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Case Report

Laparoscopy-Assisted Resection of Ileocecal Intussusception Caused by Ileal Pedunculated Lipoma

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We report on a case of ileal lipoma that prolapsed into the ascending colon and was resected by laparoscopy-assisted surgery. A 31-year-old male Japanese patient was admitted to our hospital because of hematochezia and anemia. Colonoscopy revealed a pedunculated polyp arising from the ileum. The surface was covered with slightly edematous mucosa. Abdominal computed tomography showed a low-density mass in the ascending colon. A diagnosis of pedunculated ileal lipoma with intussusception was made, and laparoscopy-assisted surgery was performed. The intussusception was reducted by resection of the lipoma. The surgical specimen was a 40 × 30 × 25 mm round tumor with a long stalk 11 cm in length. Microscopic examination of the specimen revealed ileal lipoma. Laparoscopic surgery is recommended for benign tumors of the small intestine because it is minimally invasive.

Key words: Intussusception – Laparoscopic surgery – Lipoma

Intussusception is defined as the telescoping of a segment of the gastrointestinal tract into an adjacent segment. In contrast to childhood intussusception, adult intussusception is considered to be a rare condition and has a demonstrable lead point, which is a pathologic abnormality in 70% to 90% of cases.[1–3] Therefore, most surgeons accept that adult intussusception requires surgical resection. In this

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paper, we report on a case of adult intussusceptions caused by a long pedunculated lipoma arising from the ileum and resected by laparoscopy-assisted surgery.

Case Report

A 31-year-old male Japanese patient had experienced hematochezia during the past year. He was admitted to our hospital because of severe hematochezia and anemia. On this admission, physical examination revealed no muscle rigidity. Laboratory studies disclosed a slightly decreased hemoglobin level (11.0 g/dL). All other study results were within normal limits. Colonoscopy revealed a pedunculated polyp arising from the ileum (Fig. 1). With peristalsis, the polyp prolapsed through the ileocecal valve into the ascending colon. Therefore, a biopsy of the polyp was attempted; however, the polyp disappeared back into the ileum. The surface was covered with slightly edematous mucosa. Abdominal computed tomography (CT) showed a low-density mass in the ascending colon (Fig. 2). A diagnosis of intestinal pedunculated lipoma with intussusception was made.

The patient underwent laparoscopy. First, a 20-mm skin incision was made under the umbilicus, and a 12-mm trocar was inserted. Pneumoperitoneum was established by insufflation with carbon dioxide to an abdominal pressure of 10 mmHg. Under laparoscopic guidance, we inserted a 12-mm trocar into the middle lower abdomen and two 5-mm trocars into the bilateral regions of the abdomen. When the abdominal cavity was viewed laparoscopically, the length of the terminal ileal aspect of the tumor was shortened, causing ileocecal intussusception (Fig. 3). The root of the tumor was visible as the pit of the serosa. The skin incision made in the umbilical region of the trocar was extended to 5 cm, and a minor laparotomy was performed. The long tumor was palpable from the pit toward the anal-side ileum. The length between the pit of the serosa and the terminal ileum was about 50 cm. A small incision was made near the pit, and the tumor was explored from the ileum. The tumor was resected, and the enterotomy was closed by Albert suture. The surgical specimen was a 40 ×

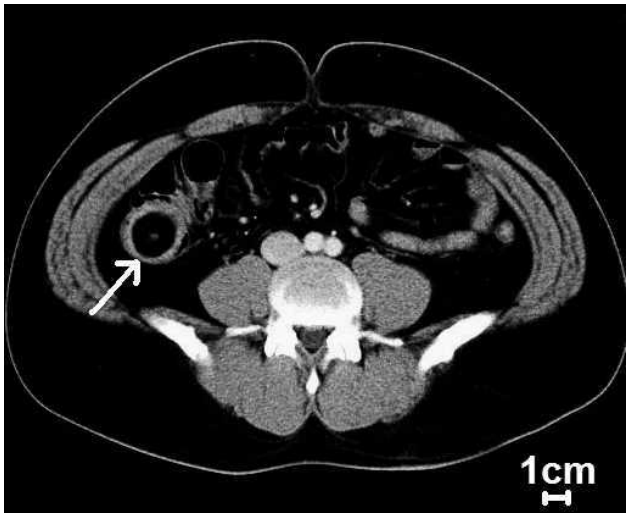

Fig. 2 Abdominal CT showed a low-density mass and intussusception in the ascending colon (arrow).

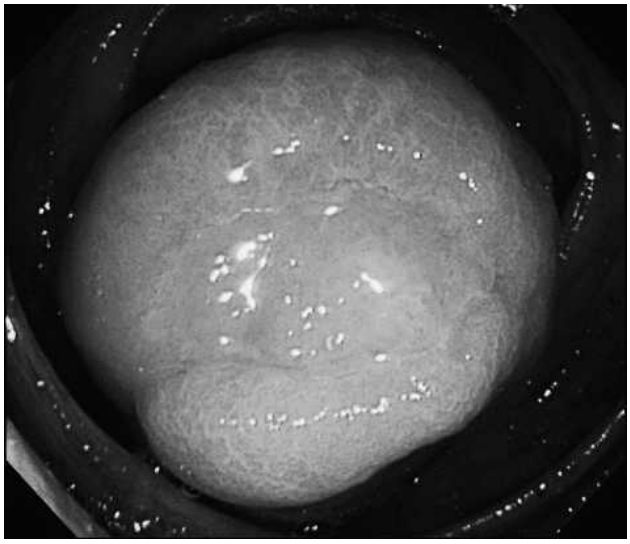

Fig. 1 Endoscopic examination showed the presence of the inverted terminal ileum in the ascending colon.

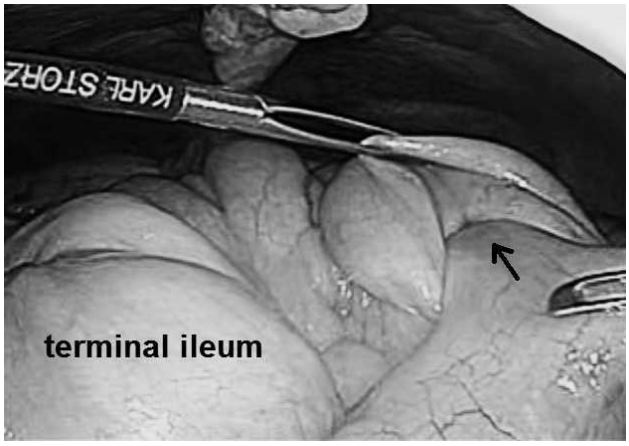

Fig. 3 Laparoscopic view. The ileum was invaginated at the terminal ileum (arrow).

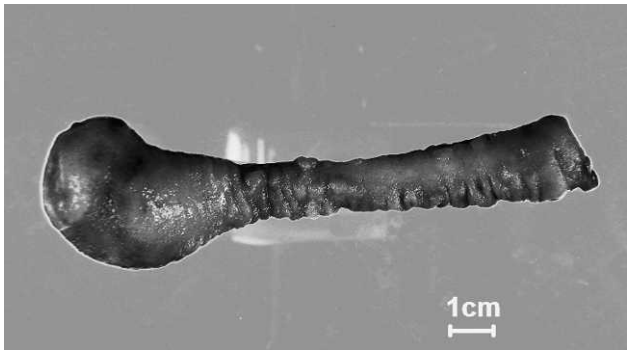

Fig. 4 Resected specimen was a round tumor with a long stalk.

30 × 25 mm round tumor with a long stalk 11 cm in length (Fig. 4). Microscopic examination of the specimen revealed fat cells proliferating under the muscular layer. The origin of this tumor was thought to be fat tissue in the subserosa. The operation time was 120 minutes. The patient had an uneventful recovery and was discharged on postoperative day 8.

Discussion

Adult intussusception is a rare condition, accounting for 5% of all cases of intussusception and 0.003% to 0.02% of all adult hospital admissions.[1] About 90% of occurrences in adults have a lead point, a well-definable pathologic abnormality. It is estimated that 52% of cases of adult intussusception are caused by benign small bowel conditions,[1] such as Peutz-Jeghers polyp, Meckel diverticulum, and tubulovillous adenoma of the ileocecal valve. Malignant lesions (either primary or metastatic) account for up to 30% of cases of intussusception in the small intestine.[3] The exact mechanism is unknown, and it is believed that any lesion in the bowel wall or irritant within the lumen that alters normal peristaltic activity is able to initiate invagination.[3,4]

The clinical presentation of adult intussusception involves chronic and nonspecific symptoms that are suggestive of intestinal obstruction. The classic pediatric triad of abdominal pain, palpable abdominal mass, and bloody stool is rare. Nausea, vomiting, gastrointestinal bleeding, change in bowel habits, constipation, and abdominal distension are signs of intussusception.[2] Our case presented with hematochezia that was likely secondary to mechanical irritation between the lipoma and surrounding bowel wall.

Lipomas are generally asymptomatic and are usually incidental findings during colonoscopy, surgery, or autopsy. Common symptoms of lipoma include abdominal pain (68%), intussusception (44%), hemorrhage (29%), vomiting (24%), and obstructive symptoms (18%).[5] Intussusception is a common complication of intestinal lipoma. Muraoka *et al*[6] reported that intussusception was seen in 55% of patients with intestinal lipoma and in 83% of those with a tumor 2.5 cm or more in diameter.[6] In our case, the lipoma was 4.0 × 3.0 × 2.5 cm in diameter and with a long stalk 11 cm in length. To the best of our knowledge, this is the longest-stalked lipoma that has caused intussusception.

A variety of imaging modalities are available for preoperative diagnosis of adult intussusception. Ultrasonography has been used to evaluate intussusception. The classic features include the "target and donut sign" on the transverse view and the "pseudokidney sign" on the longitudinal view. However, ultrasound images are difficult to interpret because of gas-filled loops of bowel, and interpretive accuracy is operator dependent.[7] Abdominal CT is reportedly the most useful tool.[8] The reported diagnostic accuracy of CT scans is 58% to 100%.[1,4,8] On CT, intussusception appears as 1 of 3 patterns: a target lesion, a sausage-shaped mass with layers, or a reniform mass caused by edema, mural thickening, and vascular compromise.[7] Colonoscopy is also a useful tool for evaluating intussusception, especially when the presenting symptoms indicate a large bowel obstruction.[3] Moreover, the lead point of an intussusception could be pathologically diagnosed through colonoscopy. In our case, CT showed a low-density mass in the ascending colon, and colonoscopy revealed a polyp that had prolapsed through the ileocecal valve. The diagnosis, although not pathologically determined, was intestinal pedunculated lipoma with intussusception.

Most adult intussusception is associated with an underlying pathologic lesion; therefore, surgical intervention is mandatory. Various techniques, including endoscopic removal and surgical resection, have been reported.[9,10] Because endoscopic resection may result in unfavorable complications, including perforation or hemorrhage, surgical resection is commonly recommended to remove the lead point for such lipomas with a limited pedicle and larger than 2 cm in size.[11] In our case, the lead point was diagnosed as an ileal lipoma about 3 cm in size, and it was unable to be removed endoscopically. Recently, there have been several case reports on laparoscopic small intestinal resection due to

intussusception.[4,9] Park *et al*[12] reported that laparoscopic resection usually reduces the hospital stay, with economic benefits. Our patient also had an uneventful postoperative course and was discharged on postoperative day 8. We believe that laparoscopic surgery should be the standard treatment for benign tumors and adult intussusception.

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