

Case Report

Lipoma-induced jejunojejunal intussusception: a novel “bow-tie sign”

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ABSTRACT

Intussusception, a condition predominantly observed in infants and young children, is one of the leading causes of acute abdominal emergencies, second only to appendicitis. In contrast, adult intussusception is rare, accounting for less than 5% of all cases and 1% to 5% of bowel obstructions. While pediatric intussusception is often idiopathic, over 90% of adult cases have an identifiable organic cause, including malignancy. Among benign causes, small bowel lipomas are a rare but significant lead point for intussusception. We report a case of jejunojejunal intussusception in an adult patient caused by a small bowel lipoma, which presents with a novel intraoperative finding we describe as the “bow-tie sign.” This case emphasizes the importance of imaging and appropriate surgical management.

Keywords: Intussusception, Lipoma, Small bowel, Jejunal tumor, Bow-tie sign, Gastrointestinal lipoma

INTRODUCTION

Intussusception, first described by Barbette in 1674, is typically associated with children, where it is a leading cause of acute abdominal emergencies. In contrast, intussusception in adults is rare, constituting less than 5% of cases and 1% to 5% of bowel obstructions. While pediatric intussusception is primarily idiopathic, adult intussusception is generally secondary to organic causes, including neoplasms.¹ Gastrointestinal lipomas, though rare, have been reported as lead points for intussusception, particularly in the small bowel, where they account for a small proportion of gastrointestinal tumors.^{2,3} This case highlights an unusual presentation of jejunojejunal intussusception caused by a lipoma, with an intraoperative observation termed the “bow-tie sign”.

CASE REPORT

A 40-year-old male presented to our surgical department with complaints of progressive abdominal pain, nausea,

and intermittent vomiting over the past few days. His symptoms were consistent with mechanical bowel obstruction, though the exact cause remained unclear. The patient had no significant medical history, and physical examination revealed mild abdominal tenderness without a palpable mass.

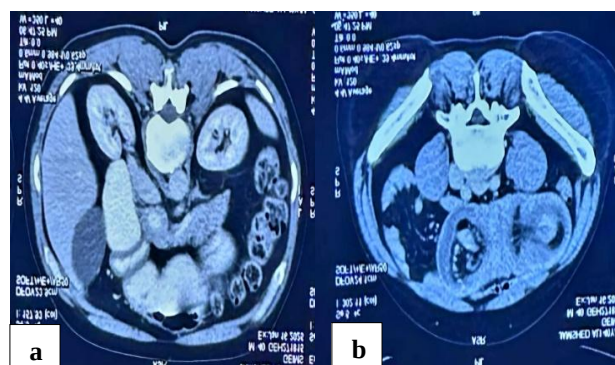


Figure 1 (a and b): CECT abdomen.

Initial imaging studies, including abdominal X-ray and ultrasound, showed signs of small bowel obstruction. A contrast-enhanced computed tomography (CT) scan of the abdomen was performed, revealing a well-circumscribed fat-density mass within the lumen of the jejunum, consistent with a submucosal lipoma. The CT scan also demonstrated the characteristic "target-like" appearance of intussusception, confirming jejunojejunal intussusception secondary to the lipoma.⁴

The patient underwent laparoscopic surgery. Intraoperatively, a segment of jejunum was found invaginated into the adjacent bowel, producing a unique "bow-tie" appearance — a novel finding we term the "bow-tie sign." The affected bowel segment, measuring approximately 6 cm, showed no signs of ischemia. A segmental resection of approximately 12 cm of the jejunum, including the lipoma, was performed, followed by primary end-to-end anastomosis. No intraoperative or immediate postoperative complications were noted.

Histopathological examination confirmed a benign submucosal lipoma with no evidence of dysplasia or malignancy.

The postoperative recovery was uneventful. The patient resumed oral intake on postoperative day 2 and was discharged on day 5. At 3-month follow-up, he remained asymptomatic, and a follow-up ultrasound showed no signs of recurrence.

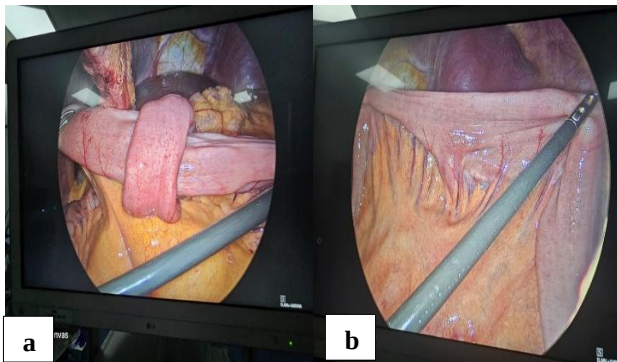


Figure 2 (a and b): Bow-tie sign on laparoscopic view.

DISCUSSION

Intussusception in adults is an uncommon clinical entity and often presents with vague symptoms such as intermittent abdominal pain, nausea, vomiting, and signs of bowel obstruction.⁵ Unlike pediatric cases, adult intussusception has an underlying pathological cause in approximately 90% of cases, often related to neoplasms — both benign and malignant.⁶

Small bowel lipomas are a rare but notable cause of adult intussusception, accounting for about 2.6% of benign gastrointestinal tumors.⁷ These lipomas are submucosal, slow-growing, and asymptomatic unless they reach a size

sufficient to cause obstruction or act as a lead point. Lipomas larger than 4 cm are more likely to become symptomatic and cause intussusception.^{3,8}

Imaging plays a pivotal role in preoperative diagnosis. CT is particularly valuable for detecting the presence of a fat-density lesion and the classic "target" or "sausage" sign of intussusception.⁹ In our case, the CT scan accurately identified the lesion and intussusception, allowing timely surgical intervention.

The intraoperative "bow-tie sign," characterized by the folded configuration of the intussuscepted bowel, has not been previously described to the best of our knowledge. We propose it as a novel laparoscopic finding that may help identify jejunojejunal intussusception intraoperatively.

Surgical management remains the mainstay of treatment in adults, as the risk of malignancy is significant.¹⁰ Although reduction of the intussusception may be attempted in benign conditions, segmental resection with anastomosis is generally favored to eliminate the lead point and prevent recurrence.

CONCLUSION

Adult intussusception remains a rare clinical diagnosis, often associated with a pathologic lead point such as lipoma. Radiologic modalities like CT are essential for accurate preoperative identification. The laparoscopic "bow-tie sign" is a novel intraoperative indicator of jejunojejunal intussusception. Early recognition and definitive surgical management are crucial for favorable outcomes.

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