

A case of the primary small intestinal cancer which performed operation under laparoscopy after ileus decompression

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The patient was a 66-year-old man with repeated episodes of abdominal pain resulting in a diagnosis of ileus, and he was admitted to this hospital. During hospitalization, the pain symptoms improved after the insertion of an ileus tube, but there was a recurrence of ileus after the patient was started on a liquid diet. An adhesive intestinal obstruction was thus suspected, and laparoscopy was performed. A diagnosis of small intestinal carcinoma was made based on the intraoperative findings. A partial resection of the small bowel and a regional lymphadenectomy were performed through a minor laparotomy. The incidence of primary small intestinal cancer has been relatively rare, and it is difficult to differentiate the disease in most cases. A laparoscopy is considered useful to diagnose and treat ileus after decompression of the intestinal tract, and this article describes the case with some discussion.

Key words: primary small intestine carcinoma, ileus, laparoscopy

INTRODUCTION

Primary small intestinal carcinoma is a relatively rare disease associated with few clinically specific manifestations, and it is likely that the disease is overlooked by the routine gastrointestinal examinations, often making it difficult to making a definite preoperative diagnosis. A case of primary small intestine carcinoma was encountered in which a laparoscopy proved useful to diagnose and treat the disease after decompression of the intestinal tract for treatment of repeated episodes of ileus. This report describes the case with some discussion.

CASE REPORT

The patient was a 66-year-old male. At the age of 12, the patient underwent an operation for appendicitis. At the age of 46, the patient received surgery for a right inguinal hernia. The left inguinal hernia was also surgically treated at the age of 55. At the age of 64, a coronary artery stent insertion was performed because of myocardial infarction.

The patient began to have abdominal pain around March 2005. The pain worsened the following month, and he visited at a nearby hospital. An abdominal X-ray, abdominal ultrasonography, barium enema, and the upper and lower gastrointestinal tract examination revealed no obvious cause of the abdominal pain. The pain aggravated from around July, accompanied by a weight loss of about 7 kg, and the patient visited another nearby hospital. Upper gastrointestinal tract endoscopy and abdominal echography showed no remarkable findings, and the patient was then receiving follow-up treatment on an ambulatory basis thereafter. The patient returned to the hospital due to persistent

abdominal pain on September 7, and ileus was suspected on an abdominal radiography. The patient was then referred to this hospital and was hospitalized on that day for further examination and treatment.

PHYSICAL FINDINGS

A physical examination performed on admission revealed a height of 157.5 cm, a body weight of 43.1 kg, no sign of anemia in the palpebral conjunctivae, and no jaundice in the bulbar conjunctivae. The abdomen was slightly distended with no tenderness. No abdominal mass was palpable, and the liver and spleen were impalpable. No superficial lymph nodes were also palpated.

HEMATOLOGICAL FINDINGS

Hematology on admission showed the following results: normal total leukocyte count (4700/ μ L) and CRP (0.5 mg/dL), as well as slightly decreased hemoglobin (13.0 g/dL) and albumin (3.0 g/dL). No abnormal blood biochemical values were noted. A tumor marker, carcinoembryonic antigen (CEA) was normal at 0.6 ng/mL, while carbohydrate antigen (CA19-9) increased to 50.0 U/mL.

ABDOMINAL RADIOGRAM

An abdominal radiogram showed gas retention in the small and large intestine, as well as upper and lower small intestinal niveau (Fig. 1).

ABDOMINAL CT

Abdominal computed tomography revealed marked distension of the small intestine with retention of intestinal juice and gas. A modest amount of ascites and gas in the large intestine were also noted. These find-



Fig. 1 Plain abdominal radiography on admission revealed gas retention in the small intestine, as well as the intestinal niveau.



Fig. 3 Contrast radiography of the ileus tube revealed a sufficient outflow of contrast medium into the colon and unimpaired peristalsis of the intestinal tract.



Fig. 2 An abdominal computed tomography scan showed a markedly dilated small intestine with the retention of enteric juice and gas.

ings suggested no causative factors of bowel obstruction (Fig. 2).

A diagnosis of ileus was made, and an ileus tube was inserted on the day following admission, September 8. The discharge of intestinal gas was noted from that day, and the abdominal symptoms gradually resolved thereafter. Five days later, on September 13, contrast radiography of the ileus tube was performed and revealed a sufficient outflow of contrast medium into the colon and unimpaired peristalsis of the intestinal tract (Fig. 3); therefore, the ileus tube was clamped. No recurrence of the ileus was noted since then, and the ileus tube was removed on September 16. Oral feeding was resumed, but vomiting developed

on September 19. On September 20, an abdominal radiography demonstrated recurrence of ileus, and the ileus tube was inserted again on September 21. Although tumors of the small bowel was required to rule out, ileus was once recovered by the ileus tube insertion and there was no causative factors of bowel obstruction by contrast radiography of the ileus tube, so post-operative adhesions were suspected. Laparoscopy was performed on September 26 since recurrent intestinal obstruction due to adhesions following surgery for appendicitis was suspected.

SURGICAL FINDINGS

Laparoscopy was carried out through three ports in total, i.e., a supraumbilical camera port and a right and left flank ports. The examination was begun with the right lower quadrant and disclosed a greater omentum adhesion to the abdominal wall at the scar of the previous operation for appendicitis, but no other intestinal adhesion attributable to the ileus was revealed. A tumorous lesion with serosal infiltration of the ileum was noted about 80 cm oral from the Bauhin's valve. A minor median laparotomy (about 5 cm) in the lower quadrants was done, then a partial resection of the small intestine and a central mesenteric regional lymphadenectomy were performed, reserving about 10 cm distances on both oral and anal side. A minimally invasive operation could be done by laparoscope assistance. A small amount of ascites was noted in the pelvic cavity. A quick cytological examination revealed the lesion to be a class I. The patient's postoperative condition was favorable, and there was only a mild wound pain; the patient was capable of ambulation the

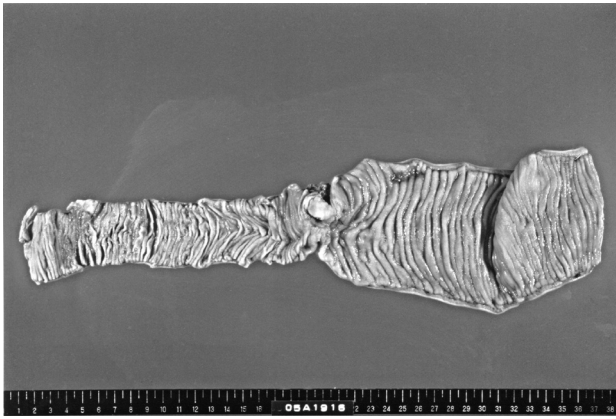


Fig. 4 The excised specimen showed a 3/4-encircling type 2 tumor mass (2.8×2.0 cm).

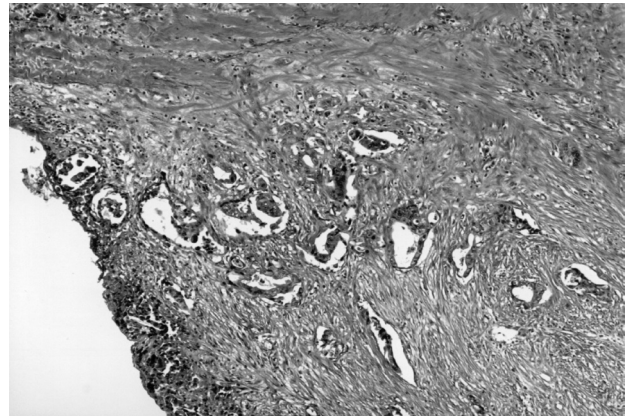


Fig. 5 A histopathological examination showed the tumor to be moderately differentiated adenocarcinoma with extraserosal infiltrate (H & E stain, 10×).

following day. The patient was started on a liquid diet on the 5th postoperative day.

HISTOLOGICAL DIAGNOSIS

A histopathological examination revealed a 3/4-encircling type 2 tumor (2.8 × 2.0 cm), which was classified as moderately differentiated adenocarcinoma, with ly_2 and v_2 vascular infiltrate. Mesenteric lymph nodal metastasis (1/7) was also noted (Figs. 4 and 5).

The curability of the case was rated as B, and the patient was given postoperative adjuvant chemotherapy with tegafur uracil 300 mg/day orally for 18 months. No recurrence of carcinoma has occurred as of 21 months post operation.

DISCUSSION

Primary malignant neoplasm of the small intestine is a relatively rare disease, with an incidence of 0.6-3.2% of all malignant neoplasms of the gastrointestinal tract [1]. Small intestinal carcinoma accounts for 32.6% of malignant tumors of the small intestine [2], and its incidence is only 0.06% of that of all malignant tumors of the gastrointestinal tract except duodenal carcinoma [3]. The site of tumors is the jejunum in 56.7% of patients and the ileum in 43.3%. The tumor is noted within 60 cm from Treitz's ligament in 83.9% of patients with jejunal carcinoma and within 40 cm from Bauhin's valve in 72.2% of those with ileal carcinoma [4]. The incidence of malignant tumors of the small intestine has been reported to be 1/20 to 1/30 of that of malignant tumors of the colon [5]. In patients with small intestinal cancer symptoms associated with intestinal obstruction, such as abdominal pain, nausea and vomiting, are initially noted [1]. These symptoms repeatedly exacerbate and improve with a prolonged duration of illness in most cases, so the patient is often left untreated over an extended period without making a definite diagnosis [2]. The duration of illness from onset of the disease to establishment of a diagnosis ranges from 6 to 15 months [6]. This may be due to the fact that there are few clinical manifestations specific to small intestinal carcinoma, making it difficult to establish a diagnosis preoperatively because of the anatomical characteristics of the disease. Hiura

et al. showed that only 17.4% of patients with small intestinal carcinoma had a definite diagnosis prior to surgery [7]. In the majority of patients, the disease was detected only after a laparotomy performed based on a diagnosis of ileus or enterostenosis of unknown etiology or even without any diagnosis [8]. Consistent with the difficulty in early detection of the tumor, the disease with serosal or further infiltrates accounts for about 60% of all cases treated [9]. The long duration of illness and difficulty in preoperative diagnosis constitute factors contributing to the poor prognosis of the disease, but the recent development of small-intestinal endoscopy using the double ballooning method and that of capsule endoscopes can enable the detection of the carcinoma at an earlier stage. Treatment for small intestinal carcinoma mainly consists of a radical excision of the lesion including a regional lymphadenectomy, but it is difficult to determine the region to be lymphadenectomized because lymph nodes for the small bowel are situated in the radical region of the mesentery. Furthermore, patients do not necessarily respond well to chemotherapy or radiotherapy [8], and the 5-year survival rate has been reported to be 30.5 to 59.0% [10]. Chemotherapy for primary small intestinal carcinoma includes MTX/5-FU sequential therapy reported by Onodera *et al.* [11] and Taira *et al.* [12], 5-FU+MMC and UFT therapy by Moriyama *et al.* [9], and S-1 therapy by Maruyama *et al.* [10] and Oku *et al.* [13] However, to date no standard therapy has been established.

The present patient had repeated episodes of abdominal pain, and no definite cause of the disease was determined despite the fact that examinations are performed at multiple medical institutions. The duration from disease onset to establishment of a diagnosis of small intestinal carcinoma was about 6 months. Following admission to this hospital, the patient developed recurrent symptoms of intestinal obstruction, which led to the surgical treatment. No definite diagnosis was made prior to operation because the imaging results showed no clear pathogenetic mechanism underlying the ileus, and the diagnosis was established eventually during the course of the laparoscopic operation. Laparoscopy may be useful in diagnosing and treating ileus, yet a sufficient preoperative decompress-

sion of the intestine is required [14]. In the present case, a surgical procedure was considered practicable since sufficient decompression of the intestine through the ileus tube had been performed prior to operation. Laparoscopy has the advantages of being minimally invasive and of permitting simultaneous diagnosis and treatment, so that the treatment option can be determined or altered intraoperatively [6]. Using the procedure a laparotomy can be performed on an appropriate site and with a minimal surgical wound. A diagnosis of a small intestinal tumor with serosal infiltrates was made in the present patient based on the laparoscopic findings, where a partial enterectomy of the small bowel and regional lymphadenectomy were performed. The further minimally invasive operation was performed in this patient upon diagnosis and treatment using a laparoscope. The present case indicated usefulness of the laparoscope in diagnosing and treating the disease, even in a case of ileus, provided sufficient decompression of the intestine is done in advance through an ileus tube.

The lymph node metastasis of the present patient was classified under the category of Stage III-a, according to the diagnostic criteria for colonic carcinoma. Therefore, postoperative adjuvant chemotherapy with tegafur uracil 600 mg/day was given orally for 18 months, and no recurrence has occurred as of 21 months post operation. A further follow-up will be needed in this patient.

CONCLUSIONS

A case of primary small intestinal carcinoma was encountered in which a laparoscopy was performed after decompression of the intestinal tract to relieve ileus. Similar to the present case, in patients with abdominal pain of unknown cause and repeated episodes of gastrointestinal symptoms, measures such as double contrast radiography and small intestinal endoscopy using the double balloon method should be aggressively performed to establish a definite diagnosis, while taking account into the possibility of small intestinal tumors. If it is difficult to make a diagnosis, then laparoscopy may be used as a minimally invasive diagnostic treatment after sufficient decompression of the intestinal tract is achieved. A reduction in the duration of illness, thereby making early diagnosis possible, may hopefully help improve the therapeutic results and prognosis of such patients.

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