Int Surg 2019;**104:**155–158
DOI: 10.9738/INTSURG-D-18-00037.1

Effective Treatment for Incarcerated Obturator Hernia With Bowel Dilatation by Combined Laparoscopy and Preperitoneal Approach: A Case Report

Mizunori Yaegashi[1,2], Chihiro Tono[2], Yukihiro Minagawa[2], Hideki Ishioka[2], Yuya Nakamura[2], Toru Yoshida[2]

[1]*Department of Surgery, Iwate Medical University, Iwate, Japan*

[2]*Department of Surgery, Iwate Prefectural Kuji Hospital, Iwate, Japan*

Background: We report a case of a 90-year-old woman with intestinal obstruction due to left-sided incarcerated obturator hernia, which was revealed using computed tomography.

Methods: Emergency surgerywas performed using laparoscopy, which showed a dilated small intestine and bilateral obturator hernia in the intraperitoneal space. After reducing incarceration of the small intestine using laparoscopy, we approached the bilateral preperitoneal space and inserted a Kugel patch via a small lower abdominal median incision (approximately 4 cm).

Results: The patient was discharged on postoperative day 10 and showed no recurrence at the 18-month follow-up. Although relatively rare, obturator hernia can significantly cause intestinal obstruction. It has no specific clinical symptoms and is thus often difficult to diagnose. Treating obturator hernia is essential; however, mesh infection, recurrence, and opposite side of the obturator hernia should be carefully monitored.

Conclusions: Although laparoscopy is used for treating obturator hernia, it may be difficult in patients with intestinal obstruction. In this case, a surgical technique combining laparoscopy and preperitoneal space approach via a small lower abdominal median incision was used to effectively treat an incarcerated occult bilateral obturator hernia.

Key words: Incarcerated obturator hernia – Laparoscopy – Preperitoneal approach – Lower abdominal median incision

Corresponding author: Mizunori Yaegashi, MD, PhD, Department of Surgery, Iwate Medical University School of Medicine, 2-1-1 Idai-dori Yahaba, Shiwa, Iwate 028-3695, Japan.
Tel: +81 19 613 7111; Fax: +81 19 907 7344; E-mail: ymizunori@gmail.com

Obturator hernia is a rare form of abdominal hernia commonly observed in elderly women.[1–3] Clinical diagnosis is difficult because of nonspecific symptoms. Computed tomography (CT) is a valuable tool for preoperatively diagnosing obturator hernia; an early diagnosis reduces morbidity and mortality. Although obturator hernia is primarily treated by surgery, recurrence and infection should be carefully monitored. Obturator treatment by laparoscopic approach has recently reported, but that approach cannot be preferred in cases with ischemia/necrosis or bowel dilatation as ileus.[4,5] In some cases, clinically occult bilateral obturator hernias are detected during surgery.[6] Here, we report a case where a surgical technique combining laparoscopy and preperitoneal space approach via a small lower abdominal median incision was effective for treating obstructed and bilateral obturator hernias with bowel dilatation, which were unexpectedly detected during surgery.

Case Report

A 90-year-old woman with a history of percutaneous coronary intervention for acute cardiac syndrome, cerebral infraction, and hypertension presented to our hospital with a 2-day history of abdominal pain, nausea, and vomiting. She had given birth to 3 children but had not undergone any abdominal surgeries. Her body weight was 32 kg, her height was 132 cm, and her body mass index was 19.1 kg/m^2. A physical examination revealed mild abdominal distension. Additionally, she reported lower abdominal pain; however, no abdominal sensitivity or muscular defense was observed. She experienced pain in her right hip, which increased with the extension and abduction of the thigh. This finding was suspected to be the Howship–Romberg sign. Blood tests revealed high levels of C-reactive protein (3.1 mg/dL), blood urea nitrogen (49 mg/dL), and creatinine (0.96 mg/dL). Other blood test results were normal.

Abdominal X-ray revealed dilated small bowel loops. CT imaging suggested a right obturator hernia comprising an obstructed small intestinal loop (Fig. 1). She underwent an emergency operation with a diagnosis of incarcerated obturator hernia.

Under general anesthesia, hernioplasty was laparoscopically initiated using 3 trocars: a 12-mm umbilical trocar for the camera that was placed using the Hasson technique and two 5-mm trocars that were placed on each side of the umbilical region

Fig. 1 Abdominopelvic CT scan showing small intestine (arrow) through the right obturator foramen between the pectineus and external obturator muscle.

as working ports (Fig. 2). Abdominal air pressure was set at 10 mmHg, and the entire small intestine was dilated. A flexible camera was introduced into the peritoneal cavity. The small intestinal loop was incarcerated in the right obturator canal (Fig. 3A). Next, the peritoneum was incarcerated into the left obturator canal (Fig. 3B). Thus, the small intestine was laparoscopically reduced, and no signs of small intestinal ischemia or perforation were observed. Subsequently, using a small lower abdominal median incision (approximately 4 cm), the right preperitoneal space was accessed, and a Modified Kugel Hernia patch (C.R. Bard/Davol, Warwick, Rhode Island) was applied. On the left side, the

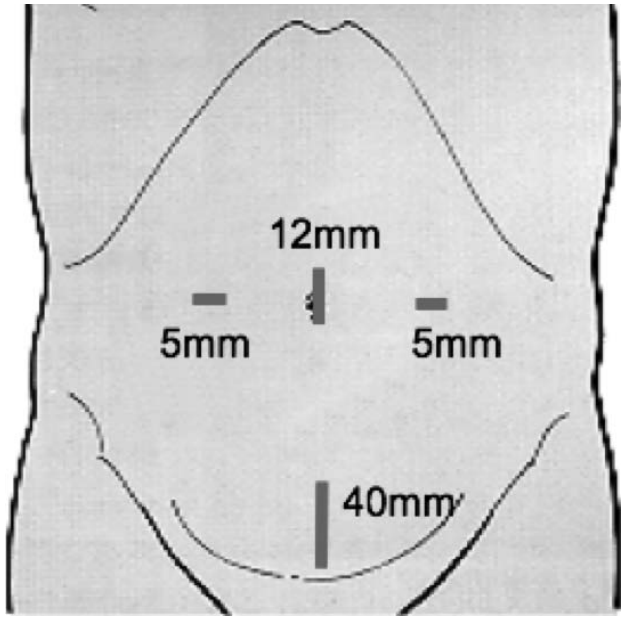

Fig. 2 Trocar sites. A 12-mm trocar is located at umbilicus; two 5-mm trocars are placed at the right and left flank.

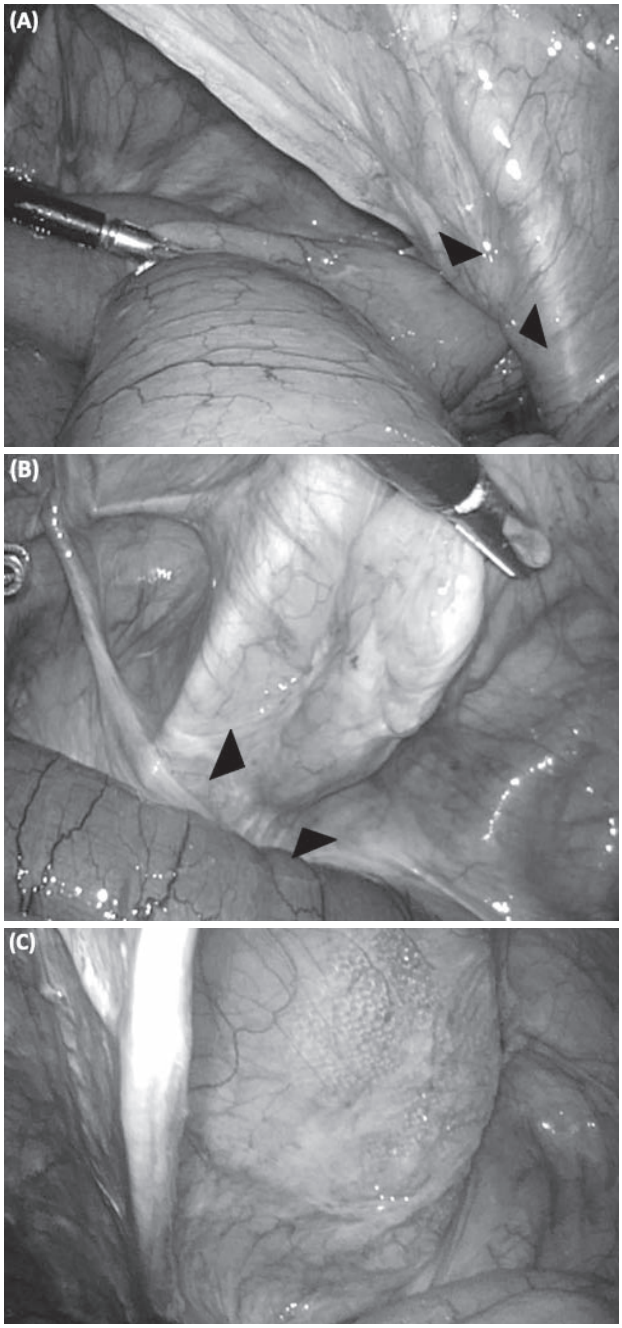

Fig. 3 Intraoperative findings. (A) The small intestine (arrowhead) incarcerated into the right obturator canal. (B) The hernia sac (arrowhead) is noted in the left obturator canal. (C) The detained mesh was checked from the intraperitoneal space.

same procedure was performed using the same lower abdominal incision. Finally, the bilateral mesh was laparoscopically confirmed for its position in the appropriate space (Fig. 3C). The total operating time was 68 minutes, and the volume of blood lost was 10 mL. On postoperative day 3, a liquid diet was initiated for the patient, and she was subsequently discharged on postoperative day 10 without any postoperative complications. At 18-month follow-up, the patient exhibited no signs of recurrence.

Discussion

Obturator hernias account for only 0.07% to 1% of all hernias and are rare among abdominal wall hernias. Obturator hernias primarily occur in elderly multiparous women.[1–3] Compression of the obturator nerve by the hernia can cause pain or cramps from the groin to the knee. Classical symptoms of such hernias include adduction and internal rotation of the thigh, the Howship–Romberg sign, but this symptom is not observed in all cases.[2] CT is useful for preoperatively diagnosing obturator hernia, as reported by Meziane *et al*[7] and confirmed by subsequent studies.[2,8–10] Indeed, CT was also useful for diagnosis in this case. However, occult inguinal hernia could not be diagnosed.

Currently, there is no established technique for treating obturator hernia. Laparoscopic surgery has been reported in several cases and is suitable for most patients except for those with peritonitis and bowel ischemia.[4,5] Here, we repaired the hernia using a surgical technique combining laparoscopy and preperitoneal space approach via a small lower abdominal median incision. The characteristic feature of this surgical technique is that the wound area of laparoscopy and that of mesh insertion are separate. Additionally, laparoscopy offers the advantage of definitive diagnosis and treatment, monitoring intestinal strangulation and condition, assessing bilateral obturator hernia, and verifying the position of the inserted mesh. The advantages of the preperitoneal space approach via a small lower abdominal median incision are that the surgeon can approach the bilateral obturator foramen from the wound site; the viewing field is not blocked by bowel dilatation. In addition, it can be performed without contaminating the mesh insertion even though it was used over the wound area of laparoscopy during intestine resection, performed as necessary. The recurrence rate of hernia is low, and closure of the hernia orifice is usually performed by direct suture and plugging and patching.[11] Mesh is effective in preventing recurrence, although there are concerns regarding a possible infection.[12] Thus, combining the 2 techniques provides all of the aforementioned advantages while decreasing the risk of recurrence and infection.

There are several reports of bilateral obturator hernia not being diagnosed by preoperative examination[6,13,14]; thus, this procedure is useful for detecting and treating obturator hernia on the opposite side. In addition, the laparoscopic procedure associated with mesh was unnecessary, and the viewing field was not hindered by bowel dilatation in the preperitoneal space approach. Therefore, operative procedure is comparatively simple.

Although obturator hernia must be surgically treated, there is no established technique for this. Thus, the surgical technique should be chosen on a case-by-case basis. The combined technique described here has many advantages and can be a potential treatment option for obturator hernia.

Acknowledgments

The authors have no declarations of interest.

References

1. Bjork KJ, Mucha P Jr, Cahill DR. Obturator hernia. *Surg Gynecol Obstet* 1988;**167**(3):217–222
2. Mantoo SK, Mak K, Tan TJ. Obturator hernia: diagnosis and treatment in the modern era. *Singapore Med J* 2009;**50**(9):866–870
3. Hsu CH, Wang CC, Jeng LB, Chen MF. Obturator hernia: a report of eight cases. *Am Surg* 1993;**59**(11):709–711
4. Hatipoğlu E, Dal F, Umman V, Demiryas S, Demirkıran O, Ertem M *et al*. Rare case of bilateral incarcerated obturator hernia: a case report. *Ulus Travma Acil Cerrahi Derg* 2018;**24**(3):278–280
5. Hayama S, Ohtaka K, Takahashi Y, Ichimura T, Senmaru N, Hirano S. Laparoscopic reduction and repair for incarcerated obturator hernia: comparison with open surgery. *Hernia* 2015;**19**(5):809–814
6. Ciftci F. Single surgeon experience with repair of occult inguinal hernias using the TAPP approach: a prospective study. *Int Surg* 2015;**100**:1403–1407
7. Meziane MA, Fishman EK, Siegelman SS. Computed tomographic diagnosis of obturator foramen hernia. *Gastrointest Radiol* 1983;**8**(4):375–377
8. Yokoyama Y, Yamaguchi A, Isogai M, Hori A, Kaneoka Y. Thirty-six cases of obturator hernia: dose computed tomography contribute to postoperative outcome? *World J Surg* 1999;**23**(2):214–216
9. Dundamadappa SK, Tsou IY, Goh JS. Clinics in diagnostic imaging (107). *Singapore Med J* 2006;**47**(1):88–94
10. Hodgins N, Cieplucha K, Conneally P, Ghareeb E. Obturator hernia: a case report and review of the literature. *Int J Surg Case Rep* 2013;**4**(10):889–892
11. Rizk TA, Deshmukh N. Obturator hernia: a difficult diagnosis. *South Med J* 1990;**83**(6):709–712
12. Bergstein JM, Condon RE. Obturator hernia: current diagnosis and treatment. *Surgery* 1996;**119**(2):133–136
13. Lo CY, Lorentz TG, Lau PW. Obturator hernia presenting as small bowel obstruction. *Am J Surg* 1994;**167**(4):396–398
14. Kim JJ, Jung H, Oh SJ, Lee KH, Park SM, Kim YH *et al*. Laparoscopic transabdominal preperitoneal hernioplasty of bilateral obturator hernia. *Surg Laparosc Endosc Percutan Tech* 2005;**15**(12):106–109