

# Omental Torsion - A Rare Case Study

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**Abstract:** *Omental torsion is a condition in which the organ twists on its long axis to such a degree that its vascularity is affected. This twisting may occur at any point along the organ's length. Understanding this entity is critical for the surgeon because it is similar to the primary causes of acute surgical abdomen. Omental torsion is linked to a variety of pre-existing disorders, the most frequent of which is an inguinal hernia. Other causes of omental torsion include tumours, cysts, internal or external herniation, foci of intra-abdominal inflammation, and postsurgical wounds or scarring. This uncommon ailment is seen more often in men who are in their middle years. Clinically, it is quite similar to acute appendicitis. As a potential alternative diagnosis for acute abdomen, it is important to remember this possibility. Although explorative laparotomy is the most effective and final treatment method, laparoscopy may be helpful in the diagnosis and management of the condition.*

**Keywords:** torsion, abdomen, appendicitis, laparoscopic

## 1. Introduction

Omental torsion is the rotation of the omentum on its long axis, which results in a diminished blood supply to the distal aspect of the omentum and infarction of the tissue in that region. Torsion of the larger omentum is an uncommon cause of acute abdominal pain, with an incidence of 0.0016% to 0.37%, and being the cause of 1.1% of instances of abdominal pain; hence, there is little literature about it. It was first reported in 1899 by Eitel. It is a difficult and uncommon preoperative diagnostic to do due to the vagueness of the symptoms; the estimated frequency ranges from 0.6% to 4.8%, and it is easy to mix it with other illnesses [1, 2, 3, 4]. Next, we'll go through the example of a male patient who, although presenting with symptoms and lab results typical of acute appendicitis, was actually diagnosed after surgery with omental torsion and accompanying necrosis. The patient had shown symptoms and physical findings that were diagnostic of acute appendicitis. Abdominal discomfort due to a twisted larger omentum is unusual. Clinical diagnosis of torsion is quite challenging. In virtually all instances documented in the surgical literature [1], it presents as a false diagnosis of acute appendicitis. Omental torsion was initially reported by Eitel in 1899. While omental torsion is infrequently identified before surgery, it is crucial for surgeons to be familiar with this disease since it presents similarly to other causes of acute surgical abdomen [2]. Omental torsion is a medical mystery since its underlying cause is unknown. Possible risk factors include underlying anatomical abnormalities and circulatory anomalies. When a portion of the omental apron bends so severely along its longitudinal axis, a disease known as omental torsion (OT) develops. In the first documented instance of omental torsion independent of a hernia, Eitel [2] described the patient's symptoms. Since then, several accounts have been published, most notably Morris' [3] compilation of

164 confirmed instances of omental torsion occurring between 1905 and 1930. In the absence of associated or secondary intra-abdominal illness, a thickened, moveable omentum spins around a proximal fixed point.; this may constitute primary omental torsion (POT). Although this illness may strike anybody at any time, it is most common in men between the ages of 30 and 50 [3]. Adults and children, however, have seldom been affected [4, 5]. Most cases of Secondary Omental Torsion (SOT) have an underlying medical condition that makes the patient more susceptible to the condition. The hernias were right inguinal, scrotal type, long lasting, readily reducible, and nearly always included omentum, as noted by Morris [3], Adam [1], and Barcia and Nelson [6]. Patients with chronic stomach discomfort may have transient omentum twists due to this syndrome.

The occurrence of omental torsion in children is uncommon but has been on the rise over the last ten years. This coincides with the rise in the frequency of childhood obesity, which is a risk factor for omental torsion. [1,2] The objective of this article is to provide a comprehensive discussion of the clinical manifestations, pathophysiology, and treatment options for primary omental torsion. [3]. Children with acute appendicitis account for less than 1% of all laparotomies [5]. Omental torsion is the most common cause of this surgery. These recurrent bouts of incomplete OT led to the occasional discovery of the "omental ball" and omental fibrotic thickenings. Inflammatory foci inside the abdominal cavity may also promote inflammation in the adjacent omentum, accounting for a percentage of OT cases.

## 2. Flow Followed

The flow of the treating patients is as shown in the below figure,

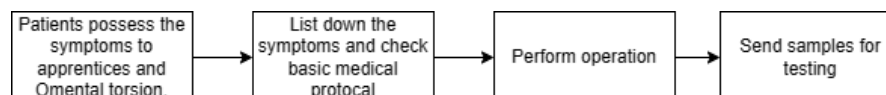


Figure 1: The flow followed to perform the analysis.

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The symptoms of omental torsion will be similar to those of the appendicitis, but through laparoscopic or ultrasound scans the torsion in the specific organs can be found, for example. Once the patient has been identified, routine biochemical and

radiological examination done. Perform specific organ surgery on the patient and monitored postoperatively; if he is found to be cured, the patient is discharged.

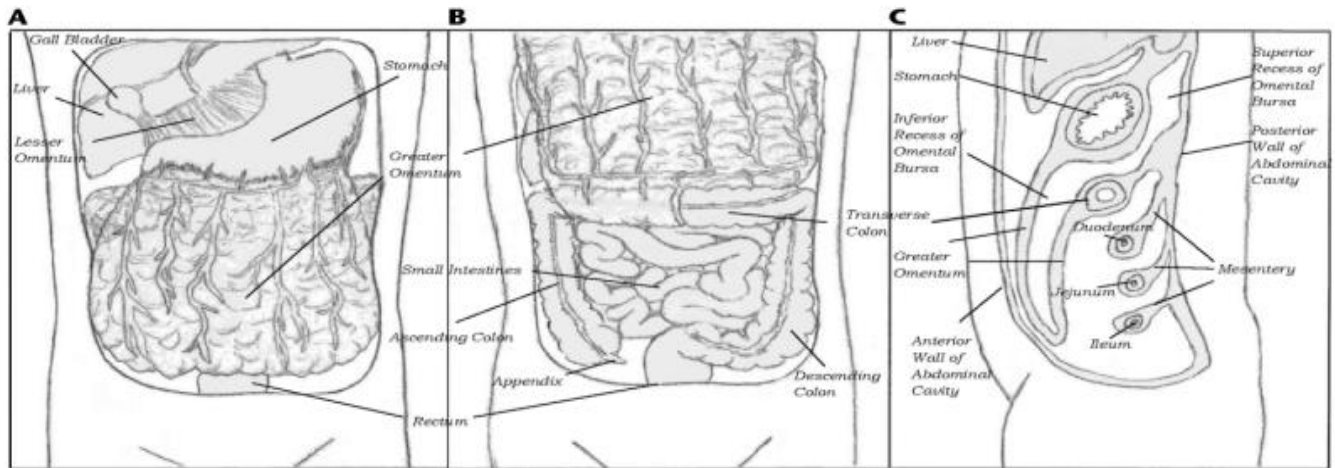


Figure 2: Omental torsion [4].

### 3. Case Study

For the present work, had considered a lady of years sixty two. She had symptoms such as abdominal pain for the past three days before coming to the hospital for a checkup and also experienced periodic vomiting along with the pain. When a patient is admitted to the hospital, the initial tests are performed, such as blood pressure (120/80) and pulse rate (120 BPM). There was diffuse abdominal tenderness expressed by the patient. CECT abdomen showed features that resembled an intraperitoneal focal fat infarction -? Thrombosed omental vessel.

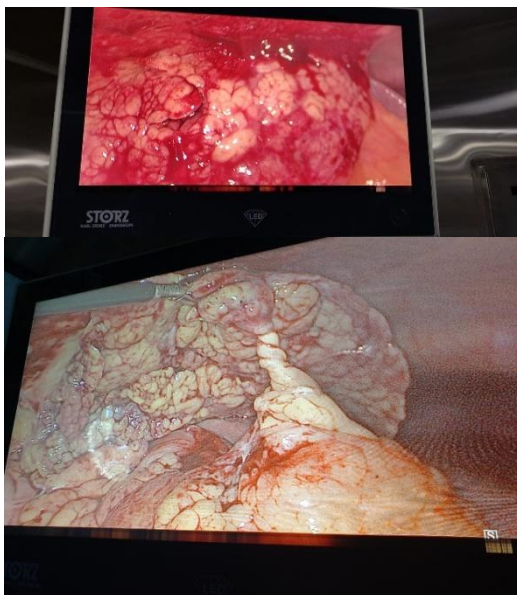


Figure 3: Twist of the organ.

The patient was taken for a diagnostic laparoscopy, which confirmed the diagnosis with omental mass presence (fig 3). Hence proceeded with laparoscopic adhesiolysis,

omentectomy, and peritoneal lavage. The specimen is sent to the histopathological examination center, which showed focal necrosis of omentum with features of acute inflammation and hemorrhage

### 4. Conclusion and Discussion

This section provides a discussion about the disease and its rarity of occurrence. The conclusion covers the aspects of the omental torsion.

#### 4.1 Discussion

Omental torsion is a kind of sickness that is very seldom seen. Patients often report pain in the right iliac fossa that is similar to that caused by appendicitis, despite the fact that they do not have the characteristic gastrointestinal symptoms of nausea, vomiting, and lack of appetite [9]. This highly rare clinical condition is known as torsion of the greater omentum, and it is characterised by the omentum twisting around its pivot point in a direction that is often clockwise. Severe discomfort in the abdomen is the symptoms of this illness. In their study of almost 8000 cases of appendectomy, Kimber et al. cited omental torsion as the finding in one out of every 600 procedures for assumed appendicitis when it was discovered that the appendix was healthy. In other words, omental torsion was found in patients who did not have appendicitis. Primary omental torsion has the potential to result in the development of a variety of distinct acute abdominal diseases, including cholecystitis, acute diverticulitis, acute appendicitis, and Meckel's diverticulum [10]. POT may cause infarction in a number of different ways, but researchers are still trying to determine out which one is the most likely. The presence of tongue-like projections, a bifid omentum, an auxiliary omentum, an aberrant vascular blood supply, vascular kinking, an uneven omental pad, or other vascular anomalies that impact the weight of the omentum are common risk factors for

omental torsion [11]. Secondary omental torsion is associated with pre-existing abdominal disorders such as cysts, tumours, foci of intra-abdominal inflammations [12], surgical wounds or scarring, and the presence of hernia sacs [13]. [12] Surgical wounds or scarring may also cause secondary omental torsion. It has a higher incidence rate than the first twisting of the omentum. Inguinal hernias are the most common cause of secondary omental torsion, as discovered by Moris et al. [3]. These researchers found that this was the case in the majority of cases. Weightlifting, coughing, vomiting, strenuous and physical activity, eating large meals, experiencing abdominal trauma, hyperperistalsis, vigorous purging, even the existence of a hernia are all examples of activities and conditions that can raise intra-abdominal pressure and induce passive displacement of the omentum [14]. There are a number of factors that may contribute, including coughing, vomiting up huge volumes of food, working long hours, eating heavy meals, and physically exerting oneself. About the beginning of primary omental torsion, there is still a lack of knowledge among researchers. Spitz et al. [15] highlighted a number of risk factors, including changes in omental consistency that may be brought on by inflammation, oedema, and excessive fat deposition (obesity). Omental torsion, which normally goes in a clockwise direction, is what determines the degree to which the omentum bends around a crucial point. This torsion takes place in the omentum. It is possible that the venous return may be impaired as a consequence of the engorgement of the tortuous veins, which are more easily compressed than other veins. As a consequence of this, the distal omentum may become congested and oedematous. It is possible that a recovery may take place, but it is also possible that the process will go on [16]. The hemorrhagic extravasations that are the outcome of the damage generate a unique serosanguineous fluid both within the great omentum and inside the peritoneal cavity. This fluid may be found in both locations. Torsion causes arterial blockage, which, in the end, leads to severe hemorrhagic infarction and, in the worst possible situations, necrosis of the omentum. The condition of torsion deteriorates as it progresses. Both primary and secondary omental torsion show similarly clinically. The majority of patients report experiencing pain in their right iliac fossa. It comes on abruptly and, at times, may be accompanied by other symptoms such as nausea, vomiting, and a low-grade fever. It's possible that there was similar episode in the past that was similar but not quite as severe as this one. These occurrences resemble appendicitis in 66 percent of the cases, and cholecystitis in 22 percent of the cases, according to Goti et al., [17]. In addition, omental infarction may occur even when there is no torsion present. This is often the outcome of a disease that makes blood more likely to coagulate than normal or vascular abnormalities that make the omentum more prone to thrombosis. Vasculitis, sometimes referred to as congestion of the mesenteric veins, is a condition that may develop as a consequence of heart failure on the right side. Ultrasonography may reveal the presence of a complex mass inside the peritoneal cavity. This mass may be made up of solid material, hypoechoic zones, and free fluid. This mass may be observed within the peritoneal cavity. A CT scan, on the other hand, has a high degree of sensitivity when it comes

to detecting the existence of an omental mass; nevertheless, it does not have a high degree of specificity when it comes to diagnosing torsion. On a CT scan, the classic symptoms of omental torsion appear unclear, and the swirl sign, which is characterised by a fatty mass with concentric linear threads in the larger omentum, may be detected in the greater omentum. This sign is characterised by the greater omentum having a fatty mass with concentric linear threads. These threads, which are really blood vessels, have been twisted and are now looping themselves around a central rod. However, this does not give definitive proof due to the fact that there are other conceivable origins of a hazy fatty mass with simultaneous stranding. Omental hernia, inflammation of the epiploic appendages, pancreatitis, and fat-containing neoplasms are some of the conditions that fall within this category [18]. Before any surgical procedure, diagnostic testing must always consist of either an ultrasound or a CT scan. Because of this, the diagnosis of primary omental torsion may be made more quickly, and in certain cases, patients may be able to avoid surgery and be treated conservatively rather than undergo the procedure [19,20]. In addition, this may assist in determining which patients can be managed conservatively rather than having to undergo surgical procedures. Even in cases when the situation is made worse by bleeding or the development of an abscess, Balthazar et al. proved that MRI is beneficial in making a diagnosis of omental torsion [19].

There is a wide range of variation in the incidence of torsion of the larger omentum, from 0.0016 percent to 0.37 percent. [6]. However, bigger omental infarction is more common, which may be explained by the different embryological origin of the larger omentum, which is connected with congenitally aberrant and fragile blood vessels [7]. Despite this, greater omental infarction occurs more often. It is not known for certain what led to the development of this illness. An excessively short pathway and an excessive accumulation of adipose tissue on the omentum might lead to the development of an auxiliary omentum known as a "bifid omentum" [8]. One of the contributing factors of obesity is when the body mass index (BMI) is more than the 95th percentile. Hepatitis may be caused by a number of different things, including bruising, coughing, a sudden change in body position, hyperperistalsis after a heavy meal, or compression between the liver and the abdominal wall. Subsequent omental torsion is something that is often found in people who have had prior surgery, inflammation, cysts, tumours, or hernias. It may also occur in patients who have had hernias. The patient presents with complaints of stomach pain, which are made worse by abdominal motions, nausea, and vomiting, according to the clinical observation. In order to rule out probable causes of acute abdominal pain, such as acute cholecystitis, appendicitis, and cecum diverticulitis, radiological imaging should be undertaken. This is a really important step. However, omental infarction is best diagnosed with CECT, which demonstrates 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 [8] or a whirling pattern of the mesentery or fluid accumulation within the abdomen; however, these

findings are also observed in other conditions such as lipoma and lipos. In many cases, surgical treatments are employed not only for the diagnosis but also for the treatment of this ailment. Patients who present with a mild case of omental torsion may have their condition safely managed with the use of conservative treatment.

#### 4.2 Conclusion

Primary omental torsion is an extremely uncommon condition that might be challenging to detect preoperatively but is very easy to treat once it has been identified. When a paediatric patient presents with abdominal discomfort, omental torsion should be considered as one of the possible causes, particularly if there is fluid present in the pelvis. The diagnostic procedure known as exploratory laparoscopy yields conclusive results. The torsed mass may be removed with an omentectomy, which is a curative procedure with very few postoperative problems noted.

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