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Manual laparoscopy-assisted intraoperative reduction for adult ileocolic intussusception with ileal adenoma: A case report



Naoki Takahashi*, Kiyoshi Narita, Rie Sato, Hideo Suzuki, Hideki Machishi, Yoshikatsu Okada

Department of Surgery, Kuwana East Medical Center, 3-11 Kotobukicho, Kuwana, Mie, 511-0061, Japan

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ABSTRACT

INTRODUCTION: Adult intussusception is a rare condition with a pathological lead point. Intraoperative reduction of adult intussusception can eliminate the need for extensive or invasive resection. We safely performed a manual laparoscopy-assisted intraoperative reduction that allowed functional preservation of tissue.

PRESENTATION OF CASE: A 70-year-old woman with dull right lumbar pain at regular intervals and right lower quadrant abdominal tenderness was admitted to our hospital. The ileum exhibited enhanced wall thickening and invagination into the ascending colon on computed tomography. Emergency laparoscopic surgery was chosen to treat the ileocolic intussusception. First, the right colon was mobilized. Second, the ileocecal region was pulled through a 4-cm right pararectus incision. Third, the edge of the intussusceptum was gently manipulated back upstream without tearing. After reduction, a soft mass was recognized on palpation at the lead point, located 10 cm proximal to the ileocecal valve. Ileocecal resection was performed, and a laterally spreading tumor was observed in the resected specimen. The histological diagnosis was high-grade tubular adenoma. The postoperative course was uneventful.

DISCUSSION: Adult intussusception has a pathological lead point, and curative treatment generally includes resection of the lesion. Complete or partial intraoperative reduction can avoid or shorten bowel resection and allow functional preservation of the tissue.

CONCLUSION: Manual laparoscopy-assisted intraoperative reduction with a minilaparotomy was safely performed, which eliminated the need for extensive or invasive resection.

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1. Introduction

Adult intussusception is rare, has a pathological lead point [1,2] and is diagnosed by specific imaging findings [3]. Surgical intervention is required to resect the lesion. Intraoperative reduction of intussusception in adults can avoid or shorten bowel resection and allow functional preservation of the tissue [4]. Laparoscopy is also an effective and minimally invasive technique for patients with intussusception. We report a case of ileocolic intussusception in an adult with a laterally spreading tumor (LST) in the ileum that illustrates the benefits and safety of the laparoscopic approach and manual reduction

2. Case presentation

A 70-year-old woman with dull right lumbar pain at regular intervals walked into Emergency room. She had experienced the same lumbar pain approximately one year previously, melena two days previously and intermittent right lumbar pain every three hours for one day. She received oral medication for dyslipidemia. A physical examination revealed right lower quadrant abdominal tenderness. Ileocolic intussusception with enhanced wall thickening at the forward part of the ileum was observed with enhanced computed tomography (CT) (Fig. 1). An emergency laparoscopic operation was performed to treat the ileocolic intussusception with an unknown pathological lead point. Under general anesthesia and spine position, first, a 20-mm skin incision was made at the umbilicus, a 12-mm trocar was inserted, and pneumoperitoneum was established. Then, three 5-mm trocars were inserted into the middle lower abdomen and the bilateral lower quadrant. The ileocecal region was covered by the omentum and was adherent to the abdominal wall, but it was freed easily via sharp and blunt dissection using Harmonic ACE[®] + (Ethicon). The ileocolic intussusception was visible, and no ischemic changes were observed. Mobilization of the right colon was performed, a 4-cm right pararectal incision

* Corresponding author.

E-mail addresses: naoki0403@kuwanacmc.or.jp (N. Takahashi), generalpeople0719@gmail.com (K. Narita), r-sato@kuwanacmc.or.jp (R. Sato), hidero@kuwanacmc.or.jp (H. Suzuki), machishi-s@kuwanacmc.or.jp (H. Machishi), okadas77@kuwanacmc.or.jp (Y. Okada).



Fig. 1. Ileocolic intussusception with enhanced wall thickening at the forward part of the ileum was observed on enhanced CT images.



Fig. 3. The edge of the intussusceptum was gently manipulated back upstream.



Fig. 2. The ileocecal region was pulled through a right pararectus incision.

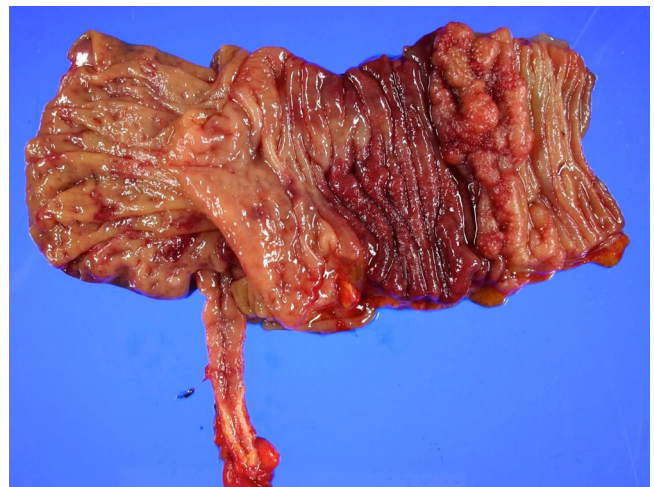


Fig. 4. A laterally spreading tumor was found in the resected specimen.

was made, and the ileocecal region was pulled through the incision (Fig. 2). The edge of the intussusceptum was gently manipulated back upstream (Fig. 3). After reduction, no ischemic region was observed, and a soft mass was found on palpation at the lead point, located 10 cm proximal to the ileocecal valve. Ileocecal resection was performed. An LST measuring 2.6×5.0 cm was observed in the resected specimen, and the histological diagnosis was high-grade tubular adenoma (Fig. 4). The postoperative course was uneventful. The patient was discharged on the eighth day.

3. Discussion

Adult intussusception is rare and has a pathological lead point [1,2]. The most common underlying lesions of adult intussusception are adenocarcinoma and lymphoma [5], but a case without a pathological lead point has been reported [6,7]. The specific CT finding is the appearance of a bowel within a bowel, exhibiting a target-like pattern, reniform pattern, or sausage-shaped pattern. A pathological lead point can usually be found on CT images, but the distinct anatomic features of the lead mass may be difficult to distinguish because of the presence of edema and inflammation [3]. In

our case, the patient had dull lumbar pain, abdominal tenderness and a bowel-within-a-bowel appearance of the right colon with enhanced wall thickening. An emergency operation was required for the ileocolic intussusception with its unknown pathological lead point. The lead point was an LST, which exhibited enhanced wall thickening at the forward part of the ileum on preoperative enhanced CT images.

The surgical treatment for adult intussusception is generally resection of the lesion [1,7]. The most common etiology is malignancy [1]. The condition can recur if the pathological lead point is not excised [8]. Alternatively, reduction can be performed, which can avoid extensive and invasive resection [7]. We successfully performed a manual intraoperative reduction. A soft mass was noted on palpation at the lead point of the ileum. Therefore, ileocecal resection was performed, avoiding extensive resection.

Laparoscopy is a beneficial and minimally invasive technique for patients with intussusception. Two cases of successful complete intraoperative reduction were found among twenty-two case reports of adult intussusception published in English-language journals retrieved in a PubMed search using the keywords "adult intussusception," "ileocecal" or "ileocolic and laparoscopic." In 2004, Yamaguchi et al. reported the first successful case of laparoscopic intraoperative reduction for ileocecal intussusception, using gauze sponge sticks to compress the distal colon [9]. Yang et al. reported a patient with intestinal malignant lymphoma with

Table 1
Cases in which intraoperative reduction was attempted.

Author	Age/Sex	Lead point	Intraoperative reduction	Reducing method	Extent of reduction	Operation	Histology
S Yamaguchi	32/M	Transverse colon	Laparoscopy	Push	Complete	Lap-ICR	Appendix mucocele
N Marsden	69/F	Transverse colon	Laparoscopy	Pull	Partial	Lap-RH	Cecal carcinoma
FA Alvarez	47/F	Ascending colon	Minilaparotomy	Pull	Partial	Lap-SBR (hand assisted)	Metastatic melanoma of ileum
WI Corey	47/F	Ascending colon	Minilaparotomy	ND	Not successfully	Lap-ICR	Appendix endometrioma
Jia-Hui Chen	36/M	Ascending colon	Laparoscopy	ND	Not successfully	Lap-RH (single port)	Ileal lipoma
TW Yang	31/M	Ascending colon	Laparoscopy	Pull	Complete	Lap-app	Intestinal lymphoma
Our case	70/F	Ascending colon	Minilaparotomy	Push	Complete	Lap-ICR	Ileal adenoma

Lap-ICR: laparoscopic ileocecal resection, Lap-RH: laparoscopic right hemicolectomy, Lap-SBR: laparoscopic small bowel resection, Lap-app: laparoscopic appendectomy.

ileocecal intussusception who underwent a laparoscopic appendectomy with frozen sectioning after laparoscopic reduction [4]. The patient described by Yamaguchi et al. underwent ileocecal resection for an Appendix tumor, whereas the latter patient avoided intestinal resection. Six cases of attempted intraoperative reduction were found among twenty-two case reports; two patients underwent complete reduction, two patients underwent partial reduction and the remaining two cases were not successfully treated (Table 1) [4,9–13]. The patients who underwent complete or partial reduction avoided extensive or invasive resection. It is a first case report of laparoscopy-assisted intraoperative reduction to manually manipulate via a minilaparotomy in English-language journals.

In our case, we succeeded in performing laparoscopy-assisted intraoperative reduction to manually manipulate the edge of the intussusceptum. This minimal invasive technique of manual manipulation under direct vision was safe because excessive traction was not applied and provided an advantage of the mass found on palpation after reduction, eliminating the need for extensive or invasive resection. This technique is effective for all patients with intussusception.

4. Conclusion

Manual laparoscopy-assisted intraoperative reduction with a minilaparotomy was safely performed, which eliminated the need for extensive or invasive resection.

Conflicts of interest

All authors have no conflicts of interest.

Funding

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Ethical approval

This case report was approved by the Ethics Committee of Kuwana East and was conducted in accordance to the Declaration of Helsinki.

Consent

Written and signed informed consent was obtained from the patient. A copy of the written consent is available for review by the Editor-in-Chief of this journal, on request.

Authors' contribution

Naoki Takahashi wrote the manuscript. Kiyoshi Narita collected the data. All authors read and approved the final manuscript.

Registration of research studies

This report is only case report not first in man. This case report was approved by the Ethics Committee of Kuwana East and was conducted in accordance to the Declaration of Helsinki. The reference number is 77. URL: <http://www.kuwanacmc.or.jp/east/wp-content/uploads/sites/2/2015/05/a23de64c71e60d17d2ee3ec0c76710f2.pdf>

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