

## Case Report

# A Case of Single-Incision Laparoscopic Surgery for Lipoma of the Terminal Ileum

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**Abstract:** A 52-year-old woman presented with a right lower abdominal mass, lower abdominal pain, and distension in July 2011. She had myasthenia gravis, but did not have any surgical history. Clinical examination showed a right lower abdominal mass, abdominal distension, decreased bowel sounds, and rebound tenderness in the lower abdomen. Abdominal computed tomography showed an intussusception involving the ileocecal junction. A gastrografin enema image of the colon showed a 30-mm filling defect in the ascending colon. The patient underwent resection of the intussuscepted intestine by single-incision laparoscopic surgery (SILS). The resected specimen contained a round tumor measuring 35×35×20 mm, which was diagnosed histopathologically as lipoma of the terminal ileum. The patient remains asymptomatic eight months after surgery.

**Key words:** lipoma, intussusception, single-incision laparoscopic surgery (SILS)

## Introduction

Intussusception in adults is rare, accounting for approximately 1% of all bowel obstructions<sup>1)</sup> and 5% of all intussusceptions<sup>2)</sup>. The majority of cases occur at the ileocolic valve or in the small bowel. In adults, the presence of malignant small bowel tumors at the apex of intussusception must always be suspected, even though benign small bowel lesions could be the underlying cause<sup>3,4)</sup>. Lipoma, which frequently occurs in the terminal ileum, is the second most common benign tumor of the small intestine and tends to cause intussusception. Here, we report a case of single-incision laparoscopic surgery (SILS) for intussusception due to an intestinal lipoma.

## Case Report

A 52-year-old woman with myasthenia gravis was admitted to our hospital. The patient had a right lower abdominal mass, and reported lower abdominal pain, and distension associated with nausea and vomiting for seven days. Although she had myasthenia gravis, she did not have any past surgical history. Clinical examination showed a right lower

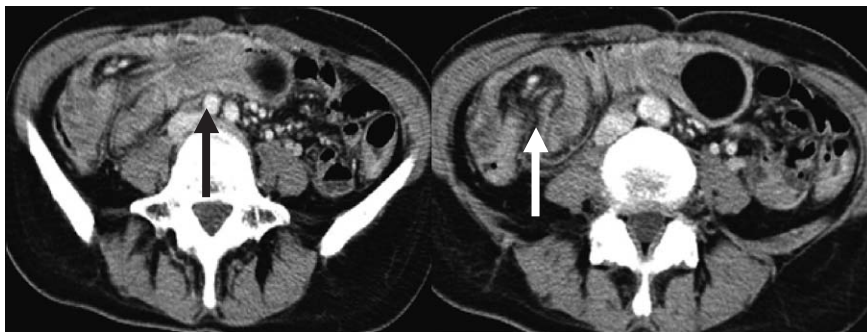


Fig. 1. Computed tomography

CT showing findings indicative of an ileal intussusception as a target-like mass (arrow). A round mass of dense fat representing a lipoma was detected within the lumen of the intussusception.

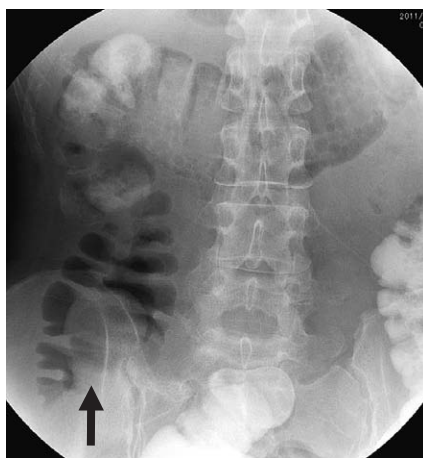


Fig. 2. Gastrografin enema image

Gastrografin enema image of the colon showing a 30-mm filling defect in the ascending colon (arrow).

abdominal mass, abdominal distension, decreased bowel sounds, and rebound tenderness in the lower abdomen. Laboratory studies showed a white blood cell count of  $10,900/\mu\text{L}$  and a serum C-reactive protein level of  $3.1\text{ mg/dL}$ . Results of all other laboratory studies, including serum electrolyte level measurement and urinalysis, were within normal limits. Abdominal computed tomography (CT) showed findings indicative of ileal intussusception as a target-like (bowel-in-bowel) mass with fat density (Fig. 1). A gastrografin enema image of the colon showed a 30-mm filling defect in the ascending colon (Fig. 2). These findings were strongly suggestive of a benign intestinal tumor with intussusception; however, the patient's symptoms were relieved after the enema, and she was discharged after six days of hospitalization. Subsequently, laparoscopic surgery for intussusception was scheduled due to repeated abdominal pain. The surgery revealed an ileocecal intussusception caused by a

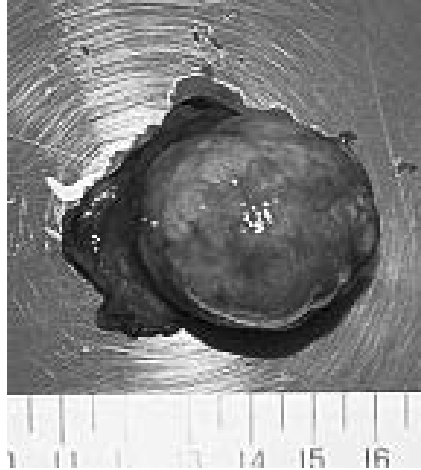


Fig. 3. Resected specimen

The resected specimen showing a mass measuring  $35 \times 35 \times 20$  mm that served as the lead point for the ileocolic intussusceptions.

tumor in the terminal ileum. There was no apparent lymphadenopathy. We performed primary resection of the intussuscepted intestine 5 cm proximal to the ileocolic valve by SILS. Approximately 5 cm of the small intestine, including the tumor, was resected. The operation time was 115 minutes and total blood loss was minimal. The resected specimen consisted of a mass measuring  $35 \times 35 \times 20$  mm without ulceration (Fig. 3). Histological examination revealed that the mass was a lipoma of the ileum without evidence of malignancy and was thought to have arisen from the submucosal layer. A secondary operation with lymphadenectomy was not needed.

The postoperative course was good. The patient passed flatus on postoperative day (POD) 1, began receiving oral fluids on POD 3, and was discharged on POD 11. The patient remains asymptomatic eight months after surgery.

## Discussion

Intussusception in adults is usually caused by a tumor that acts as the lead point and is commonly located at or near the ileocecal valve. Although the diagnosis is usually suspected in children before imaging, the diagnosis is often made unexpectedly in adults and the presence of a malignancy as the leading point must first be excluded. However, it is estimated that in 52% of adult cases, intussusception is caused by benign small bowel conditions<sup>4)</sup> such as a Peutz-Jeghers polyp<sup>5)</sup>, Meckel's diverticulum<sup>6)</sup>, and tubulovillous adenoma of the ileocecal valve<sup>7)</sup>. In contrast, intussusception is observed in only 5% of patients with leiomyoma<sup>8)</sup>. Lipoma is thought to arise from the mucinous layer, whereas leiomyoma arises from the muscle layer, which perhaps explains why lipoma tends to invaginate the intestine<sup>8)</sup>.

Lipoma of the gastrointestinal tract was first described by Bauer in 1757<sup>9)</sup>, and 275 cases have been reported in the literature up to 2001<sup>10)</sup>. Lipomas are more common in women, with a peak incidence between 50 and 60 years of age<sup>11)</sup>. The most common sites of incidence are the cecum and ascending colon. A study at the Mayo clinic showed that 94% of lipomas are asymptomatic; however, isolated lipomas may present with nonspecific abdominal pain, bleeding, and constipation<sup>12)</sup>. In our case, the patient first noticed a right lower abdominal mass and lower abdominal pain. Abdominal masses are palpable in only 24 ~ 42% patients<sup>13)</sup>. Tumors of the small intestine can be difficult to diagnose, and a correct preoperative diagnosis is made in only approximately 32% cases<sup>4)</sup>. In our case, CT showed a concentric pattern of intussusception in the intestinal walls. A gastrograffin enema image of the colon was useful for diagnosing the intestinal tumor and treating the intussusception. Some investigators have reported that it is possible to distinguish lipoma from liposarcoma on CT scans, which show the interior of a liposarcoma as being nonhomogeneous and denser than in lipoma<sup>14)</sup>.

The treatment of intussusception in adults is surgery because of the high incidence of underlying malignant pathology and serious complications that can develop as a result of intestinal obstruction and vascular strangulation<sup>15, 16)</sup>. Most surgeons agree that resection is necessary, particularly in colonic intussusceptions and in older patients because of the possibility of a malignant tumor<sup>17-22)</sup>. The use of laparoscopic surgery for benign bowel tumors and ileocecal intussusception has recently increased<sup>23-26)</sup>. Recently, SILS has been reported to be accessible comprehensively for abdominal surgeries. SILS was described as early as 1992 by Pelosi and Pelosi<sup>27)</sup> who performed a laparoscopic appendectomy, and in 1997 by Navarra *et al*<sup>28)</sup>, who performed a laparoscopic cholecystectomy. Transumbilical SILS was considered to be better for our case because the patient did not show intestinal dilatation. Clinically, cosmetic benefit and less postoperative pain are expected to be the major advantages of SILS due to fewer incisions. In addition, tissue trauma and port-related complications such as organ damage, adhesions, bleeding, wound infections and hernias could be decreased. Therefore, we believe that SILS rather than conventional laparoscopic surgery is the optimal approach for the treatment of benign small bowel lesions.

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