifid omentum, accessory omentum, anomalous vascular blood supply vascular kinking, irregular omental pador other vascular anomalies that modify the weight of the omentum, are recognized as common predisposing factors for omental torsion [7,11]. Secondary omental torsion is more common than primary omental torsion and is associated with pre-existing abdominal pathologies cysts, tumours, foci of intra -abdominal inflammations [12], surgical wounds or scarring and presence of hernia sacs [13]. Most cases of secondary omental torsion occur with inguinal hernias as reported by Moris et al., [3]. Factors leading to a rise in intra-abdominal pressure such as lifting weights, coughing, forceful vomiting, hard labour, ingestion of heavy meals, abdominal trauma, hyper peristalsis, forceful purgation or taxis of a hernia causes passive displacement of the omentum [14]. The cause of primary omental torsion remains unknown [8]. Spitz et al., suggested multiple predisposing factors like changes in omental consistency including inflammation, oedema, and excess fat deposition (obesity) [15].

The omental torsion determines the omentum twist around a pivotal point, usually in a clockwise direction. Engorgement of the tortuous veins that are more easily compressed may compromise venous return, and the distal omentum becomes congested and oedematous. Recovery may follow or the process may go on [3]. Resultant haemorrhagic extravasations create a characteristic serosanguineous fluid inside the great omentum and in the peritoneal

cavity. As the torsion progresses it causes arterial occlusion leading to acute haemorrhagic infarction and eventually to necrosis of the omentum.

Clinically, primary and secondary omental torsion presents similarly. The most frequent complaint is pain in the right iliac fossa, which is sudden in onset and, may at times be associated with nausea, vomiting, and low-grade fever. A past history of a similar but less severe pain may be present. Goti et al., stated that 66% of these cases mimic appendicitis, and 22% cholecystitis [16]. Furthermore omental infarction can occur without torsion usually due to hypercoagulable state or vascular abnormalities predisposing the omentum to thrombosis [7]. Vasculitis or congestion of mesenteric veins may be caused by right sided heart failure [17]. Ultrasonography may show a complex mass and mixture of solid material and hypoechoic zones and free fluid within the peritoneal cavity. On the other hand, CT scan is very sensitive for showing an omental mass but not specific for making a diagnosis of torsion. Classical signs of omental torsion on CT scan are hazy, the whirl sign of a fatty mass with concentric linear strands in the greater omentum is seen on CT. These strands are twisted blood vessels whirling around a central rod. However this is not confirmatory as there are other differential diagnoses of hazy fatty mass with associated stranding, such as omental hernia, inflammation of epiploic appendages, pancreatitis, and fat-containing neoplasms [18].

USG or CT scan is mandatory as a pre-operative diagnostic tool. This can help in timely diagnosis of primary omental torsion and also where selected cases which can avoid surgery and be treated conservatively [19,20]. Balthazar et al., showed that MRI was effective even when omental torsion is complicated by bleeding or development of an abscess [18]. Radiographic studies are ineffective in differential diagnosis between infarction of greater omentum and torsion of omentum. Patient 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 leucocytosis. These findings are nonspecific making a diagnosis of omental torsion a challenge [21]. The majority of cases present with a single episode of abdominal pain but recurrent pain may suggest intermittent torsion. On examination 50% of patients present with an abdominal mass and localized peritonitis [22].

The current investigation tool and therapeutic management of choice is laparoscopy proceeding to laparotomy, identifying and removing the infarcted section of omentum. Normal appendix, gall bladder 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 appendectomy to prevent future diagnostic problems [23]. Thus, laparoscopy is the first choice procedure for diagnosis and treatment of acute omental torsion [24]. Diagnosis, when USG and imaging (CT and MRI) findings are unclear. In all cases laparoscopy permits a correct diagnosis of omental infarction and surgical excision. The minimally invasive access to the abdominal cavity without surgical incision evokes less pain than traditional procedure and permits a praecox discharge of the patient in the first post-operative day [16]. Laparoscopic technique alone might require to long surgery time; in such cases the therapeutic management of choice is diagnostic laparoscopy proceeding to laparotomy which can permit the omental excision with small abdominal incision [23].

## CONCLUSION

Primary omental torsion is a rare pathological condition with generic symptoms that may mimic many acute abdominal conditions.

The pathogenesis of POT has not been established. Secondary omental torsion is a more common condition than Primary Omental Torsion, due to pre-existing abdominal pathology: cysts, tumours, abdominal inflammatory foci, postsurgical wounds and presence of hernial sacs. The symptoms and the laboratory findings of primary omental torsion are not specific and mimic other pathological abdominal conditions, for these reasons they use loose time to make diagnosis.

Awareness of omental torsion as a differential diagnosis for acute abdomen and a thorough inspection of omentum in a negative laparoscopy are recommended for appropriate management.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Feb 21, 2014**

Date of Peer Review: **Mar 07, 2014**

Date of Acceptance: **Mar 17, 2014**

Date of Publishing: **Jun 20, 2014**