

Jejunojejunal intussusception by a known jejunal adenocarcinoma

Marcel J.G. Andriessen, MD; Marc J.P.M. Govaert, MD; Jan Willem D. de Waard, PhD, MD

Intussusception is defined as the telescoping of one segment of the gastrointestinal tract (intussusceptum) into an intestinal segment distal to it (intussusciptens). Intestinal invagination or intussusception is the leading cause of intestinal obstruction in children, but in adults it accounts for only 5% of all intussusceptions, up to 5% of all cases of adult intestinal obstructions^{1,2} and 0.003%–0.02% of all adult hospital admissions.¹ In contrast to childhood intussusception, which is idiopathic in 90% of cases, adult intussusception has a demonstrable lead point, which is a well-definable pathologic abnormality in 70%–90% of cases.^{1–3}

We describe the case of a patient with a jejunojejunal intussusception caused by an adenocarcinoma of the jejunum.

Case report

An 85-year-old woman with anemia was admitted to the gastrointestinal department because of nausea and vomiting and progressively worsening abdominal pain. In the past, she had undergone hysterectomy, as well as cholecystectomy for gallstones, and she had hypertension.

On physical examination, the patient was pale. She had tenderness in the upper abdomen without peritoneal signs or a palpable mass. Initial laboratory tests gave the following results: hemoglobin 59 (normal 75–100) g/L, hematocrit 0.29 (normal 0.35–0.45), C-reactive protein 23 (normal < 7) mg/L, leukocyte count $13.7 \times 10^9/L$ (normal 4.0–10.0).

Computed tomography (CT) showed thickening of the small bowel wall, nar-

rowing and polypoid masses (Fig. 1). Jejunoscopy showed a semicircular growing tumour in the jejunum 20 cm distal to the ligament of Treitz. A biopsy specimen showed an adenocarcinoma.

At laparotomy, a jejunojejunal intussusception 15 cm long was seen just 10 cm distal to the ligament of Treitz (Fig. 2). The intussusception redressed spontaneously, and we resected the tumour with use of a side-to-side anastomosis. The leading point of the invagination was the known jejunal tumour. Histologic examination of the resected specimen showed a moderately differentiated adenocarcinoma with infiltration through all jejunal layers into the subserosa, with metastases to 2 of 8 lymph nodes (T3N1Mx).

The patient had a smooth recovery. At follow-up 6 weeks later, she was doing well.

Discussion

The cause of the intussusception in our case was most probably the jejunal tumour.

Malignant disease of the small intestine is rare. The frequency is 0.7–1.6 per 100 000 population. Although the small intestine represents 75% of the length and 90% of the surface area of the alimentary tract, small bowel malignant tumours account for only 2% of all gastrointestinal neoplasms and less than 0.4% of all cancers in the United States.⁴ Adult intussusception has a demonstrable lead point in 70%–90% of cases.^{1–3,5} Neoplasms cause most of the intussusceptions. In contrast to intussusceptions of the colon,

which are usually malignant, about 90% of intussusceptions of the small bowel are reportedly related to a benign tumour (lipoma, polyp, adenoma, gastrointestinal stromal tumour, hamartoma, leiomyoma, neurofibroma and Peutz-Jeghers syndrome) and less often (14%–47%) to a malignant one, most likely a metastatic lesion^{1–3} (malignant melanoma; malignant gastrointestinal stromal tumour; metastasis from various primary sites such as the lung, breast, cervix or kidney; osteosarcoma, lymphoma and primary lymphoma).³ Neoplasms as leading points of invagination appear to have some common characteristics: they are usually bulky, polypoid and relatively mobile; they have a submucosal or intraluminal pattern of growth; they usually develop at the mobile antimesenteric border; and when malignant, they are not accompanied by significant desmoplastic reaction.³

Among the less common etiologies

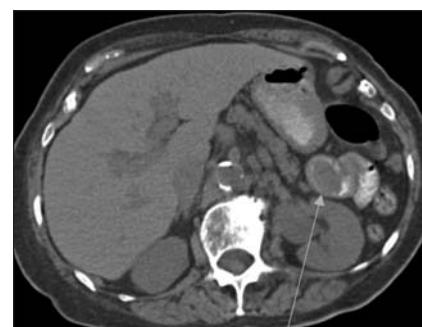


FIG. 1. A computed tomography scan showing a diseased small bowel with thickening of the bowel wall, narrowing and polypoid masses: intussusception (arrow).

From Westfriesgasthuis, Surgical Department, Hoorn, The Netherlands

Accepted for publication Jan. 16, 2008

Correspondence to: Dr. M.J.G. Andriessen, VU Medical Center, Surgical Department, PO Box 7057, 1007 MB Amsterdam, The Netherlands; marcel_andriessen@hotmail.com

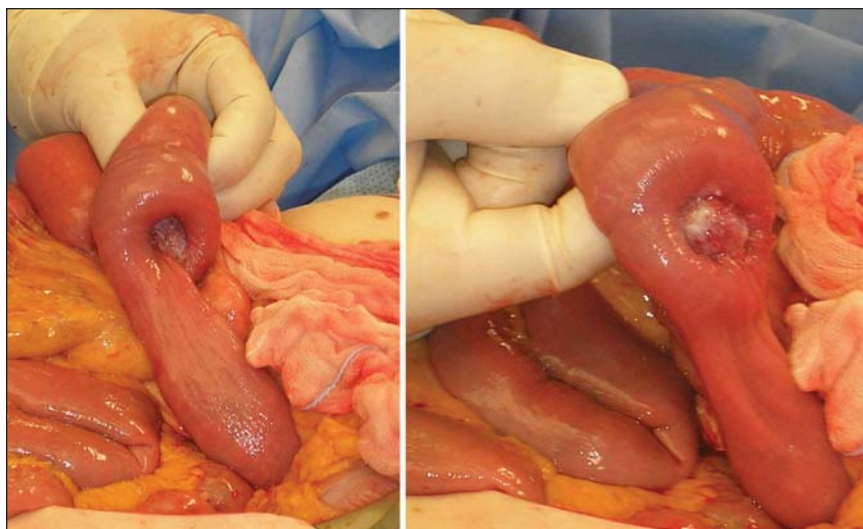


FIG. 2. Jejunojejunal intussusception caused by a jejunal tumour. Left: the intussusception is partially reduced. Right: the tumour with the totally redressed intussusception.

are postoperative factors (adhesions, suture line, intestinal tubes),⁵ inflammatory diseases (salmonellosis, Crohn's disease, tuberculosis, AIDS)^{2,5} and miscellaneous causes (Meckel's diverticulum, sprue, human immunodeficiency virus, duplication, intramural hematoma).⁵ In adults, about 10%–20% of intussusceptions are idiopathic.²

The classic clinical triad of conventional intussusception seen in children (sudden onset of intermittent colicky pain, bloody mucoid stools and a palpable mass) is not common in adulthood.² In adults, the clinical findings are variable: acute intestinal obstruction is not common, and most have a history of episodes of intermittent abdominal pain and vomiting for a least 1 month, sometimes with nausea, vomiting and abdominal distension.¹ Our patient had intestinal obstruction with progressive abdominal pain and nausea with vomiting, and she was suffering from anemia.

Several different radiologic methods have been described as useful in the diagnosis of intussusception, such as CT, ultrasonography and barium enema examination. Characteristic CT features of intussusception include an early target mass with enveloped, excentrically located areas of low density; later, a layering effect occurs as a result of longitudinal compression and venous congestion in the intussusception.^{1–3} However, because intussusception is uncommon in adults, in many cases doctors do not recognize the CT findings as an invagination. In our case, the invagination was only seen in retrospect. As well, the invagination was not recognized during colonoscopy, but in retrospect, it was seen as a “sausage” with normal intestinal mucosa.

Definitive treatment and management of intussusception should be individualized according to the age of the patient and the anatomical location of the intus-

susception. Because an adult intussusception has a demonstrable lead point, which is a well-definable pathologic abnormality in about 90% of cases, resection is almost always required. However, the extent of resection and whether or not the intussusception should be reduced before resection remain controversial.² Reduction can lead to transperitoneal seeding after the exposing and handling of friable and edematous malignant tissue. That is why reduction should not be attempted if there are signs of bowel ischemia or inflammation or if malignancy is suspected.¹

In our case, the intussusception redressed spontaneously and we performed an oncologic resection of the tumour.

Intussusception in adults is difficult to recognize because it is rare. Also, in our case, the invagination was missed on CT and during colonoscopy. In most cases an etiologic cause can be found, although most intussusceptions are seen on the operating table.^{1,2} When malignant disease is suspected, resection without reduction is the recommended treatment.

Competing interests: None declared.

References

1. Azar T, Berger DL. Adult intussusception. *Ann Surg* 1997;226:134-8.
2. Begos DG, Sandor A, Modlin IM. The diagnosis and management of adult intussusception. *Am J Surg* 1997;173:88-94.
3. Gourtsoyannis NC, Papakonstantinou O, Bays D, et al. Adult enteric intussusception: additional observations on enteroclysis. *Abdom Imaging* 1994;19:11-7.
4. Jemal A, Siegel R, Ward E, et al. Cancer statistics, 2006. *CA Cancer J Clin* 2006; 56:106.
5. Carels RA, Ibelings MG, Jongsma CK, et al. Invaginatie bij volwassenen. [Article in Dutch] *Ned Tijdschr Geneesk* 1997; 141:2122-6.