Ileocecal-colonic intussusception caused by cecal adenocarcinoma
A case report

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INTRODUCTION: Intussusception in adults is an infrequent cause of intestinal occlusion that is usually due to neoplasm lesions. The unspecific nature of the clinical presentation often delays diagnosis. It is most commonly emergency explorative laparotomy which clarifies the etiology of the occlusion. The authors report a case of intestinal occlusion caused by ileocecal-colonic invagination with a small cecal adenocarcinoma as lead point, in a 74-year-old woman.

CASE REPORT: A 74-year-old woman came to the Emergency Department, complaining of crampy pain in the mid- and lower abdomen. An abdominal ultrasound revealed a "pseudokidney sign" apparently involving the cecum. Because there were no clear signs of occlusion, the patient was discharged on the same day. Three days later, upon admission, the patient complained of episodes of abdominal pain with intervals of moderate well-being, associated with nausea, vomiting and an inability to pass stool (but not gas) for 36 hours. On clinical examination her abdomen was distended and tender on palpation in all quadrants, especially in the right iliac fossa where a large mass could be felt. Standard abdominal x-Ray documented gaseous distension of some loops of the jejunum-ileum with some air-fluid level. The patient underwent an abdominal CT scan which showed advanced intussusception that appeared to be ileocolic and multiple enlarged lymphnodes were found in the invaginated mesentery at the base of which there appears to be a thickening of the intestinal wall that is probably neoplastic in nature. The patient underwent explorative laparotomy. Ileocecal-colonic intussusception caused by a cecal growth 5 cm in diameter was found on examination of the surgical specimen. Histology showed that the cause of the large swelling of the ascending colon was a vegetating ulcerated adenocarcinoma (medium grade differentiation: G2), measuring 6.5x 4.0 cm, arising from a tubulovillous adenoma infiltrating the submucosa.

CONCLUSIONS: Most cases of intussusception are caused by structural lesions, a large percentage of which are malignant, especially in the colon. In our patient the lead point was a small cecal polyp which, together with the last loop of the ileum and the ileocecal valve, was pulled into the ascending colon. Although most cases of intussusception in adults are diagnosed at the operating table, noninvasive diagnostic tools like ultrasonography and CT scanning are very useful. Treatment in adults is usually surgical and involves en bloc resection of the lesion. Manual reduction of the intussusception is not advisable because of the risk of dissemination if the lead point is malignant.

KEY WORDS: Cecal adenocarcinoma, Ileocolic resection, Intussusception in adults.
of malignant neoplasia and intestinal ischemia associated with this pathology \(^2,3\). The case of intussusception presented here, with a small cecal adenocarcinoma as lead point, serves to focus attention on the issue of diagnosis and treatment of cases of intestinal occlusion that are hard to interpret, and especially on the time required to make a diagnosis and the best treatment approach \(^4\).

**Case report**

A 74 year old woman came to the Emergency Department, at the suggestion of her general practitioner, complaining of crampy pain in the mid- and lower abdomen that had begun one week prior to presentation. An abdominal x-ray showed “a slight distension of some loops of the ileum but no air-fluid levels, and air around the colon without signs of perforation”. Abdominal ultrasound revealed a “pseudokidney sign” apparently involving the cecum (Fig. 1).

Blood test results were normal except for mild leucocytosis (12,280 /mm\(^3\)). Because there were no clear signs of occlusion, the patient was discharged on the same day and advised to return in 3 days for an abdominal x-ray (after fasting) and investigative colonoscopy.

Three days later, upon admission, the patient complained of episodes of abdominal pain with intervals of moderate well-being, associated with nausea, vomiting (bile-stained material containing mucus) and an inability to pass stool (but not gas) for 36 hours. On clinical examination her abdomen was distended and tender on palpation in all quadrants, especially in the right iliac fossa where a large mass could be felt (Fig. 2).

As a temporary measure for intestinal decompression a nasogastric tube was positioned and 500 ml of bile-like fluid was aspirated. Blood tests revealed mild neutrophilic leucocytosis (16,000/mm\(^3\)), hyponatremia (128 mEq/l), and hypokalemia (3.3 mEq/l). Standard abdominal x-Ray documented “gaseous distension of some loops of the jejunum-ileum with some air-fluid levels, but without pneumoperitoneum or air in the rectal ampulla”.

In the light of these findings the patient underwent an abdominal CT scan which showed “advanced intussusception that appeared to be ileocolic in a patient with dolichocecum without signs of vascular involvement. Multiple enlarged lymphnodes were found in the invaginated mesentery at the base of which there appears to be a thickening of the intestinal wall that is probably neoplastic in nature” (Figg. 3, 4)

After restoration of the fluid and electrolyte balance the patient underwent explorative laparotomy to identify the cause of the intestinal occlusion.

Ileocecal-colonic intussusception caused by a cecal growth 5 cm in diameter was found on examination of the surgical specimen. (Fig. 5)

Ileocecal resection with ileocolic laterolateral mechanical anastomosis was therefore required.

The patient’s postoperative course was uneventful except for an episode of atrial flutter which resolved after pharmacological treatment. The nasogastric tube was removed on day 2 and the abdominal drain on day 6. The patient...
had her first postoperative bowel movement on day 4. Histology showed that the cause of the large swelling of the ascending colon, resulting from ileocecal-colonic intussusception, was a vegetating ulcerated adenocarcinoma (medium grade differentiation: G2), measuring 6.5x 4.0 cm, arising from a tubulovillous adenoma infiltrating the submucosa.

The patient was discharged on day 8 and will be followed up as an outpatient according to our follow up protocol used for 700 patients operated on for colon cancer.

Discussion

Intussusception occurs when a segment of the intestine with its mesentery (the intussusceptum) invaginates (slides) into the lumen of an adjacent segment (the intussuscipiens) §.

In contrast to intussusception in infants, most intussusception in adults is caused by well-defined lesions or structural changes (¹-¹⁵). Neoplasia causes 2/3 of the cases of intussusception in adults and 60% of these lesions are malignant ¹⁴, especially those located in the colon. The remaining third are due to inflammatory diseases, appendicitis, lymphoid hyperplasia, anastomoses, and suture lines.

Most causes of intussusception in the ileum are benign:Meckel’s diverticulum, adhesions, and celiac disease ²,³,¹⁰-¹²,¹⁵. In past few decades cases of ileal intussusception associated with autoimmune deficiency syndrome (AIDS) have also been reported ¹⁶-²⁰ with the lead point due to lymphoma, Kaposi’s syndrome, reactive lymphoid hyperplasia, atypical mycobacterial infection, cytomegalovirus (CMV)-induced colitis, and Campylobacter-related enteritis. Intussusception should always be included in the differential diagnosis if AIDS patients present with episodes of abdominal pain and symptoms of intestinal occlusion. In tropical regions a lot of cases of intussusception are due to endemic enteric infections, which are associated with diarrhea, disorders of peristalsis, and a high risk of invagination ²¹-²⁵.

In adults intussusception affects men and women equally and most commonly occurs in individuals around 50 years of age. Although in children there are usually acute symptoms and characteristic signs, for instance rectal discharge (current jelly stools), in adults there are mostly nonspecific symptoms which can be subacute or chronic. The most common are crampy abdominal pain, nausea and vomiting. Less frequently there is diarrhea or constipation. Rectal bleeding and a palpable abdominal mass are found only in a minority of cases.

Some patients are asymptomatic, for instance those with celiac disease whose intestinal muscles are too weak too cause abdominal cramps ²,³,¹⁰-¹²,¹⁴, ²³,²⁶-²⁸.

Making a clinical diagnosis of intussusception in an adult is always a challenge because the condition is uncommon and the symptoms usually nonspecific. Some studies report that a correct preoperative diagnosis was made in 32-50% of cases and that it was easier to diagnose patients with malignant colonic lesions than those with benign intestinal lesions (67% vs. 22%) ²,³,¹⁵.

An abdominal x-ray is often the first diagnostic investigation performed in a patient who presents with symptoms of intestinal occlusion. It is useful for evaluating and monitoring the degree of occlusion and identifying any signs of pneumoperitoneum. Abdominal ultrasound examination is useful in diagnosing intussusception in adults, especially when a palpable abdominal mass is present and accessible to examination, as in our patient ²⁹-³³. In particular, when the probe is held transverse to the intussusception, the typical image is that of a mass (target) with a hypoechogenic border (due to the edema in the wall of the intussuscipiens) and a central echogenic area (the intussusceptum and the fat in the invaginated mesentery). When an oblique section of the intussusception is visualized, it is called a “pseudokidney sign”: the edematous intestinal wall mimics the hypochogenic renal cortex and the hyperechogenic intussusceptum mimics the renal sinus ²⁹.

However, although they are suggestive of intussusception, these lesions are not pathognomic and can also be observed in other cases of intestinal wall edema, for instance edema caused by enterocolitis or volvulus.

In recent years CT scanning has become more and more widely used in diagnosing patients with nonspecific abdominal pain because it identifies pathognomic signs of intussusceptions ²⁷,³⁴-³⁷: the area of intussusception appears like a lesion due to thickening of the intestinal...
wall (intussuscipients and intussusceptum) with a central zone of adipose tissue showing vascular enhancement (mesenterial fat).

This gives the area a target-like appearance. The layering can be due to trapping of fluid between the intussusceptum and the intussuscipients or to edema in the wall of the intussuscipients. Although it is possible to make a fairly certain diagnosis based on a CT scan, it is difficult to determine the underlying etiology since it is not easy to distinguish between the neoplastic mass and the intussusception itself. The presence of pathological lymph nodes or metastases on a CT scan can indirectly reveal the presence of a malignant tumor. However these details cannot be considered definite indications that the lead point is malignant. In the literature there are reports that describe intussusception not due to cancer in patients with known malignancy. Another diagnostic investigation that is useful for visualizing intussusception is magnetic resonance imaging (MRI). Even though in children non-surgical reduction with barium or air enemas seems to be effective for intussusception, there is still debate regarding the correct treatment for adults. It seems to be generally accepted that in adults surgery is obligatory due to the high incidence of malignant lead points and the severe complications of intestinal occlusion and intestinal ischemia and en bloc resection of the lesion is the treatment of choice since manipulation of the lesion during reduction increases the risk of intraluminal dissemination, venous embolism in the tumor itself, or perforation when there is intestinal ischemia.

Surgical intervention in cases of intussusception with a benign etiology such as celiac disease and in case of transient intussusception (a short segment, nonocclusive) found incidentally on CT scans in relatively asymptomatic patients, is absolutely contraindicated.

Conclusions

Intussusception is relatively rare in adults and differs substantially from pediatric intussusception. Most cases of intussusception are caused by structural lesions, a large percentage of which are malignant, especially in the colon. In our patient the lead point was a small cecal polyp which, together with the last loop of the ileum and the ileocecal valve, was pulled into the ascending colon. Although most cases of intussusception in adults are diagnosed at the operating table, noninvasive diagnostic tools like ultrasonography and CT scanning are very useful. In our case intussusception was already suspected after ultrasonography examination.

Treatment in adults is usually surgical and involves en bloc resection of the lesion. Manual reduction of the intussusception is not advisable because of the risk of dissemination if the lead point is malignant. The intussusception in our patient was therefore resected and then opened, revealing a macroscopic lesion on the wall of the colon. However when there is a benign cause underlying invagination surgical management is completely inappropriate.

Riassunto

L'intussuscezione intestinale nell’adulto rappresenta una condizione occlusiva non frequente e per lo più sostenuta da lesioni patologiche. La non specificità del quadro clinico spesso ritarda la diagnosi ed è solitamente la laparotomia esplorativa d’urgenza a chiarire l’ezioologia del quadro occlusivo sebbene esistano esami diagnostico-strumentali, come la TC, che offrono utilissime informazioni preoperatorie. Gli Autori riportano un caso di occlusione intestinale eseguito in regime d’urgenza e sostenuto da un’invaginazione ileo-ceco-clica su un piccolo adenocarcinoma del cieco, in una donna di anni 74, presentatasi al Pronto Soccorso con un quadro di dolore addominale ed una massa palpabile in fossa iliaca destra. Nel caso descritto l’invaginazione intestinale, ingenerata da un piccolo adenocarcinoma del cieco, ci ha permesso di analizzare la complessa problematica dell’iter diagnosticotiero e terapeutico dei casi di occlusione intestinale di difficile interpretazione, focalizzando l’attenzione sulla corretta tempistica della diagnosi e sull’adeguatezza dei provvedimenti terapeutici adottati.

References

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