

Case Report

In an Elderly Patient with Colorectal Intussusception Secondary to Sigmoid Colon Adenocarcinoma, Preoperative Serial Colonoscopic Biopsies Repeatedly Revealed Benign Histopathology: A Case Report

Chi-Han Yang¹

Hsiang-Lin Tsai^{1,2}

I-Chieh Lee¹

Jaw-Yuan Wang^{1,2,3,4,5}

¹Division of Colorectal Surgery, Department of Surgery, Kaohsiung Medical University Hospital, Kaohsiung Medical University,

²Department of Surgery, Faculty of Medicine, College of Medicine, Kaohsiung Medical University,

³Graduate Institute of Clinical Medicine, College of Medicine, Kaohsiung Medical University,

⁴Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University,

⁵Center for Cancer Research, Kaohsiung Medical University, Kaohsiung, Taiwan

Key Words

Intussusception;
Colon adenocarcinoma;
Colonoscopy biopsy;
Surgical resection;
Case report

Intussusception describes the condition whereby a segment of bowel invaginates into an adjacent segment. The underlying etiology, clinical presentation and management differ greatly in the adult population when compared to children. Intussusception in adults is comparatively infrequent in contrast, and in adult colonic intussusception, malignancy is the predominant cause of the leading point. We present the case of a 79-year-old man experiencing difficult defecation and tenesmus who exhibited significant abdominal distension with tenderness in the lower abdominal abdomen. On the rectal examination a large palpable mass was detected 7-8 cm from the anal verge, with abdominal computerized tomography revealing a 11 cm locally advanced rectosigmoid colon mass associated with colorectal intussusception where advanced rectosigmoid cancer was highly suspected (cT3N2bM0, stage IIIC). A temporary transverse colostomy was created to relieve severe abdominal distension. It is worth noting that the pathology of biopsy consistently indicated tubulovillous adenoma with high-grade or low-grade dysplasia, rendering preoperative confirmation of malignancy challenging after four attempts at tissue biopsy via colonoscopy. After discussions with the patient and his family, we performed surgery. The final surgical pathology report confirmed the diagnosis of sigmoid colon adenocarcinoma (pT2N0M0, stage I).

This case is notable for the discrepancy between the clinical and radiological presentation of an advanced tumor and the inability to confirm malignancy through multiple colonoscopy biopsies, ultimately revealing a relatively early-stage cancer in the post-en-bloc resection pathology report.

[J Soc Colon Rectal Surgeon (Taiwan) 2025;36:217-222]

Intussusception is a surgical emergency, mostly affecting infants and young children. Its incidence in adults is rare, accounting for 5% of all intussusception

events¹ and is usually caused by a leading point, either benign or neoplastic by origin.² The most common anatomical sites of intussusception in adults is ileocolic

Received: August 17, 2024.

Accepted: December 20, 2024.

Correspondence to: Prof. Hsiang-Lin Tsai, Division of Colorectal Surgery, Department of Surgery, Kaohsiung Medical University Hospital, Kaohsiung Medical University, No. 100, Tzyou 1st Road, Kaohsiung 80708, Taiwan. Tel: 886-7-312-2805; Fax: 886-7-311-4679; E-mail: chunpin870132@yahoo.com.tw, chunpin870132@gmail.com

followed by the ascending colon.³ In the pediatric population, intussusception presents with a triad of symptoms: abdominal pain, emesis and currant jelly hematochezia,⁴ whereas in adults, it is usually nonspecific and presents with colicky abdominal pain that lasts for months or longer.⁵ As the disease progresses, symptoms of intestinal obstruction such as abdominal distension, nausea and vomiting may occur.⁶ In severe cases, intestinal necrosis might occur, which can cause fever, loss of consciousness, and even death. Herein, we report a rare case of a 79-year-old male with colorectal intussusception induced by sigmoid colon adenocarcinoma where all colonoscopy biopsies were benign histopathology prior to surgical resection.

Case Report

This is a case of a 79-year-old male with a medical history including ischemic stroke, hypertension and dyslipidemia. A long-standing history of difficult defecation with tenesmus was further noted, occasionally accompanied by watery stool with mild blood-tinging two to three months previously, and for the above, he was scheduled for further survey in the gastroenterology department.

Colonofiberoscopy was arranged and identified a rectosigmoid tumor lesion (5 cm from anal verge) with colorectal intussusception and lumen stenosis (Fig. 1). First-time biopsy was performed, and subsequent pathological report indicated villo-tubular adenoma with focal high-grade dysplasia at least. Subsequently, apelvic computerized tomography (CT) scan was also arranged, which diagnosed rectosigmoid colon cancer (diameter was 11.0 cm) with colon-rectal intussusception and regional metastatic lymph nodes classified as clinical stage T3N2bM0, stage IIIC (Fig. 2A and 2B). Owing to the tumor's significant size and the resulting intussusception, there was concern about the potential for total colon obstruction, so a diverted loop transverse colostomy was performed.

Given the inconclusive results from the initial biopsy regarding malignancy, additional colonoscopies and biopsies were scheduled to establish a definitive diagnosis prior to curative surgery. Over the span of a

month, the patient underwent three further colonoscopies with biopsies. The histopathological findings were tubulovillous adenoma with moderate dysplasia, tubulovillous adenoma with high-grade dysplasia, and tubulovillous adenoma with low-grade dysplasia. Despite these investigations, a diagnosis of malignancy could not be confirmed. For advanced recto-sigmoid colon cancer, neoadjuvant CCRT (concurrent chemoradiotherapy) was first considered to treat this patient if the general condition was stable and without toxic sign. Nevertheless, as malignancy could not be confirmed by colonoscopy, laparotomy was suggested

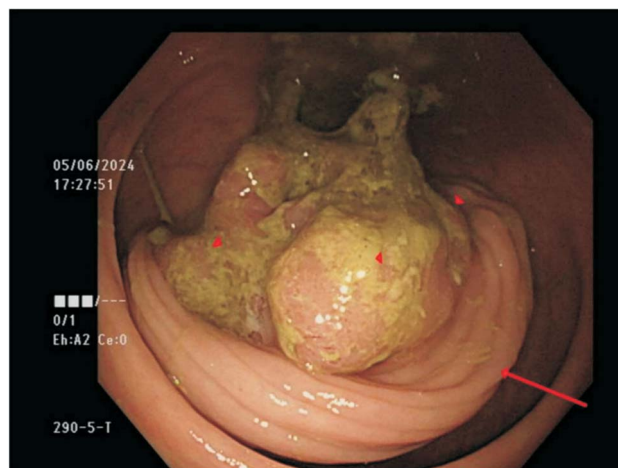


Fig. 1. The colonoscopy examination of a rectosigmoid tumor lesion (5 cm from anal verge) (red arrowhead) with colorectal intussusception (red arrow) and lumen stenosis.



Fig. 2. (A & B) Abdominal CT (axial view & coronal view) images showing colon-rectal intussusception with rectosigmoid tumor (diameter was 11.0 cm) (red arrow), clinical stage as T3N2bM0, stage IIIC; a three-layer structure comprising the intestinal wall, mesentery, and invaginated intestine.

after discussions with the patient and his family.

Intraoperatively, a redundant sigmoid colon and colorectal intussusception were found (Fig. 3A). Due to manual reduction of colorectal intussusception being impossible and the possibility of primary resection remaining high, we performed anterior resection with radical lymph node dissection and colorectal anastomosis with CDH 29 (Circular Staplers 29 mm) (Fig. 3B). The resected specimen was as Fig. 4A and a huge polypoid mass (diameter, 10 cm) as Fig. 4B. Finally, the pathologic report was pT2N0M0, stage I.

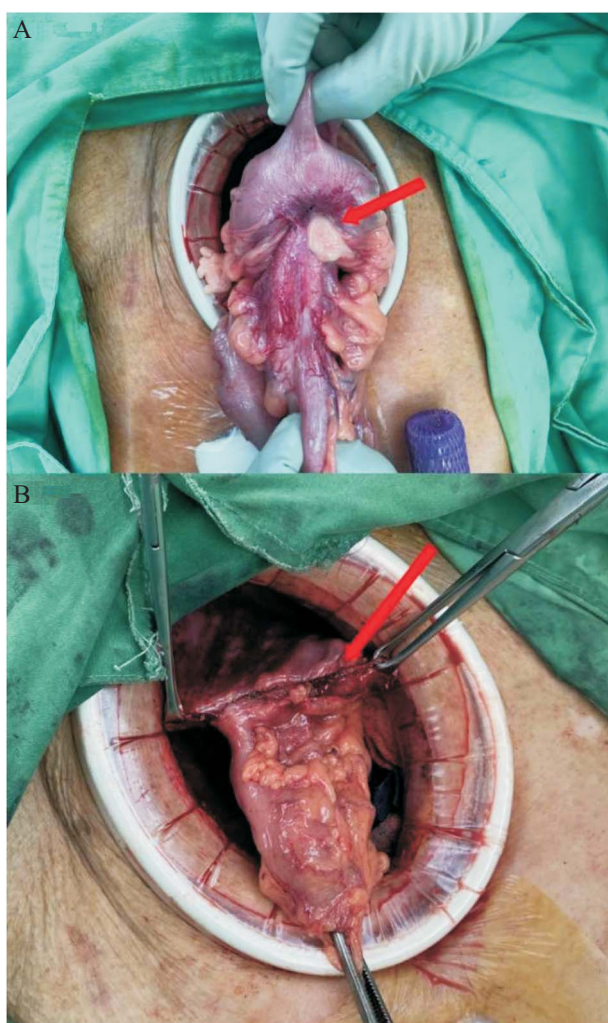


Fig. 3. (A) Intra-operative image of a redundant sigmoid colon and colorectal intussusception induced by a sigmoid colon tumor (red arrow). (B) Intra-operative image of anterior resection with radical lymph nodes dissection was performed first followed by colorectal anastomosis with CDH 29 (Circular Staplers 29 mm) (red arrow).

After surgery, his general condition soon recovered and regular follow-up in our outpatient department (OPD) remains positive till now.

Discussion

Preoperative CT scans of this case revealed a relatively locally advanced rectosigmoid colon mass, with suspected regional lymph node invasion (11.0 cm, clinically staged as cT3N2bM0, Stage IIIC), although despite four colonoscopy biopsies being performed, the diagnosis of malignancy prior to the operation could not be confirmed. Given that adult colonic in-

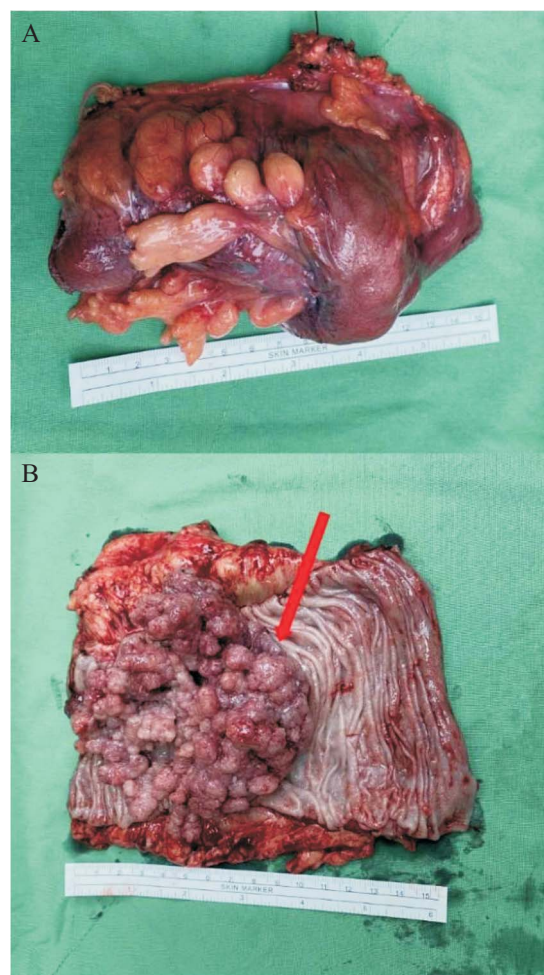


Fig. 4. (A & B) Gross surgical specimen showing a huge polypoid mass (diameter, 10 cm) in sigmoid colon (red arrow); final pathology report: adenocarcinoma, pT2N0M0, stage I.

tussusception is frequently caused by malignant tumors and imaging findings indicated a relatively locally advanced tumor,⁷ we recommended resection of the intussuscepted bowel segment and tumor to the patient and his family despite the inability to confirm the malignancy diagnosis preoperatively. Unexpectedly, the postoperative pathology report revealed a relatively early-stage malignancy without regional lymph node invasion (pT2N0M0).

We reviewed the literature and found that diagnosing intussusception in adults is challenging. Unlike pediatric intussusception, which often presents with acute symptoms (rectal bleeding and palpable abdominal mass), adult intussusception typically manifests with subacute or chronic symptoms such as abdominal pain, weight loss, nausea, vomiting and chronic bowel obstruction.^{6,8,9} Regarding diagnostic tools, abdominal X-rays are ineffective for diagnosing intussusception, while abdominal ultrasound demonstrates a diagnostic accuracy of approximately 50%. Preoperative diagnosis is most accurately confirmed through computed tomography (CT) and colonoscopy,⁶ where CT examination typically demonstrates a three-layered structure comprising the intestinal wall, mesentery and invaginated intestine that occasionally identifies a tumor serving as the lead point;⁶ moreover, in certain cases, colonoscopy can be used both for diagnosis and for attempting intussusception reduction. Nevertheless, there is a lack of extensive research or case reports discussing the effectiveness of colonoscopy in diagnosing malignancy through biopsy in such patients with tumor-induced intussusception.

A colo-colonic intussusception of descending colon, demonstrated by Randa et al., due to a tubulovillous adenoma with high-grade dysplasia has been reported,³ and in this case, as with our own, the increased bowel diameter resulting from colonic intussusception led to a more advanced interpretation of tumor staging on preoperative clinical imaging compared to the final postoperative pathological findings. Further studies and additional case reports are necessary to validate this hypothesis, although in 2024, Vouchly et al. reported a very rare colorectal intussusception caused by a giant lipoma of sigmoid co-

lon.¹⁰ We originally considered a benign, huge tumor still undiagnosed after four sessions of colonoscopy biopsies was the culprit, but the final pathologic report indicated a malignant lesion.

Malignant lesions are more frequently observed in colonic intussusception compared to enteric intussusception, with adenocarcinoma being the most common malignancy. Surgical resection should be performed without reduction due to the high incidence of malignancy associated with intussusception.¹¹ Reduction poses risks of intraluminal seeding and venous dissemination of tumor cells, intestinal perforation during manipulation with potential spread of malignant cells into the peritoneal cavity, and an increased risk of anastomotic complications in an edematous and inflamed bowel.¹¹⁻¹³

Conclusion

Intussusception in adults is rare and often associated with malignancy, unlike the primarily benign cases seen in children. We present a case of a 79-year-old male with colorectal intussusception resulting from sigmoid colon adenocarcinoma, initially undiagnosed despite multiple biopsies. Preoperative imaging suggested advanced staging (cT3N2bM0, Stage IIIC) leading to surgical resection, which ultimately revealed early-stage malignancy (pT2N0M0, Stage I). Diagnosing intussusception in adults is challenging due to nonspecific symptoms and the need for advanced imaging techniques like CT. In this case of colorectal intussusception, imaging-based cancer staging did not fully correspond to the postoperative pathology. This emphasizes the difficulty of accurate preoperative assessment in treatment planning and the importance of clear communication with the patient about these uncertainties.

Ethical Approval

The study was approved by the Institutional Review Board of Kaohsiung Medical University Hospital (KMUHIRB-E(I)-20200036).

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms where the patient has given his consent for the images and other clinical information to be reported in the journal while understanding that his name and initials will not be published and all due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Data Availability Statement

Data sharing is not applicable to this article because no data sets were generated or analyzed during the current study.

Financial Support and Sponsorship

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of Interest Statement

The authors declare that they have no conflict of interest with regard to the content of this article.

References

1. Azar T, Berger DL. Adult intussusception. *Ann Surg* 1997; 226(2):134-8. doi:10.1097/00000658-199708000-00003
2. Marsicovetere P, Ivatury SJ, White B, Holubar SD. Intestinal intussusception: etiology, diagnosis, and treatment. *Clin Colon Rectal Surg* 2017;30(1):30-9. doi:10.1055/s-0036-1593429
3. Taher R, Kopelman Y, Younis A, Sheffer D. A rare case of adult colocolonic intussusception of the descending colon. *BMJ Case Rep* 2019;12(11):e231590. doi:10.1136/bcr-2019-231590
4. Mandeville K, Chien M, Willyerd FA, Mandell G, Hostetler MA, Bulloch B. Intussusception: clinical presentations and imaging characteristics. *Pediatr Emerg Care* 2012;28(9): 842-4. doi:10.1097/PEC.0b013e318267a75e
5. Balogun OS, Olajide TO, Afolayan M, Lawal A, Osinowo AO, Adesanya AA. An appraisal of the presentation and management of adult intussusception at a Nigerian tertiary hospital. *Niger Postgrad Med J* 2019;26(3):169. doi:10.4103/npmj.npmj_47_19
6. Honjo H, Mike M, Kusanagi H, Kano N. Adult intussusception: a retrospective review. *World J Surg* 2015;39(1): 134-8. doi:10.1007/s00268-014-2759-9
7. Vemuru SR, Friel CM, Hoang SC. Adenocarcinoma as the lead point leading to colo-colic intussusception. *J Gastro-intest Surg Off J Soc Surg Aliment Tract* 2018;22(12):2177-8. doi:10.1007/s11605-018-3723-z
8. Desai N, Wayne MG, Taub PJ, Levitt MA, Spiegel R, Kim U. Intussusception in adults. *Mt Sinai J Med* 1999;66(5-6): 336-40.
9. Alfaifi J, Germain A. Adenocarcinoma-induced sigmoid colon intussusception and postoperative parastomal evisceration in an elderly patient: a case report and literature review. *Cureus*. Published online February 6, 2024. doi:10.7759/cureus.53715
10. Heng V, Oh S, Leng H, Chhun V, Lee YD. Adult colorectal intussusception caused by giant lipoma—a case report. *Clin Case Rep* 2024;12(4):e8682. doi:10.1002/ccr3.8682
11. Tarchouli M, Ait Ali A. Adult intussusception: an uncommon condition and challenging management. *Visc Med* 2021; 37(2):120-7. doi:10.1159/000507380
12. El-Sergany A, Darwish A, Mehta P, Mahmoud A. Community teaching hospital surgical experience with adult intussusception: study of nine cases and literature review. *Int J Surg Case Rep* 2015;12:26-30. doi:10.1016/j.ijscr.2015.03.032
13. Yamada H, Morita T, Fujita M, Miyasaka Y, Senmaru N, Oshikiri T. Adult intussusception due to enteric neoplasms. *Dig Dis Sci* 2007;52(3):764-6. doi:10.1007/s10620-006-9161-x

病例報告

一位高齡患者因乙狀結腸腺癌致結腸直腸套疊，術前多次結腸鏡切片檢查均顯示良性腫瘤病理：病例報告

楊麒翰¹ 蔡祥麟^{1,2} 李奕杰¹ 王照元^{1,2,3,4,5}

¹高雄醫學大學附設中和紀念醫院 大腸直腸外科，高雄醫學大學 外科部

²高雄醫學大學 醫學院 醫學系 外科學科

³高雄醫學大學 醫學院 臨床醫學研究所

⁴高雄醫學大學 醫學院 醫學研究所

⁵高雄醫學大學癌症研究中心 (台灣高雄)

腸套疊是指一段腸道套入鄰近腸段內的情況。在成人和兒童中，腸套疊的病因、臨床表現和處理方法有很大的差異。與兒童相比，成人腸套疊較為罕見，而在成人結腸腸套疊中，惡性腫瘤是最常見的原因。我們報告了一例 79 歲男性患者，主訴排便困難及裡急後重。患者表現出顯著的腹脹，並在下腹部觸診時有壓痛。直腸指診發現距離肛門 7-8 公分處有一顆大腫塊。腹部電腦斷層掃描顯示，患者直腸乙狀結腸交接處有 11 公分的腫瘤，與結直腸腸套疊有關，高度懷疑為局部進行性直腸乙狀結腸癌 (cT3N2bM0，III 期 C)。為了緩解嚴重的腹脹，進行了暫時性橫結腸造口術。值得注意的是，手術前結腸鏡病理切片的結果一致顯示為管狀絨毛狀腺瘤伴高度或低度不典型增生，這使得術前確診惡性腫瘤在四次結腸鏡切片後仍充滿困難。經與患者及其家屬討論後，我們進行了手術。最終的手術病理報告為乙狀結腸腺癌 (pT2N0M0，I 期)。

本病例因局部進行性腫瘤的臨床和影像學表現間的差異而值得注意，而多次結腸鏡切片未能確診惡性腫瘤，最終在術後根治性切除的病理報告中顯示為相對早期的癌症。

關鍵詞 腸套疊、結腸腺癌、結腸鏡檢切片、手術切除、病例報告。