

Research Article

Open Access



## Diagnostic Challenges of Adult Ileo-Ileal Intussusception: A Case Report of a Submucosal Lipoma Acting as a Lead Point

Khaled Alsherif

\*Corresponding author:

[khaled.alsherif@uob.edu.ly](mailto:khaled.alsherif@uob.edu.ly)

Department of General Surgery, Benghazi University, Libya.

**Received:**

22 January 2026

**Accepted:**

08 June 2026

**Publish online:**

03 August 2026

### Abstract

Adult intussusception is a rare cause of bowel obstruction and is typically associated with an underlying pathological lead point. Small bowel lipomas are uncommon benign tumours that may cause intussusception, often presenting with nonspecific symptoms that delay diagnosis. This case highlights the diagnostic value of contrast-enhanced computed tomography (CT) and the importance of timely surgical management. Case Presentation: A 55-year-old man presented with a 2-day history of intermittent abdominal pain, nausea, vomiting, and abdominal distension. Laboratory investigations revealed leukocytosis (white blood cell count,  $16 \times 10^9/L$ ). Plain abdominal radiography demonstrated multiple air–fluid levels suggestive of small bowel obstruction. Contrast-enhanced CT revealed ileo-ileal intussusception with a well-defined intraluminal fat-density mass measuring 10 cm, consistent with a submucosal lipoma serving as the lead point. Exploratory laparotomy confirmed the diagnosis, and segmental small bowel resection with primary end-to-end anastomosis was performed. Histopathological examination confirmed a benign 10-cm submucosal lipoma with no evidence of dysplasia or malignancy. The postoperative course was uneventful. Oral feeding was resumed on postoperative day 4, and the patient was discharged on postoperative day 7. At the 3-month follow-up, he remained asymptomatic, with complete resolution of symptoms and no evidence of recurrence. Adult intussusception remains a diagnostic challenge because of its nonspecific presentation. Contrast-enhanced CT is the imaging modality of choice for identifying both the intussusception and its pathological lead point, facilitating prompt surgical intervention before bowel ischemia develops. Early recognition and appropriate surgical management are essential for achieving favorable outcomes.

**Keywords:** Adult Intussusception; Ileo-Ileal Intussusception; Submucosal Lipoma; Small Bowel Obstruction.

## INTRODUCTION

Adult intussusception is a rare clinical entity, accounting for approximately 5% of all cases of intussusception and 1–5% of intestinal obstruction in adults. Unlike pediatric intussusception, which is predominantly idiopathic, adult intussusception is usually associated with an identifiable pathological lead point. Recent systematic reviews and contemporary case series have demonstrated that the underlying etiology varies according to the anatomical location, with malignant lesions predominat-



ing in colonic intussusception, whereas benign lesions are more commonly encountered in the small intestine (T. Chand et al., 2024; Valeriani et al., 2025).

Among benign small-bowel lesions, submucosal lipomas are uncommon mesenchymal tumours that are typically asymptomatic and discovered incidentally. However, larger lesions may serve as a pathological lead point for intussusception, resulting in bowel obstruction, gastrointestinal bleeding, or ischemic complications (Jiang et al., 2025; Touati et al., 2025). Because the clinical presentation is often nonspecific and intermittent, diagnosis may be delayed, thereby increasing the risk of morbidity.

Contrast-enhanced computed tomography (CT) is considered the imaging modality of choice for the diagnosis of adult intussusception because of its high sensitivity in detecting both the intussuscepted bowel segment and the underlying lead point. Characteristic CT findings include the classic target and sausage-shaped signs, whereas the identification of a well-circumscribed fat-density lesion strongly suggests a lipomatous origin (Fan et al., 2026). Despite advances in diagnostic imaging, controversy remains regarding the optimal surgical management. Although primary bowel resection is generally recommended because of the potential risk of underlying malignancy, selective reduction before resection has been advocated in carefully selected cases of small-bowel intussusception when a benign etiology is strongly suspected (Heersche et al., 2025; Hong et al., 2019).

We report a rare case of adult ileo-ileal intussusception caused by a submucosal lipoma presenting as acute small bowel obstruction. This case highlights the diagnostic value of contrast-enhanced CT in establishing a preoperative diagnosis and facilitating timely surgical intervention. It also contributes to the growing body of evidence regarding the optimal management of adult small-bowel intussusception secondary to benign pathological lead points.

## **MATERIALS AND METHODS**

### **Clinical Evaluation and Diagnostic Workup**

A 55-year-old man presented with a 2-day history of intermittent abdominal pain, nausea, vomiting, and abdominal distension. Laboratory investigations revealed leukocytosis, with a white blood cell count of  $16 \times 10^9/L$ . Plain abdominal radiography demonstrated multiple air–fluid levels suggestive of small bowel obstruction. Contrast-enhanced computed tomography (CT) of the abdomen and pelvis demonstrated ileo-ileal intussusception with a well-defined intraluminal fat-density mass measuring approximately 10 cm in greatest diameter, consistent with a submucosal lipoma serving as the pathological lead point. Associated proximal small bowel dilatation was also observed, confirming the diagnosis of mechanical small bowel obstruction.

Following diagnosis, a nasogastric tube was inserted for gastrointestinal decompression, and the patient was prepared for emergency surgery. Exploratory midline laparotomy confirmed the diagnosis of ileo-ileal intussusception. Segmental resection of the affected bowel with primary end-to-end anastomosis was performed. Histopathological examination of the resected specimen confirmed a benign submucosal lipoma measuring 10 cm, with no evidence of dysplasia or malignancy.

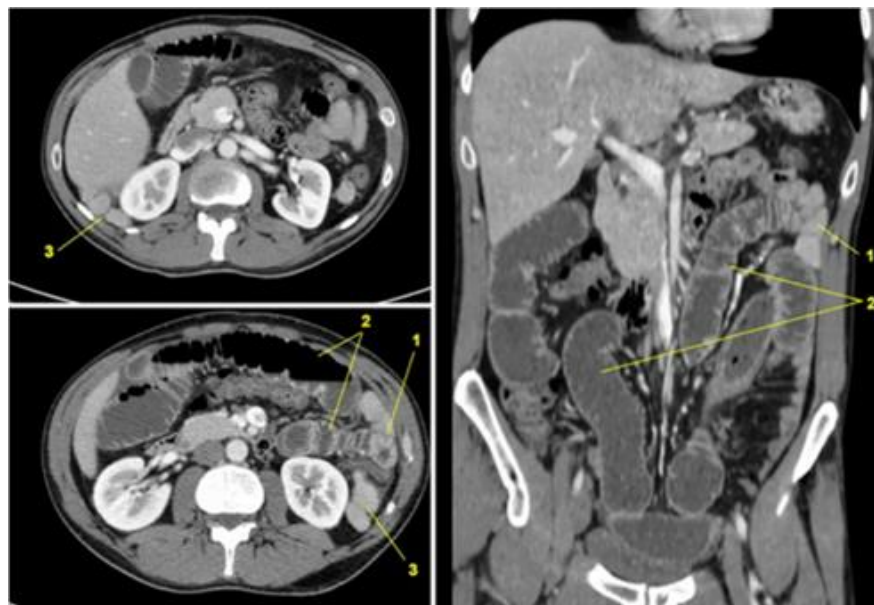
## **RESULTS**

Clinical evaluation revealed findings consistent with acute small bowel obstruction. Laboratory investigations demonstrated mild leukocytosis, whereas serum electrolyte levels and renal function tests were within normal limits. Plain abdominal radiography demonstrated multiple air–fluid lev-

els, consistent with small bowel obstruction (Figure 1). Contrast-enhanced computed tomography (CT) revealed the classic target sign on axial images and a sausage-shaped appearance on longitudinal images, consistent with ileo-ileal intussusception. A well-defined intraluminal fat-density lesion was identified as the pathological lead point, with associated proximal small bowel dilatation, confirming mechanical small bowel obstruction (Figure 2). Emergency exploratory laparotomy confirmed ileo-ileal intussusception caused by a well-defined intraluminal submucosal lipoma acting as the pathological lead point (Figure 3).



**Figure (1).** Plain abdominal radiograph demonstrating multiple air–fluid levels consistent with small bowel obstruction



**Figure (2).** Contrast-enhanced coronal CT image demonstrating ileo-ileal intussusception with a well-defined fat-density intraluminal lesion consistent with a submucosal lipoma serving as the lead point.



**Figure (3).** Intraoperative photograph demonstrating ileo-ileal intussusception.

The involved bowel segment was viable, with no evidence of ischemia or perforation. Segmental resection of the affected bowel, followed by primary end-to-end anastomosis, was performed without intraoperative complications.

Gross examination of the resected specimen revealed a well-circumscribed polypoid intraluminal mass. Histopathological examination confirmed a benign submucosal lipoma composed of mature adipose tissue, with no evidence of dysplasia or malignancy.

The patient had an uneventful postoperative recovery, resumed oral intake on postoperative day 4, and was discharged in stable condition on postoperative day 7. At the 3-month follow-up, he remained asymptomatic, with complete resolution of symptoms and no evidence of recurrence.

## DISCUSSION

The present case highlights the diagnostic and therapeutic challenges associated with adult ileo-ileal intussusception caused by a submucosal lipoma. As discussed in the Introduction, adult intussusception is an uncommon clinical entity that differs substantially from the pediatric form because an identifiable pathological lead point is present in most cases (T. Chand et al., 2024). This report emphasizes the pivotal role of contrast-enhanced computed tomography (CT) in the early diagnosis of this rare condition and supports definitive surgical management despite the benign nature of the underlying lesion.

Submucosal lipomas are among the most common benign non-epithelial tumours of the gastrointestinal tract; however, their occurrence in the small bowel is uncommon. Most lesions remain asymptomatic and are detected incidentally. Larger lipomas, however, may serve as a pathological lead point for intussusception, resulting in intermittent abdominal pain, bowel obstruction, gastrointestinal bleeding, or bowel ischemia (Touati et al., 2025; Valeriani et al., 2025). In the present case, the

patient's nonspecific symptoms posed a diagnostic challenge, reflecting the variable clinical presentation described in previous reports (Jiang et al., 2025; Valeriani et al., 2025).

Contrast-enhanced CT played a pivotal role in establishing the preoperative diagnosis. The characteristic bowel-within-bowel appearance (the target sign), together with the identification of a well-circumscribed intraluminal fat-density lesion, strongly suggested a lipomatous lead point. Previous studies have demonstrated that CT is the imaging modality of choice for adult intussusception because it not only confirms the diagnosis but also provides valuable information regarding lesion composition, bowel viability, and associated complications (Fan et al., 2026; T. Chand et al., 2024). In the present case, the demonstration of fat attenuation within the lesion substantially narrowed the differential diagnosis and facilitated appropriate surgical planning.

The differential diagnosis of a fat-density intraluminal lesion in the small bowel includes liposarcoma, inverted Meckel's diverticulum containing mesenteric fat, hamartomatous polyps, inflammatory fibroid polyps, and other benign mesenchymal tumours (Hong et al., 2019). Although CT findings may strongly suggest a benign lipoma, definitive differentiation from these entities generally requires histopathological examination. In the present case, microscopic evaluation demonstrated mature adipose tissue within the submucosa without cellular atypia, lipoblasts, necrosis, dysplasia, or malignant features, thereby confirming the diagnosis of a benign submucosal lipoma.

The optimal surgical management of adult intussusception remains controversial. Because malignant lesions account for a considerable proportion of adult cases, many authors recommend primary en bloc resection without prior reduction to minimise the risks of tumour dissemination and bowel perforation (Heersche et al., 2025; T. Chand et al., 2024). Conversely, selective reduction before resection has been advocated for carefully selected patients with small-bowel intussusception when preoperative imaging strongly suggests a benign etiology and bowel viability is preserved (Alam et al., 2024; Heersche et al., 2025). Recent evidence indicates that the surgical approach should be individualised according to the anatomical location, intraoperative findings, the patient's clinical condition, and the likelihood of malignancy (T. Chand et al., 2024). In the present case, segmental bowel resection with primary anastomosis was considered the most appropriate strategy because it established the definitive diagnosis, removed the pathological lead point, and minimised the risk of recurrence.

This case adds to the growing body of literature describing benign causes of adult small-bowel intussusception and highlights the importance of maintaining a high index of suspicion in adults presenting with recurrent or unexplained abdominal symptoms. Early CT evaluation can facilitate timely diagnosis before the development of bowel ischemia or vascular compromise (Chaouche et al., 2024; Fiordaliso et al., 2024). Furthermore, this case reinforces the role of surgical resection as both a diagnostic and therapeutic intervention, even when preoperative imaging strongly suggests a benign lesion.

## CONCLUSION

Adult ileo-ileal intussusception secondary to a submucosal lipoma is a rare but clinically significant cause of small bowel obstruction. Because the clinical presentation is often nonspecific, early diagnosis remains challenging. Contrast-enhanced computed tomography (CT) plays a pivotal role in identifying both the intussusception and its pathological lead point, thereby facilitating timely surgical intervention. Although imaging findings may strongly suggest a benign etiology, histopathological examination remains essential for establishing a definitive diagnosis and excluding malignancy.

nancy. Surgical resection remains the definitive treatment of choice, providing both definitive diagnosis and effective management. Increased awareness of this uncommon condition may facilitate earlier recognition, reduce diagnostic delays, and improve patient outcomes.

## Limitations

This report is limited by its single-case design and relatively short follow-up period of three months. Nevertheless, it highlights the diagnostic value of CT imaging and reinforces current evidence supporting surgical resection for adult intussusception caused by benign lead points.

## ETHICS

Verbal informed consent for publication of this case report.

All identifying information has been removed to protect the patient's privacy and confidentiality.

**Duality of interest:** The author declares no conflict of interest.

**Funding:** No specific funding was received for this work.

## REFERENCES

- Alam, F., Chikukuza, S., Okkeh, O., Tsvetkov, F., Hanif, Z., Lawrence, J., & Payne, R. (2024). Small bowel lipoma and intussusception: a case report. *Journal of Surgical Case Reports*, 2024(5), rjae327. <https://doi.org/https://doi.org/10.1093/jscr/rjae327>
- Chaouche, I., ELBouardi, N., Sekkat, A., Haloua, M., Alami, B., Boubbou, M., & Maaroufi, M. (2024). Ileal intussusception secondary to lipoma in an adult patient: A rare cause for intestinal obstruction: A case report. *Radiology Case Reports*, 19(8), 3552-3554. <https://doi.org/doi:10.1016/j.radcr.2024.05.019>.
- Fan, J.-X., Jiang, Y.-P., & Yao, M.-Q. (2026). Adult ileocolic intussusception caused by a terminal ileal lipoma: A case report. *World Journal of Radiology*, 18(4), 120706. <https://doi.org/https://doi.org/10.4329/wjr.v18.i4.120706>
- Fiordaliso, M., Lovaglio, U. M., De Marco, F. A., Costantini, R., Nasti, G. A., & Chiesa, P. L. (2024). Colonic lipoma, a rare cause of intestinal intussusception: A narrative review and how to diagnose it. *Medicine*, 103(39), e39579. <https://doi.org/https://doi.org/10.1097/MD.00000000000039579>
- Heersche, S., Hirt, J., Butti, F., Hübner, M., Hahnloser, D., Joliat, G. R., & Grass, F. (2025). Intestinal intussusception in adults: a systematic review. *World Journal of Surgery*, 49(10), 2706-2716. <https://doi.org/https://doi.org/10.1002/wjs.70055>
- Hong, K. D., Kim, J., Ji, W., & Wexner, S. (2019). Adult intussusception: a systematic review and meta-analysis. *Techniques in coloproctology*, 23(4), 315-324. <https://doi.org/https://doi.org/10.1007/s10151-019-01980-5>
- Jiang, M.-Y., Luo, X.-Y., Luo, X.-Q., Jin, A.-f., & Luo, Z.-H. (2025). Intestinal Lipoma Acting as a Lead Point of Intussusception: A Case Series. *Current Medical Imaging*, 21(1),

E15734056337435.

<https://doi.org/https://doi.org/10.2174/0115734056337435250206100026>

T. Chand, J., R, R., & Ganesh, M. (2024). Adult intussusception: a systematic review of current literature. *Langenbeck's Archives of Surgery*, 409(1), 235. <https://doi.org/https://doi.org/10.1007/s00423-024-03429-2>

Touati, M., Boughanmi, F., Hassine, H. B., Zenati, H., Limayem, L., & Noomen, F. (2025). Jejunal lipoma presenting as small bowel intussusception in an adult: diagnostic and surgical challenges—a case report. *Journal of Surgical Case Reports*, 2025(9), rjaf551. <https://doi.org/https://doi.org/10.1093/jscr/rjaf551>

Valeriani, M., De Martino, C., Capuano, M., Fernicola, A., Cerfolio, F., Aprea, G., & Palomba, G. (2025). Adult Small Intestinal Intussusception Due to Bleeding Lipoma: A Rare Case Report (with Video). *Reports*, 8(4), 221. <https://doi.org/https://doi.org/10.3390/reports8040221>