

Intussusception of the small bowel caused by submucosal lipoma: a case report

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ABSTRACT

Intussusception of the small intestine occurs when one part of the intestine telescopes into another, causing ischemia and obstruction. This condition is rare in adults, with the most common cause being a benign tumor in the intestinal wall. This paper presents a case of ileal intussusception caused by a submucosal lipoma in the form of a polyp. The intussusception resulted in

mild discomfort, and the diagnosis was established through ultrasound and computed tomography scans. Surgical treatment was performed, involving laparoscopic reduction of the intussusception, segmental resection of the intestine, and end-to-end anastomosis. The postoperative course was uneventful.

Keywords: intussusception in adult; small bowel polyp; obstruction.

INTRODUCTION

Intussusception remains largely within the domain of pediatric surgery, with 95% of cases occurring in juvenile patients. In children, the usual cause is idiopathic, unlike in the adult population, where 80–90% of cases have an identifiable cause [1]. This paper describes a rare case of small bowel intussusception caused by a submucosal lipoma presenting as a polyp. The case report is followed by a review of the literature.

CASE REPORT

A 78-year-old male presented to the emergency room with a 12-hour history of diffuse lower abdominal pain. He had never experienced this before and was very anxious about it. As the pain intensified in the evening, he decided to seek medical help. Pain was the only symptom. On admission, the patient was generally well and arrived at the emergency department on his own. His vital signs were normal except for mild hypertension. He denied nausea, vomiting, loose stools, or constipation. His last stool, passed that morning, was normal. Flatulence was unimpaired. His medical history included right inguinal hernioplasty many years prior, as well as a history of myocardial infarction, hypertension, and diabetes. He was overweight, with a body mass index (BMI) of 38 kg/m².

Examination revealed diffuse, mild tenderness in the lower right quadrant of the abdomen with no peritoneal signs. Bowel sounds were normal, and rectal examination was unremarkable. The pain diminished slightly after an intravenous infusion of a spasmolytic solution. Biochemical blood tests were normal. A plain X-ray was normal, showing no bowel distension or fluid levels. However, an abdominal ultrasound revealed a definite 3.2 cm long ileocecal intussusception, based on typical sonographic patterns, including the “target sign” (Fig. 1A) and the “sandwich sign” (Fig. 1B). A computed

tomography (CT) scan of the abdomen revealed a 2 cm long ileo-ileal intussusception, within which a well-defined fatty tumor was seen (Fig. 2). There were no signs of inflammation or free fluid in the abdomen. The loop was located adjacent to the cecum, but the length of the small bowel from the obstruction site to the ileocecal valve could not be determined. Based on these imaging findings, a decision was made to perform exploratory laparoscopy.

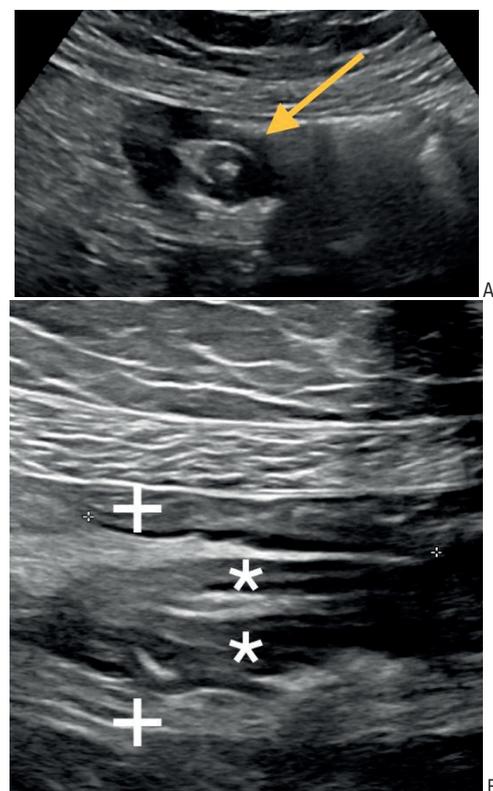


FIGURE 1. Ultrasound image showing: (A) “target sign”; (B) “sandwich sign” (the proximal, intussuscepted part of the small bowel is marked with the symbol “+”, and the distal part with “*”).

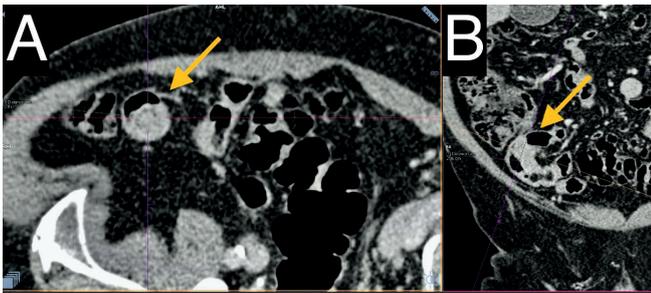


FIGURE 2. Computed tomography images showing intussusception: (A) transverse cross-section displaying the target sign in the early stage, without bowel wall edema; (B) longitudinal cross-section

INTRAOPERATIVE FINDINGS

The operation was performed under general anesthesia. Using just 2 portals, it was possible to locate the intussuscepted loop, which was directly adjacent to the cecum, 50 cm away along the intestine (Fig. 3). The intussusception was successfully reduced with axial traction using an intestinal grasper. A decision was made to resect a fragment of the ileum due to the tumor seen on the CT scan. The small bowel was slightly distended around the tumor, which could have easily been missed without prior imaging. The remaining ileum was slightly distended and discolored in the portion proximal to the lesion, suggesting the development of an obstruction. The loop was exteriorized through a small McBurney's incision. An extracorporeal resection of a 10 cm segment of the ileum with end-to-end manual anastomosis was performed. Upon cutting open the specimen, a large, oval polyp approx. 4 cm in diameter was revealed (Fig. 4).

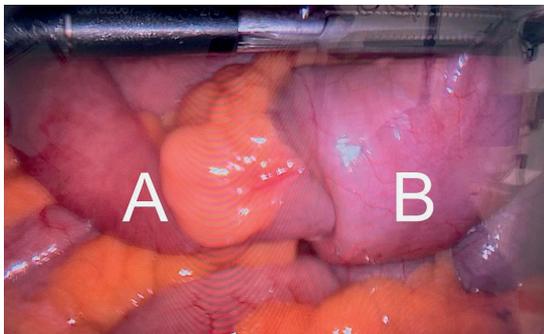


FIGURE 3. Intraoperative laparoscopic view: (A) proximal part of the small intestine; (B) intussusception into the distal bowel segment

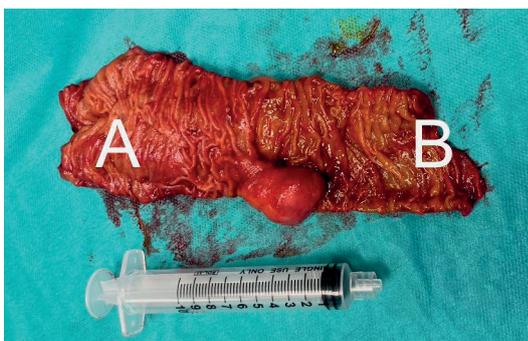


FIGURE 4. Specimen: fragment of small intestine with a clearly visible polyp: (A) proximal part of the small bowel; (B) distal part (a 10 mL syringe is shown for size reference)

The postoperative course was uneventful, and the patient was discharged from the hospital on the sixth postoperative day. Histopathological analysis revealed an 11 cm segment of the small bowel with a 2.5 cm polyp. The polyp was described as a submucosal lipoma, a benign tumor of the gastrointestinal tract (GIT). No other findings were noted.

DISCUSSION

Bowel intussusception was first described in 1674 by Barbette. It took 2 more centuries for a surgeon to successfully perform surgery on a pediatric patient with intussusception. The condition is typical in children, most commonly between 5–10 months of age, with 75% of patients being male. In children, it remains the most common cause of bowel obstruction and the second most common cause of emergency surgery, right after appendicitis [2]. Most cases are idiopathic. The statistics are much different in adults. Intussusception in adult patients is a rare occurrence, constituting only 1% of all bowel obstructions [3, 4]. The incidence of this condition is estimated to be 2–3 cases per million population per year. It can be classified by location as:

- enteroenteric (as in the presented case),
- ileocolic,
- ileocaecal,
- colocolic.

Most cases of adult intussusception have a known cause [1]. Sixty percent are caused by benign lesions, 30% by malignancy, and the remaining 10% remain idiopathic. The etiology differs between different parts of the GIT. Small bowel intussusception is caused by benign lesions in 50–75% of cases, usually due to intraperitoneal adhesions and Meckel's diverticulum. Other causes include: lipomas, leiomyomas, hemangiomas, lymphoid hyperplasia, anorexia, and malabsorption. Malignant lesions, though less common in the small bowel, include: leiomyosarcomas, gastrointestinal stromal tumors, and melanomas. As mentioned before, the causes and statistics change along the GIT, with the most important difference being that colonic intussusception is caused by malignancy in 60% of cases.

Lipomas of the GIT are often submucosal masses consisting of a single tumor. Macroscopically, they present as a round yellow mass protruding into the lumen of the intestine, sometimes in the form of a polyp. Small intestine lipomas occur most frequently in elderly patients in their sixties. The usual locations are the jejunum and ileum.

Clinical presentation is usually chronic and depends on the location of the lesion. Patients with an acute case, like the one described above, are much less common. Most patients manifest subacute (4–14 days, 24%) or chronic (>14 days, 50–73%) symptoms [5]. The usual presentation consists of chronic obstruction and pain, accompanied by nausea and vomiting. Acute abdomen is seldom present [6, 7]. Bleeding on rectal examination occurs in 8–27% of cases. Other potential symptoms include constipation, diarrhea, and fever [8, 9]. Generally, symptoms remain non-specific,

and diagnostic imaging is required to guide the physician toward the correct diagnosis.

Diagnostic imaging modalities most useful in establishing a diagnosis are ultrasound and CT. Ultrasound allows visualization of the characteristic “target sign”, also known as the “doughnut sign”, which represents the layers of the bowel wall inside different segments of the bowel. If color Doppler is used, the radiologist can visualize impaired blood flow in the intussusception. The benefits of ultrasound include non-invasiveness, low cost, and accessibility. However, it can be limited by bowel gas obstructing the view and operator experience. The same “target sign” can also be visualized by CT with better specificity, with multi-slice spiral CT reaching nearly 100% accuracy [10]. Computed tomography is also more useful in determining the etiology of the disease. Its accessibility is increasing, but it still remains less available and more expensive than ultrasound. Other modalities do not share the usefulness of ultrasound and CT and will not be discussed in this paper.

Treatment of adult intussusception is almost always surgical. If left untreated, the mesentery becomes stretched and compressed, leading to ischemia and strangulation of the bowel. Necrosis follows closely and can be accompanied by obstruction symptoms. This culminates in perforation, peritonitis, and a high risk of death.

LITERATURE REVIEW

Available literature primarily consists of case reports or case series. Below is a brief review of papers the author found particularly noteworthy.

Fang et al. published a paper in 2010 regarding the diagnostic value of spiral CT in visualizing small intestine lipomas in 15 cases. To the authors' knowledge, this is the largest group reported. Most of the cases were elective. The authors emphasized the importance of diagnostic imaging, as clinical symptoms are elusive and such tumors are rare and difficult to diagnose [11].

Oyen et al. published a literature review in 2007 on ileo-ileal intussusceptions caused by lipomas. This study further illustrated the importance of CT scanning as a diagnostic tool. It emphasized laparoscopy as the intervention of choice due to the typically non-malignant etiology of these cases [12].

Namikawa et al. conducted a thorough literature review in 2012, gathering 50 cases of GIT intussusception caused by a lipoma [13]. The cohort included 28 men and 22 women, with a mean age of 52.1 years. The small intestine was the most

common location, with 25 patients (50%). Interestingly, the size of the tumor had no effect on abdominal pain, which seemed to be unrelated to their size.

CONCLUSIONS

The case presented in this paper demonstrates that a small bowel lipoma can be a cause of intussusception in an adult patient. Literature unanimously indicates that the clinical presentation of intussusception can be elusive, making diagnostic imaging, particularly CT, crucial for diagnosis. When determining the surgical approach for small bowel intussusception, laparoscopy is the method of choice, if available.

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