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Case Report

Ileo-Ileal Intussusception Secondary to a Giant Inflammatory Fibroid Polyp (Vanek's Tumor): A Case Report

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Abstract:

Background: Adult intussusception is a rare condition, accounting for only 1% to 5% of bowel obstructions. Unlike in children, adult cases are usually linked to a demonstrable pathological lead point and often require surgery. One of the rare benign causes is the inflammatory fibroid polyp (IFP), also known as Vanek's tumor.

Case Presentation: A 72-year-old female presented with a two-day history of diffuse abdominal pain, vomiting, and abdominal distension. Diagnostic imaging, including ultrasound and multi-slice computed tomography (MSCT), revealed the classic "target sign," which is indicative of ileo-ileal intussusception. Initial laparoscopic exploration revealed an edematous ileal segment and significant mesenteric lymphadenopathy. To adhere to oncologic principles and perform a thorough lymphadenectomy, the procedure was converted to an open midline laparotomy. A 40-cm segment of the ileum was resected, followed by a primary side-to-side stapled anastomosis. Histopathological and immunohistochemical analyses (CD34+ and SMA+, CD117-, and DOG1-) confirmed the diagnosis of a 37-mm inflammatory fibroid polyp with reactive lymphadenitis. The patient had an uneventful recovery and was discharged on the tenth postoperative day.

Conclusion: This case demonstrates that CT scans are the gold standard for diagnosing intussusception in adults. Although inflammatory fibroid polyps are benign, significant tissue edema and mesenteric lymphadenopathy can mimic malignancy. In such acute settings, converting to an open approach is a justified and prudent surgical decision that ensures oncological radicality and maximal patient safety.

Key words: adult intussusception; ileal intussusception; inflammatory fibroid polyp; vanek's tumor; bowel obstruction; laparotomy; cd34

Introduction

Intussusception is defined as the invagination of a proximal segment of the bowel into an adjacent, more distal segment [1]. Although it frequently causes obstruction in children, intussusception in adults is extraordinarily rare, accounting for only 1% to 5% of all bowel obstructions [1, 2, 3]. Unlike in the pediatric population, where the cause is mostly idiopathic, adult cases are almost always associated with a lead point, which is a focal lesion that acts as a traction area during peristalsis [1]. The nomenclature of intussusception is based on its location. The most common types are enterocolic, ileocolic, and colocolic [1]. While most small bowel lead points in adults are benign, it is clinically challenging to differentiate between benign lesions and malignancy preoperatively [4]. Due to the nonspecific clinical presentation in adults,

advanced imaging modalities, particularly computed tomography (CT), are essential for establishing a timely diagnosis. Various pathological entities can trigger this condition; however, the inflammatory fibroid polyp (IFP), also known as Vanek's tumor, is one of the rarest benign triggers of ileo-ileal invagination [1]. In this report, we present a rare case of a giant ileal IFP causing adult intussusception, emphasizing the importance of surgical decision-making and the role of immunohistochemical analysis in the definitive diagnosis.

Case Report

Clinical History and Initial Presentation

A 72-year-old female patient was admitted to the emergency department with a two-day history of diffuse abdominal pain, bloating, and vomiting. Physical examination revealed a distended and soft abdomen with mild tenderness upon deep palpation of the epigastric region. Peritoneal signs were absent upon admission. The patient reported having irregular bowel movements and stated that her last bowel movement occurred the morning of admission.

Diagnostic Evaluation

Initial laboratory investigations (Table 1) revealed an elevated C-reactive protein (CRP) level of 56.5 mg/L and a slightly elevated fibrinogen (6.4 g/L). Hematological findings showed mild anemia (Hemoglobin 117 g/L, Hematocrit 0.359 L/L), while the white blood cell count remained within the reference range.

Parameter	Result	Reference Range
CRP	**56.5 mg/L**	0.0 – 5.0
Fibrinogen	**6.4 g/L**	2.0 – 5.0
Glucose	**10.0 mmol/L**	3.9 – 6.1
Hemoglobin	**117 g/L**	110.0 – 170.0
Erythrocytes	**3.76 x 10^{12}/L**	3.8 – 5.1
WBC	6.2 x 10^{9}/L	4.0 – 9.0

Table 1: Relevant Laboratory Findings at Admission.

An abdominal ultrasound identified a non-compressible, "target-like" structure in the right half of the abdomen, which was highly suggestive of ileo-ileal invagination. Subsequent multi-slice computed tomography (MSCT) confirmed a long-segment ileo-ileal intussusception in the terminal ileum (Figure 1). Imaging also revealed distended bowel loops with air-fluid levels and several reactive subcentimeter mesenteric lymph nodes, raising suspicion of a potential neoplastic lead point.

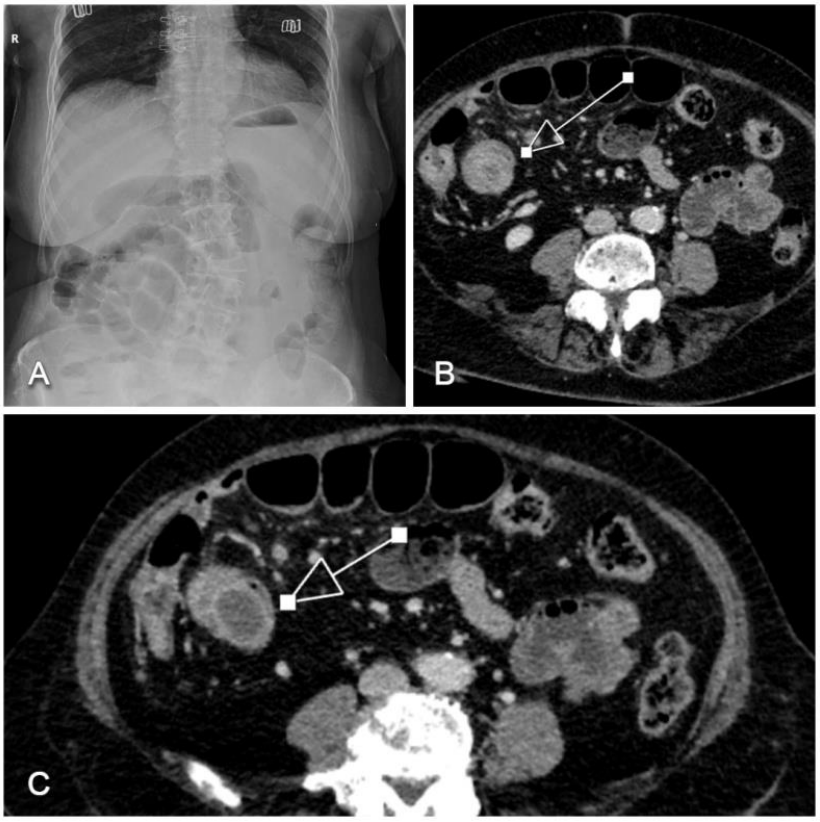

Figure 1: Diagnostic Imaging of Adult Ileal Intussusception.

(A) Plain abdominal radiograph showing signs of non-specific small bowel obstruction, including distended loops in the mid-abdomen and a relative paucity of colonic gas. (B) Axial contrast-enhanced MSCT scan showing the pathognomonic "target sign" (indicated by the pointer) in the right half of the abdomen, representing the concentric layers of the intussusceptum within the intussuscipiens. Dilated, fluid-filled bowel loops are seen proximal to the lesion. (C) A different axial MSCT level further distal, demonstrating the presence of mesenteric fat and enlarged lymph nodes within the intussuscipiens, serving as a suspicious lead point and confirming ileo-ileal invagination (pointer). Note the absence of high-grade air-fluid levels at this early stage.

Surgical Intervention

Due to clinical and radiological signs of bowel obstruction, the patient was scheduled for urgent surgery. The procedure began with a laparoscopic exploration, which identified an edematous segment of the small bowel approximately 50 cm proximal to the cecum, serving as the site of the intussusception (Figure 2).

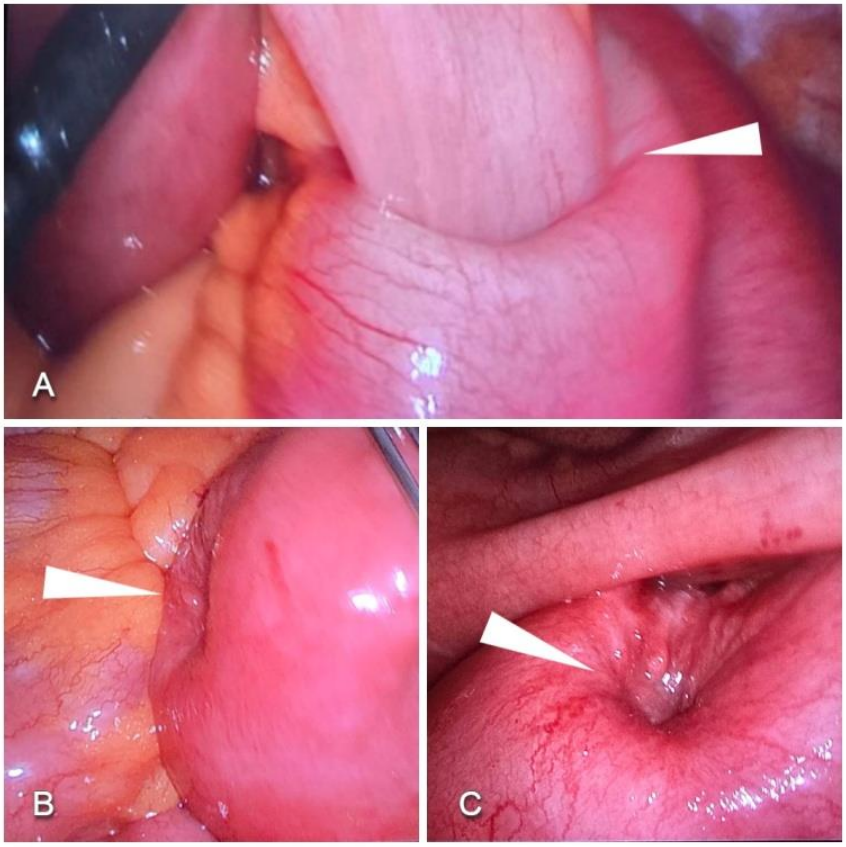

Figure 2: Intraoperative Laparoscopic Findings.

(A) Laparoscopic view demonstrating the telescoping of the proximal ileum into the distal segment (arrowhead), confirming the diagnosis of intussusception. **(B, C)** Close-up view of the intussuscipiens, showing significant serosal congestion and edema due to venous obstruction. Detailed inspection of the mesentery revealing localized retraction. This finding, highly suspicious for potential malignancy of the lead point (arrowhead), prompted the decision to convert to an open midline laparotomy to ensure a radical oncological resection and adequate lymphadenectomy.

During the laparoscopic exploration, the surgical team identified significantly enlarged mesenteric lymph nodes and decided to convert to an open midline laparotomy. Several critical factors guided this decision: the macroscopic suspicion of malignancy required strict adherence to oncologic principles, including a formal lymphadenectomy. Additionally, marked bowel distension and significant tissue edema,

which are typical of acute obstruction, made laparoscopic manipulation of the mesenteric root technically challenging and increased the risk of iatrogenic injury to fragile vessels. The transition to an open approach provided superior tactile feedback and enabled safe and thorough dissection of the mesentery, ensuring surgical radicality and maximal patient safety. Then a 40-cm segment of the ileum was resected. Upon opening the specimen, they identified a large polypoid lesion measuring approximately 4 cm in its greatest diameter. This lesion served as the lead point for the intussusception (Figure 3). To further delineate the anatomical relationship between the intussuscepted bowel and the lesion, the resected ileal segment was carefully opened longitudinally opposite the mesenteric insertion (Figure 4). An extracorporeal ileo-ileal side-to-side (L-L) anastomosis was performed using a 80-mm GIA stapler. The abdominal cavity was drained, and the specimen was sent for histopathological analysis.

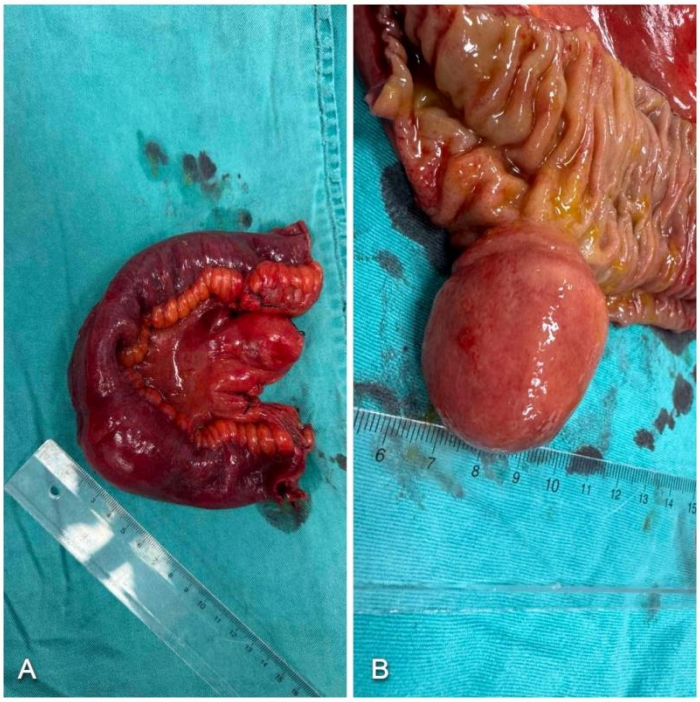

Figure 3: Macroscopic Appearance of the Resected Specimen.

(A) Surgical specimen of the terminal ileum containing the intussuscepted bowel segment. The outer serosal surface appears congested, edematous, and discolored. (B) Opening of the resected bowel segment revealed a large, solitary, polypoid tumor with a smooth surface, approximately 4 cm in diameter (measuring 37 mm by the surgical ruler), serving as the clear pathological lead point for the invagination. Note the healthy appearance of the distal resection margin.

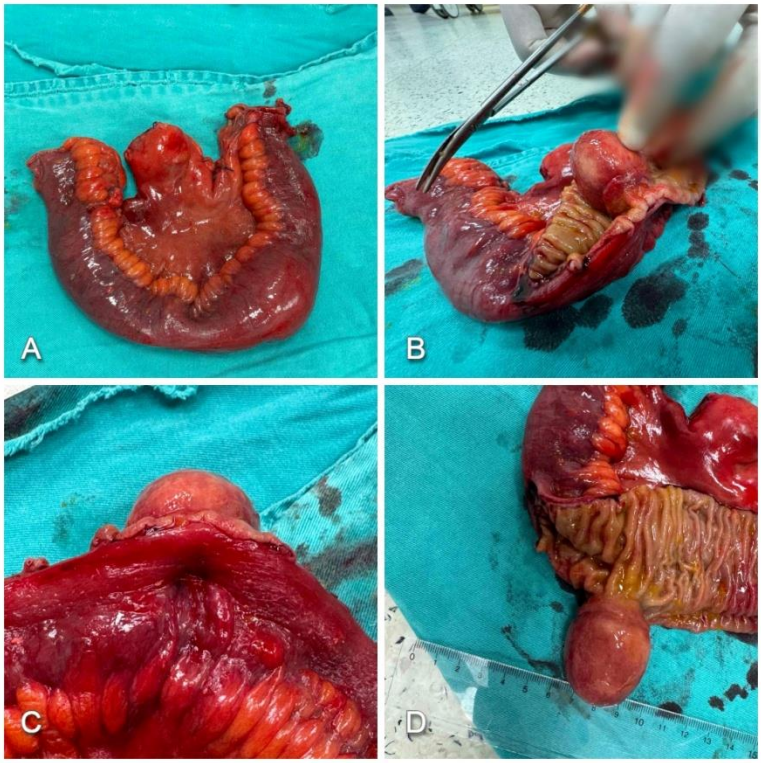

Figure 4: Surgical Opening and Macroscopic Evaluation of the Resected Ileo-ileal Intussusception.

(A) Initial inspection of the resected ileal segment, which appears congested and edematous, representing the intussusceptum enclosed within the intussuscipiens. (B) A longitudinal incision is meticulously performed opposite the mesentery (anti-mesenteric border) using surgical scissors, carefully opening the outer bowel layer to reveal the intussuscepted proximal segment and the beginning of a suspicious mass. (C) Deeper dissection and complete

opening of the entire intussuscepted bowel segment, showing the anatomical relationship between the concentric bowel layers and a clear view of the prominent polypoid mass. (D) Final macroscopic assessment of the fully opened bowel. A giant, well-circumscribed, polypoid tumor, measuring approximately 4 cm in diameter, is exposed and serves as the definitive pathological lead point for the invagination.

Histopathological Findings

Macroscopic examination of the resected bowel revealed a 37 mm (approximately 4 cm) yellow-greenish, polypoid vegetative lesion with a smooth surface and central ulceration. The microscopic and immunohistochemical (IHC) analysis (Table 2) confirmed the diagnosis of an IFP, also known as Vanek's tumor. The lesion was transmural with mucosal ulceration. All 10 isolated regional lymph nodes showed signs of reactive lymphadenitis, with no evidence of malignancy. The resection margins were clear of tumor cells.

Marker	Result
CD34	**Positive (+)**
SMA (Smooth Muscle Actin)	**Positive (+)**
ALK	Negative (-)
DOG1	Negative (-)
S-100	Negative (-)
Desmin	Negative (-)
Ki-67	Low proliferative index

Table 2: Immunohistochemical (IHC) Profile of the Lesion.

Postoperative Course and Follow-up

The postoperative recovery was uneventful. After bowel motility stabilized, the patient was gradually transitioned to an oral diet, starting with liquids and progressing to solid food, which was tolerated well. The surgical wound healed by primary intention, showing no signs of infection at the surgical site. Laboratory parameters, including inflammatory markers, showed a significant downward trend during the hospital stay. The patient was discharged in stable condition on the tenth postoperative day with instructions for outpatient follow-up. At discharge, the patient was mobile, afebrile, and had restored regular bowel function.

Discussion

The clinical presentation of adult intussusception is notoriously nonspecific, often lacking the "classic triad" of pain, a palpable mass, and bloody stools [1, 5]. Our patient presented with symptoms consistent with a partial bowel obstruction, including abdominal pain and vomiting, which are the most common manifestations of the condition [6]. Laboratory findings, specifically elevated C-reactive protein (CRP) (56.5 mg/L) and fibrinogen (6.4 g/L), indicated a significant inflammatory response, which is often observed in cases of prolonged invagination [1, 7]. Diagnostic imaging played a pivotal role in the preoperative management of this case. While plain abdominal X-rays may only reveal nonspecific signs of obstruction, ultrasounds and CT scans provide more definitive results. In this case, the initial ultrasound revealed a "target-like" non-compressible structure, providing the first objective evidence of intussusception. Subsequently, MSCT confirmed the diagnosis by revealing the classic "bowel-within-bowel" appearance. The MSCT scan was instrumental in identifying the target lesion and assessing the length of the affected segment and the presence of enlarged mesenteric lymph nodes. This information directly influenced the surgical planning [1]. Additional imaging modalities can also provide significant benefits in the evaluation of intussusception, depending on the clinical context. Barium or water-soluble contrast (Gastrografin) enemas are particularly useful in adult patients with colonic or ileocolic intussusception, as they can reveal the characteristic "cup-shaped" filling defect [1, 8]. Beyond its diagnostic value, this method may also offer a potential therapeutic effect through the hydrostatic reduction of the invaginated segment. Although magnetic resonance imaging (MRI) is not routinely used in pediatric or adult populations due to its limited availability and longer acquisition times in acute settings, it can be as sensitive as CT in detecting intussusception, especially when a specific enterography protocol is employed. However, MSCT remains the most practical and definitive tool for identifying the lead point and assessing mesenteric involvement in the emergency management of adult patients [1]. The etiology of the lead point is the most critical factor in determining the surgical strategy. While malignancy is a high concern in colonic intussusception, benign lesions remain more prevalent in the small bowel [4, 9]. In our case, the lead point was a 37 mm IFP. These rare mesenchymal tumors, also known as Vanek's tumors, are typically benign but can cause severe mechanical complications. The immunohistochemical (IHC) profile was essential for a definitive diagnosis; the CD34 and SMA positivity, combined with DOG1 and CD117 negativity, allowed for the critical exclusion of Gastrointestinal Stromal Tumors (GIST) and other mesenchymal neoplasms [10, 11]. The gold standard for the surgical management of adult intussusception remains intact, as conservative treatment is rarely successful [1, 12]. Although a laparoscopic approach is increasingly used, our case illustrates the importance of the surgical decision-making process. Identification of significantly enlarged mesenteric lymph nodes during exploration necessitated conversion from laparoscopy to open midline laparotomy. This transition was made to adhere to oncologic principles and ensure a thorough lymphadenectomy because mesenteric lymphadenopathy can often mimic malignant draining vessels [13]. The resection of a 40 cm ileal segment with a primary side-to-side (L-L) anastomosis was performed. This approach is consistent with established guidelines for entero-enteric intussusception where the bowel segment is edematous or potentially ischemic [1, 2, 4, 14]. The final histopathological report confirmed that the lymphadenopathy was reactive and the resection margins were tumor-free, justifying an excellent prognosis for this patient.

Conclusion

Adult intussusception remains a diagnostic challenge due to its rarity and non-specific clinical presentation. Our case underlines the importance of

a meticulous diagnostic approach, where advanced imaging like MSCT is crucial for early identification of the "target sign" and the underlying lead point. Although the majority of small bowel intussusceptions in adults are caused by benign lesions, such as the Inflammatory Fibroid Polyp (Vanek's tumor) described here, the inability to preoperatively exclude malignancy remains a critical concern. This case further demonstrates that while laparoscopy is a valuable diagnostic and therapeutic tool, the decision to convert to an open procedure is justified when suspicious mesenteric lymphadenopathy is encountered, especially in the setting of acute bowel obstruction. In such instances, conversion provides superior tactile feedback and ensures an oncologically radical lymphadenectomy, which may be technically challenging to perform laparoscopically in edematous and fragile tissue. Adhering to these oncologic principles ensures optimal patient safety and definitive histopathological staging.

Declarations

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The author does not have anyone to acknowledge.

Authors' contributions

Made substantial contributions to conception and design of the study and performed data analysis and interpretation: Golubovic I, Vukadinovic A, Vanja Pecic.

Performed data acquisition, as well as provided administrative, technical, and material support: Golubovic I.

Availability of data and materials

Not applicable.

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Conflicts of interest

All authors declared that there are no conflicts of interest.

Ethical approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

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