

Adult Intussusception, a Rare Cause of Intestinal Obstruction, Case Report and Literature Review

Y Al Suhaibani, A Mohamed, N Bhat, M Abukhater

Citation

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Abstract

Intussusception is an uncommon surgical presentation in the adult population, with only two to three cases per million per annum. Colo-colic intussusception is the most common type of intussusceptions in adults. Large-bowel intussusception is more likely to have a malignant etiology (in about 50–60% of cases). The preoperative diagnosis of intussusceptions is infrequent in the adult population due to the varying presentations. We report a case of adult intussusception diagnosed preoperatively by CT scan and MRI examination.

INTRODUCTION

Adult intussusception is a relatively rare condition. It accounts for 1% of patients with bowel obstruction and 5–10% of all intussusceptions. We report a case of adult intussusception caused by a tumor (adenocarcinoma) of the sigmoid colon, presenting with subacute intestinal obstruction and successfully treated by colonic resection.

CASE PRESENTATION

A 54-year-old male who is a known case of poliomyelitis with multiple flexion deformities of both lower limbs presented to the colorectal unit at KFMC, Riyadh, with a 2-year history of recurrent abdominal pain, alteration of bowel habits, rectal bleeding and recent history of loss of weight. He had no associated co-morbidity. On examination, he was weak and frail. Vital signs were normal and abdominal examination was unremarkable. On rectal examination, there was a mass felt about 5cm from the anal verge. Laboratory investigations revealed hemoglobin of 10.4g% and WBCC of 11.2×10^9 per L; liver function test and urea and electrolytes were within normal values. Sigmoidoscopic examination confirmed a mass about 7cm from the anal verge which was almost occluding the bowel lumen. Due to the narrowed lumen we failed to pass the sigmoidoscope above the mass. Multiple biopsies were taken for histopathology. Colonoscopy failed to negotiate the bowel

lumen. The plain x-ray of the abdomen showed gaseous distention of the bowel loops without significant dilatation (figure 1).

Figure 1

Figure 1: Plain x-ray of the abdomen showing gaseous distention of the bowel without significant dilatation or air-fluid levels.



The abdominal CT scan showed a 7.5 x 3.5 x 4cm rectosigmoid mass with a short segment of intussusception. The rest of the abdominopelvic organs and the bowel loops

appeared unremarkable. There was no significant abdominal or pelvic lymphadenopathy, no hepatic metastasis and no free intraperitoneal air or fluid (figures 2, 3 and 4). Incidentally, there were multiple non-obstructing renal calculi in the right kidney (figure 5).

Figure 2

Figure 2: CT Coronal view showing a clear cut-off of bowel gas at the level of the rectosigmoid junction (observe the flexion deformity of the right hip secondary to poliomyelitis).

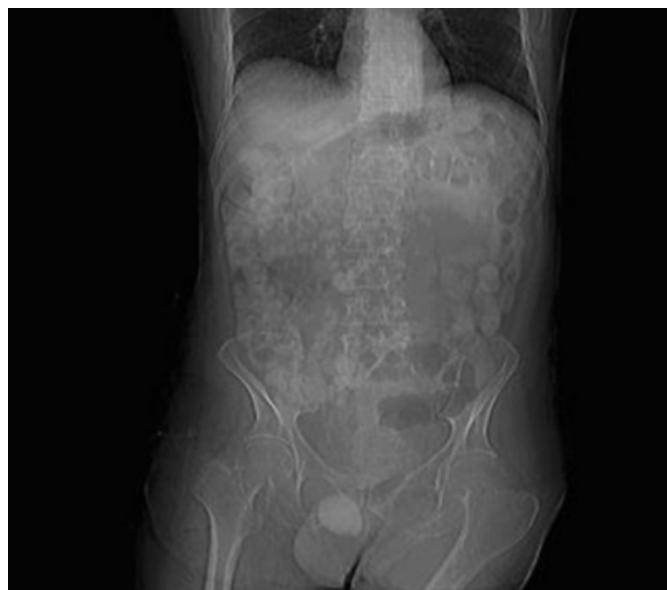


Figure 3

Figure 3: CT scan showing a 7.5 x 3.5 x 4cm rectosigmoid mass with a short segment of intussusception (arrow).

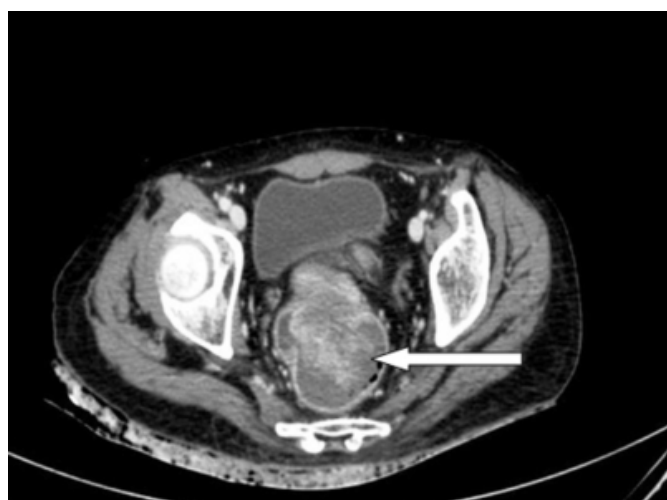


Figure 4

Figure 4: No liver metastasis on CT scan.

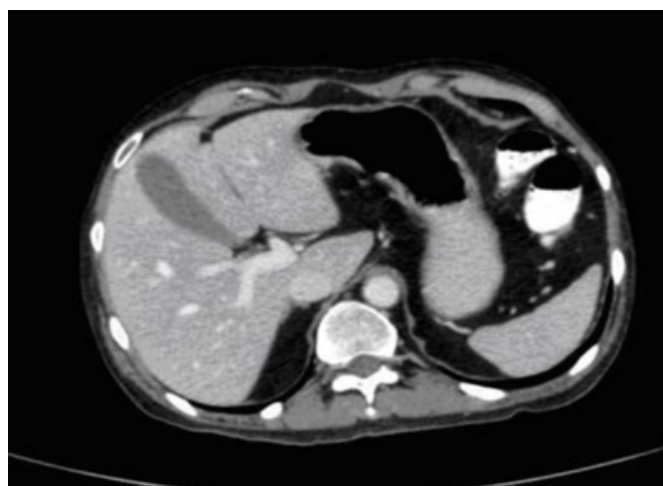


Figure 5

Figure 5: Multiple renal calculi in the right kidney (incidental findings).



The MRI showed a large pedunculated colonic polypoid mass measuring about 7.7 x 5.3cm) that was arising from the rectosigmoid area and protruding down to the mid rectum with a subsequent short segment of intussusception. Multiple small lymph nodes around the lesion that appeared to be less than 3mm in short axis were noted and less likely to raise any clinical concern. Increased signal intensity of the rectal wall around the intussusception was also noted and it was most probably representing edematous changes (figures 6 and 7).

Figure 6

Figure 6: MRI of the pelvis showing a large pedunculated colonic polypoid mass measuring about 7.7 x 5.3cm that is seen arising from the rectosigmoid area and protruding down to the mid rectum with a subsequent short segment of intussusception.

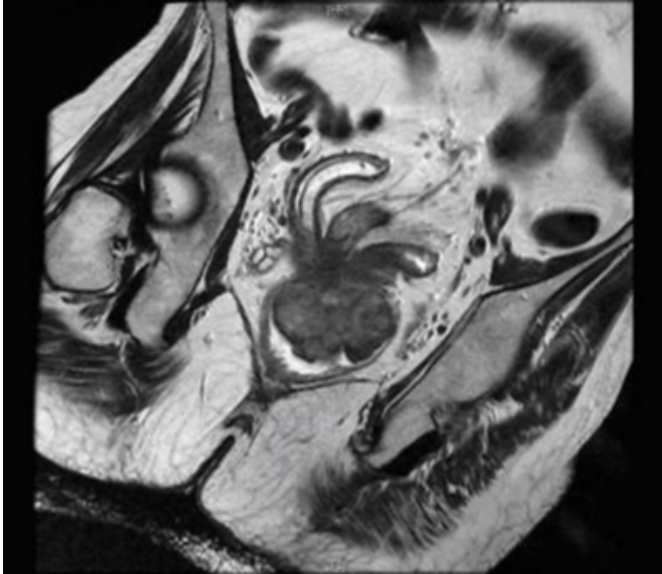
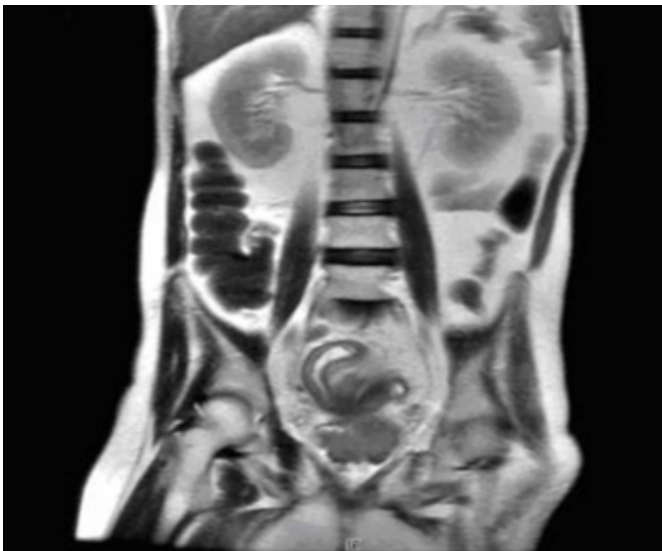


Figure 7

Figure 7: Coronal view of the MRI showing the same findings as in figure 6.



The patient had an elective anterior resection under general anaesthesia. No attempt was made to milk out the intussusception. En-bloc resection of the sigmoid colon was done with restoration of bowel continuity by end to end anastomosis (figures 8 and 9).

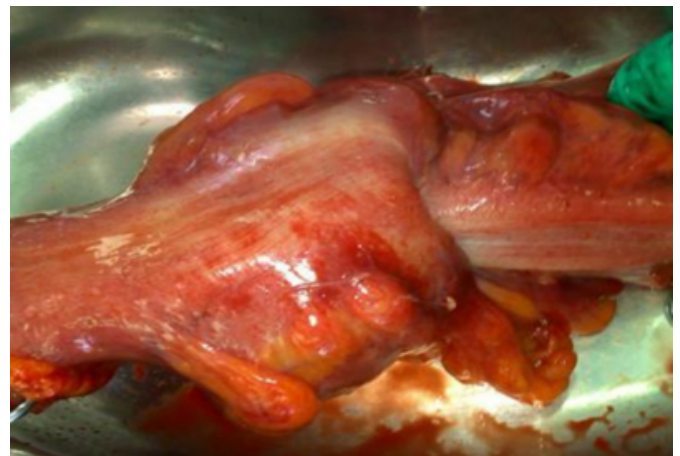
Figure 8

Figure 8: The intussusception before resection.



Figure 9

Figure 9: The intussusception after resection



DISCUSSION

Intussusception of the bowel is defined as the telescoping of a proximal segment of the gastrointestinal tract within the lumen of the adjacent segment (1). Intussusception was first reported in 1674 by Barbet of Amsterdam (2). In 1789, John Hunter gave a detailed report about intussusception, or intromusception as it was called then (3). Sir Jonathan Hutchinson was the first to successfully operate on a child with intussusception in 1871 (4, 5).

This condition is frequent in children and presents with the classic triad of cramping abdominal pain, bloody diarrhea and a palpable tender mass (6). Intussusception is a different entity in adults than it is in children. It differs from childhood intussusception in its presentation, etiology, and treatment.

Intussusception is an uncommon surgical presentation in the adult population, with only two to three cases per million per annum (7). Adult intussusception is rare representing 1% of all bowel obstructions (8) and 5% of all intussusceptions in the Western world (9, 10, and 11), but up to 40% of intussusceptions in tropical Africa (12).

Intussusceptions have been classified according to location. The most common classification system divides intussusceptions into four categories: enteric, ileocolic, ileocecal, and colonic (10, 13, and 14). In adults, 90% occur in the small or large bowel and the remaining 10% involve the stomach or a surgically created stoma (15).

Colo-colic intussusception is the most common type in adults (16). Common sites of occurrence are the junction between freely mobile segments of bowel and segments that are relatively fixed (17).

The large bowel intussusception is more likely to have a malignant etiology (50-60%) (18, 19), this reflects the greater prevalence of malignant tumours in the colon compared with the small bowel (20, 18). Primary malignant lesions (adenocarcinoma and lymphoma) are the most common underlying malignant lesions in the colon. Benign lesions constitute about 30% and include neoplasms such as lipoma, leiomyoma, adenomatous polyp, endometriosis (appendiceal) and previous anastomosis. Idiopathic intussusception occurs less often than in the small bowel (about 10%) (20).

Goh et al retrospectively reviewed 60 cases of adult intussusceptions to determine the predictive factors of malignancy. They found that the site of intussusception in the colon (rather than in small bowel) and the presence of anemia are independent preoperative predictors of malignancy (21).

Diagnosis of intussusception in adults is difficult secondary to the varying presentations. Preoperative diagnosis of intussusception is infrequent in the adult population (20). Diagnosis can be delayed because of its longstanding, intermittent, and non-specific symptoms and most cases are diagnosed at emergency laparotomy (22).

The clinical presentation may include a palpable mass, nausea and vomiting, abdominal colic, change in bowel habit and occult blood per rectum (23).

Most series report pain as the commonest symptom, being present in 71% to 90% of patients. The most important

characteristic of pain is its periodic, intermittent nature, which makes the diagnosis elusive and accounts for delaying the diagnosis (22, 24). An abdominal mass is noted in 24% to 42% of cases (22, 20).

Most often, the symptoms are consistent with bowel obstruction and are subacute or chronic (14) and preoperative diagnosis of intussusception is reported to be in a range of 40-80 % (25).

As clinical presentation is often non-specific, imaging plays a vital role in the preoperative diagnosis of intussusception. A number of different radiologic methods have been described as useful in the diagnosis of intussusception: CT scan, barium studies, abdominal ultrasound, plain film, angiography, and radionuclide studies (26-30)

Plain abdominal X-rays are of limited diagnostic value in diagnosis of adult intussusception. Barium enema shows the characteristic appearance of “a cup-shaped filling defect” or “a spiral or coil-spring appearance” (31).

Colonoscopy may rule out organic lesions and provide a biopsy route. The ultrasonic findings include the “target” and “doughnut” signs on the transverse view and the “pseudokidney sign” on the longitudinal view (32, 33, 34, and 14).

Intussusception can be confidently diagnosed on CT. With the widespread use of CT in the evaluation of non-specific abdominal pain, the diagnosis is nowadays most often made by the radiologist since the CT features of intussusception are virtually pathognomonic (35).

Intussusception appears on CT as a complex soft-tissue mass, consisting of the outer intussusciens and the central intussusceptum. There is often an eccentric area of fat density within the mass representing the intussuscepted mesenteric fat, and the mesenteric vessels are often visible within it. A rim of orally administered contrast medium is sometimes seen encircling the intussusceptum, representing coating of the opposing walls of the intussusceptum and the intussusciens. The intussusception will appear as a sausage-shaped mass when the CT beam is parallel to its longitudinal axis, but will appear as a “target” mass when the beam is perpendicular to the longitudinal axis of the intussusception (1).

Computed tomography is reported to be the most sensitive imaging modality for the diagnosis of intussusception. It confirms the diagnosis and may identify the underlying

cause (36, 37). CT is also useful in determining metastasis when malignancy is suspected. (1).

Although few reports have described magnetic resonance imaging (MRI) of adult intussusception, the general imaging characteristics of intussusception on MRI are similar to those on CT (38, 39, 40), but fast MR examination, unlike CT, is not technically limited by the presence of previously administered barium for small bowel series(41).

There is no universal agreement upon the correct treatment of adult intussusception (42), although surgical intervention is considered necessary (18, 20, and 42), the type of intervention depends on the patient's medical history and intraoperative findings (20). Most recent studies advocate en-bloc resection as up to 50% of both colonic and enteric intussusceptions cases are associated with malignancy (18, 24).

SUMMARY

Adult intussusception is a relatively rare condition. It accounts for 1% of patients with bowel obstruction and 5-10% of all intussusceptions. Diagnosis of intussusception in adults is difficult secondary to the varying presentations. Preoperative diagnosis depends on high index of clinical suspicion, confirmed with CT scan characteristic findings. With the widespread use of CT in the evaluation of non-specific abdominal pain, the diagnosis is nowadays most often made by CT scan as its features on CT scan are virtually pathognomonic. There is no universal agreement upon the correct treatment. Most recent studies advocate en-bloc resection as up to 50% of both colonic and enteric intussusception cases are associated with malignancy.

CORRESPONDENCE TO

Youssuf Abdullah Al Suhaibani

Consultant Colorectal surgeon,

Department of Surgical Specialty,
King Fahad Medical City. Email:

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Author Information

Youssuf Abdullah Al Suhaibani, MBBS

Consultant Colorectal Surgeon, Department of Surgical Specialty, King Fahad Medical City

Abbas AR Mohamed, MBBS, FRCSI, FICS

Consultant General and Laparoscopic Surgeon, Department of Surgical Specialty, King Fahad Medical City

Nadeem Ahmad Bhat, MBBS, MRCSed

Assistant Consultant General Surgery, Department of Surgical Specialty, King Fahad Medical City

Muhammad Abukhater, MBBS, FRCSI

Assistant Consultant General Surgery, Department of Surgical Specialty, King Fahad Medical City