



Acute Intestinal Intussusception in Adults: A Report of Three Cases and Review of the Literature

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Abstract:

Acute intestinal intussusception in adults (AII) is a rare condition, accounting for 1 to 5% of intestinal obstructions and fewer than 5% of all intussusceptions [1, 2]. Unlike in children, an underlying organic lesion is identified in 70 to 90% of adult cases [1, 3]. We report three cases illustrating the clinical and etiological diversity of this condition. The first case involved a 61-year-old male with metastatic pulmonary carcinoma who presented with small bowel intussusception secondary to intestinal metastases. The second case involved a 47-year-old female presenting with ileo-ileal intussusception caused by a benign inflammatory pseudo-polyp. The third case involved a 56-year-old male in whom computed tomography suggested intestinal intussusception without complications. Laparoscopic exploration revealed neither persistent intussusception nor an identifiable organic lead point, supporting the diagnosis of spontaneous reduction. **Conclusion:** AII encompasses a broad etiological spectrum. Computed tomography remains the reference diagnostic modality, while surgery constitutes the primary treatment. Awareness of transient forms is essential to avoid unnecessary intestinal resection in selected patients [4, 5].

Keywords: Intestinal Intussusception, Adult, Intestinal Obstruction, Laparoscopy, Intestinal Metastasis, Spontaneous Reduction.

Case Report

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INTRODUCTION

Intestinal intussusception is defined by the telescoping of a proximal bowel segment (the intussusceptum) into the adjacent distal intestinal segment.

In adults, it is a rare condition with an estimated incidence of 2 to 3 cases per million inhabitants per year [1, 6].

Unlike the predominantly idiopathic pediatric forms, adult intussusception is associated with an underlying organic lesion in 70 to 90% of cases [1, 3].

Both benign and malignant tumors represent the leading etiologies, with a higher

prevalence of neoplastic lesions at the colonic level [2, 7].

Clinical diagnosis is frequently challenging owing to the polymorphic nature of the presentation.

Abdominal computed tomography (CT) is currently regarded as the reference standard, with a reported sensitivity exceeding 80% in several series [4, 8].

We report three cases illustrating, respectively, a malignant etiology, a benign etiology, and an idiopathic transient form.

Case Report 1

A 61-year-old male with a chronic smoking history, under follow-up for pulmonary carcinoma with cerebral and osseous metastases, was admitted with a three-day history of bowel obstruction.

Physical examination revealed a diffusely distended and tender abdomen

without guarding or rigidity, patent hernial orifices, and an empty rectal ampulla on digital examination.

Abdominal CT demonstrated a small bowel intussusception complicated by intestinal obstruction (Figure 1).

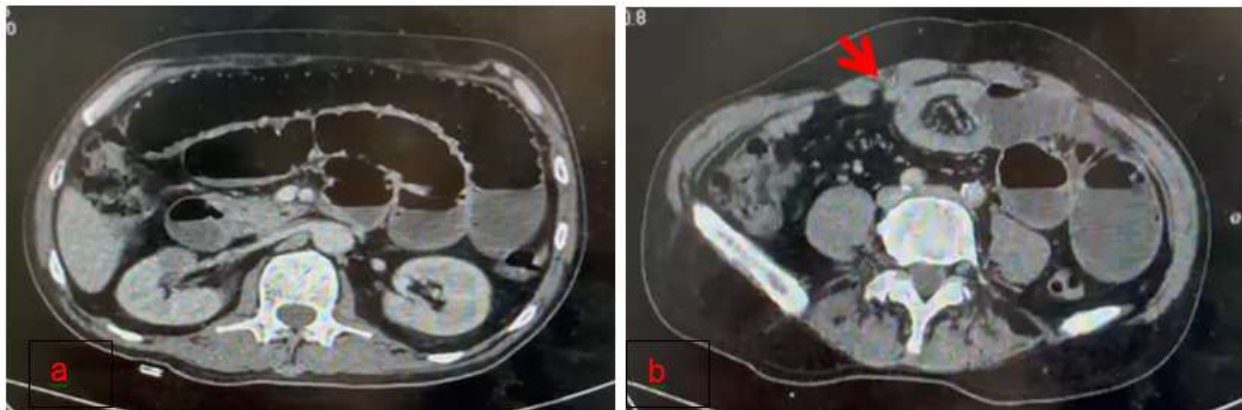


Figure 1a: Small bowel air–fluid levels; 1b: Target sign suggestive of intussusception

Surgical exploration identified an intussusception located approximately 120 cm from the ligament of Treitz, associated with multiple intraluminal lesions involving the entire small bowel (Figures 2 and 3). A segmental resection with end-to-end anastomosis was performed.

Histopathological examination confirmed intestinal metastases of pulmonary carcinoma.



Figure 3: Multiple intraluminal masses involving the entire small bowel

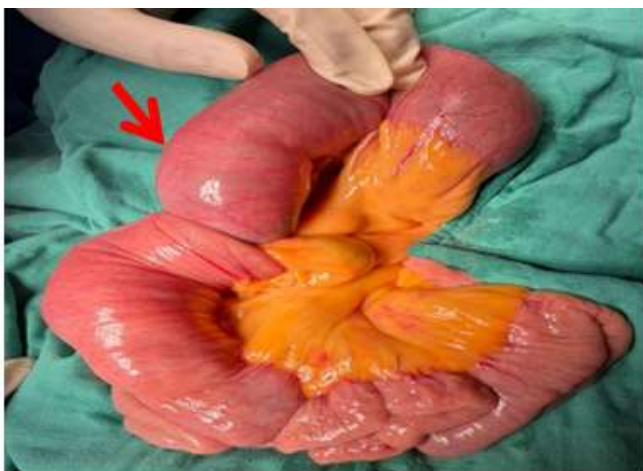


Figure 2: Proximal small bowel dilatation secondary to entero-enteric intussusception

Case Report 2

A 47-year-old female with no significant past medical history presented with intermittent abdominal pain and a sub-occlusive syndrome evolving over two weeks.

The abdomen was mildly distended with periumbilical tenderness, without guarding or rigidity, and the rectal ampulla was empty.

CT demonstrated an ileo-ileal intussusception associated with a soft tissue formation of presumed benign character (Figure 4).

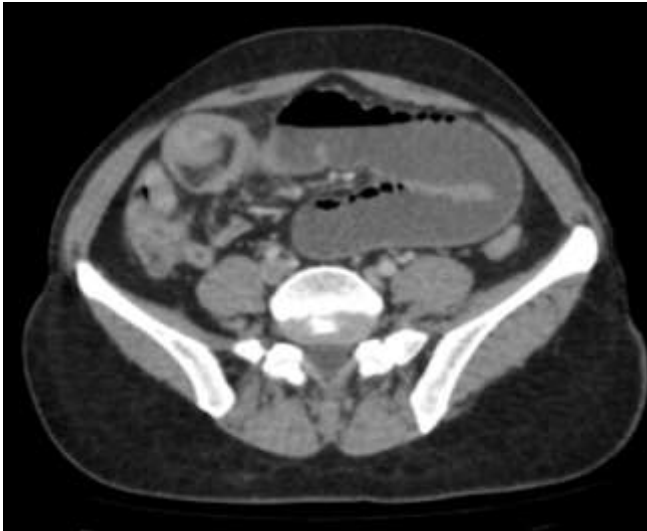


Figure 4: Dilatation of the proximal and mid-small bowel, with a target-shaped lesion in the right flank consistent with ileo-ileal intussusception. A benign-appearing soft-tissue lesion is identified at the site of intussusception

Laparoscopic exploration followed by segmental small bowel resection was performed (Figures 5, 6, and 7).

Histopathological examination revealed a 4 cm inflammatory pseudo-polyp with no evidence of malignancy.



Figure 5: Proximal small bowel dilatation secondary to an entero-enteric intussusception located approximately 80 cm proximal to the terminal ileum



Figure 6: Extraction of the intussuscepted small bowel segment



Figure 7: Resection of the bowel segment containing the intussusception

Case Report 3

A 56-year-old male with no relevant past medical history presented with chronic periumbilical pain over a one-month period. Physical examination and laboratory investigations were unremarkable.

Abdominal CT revealed imaging consistent with intestinal intussusception, without evidence of bowel ischemia or complete obstruction.

Diagnostic laparoscopy was performed. Neither persistent intussusception nor an identifiable causative organic lesion was found. A diagnosis of spontaneous reduction was established. The postoperative course was uneventful, with no recurrence over a follow-up period of two years.



Figure 8: CT scan image showing a target sign indicating a small bowel-to-small bowel intussusception"

DISCUSSION

Acute intestinal intussusception in adults (AII) is a rare clinical entity, accounting for approximately 1 to 5% of intestinal obstructions and fewer than 5% of all intestinal intussusceptions [1, 2].

In contrast to the predominantly idiopathic pediatric forms, adult intussusception is most commonly secondary to an identifiable organic lesion in 70 to 90% of cases [1, 3]. This fundamental pathophysiological distinction underlies the generally more aggressive therapeutic approach warranted in adult patients.

Epidemiological Features

The mean age reported across case series ranges from 40 to 60 years [1, 9], consistent with the ages of our patients (47, 56, and 61 years). No clear sex predominance has been established in the literature [10].

Small bowel intussusception accounts for approximately 60 to 80% of cases across published studies. Colonic forms are less frequent but are more commonly associated with malignant pathology [9, 11]. In our series, all three cases involved the small bowel, consistent with the published literature.

Diagnostic Challenge

The clinical diagnosis of AII remains challenging owing to its symptomatic polymorphism. Unlike in children, where the classic triad of abdominal pain, rectal bleeding, and a palpable abdominal mass is relatively

characteristic, the adult presentation is frequently chronic, intermittent, and non-specific [6].

In a recent meta-analysis, abdominal pain was present in more than 80% of cases, nausea or vomiting in 40 to 70%, whereas a palpable abdominal mass was identified in fewer than 30% of patients [1].

This clinical variability accounts for the diagnostic delays frequently reported in the literature.

Imaging is therefore of paramount importance, and abdominal CT is currently considered the reference standard for the diagnosis of AII [7], with a reported sensitivity ranging from 58 to 100% across series [7, 8].

CT identifies the main radiological signs, including: the “target sign” on axial sections; the “sausage sign” on longitudinal reconstructions; mesenteric invagination and the possible identification of a tumoral lead point.

CT also enables assessment of: the length of the intussuscepted segment; the presence of intestinal obstruction; evidence of bowel ischemia and the characteristics of the causative lesion.

In all three of our cases, CT enabled preoperative diagnosis, consistent with contemporary data reporting diagnostic rates currently exceeding 80% [7, 9].

Etiological Diversity

A key feature of our series is the diversity of underlying etiological mechanisms encountered.

Malignant Etiology: Intestinal Metastasis from Pulmonary Carcinoma

The first case illustrates an exceptional clinical situation. Gastrointestinal metastases from bronchial carcinoma are rare in clinical practice, although their true frequency is likely underestimated. Autopsy series report gastrointestinal involvement in 4 to 11% of advanced pulmonary carcinomas [10].

The small bowel represents the most common gastrointestinal site of involvement. The typical clinical presentations include intestinal obstruction, gastrointestinal hemorrhage, and perforation.

Intestinal intussusception as the presenting manifestation remains exceptional [10, 11]. The underlying mechanism involves intraluminal growth of the metastatic deposit, which acts as a pathological lead point for intussusception.

In our case, the presence of multiple small bowel deposits reflected the advanced systemic nature of the disease.

This case underscores the importance of considering metastatic etiology in any patient with known pulmonary carcinoma presenting with bowel obstruction.

Benign Etiology: Inflammatory Pseudo-Polyp

The second case is of particular interest, as inflammatory pseudo-polyps represent a very uncommon cause of intussusception in adults.

Benign lesions account for approximately 30 to 35% of small bowel intussusceptions [9]. These include lipomas, hamartomas, inflammatory polyps, Vanek tumors (inflammatory fibroid polyps), and Meckel's diverticula.

Inflammatory pseudo-polyps act as mechanical lead points when they reach sufficient size [12].

Preoperative diagnosis remains challenging despite advances in cross-sectional imaging.

Histopathological analysis remains essential to exclude a gastrointestinal stromal tumor, lymphoma, or early-stage adenocarcinoma.

Idiopathic Transient Form: Spontaneous Reduction

The third patient represents arguably the most distinctive case in our series. With the widespread adoption of CT, transient small bowel intussusceptions are being identified with increasing frequency [13].

In contrast to classical forms, they are characterized by short intussusception length, absence of a lead point, absence of obstruction, absence of bowel wall thickening, and, most notably, spontaneous reduction.

Several authors now consider that certain short small bowel intussusceptions represent a

physiological phenomenon attributable to peristaltic movements [13, 14].

In a study by Kim *et al.*, published in 2023, the majority of small bowel intussusceptions measuring less than 3.5 cm resolved favorably without surgical intervention [14].

Nevertheless, reliably distinguishing a transient intussusception from a pathological form remains challenging.

In our case, the complete absence of any abnormality on laparoscopic exploration, together with no recurrence over a two-year follow-up, strongly supports the diagnosis of a spontaneously resolving form. This case highlights the value of diagnostic laparoscopy in ambiguous clinical scenarios.

Surgical Management

The surgical management of AII remains a subject of ongoing debate. The primary controversy concerns whether manual reduction should be attempted prior to resection. Proponents of primary resection without prior reduction advance several arguments [2, 15]: risk of tumor dissemination; tumor emboli; intestinal perforation and peritoneal contamination.

This approach is widely accepted for colo-colonic intussusceptions, of which more than half are associated with malignant tumors [15]. Conversely, in small bowel intussusceptions, the higher prevalence of benign lesions justifies a more conservative approach to preserve intestinal length. Accordingly, careful manual reduction may be considered when: the bowel appears viable; no suspicion of malignancy exists; extensive resection would risk inducing short bowel syndrome.

In our series, intestinal resection was performed in the first two cases owing to the presence of a confirmed organic lead point.

Role of Laparoscopy

In recent years, laparoscopy has progressively assumed a significant role in the management of AII [16].

Its advantages include: diagnostic confirmation; complete exploration of the abdominal cavity; possibility of manual reduction; minimally invasive assisted resection; reduced postoperative pain; shortened hospital stay.

However, marked small bowel distension in cases of complete obstruction may render laparoscopic access technically challenging.

In our series, laparoscopy played a pivotal role in cases 2 and 3, enabling preoperative confirmation and identification of spontaneous reduction, respectively.

CONCLUSION

Adult intestinal intussusception remains a rare but potentially serious condition. Our three cases illustrate the wide diversity of etiological mechanisms that may be encountered. CT remains the key preoperative diagnostic tool, while surgery retains a central role in the therapeutic strategy. The growing role of laparoscopy now enables a minimally invasive diagnostic and therapeutic approach. Nevertheless, growing recognition of transient forms may allow avoidance of unnecessary intestinal resections in selected patients.

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