

Adenocarcinoma of the Sigmoid Colon as a Lead Point for Colocolic Intussusception

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Background	Intussusception is defined as the telescoping of a proximal segment of the gastrointestinal tract within the lumen of a more distal segment. It is a rare entity in adults, with only 5 to 10 percent of cases reported in adults. ^{3,4,7} Adult cases differ in etiology, presentation, and management from that of pediatric cases. In adult cases, abdominal pain, nausea, and emesis are the most common presenting symptoms. Subacute and chronic cases may only have vague symptoms mimicking partial bowel obstruction. CT scan is the most sensitive and accurate means of diagnosing intussusception with findings described as a target or sausage-shaped soft tissue mass with visible mesenteric vasculature leading to the lesion. While some adult cases of intussusception are benign in nature, most commonly they are secondary to a pathologic lesion, and often diagnosed intraoperatively. Intussusception itself has a good prognosis; however, the overall prognostic factor is the etiology and pathology of the lesion causing it.
Summary	A 59-year-old African American male presented to the emergency room with acute left lower quadrant abdominal pain, constipation for three weeks, and intermittent jelly mucoid bloody stools. His laboratory values and vitals were within normal limits. An abdominal X ray was obtained, which was significant for a large stool burden in the colon. CT scan demonstrated colocolic intussusception with a lead point of polypoid soft tissue measuring 3.5 x 2 x 3 cm in size, concerning for malignancy. Surgical consultation was obtained and patient underwent an urgent exploratory laparotomy. An intussusception of sigmoid colon into more distal sigmoid colon near the rectosigmoid junction was encountered, which self-reduced during mobilization. The sigmoid colon was resected and a temporary ostomy was placed. Final pathology revealed multiple adenomatous polyps, with two showing well-differentiated invasive adenocarcinoma with negative margins and no positive nodes, thus the patient had adequate resection of the diseased segment.
Conclusion	Intussusception is a rare entity in the adult population, most commonly due to a pathologic lesion. Suspicion should be high for malignancy when an intussusception is found, and thus an oncologic resection should be performed.
Keywords	Intussusception; Colon adenocarcinoma; colocolic intussusception

DISCLOSURE:

The authors have no conflicts of interest to disclose.

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Case Description

Intussusception is defined as the telescoping of a proximal segment of the gastrointestinal tract within the lumen of a more distal segment.^{3,4,7} It is a rare process in an adult, which differs in etiology, presentation and management from that of children. Most cases of adult intussusception are secondary to a pathologic lesion, and are often diagnosed intraoperatively.^{3,4,7} Although there is controversy about the exact management of intussusception, most surgeons would agree that all adult cases be treated with surgical intervention.^{6,9} We present a case of an adult intussusception secondary to adenocarcinoma, diagnosed on CT scan and managed surgically with resection of the involved bowel.

A 59-year-old African American male who had not seen a physician in many years, presented to the Emergency Room with acute left lower quadrant abdominal pain. He complained of constipation for three weeks prior to presentation, with associated vague abdominal pain, and intermittent jelly mucoid bloody stools. On the day of presentation, the patient had a large bloody bowel movement with acute onset abdominal pain. Upon presentation, his laboratory values and vitals were all within normal limits. An abdominal X ray was obtained, which showed a large amount of feces in the colon (Figure 1).



Figure 1. Abdominal X ray obtained on day of presentation demonstrating large stool burden.

To further evaluate the patient's abdominal pain, a CT scan was obtained, which showed a colocolic intussusception with a lead point of polypoid soft tissue measuring approximately 3.5 x 2 x 3 cm in size, concerning for malignancy but without evidence of bowel obstruction (Figure 2). Surgical consultation was obtained, and the patient underwent urgent operative intervention.



Figure 2. CT scan obtained on day of presentation demonstrating colocolic intussusception.

On the day of presentation, the patient was taken to the operating room where he underwent an exploratory laparotomy. Upon mobilization of the sigmoid colon, an intussusception of the sigmoid colon into the distal part of the sigmoid colon near the rectosigmoid junction was encountered (Figure 3).



Figure 3. Intraoperative view of colocolic intussusception.

This intussusception self-reduced during mobilization of the colon. The sigmoid colon was resected and sent to pathology (Figure 4).



Figure 4. Sigmoid colon sent to pathology with grossly visible polyps.

Due to the urgent nature of the operation, and lack of bowel prep, the patient was given a temporary end colostomy. The pathology specimen resulted showing multiple adenomatous polyps, two of which showed well-differentiated invasive adenocarcinoma with negative margins and with 0/18 nodes positive (stage I pT1N0), thus this operation adequately removed the involved, diseased segment of bowel. Three months postoperatively, the patient underwent a complete colonoscopy, where multiple colonic polyps were observed, removed, and found to be benign tubular adenomas. The patient ultimately underwent an elective end colostomy reversal, where the resected bowel was found to be benign.

Discussion

Adult intussusception is a rare entity, where only 5 to 10 percent of all intussusceptions occur in adults.¹⁻⁵ They account for one to three percent of bowel obstructions, 0.003 percent of all hospital admissions, and 0.077 percent of all abdominal operations.²⁻⁸ The etiology, presentation and management of adult intussusceptions differ vastly from that of children. Whereas an intussusception in a child is usually idiopathic, with no structural lead point, up to 90 percent of cases in adults are secondary to an identifiable etiology.^{1-6,8} The apex of the intussusception, or the lead point, carries the lesion that triggers the process. This has been demonstrated as malignant in 50 to 60 percent of cases,^{4-6,8-9} but has been cited as high as 80 percent in some literature.⁷ Benign causes of intussusception include inflammatory bowel disease, post-operative adhesions, Meckel's Diverticulum, and hamartomatous polyps, with lipomas being the most common. Iatrogenic causes have also been described, wherein the presence of an intestinal tube or feeding tube acts as a lead point for the intussusception.^{1,5} In addition to classification based on benign or malignant nature, intussusceptions are classified based on their location within the gastrointestinal tract. They have been described as enteroenteric, ileocolic, ileocecal, and colocolic, with enteroenteric and ileocecal being the most common.^{3,5,8}

The classic presentation of abdominal pain, palpable mass, and rectal bleeding that is commonly seen in pediatric cases is typically absent in adults. Adult intussusception presentation varies greatly, which often leads to a delay in diagnosis, where the majority of cases are discovered intraoperatively when a patient is taken to the operating room for a bowel obstruction.^{1,4,6,8,9} In acute cases, the presenting complaint is often abdominal pain, nausea and emesis; yet the majority of symptoms described are nonspecific subacute, chronic, or intermittent and consistent with a partial bowel obstruction.^{2,4,5,9} The mean duration of onset of symptoms to presentation was described as 37.4 days in one study, where the duration was longer with benign and enteric lesions in comparison to malignant and colonic ones.⁸ The more frequent use of imaging for nonspecific and vague abdominal symptoms has allowed for a more reliable preoperative diagnosis of intussusception. Although there are many imaging modalities available to assess for abdominal pathology, CT scan has been proven

to be the most sensitive and the most accurate.^{3,5,6,8} While ultrasonography has also been described as accurate, operator limitations as well as patient body habitus and presence of bowel gas can limit its usefulness at times.⁶ Intussusception on CT scan has been described as a target or sausage-shaped soft tissue mass with a layer effect, often with visible mesenteric vasculature leading to the lesion, whereas, for ultrasonography a target or donut sign is described in the transverse view, and a pseudokidney in longitudinal view have been described.^{4,6,9}

While the pediatric variant responds well to reduction via the pneumatic, barium, or saline-hydro method, there is almost universal agreement that adult cases should be managed surgically. There is, however, controversy as to whether the intussusception should be reduced at time of surgery.⁵⁻⁸ In cases where the intussusception is post-traumatic, idiopathic with no pathological cause identifiable, or secondary to post-operative bowel adhesions, there is consensus that intraoperative reduction without resection is sufficient.^{4,8} Colonic lesions should not be reduced and should be resected via formal oncological principles due to the high likelihood that they represent a primary adenocarcinoma. Small bowel lesions, on the other hand, should be reduced in patients whom a benign diagnosis is made pre-operatively or in patients whom complete resection may result in short gut syndrome.^{2-7,9} Consistent with standards for other colonic lesions, there is agreement that it is acceptable to primarily anastomose right colonic intussusceptions, whereas a Hartmann procedure should be performed for left-sided intussusceptions.^{4,5} Reduction poses a theoretic risk of intraluminal seeding and venous tumor dissemination, perforation and seeding of microorganisms or tumor cells into the peritoneal cavity, and risk of anastomotic complications of manipulated friable and edematous tissue, and as such should only be performed if absolutely necessary.^{4,6} Although laparotomy is the first line treatment for adult intussusceptions, there have been reports of laparoscopy in the surgical management. However, there is no consensus on the safety or efficacy of the treatment of intussusception, and it is likely based on surgeon preference.^{1,5}

Conclusion

Adult intussusception is a rare process, often secondary to a pathological lesion in the gastrointestinal tract. Due to the vague subacute or intermittent nature of most presenting symptoms, one must have a high index of suspicion and low threshold for abdominal imaging. Most cases are diagnosed intraoperatively, however we present a case that

was diagnosed on CT scan and managed surgically. Intussusception itself has a good prognosis; however, the overall prognostic factor is the etiology and the nature of the lesion that caused the intussusception.

Lessons Learned

Adult intussusception is often diagnosed intraoperatively, given the vague and nonspecific nature of its symptoms. Adult intussusception should be included in the differential diagnosis of patients with acute or chronic abdominal pain, and CT scan can make the diagnosis and guide surgical intervention. Except for in specific scenarios, adult intussusceptions should be resected and reduction should not be attempted. Our case of adult intussusception resulted in spontaneous reduction upon manipulation of the bowel. However, due to the high likelihood of malignancy in adult intussusceptions, a formal oncologic resection is advised and was therefore attempted in this case.

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