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**Radiology**

# Omental Infarction, a Rare Case of Abdominal Pain: A Case Report and Literature Revue

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**Abstract** **Case Report**

Omental infarction is a rare cause of acute abdomen resulting from vascular compromise of the greater omentum. This condition has a non-specific clinical presentation that mimics other causes of acute abdomen, namely, acute appendicitis and cholecystitis. A confident diagnosis can usually be made on computed tomography (CT) and the typical natural history is one of spontaneous resolution. We present a case of a 59-year-old female patient, who has undergone surgery twice for a white line hernia, with the most recent operation having been performed one year ago. She presented to the emergency department with recent worsening of chronic abdominal pain. Omental infarction should be included in the differential diagnosis list of acute abdominal pain because it can occur at any site. In addition, because this disease runs a self-limited course, conservative care is recommended. Thus, unnecessary operations can be avoided in cases where omental infarction is diagnosed by imaging studies.

**Keywords:** Omental Infarction, abdominal pain, computed tomography, Postoperative complication.



## INTRODUCTION

Omental infarction is an uncommon source of acute abdominal discomfort, posing diagnostic challenges due to its rarity, limited recognition among medical professionals, and a presentation that lacks specificity. Its manifestation typically involves abrupt onset of right-sided abdominal pain, accompanied by symptoms like nausea, vomiting, a mild fever, or the presence of a detectable mass in the abdomen [1].

Initially documented by Bush *et al*., in 1896 as omental infarction and later by Eittel *et al*., in 1899 as omental torsion, this uncommon condition, which can occur across various age groups with a male-to-female ratio of 2:1, is rarely taken into account in the differential diagnosis of acute abdominal pain. Consequently, it poses a significant challenge for both clinicians and surgeons [2, 3].

Moreover, computed tomography can reveal various pathological conditions related to fat. These include localized fat overgrowth (focal lipohypertrophy), conditions characterized by insufficient fat (lipodystrophies), and malignancies like liposarcoma, which can resemble non-threatening fat-related issues. Since fat necrosis and malignant conditions like liposarcoma and peritoneal carcinomatosis can resemble each other, having access to a patient's clinical history and previous imaging records is crucial for a precise diagnosis [4].

Incorrect diagnosis may lead to unnecessary invasive surgery in patients with omental infarction, a disorder that is typically managed conservatively without exposing the patient to intraoperative risks and postoperative morbidity.

## CASE REPORT

59-year-old female patient, who has undergone surgery twice for a white line hernia, with the most recent operation having been performed one year ago.

She presented to the emergency department of the Mohammed VI University Hospital of Marrakech with recent worsening of chronic abdominal pain. There were no exacerbating or alleviating factors and the pain was not related to the consumption of food. The patient felt nauseated and had vomited once.

The examination revealed a diffuse abdominal tenderness more pronounced at the epigastric and right iliac fossa.

**An Abdominal Ultrasound:** Was performed and revealed:

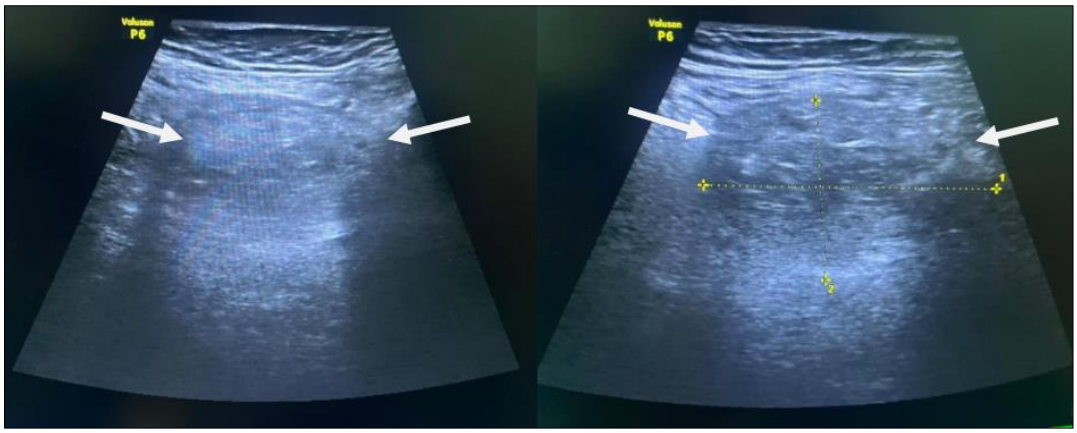

**Fig. 1: An abdominal ultrasound showing an avascular hyoperechogenic non-compressible, oval mass located in the right iliac fossa (white arrows), just behind the antero-lateral abdominal wall.**

**An abdominal CT** was performed:


**Fig. 2: Axial image (A) of abdominal CT without contrast and axial (B), coronal (C) images of abdominal CT with contrast showing an oval area of fat attenuation and stranding adjacent to the right colon and surrounded by a ring of soft tissue (white arrow), a characteristic finding of right-lower-quadrant omental infarction. No other cause of abdominal pain was identified.**

The patient was diagnosed with omental infarction based on CT findings. She was treated conservatively, and her symptoms improved.

## DISCUSSION

While there have been approximately 400 reported cases of omental infarction, its precise incidence remains undetermined. The majority (85%) of

documented omental infarction cases have occurred in adults, with a higher frequency in the 40 to 50-year age group and a male predominance, occurring twice as often as in females.

The greater omentum is a large peritoneal fold that is continuous with the visceral peritoneal layers of the stomach and transverse colon. It contains fat and blood vessels, and often serves to contain the spread of intraperitoneal infections. (Fig-3)

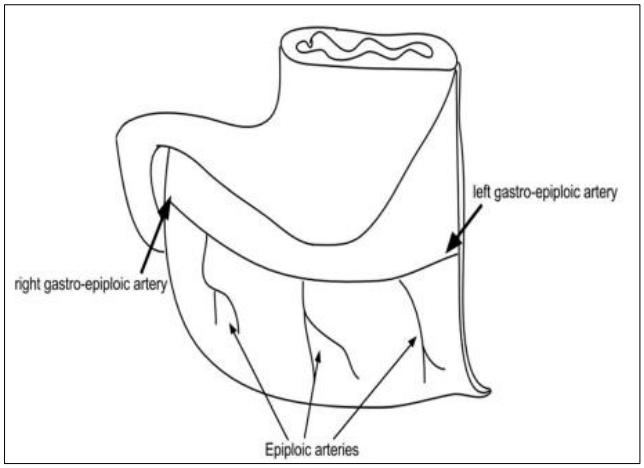


**Fig. 3: Illustration shows the greater omentum, which is supplied by the right and left gastroepiploic arteries [4].**

In 1952, Leitner *et al*., categorized omental infarction into primary and secondary types, a classification that has since been referenced in numerous studies [5]. In both primary and secondary omental infarction, the condition can develop with or without torsion of the greater omentum. This infarction results from factors such as venous stasis, thrombosis, and hemorrhagic necrosis, which are subsequently confirmed through histological evidence showing venous congestion, thrombosis, bleeding, and fat cell damage [6].

Primary omental infarction, known as idiopathic segmental infarction of the greater omentum, occurs spontaneously without an immediate known cause. Anatomical variations, such as malformations, localized differences in fat distribution, and the presence of redundant omental veins, may predispose individuals to idiopathic segmental infarction of the greater omentum. It is theorized that torsion and subsequent infarction can be triggered by the compression of the greater omentum between the liver and the abdominal wall, often resulting from factors such as local trauma, strenuous exercise, occupational vibrations, and increased intraabdominal pressure due to excessive straining or coughing [7].

Secondary omental infarction, on the other hand, has a discernible underlying cause, which may include conditions like neoplasms and inflammatory diseases that create adhesions between the omentum and pathological areas. Inguinal hernias can also ensnare the omentum at the inguinal ring, leading to omental strangulation. During surgery, infarcted omental tissue may be found as a component within an inguinal hernia.

Omental infarction has been reported to occur more frequently on the right side. The reason for this may be that the omentum is longer and more mobile on the right side than on the left side [8, 9]. It has been reported to rarely occur on the left side or at the epigastric area [6-12]. Because most patients with omental infarction do not manifest gastrointestinal symptoms, unlike appendicitis or diverticulitis, omental infarction is not considered in the differential diagnosis for patients who visit the ED due to acute or subacute onset of right lower abdominal pain. In such patients, definitive diagnosis of omental infarction is usually established during surgery [13].

In the past, the diagnosis of omental infarction was typically made during surgery. However, due to recent advancements in imaging technology, it has become increasingly detectable through non-surgical means. Computed tomography (CT) has emerged as the preferred imaging method, and the appearance of various omental pathologies can be broadly categorized into four types: omental caking (infiltration of omental fat by soft tissue), fat stranding with a blurred appearance, cystic masses, and discrete nodules. Omental infarction often manifests as fat stranding adjacent to the bowel wall, particularly when this fat stranding is disproportionate to the extent of thickening of the bowel wall. This radiological finding can be confused with conditions like appendicitis and diverticulitis [14].

In addition to CT, ultrasound can also provide valuable information for clinical decision-making and help rule out biliary stones as a potential diagnosis. Although ultrasound is considered the secondary imaging option, it can effectively identify omental infarction by detecting a non-compressible and increased

echogenic (bright) mass within the omental fat tissue [1]. (Fig-4)

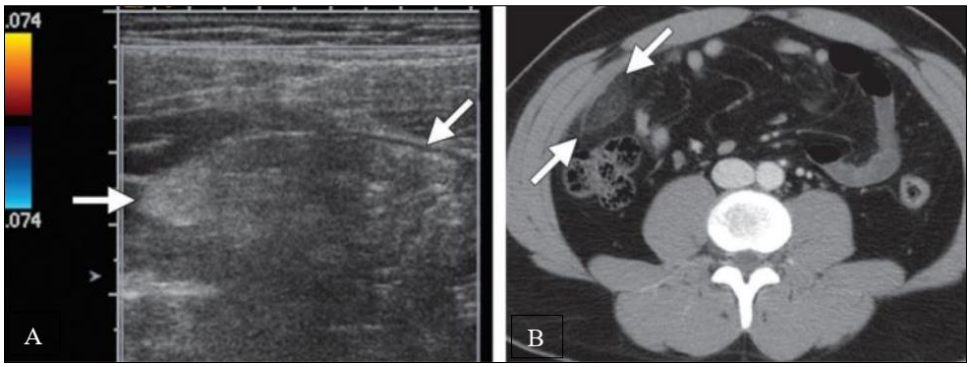


**Fig. 4: Omental infarction in a 21-year-old man with right-lower-quadrant pain. (A) Color Doppler US image of the right lower quadrant shows an ovoid area of avascular echogenic fat (arrows) that corresponds to the area of pain. (B) Axial CT image obtained on the same day as the US image shows an encapsulated fatty mass (arrows) adjacent to—but separate from—the ascending colon, a finding indicative of right-lower-quadrant omental infarction [4].**

The optimal treatment approach for omental infarction has not yet been definitively established. While the natural progression of omental infarction following conservative therapy remains unclear, ultrasound examinations performed between 4 weeks to 4 months of follow-up, and CT scans conducted between 1 to 3 years of follow-up have shown reductions in the size of the infarcted area [10].

Typically, conservative treatment involving the use of pain relievers and anti-inflammatory medications is recommended for omental infarction, as this condition often follows a self-limited course [15, 16]. However, physicians should remain vigilant for the rare occurrence of persistent pain or complications, such as intestinal blockage, abscess formation, and tissue adhesion, during conservative management [10-17].

Surgical intervention can lead to rapid pain relief and can serve to prevent complications like bleeding, adhesion, and abscess formation [17-19]. In instances where the infarcted omentum adheres to the surrounding area of the ascending colon, standard McBurney incision may not be sufficient for detection and removal, making diagnostic and therapeutic approaches using laparoscopy a recommended alternative [13].

## CONCLUSION

Omental infarction is frequently encountered during surgical procedures due to its nonspecific symptoms, sudden or subacute onset, and the presence of right-sided abdominal pain. However, the widespread utilization of imaging techniques has increased the accuracy of diagnosing this condition prior to surgery. Since omental infarction typically follows a self-limited course, it is advisable to pursue conservative management. This approach helps in preventing unnecessary surgical interventions when omental infarction is identified through imaging studies. While omental infarction does tend to manifest more often on the right side, it can potentially occur at any location where the omentum is situated.

## BIBLIOGRAPHY

1. Buell, K. G., Burke-Smith, A., Patel, V., & Watfah, J. (2017). Omental infarction: the great impersonator. *Cureus*, *9*(12).
2. Esposito, F., Di Serafino, M., Mauro, A., Mercogliano, C., Cocco, C., Zenzeri, L., ... & Di Nardo, G. (2020). Not only fat: omental infarction and its mimics in children. Clinical and ultrasound findings: a pictorial review. *Journal of Ultrasound*, *23*, 621-629.
3. Helmrath, M. A., Dorfman, S. R., Minifee, P. K., Bloss, R. S., Brandt, M. L., & DeBakey, M. E. (2001). Right lower quadrant pain in children caused by omental infarction. *The American journal of surgery*, *182*(6), 729-732.
4. Kamaya, A., Federle, M. P., & Desser, T. S. (2011). Imaging manifestations of abdominal fat necrosis and its mimics. *Radiographics*, *31*(7), 2021-2034.
5. Leitner, M. J., Jordan, C. G., Spinner, M. H., & Reese, E. C. (1952). Torsion, infarction and hemorrhage of the omentum as a cause of acute abdominal distress. *Annals of surgery*, *135*(1), 103.
6. Cianci, R., Filippone, A., Basilico, R., & Storto, M. L. (2008). Idiopathic segmental infarction of the greater omentum diagnosed by unenhanced multidetector-row CT and treated successfully by laparoscopy. *Emergency radiology*, *15*, 51-56.
7. Safioleas, M., Stamatakos, M., Giaslakiotis, K., Smirnis, A., & Safioleas, P. (2007, December). Acute abdomen due to primary omentitis: a case report. In *International Seminars in Surgical Oncology* (Vol. 4, No. 1, pp. 1-3). BioMed Central.
8. Singh, A. K., Gervais, D. A., Lee, P., Westra, S., Hahn, P. F., Novelline, R. A., & Mueller, P. R.

(2006). Omental infarct: CT imaging features. *Abdominal imaging*, *31*, 549-554.

9. Karayiannakis, A. J., Polychronidis, A., Chatzigianni, E., & Simopoulos, C. (2002). Primary torsion of the greater omentum: report of a case. *Surgery today*, *32*, 913-915.
10. Singh, A. K., Gervais, D. A., Lee, P., Westra, S., Hahn, P. F., Novelline, R. A., & Mueller, P. R. (2006). Omental infarct: CT imaging features. *Abdominal imaging*, *31*, 549-554.
11. Balthazar, E. J., & Lefkowitz, R. A. (1993). Left-sided omental infarction with associated omental abscess: CT diagnosis. *Journal of computer assisted tomography*, *17*(3), 379-381.
12. Foscolo, S., Mandry, D., Galloy, M. A., Champigneulles, J., De Miscault, G., & Claudon, M. (2007). Segmental omental infarction in childhood: an unusual case of left-sided location with extension into the pelvis. *Pediatric Radiology*, *37*, 575-577.
13. Park, T. U., Oh, J. H., Chang, I. T., Lee, S. J., Kim, S. E., Kim, C. W., ... & Lee, K. J. (2012). Omental infarction: case series and review of the literature. *The Journal of emergency medicine*, *42*(2), 149-154. doi: 10.1016/j.jemermed.2008.07.023. Epub 2008 Dec 20. PMID: 19097725.
14. Pereira, J. M., Sirlin, C. B., Pinto, P. S., Jeffrey, R. B., Stella, D. L., & Casola, G. (2004). Disproportionate fat stranding: a helpful CT sign in patients with acute abdominal pain. *Radiographics*, *24*(3), 703-715.
15. Fragoso, A. C., Pereira, J. M., & Estevão-Costa, J. (2006). Nonoperative management of omental infarction: a case report in a child. *Journal of pediatric surgery*, *41*(10), 1777-1779.
16. Goh, B. K., & Koong, H. N. (2006). Non-operative management of idiopathic segmental infarction of the greater omentum successfully diagnosed by computed tomography. *Journal of gastroenterology and hepatology*, *21*(10), 1638-1639.
17. Agresta, F., & Bedin, N. (2007). Primary omental infarction: laparoscopic approach in two pediatric cases: a case review. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, *17*(6), 831-832.
18. Varjavandi, V., Lessin, M., Kooros, K., Fusunyan, R., McCauley, R., & Gilchrist, B. (2003). Omental infarction: risk factors in children. *Journal of pediatric surgery*, *38*(2), 233-235.
19. Safioleas, M., Stamatakos, M., Giaslakiotis, K., Smirnis, A., & Safioleas, P. (2007, December). Acute abdomen due to primary omentitis: a case report. In *International Seminars in Surgical Oncology* (Vol. 4, No. 1, pp. 1-3). BioMed Central.