CASE REPORT

A young woman with a jejuno-jejunal intussusception

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SUMMARY

A 27-year-old woman presented at the emergency department, with pain in the epigastric region. Because physical examination, blood results, urine tests and an X-ray of the thorax showed no abnormalities, she was discharged. Twelve hours later, she presented again at the emergency department, with intense abdominal pain. The blood results, an X-ray and ultrasound of the abdomen were now aberrant. A CT of the abdomen showed an extensive intussusception. During an emergency laparotomy, the intussusception of the proximal jejunum was confirmed. Owing to gangrene of the proximal jejunum, a resection was inevitable. A polyp in the resected part of the jejunum was the lead point of the intussusception. This case report shows the challenges of diagnosing an 'intussusception' and gives a short overview of this condition in adults.

BACKGROUND

Intussusception occurs when a proximal part of the gastrointestinal tract invaginates into the lumen of the adjacent part of the gastrointestinal tract. The lead point, also called 'intussusceptum', telescopes into its mesenteric fold into the lumen of the distal bowel segment, called intussusciptens. The result is a bowel obstruction. The mesenteric vascular flow of the intussuscepted part could be compromised, which leads to thickening of the intestinal wall. Finally, this may lead to a life threatening condition due to ischaemia, bowel perforation and peritonitis.

Intestinal intussusception is more common in children than in adults. Based on a population-wide survey in Switzerland, the incidence rate is estimated to be 38–56 cases per 100 000 live-births in the first 3 years of life.¹ During childhood, approximately 90% of all cases are idiopathic.

Among adults, intussusception is a rare condition. Of all cases, only circa 5% occurs in adults and it has been estimated that intussusception accounts for 1–5% of all cases of bowel obstruction in adults.²

Patients with an intussusception can present with a variety of symptoms of bowel obstruction, including abdominal pain, nausea and vomiting. Other symptoms might be obstipation, fever, weight loss, a palpable abdominal mass, diarrhoea or gastrointestinal haemorrhage. The presentation can be acute, intermittent or chronic.³ The classic triad of intussusception includes: an abdominal mass, tenderness and a positive haemoglobin blood stool test. However, this triad is not frequently seen.

Owing to the variety of symptoms and pattern, it is often difficult to establish the diagnosis.

Because of the high risk of associated malignancy in adults, surgical intervention is the first choice of therapy. This is in contrast to children, where intussusception is mostly idiopathic and benign, and the therapy of choice is non-operative reduction such as hydrostatic or pneumatic pressure.² Owing to the potential life-threatening condition, clinicians should always be aware of the possibility of an intussusception during their diagnostic work up. In the current report, a case of a 27-year-old woman with an intussusception is discussed.

CASE PRESENTATION**Initial presentation**

A 27-year-old woman, a student, with increasing abdominal pain in the epigastric region for 1 day, presented at the emergency department (ED). She had never had similar symptoms before. Her medical history only mentioned iron deficiency anaemia. The onset of the pain was acute and she had a constant urge to move. She had no nausea, vomiting, fever, dysuria or haematuria. Her last stool was on the same day and without abnormalities. Physical examination showed a painful and restless patient. The measurements of pulse, blood pressure and temperature did not show any abnormalities. Abdominal examination, blood and urine tests and radiological examinations, were all normal. The pain disappeared spontaneously at the ED. The night before, the patient had smoked hashish to relax, because of a stressful study period due to her upcoming graduation. Her complaints were explained by stress and the use of hashish. She was discharged and referred to a psychologist to quit smoking hashish and to cope with stress.

Second presentation (12 h later)

Early in the morning the next day, the patient presented again at the ED, with intense abdominal pain. The pain was more intense compared to the day before and was still located in the epigastric region. She still had no nausea, vomiting, fever, dysuria or haematuria. She experienced loose stool a couple of times the previous night. Physical examination was difficult because the patient was very restless and again experienced the urge to move. The measurements of pulse, blood pressure and temperature again showed no abnormalities. Examination of the abdomen revealed a painful area around the umbilicus. Also, a mass was palpable just left lateral of the umbilicus. An ultrasound

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was carried out of the palpable lesion, followed by an abdominal CT.

INVESTIGATIONS

Initial presentation

Blood: C reactive protein <1 mg/L, leucocytes 9.7×10^9 /L.

Urine: no abnormalities.

Radiology: X-ray of the thorax, with no abnormalities.

Presentation after 12 h

Blood: C reactive protein 63 mg/L, leucocytes 23.9×10^9 /L.

Radiology

X-ray of the abdomen (figure 1): atypical configuration of a bowel loop.

Abdominal ultrasound (figure 2): thickened bowel walls and free fluid in the abdominal cavity, suspicious for an invagination of the intestine in the left hemi-abdomen.

Abdominal CT (figures 3 and 4): dilated parts of the small intestine and an extensive intussusception, probably of the proximal jejunum.

DIFFERENTIAL DIAGNOSIS

Based on the clinical findings combined with the additional tests, several acute situations leading to an abdominal obstruction were possible. First, it could have been an invagination of the intestine, which was suspected on ultrasound and the abdominal CT scan. The second possibility was a perforation of the bowel. In that case, it would have been a local covered perforation, because radiological examinations did not show any extra-luminal free gas in the abdomen. Because of the thickened bowel wall on CT, a malignancy could not have been ruled out. However, given the young age of the patient, a malignancy was less likely. Finally, the symptoms might have been caused by an ileus due to adhesions. However, our patient did not undergo abdominal surgery in the past.

TREATMENT

The patient was admitted to the surgical ward, and scheduled for an emergency laparotomy. During the laparotomy, a jejuno-

jejunal intussusception of the proximal jejunum was found. The intussuscepted part of the jejunum was reduced. However, due to gangrene, a resection of the proximal jejunum was ominous. A hand-sewn jejuno-jejunal end-to-end anastomosis was created. The patient was discharged in good clinical condition 5 days after the surgical procedure, and recovered without complications.

OUTCOME AND FOLLOW-UP

The pathologist examined the resected part of the jejunum. Near the intussusception, a necrotic polyp with a diameter of 3.5 cm was found (figures 5 and 6). This polyp most likely had been the leading point of the invagination. The final pathological report described a benign polyp that invaded the mucosa microscopically. There was no involvement of the muscle layer. However, the polyp was necrotic and because of haemorrhagic infarction no further classification was possible. There were no other polyps in the resected jejunum. As already seen during the surgical procedure, 30 cm of the resected jejunum was gangrenous.

At 2 weeks after surgery, the patient was seen at the outpatient clinic. She was fully recovered and in good condition. She was discharged of further follow-up, because of the benign origin of the polyp.

DISCUSSION

An intussusception among adults is a rare condition, and differs from paediatric intussusception in multiple aspects. The pathology leading to an intussusception among children is usually primary and benign. Eighty per cent of paediatric intussusceptions can be treated non-operatively (pneumatic or hydrostatic reduction).² In adult patients, approximately 90% of cases are secondary to a lesion, such as a polyp, carcinoma, metastasis, diverticulum, adhesions, strictures or benign neoplasms.² These lesions serve as the lead point of an intussusception. The difference in aetiology explains the difference in the treatment of adults and children.

As shown in this case report, diagnosing an intussusception can be challenging, due to the wide range of symptoms. Patients can experience constipation, nausea, vomiting and colic pain. Common findings at physical examination include abdominal distension, an abdominal mass, absent bowel sounds and tenderness. Radiological examinations can help in the work up of patients with acute and severe abdominal pain. A plain abdominal X-ray is usually the first radiological study. Indirect signs of

Figure 1 X-ray of the abdomen showing an atypical configuration of a bowel loop.

Figure 2 Ultrasound of the abdomen showing invagination of the small intestine.

Figure 3 CT showing dilated parts of the small intestine and an extensive intussusception, probably of the proximal jejunum.

intestinal obstruction can be seen and correlated to the clinical findings. Moreover, X-rays give information about the location of possible underlying pathology. Additionally, an ultrasound of the abdomen is useful for diagnosing an intussusception. The 'target' or 'doughnut' sign can be seen on the transverse view and the 'pseudo-kidney' or 'hay-fork' signs on the longitudinal view. However, abdominal ultrasound requires the expertise of an experienced radiologist. Furthermore, the quality of the ultrasound images can be limited by patient-related factors including obesity and the presence of massive air in the dilated bowel loops. An abdominal CT is considered as the most sensitive radiologic investigation to diagnose an intussusception. In the recent literature, an accuracy of 58–100% is reported.² The characteristics for intussusception at CT are an inhomogeneous 'target' or 'sausage' shaped soft tissue mass with a layering effect and mesenteric vessels in the bowel lumen. Another advantage of an abdominal CT is that information is obtained about the nature of the mass and its relationship with surrounding tissues.

During the work up of the current patient with abdominal pain, an abdominal ultrasound was performed by an experienced radiologist as first imaging study in order to try to avoid

Figure 4 CT showing dilated parts of the small intestine and an extensive intussusception, probably of the proximal jejunum.

Figure 5 Resected part of the jejunum. A necrotic polyp with a diameter of 3.5 cm was found near the intussusception.

unnecessary radiation exposure in a young fertile woman. Furthermore, the ultrasound is directly available at the ED. Retrospectively, an abdominal CT scan could have been performed directly, because it provided all the necessary information to determine the underlying pathology and allocate the treatment of choice.

As mentioned before, surgical intervention is the therapy of choice in adults, because an intussusception is frequently caused

Figure 6 Resected part of the jejunum. A necrotic polyp with a diameter of 3.5 cm was found near the intussusception.

by structural anomalies or an underlying malignancy. Thirty per cent of all intussusceptions of the small intestine and 66% of all colic intussusceptions among adults are due to a malignancy (either primary lesion or metastatic).⁴ Therefore, it is recommended that a resection with oncological techniques is performed when there is a high risk for a malignancy, for instance, in a patient aged 60 years with a colon intussusception. Treatment can be limited to reduction of the intussusception when it concerns a small bowel segment without signs of ischaemia or inflammation, and when no malignancy is suspected.²

Learning points

- ▶ Intussusception in adults is an uncommon condition.
- ▶ Preoperative diagnosis of intussusception in adults is challenging.
- ▶ Abdominal CT is the most sensitive method for diagnosing an intussusception.
- ▶ Intussusception in adults requires surgical intervention, because it is associated with malignancies.

In conclusion, intussusception among adults is uncommon, but can be a life-threatening condition. It can be challenging to diagnose an intussusception in an early stage, due to a wide variety of possible symptoms at the initial presentation. An abdominal CT is the most sensitive radiologic modality to diagnose this condition. In adult patients, surgical intervention is required to confirm the diagnosis, and is frequently followed by a resection of the intussuscepted part of the gastrointestinal tract.

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