CASE REPORT

Jejunal intussusception: a rare cause of an acute abdomen in adults

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SUMMARY

Abdominal pain secondary to intussusception is a common presentation in the paediatric population but rare in adults. Diagnosis is often difficult due to non-specific signs and symptoms. Adult intussusception presents more insidiously with intermittent abdominal pain and signs and symptoms of an acute abdomen are rare. In children, the aetiological factor is usually idiopathic, whereas intussusception in adults is more commonly due to an underlying pathology giving rise to a lead point. Consequently the treatment of choice is different—while it is supportive in children, surgical management is typically indicated in adults. In addition, the causes of a lead point precipitating adult intussusception are different depending on whether they arise from the small or large bowel. This report presents a case of jejunal intussusception in a 30-year-old man with a characteristic CT scan who required exploratory laparotomy and small bowel resection.

BACKGROUND

Abdominal pain is a common cause of acute admission to the emergency department, however, it poses many challenges to medical professionals due to its varied differential diagnoses which can be attributed to diverse causes arising from the gastrointestinal, genitourinary, gynaecological and cardiopulmonary systems. Adult intussusception is a rare but important cause of an acute abdomen in adults, with typical findings on CT.

CASE PRESENTATION

A 30-year-old Caucasian man with a history of insulin-dependent diabetes mellitus and gastritis was admitted to the emergency department of a district general hospital with sudden onset of severe colicky epigastric pain radiating to the back and throughout the abdomen, associated with anorexia, nausea and vomiting. There was no rectal bleeding or change in bowel habit, nor any preceding symptoms. His diabetes mellitus and gastritis were well controlled with insulin and antacids. There was no significant family history and he drank alcohol socially. On review of systems, he denied any fevers, weight loss, urinary symptoms or any sick contacts.

On examination his vital signs were normal. His abdomen was undistended and soft with generalised tenderness, worst in the epigastric region, accompanied by active bowel sounds. There were no clinical signs of peritonitis. Murphy's sign was negative. No organomegaly, lymphadenopathy, palpable mass or aneurysm were present clinically.

The initial differential diagnoses based on history and examination included acute pancreatitis, perforated peptic ulcer or ischaemic bowel. He was kept nil by mouth and managed with analgesia, antiemetics, proton pump inhibitor and intravenous fluids. However, his pain persisted in severity despite extensive administration of analgesics.

INVESTIGATIONS

Initial investigations included a normal resting ECG, urinalysis that showed ketones and an arterial blood gas revealing lactate of 4 mmol/L (normal range 0.5–2 mmol/L) with no metabolic disturbances. Initial blood tests were generally unremarkable with a mildly low haemoglobin of 134 g/L (normal being 138–172 g/L for a man), a white cell count $10.2 \times 10^9/L$ (normal $3.8\text{--}10.8 \times 10^9/L$) and C reactive protein <2 mg/L (normal <10 mg/L). He was hypokalaemic with potassium of 2.9 mmol/L (normal range 3.5–5.5 mmol/L); however his other urea and electrolytes values, liver function tests and amylase levels were all within the normal range. A chest radiograph was normal with no evidence of pneumoperitoneum and an abdominal radiograph revealed a dilated small bowel loop in the right upper quadrant with scanty bowel gas elsewhere (figure 1).

Figure 1 Abdominal radiograph illustrating a dilated small bowel loop in the right upper quadrant (arrow) with scanty bowel gas elsewhere.

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Figure 2 Axial-enhanced CT of the abdomen and pelvis illustrating a proximal jejunal intussusception—a target-shaped lesion with a lead point (arrow). The fat density seen in the centre of the lesion represents mesenteric fat.

He was reviewed by the emergency surgery team and a subsequent CT of the abdomen and pelvis demonstrated a sausage-shaped lesion typical of small bowel intussusception in the proximal jejunum (figures 2 and 3).

TREATMENT

Diabetic control was achieved using an insulin infusion and pre-operative antibiotics were administered prior to an emergency laparotomy. The procedure revealed a jejunal intussusception with a lead point, a leiomyomatous polyp that was accompanied by a congested, non-viable bowel with no perforation. The intussusception was reduced; due to the fragility of the non-viable bowel a small iatrogenic perforation occurred, but contamination was minimised and 110 cm of the jejunum was resected leaving a primary end-to-end anastomosis between distal duodenojejunal flexure and the proximal ileum.

Figure 3 Coronal reconstruction of the CT of the abdomen and pelvis illustrating the proximal jejunal intussusception in a longitudinal section as a sausage-shaped lesion with a lead point (arrow).

Postoperatively, the patient was treated with intravenous antibiotics and monitored closely for postoperative ileus. Supportive management in the form of patient-controlled analgesia, insulin sliding scale, nasogastric tube and intravenous fluids was required for 72 h until normal dietary intake was re-established and diabetic control with subcutaneous insulin was achieved.

The patient was discharged 6 days after admission following an uneventful period of monitoring and outpatient appointment at 4 weeks was planned.

OUTCOME AND FOLLOW-UP

At review, the histopathology results of the resected specimen showed ischaemic changes in the small bowel with mucosal infarction and an ulcerated leiomyomatous polyp acting as a lead point. Clinically the patient was well; his wounds had healed and he had not experienced any complications during recovery at home.

DISCUSSION

Abdominal pain comprises 5–10% of acute admissions to the emergency department and poses challenges due to its varied aetiology arising from the gastrointestinal, genitourinary, gynaecological and cardiopulmonary systems.¹ Adult intussusception is a rare clinical entity accounting for 1% of all patients with bowel obstructions, 0.003–0.02% of all hospital admissions^{2,3} and it is also thought to account for only 5% of all intussusceptions. Mean age of onset is 54 years, with a male-to-female ratio of 1:1.3.⁴ In adults, intussusception typically presents with a range of non-specific signs and symptoms including abdominal pain (71–100%), nausea and vomiting (40–60%), rectal bleeding (4–33%),⁵ abdominal mass (<10%)⁶ and features of peritonitis (50%).⁷ The exact symptom constellation is dependent on the site of the intussusception and the presence of ischaemic bowel.

Intussusception occurs when a proximal portion of the bowel (intussusceptum) is pulled forward by normal peristalsis, telescoping or prolapsing into the adjacent distal bowel (intussusci-pien). The intussusceptum is often accompanied by mesentery resulting in lymphatic obstruction followed by venous congestion and ultimately reduced arterial blood flow. It is classified according to its location into enteroenteric, ileocolic, ileocecal or colocolic.⁸ About 90–95% of adult intussusceptions have a lead point with 67% of cases arising in the small bowel.⁹ Most cases in the small bowel arise secondary to benign lesions acting as lead points such as leiomyomas, adenomas, lipomas, haemangiomas and fibromas. Other benign causes include adhesions, Meckel's diverticulum and adenitis.

In this case the histology revealed a leiomyoma, a subtype of slow growing, benign, mesenchymal tumours that arise from soft tissues throughout the body.¹⁰ Within the alimentary canal, leiomyomas more commonly present in the oesophagus but are rare in the small bowel and colon.^{11,12} They are frequently thought to arise due to reparative processes following surgery or trauma,¹³ as part of an allergic reaction¹⁴ or inflammatory bowel disease.¹⁵ Symptoms of leiomyomas are highly dependent on their location and size, and patients commonly present with abdominal pain, palpable abdominal mass and rectal bleeding.^{9,16}

Only 15% of lead points in the small bowel are malignant lesions¹⁷; they are frequently metastatic in nature and commonly caused by a melanoma.⁵ In comparison, 50–60% of intussusceptions in the large bowel are secondary to a malignant lesion, frequently caused by adenocarcinoma and lymphoma while 30% are secondary to benign lesions. Idiopathic aetiology is the minority accounting for 20% of small bowel and 10% of large bowel intussusceptions.¹⁷

Intussusception can be confidently diagnosed on CT imaging with pathognomic appearance of a complex soft tissue made up of a central intussusceptum encompassed in an outer intussusciptum. This is frequently accompanied by mesenteric fat appearing as an eccentric area of fat density. The mesenteric vessels may also be visible. The sausage-shaped lesion typical of intussusception is visualised when the CT beam is parallel to its longitudinal axis, whereas the characteristic target-shaped lesion is visualised when the CT beam is perpendicular. The aetiology of the intussusception often cannot be established from a CT scan.¹⁸

Plain abdominal radiographs are of limited value in the diagnosis of intussusception due to their reduced sensitivity and specificity.¹⁹ However, they are often performed as part of the initial investigations for patients presenting with an acute abdomen. One of the radiographic features consistent with intussusceptions is signs of intestinal obstruction proximal to the lead point.^{20 21}

Management of adult intussusception is largely surgical, however there is much controversy regarding the modality of surgical option.²² Most colonic intussusceptions employ an en bloc resection without any attempts of reduction due to the high incidence of mitotic lesions in order to prevent perforation and vascular, transperitoneal or intraluminal seeding of malignant cells.²³ In contrast, small bowel intussusceptions can be managed conservatively with reduction and avoidance of bowel resection which maintains bowel length and may help to avoid short gut syndrome; nonetheless, if neoplasia, ischaemia or excessive oedema causing obstruction are suspected then resection without reduction is performed.²² Intermittent intussusceptions secondary to impaired peristalsis in malabsorptive disorders such as coeliac disease or inflammatory bowel disease can be managed conservatively in the absence of severe abdominal symptoms.²⁴

Overall, the prognosis of intussusception in adults largely depends on the aetiology with 9% mortality in benign lesions compared with 52% in malignant lesions.⁶

Learning points

- ▶ Intussusception is a rare cause of abdominal pain in adults but if left untreated, can pose detrimental effects to the patient.
- ▶ A high index of suspicion is required and diagnosis by CT scan will help identify intussusception.
- ▶ Complications of untreated intussusception include bowel obstruction, perforation and mesenteric ischaemia.
- ▶ Underlying malignancy may first present as an intussusception in adults.
- ▶ Surgical management is the treatment of choice in adult intussusception.

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Competing interests None.

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