Adult Colo-Colonic Intussusception in the Setting of Invasive Mucinous Adenocarcinoma: A Case Report

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Patient: Male, 39-year-old
Final Diagnosis: Colon adenocarcinoma
Symptoms: Abdomen distension • hematochezia • nausea • vomiting
Medication: —
Clinical Procedure: —
Specialty: Surgery

Objective: Unusual clinical course
Background: Colonic intussusception is a very rare disease in adults, and if present, is usually manifested by another pathology, such as malignancy. This report describes the diagnosis and treatment of the underlying cause of intussusception, which was spontaneously reduced.

Case Report: A 39-year-old woman with no significant past medical history presented to St. Joseph’s University Medical Center on July 2022 with gradually worsening abdominal pains for 1 year and hematochezia for 3 months. Physical examination was positive for left lower quadrant abdominal tenderness to palpation. A computed tomography scan of the abdomen and pelvis without contrast showed a long segment of intussusception involving the sigmoid colon and rectum, without any noticeable lesions. A repeat computed tomography scan with rectal contrast showed a 2.1×1.1-cm mesenteric mass in the sigmoid colon at the region of the intussusception. The patient was taken for a laparoscopic sigmoid resection with primary anastomosis, showing a 5-cm mass in the sigmoid colon, and surgical pathology confirming neoplastic etiology of intussusception. The patient recovered well after surgery, and was referred for oncological intervention soon afterward.

Conclusions: This report displays the importance of the type of imaging modalities with and without contrast to diagnosis and determine underlying causes of intussusception and further guide treatment options.

Keywords: Colectomy • Colonic Neoplasms • Intussusception • Sigmoid Neoplasms

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Background

Colonic intussusception is a very rare occurrence in adults and comprises 5% of all intussusception cases, with the remainder being in children; the overall incidence in adults is 1 to 3 cases per million per year [1,2]. Intussusception in adults is most commonly due to benign or malignant lesions, polyps, and strictures, which are mostly diagnosed in the intraoperative setting, with malignancy being the most common of the aforementioned conditions [3,4]. The mechanism behind intussusception is defined as a region of the proximal bowel telescoping within the distal portion of bowel, and rarely, the distal segment of bowel telescoping into the proximal segment [5]. The definitive management of intussusception in adults involves treatment of the underlying cause of intussusception with surgical resection of the bowel involved [6]. In this case report, we present a 39-year-old woman with a year-long history of abdominal pain, with associated hematochezia, and nausea. Colonic intussusception at the region of the sigmoid colon was diagnosed, with a confirmed underlying etiology of adenocarcinoma.

Case Report

A 39-year-old woman with no significant past medical history presented to the Emergency Department for evaluation of acute worsening of her intermittent left lower quadrant abdominal pain. She stated the abdominal pain had been present for the past year, and in the last 10 days had been progressively worsening. The abdominal pain was associated with fatigue, loose bloody stools with mucus, and nausea. She denied any family history of colon cancer, Crohn disease, or inflammatory bowel disease. The physical examination findings were significant for left lower quadrant and suprapubic tenderness. The patient had a complete blood count, which showed anemia, and a basic metabolic panel and carcinoembryonic antigen (CEA) test, which were unremarkable. Owing to unavailability of contrast, a computed tomography (CT) scan of the abdomen and pelvis without contrast (Figures 1, 2) was performed, which showed a long segment of intussusception at the level of the sigmoid colon, with a characteristic target sign near the rectosigmoid junction. The surgical team was consulted. A repeat CT scan of the abdomen and pelvis with intravenous, oral, and rectal contrast (Figure 3) showed findings concerning for a 2.1×1.1-cm intra-luminal mass.
as well as mass-like thickening of the wall of the sigmoid colon, thought to possibly be the lead point of the intussuscep-
tion. Imaging also revealed a completely reduced intussuscep-
tion, likely due to the rectal contrast administered. After her CT 
scan, the patient reported resolution of her abdominal pain. 
She was afebrile, hemodynamically stable, and in no acute distress. 
The patient was shortly discharged after careful observation, 
with plan for an outpatient colonoscopy and elective colectomy. 

Unfortunately, before the patient could complete her follow up 
 colonoscopy, she returned to the Emergency Department for 
 recurring abdominal pain and bowel obstruction, similar to her 
 initial presentation and likely due to recurrent intussusception. 
The physical examination was remarkable for diffuse lower ab-
 dominal tenderness. An abdominal X-ray series showed gaseous 
stension of the colon up to the site of the known sigmoid int-
tussusception, concerning for partial obstruction or recurrent 
 intussusception. Given the nature of her pain, previous imag-
ing, concerns for malignancy, and large bowel obstruction, 
the patient was admitted for surgical intervention. She was sched-
 uled for a laparoscopic sigmoidectomy. A preoperative colonos-
copy was not performed due to inadequate bowel preparation. 

During the surgery, the sigmoid colon was noted to be very 
 redundant, with long mesentery, and the intussusception had 
 reduced spontaneously. A large, firm 5-cm tumor was noted in 
 the proximal-mid sigmoid colon. The tumor extended through 
 the serosal surface, without evidence of perforation or inva-
sion of adjacent structures. No mesenteric mass was visual-
 ized. The uterus, ovaries, and adnexa appeared normal, and 
 no metastasis were noted upon visualization of the peritone-
um and liver. Upon mobilization of the sigmoid colon and up-
 per rectum from the lateral abdominal wall, there was signifi-
cant mesenteric thickening and fibrosis, suggestive of chronic 
 intussusception (Figure 4). A formal oncologic resection of 
the sigmoid colon was done with proximal lymphadenectomy and 
preservation of the left colic artery. The proximal transection 
point was at the level of the descending colon and sigmoid 
 junction, with 8 cm of gross negative margin, and the distal 
 transection point was at the border of the upper rectum. An 
end-to-end anastomosis was made with the descending colon 
 and upper rectum. Surgical pathology of the resected sigmoid 
 colon showed invasive mucinous adenocarcinoma with focal 
 abundant signet-ring cells, with 5 of 21 lymph nodes positive 
 for abundant mucin and occasional metastatic cells. One of 
 the lymph nodes showed focal predominance of metastatic 
 ring cells. The proximal inferior mesenteric artery lymph nodes 
taken at the root of the inferior mesenteric artery were neg-
 ative for malignancy. Tumor, node, metastasis (TNM) staging 
 was shown to be T3,N2a,M0, LVI+. Immunohistochemistry was 
 indefinite for loss of PMH-2 expression, and no loss of nucle-
ar expression of MLH-1, MSH-2, and MSH-6. 

Her postoperative course was uncomplicated, and she made 
a good recovery and was discharged on postoperative day 2. 
She underwent oncological evaluation shortly after for further 
staging and adjuvant chemotherapy discussion. 

Discussion 

Intussusception can be classified into primary or secondary 
 intussusception. Primary intussusception occurs without an
underlying lead point and mostly occurs within the small bowel [7]. Secondary intussusception is caused by intrinsic masses or inflammatory conditions [8] and most commonly occurs within the small bowel. Although rare when compared with small bowel intussusception, colonic intussusception is mostly caused by malignant lesions [7]. Clinically, symptoms of intussusception are nonspecific, and the mainstay of diagnosis for colonic intussusception is through CT imaging. CT remains the best imaging modality for recognition of the lead point and localization of any underlying masses [9]. Treatment of adult intussusception itself has some controversy on whether to reduce the intussusception prior to resection; however, this carries a risk of seeding malignant cells to nearby structures, if malignancy is suspected. However, in the case of an idiopathic large bowel intussusception in an adult, there has been literature stating treatment with laparoscopic reduction is feasible, with an uneventful postoperative course [10]. If the location of the intussusception is within the small bowel, there is an advantage to reduction, as it could prevent extensive resection of small bowel leading to short bowel syndrome [11]. However, definitive treatment for adult intussusception is primary surgical resection. Right-sided intussusception typically requires resection and primary anastomosis. With left-sided intussusception to the rectosigmoid junction, the decision to do a resection with primary anastomosis, diversion, or end colostomy depends on the intraoperative clinical status and degree of obstruction [12]. Regardless, if the suspicion for malignancy is high, an oncological resection should always be performed.

This case highlights a unique presentation of colonic intussusception. The initial symptoms began as mild abdominal pain for a year, which acutely worsened, accompanied by 3 months of hematochezia. After initial CT scans confirmed colonic intussusception, a repeat CT with intravenous, oral, and rectal contrast showed a completely reduced intussusception with likely sigmoid mass. Due to symptoms consistent with large bowel obstruction, likely at the region of the intussusception, the patient was taken for operative intervention. Intraoperatively, there was no intussusception appreciated at the localized region the CT imaging demonstrated, giving this case its unique presentation of contrast-mediated reduced intussusception, followed by large bowel obstruction, due to underlying malignancy. Cases with left-sided, or rectosigmoid intussusception, can be treated with resection and colostomy, with Hartmann’s pouch, and anastomosis at a later time [12], but the present case was successfully treated with resection and primary anastomosis. Another unique factor in this case was the presentation of high-grade malignancy in a young patient with no risk factors for the development of colon cancer, no underlying family history, and negative tumor markers. However, this emphasizes that, based on clinical presentation, degree of obstruction, and imaging, the diagnosis of colon carcinoma should always be suspected regardless of risk factors.

Determining when to intervene with operative intervention and which surgical approach to consider should be guided by the case presentation, medical expertise, and current guidelines.

Conclusions

Intussusception in the adult population is a rarity, and prompt management should be conducted immediately to determine the underlying etiology of the intussusception. Colon carcinoma should always be suspected regardless of the patient’s lack of risk factors. Appropriate surgical management can be uniquely tailored to the patient, followed by adjuvant care in the setting of malignancy.

Department and Institution Where Work Was Performed

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Declaration of Figures’ Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.

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