Introduction

Intussusception of the intestine most often occurs in pediatric populations; however, Eisen et al. estimated that it also comprised 1–5% of bowel obstructions in adults. Among several etiologies, intussusception in adults is most often accompanied by a tumor, and in particular a polyp with a stalk. A radiological feature suggesting invagination and dilation of the oral side of the intestine on MRI and CT is diagnostic. Abdominal ultrasound is also useful when the typical target sign and/or thickening of the intestinal wall is successfully demonstrated, even in adults.

Herein, we present an adult case of intussusception of small intestine due to adenoma of the jejunum. The case highlights this important cause of acute abdominal pain, which is often overlooked.

Case presentation

A 21-year-old male patient was admitted to the surgical department of the Multidisciplinary Clinic of the Tashkent Medical Academy with severe abdominal pain. Immediately before the hospital admission, the patient experienced cramping pains in the epigastrium and left hypochondrium, nausea, dry mouth, vomiting, and general weakness, prompting his transfer by ambulance.

Physical examination revealed pale skin and mucous membranes, although despite the presence of pain and tenderness in the upper abdomen, no peritoneal symptoms or muscle tension were observed. His blood test showed a slightly elevated white blood cells count (12.4 X 10^3/ul).

After admission for infusion therapy, abdominal ultrasonography (US) and computed tomography (CT) were performed to diagnose the cause of his persisting abdominal pain. Abdominal US revealed expansion of the intestine at the left side of the umbilicus (Fig. 1), and a markedly thickened intestinal wall with heterogeneous structures within the intestine was also described. Abdominal CT demonstrated a large horseshoe-shaped tubular structure, which was assumed to be part of the small intestine (Fig. 2).

Given the chronological change of intensity in his abdominal pain, the patient was diagnosed as having an obstruction of the intestine, with high possibility of an intestinal tumor. The patient underwent diagnostic laparoscopy, which revealed inflamed loops of the small intestine. Due to the technical difficulties of further manipulation under laparoscopy, the operation was converted to open surgery with a mid-median incision. The laparotomy re-
revealed invagination of the small intestine that was manually relieved. Subsequently, a tumor located at the leading point of invagination was removed (Fig. 3). Histological examination diagnosed the tumor as an adenomatous polyp of the small intestine. The postoperative course was uneventful, and the patient was discharged.

Discussion

The present case highlights the importance of an intussusception in the differential diagnosis of acute abdominal symptoms. Furthermore, it confirmed the value of US for signaling the possibility of an intussusception, even in adults.

According to the literature, intussusception in adults is a relatively rare cause of intestinal obstruction\(^3\), with the most common cause being tumors, followed by other rare etiologies at diverticular\(^4\), granulomatous\(^5\), and anastomotic sites\(^6\). This point is clinically important because it is in sharp contrast with pediatric intussusception where idiopathic disease is the most common. Indeed, a benign intestinal tumor with a stalk was the leading point of the intussusception in the present case. Preoperative evaluation focused on tumors and other causes are therefore necessary to optimize the surgical treatment\(^7\), especially in adults.

Fig. 1 Preoperative ultrasonography
(A) The small intestine dilatation is shown. (B) This image represents the mass lesion within the thickened small intestinal wall. This is not a typical pseudo-kidney sign, although the feature is suggestive of intussusception.

Fig. 2 Preoperative ultrasonography
Abdominal computed tomography revealed the tumor at the small intestine (white arrow), the notch of the intestine (white arrowhead) and the dilatation of the oral side of the intestine is suggestive of intussusception.

Fig. 3 Intraoperative findings
(A) The dilated small intestine with no marked ischemic change is shown. (B) After resolving the invagination, a mass lesion within the lumen of intestine was palpable. (C) A tumor with stalk for resection is visible; the maximum diameter of the tumor was 3 cm, and the tumor was accompanied by hemorrhage.
Preoperative US was valuable in suggesting intussusception as the potential cause of acute abdominal pain in the present case. Because rapid and repetitive use is allowed due to the noninvasive nature of ultrasounds, it is often used in pediatric emergency cases. Ultrasonography might be less accurate in adults compared to pediatric intussusception cases in which US has high sensitivity and specificity; however, when target sign or pseudo-kidney sign is demonstrated, these characteristic features would allow us to proceed the surgical procedure even in adults. Thus, we recommend that US should be always considered as a rapid and sensitive screening method for intussusception.

In conclusion, we presented a case with intussusception of the small intestine due to adenoma. This finding is rare, but important in the differential diagnosis of acute abdominal pain.

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