Intussusception in Adults


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Introduction

Intussusception is invagination of a proximal segment of bowel (intussusceptum) into the lumen of the adjacent distal segment (intussuscipiens). While intussusception is relatively common in childhood, it is infrequently seen in adults (1). Intussusception in adults accounts for 0.1% of all adult hospital admissions and 5%-16% of all intussusceptions (2). In contrast to intussusception in childhood, which is idiopathic in 90% of cases, adult intussusception has a demonstrable cause in 90% of the cases (3).

Patients and Methods

The records of 18 patients over the age of 16 diagnosed with intussusception between January 1993 and December 2002 were reviewed with respect to the site of the intussusception and clinical, radiological and histopathological findings.

Results

In a 10-year period 365 patients were treated surgically because of intestinal obstruction. Sixteen of them (4.4%) had intussusception as the cause of the obstruction. Additionally, two patients with chronic symptoms had intussusception. Of the patients with intussusception, 8 were male with a mean age of 40.7 ± 9.7 years (range 16-67 years).

The major symptoms were abdominal pain (100%), nausea and vomiting (55.5%), haematochezia (50%), and palpable mass in the lower quadrants of the abdomen (11.1%). Two patients had chronic symptoms (2 months and 6 months), while the duration of symptoms in the other patients ranged between 1 and 11 days (mean 3.7 ± 1.4 days). One of the patients with chronic symptoms had a chronic abdominal pain; plain abdominal x-ray and ultrasonography were normal but endoscopy revealed a malignant ulcer in the stomach. A jejunojejunal intussusception 20 cm distal to the Treitz ligament was determined during the operation for gastric cancer. After curative resection of the stomach, intussusception was treated with desinvagination and segmentary resection of the jejunum. Histopathological examination revealed diffuse large cell lymphoma of the stomach and an adenomatous polyp of the jejunum.

The other patient with chronic symptoms was a 28-year old female who had undergone abdominal hysterectomy 3 years earlier because of uterine mass. During the last 6 months of follow up she had experienced recurrent mild abdominal pain without symptoms of intestinal obstruction. At that time a mass in the pelvis was determined and sigmoidoscopy revealed a colorectal intussusception. Laparotomy revealed jejunojejunal and sigmoidorectal intussusceptions. The causes of both intussusceptions were adenomatous polyps, which were both treated with segmentary resection of the jejunum and sigmoid colon.

Plain abdominal x-ray was first obtained in patients with acute symptoms, which revealed air-fluid levels suggesting an intestinal obstruction in 11 patients (68.7%). It was normal in the other five patients (31.3%). Abdominal ultrasound was performed in 10 patients, which showed a typical target sign in eight patients (80%) (Fig. 1). Computed tomography
was obtained in four patients which was diagnostic in three patients (75%) (Fig. 2).

Intussusception was diagnosed in 11 patients (68.75%) pre-operatively, while the diagnosis was intestinal obstruction in the other five patients (31.25%).

All patients underwent emergency laparotomy. The site of the intussusception and the causes are summarized in Table I. Five patients (31.2%) had an idiopathic intussusception (Fig. 3) while the others had an identifiable cause. Patients with idiopathic intussusception were treated with desinvagination and the others with segmentary resection. None of the patients had ischaemic bowel, but one patient with ileo-ileal intussusception due to an adenomatous polyp had inflamed bowel that did not allow manual reduction.

During the postoperative period, wound infection developed in two patients.

Discussion

Intussusception is a common cause of intestinal obstruction in childhood, but it is infrequent in adults (1, 3). Single institutional experience with adult intussusception is not more than one or two cases per year (1, 4-6). In the present study there were 18 patients in a period of 10 years. Although imaging techniques such as ultrasound and computed tomography could demonstrate intussusception, this condition is often diagnosed at laparotomy.
The symptoms of intussusception are nonspecific. In our series, 16 patients had acute onset, the most frequent symptom being abdominal pain (100%): all had obstructive symptoms. The other two patients had chronic symptoms and in one of them symptomatic intussusception led to the diagnosis of concomitant gastric lymphoma. At physical examination, abdominal masses have been reported in 24-42% of patients (4, 7) and in the present series physical examination revealed a palpable mass in only 11.1% of the patients.

Because of the nonspecific symptomatology of adult intussusception, diagnosis in the pre-operative period is difficult. In cases with obstructive symptoms a plain abdominal x-ray may show air-fluid levels that may provide information regarding the site of the obstruction. In the present series, plain abdominal x-ray was obtained in all patients with acute symptoms, which showed air-fluid levels in 68.7% of them, suggesting small bowel obstruction. Similarly, in a series reported by ERKAN et al. (8), plain abdominal x-ray did not show any specific signs in 5 of 13 patients.

Ultrasonography has been used to evaluate intussusception (9,10). The intussusception has a target appearance because of the thickened intussusceptum (11). LIM et al. reported that ultrasonography identified the presence, the site and the cause in 11 of 11 adult ileocolic intussusceptions (11). In the present series, ultrasonography was obtained in ten patients, which showed target signs in 8 (80%). The advantages of sonography include its speed, relative lack of expense and the avoidance of ionizing radiation. Disadvantages include operator variability, obscuration by overlying gas, and the difficulty of imaging patients with an obese body habitus (12). Colour Doppler may be helpful in determining the degree of vascular compromise of the involved segments (12), but we did not use this imaging technique.

In recent years, computed tomography has become the first imaging study performed, after plain abdominal x-rays, in the evaluation of patients with nonspecific abdominal complaints. The characteristics of intussusception on computed tomography are an early target mass with enveloped, excentically located areas of low density. Later a layering effect occurs as a result of longitudinal compression and venous congestion in the intussusceptum (13). Although identification of intussusception can be made confidently on CT, the underlying etiology can be difficult to determine (14). We obtained CT scan in four patients, which was diagnostic in three.

Although few reports have described the magnetic rezonans imaging findings of adult intussusception, the general imaging characteristics of intussusception on MRI are similar to those on CT (15, 16), but fast MR examination, unlike CT, is not technically limited by the presence of previously administered barium for small bowel series (17).

Flexible colonoscopy and sigmoidoscopy are also helpful in the diagnosis of intussusception, especially if the symptoms and plain x-ray indicate a large bowel obstruction. In our series a sigmoidorectal intussusception was diagnosed by flexible sigmoidoscopy.

In about 90% of adult intussusception there is a lead point. Peristalsis and ingested food push the lesion against the adjacent normal bowel. Intussusception commonly occurs at the junctions between freely moving segments and retroperitoneally or adhesitionally fixed segments (1). Intussusception in the small intestine is more common than in the colon (4,6). Although the idiopathic intussusception in the present series was as high as 50% in the first 8 cases (18), the percentage of idiopathic intussusception is still high and only 72.2% of patients had a lead point and 83.3% of the intussusceptions were located in the small intestine. The lead points in 11 patients were benign tumours and lymphoma in the other two. Although the leading point of intussusception in the colon is more likely to be malignant (4, 6), in the present series all tumours were benign.

The treatment of intussusception in adults is controversial. If intussusception is localized to the colon it may be reduced by hydrostatic pressure if the bowel is not completely obstructed, but many authors do not advise pre-operative hydrostatic reduction with barium or air in adult patients (19-21). Unlike in the pediatric population, intussusception in adults is nearly always treated surgically and there is a consensus that resection is necessary because of the possibility of a malignant tumour (1, 12, 20). Previous reports advocated reducing the intussusception prior to resection, but more recent reports have advocated selective reduction in cases such as postoperative adhesions if the bowel is viable (20, 22). If the bowel is inflamed or ischaemic or if there is a colonic intussusception, resection without reduction is advised in order to avoid perforation or tumour seeding (1, 12). In the present series, we used manual retrograde compression to reduce intussusception. Our strategy was not to reduce the intussusception if there was a bowel ischaemia or if the intussusception was colonic. To avoid unnecessary excision of healthy bowel, we performed desinvagination prior to resection in all cases of small intestinal intussusception, except one.

There is little experience with laparoscopic management of intussusception. Laparoscopy has been used for diagnosis and treatment of intussusception. There are several case reports about laparoscopic small bowel resection because of intussusception (23, 24). In one report by HAY et al., laparoscopy was used to determine the success of hydrostatic desinvagination (25). In the present series we did not use laparoscopy either for diagnosis or treatment.

Intussusception in adults is a rare entity and diagnosis may be challenging due to nonspecific symptoms.
Ultrasonography and CT are helpful diagnostic tools, but the characteristic target sign may prevent further studies such as barium enema. In contrast to intussusception in childhood, this condition usually has a definable lead point in adults and resection of the involved bowel, rather than simple reduction, is indicated.

References