



# Intussusception Secondary to Metastatic Bladder Leiomyosarcoma: a Case Report and Review of the Literature

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## ABSTRACT

Intussusception, where one intestinal segment telescopes into another, is rare in adults, representing 5% of all intussusception cases and 1% of bowel obstructions. This case details a 57-year-old man with primary bladder leiomyosarcoma metastatic to the liver, presenting with severe abdominal pain, nausea, and vomiting. A computed tomography scan suggested intussusception and bowel obstruction. An emergent laparotomy revealed small intestine intussusception. The affected segment was resected, and histopathology confirmed metastatic leiomyosarcoma. The patient recovered uneventfully and was discharged. This case highlights the importance of prompt diagnosis and treatment in adults with bowel obstruction and a cancer history.

**Keywords:** Bladder, neoplasm, intestinal obstruction, intussusception, surgery

## Introduction

Intussusception, the telescoping of a segment of the intestine into an adjacent segment, is a common cause of intestinal obstruction in children but is relatively rare in adults, accounting for 5% of all intussusception cases and 1% of adult bowel obstructions.<sup>1</sup> Adult intussusception often has a different etiology, clinical presentation, and treatment approach compared with pediatric cases.<sup>2,3</sup> Intussusception in adults is a rare but serious condition, often associated with a pathological lead point, such as a tumor.<sup>4</sup> The occurrence of intussusception in the context of metastatic bladder cancer is exceptionally rare. This case report aims to detail the presentation, diagnosis, and management of a 57-year-old man in this unusual clinical scenario.

In contrast to pediatric cases, where intussusception is typically considered idiopathic, adult intussusception frequently has an identifiable pathological lead point. Among adult patients, neoplasms, both benign and malignant, represent the most common cause, accounting for approximately 30-50% of cases.

Other etiologies include inflammatory lesions, postoperative adhesions, and idiopathic factors, while the clinical presentation of intussusception in adults is often non-specific and chronic, leading to delayed diagnosis.<sup>5</sup>

The most common symptoms are intermittent abdominal pain, nausea, vomiting, and, occasionally, gastrointestinal bleeding. The non-specific nature of these symptoms often results in a diagnostic process that may be complicated by several other gastrointestinal conditions that present with similar symptomatology.<sup>6</sup>

Imaging studies play a critical role in the diagnosis of intussusception in adults. Computed tomography (CT) scanning is the most sensitive and specific modality, often demonstrating the characteristic “target” or “sausage” mass.<sup>7</sup> Ultrasonography and magnetic resonance imaging may also be useful, particularly in cases where CT is contraindicated. Surgical intervention is the primary treatment for intussusception in adults because of the high likelihood that there is an underlying pathologic focus.<sup>1</sup>



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The affected segment of the intestine is typically resected to treat both the obstruction and the possible malignancy. Unlike pediatric cases, non-operative reduction of adult intussusception is rarely attempted due to the risk of perforation and the frequent presence of a pathologic stricture. The prognosis of adult intussusception depends largely on the underlying cause. Benign etiologies have a favorable prognosis following surgical intervention. Malignant etiologies require further oncologic management and have a variable prognosis depending on the stage and type of cancer. To improve outcomes, early diagnosis and intervention are essential.

## Case Report

### Clinical Findings

The patient was a 57-year-old man who had received chemotherapy and radiotherapy for advanced bladder cancer (primary leiomyosarcoma of the bladder with metastasis to the liver). No history of previous abdominal surgery existed. The patient presented to the emergency department with severe abdominal pain, nausea, and vomiting, which had persisted for 24 hours. Physical examination revealed a distended abdomen with generalized tenderness and signs of peritonitis. The patient exhibited cachexia, and multiple metastatic lesions were palpable beneath the skin. These findings collectively suggested that the obstruction may be due to a malignant obstructive mass.

### Diagnostic Assessment

**Laboratory Tests:** Laboratory tests indicated the presence of anemia, chronic renal failure, and elevated acute phase reactants.

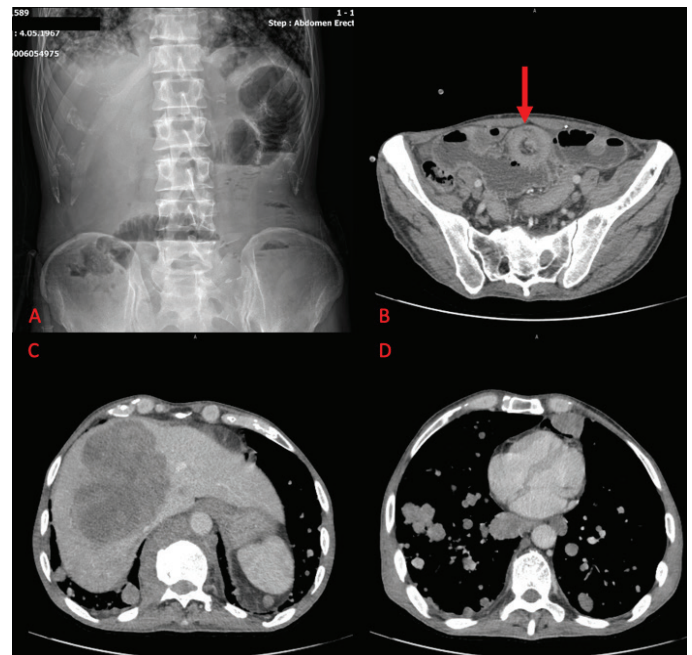
**Imaging:** An abdominal CT scan without intravenous contrast revealed a target-like mass suggestive of intussusception, accompanied by evidence of bowel obstruction (Figure 1). The presence of extensive metastases in the liver and lung was indicative of advanced disease.

### Surgery

An emergent exploratory laparotomy was performed, revealing an intussusception involving the small intestine (Figure 2). The intussuscepted segment was resected, and a primary anastomosis was performed. Intraoperative findings confirmed a mural mass at the lead point of the intussusception, which was sent for histopathological examination. The remaining bowel segments were grossly normal. The intussuscepted segment was successfully manually reduced, as demonstrated in the accompanying video (Video 1).

### Follow-Up and Outcomes

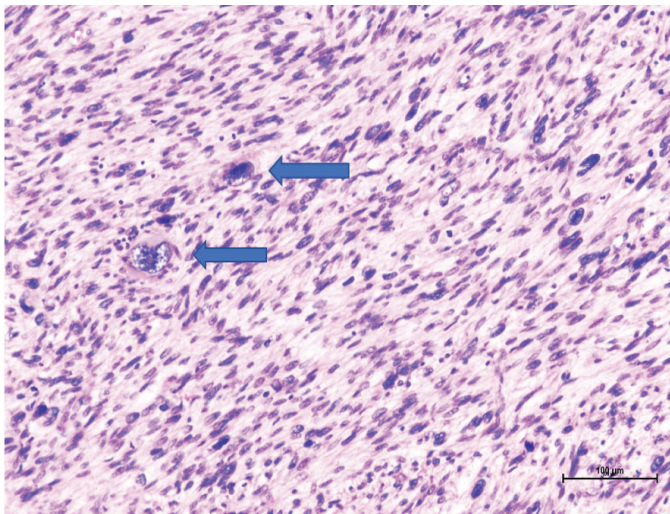
Postoperative recovery was uneventful. Histopathology confirmed the presence of metastatic leiomyosarcoma at the lead point of the intussusception. The patient was discharged



**Figure 1.** The air-fluid levels are observed at the level of the small intestine (A). The “target” finding on the CT scan is indicated by the arrow (B). The presence of liver metastases is evident (C). Widespread lung metastases are also observed (D)  
CT: Computed tomography



**Figure 2.** The condition of intussusception was observed in the small bowel segments. The image of a mass located within the lumen just distal to the area of interest is shown by an arrow



**Figure 3.** The spindle cells display moderate atypia, exhibiting eosinophilic cytoplasm and blunt edges. Additionally, the sample contains atypical cells with bizarre nuclei and prominent eosinophilic nucleoli (blue arrow) (H-E X200)

on postoperative day 7 and referred back to oncology for further management of metastatic disease. A pathological examination of multiple lesions in the small intestine, including the tumor causing the intussusception, revealed findings compatible with leiomyosarcoma (Figure 3).

## Discussion

Intussusception in adults is rare and often presents with nonspecific symptoms, leading to delays in diagnosis.<sup>8</sup> The underlying causes are usually pathological, with malignant tumors being the most common in adults. In this case, the intussusception was secondary to metastatic bladder cancer, a highly unusual cause.

The diagnosis was facilitated by imaging, which remains the cornerstone in identifying intussusception in adults. The treatment of choice is surgical intervention, both for relief of obstruction and for addressing the underlying pathology.<sup>9</sup> Intussusception, though rare, should be considered as a potential diagnosis, and prompt surgical management can lead to favorable outcomes.<sup>10</sup>

Laparoscopy represents an effective option for the management of intussusception, particularly in cases where the obstruction is partial and the bowel is not significantly distended.<sup>11</sup> In instances where minimal or no bowel distension is observed, the likelihood of injury during laparoscopic manipulation is diminished, thereby rendering it a more secure approach.<sup>12</sup> In scenarios where there are no indications of bowel strangulation or ischemia, laparoscopy can be regarded as a less invasive alternative to open surgery, contingent upon the patient's hemodynamic stability.<sup>13</sup> Nevertheless, in cases of severe sepsis or extensive peritonitis, open surgery is frequently

the preferred option for its expedited and more regulated intervention.

This case study serves to illustrate the exceptional rarity of intussusception as a secondary phenomenon in the context of metastatic bladder leiomyosarcoma. Leiomyosarcoma, a malignant neoplasm of smooth muscle tissue, accounts for only 0.1% of all adult malignancies and rarely metastasizes to the gastrointestinal tract.<sup>14</sup> The natural history of leiomyosarcoma is typified by aggressive local invasion and a proclivity for hematogenous dissemination, most commonly to the liver and lungs, as opposed to lymphatic dissemination. The atypical presentation of metastatic leiomyosarcoma causing intussusception highlights the importance of maintaining high clinical vigilance and utilizing comprehensive diagnostic imaging in patients with a history of malignancy who present with acute abdominal symptoms.

Furthermore, this case presents the possibility of a syndrome involving multiple primary leiomyosarcomas at disparate anatomical sites. The presence of primary leiomyosarcoma in both the bladder and the small intestine indicates the possibility of a systemic predisposition to the development of smooth muscle tumors. Although leiomyosarcomas are rare and typically singular, the occurrence of multiple primaries may indicate an underlying genetic or molecular syndrome predisposing to widespread smooth muscle neoplasia. This case serves to illustrate the complex interplay between rare malignancies and atypical clinical presentations, thereby reinforcing the importance of considering a broad differential diagnosis in similar clinical scenarios.

## Acknowledgement

This case report has been structured according to the CARE guidelines, ensuring comprehensive and standardized reporting.

## Ethics

**Informed Consent:** Written informed consent was obtained from the patient for the publication of this case report, including any accompanying images or data. The patient was informed that their identity would remain confidential and that no personal details would be disclosed.

## Footnotes

### Authorship Contributions

Surgical and Medical Practices: M.S.S., İ.O.K., Concept: İ.O.K., Design: M.S.S., İ.O.K., Data Collection or Processing: M.S.S., E.P.E., Analysis or Interpretation: M.S.S., İ.O.K., E.P.E., Literature Search: M.S.S., Writing: M.S.S., İ.O.K., E.P.E.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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**Video 1.** The intussuscepted segment was successfully manually reduced, as demonstrated in the accompanying video (<https://youtube.com/shorts/s9Su4n8KX0k>)