

# Unexpected acute abdominal pain during pregnancy caused by primary omental torsion diagnosed laparoscopically: A case report and literature review

Barış Mantoğlu, M.D.,<sup>1</sup> Fatih Altıntoprak, M.D.,<sup>2</sup> Merve Yiğit, M.D.,<sup>1</sup> Necattin Firat, M.D.<sup>2</sup>

<sup>1</sup>Department of General Surgery, Sakarya Training and Research Hospital, Sakarya-Turkey

<sup>2</sup>Department of General Surgery, Sakarya University Faculty of Medicine, Sakarya-Turkey

## ABSTRACT

Primary omental torsion (POT) is a rarely encountered clinical condition as an acute abdominal pathology. POT is more prevalent in males than females. The diagnosis of POT is challenging, and pregnancy initiates the diagnosis more difficult and essential. The fact that radiological methods such as computed tomography cannot be used during pregnancy constitutes the biggest problem in diagnosis. At this point, diagnostic laparoscopy plays a significant role in the diagnosis and treatment of acute abdominal pathologies in pregnant patients. The diagnosis of a 28-week pregnant woman who was admitted to our emergency department with the aggravation of abdominal pain was not clarified by abdominal ultrasound so the patient was diagnosed with POT by diagnostic laparoscopy. Conservative follow-up plays an important role in pregnant patients, and the poor progress of the patient in both laboratory and physical examination leads diagnostic laparoscopy to an important point when the limitation of imaging methods is added.

**Keywords:** Laparoscopy; pregnancy; primary omental torsion

## INTRODUCTION

Primary omental torsion (POT) is a rare clinical entity that can present as an acute abdominal pathology. Primary torsion of the great omentum was first described by Eithel in 1899.<sup>[1]</sup> Adults are most commonly affected (approximately 85% of all patients), and the condition is more common in males than in females (ratio 3:2), principally in those aged 20–30 years. Approximately 270 cases have been reported; a PubMed search for articles published between 1955 and 2000 found seven studies on POT in pregnant women.<sup>[2]</sup> The diagnosis of omental torsion is challenging; pregnancy renders diagnosis both much more difficult and essential. Although ultrasonography (USG) and computed tomography (CT) are valuable diagnostic tools, most cases were diagnosed during surgical intervention. Herein, we describe a 28-week-pregnant woman with right lower quadrant pain, which was diagnosed as POT during diagnostic laparoscopy.

## CASE REPORT

A 35-year-old, 3-para, 3-gravid, 28-week pregnant woman was admitted to our emergency department with acute right abdominal pain that had developed 48 h prior. Although the pain had gradually increased over that time, she did not complain of severe nausea or vomiting. Her body temperature was 36.7°C, her pulse 95 beats/min, and her blood pressure 120/90 mm/Hg. On abdominal examination, progressive rebound tenderness was evident in the right iliac fossa. The obstetrician determined that the fetal heart rate was normal. Her medical history was unremarkable. Laboratory tests revealed slight rises in the white blood cell count (WBCC) (to 13,500/mm<sup>3</sup>) and C-reactive protein (CRP) level (to 1.3 mg/L). Abdominal USG revealed minimal free fluid. We decided to perform diagnostic laparoscopy given a preliminary diagnosis of acute appendicitis suggested by the acute abdominal syndrome. A 10-mm port was inserted

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Address for correspondence: Barış Mantoğlu, M.D.

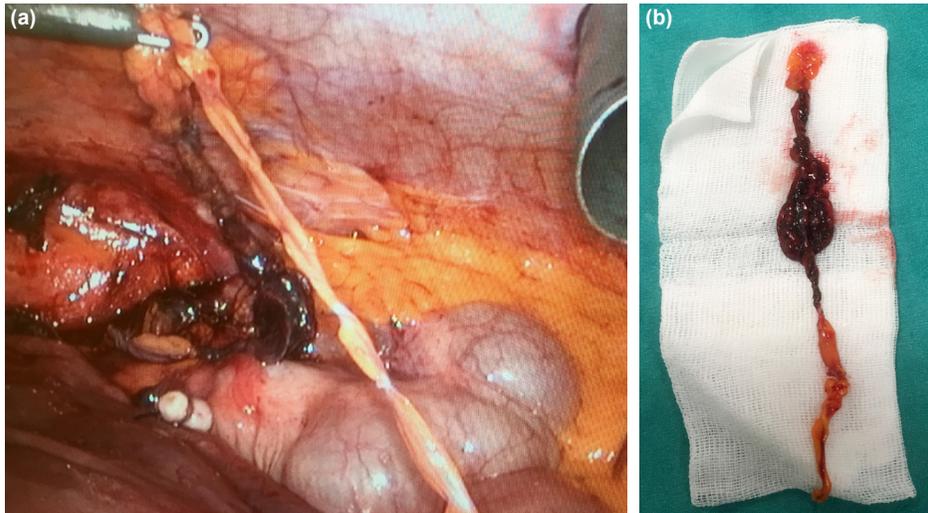
Sakarya Eğitim ve Araştırma Hastanesi, Genel Cerrahi Kliniği, Sakarya, Turkey

Tel: +90 264 - 888 40 00 E-mail: barismantoglu@gmail.com

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**Figure 1.** (a) Intraoperative view of twisted omentum. (b) Excised omentum.

through the abdominal cavity using the Hanson technique, and a pneumoperitoneum established. A twisted omentum with an area of dark-red congestion was immediately evident in the right iliac fossa (over the appendix) (Fig. 1a). A partial omentectomy was performed using an Ultracision Harmonic scalpel (Ethicon, Cincinnati, OH, USA) (Fig. 1b). The rest of the abdominal cavity was also explored, and an appendectomy performed. The postoperative period was uneventful; the patient was discharged on the first postoperative day. Her gestational period was normal, and she gave birth to a healthy baby at term.

## DISCUSSION

POT is a rare cause of acute abdominal pain; torsion of the appendix is much more common. The total incidence of both types of primary torsion ranges from 0.0016% to 0.37%, which equates to fewer than four cases per 1,000 instances of appendicitis.<sup>[3,4]</sup> Two types of omental torsion have been described: primary and secondary. Of all torsion cases, 67% are secondary. Primary torsion is almost always unipolar; i.e., the free edge of the omentum becomes twisted. Secondary torsion is almost always bipolar; i.e., the omentum is twisted between the base and an adherent point such as a hernia or an adhesion developing after abdominal surgery.<sup>[5-7]</sup> Primary torsion is more common in males than in females, with the incidence peaking in the third decade of life. Such torsion is infrequently associated with anatomical variations such as a bifurcated or accessory omentum, and changes in blood circulation.<sup>[8,9]</sup> Although no precise etiology has been described, precipitating factors include coughing, sneezing, a sudden change in body posture, heavy exercise, hyperperistalsis, trauma, and pregnancy.<sup>[5,6,8,9]</sup> Obesity is a risk factor for primary torsion; one study found that 70% of patients were obese.<sup>[10]</sup> The right side of the omentum is more commonly affected than the left, as the right side is mobile, long, and heavy. Our patient had no history of a sudden postural change, trauma, or hyperactive bowel sounds, but she was 28 weeks pregnant;

this is a known etiology. Diagnostic laparoscopy indeed revealed that the right side of the omentum was affected.

Primary torsion patients usually present with acute abdominal pain (commonly on the right side of the abdomen) mimicking the symptoms of acute appendicitis, acute cholecystitis, pancreatitis, and a perforated duodenal ulcer.<sup>[11]</sup> The differential diagnosis should also include cecal diverticulitis, abdominal wall hematoma, salpingitis, ovarian cyst torsion, and ectopic pregnancy.<sup>[12,13]</sup> Indeed, accessory spleen torsion is another diagnostic possibility.<sup>[14]</sup> Nausea and vomiting may occur; however, as such symptoms are common in the first trimester of pregnancy, they may not be viewed as a sign of disease. The bowel sounds are often normal. On physical examination, guarding and rebound tenderness are frequently apparent in the right iliac fossa, but almost always distant from McBurney's point.<sup>[15,16]</sup> Leukocytosis and an increased level of plasma CRP are almost always evident, whereas fever is less common.<sup>[17,18]</sup> In our case, there was an increased WBC and CRP level, and a positive McBurney's point. The patient also reported slight nausea but no vomiting.

USG and CT are often performed. USG reveals a hyperechoic, non-compressible ovoid mass adherent to the abdominal wall.<sup>[19]</sup> CT usefully differentiates omental torsion from other causes of acute abdominal pain. CT can also reveal diffuse streaking with a whirl of fibrous and fatty folds.<sup>[20]</sup> CT is contraindicated during pregnancy, and USG and magnetic resonance imaging are preferred. However, in life-threatening cases, CT is permissible.

Both medical treatments and surgical interventions have been described in the literature, but a correct preoperative diagnosis is essential. Conservative management includes oral analgesics, anti-inflammatory drugs, and antibiotics.<sup>[21,22]</sup> Patients receiving conservative treatment should be strictly monitored both clinically and radiologically. Although conservative treatment has yielded favorable results, this may be because

intra-abdominal necrotic tissue gives rise to intra-abdominal abscesses and adhesions.<sup>[10,23,24]</sup> In the absence of close clinical and radiological follow-up during pregnancy, it is possible to overlook appendicitis, endangering both the mother and fetus. If the diagnosis is doubtful or the clinical findings worsen, diagnostic laparoscopy (not laparotomy) must be the first surgical option. In our case, diagnostic laparoscopy was indeed (quickly) diagnostic. The affected omental region was noted immediately, excised, and appendectomy added to avoid future intervention.

## Conclusion

Omental torsion is a very uncommon cause of acute abdominal pain; pregnancy renders management rather challenging, especially in terms of preoperative diagnosis. The inherent limitations of imaging modalities and restrictions on their use during pregnancy (e.g., CT) make preoperative diagnosis difficult. Although conservative treatment is an essential component of therapy, we believe that diagnostic laparoscopy is the correct option for pregnant patients.

**Informed Consent:** Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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## REFERENCES

- Adams JT. Torsion of the omentum. Abdominal wall, omentum, mesentery and retroperitoneum. In: Schwartz SI, Shires GT, Spencer FC, editors. Principles of Surgery, 5th ed. New York: McGraw-Hill; 1989. p. 1495–6.
- Ouladsahebmadarek E, Vaez M, Pouya K. Omental torsion in a pregnant woman: A case report and review of literature. *Pak J Med Sci* 2012;28:206–8.
- Kimber CP, Westmore P, Hutson JM, Kelly JH. Primary omental torsion in children. *J Paediatr Child Health* 1996;32:22–4. [\[CrossRef\]](#)
- Pinedo-Onofre JA, Guevara-Torres L. Omental torsion: A cause of acute abdomen. *Gaceta Med Mexico* 2007;143:17–20.
- Schwartzman GJ, Jacobs JE, Birnbaum BA. Omental infarction as a delayed complication of abdominal surgery. *Clin Imaging* 2001;25:341–3.
- Stachowicz N, Czekirowski A. Omental torsion in pregnant woman. *Wiad Lek* 2000;53:109–11.
- Machtelinx C, De Man R, De Coster M, Ghillebert G, Provoost V. Acute torsion and necrosis of the greater omentum herniated into the foramen of Morgagni. *Abdominal Imaging* 2001;26:83–5. [\[CrossRef\]](#)
- Young TH, Lee HS, Tang HS. Primary torsion of the greater omentum. *Int Surg* 2004;89:72–5.
- Theriot JA, Sayat J, Franco S, Buchino JJ. Childhood obesity: A risk factor for omental torsion. *Pediatrics* 2003;112:460–3. [\[CrossRef\]](#)
- Van Breda Vriesman AC, Lohle PN, Coerkamp EG, Puylaert JB. Infarction of omentum and epiploic appendage: Diagnosis, epidemiology and natural history. *Eur Radiol* 1999;9:1886–92. [\[CrossRef\]](#)
- Maingot R. *Abdominal Operations*. 7th ed., Vol. 2. New York: Appleton-Century-Crofts; 1984. p. 1550–51.
- Tsironis A, Zikos N, Bali C, Pappas-Gogos G, Koulas S, Katsamakis N. Primary torsion of the greater omentum: report of two cases and review of the literature. *Int J Surg* 2008;17:239–46.
- Nafaa LN, Shabb NS, Haddad MC. CT findings of omental torsion and infarction: Case report and review of the literature. *Clin Imaging* 2003;27:116–8. [\[CrossRef\]](#)
- Liebermann-Mefert D, Gloor F. Pathological conditions, specific investigations, and therapy: Tissue deposits. In: Liebermann-Mefert D, White H, editors. *The Greater Omentum: Anatomy, Physiology, Pathology, Surgery with a Historical Survey*. New York, USA: Springer; 1983. p. 203–4.
- Hardy JD. *Hardy's Textbook of Surgery*. 2nd ed. Philadelphia, PA: JB Lippincott Company; 1988.
- Angulo JM, Ruiz I, Villanueva A, San Vicente M, Tovar JA. Primary surgical pathology of the epiploon. *Cir Pediatr* 1990;3:125–9.
- Breunung N, Strauss P. A diagnostic challenge: Primary omental torsion and literature review. *A case report. World J Emerg Surg* 2009;4:40.
- Al-Husaini H, Onime A, Oluwole SF. Primary torsion of the greater omentum. *J Natl Med Assoc* 2000;92:306–8.
- Puylaert JB. Right sided segmental infarction of the omentum: Clinical, US and CT findings. *Eur J Surg* 2001;167:723–7.
- Abdenasser EK, Driss B, Abdellatif D, Mehci A, Souad C, Mohamed B. Omental torsion and infarction: CT appearance. *Intern Med* 2008;47:73–4. [\[CrossRef\]](#)
- Coulier B. Segmental omental infarction in childhood: A typical case diagnosed by CT allowing successful conservative treatment. *Pediatr Radiol* 2006;36:141–3. [\[CrossRef\]](#)
- Perello JM, Albasini JL, Aledo VS, Jiménez JA, Pastor BF, Arenas MFC, et al. Torsión de epiplón: las técnicas de imagen pueden evitar intervenciones innecesarias. [Article in French]. *Gastroenterol Hepatol* 2002;25:493–6. [\[CrossRef\]](#)
- Itenberg E, Mariadason J, Khersonsky J, Wallack M. Modern management of omental torsion and omental infarction: A surgeon's perspective. *J Surg Educ* 2010;67:44–7. [\[CrossRef\]](#)
- Fragoso AC, Pereira JM, Esteve ao-Costa J. Nonoperative management of omental infarction: A case report in a child. *J Pediatr Surg* 2006;41:1777–9. [\[CrossRef\]](#)

OLGU SUNUMU - ÖZ

## Laparoskopik olarak tanı konulan primer omental torsiyonun neden olduđu gebelik sırasında beklenmedik akut karın ağrısı: Olgu sunumu ve literatürün gözden geçirilmesi

**Dr. Barış Mantođlu,<sup>1</sup> Dr. Fatih Altıntoprak,<sup>2</sup> Dr. Merve Yiđit,<sup>1</sup> Dr. Necattin Fırat<sup>2</sup>**

<sup>1</sup>Sakarya Üniversitesi Eğitim ve Araştırma Hastanesi, Genel Cerrahi Kliniđi, Sakarya

<sup>2</sup>Sakarya Üniversitesi Tıp Fakóltesi, Genel Cerrahi Anabilim Dalı, Sakarya

Primer omental torsiyon akut karın patolojisi olarak nadir karşılaşılan klinik bir durumdur. Primer omental torsiyon erkeklerde kadınlardan daha sık görülür. Primer omental torsiyonun tanısının zor olmasının yanında, hamilelik tanısı çok daha zor ve önemli hale getirir. Gebelikte bilgisayarlı tomografi gibi radyolojik yöntemlerin kullanılamayacak olması tanı koymadaki en büyük problemi oluşturmaktadır. Bu noktada tanısız laparaskopi gebe hastalarda akut karın patolojilerinin tanı ve tedavisinde önemli bir yer tutmaktadır. Acil servisimize ani başlayan karın ağrısının şiddetlenmesi üzere acil servisimize başvuran 28 haftalık gebe hastanın tanısı batın ultrasonu ile netleştirilemeyince tanısız laparaskopi ile primer omental torsiyon tanısı alan hastanın aynı zamanda laparoskopik olarak torsiyone olan omentumunun alınması ile sağlığına kavuştu. Gebe hastalarda konservatif takip önemli bir yer tutarken hastanın gerek laboratuvar, gerekse fizik muayenedeki kötü yönde ilerlemesi görüntüleme yöntemlerinin sınırlılığı da eklen-diđinde tanısız laparoskopiyi önemli bir noktaya taşımaktadır.

**Anahtar sözcükler:** Gebelik; laparaskopi; primer omental torsiyon.

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