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Case Report

Spontaneous ileoileal intussusception as a rare cause of intestinal obstruction: a case report

Nadir bir intestinal obstrüksiyon nedeni olan spontan ileoileal invajinasyon: olgu sunumu

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ABSTRACT

Intussusception is a rare cause of intestinal obstruction in adults. It often occurs secondary to inflammatory bowel disease, postoperative adhesions, benign or malignant lesions, or iatrogenic causes. In few cases, it occurs idiopathically or spontaneously. The most sensitive imaging method for its diagnosis is computed tomography. The reduction can be applied in selected cases; however, the definitive treatment is surgical resection. In this study, we presented a case of spontaneous ileoileal intussusception in a 25-year-old female patient.

Keywords: Adult, ileum, intestinal obstruction, intussusception

ÖZ

İnvajinasyon, erişkinde intestinal obstrüksiyonun nadir görülen nedenlerindendir. Sıklıkla inflamatuar bağırsak hastalığı, postoperatif adezyonlar, benign veya malign lezyonlar ya da iatrojenik nedenlere bağlı sekonder olarak meydana gelir. Vakaların çok az bir kısmında ise idiopatik veya spontan gelişir. Tanıda en sensitif görüntüleme yöntemi bilgisayarlı tomografidir. Seçilmiş vakalarda redüksiyon uygulanabilmektedir; ancak kesin tedavi cerrahi rezeksiyondur. Bu çalışmada 25 yaşında bir kadın hastada spontan gelişen ileoileal invajinasyon vakası sunulmuştur.

Anahtar kelimeler: Erişkin, ileum, intestinal obstrüksiyon, intussusepsiyon

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INTRODUCTION

Intussusception is defined as the invagination of the proximal intestinal segment into the distal intestinal segment. While intussusception is a common cause of intestinal obstruction in children, it rarely occurs in adults. Varying in adults, it presents with abdominal pain, bloody diarrhea, and palpable mass in children. The intussusception is diagnosed preoperatively with computed tomography (CT) or ultrasonography (USG); however, CT is the most sensitive diagnostic method (1). In this study, we presented spontaneous ileoileal intussusception in a 25-year-old female patient considering the relevant literature.

CASE REPORT

A 25-year-old female patient was admitted to the general surgery outpatient clinic with complaints of abdominal pain in the right lower quadrant, nausea, vomiting, and diarrhea. Her medical history informed us that she does not have any chronic disease and has not undergone an operation. In the same session, the superficial USG could not identify the appendix, leading us to report it to be a retrocecal appendix. In the abdominal USG, ileoileal intussusception was detected. She was treated symptomatically and enteroclysis was recommended. She underwent enteroclysis in another center but detailed information about the treatment could not be obtained. About five months later, the patient was admitted to the general surgery polyclinic again with complaints of widespread pain and abdominal swelling, vomiting in green color 4-5 times after meals and liquid stool. In laboratory examination, we determined leukocytosis (16.4 K/uL, reference 4.5-11 K/uL) and left shift (87% neutrophil ratio) and elevated C-reactive protein (CRP) (137 mg/dl, reference 0-5 mg/l). In contrast-enhanced abdominal CT, we observed ileoileal intussusception in the proximal ileum, lipoma (18 mm in diameter) in the invaginated segment and rotation around mesentery in the ileal loop adjacent to this section, increased diameter in the proximal ileal loops, and air-fluid levels. There were 4-5 small lymph nodes in the peri-ileal area. The patient was taken to the operation with the preliminary diagnosis of ileus due to intussusception. Segmental resection and ileoileal anastomosis were performed.

The macroscopic examination of the material revealed a 43 cm long dilated small intestine segment, which had invaginated four times into the entire intestinal segment. Significant edema and congestion were observed on the outer surface of the intestine (Figures 1a, 1b). We could not find the lipoma detected on the CT. In the microscopic examination, the small intestinal epithelium have disappeared in most areas. We observed ischemic necrosis and mixed-type inflammatory cell infiltration along the entire intestinal wall. In addition, fibrinoid material was present on the intestinal surface (Figures 2a, 2b, 2c). These findings allowed us to report the case as “ileoileal intussusception showing signs of ischemic necrosis.”

About seven months later, the patient was admitted to the general surgery outpatient clinic with complaints of abdominal pain, nausea, and vomiting. We observed air-fluid levels on direct abdominal radiography (DAR). Contrast-enhanced abdominal CT showed dilatation up to 39 mm in the distal jejunal loops and local air-fluid levels. We found bride ileus at the level of the jejunoileal junction, suspicious findings regarding internal hernia at the duodenojejunal junction, and obstructed jejunal loops in the C loop configuration. The patient underwent bridectomy, segmental small bowel resection, side-to-side small bowel anastomosis, and omentectomy.

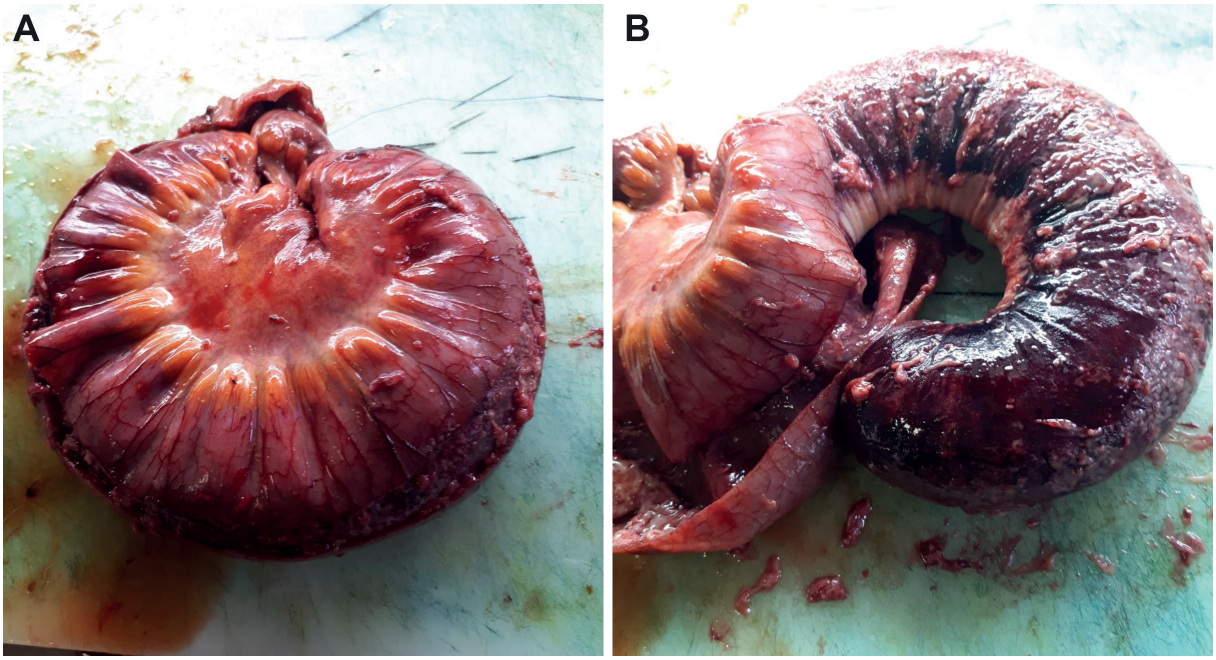

Figure 1. We observed a 43 cm long dilated small intestine segment, invaginated four times into the entire intestinal segment (1a-1b).

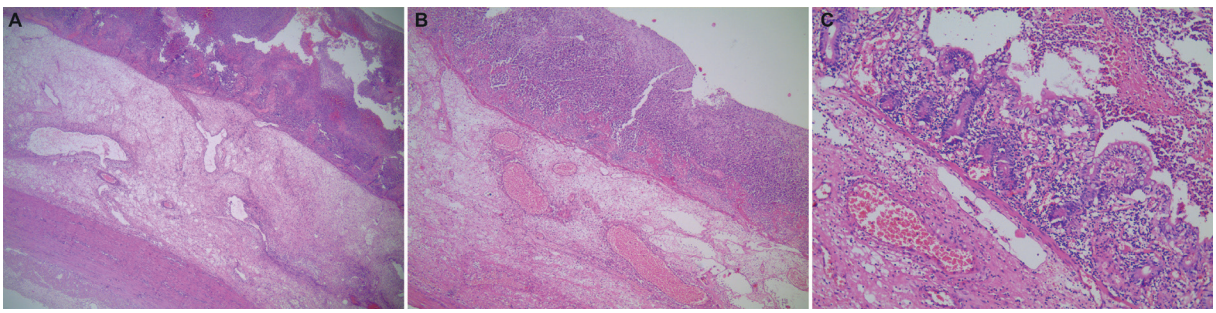

Figure 2. We detected mucosal ulceration, ischemic necrosis reaching up to the intestinal wall, and intense mixed-type inflammatory cell infiltration in the small intestine tissue with fibrinoid exudate on its surface (2a: HEX25, 2b:HEX40, 2c: HEX100).

In the macroscopic examination of the material, we observed a 32 cm long small intestine segment with both surgical ends attached with a 2.5 cm diameter suture line. There was a separate suture line with a diameter of 1 cm between the two segments of 9 and 23 cm in length, respectively. We found dilatation and wall thinning in the long intestinal segment. The outer surface was bleeding; the mucosa had an edematous appearance, and no other features were observed. In the microscopic examination, there were focal ulcerations on the mucosal surface, in this area. The base of the ulcer continued towards the subserosa with fibrosis. Subserosa and mesenteric adipose tissue had a distinctly fibrotic appearance (Figure 3a). There was significant edema and congestion in the submucosal areas (Figure 3b). These changes were reported as "perforation-related" changes.

Informed consent was obtained from the patient who participated in this case.

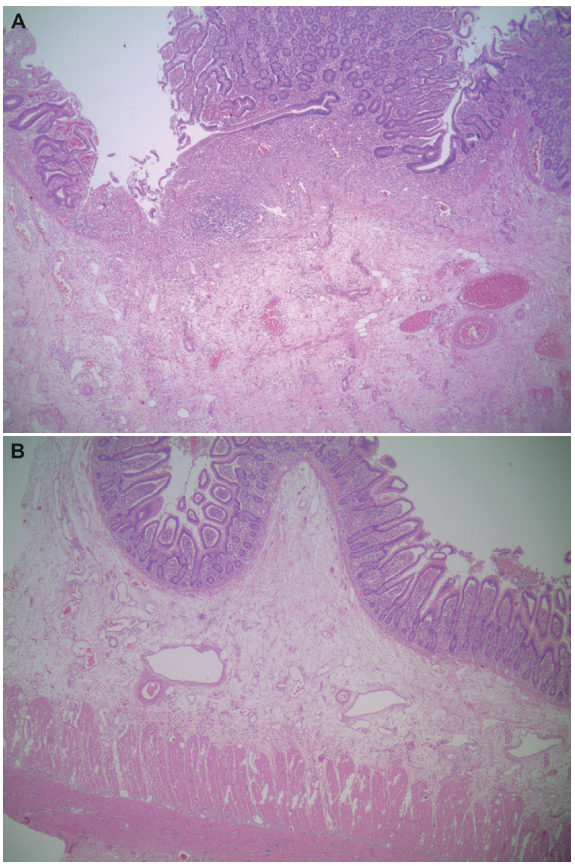

Figure 3. We found focal ulcerations in the mucosa in the markedly congested and edematous small intestine tissue. The base of the ulcer appeared to extend with fibrosis towards the subserosa (3a: HEX25). Similarly, in an another area there was significant edema and congestion in submucosa (3b: HEX25).

DISCUSSION

Intussusception occurs when the proximal intestinal segment penetrates the distal intestine. Only 5% of the intussusception cases occur in adults. While it is one of the leading causes of intestinal obstruction in children, it is seen in 1-5% of adults. Primary or idiopathic intussusception cases account for 8-20% and tend to be seen in the small intestine. Intussusception can be divided into four categories based on its location in the intestine: 'entero-enteric, colo-colic, ileocolic, ileocecal' (1). The mean age at presentation ranges from 45 to 51 years (2). Our case was a 25-year-old female patient and younger than those declared in the literature. The mechanism of intussusception formation in adults is not fully elucidated; 90% of the cases have a pathological lesion. This pathological lesion often originates from the intestinal wall and may rarely be extraluminal. Thus, the regular peristaltic activity is disrupted due to this lesion, and one segment invaginates into the other segment (1,3).

While lesions causing intussusception, usually seen in the small intestine of adults, are benign, lesions causing colonic intussusception are mostly malignant. The lesions in the small intestine include inflammatory lesions, Meckel's diverticulum, postoperative adhesions, lipoma, adenomatous polyps, lymphoma, and metastases (1,4). Previous studies showed that the number of idiopathic cases, which is lower than secondary causes, has increased in recent years (5,6). Despite such an increase in idiopathic cases, the majority of intussusceptions (at least 70%) are still associated with a pathological lesion (5). Our case had ileoileal intussusception, but there was no lesion that could cause intussusception.

Clinical presentation varies in adult cases with intussusception. Unlike the triad (abdominal pain, bloody diarrhea, palpable mass) in children, the initial symptoms are nonspecific; patients may present with subacute or chronic symptoms due to partial obstruction (1,3). The most common symptom is abdominal pain, followed by nausea or vomiting. Abdominal mass, diarrhea, and rectal bleeding are among the rare symptoms, respectively (6). Laboratory findings do not help to diagnose. Yet, leukocytosis and high CRP may be important indicators for strangulation (2,7). Low hemoglobin level (<12g/dl) is another risk factor suggestive of malignancy (4). Our patient also had complaints of recurrent abdominal pain, vomiting, and liquid stool. In the laboratory examination, we observed leukocytosis and elevated CRP.

Radiological examination is decisive in the diagnosis; intussusception is diagnosed preoperatively by USG and CT. USG is the most useful examination method in adults and pediatric patients. Abdominal CT is the most sensitive imaging method to confirm intussusception. CT imaging plays an important role in determining

the localization of the invaginated segment, the type of the mass, its relationship with the surrounding tissues, and staging in the presence of malignant mass (1). First of all, we took our patient to the USG, and then we took an abdominal CT to examine the intussusception. We evaluated CT as secondary intussusception to ileal lipoma. Yet, we could not find lipoma in the pathological examination of the material. Pisano et al.[8] detected a large mass structure that may be compatible with the polyp protruding into the cecum. In the pathological examination following right hemicolectomy, they found that this mass structure consisted of edema and cellular infiltration in the invaginated ileal segment (8). Although it is rare, some cases in the literature reported that, intussusception may develop spontaneously without any etiology (2,9).

The primary treatment for intussusception is surgical resection in adults, unlike children. Reduction in intestinal intussusceptions can be performed after excluding ischemia, gangrene, and malignancy. Reduction is made to limit the extent of the resection or to avoid short bowel syndrome. Since colonic intussusception is mostly associated with malignancy, the reduction is not recommended. Only en bloc resection is recommended by applying an oncological procedure (3,10). In our case, we performed segmental resection and anastomosis because the invaginated segment suffered ischemic necrosis.

Since patients with intussusception apply to a clinic with recurrent partial obstruction symptoms, acute and chronic causes leading to abdominal pain should be excluded for a differential diagnosis. In the literature, the final diagnosis of three cases initially thought to be acute appendicitis, irritable bowel syndrome, and renal colic resulted in intussusception (11,12). In our case, we initially considered acute appendicitis because the patient localized the abdominal pain to the right lower quadrant. Yet, the abdominal USG allowed us to detect intussusception.

In conclusion, although intussusception is rare, it is one of the causes of intestinal obstruction in adults. Benign and malignant pathologies may characterize its pathology, but it should be noted that it may occur idiopathically or spontaneously. It is often diagnosed through CT and treated with surgical resection. Pathological examination is decisive in cases where diagnosis is challenging, or the etiology cannot be determined.

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