Case Report

Laparo-therapy for acute omental torsion - Case report with review of literature

Ravneet Kaur[1], Abhijit Sharadchandra Joshi[2]

From [1]Diplomate of the National Board Resident, [2]Consultant General and Advanced Laparoscopic Surgeon, Department of General Surgery, Dr. L.H. Hiranandani Hospital, Mumbai, Maharashtra, India.

ABSTRACT

Omental torsion is a rare event. Often, it mimics other more common conditions like appendicitis. Most of the time, it is diagnosed incidentally during surgery being performed purportedly for some other more common condition. It can be managed easily by laparoscopy with the same ergonomic trocar positions. We, herein, report the case of a 33-year-old female patient who was diagnosed preoperatively to have acute appendicitis but turned out to have a normal appendix and an acute torsion-gangrene of the greater omentum, instead. The same was treated laparoscopically. The patient had an uneventful postoperative recovery.

Key words: Appendicitis, Ergonomics, Gangrene, Laparoscopy, Omental, Torsion

The very first description of omental torsion was made by Eitel in 1899. Since Eitel's initial case report of omental torsion in 1899, around 400 cases have been documented to date, with only about 15% occurring in the pediatric population [1]. Greater omentum undergoing torsion forms a rare cause of acute abdominal pain, highlighting the need to find out the cause of the torsion. This condition arises when the omentum twists around its own axis, compromising venous return and potentially leading to peritonitis along with the accumulation of serosanguinous fluid in the peritoneal cavity. If not treated, this can further result in arterial compromise, resulting in ischemia and necrosis of the involved part. The greater omentum often twists clockwise, and the torsion can stem from either primary or secondary causes.

The rationale for reporting this case was to underscore the importance of omental torsion as an important albeit rare differential diagnosis in acute lower abdominal pain, to add our experience to the limited world literature on the subject and to highlight the important role played by laparoscopy in coming to an accurate diagnosis despite preoperative imaging and laboratory investigations pointing elsewhere.

CASE REPORT

A 33-year-old female patient presented to the emergency department with acute pain in the right lower abdomen. There were no other symptoms. The pain had started about 4 h ago and worsened with time. It was colicky, localized to the right iliac fossa (RIF), and was not relieved with paracetamol. Her last menstrual period was 15 days back, and her periods were regular. She had 1 full-term normal delivery 4 years back. She did not give a history of previous abdominal surgery.

On examination, she had tachycardia (Pulse 94 beats/min). Her blood pressure and respiratory rate were normal (120/80 mms of Hg and 12/min, respectively). On per abdomen examination, she had severe tenderness at the McBurney's point. A clinical diagnosis of acute appendicitis was then made, and she was investigated further. Her hemoglobin was 12 g% and her total leukocyte count was 12,000. Serum creatinine was 0.8 mg/dL. An ultrasonography scan of the abdomen revealed acute appendicitis. The patient and her family were then counseled for early surgery. A written, valid consent was taken, and she was taken up for laparoscopy post due investigational workup.

At laparoscopy, she was found to have a normal appendix along with acute greater omental torsion gangrene resting in the RIF (Fig. 1a and b). The affected stretch of the greater omentum was ligated a little proximal to its base with an endoloop and then excised (Fig. 2a-c). Local hemostasis was ensured, and a thorough peritoneal toilet was given. The appendix was not removed. A thorough diagnostic exploration of the rest of the abdomen, along with a distal-to-proximal small bowel walk was performed. No other pathology was found. Upon conclusion of the surgery, the pneumoperitoneum was de-sufflated and the trocar sites were suture closed. The immediate postoperative recovery was uneventful. On her postoperative day 10, outpatient department follow-up visit, all her wounds had healed well, and she was asymptomatic. At the time of writing this paper, a

Access this article online	
Received - 24 April 2025 Initial Review - 15 May 2025 Accepted - 31 May 2025	Quick Response code
DOI: 10.32677/ijcr.v11i7.5178	

Correspondence to: Ravneet Kaur, Department of General and Laparoscopic Surgery, 1st Floor, Dr. L.H. Hiranandani Hospital, Powai, Mumbai - 400 076, Maharashtra, India. E-mail: rkbbsb15@outlook.com

telephonic interview was conducted with the patient, 11.5 years after her surgery, and she continues to be asymptomatic.

DISCUSSION

Acute abdominal pain ranks among the top reasons for emergency department visits, accounting for about 7–10% of cases. The incidence of greater omental torsion ranges from 0.0016% to 0.37% and is responsible for about 1.1% of abdominal pain cases [2].

Embryologically, the greater omentum originates from the dorsal mesentery. It resembles an apron hanging over the intestines and is composed of four layers of peritoneum. This structure is rich in fat, lymphatic vessels, and has a well-developed blood supply, primarily from the right and left gastroepiploic arteries, making it more vulnerable to torsion [3]. Right-sided greater omental torsion is more common than left-sided torsion. This can be attributed to the right side being longer, heavier, and more mobile. Additionally, infarction of the greater omentum can occur due to a hypercoagulable state or vascular abnormalities, which may predispose individuals to thrombosis.

A large retrospective study of 83 cases reported a higher incidence of omental torsion in patients under 50 years old, with a male-to-female ratio of 2:1 [4]. This gender disparity may be due to men having a higher fat content in the omentum compared to women [4]. The usual presentation of these patients is right lower quadrant pain associated with nausea. This may or may not be accompanied by a history of vomiting. Laboratory findings have revealed elevated white blood cell (WBC) counts and a rising trend of C-reactive protein levels [3]. The symptomatology closely resembles that of acute appendicitis. It is quite easy for torsion of greater omentum to be misdiagnosed as acute appendicitis, acute cholecystitis, Meckel's diverticulum, urinary tract stones, acute diverticulitis, and ovarian pathologies in females; with acute appendicitis being it's closest mimicker [3]. Although on close observation, one should understand that the symptoms of omental torsion differ from those of acute appendicitis in that it rarely is accompanied by gastrointestinal symptoms such as nausea and vomiting, while symptoms of severe peritoneal irritation, fever, elevated WBC count, and inflammatory responses are mild. However, according to Luis *et al.*, because the intestinal peristalsis is unaffected, gastrointestinal symptoms such as nausea and vomiting are not present in more than 50% of patients [5].

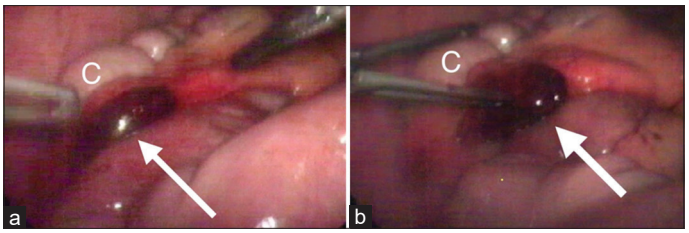

Figure 1: (a and b) 1st look at laparoscopy shows the stretch of greater omentum in acute torsion-gangrene (white arrow) close to the caecum (white "C")

Diagnosis of torsion of greater omentum poses a very difficult challenge for surgeons due to the clinical condition being rare and nonspecific nature of its clinical and laboratory findings. Since torsion of the omentum is difficult to diagnose from a physical examination alone, computed tomography (CT) proves to be a very useful tool to a surgeon in diagnosing this rare but challenging clinical condition and in ruling out other common causes of acute abdomen. Therefore, one should turn toward CT when the data are inconsistent. Omentum majorly consists of fat and blood vessels; therefore, on CT, due to the contrast between these 2 structures, twisted blood vessels in omental torsion can be easily observed without the need for any contrast agent injection. Without needing a contrast agent injection. CT findings of greater omental torsion are a large abdominal fatty mass with a characteristic pattern, whirling pattern, or hyper-attenuated streaks [6].

The term "whirlpool" refers to a rotating mass of water that has the capacity to draw in any nearby object. In terms of abdominal imaging, the "whirlpool sign" is a well-recognized radiological finding that is suggestive of twisting of the mesenteric vessels and small-bowel loops. This characteristic pattern is formed by the superior mesenteric vein and its branches spiraling around the superior mesenteric artery (SMA). Precise differentiation between mesenteric torsion and omental torsion is based on identifying their specific anatomical locations and distinguishing imaging findings.

Omental and mesenteric torsion can be distinguished from each other depending on their location with respect to the bowel loops and their blood supply. Omental torsion lies anterior to the intestinal loops, whereas mesenteric torsion is located among the intestinal loops. Omentum derives its blood supply from the right and left gastroepiploic arteries, whereas mesenteric vessels originate directly from the SMA.

Currently, the first line of treatment of torsion of the greater omentum are: conservative pharmacotherapy (analgesics, anti-inflammatory, antibiotics) and observation. Non-operative measures may take 12–20 h for the symptoms to improve, and in the meantime, if the patient's clinical, laboratory, and radiological findings are worsening, then surgical intervention should be initiated immediately. Certain reports have shown that patients have shown improvement in their clinical condition with conservative management, as primary

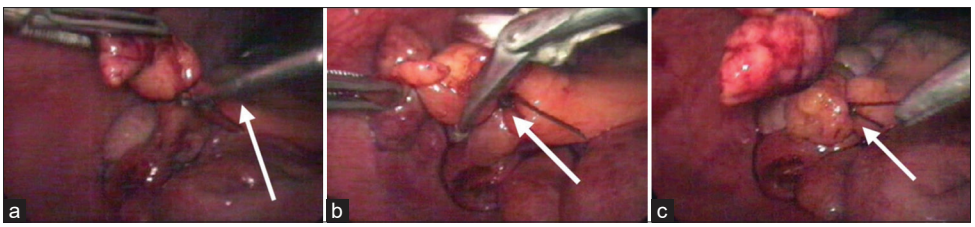

Figure 2: (a) Endoloop being applied proximal to the base of the twisted gangrenous omentum (white arrow), (b) Division distal to endoloop (white arrow), (c) Healthy stump with 2 proximal endoloops (white arrow) seen after excision of the gangrenous stretch

torsion of greater omentum is usually benign and a self-limiting disease. However, if the patients are not seen to be responding to the conservative line of management, the prompt decision should be taken to intervene surgically. Based on the clinical profile of the patient, we may have two options at our disposal of: either open or laparoscopic omentectomy. After the first case by Eitel in 1899, Bush is credited with the first reported case.

Since Bush's description, <300 cases have been reported in the literature, out of which <26 have been treated by laparoscopic surgery. To prevent omental vein embolization from worsening the condition because it is mistaken for extrusion, the surgery should be performed meticulously, and the extent of omental resection should be 2–3 cm above the actual torsion [6]. It is very imperative to note that if the surgical approach is followed, it is suggested that a normal-looking appendix should usually be removed to prevent potential future presentation with appendicitis and thus eliminate any possible diagnostic difficulties that may arise in the future [3]. To sum up, omental torsion is rare, but CT is crucial for its diagnosis. Laparoscopic omentectomy is suitable when the patient has severe or uncontrolled abdominal pain, even with enough analgesia. A review of recently published literature on omental torsion is summarized (Table 1) [2-13].

Table 1: Summary of recently published case reports on omental torsion

S. No.	Authors	Age/ Sex	Clinical features	Imaging findings	Preop diagnosis	Diagnosed as	Treatment
1	Karanikas *et al.* [2]	31/M	Right lower quadrant pain	Appendicitis	N	Acute appendicitis	Exploratory laparotomy: omentectomy+appendectomy
2	Dias *et al.* [3]	35/M	RIF pain Nausea/ vomiting fever	Appendicitis	N	Acute appendicitis	Omentectomy+appendectomy
3	Saad *et al.* [4]	22/M	Right lower quadrant pain nausea and vomiting with R/F tenderness	Not indicated based on typical clinical presentation	N	Acute appendicitis	Laparoscopic omentectomy+appendectomy
4	Khai *et al.* [5]	67/M	RIF pain	Omental torsion	Y	Omental torsion	Open omentectomy
5	Yang and Gao [6]	38/M	Right lower quadrant pain nausea	Greater omental torsion	Y	Right inguinal hemia and greater omental torsion	Exploratory laparotomy: Omentectomy
6	Kataoka *et al.* [7]	50/M	Right Lower quadrant pain	Greater omental torsion	Y	Omental torsion	Conservative f/b laparoscopic omentectomy
7	Gupta *et al.* [8]	26/M	Right iliac fossa pain with nausea and vomiting	Acute appendicitis	N	Acute appendicitis	Laparoscopic appendectomy+omentectomy
8	Wakasugi *et al.* [9]	72/F	Right Lower quadrant tenderness, Fever	Anastomic leak with acute cholecystitis	N	Anastomic leak with acute cholecystitis	Probe laparotomy: omentectomy+ cholecystectomy
9	Stebbings *et al.* [10]	39/F	RIF pain	Fat stranding around appendix	N	Acute appendicitis	Diagnostic laparoscopy
10	Coco *et al.* [11]	26/M	RIF pain	Omental torsion	Y	Omental torsion	Laparoscopic omentectomy
11	Eaupanitcharoen and Wattanasoontornsakul [12]	63/M	Left lower quadrant pain with abdominal distension and ill defined mass in left lower quadrant	Whirlpool sign+	N	Sigmoid diverticulitis	Emergency laparotomy with omentectomy with left hernioplasty
12	Lee *et al.* [13]	74/M	RIF pain	Omental torsion	Y	Omental torsion secondary to right inguinal hernia	Laparoscopic omentectomy with hernia repair

M: Male, F: Female, RIF: Right iliac fossa, N: No, Y: Yes

CONCLUSION

Even though torsion of the greater omentum is rare, it should be included in the differential diagnosis of RIF pain. Extensive imaging studies can help diagnose at the time of presentation and would help the surgeon in deciding the most appropriate line of management. However, as seen in this report, most of the times, it is diagnosed "on table" and not preoperatively. This is because it closely mimics acute appendicitis, which is a much more common condition, as seen in this report. Furthermore, as seen here, as and when it is diagnosed, it is easily managed laparoscopically through the very same trocars inserted purportedly for an appendectomy.

REFERENCES

1. Maekawa S, Kamiyama M, Fujita C, Takao D, Sumi K, Watanabe K, *et al*. Omental torsion diagnosed and treated with single-incision laparoscopic surgery in 2 pediatric patients: A case report. Surg Case Rep 2025;11:24-0021.
2. Karanikas M, Kofina K, Boz Ali F, Vamvakerou V, Effraemidou E, Lyratzopoulos N, *et al*. Primary greater omental torsion as a cause of acute abdomen-a rare case report. J Surg Case Rep 2018;2018:rjy207.
3. Dias SJ, Gobishangar S, Sureska GM, Vaishnavi T, Priyatharsan K, Theepan JM. Omental torsion - a mimicker of the acute appendicitis - a case report. Int J Surg Case Rep 2023;112:108958.
4. Saad E, Awadelkarim A, Agab M, Babkir A, Yeddi A. Omental fat torsion: A rare mimicker of a common condition. J Investig Med High Impact Case Rep 2022;10:23247096221076271.
5. Khai NX, Dung NV, Tien TD, Cong LD, Van Giang T, Nhi NT, *et al*. Primary omental torsion with clinical masquerading as acute appendicitis and radiological key for diagnosis. Radiol Case Rep 2024;19:5648-52.
6. Yang Q, Gao Y. Incarcerated recurrent inguinal hernia as a cause of secondary torsion of the greater omentum: A rare case report and literature review. J Int Med Res 2019;47:5867-72.
7. Kataoka J, Nitta T, Ota M, Takashima Y, Yokota Y, Fujii K, *et al*. Laparoscopic omentectomy in primary torsion of the greater omentum: Report of a case. Surg Case Rep 2019;5:76.
8. Gupta R, Farhat W, Ammar H, Azzaza M, Lagha S, Cheikh YB, *et al*. Idiopathic segmental infarction of the omentum mimicking acute appendicitis: A case report. Int J Surg Case Rep 2019;60:66-8.
9. Wakasugi M, Kono H, Yasuhara Y, Tsujimura N, Nakahara Y, Matsumoto T, *et al*. A resected case of medullary carcinoma of the ascending colon followed by infarction of the greater omentum mimicking anastomotic leakage. Int J Surg Case Rep 2017;41:456-60.
10. Stebbings C, Latif A, Gnananandan J. Torsion of a parasitic leiomyoma: A rare but important differential in women presenting with lower abdominal pain. BMJ Case Rep 2021;14:e232797.
11. Coco D, Leanza S, Mattioli G. A 26-year-old man with acute abdomen due to omental torsion: A rare case report. Maedica (Bucur) 2021;16:125-9.
12. Eaupanitcharoen S, Wattanasoontornsakul W. Left sided omental torsion with inguinal hernia: Case report. Int J Surg Case Rep 2020;76:328-30.
13. Lee YH, Lim JH, Ha HK. Omental torsion and infarction secondary to omental hernia in the right inguinal canal. Taehan Yongsang Uihakhoe Chi 2020;81:1003-7

Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Kaur R, Joshi AS. Laparo-therapy for acute omental torsion - Case report with review of literature. Indian J Case Reports. 2025; 11(7):317-320.