

CASE REPORT

Two patients with spontaneous transomental hernia treated with laparoscopic surgery: a review

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Abstract

Here, we report two patients with transomental hernia who were successfully treated with laparoscopic surgery. The first patient was a 58-year-old female who presented to our hospital with abdominal pain and vomiting; she had no history of abdominal surgery. Enhanced computed tomography revealed strangulation ileus due to an internal hernia. The second patient was a 36-year-old male who presented to our hospital with abdominal pain and no history of abdominal surgery. Enhanced computed tomography indicated transomental hernia. Emergency laparoscopic surgery in both patients revealed incarcerated bowel loops through defects in the greater omentum. The bowel segments were laparoscopically released, and the patients were uneventfully discharged on postoperative Days 4 and 8. Laparoscopic surgery is useful for the diagnosis and treatment of small bowel obstruction due to transomental hernia through the greater omentum.

INTRODUCTION

Internal hernia is one of the causes of small bowel obstruction (SBO) in patients with no history of surgery. Although the incidence of internal hernia in SBO is 5.8%, transomental hernias are particularly rare, constituting only 1–4% of all internal hernias [1, 2]. Laparoscopic surgery is less invasive than laparotomy for acute bowel obstruction. We report the cases of two patients with transomental hernia through the greater omentum who were successfully treated with laparoscopic surgery.

CASE REPORT

Case 1

The first patient was a 58-year-old female who presented to our hospital with abdominal pain and vomiting; she had no history of abdominal surgery. Upon performing an examination, her abdomen was soft, with no guarding or rebound tenderness; however, central abdomen palpation revealed tenderness. A laboratory investigation revealed no abnormalities; however, enhanced abdominal computed tomography (CT) revealed intestinal

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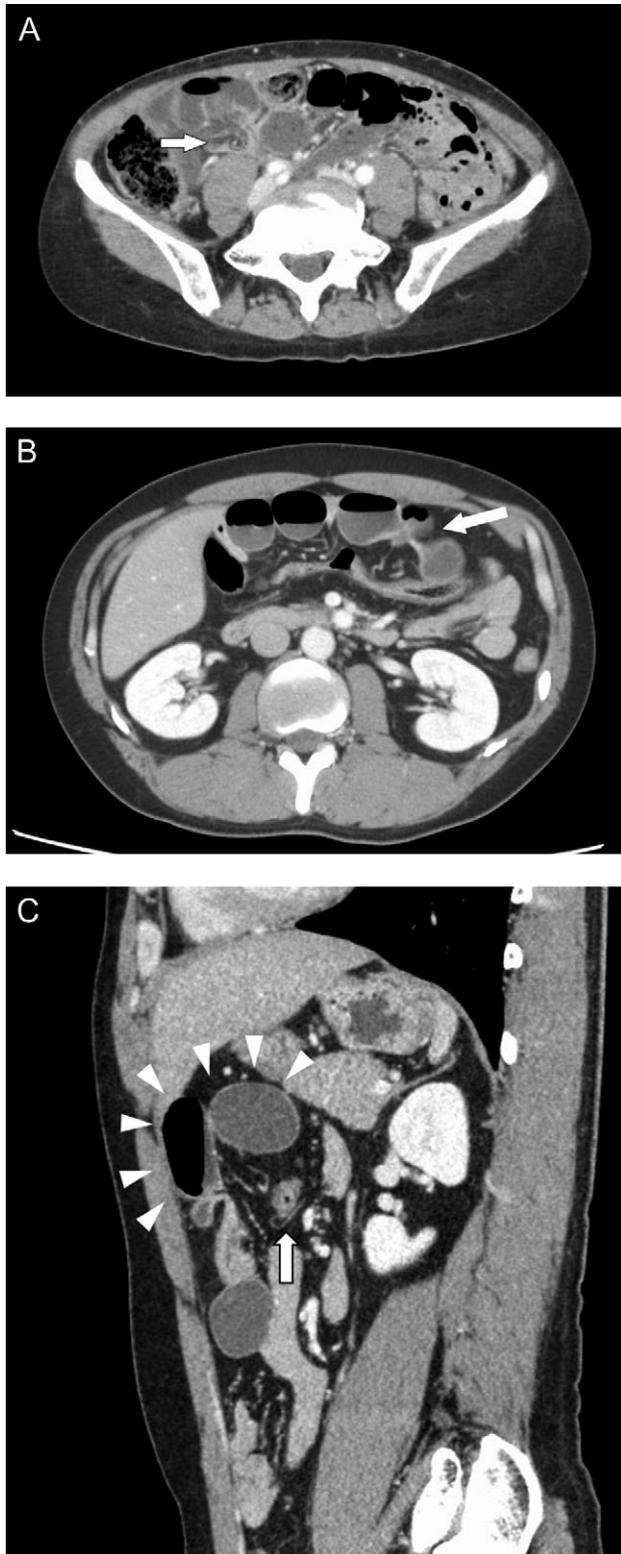


Figure 1: Enhanced abdominal computed tomography findings. (A) The beak sign (arrow) is indicated in the lower right quadrant. (B) Small bowel loops with caliber change (arrow) are indicated in the upper abdomen. (C) A peripheral herniated loop (arrowheads) within the peritoneal cavity. The transverse colon is indicated by an arrow.

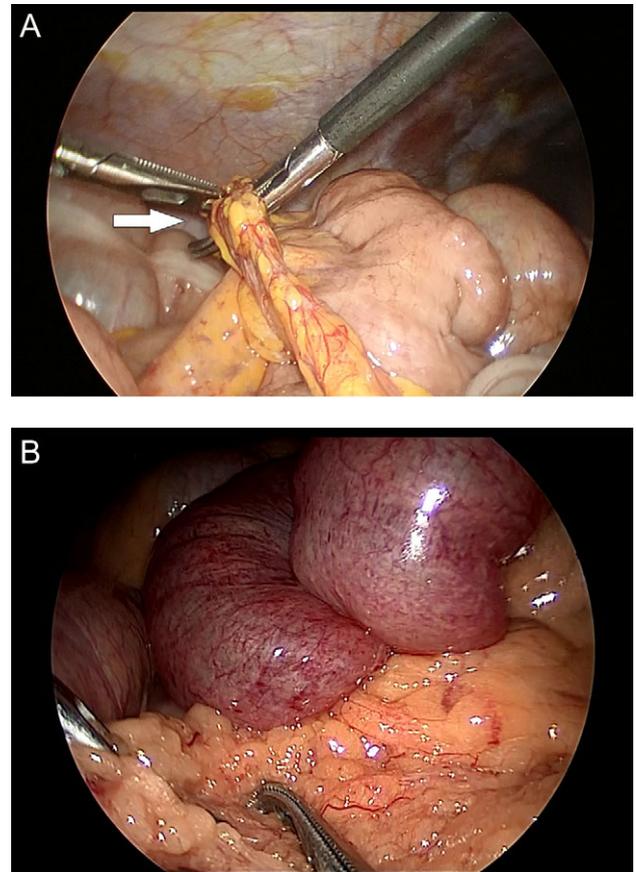


Figure 2: Intraoperative images. (A) Incarceration of a loop of the small bowel through a defect in the greater omentum (arrow). (B) Small bowel loops appear to be congested and herniate through the greater omentum.

obstruction of the right lower quadrant with the beak sign, indicating the transition zone of SBO (Fig. 1A). Therefore, the patient was diagnosed with strangulation ileus due to the internal hernia. Emergency laparoscopic surgery revealed an incarcerated loop of the small bowel through a greater omental defect (Fig. 2A). The incarcerated small bowel was released; because the ileal segment was viable, bowel resection was deemed unnecessary. The patient was uneventfully discharged on postoperative Day 8.

Case 2

The second patient was a 36-year-old male who presented to our hospital with abdominal pain and had no history of abdominal surgery. His physical examination revealed upper abdominal tenderness. Laboratory investigations revealed no abnormalities except for an abnormal white cell count ($11\,000\text{ mm}^3$). Enhanced abdominal CT revealed dilated, fluid-filled loops of the small bowel, with caliber change in the upper abdomen (Fig. 1B and C). He was suspected of having transomental hernia, and emergency laparoscopy was performed. During surgery, an ileal segment measuring ~15 cm in length was observed to be herniating through a greater omental defect (Fig. 2B). The small bowel was released by dividing the omentum; there was no evidence of ischemic changes in the incarcerated loop of the small bowel.

Table 1 Review of transomental hernia cases reported in English

No.	Authors	Year	Age	Gender	Symptom	Preoperative diagnosis	History of abdominal surgery	Operation	Bowel resection	Herniated organ	Omental foramen	Complication
1	Clark PB	1961	39	Male	Abdominal pain	NA	None	Laparotomy	-	Jejunum	Divided	None
2	Clark PB	1961	50	Male	Abdominal pain, vomiting	NA	None	Laparotomy	-	Jejunum	Divided	None
3	BINNS PM	1962	65	Male	Abdominal pain	NA	NA	Laparotomy	-	Ileum	Sutured	None
4	Egan TJ	1962	69	Male	Abdominal pain, vomiting	SBO	None	Laparotomy	-	Ileum	Divided	None
5	Svane S	1964	77	Male	Abdominal pain, vomiting	None	None	Conservative	NA	Ileum	-	Dead
6	Svane S	1964	63	Male	Abdominal pain, vomiting	SBO	None	Laparotomy	-	Ileum	Sutured	None
7	Lessner KH	1976	69	Female	Abdominal pain	SBO	Appendectomy	Laparotomy	-	Ileum	Divided	None
8	Hull JD 3rd	1976	67	Female	Abdominal pain	SBO	None	Laparotomy	-	Ileum	Divided	None
9	Watt PC	1983	90	Female	Abdominal pain	NA	None	Laparotomy	+	Small bowel	Divided	Ileus
10	Siddins <i>et al.</i>	1990	36	Female	Abdominal pain	Sigmoid vulvulus	Appendectomy	Laparotomy	+	Descending and sigmoid colon	Sutured	None
11	Delabrousse <i>et al.</i>	2001	87	Female	Abdominal pain, vomiting	Internal hernia	NA	Laparotomy	+	Ileum	Sutured	None
12	Li <i>et al.</i>	2005	91	Female	Abdominal pain, vomiting	SBO	None	Laparotomy	-	Ileum	Divided	None
13	Yang <i>et al.</i>	2009	74	Male	Abdominal pain, vomiting	Internal hernia	None	Laparotomy	+	Jejunum	Sutured	NA
14	Korn <i>et al.</i>	2009	71	Male	abdominal pain, nausea	NA	Bilateral inguinal hernia repair	Laparotomy	-	Jejunum	Omentectomy	Ileus
15	Narjis <i>et al.</i>	2010	30	Female	Abdominal pain, vomiting	SBO	None	Laparotomy	-	Small bowel	Omentectomy	None
16	Choong <i>et al.</i>	2010	46	Male	Abdominal pain	SBO	None	Laparotomy	-	Ileum	Divided	NA
17	Le Moigne <i>et al.</i>	2010	79	Female	Abdominal pain	Internal hernia	None	Laparotomy	+	Ileum	Divided	None
18	Skeik <i>et al.</i>	2011	71	Female	Abdominal pain, vomiting	SBO	None	Laparotomy	-	Small bowel	Divided	None
19	Camera <i>et al.</i>	2014	86	male	Abdominal pain, vomiting	Small bowel volvulus	None	Laparotomy	+	Jejunum	NA	None
20	Tidjane <i>et al.</i>	2015	65	Male	Abdominal pain, vomiting	Internal hernia	None	Laparotomy	-	Small bowel	Divided	None
21	Jeffery <i>et al.</i>	2015	28	Female	Abdominal pain, vomiting	NA	None	Laparotomy	-	Ileum	Sutured	None
22	Malakhia <i>et al.</i>	2017	96	Female	Abdominal pain, vomiting	Transomental hernia	Appendectomy, Hysterectomy	Laparotomy	+	Ileum	Sutured	NA
23	Our case 1	2018	58	Female	Abdominal pain, vomiting	Internal hernia	None	Laparoscopy	-	Ileum	Divided	None
24	Our case 2	2018	36	Male	Abdominal pain	Transomental hernia	None	Laparoscopy	-	Jejunum	Divided	None

The postoperative course was uneventful; the patient was discharged on postoperative Day 4.

DISCUSSION

Internal hernia is a rare cause of SBO, with transomental hernia, which accounts for only 1–4% of all internal hernias, being even rarer [1, 2]. Spontaneous transomental hernia typically occurs because of senile atrophy of the greater omentum in patients with no history of abdominal surgery, trauma or inflammatory disease [3]. Symptoms can range from mild, chronic and intermittent abdominal pain to acute severe abdominal pain caused by strangulated SBO associated with nausea and vomiting. Moreover, patients with transomental hernia more frequently present with gangrenous bowel than those with other internal hernia types [4], making rapid diagnosis and treatment for avoiding bowel resection important. Although abdominal CT helps diagnose transomental hernia based on its characteristic features, the features are not universal, which makes diagnosing these hernias difficult [5]. This was exemplified in our patients, wherein the second showed classic peripheral herniated loops within the peritoneal cavity, whereas the first showed no classic features.

We searched PubMed using the keyword ‘transomental hernia’ for reports published between 1960 and 2017 and identified 24 cases, including our patients, describing herniation through the greater omentum (Table 1). The median patient age was 64.3 (range: 28–96) years; the male-to-female ratio was 12:12. Among identified patients, 16 had no history of abdominal surgery, whereas four had a history of surgery (two appendectomies, one bilateral inguinal hernia repair and one appendectomy and hysterectomy). SBO or internal hernia was preoperatively diagnosed in 12 patients; however, only two cases had diagnoses of transomental hernia based on a preoperative radiological examination. Conservative treatment of one patient resulted in death. All other patients underwent surgery and survived; only two patients experienced complications (postoperative ileus). The small bowel was herniated in 23 patients, whereas the descending/sigmoid colon was herniated in one patient. Bowel resections were required in seven patients (30.4%). The omental foramen was repaired by suture in seven patients and was divided in 13; omentectomy was performed in two patients. As indicated in Table 1, our patients were treated with laparoscopic surgery.

Recently, laparoscopic surgery has been commonly performed for SBO [6] because of its minimal invasiveness and

rapid diagnostic capability. These characteristics make laparoscopic surgery crucial for diagnosing and treating transomental hernia. In particular, the high mobility of the omentum makes detailed observation of transomental hernia possible. When risk factors such as previous abdominal surgery, trauma or peritoneal inflammation are absent in patients presenting with acute abdominal symptoms, the possibility of internal hernia should be considered, and one can expect no adhesions in the peritoneal cavity. Therefore, exploratory laparoscopy is useful for diagnosing SBO in case of SBO with high visibility. If performed early after symptom onset, laparoscopic surgery can completely save an incarcerated small bowel from necrosis. Laparoscopy offers adequate working space, given the high mobility of the omentum.

Therefore, in case of no evidence of necrosis or perforation of hernial contents, prompt laparoscopic surgery is a viable option for treating spontaneous transomental hernias.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

FUNDING

Not applicable.

REFERENCES

1. Ghahremani GG. *Abdominal and Pelvic Hernias*. 2nd edn. Philadelphia: Saunders, 2000.
2. Meyers MA. *Dynamic Radiology of the Abdomen: Normal and Pathologic Anatomy*. New York: Springer-Verlag, 1994.
3. Yang DH, Chang WC, Kuo WH, Hsu WH, Teng CY, Fan YG. Spontaneous internal herniation through the greater omentum. *Abdom Imaging* 2009;**34**:731–3.
4. Newsom BD, Kukora JS. Congenital and acquired internal hernias: unusual caused of small bowel obstruction. *Am J Surg* 1986;**152**:279–85.
5. Blachar A, Federle MP, Dodson SF. Internal hernia: clinical and imaging findings in 17 patients with emphasis on CT criteria. *Radiology* 2001;**218**:68–74.
6. Kirshtein B, Roy-Shapira A, Lantsberg L, Avinoach E, Mizrahi S. Laparoscopic management of acute small bowel obstruction. *Surg Endosc Other Interu Tech* 2005;**19**:464–7.