Adult Intussusception Caused by an Intestinal Lipoma: Report of a Case

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Abstract

Intussusception in adults represents only 5% of all cases and is usually caused by a small bowel lesion acting as the apex of the intussusception. We report an unusual case of intussusception in man caused by a lipomatous lesion located in the ileum acting as the lead point. After repeated admissions to our hospital for ileus, the possibility of intussusception was finally raised by a computed tomographic scan of the abdomen. The patient underwent primary resection of the intussuscepted intestine, which resulted in a long-lasting resolution of the symptoms. The resected specimen contained a round tumor measuring $27 \times 27 \times 40$ mm which was diagnosed histopathologically as an intestinal lipoma. This case highlights the uncommon causation of adult intussusception by an intestinal lipoma. (J Nippon Med Sch 2008; 75: 166–170)

Key words: intussusception, ileal lipoma, adult, intestine

Introduction

Intussusception occurs when a proximal segment of the bowel (intussusceptum) telescopes or invaginates into the lumen of the adjacent distal segment (intussuscipiens). Although the condition is common in children, intussusception in adults accounts for only 1% of intestinal obstructions in¹ and 5% of all intussusceptions². In adult intussusception, the presence of malignant small bowel tumors acting as the apex of intussusception must always be suspected, although benign smallbowel lesions could be the underlying cause³⁴. Moreover, the diagnosis is often difficult because of the lack of specific clinical signs and of the problems in examining the small intestine. 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 surgical case of intussusception due to an intestinal lipoma.

Case Report

A 36-year-old man with no previous illnesses or relevant family history was admitted to our hospital. He complained of colicky epigastric pain, which was of variable severity, aggravated by food ingestion, and associated with nausea, vomiting, and abdominal distension. A plain X-ray film of the abdomen revealed the formation of a niveau, confirming bowel obstruction. The patient was found to have ileus, and treated with enemas and suppositories. After

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Fig. 1 Abdominal radiography revealed a prominently dilated small bowel with some air-fluid levels.

two weeks of hospitalization, his symptoms were relieved and he was discharged. However, he was readmitted one week later with similar symptoms.

At the second admission, the patient showed pallor and a distended abdomen with no palpable mass. He only had mild tenderness in the lower abdomen. Bowel sounds were normal, and rectal examination revealed an empty rectum with no sign of bleeding. Laboratory studies showed a white blood cell count of 10,900 /µL and a serum Creactive protein level of 3.1 mg/dL. Results of all other laboratory studies, including measurement of serum electrolytes levels and urinalysis, were within normal limits. Abdominal radiography revealed prominent dilatation of the small bowel with air-fluid levels (Fig. 1). Although abdominal ultrasonography (US) did not provide any useful clues to the diagnosis, computed tomography (CT) of the abdomen revealed findings indicative of ileal intussusception, as a target-like (bowel-in-bowel) mass with fat density, depending on the angle of the CT beam relative to the axis of the intussusception (Fig. 2). Therefore, the patient was treated by means of a long tube. A gastrograffin contrast X-ray study performed via the long tube revealed dilatation of



Fig. 2 CT scan showed findings indicative of an ileal intussusception as a target-like mass. A round mass of fat density representing lipoma (→) was detected within the lumen of the intussuscipiens.



Fig. 3 A gastrograffin contrast X-ray film revealed a dilated proximal intestine, a filling defect 27 mm long and 27 mm wide, and a narrow central canal sign in the jejunum.

the proximal small intestine, a filling defect that was 27 mm long and 27 mm wide and a narrrow central canal sign in the ileum (Fig. 3). These findings were strongly suggestive of an intestinal tumor with intussusception. The symptoms were somewhat relieved withholding oral intake by and administration of intravenous fluids, and elective surgery was scheduled after admission. Laparotomy revealed an ileal intussusception caused by a mass the ilem. There was in no apparent lymphadenopathy. We performed primary resection of the intussuscepted intestine 80 cm proximal to Bauhin's valve. Approximately 12 cm of small



Fig. 4 Operative specimen showing a lipomatous lesion measuring $27 \times 27 \times 40$ mm, which acted as a lead point for the ileocolic intussusception.

intestine, including the tumor, was resected after which an end-to-end anastomosis was performed. The patient had an uneventful recovery. He passed flatus on postoperative day 1, began to receive oral fluids on day 2, and was discharged on day 15. At the last follow-up examination performed 2 years after the surgery, the patient was free of bowel symptoms.

Gross examination of the resected specimen revealed a reddish mass measuring $27 \times 27 \times 40$ mm without ulceration or any evidence of malignancy (**Fig. 4**). Histological examination revealed a large polypoid lipoma of the ileum, which was thought to have arisen from the submucosal layer (**Fig. 5**).

Discussion

Tumors of the small bowel account for only 1% to 2% of all gastrointestinal tumors, and benign tumors account for approximately 30% of all small-bowel tumors. Gastrointestinal stromal tumors are the most common symptomatic benign tumors of the small bowel, and lipomas are the second most common. According to our review of the literature, the symptoms of lipoma include abdominal pain (68%), intussusception (44%), hemorrhage (29%), vomiting (24%), and obstructive symptoms (18%)⁵. Of the cases reviewed, 83% were in the ileal region, and 75% of these are found within 60 cm of Bauhin's valve⁵. In the present case, the lipoma was located 80 cm proximal to Bauhin's valve.



Fig. 5 Histopathologic examination of the tumor revealed fat cells proliferating in the submucosal layer (hematoxylin and eosin, $\times 20$).

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. Whereas the diagnosis is usually already suspected in children before imaging, in adults, the diagnosis is often made unexprectedly and the presence of a malignancy as the leading point must first be excluded. However, it is estimated that in 52% of cases in adults, intussusception is caused by benign small bowel conditions⁴, such as Peutz-Jeghers polyp⁶, Meckel's diverticulum7, and tubulovillous adenoma of the ileocecal valve8. In contrast, intussusception is seen in only 5% of patients with leiomyoma⁹. Lipoma is thought to arise from the mucinous layer, whereas leiomyoma arises from the muscle layer, which perhaps explains why lipomas tend to invaginate into the intestine9. In the present case, histological examination revealed a polypoid lipoma of the ileum, which was thought to have arisen from the submucosal layer. In general, intussusception associated with lipomas develops rapidly and patients tend to recover spontaneously.

Because of the nonspecific clinical presentation, tumors of the small intestine can be difficult to diagnose and a correct preoperative diagnosis is made in only about 32% of cases⁴. Hence, the diagnosis of intussusception in these cases can often not be established preoperatively, and the condition is often only confirmed at laparotomy. CT, which sometimes obviates the need for further radiological

studies, and US are of great help in the diagnosis of intussusception. In our case, CT showed the lipoma as а homogeneous intraluminal mass with attenuation values between -80 and -120 HU, consistent with fat, and intussusception was seen as a concentric pattern in the intestinal walls^{10,11}. Other investigators have reported that it is possible to distinguish lipomas from liposarcomas on CT scans, which show the interior of a liposarcoma as being nonhomogeneous, with a higher density than lipomas¹². US should be performed because it is a fast, noninvasive, easy to perform, and reproducible. The most common US feature of intussusception is the "target" sign. Sometimes, its diagnostic value is undermined in the presence of acute obstructive symptoms because of the poor signal transmission caused by the presence of too much bowel air¹³. This may explain the difficulty in diagnosing the intussusception by abdominal US in our patient. In children, barium enema is often used to diagnose and treat intussusception; however, it is rarely performed in adults. This is because false positives are more common in adults with masses, which sometimes simulate an intussusception. Therefore, barium enema was not performed during any of our patient's previous hospital admissions.

Surgical intervention is indicated in all cases of adult intussusception, because most of these cases are caused by mass lesions. Controversy remains about whether reduction of the intussusception at operation is necessary. Some investigators recommend "en bloc" resection of this friable, edematous bowel loop. Because the likelihood of an intestinal tumor is high in adults with intussusceptions and because 24% of small intestinal tumors are malignant, some believe that reduction should not be attempted¹³. Alternatively, it is now accepted that gentle operative reduction can be attempted safely before resection, to avoid unnecessary excision of healthy bowel8. The length of the intestine involved in the intussusception varies from a few centimeters to several tens of centimeters. Although attempts at operative reduction used to be discouraged for fear of tumor dissemination, this risk is only a theoretical, and some investigators believe that gentle reduction

should be attempted in selected cases¹⁴. Without reduction, operative resection of a long segment of intussusception often necessitates excision of a longer segment of the intestine than necessary, which may compromise the mesenteric vessels. We did not attempt reduction in our patient because of the short length of the intestine involved in the intussusception.

Recently, the use of laparoscopic surgery for benign bowel tumors and ileocecal intussusception has increased¹⁵⁻¹⁸. However, intestinal dilatation was present in our case, and performing laparoscopic surgery in the presence of this finding was considered difficult. Therefore, we believe that small laparotomy, rather than laparoscopic surgery, was the optimal approach in our case.

In conclusion, this is a report of a case of intussusception in an adult with an unusually benign cause, which was finally diagnosed with CT and treated with surgical resection.

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