International Surgery Journal
Essa MS et al. Int Surg J. 2025 Apr;12(4):622-625
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20250826

Case Report

Laparoscopic omental resection for omental infarction: a case report

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Received: 08 February 2025
Accepted: 11 March 2025

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ABSTRACT

Omentum is a medical term referring to layers of peritoneum that surround abdominal organs. Acute abdominal pain due to omental necrosis is rare with the incidence of less than 0.4% cases of appendicitis. In most cases, omental infarction was caused by rotation, torsion of the omentum, or abdominal infection which induces an obstruction of vessels and leads to omental necrosis. Clinical manifestations were nonspecific. All most cases, infarction of the greater omentum was diagnosed only during emergency surgery for other diseases of the abdomen such as cholecystitis, appendicitis, or peptic ulcer perforation. Nowadays, multi-sequence computed tomography was taken for acute abdomen, more and more this disease being diagnosed preoperatively. We report patient who were referred to our emergency department for right lower quadrant abdominal pain. Computed tomography (CT) scan showed signs of infiltration, thickening of the omentum. We underwent an emergency laparoscopic to abdominal cavity exploration. The patient was discharged after three days. Laparoscopic omentectomy should be performed as soon as possible with good results.

Keywords: Laparoscopy, Omentum, Infarction

INTRODUCTION

Omentum originates from the stomach and the proximal portion of the duodenum. Omentum passes downwards, and upwards to the transverse colon, draping most of the intestine. Omental infarction is a rare situation in emergency surgery with an incidence of 0,0016% to 0,37%.[1] Since then, approximately 250 to 400 cases were reported.[2-4] The literature presented most of the patients occurs in adults, some cases in children, and pregnant women.[3-6]

Abdominal pain caused by the infarction of the greater omentum can occur in many locations of the abdomen, therefore, differential diagnoses should be considered with other common surgical diseases such as acute cholecystitis, diverticulitis, appendicitis depending on the location of the pain.[7,8] A definitive diagnosis should be based on clinical characteristics and CT, ultrasound, or sometimes only diagnosed during the surgery.[9,10] Omental infarction can be treated conservatively (antibiotics, painkiller, anti-inflammatory) with serial abdominal examination, if the clinical conditions are worsened, the patient should be treated surgically. We present case with greater omentum infarction, which was treated by laparoscopic omentectomy.[11,12]

CASE REPORT

A 43-year-old male patient was presented to Emergency Department (ED) with right and epigastric abdominal pain with nausea and vomiting. Upon examination he is fully conscious, cooperative, well oriented to time, place and person, no fever, and hemodynamically stable. Abdominal examination showed tenderness in the epigastric and right upper quadrant areas.

Blood tests showed a white blood cell (WBC) count of 1100/ml, C-reactive protein (CRP) 8.3 mg/dl (range, 0–1 mg/l). The other results of blood tests were unremarkable. Abdominal ultrasound was unremarkable. CT-scan showed significant fat stranding, mass lesion in the

omentum and fluid in the right upper region and under the liver. The pancreas was normal size and had no fluid in the surrounding (Figure1). Pre-operative diagnosis was suggestive of perforated viscus. The patient underwent laparoscopic exploration which revealed few fluids inside the abdomen under the liver without evidence of viscus perforation in addition to the greater omentum was purple and black, suggested omental necrosis about 4×5 cm attached to the abdominal wall and the falciform ligament (Figure 2). These findings led to the final diagnosis of omental infarction. Laparoscopic omentectomy done to remove the necrotic part of greater omentum (Figure3). Histopathological result was necrotic inflammation of the greater omentum (Figure 4). The patient improved after the emergency operation. At the third day follow-up, his symptoms disappeared completely.

Figure 1: CT show omental infarction (white arrow).

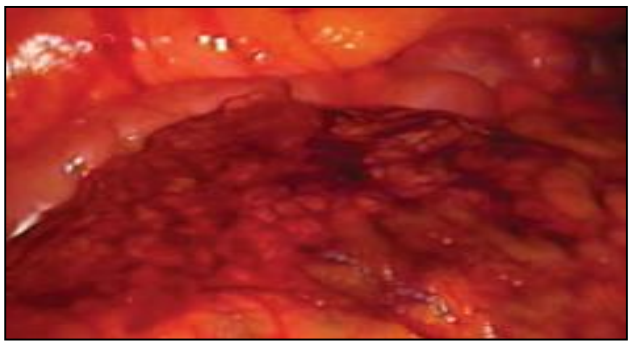

Figure 2: Operative finding of omental infarction.

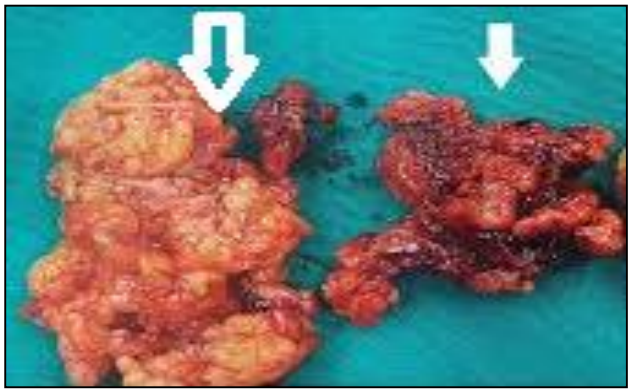

Figure 3: Specimen after resection (white arrow).

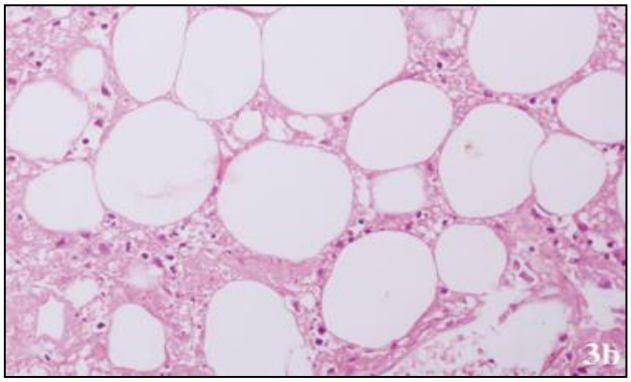

Figure 4: Histopathology showed omental fat necrosis.

DISCUSSION

Inspite of, there were more than 400 cases reported with omental infarction. Approximately 85% of the patients are adult, from 40 to 50 years old, with a ratio of females more than two times than males. Infarction of the greater omentum was classified into 2 main types: primary and secondary infarction.[4,7,13,14]

Until now, the causes of greater omentum infarction have been unidentified. Many authors believed that the congenital abnormality of blood vessels supplying the right lower part of the greater omentum should easily cause an infarction. This location is associated with 90% of the reported cases.[15] Other studies suggested that due to differences in embryonic origins, blood vessels in the right lower part of the greater omentum are smaller and more fragile, making them more susceptible to elongation and obstruction.[4,12] There are several factors that lead to omental infarction such as trauma, excessive exercise, history of abdominal surgery, a sudden increase in abdominal pressure, increased blood clotting, and increases internal fat deposition in the blood vessels supplying the omentum tissue particularly in obese patients.[4,5,12] In our case the infarction developed in right lower part of the greater omentum and the fibrinogen level was high (6.57 g/l) reflecting hypercoagulability of the patient that may be the cause of omental infarction.

Clinical symptoms of necrotic omentum were not significant, except for initial symptoms such as acute abdominal pain, nausea, vomiting, loss of appetite.[7,12,16] Clinical examination can detect some abdominal reactions in a region corresponding to the location of infarction in the greater omentum. In most cases, there would be increasing in the number of WBC and CRP.[4,6,11] Painful properties of omental infarction are nonspecific, so difficult to distinguish with other surgical disease such as cholecystitis, appendicitis, diverticulitis.[8,12,16]

Our patient underwent diagnostic laparoscopy due to severe abdominal pain in the right side, initially misdiagnosed as perforated viscera. Ultrasound and CT-scan were reliable means of diagnosis. CT findings suggestive of greater omentum infarction include mass

lesion with an oval shape or increasing hyperechoic, fat stranding in the same location with the abdominal pain, free fluid in the abdomen. Duplex ultrasound can reveal embolism in the mass and increasing perfusion around the mass.[6,17] Abdominal CT-scan was an important role in the diagnosis of infarction of the greater omentum, also in differential diagnosis with appendicitis, cholecystitis, diverticulitis, acute pancreatitis, or visceral perforation.

To definitively diagnose, many authors suggest laparoscopy to diagnose and treat greater omentum infarction at the same time.[3,6,9,16] In our patient ultrasound was unremarkable but the CT-scan showed significant fat stranding in addition to mass lesion in the greater omentum.

In the greater omentum infarction, different images were depending on time, start with congestion to adipose necrosis, followed by lymphocytic and tissue infiltrates, and eventually fibroblasts and scarring. Omental infarction can lead to complications such as abscesses that may lead to adhesions or abdominal infection.[3,4]

There was no consensus between surgical and conservative treatment of greater omentum infarction. Some authors supporting non-surgical treatment (antibiotics, painkiller, anti-inflammatory) state that infarction was a self-limited disease and most of the symptoms would be recovered after 2 weeks or more.

The disease can be recured with medical treatment should be considered.[2,7,10,11] Meanwhile, surgeons state that early surgery can reduce the length of hospital stay as well as reduce symptoms of the patient in addition to avoid complications of omental infarction such as abscess, adhesions and abdominal infection.[14,16]

Applying laparoscopic surgery would be including some advantages such as examining the entire abdomen for a definitive diagnosis; washing the inflammatory fluid in the peritoneum; minimizing invasiveness, less pain and minimizing risk of surgical site infection.[3,9]

In laparoscopic surgery, widely use of Hamonic and Ligasure can be useful in performing very effective resection of the omentum with minimal bleeding. In our patient laparoscopy was used to rule out other intrabdominal pathology such as bowel perforation with resection of the necrotic omentum with good outcome in the form of no postoperative pain, and discharge after 2 days.

CONCLUSION

Greater omentum infarction Omental infarction is a rare cause of acute abdomen. Many cases were diagnosed only during surgery. Laparoscopic surgery should be done as soon as possible for good outcome and avoid complications of infarction.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Itenber E, Mariadason J, Khersonsky J. and Wallac M. Modern management of omental torsion and omental infarction: a surgeon's perspective. J Surg Educ. 2010;67(1):44-7.
2. Nijkamp JLG, Gerretsen SC, Stassen PM. Left-sided omental infarction: a rare cause of abdominal pain, discovered by CT scan. BMJ Case Rep. 2018;8:45.
3. Medina-Gallardo NA, Curbelo-Peña Y, Stickar T, Gardenyes J, Fernández-Planas S, Roura-Poch P, et al. Omental infarction: surgical or conservative treatment. A case reports and case series systematic review. Ann Med Surg (Lond). 2020;56:186-93.
4. Park TU, Oh JH, Chang IT, Lee SJ, Kim SE, Kim CW, et al. Omental infarction: case series and review of the literature. J Emerg Med. 2012;42(2):149-54.
5. Mani, V. R., Razdan, S., Orach, T., Kalabin, A., Patel, R., Elsaadi, A, et al. Omental Infarction with Acute Appendicitis in an Overweight Young Female: A Rare Presentation. Case Rep Surg. 2019;8:53931.
6. McCusker R, Gent R, Goh DW. Diagnosis and management of omental infarction in children: Our 10 year experience with ultrasound. J Pediatr Surg. 2018;53(7):1360-4.
7. Barai KP, Knight BC. Diagnosis and management of idiopathic omental infarction: A case report. Int J Surg Case Rep. 2001;2(6):138-40.
8. Tonerini M, Calcagni F, Lorenzi S, Scalise P, Grigolini A, Bemi P. Omental infarction and its mimics: imaging features of acute abdominal conditions presenting with fat stranding greater than the degree of bowel wall thickening. Emerg Radiol. 2015;22(4):31-6.
9. Kataoka J, Nitta T, Ota M, Takashima Y, Yokota Y, Fujii K, Higashino T, et al. Laparoscopic omentectomy in primary torsion of the greater omentum: report of a case. Surgical case reports. 2019;5:1-6.
10. 10-Udechukwu NS, D'Souza RS, Abdulkareem A, Shogbesan O. Computed tomography diagnosis of omental infarction presenting as an acute abdomen. Radiology case repos. 2018;13(3):583-5.
11. Litzau M, Lall MD. Idiopathic left upper quadrant omental infarction: diagnosed and managed conservatively in the ED. The American J of Emerg Med. 2015;33(5):741.
12. McMillen B, Hekman DP, Nguyen MT, Grewal D. Idiopathic omental infarction: managed conservatively. BMJ Case Reports CP. 2019;12(3):78.
13. Gupta R, Farhat W, Ammar H, Azzaza M, Lagha S, ben Cheikh Y, et al. Idiopathic segmental infarction

of the omentum mimicking acute appendicitis: a case report. Int J of Surg Case Reports. 2019;60:66-8.
14. Park KE, Chung DJ, Kim W, Hahn ST, Lee JM. Secondary omental infarction related to open and laparoscopic-assisted distal gastrectomy: report of two cases. Korean J of Radiol. 2011;12(6):757-60.
15. Agresta F, Bedin N. Primary omental infarction: laparoscopic approach in two pediatric cases: a case review. J of Laparo & Advanced Surgical Tech. 2007;17(6):831-2.
16. Abe T, Kajiyama K, Harimoto N, Gion T, Nagaie T. Laparoscopic omentectomy for preoperative diagnosis of torsion of the greater omentum. Int J of Surg Case Reports. 2012;3(3):100-2.
17. Coulier B. Segmental omental infarction in childhood: a typical case diagnosed by CT allowing successful conservative treatment. Pediatric Radiol. 2006;3:67-9.

Cite this article as: Essa MS, Mshantat AM. Laparoscopic omental resection for omental infarction: a case report. Int Surg J 2025;12:622-5.