

| Case Report ARTICLE

The Great Imitator: Pediatric Omental Torsion Presenting as Appendicitis, A Case Report

Sara Husain¹✉, Arka Chatterjee¹, Nabeel Alasheeri²

¹Pediatric Surgery Resident, Department of Pediatric Surgery, Governmental hospitals, Bahrain

²Consultant Pediatric Surgeon, Department of Pediatric Surgery, Governmental hospitals, Bahrain

Corresponding Author: Sara Husain, **E-mail:** sarahusain93@gmail.com

| ABSTRACT

We describe a case of a 10 years-old boy, who presented with signs and symptoms of acute appendicitis. Intraoperatively, he was diagnosed to have omental torsion with reactive appendicitis. We present this case to highlight the diagnostic dilemma.

| KEYWORDS

Omental torsion, pain abdomen, acute appendicitis, laparoscopy, diagnostic dilemma

| ARTICLE INFORMATION

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Introduction

Omental torsion is an uncommon condition characterized by the twisting of the omentum along its axis, most commonly in a clockwise direction. This twisting can lead to compromised blood circulation and tissue ischemia. Patients often present with symptoms that mimic other causes of an acute abdomen, which frequently makes preoperative diagnosis challenging. As a result, many cases are discovered incidentally during surgical exploration.

Case presentation

A 10-year-old previously healthy boy of Indian ethnicity presented with a 1-day history of right lower quadrant abdominal pain. The pain was persistent but not associated with nausea, vomiting, fever, or previous similar episodes. The patient also reported a recent upper respiratory tract infection characterized by cough and sore throat over the past three days. There were no urinary symptoms or alterations in bowel habits.

On examination, the patient was well-appearing, afebrile, and hemodynamically stable. Abdominal assessment revealed tenderness in the right iliac fossa with voluntary guarding; however, there was no rebound tenderness or palpable mass. The genital exam was unremarkable.

Laboratory investigations showed leukocytosis with a white blood cell count of 12,000/ μ L and a left shift in the neutrophil count. Abdominal radiography was unremarkable. Other laboratory parameters were within normal limits.

Considering the clinical presentation and examination findings, a diagnosis of acute appendicitis was made, and the patient was admitted for surgical intervention. He was managed with intravenous fluids and antibiotics preoperatively.

Laparoscopic survey revealed a twisted omentum with four turns, exhibiting distal ischemia (Figure 1, 2). The omentum was adherent to a cecum that appeared hyperemic but otherwise normal. The appendix was mildly hyperemic with reactive inflammatory changes, and minimal reactive fluid was observed in the pelvis (Figure 3). The ischemic omentum was detorted and excised laparoscopically, followed by an appendectomy.

The postoperative course was uneventful. The patient tolerated oral intake well and was discharged home on postoperative day one. Histopathological analysis confirmed focal ulceration and fat necrosis in the omentum, along with reactive mesothelial hyperplasia. The appendix showed reactive lymphoid hyperplasia.

The patient was seen two weeks after surgery in the outpatient clinic and was doing well.

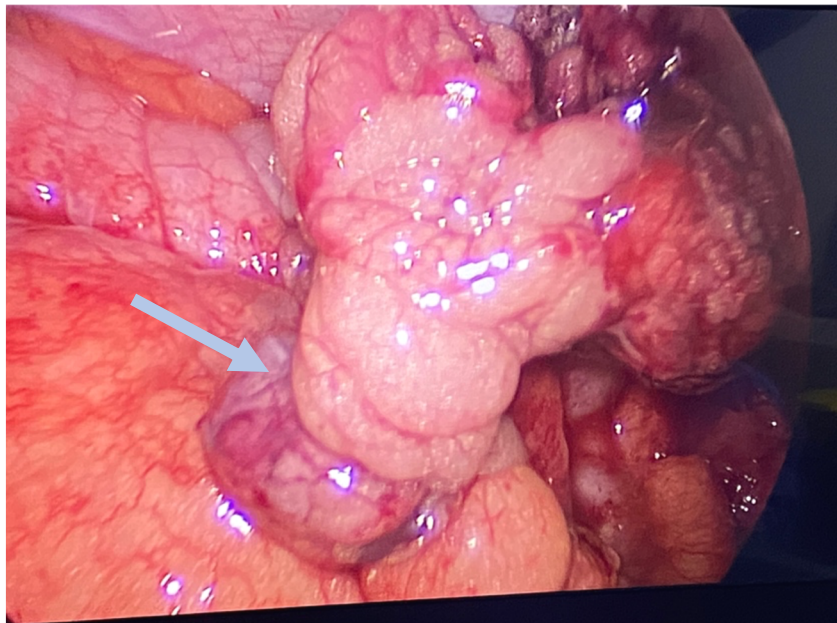


Figure 1: Intraoperative photograph showing the twisted omentum; the arrow indicates the point of torsion.

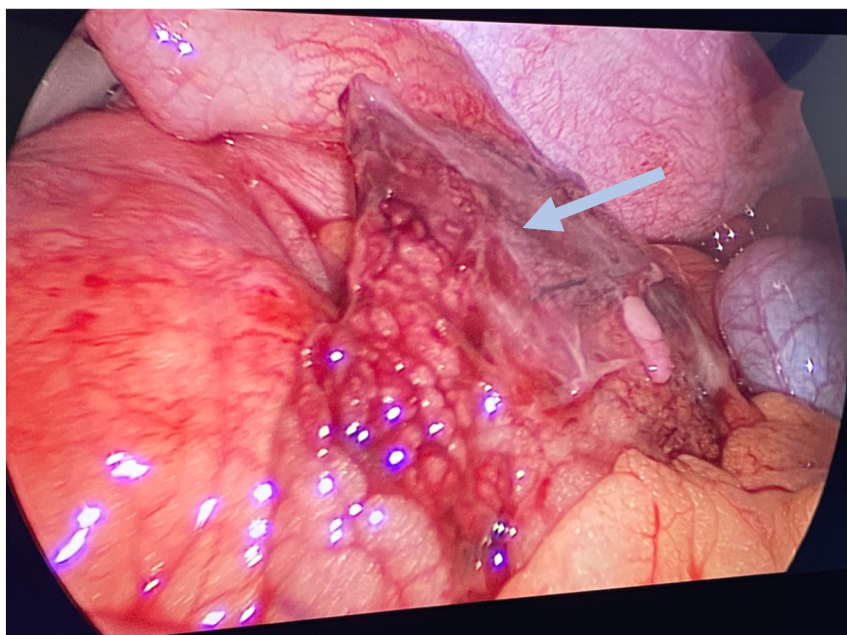


Figure 2: Intraoperative image showing the ischemic portion of the omentum adherent to the cecum (arrow).

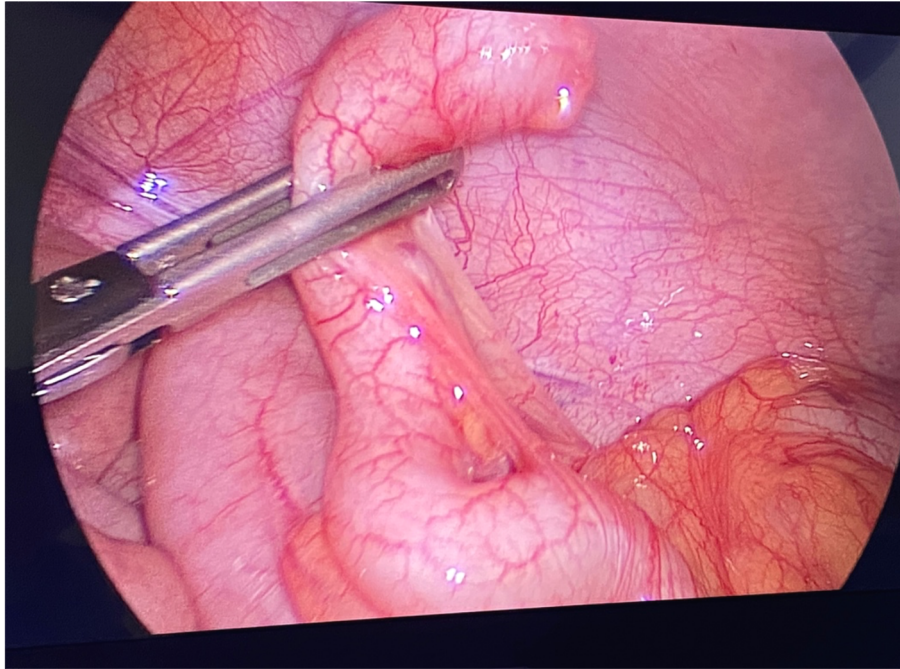


Figure 3: Intraoperative image of the Appendix demonstrating reactive inflammatory changes.

Discussion

Omental torsion is a rare condition the cause of which is twisting of the omentum around a pivot, along its long axis, which is more often clockwise. This causes vascular compromise of the omentum.

There is a difficulty in diagnosing Omental torsion pre-operatively as this condition mimics acute appendicitis. Clinical examination is usually associated with tenderness over the abdomen more often over the right iliac fossa.

Omental torsion may be primary or secondary. Primary omental torsion (POT) usually occurs in overweight individuals and there may be no associated intraabdominal pathology. Secondary omental torsion (SOT) is rare in children and is associated with hernias, Cysts or Omental tumors, foreign bodies, adhesions, post operative scarring (1).

Most cases of omental torsion are diagnosed intraoperatively. Ultrasound of the abdomen Along with CT scan of the abdomen may be able to detect the presence of omental torsion thus avoiding a surgical intervention.

It is a self-limiting condition which can usually be managed conservatively without surgical intervention if diagnosed by imaging pre-operatively. And this avoids unnecessary laparotomy. If there is diagnostic dilemma or If the condition of the patient worsens diagnostic laparoscopy and proceed is recommended.

The pathophysiology of omental torsion is attributed to the twisting around the vascular axis multiple times, leading to vascular damage and compromised blood supply. As the degree of torsion progresses, the arteries gradually get occluded, resulting in acute haemorrhagic infarction and ultimately to necrosis of the omentum. In order to avoid return of a large amount of toxins returning to the blood through the omental vein and further worsening the symptoms of postoperative poisoning, the necrotic omentum is not recovered prior to resection (2). Elsayed AZ et al reported 3 cases of Omental torsion in Paediatric patients. This included two 11-year-old boys and one 10-year-old girl.

They managed all the three cases with laparoscopic excision of infarcted omentum along with appendectomy for all three cases out of which only the 10-year-old girl had a pathologically inflamed appendix and the other two had normal appendixes (3).

Wang Y et al reported a 7-year-old female child who presented with acute right lower abdominal pain. She had undergone Ultrasound abdomen and ct scan of the abdomen, which demonstrated concentric lines of fat and fibrous tissue surrounding the high-density central vessel in the right lower quadrant. It indicated Omental torsion, however as acute appendicitis could not be excluded out, diagnostic laparoscopy with partial omentectomy along with Appendectomy were done. Histopathology revealed congested, haemorrhagic, partially necrotic omentum, while the. Appendicectomy specimen showed simple early acute appendicitis (2).

They concluded that POT is an uncommon pathology, usually presenting as acute abdominal pain, often wrongly labelled as appendicitis. CT scan showing concentric lines of fat and fibrous tissue could indicate a preoperative diagnosis. Laparoscopy allows thorough exploration and appropriate intervention, particularly with ambiguous symptoms and unspecific abdominal pain. The possibility of omental torsion should be entertained if there is haemorrhagic free fluid in the abdomen (2).

Khalili E et al. reported a case of a 7-year-old boy with 2 days history of Lower abdominal pain with nausea and vomiting (1). Ultrasound showed "enhanced pericecal fat echogenicity due to the inflammatory changes with mild free fluid collection in the interloop". They performed a diagnostic laparotomy with a Lanz incision, keeping appendicitis as the first suspicion. It revealed a normal appendix and torsion of the greater momentum was noted. Omentectomy and appendicectomy were performed through the same incision. Histopathology showed a normal appendix and congested omental specimen.

They came to the conclusion that most patients with Omental torsion recover without surgical intervention – but, due to the prolonged hospitalisation and lack of definitive diagnosis – they suggested surgery once there is a suspicion of the same (1).

Chen F et al reported 17 pediatric patients over 8 years, with 16 of them being male patients. In 5 patients, ultrasonography showed "a low-intensity inflammatory mass in the abdominal cavity". All except 1 patient were overweight. The mean CT value of the mass was -58.74 ± 10.32 HU. This is close to that of abdominal wall fat [-46.29 ± 9.45 HU]. In 10 patients, the mass was located anterior to the right colon, whereas it was near the ligamentum teres in 2 patients. Whirl sign was seen in 5 patients, and pelvic fluid was noted in 8 patients. 5 patients were labelled as acute appendicitis. 12 patients were diagnosed with POT. This showed a 70.59% correct pre-operative diagnosis. Laparoscopic omentectomy was performed in all 17 patients. One of these patients had a relapse 8 months after the surgery (4).

They came to the conclusion that "the fatty mass in front of colon and between rectus abdominis sheath in CT image is specific", which helps to diagnose POT. . Laparoscopy is an effective method for the treatment of Primary Omental Torsion in children (4).

Dash MR et al reported 7 cases of Omental torsion in Paediatric Patients (5). They also conducted a retrospective analysis of 748 cases of acute abdomen in Paediatric patients provisionally diagnosed as acute appendicitis from July 2013 to June 2019. They found 7 patients among these to have had Omental torsion or Omental infarction. Mean age of presentation of these patients was found to be 9.3 years with a male to female ratio of 5:2. All of the 7 were overweight according to their BMI.

On laparoscopy they found 6 patients with clots in the peritoneum or haemorrhagic fluid. They concluded that when there is a laparoscopy for suspected acute appendicitis or Meckel's diverticulitis with normal intra-operative gallbladder or ovaries, POT must be considered when there is haemorrhagic fluid in the abdomen. They also recommended laparoscopy for all patients of acute appendicitis as POT could be missed in open appendectomy (5). The difference between POT and SOT can be found in the polarity. In POT – proximal part is fixed with the distal end free. In SOT – the distal end is usually fixed to a pathological condition or to adhesions (6).

Conclusion

Omental torsion is rarely diagnosed pre-operatively. Clinically it mimics acute appendicitis. Although ultrasound and CT scan of the abdomen may rule out appendicitis, and lead to suspicion of Omental torsion by clinical findings, the diagnosis is most commonly made intra-operatively. Detorsion and partial omentectomy is the commonly performed surgery.

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ORCID iD: 0000-0002-1791-2909

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