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Beyond lead points: transient small-bowel intussusception in adolescents without structural lesions

Eleni Boutouridou,[1] Vasiliki Magaliou,[1] Eleftheria Emmanouilidou,[2] Fotios Kazantzidis,[3] Evgeniya Babacheva,[4] Kleanthis Anastasiadis[1]

[1]Department of Pediatric Surgery, "Hippokration" General Hospital of Thessaloniki, Thessaloniki; [2]Department of Pediatrics, General Hospital of Kavala, Kavala; [3]Department of Surgery, General Hospital of Kavala, Kavala; [4]2nd Department of Neonatology and NICU, School of Medicine, Aristotle University of Thessaloniki, "Papageorgiou" General Hospital, Thessaloniki, Greece

Abstract

Intussusception is a leading cause of intestinal obstruction in young children but remains uncommon in adolescents, where structural lead points typically predominate. Functional or transient small-bowel intussusception without anatomical lesions is rare and often under-recognized in this age group. We report two adolescents presenting with acute abdominal pain and vomiting. Case 1 involved a 15-year-old girl on SSRI therapy with jejuno-ileal intussusception that spontaneously reduced during laparoscopy; localized hematoma, marked hyperperistalsis and venous congestion were observed without structural lead points. Case 2 involved a 13-year-old boy with heterozygous β-thalassemia and ileo-ileal intussusception associated with reactive mesenteric lymph nodes; laparoscopic reduction was successful. These cases illustrate non-structural mechanisms of adolescent intussusception, including SSRI-associated hypermotility and reactive lymphoid hyperplasia. Recognition of these factors, combined with prompt laparoscopic assessment, ensures optimal management, and prevents ischemic complications.

Key words: adolescent intussusception; small-bowel intussusception; functional intussusception; SSRI-associated hypermotility; laparoscopic surgery.

Correspondence to: Eleni Boutouridou, Department of Pediatric Surgery, "Hippokration" General Hospital of Thessaloniki, Konstantinoupoleos 49, 54642 Thessaloniki, Greece. Tel.: +302313312528. E-mail: elena.btr96@gmail.com

Introduction

Intussusception, the telescoping of one segment of the intestine into another, is the most common cause of intestinal obstruction in early childhood, typically occurring between 6 and 24 months of age.[1] While most cases are idiopathic, intussusception in older children and adolescents is uncommon, accounting for less than 10% of pediatric cases and is more frequently associated with pathological lead points, such as Meckel's diverticulum, intestinal polyps, duplication cysts, or lymphoma.[2,3]

Clinical presentation in adolescents is often vague, with nonspecific abdominal pain and vomiting. The classic triad of pain, vomiting, and bloody stools is rarely observed, and imaging findings may be subtle or inconclusive, leading to diagnostic delays.[1]

While many Small-Bowel Intussusceptions (SBI) can be transient, the challenge lies in identifying those that require surgical intervention. The increasing use of laparoscopy has improved the recognition of functional forms of SBI.

We present two cases of adolescent SBI in the absence of structural lead points, highlighting potential links to SSRI-induced hypermotility and reactive lymphoid hyperplasia.[4,5]

Case Reports

Case 1

A 15-year-old girl, weighing 41 kg, presented with a 48-hour history of abdominal pain, low-grade fever (37.7°C), and postprandial vomiting. The last bowel movement had occurred one day prior. Physical examination revealed a palpable mass in the left hypochondrium and diffuse tenderness. Her history was significant for anxiety–depressive disorder treated with sertraline (Zoloft; Pfizer, New York, NY, USA) for the last two months; the dosage of which had been increased two weeks prior. She reported intermittent diarrhea since initiating SSRI therapy. Laboratory workup revealed leukocytosis (WBC 11,500/μL; 81.7% neutrophils) with slightly increased C-Reactive Protein (0.33 mg/dL, N.V=0.3), and Serum Amylase 288 U/L (N.V <115). Arterial blood gas analysis demonstrated a mixed acid–base disorder characterized by primary respiratory alkalosis (pH 7.49, pCO_2 25.9 mmHg) with concurrent metabolic acidosis (HCO_3^- 19.8 mmol/L), with elevated lactate (3.3 mmol/L). Abdominal radiograph raised suspicion of intussusception. While the initial abdominal ultrasound was inconclusive, fur-

ther abdominal CT confirmed a long-segment jejuno-ileal intussusception with associated bowel wall thickening and free intraperitoneal fluid (Figure 1).

Due to the prolonged duration of symptoms, elevated lactate, and clinical signs of high-grade obstruction, an observational approach was deemed unsafe, and hydrostatic reduction was considered high-risk for perforation. Consequently, the patient was led to the operating room. Laparoscopy was performed, using three ports (two working trocars and one camera port). Intraoperative exploration revealed spontaneous reduction of the intussusception following anesthesia induction. A localized hematoma, significant venous congestion, and marked hyperperistalsis were noted at the affected segment confirming the clinical significance of the event (Figure 2). No structural lead point was identified. Perioperative prophylactic broad-spectrum antibiotics (cefoxitin) were administered according to institutional protocol for emergency abdominal

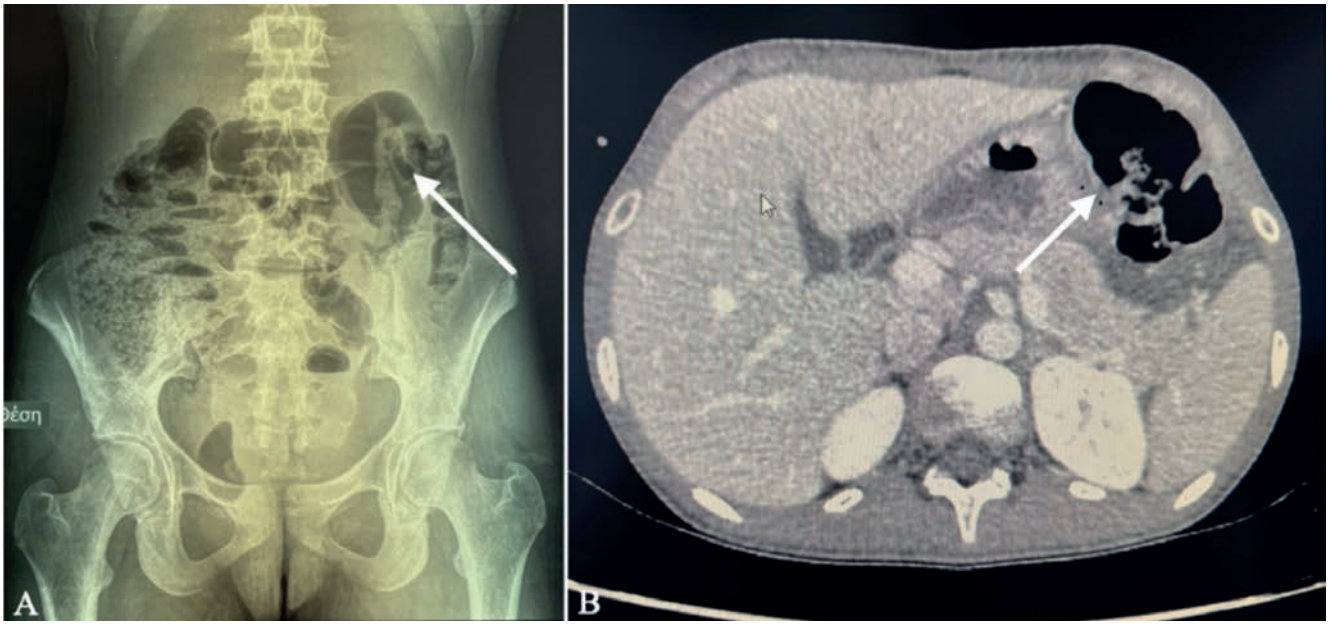

Figure 1. Preoperative imaging of Case 1. A) Abdominal radiograph demonstrating bowel gas distribution with a subtle soft-tissue density in the left upper quadrant (arrow), suggestive of an underlying abnormality; B) Contrast-enhanced CT scan demonstrating the small bowel intussusception (arrow).

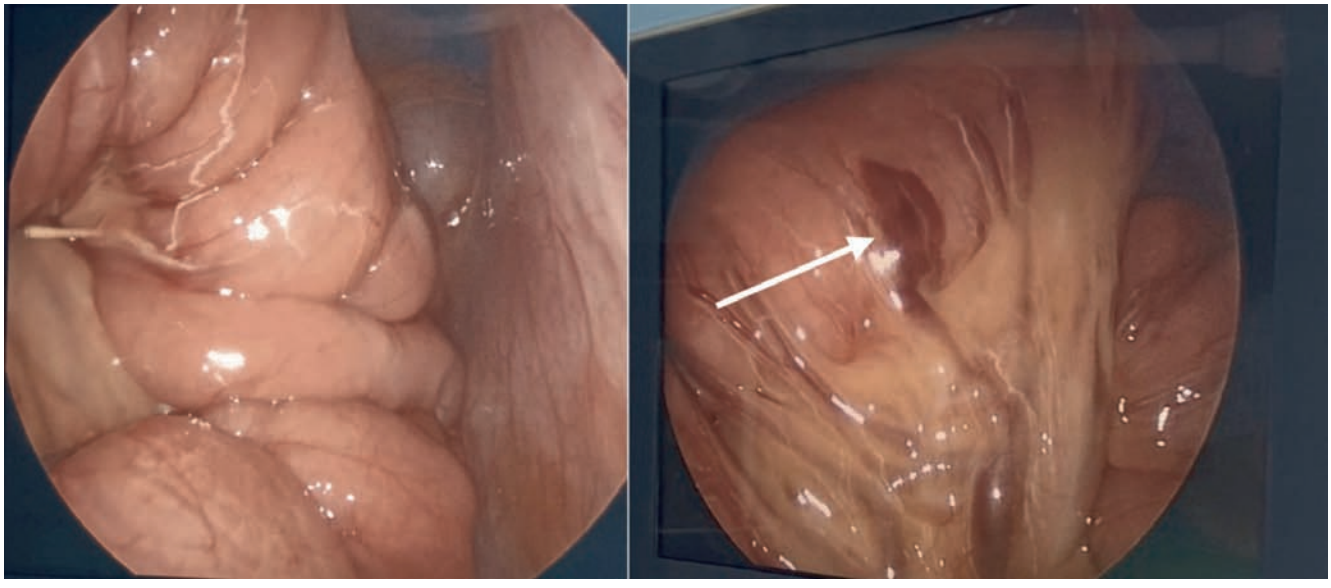

Figure 2. Intraoperative findings of Case 1. Laparoscopic view of the affected bowel segment demonstrating diffuse congestion and edema consistent with venous stasis. The arrow indicates a localized bowel wall hematoma at the site of spontaneous reduction.

surgery. The decision was supported by the presence of 250 mL of free reactive serous fluid in the Douglas' Pouch and the risk of bacterial translocation secondary to suspected compromised bowel wall integrity in the setting of prolonged intussusception and venous congestion. Sertraline was continued while post-discharge psychiatric follow-up was recommended. Her recovery was uneventful.

Case 2

A 13-year-old boy with heterozygous β-thalassemia, weighing 38 kg, presented with a 36-hours history of abdominal pain, multiple episodes of vomiting, and absence of bowel movements for the last 2 days. Clinical examination revealed a palpable mass and signs of peritonism in the left lateral abdomen. Laboratory tests revealed no inflammatory markers. Abdominal ultrasonography revealed a long-segment (>6 cm) ileo-ileal intussusception measuring approximately 3.5 cm in diameter, small-bowel obstruction, free fluid in the pelvis, and reactive mesenteric lymph nodes.

Given the clinical evidence of bowel obstruction and the palpable mass, laparoscopic exploration was performed using four ports (three working trocars and one camera port). Intraoperatively, an extended 25 cm ileo-ileal intussusception was identified, located about 30 cm proximal to the ileocecal valve. The bowel appeared dusky with significant serosal congestion and edema but regained healthy color, normal viability, and peristalsis immediately after gentle reduction. A second, incipient intussusception was identified and reduced approximately 10 cm from the ileocecal valve. A small quantity of reactive fluid was noted in the pouch of Douglas. No structural lead point was identified (Figure 3).

Perioperative prophylactic antibiotics (cefoxitin and metronidazole) were administered, according to the institutional protocol for emergency abdominal surgery. The indication was based on the significant length of the intussuscepted segment and the presence of bowel congestion, that raised concern regarding compromised mucosal integrity and potential bacterial translocation secondary to prolonged venous stasis. Recovery was uneventful, and he was discharged with complete resolution of symptoms.

Upon scheduled follow-up evaluation in our outpatient clinic, both patients exhibited an uneventful postoperative course and achieved excellent clinical recovery.

Discussion

Epidemiologic and diagnostic challenges

Intussusception in adolescence accounts for less than 10% of pediatric cases, and often presents atypically.[1,2] Unlike the idiopathic ileocolic intussusception in infants, older children more frequently exhibit small-bowel involvement with non-specific symptomatology where the classic triad of pain, vomiting, and bloody stools is rare. Structural lead points are identified in up to 90% of cases. While many SBIs are transient, those presenting with prolonged symptoms and signs of obstruction often require surgical exclusion of a pathological lead point.[3]

Case-specific considerations

In both of our cases, no structural lead point was identified, suggesting functional or transient mechanisms.

In Case 1, the recent increase in sertraline dose, a Selective Serotonin Reuptake Inhibitor (SSRI), may have enhanced serotonin signaling in the gut, leading to alteration of the intestinal microbiome, and potentially increase in motility, and peristalsis.[4,5] Prior studies support an association between SSRIs and gastrointestinal hypermotility.[5–7] This mechanism may have contributed to the transient intussusception. This observation represents an insight into SSRI-associated hypermotility and small-bowel intussusception in adolescents. In Case 2, reactive mesenteric lymph nodes, consistent with benign transient lymphoid hyperplasia, likely acted as a transient lead point.[1,2] Such reactive lymphoid hyperplasia, though benign, can trigger intussusception and has been reported in older children following immune stimulation or infection.

Although many small-bowel intussusceptions resolve spontaneously, the presence of obstruction and concerning clinical and laboratory findings supported early surgical exploration in our cases, where clinical severity (lactate 3.3 in Case 1 and a 25 cm intussusception in Case 2) justified the decision over prolonged observation.

The pivotal role of laparoscopy

Laparoscopic exploration proved invaluable in both cases, standing out as a critical diagnostic and therapeutic modality in the management of atypical pediatric intussusception. In adolescent

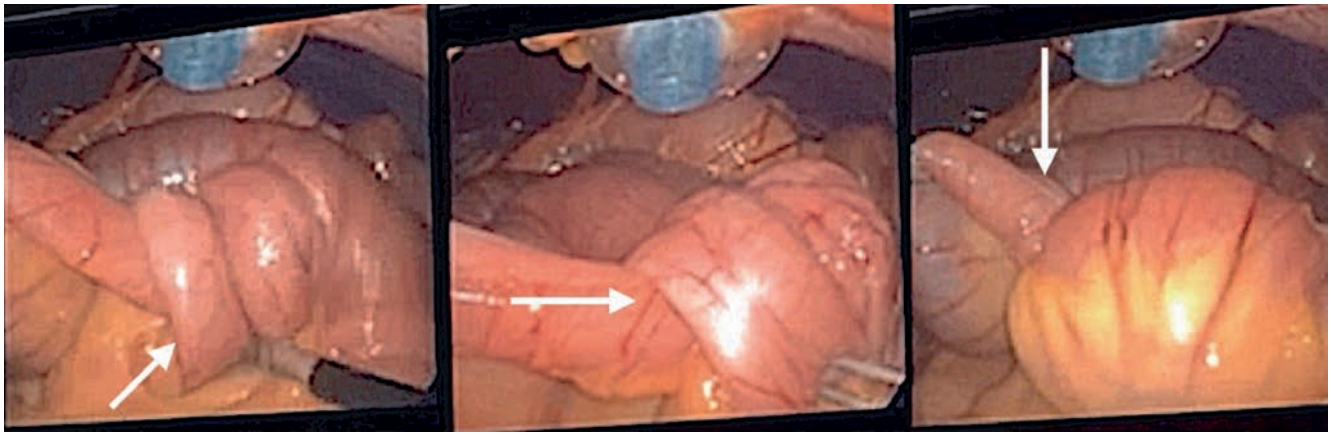

Figure 3. Surgical management of Case 2. Laparoscopic view following the successful reduction of the ileo-ileal intussusception. Arrows indicate the intussuscepted bowel segment, that appears edematous with serosal congestion, consistent with transient vascular compromise and venous stasis.

patients, where clinical and imaging findings are often equivocal, laparoscopy allows for the direct assessment of bowel viability and the definitive exclusion of structural lead points, which are prevalent in adolescents. Furthermore, the ability to perform a controlled, gentle reduction under direct vision minimizes the risk of serosal tears or bowel perforation and prevents unnecessary extensive resections, facilitating a faster recovery compared to open surgery and highlighting the role of laparoscopy in managing atypical presentations of pediatric intussusception.[1]

Conclusions

Intussusception in adolescents is uncommon and frequently associated with structural lead points. However, as demonstrated in these cases, transient or functional small-bowel intussusception can occur due to non-structural mechanisms, including pharmacologic (SSRI-associated) and immune-mediated factors.

Laparoscopy stands out as a critical diagnostic and therapeutic modality in these atypical presentations. It allows for the definitive exclusion of anatomical lesions, ensures safe and gentle bowel reduction under direct visualization, and enables the assessment of bowel viability. By providing a minimally invasive yet thorough exploration, laparoscopy minimizes morbidity and ensures excellent clinical outcomes in older children and adolescents where diagnosis is often delayed.

References

1. Li Y, Zhou Q, Liu C, et al. Epidemiology, clinical characteristics, and treatment of children with acute intussusception: a case series. BMC Pediatr 2023;23:143.
2. Ibrahim D, Patel NP, Gupta M, et al. Ileocecal intussusception in the adult population: case series of two patients. West J Emerg Med 2010;11:197–200.
3. Wang L, Zhang H, Wang D, et al. Clinical features of intussusception in children secondary to small bowel tumours: a retrospective study of 31 cases. BMC Pediatr 2024;24:227.
4. Coates MD, Johnson AC, Greenwood-van Meerveld B, Mawe GM. Effects of serotonin transporter inhibition on gastrointestinal motility and colonic sensitivity in the mouse. Neurogastroenterol Motility 2006;18:464–71.
5. Xu F, Xie Q, Kuang W, Dong Z. Interactions Between Antidepressants and Intestinal Microbiota. Neurotherapeutics 2023;20:359–71.
6. Wang Z, Li H, Kang Y, et al. Risks of digestive system side-effects of selective serotonin reuptake inhibitors in patients with depression: a network meta-analysis. Ther Clin Risk Manag 2022;18:799–812.
7. Janssen P, Vos R, Tack J. The influence of citalopram on interdigestive gastrointestinal motility in man. Aliment Pharmacol Ther 2010;32:289–95.

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