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Gastrointestinal

Small bowel intussusception in 2 adults caused by inflammatory polyps

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ABSTRACT

Inflammatory fibroid polyps are rare, benign pseudotumors of the gastrointestinal tract of unknown etiology, which may rarely present as bowel intussusception and obstruction. The authors describe the clinical, radiologic, and pathologic features of 2 patients with ileal inflammatory fibroid polyps presenting as small bowel intussusception.

Introduction

Inflammatory fibroid polyp (IFP) is a rare lesion of the gastrointestinal (GI) tract first described by Vanek in 1949 [1]. Although they may occur in any part of the GI tract, they are most commonly located in the stomach [2,3]. The pathogenesis of IFPs is largely unknown [3]. These lesions encompass a known, albeit rare, cause of small bowel intussusception [4,5]. We describe the clinical, radiologic, and pathologic features of 2 cases of IFPs presenting as small bowel intussusception.

Case 1

A 41-year-old woman presented to the emergency department of our institution with mild colicky lower abdominal pain lasting for less than 6 hours. She referred 1 episode of vomiting and loose stools. Her medical history was unremarkable except for an upper respiratory tract infection treated with one course of antibiotics (amoxicillin/clavulanate) 1 week before presentation. Physical examination revealed a nontender, soft abdomen, with mild pain on deep palpation of the lower

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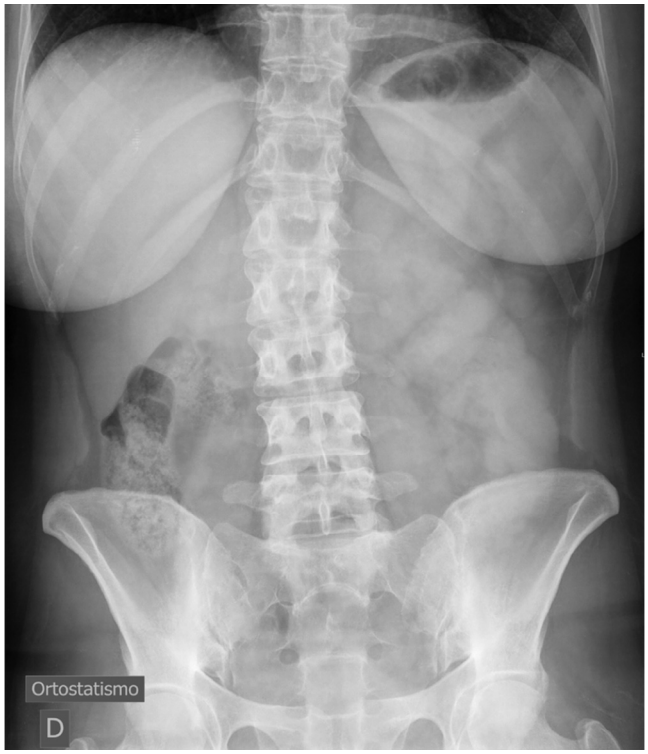

Fig. 1 – Abdominal erect anteroposterior radiograph shows fecal distention of the left colon and normal bowel gas pattern in the right colon. No radiographic signs of intestinal obstruction or pneumoperitoneum are present.

quadrants. There were no signs of peritoneal irritation. Vital signs were within normal limits (blood pressure 140/72 mm Hg, heart rate 69 per minute, 100% O_2 saturation), and her temperature was normal (35.5°C).

Laboratory tests revealed mild microcytic anemia (11.3 g/dL; mean corpuscular volume [MCV] 84.1 fL) and slight hypokalemia (3.3 mEq/L). No leukocytosis was noted (white blood cell [WBC] 8.7×10^9/L). C-reactive protein measurement was not performed.

An erect abdominal radiograph was performed (Fig. 1), which showed fecal distention of the descending colon, but no other significant abnormalities were present.

The patient underwent abdominal ultrasound examination (images not available), which was positive for small bowel intussusception in the hypogastrium. Computed tomography (CT) evaluation (Fig. 2) confirmed an ileoileal intussusception in the lower abdomen. Although no unequivocal endoluminal lesions were noted, a 35-mm-long slight bowel wall thickening was reported. There was no ascites, and no signs of intestinal obstruction were observed.

Exploratory abdominal laparoscopy was performed, confirming the imaging findings. Segmental enterectomy was performed. There were no surgery-related complications, and the patient was discharged 4 days later.

The surgical specimen consisted of a 24-cm-long small intestine segment with hemorrhagic ischemic lesions. In the mucosa, a 48-mm polypoid lesion with smooth surface was present (Fig. 3).

Histologic examination (Fig. 4) revealed a polypoid lesion with superficial interstitial hemorrhage and ischemic lesions. A moderate inflammatory infiltrate was also present. Immunohistochemical study was positive for focal CD34 expression in stromal cells. The final pathologic diagnosis was IFP.

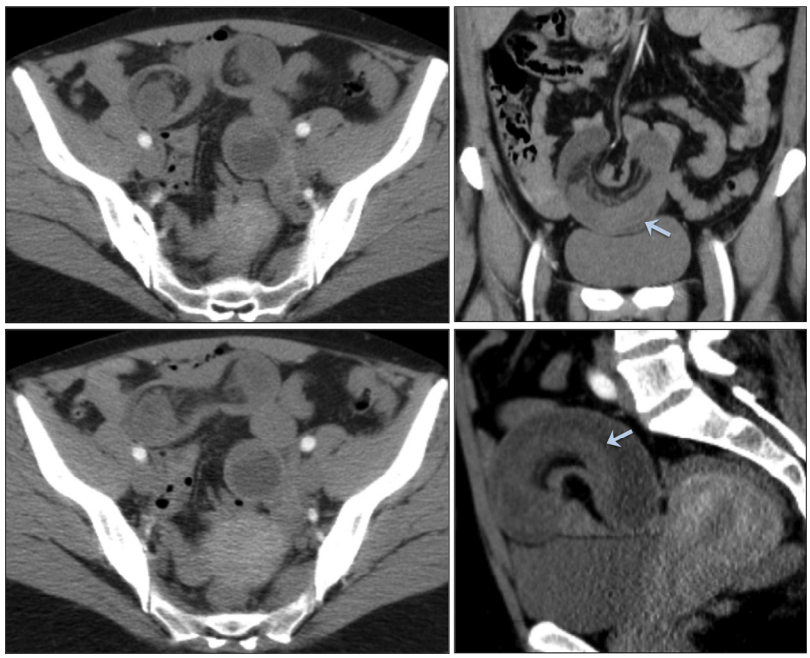

Fig. 2 – Contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis. Contiguous axial images (left panel) confirm typical bowel-in-bowel appearance of intussusception. Coronal and sagittal views (right panel) depict slight bowel wall thickening (arrows). No free peritoneal fluid, lymphadenopathy, liver metastasis, or evidence of bowel obstruction was noted.

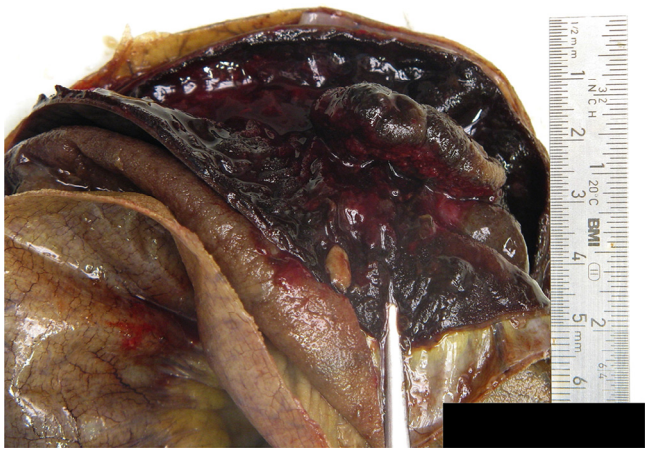

Fig. 3 – Macroscopic specimen from segmental enterectomy. Notorious hemorrhagic ischemia is present in the bowel wall. A polypoid mass is seen protruding into the bowel lumen.

Case 2

A 51-year-old woman presented with diffuse abdominal pain. The pain was mild and colicky in nature and had been present for 2 months, motivating two previous emergency department visits. She referred more intense right upper quadrant abdominal pain and nausea, but no fever, vomiting, or changes in bowel habits were noted. Her medical history was relevant for hypertension, chronic gastritis, and previous cholecystectomy. She had a recent upper endoscopy and colonoscopy with colonic polyp removal. Physical examination revealed a soft abdomen with slight pain on profound palpation of the right upper quadrant, but no signs of peritoneal irritation were present. Vital signs were between normal ranges (blood pressure 127/82 mm Hg, heart rate 82 per minute, 97% O_2 saturation and temperature 36.9°C). Laboratory tests were notable for mild microcytic anemia (10.8 g/dL; MCV 84.0 fL) and elevated C-reactive protein (68.4 mg/L; normal range < 3.0 mg/L). There was no leukocytosis (WBC 6.9×10^9/L), and serum amylase and hepatic transaminases were normal. Erect abdominal radiograph (Fig. 5) revealed dilated small bowel loops with air-fluid levels, consistent with bowel obstruction.

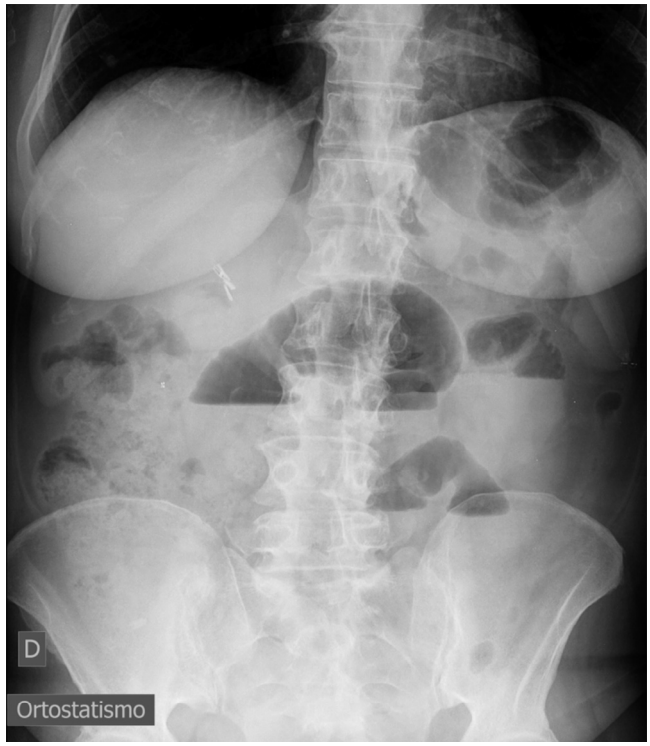

Fig. 5 – Abdominal erect anteroposterior radiograph shows dilated small bowel loops with air-fluid levels, suggesting obstruction, with normal gas pattern distribution of the colon. Surgical clips are present in the right upper quadrant, in keeping with previous cholecystectomy.

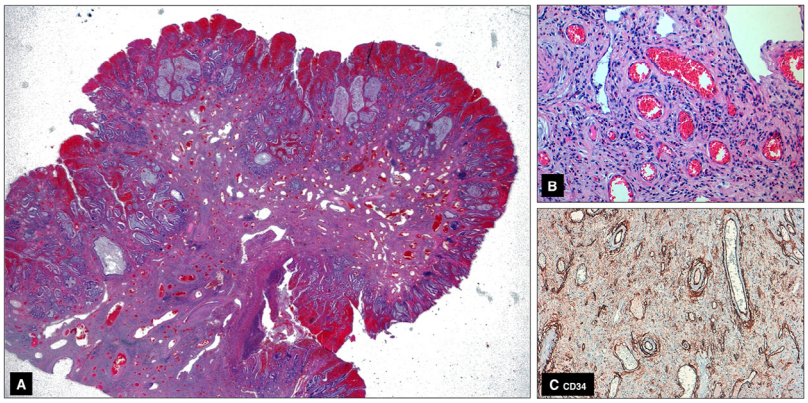

Fig. 4 – Photomicrograph (hematoxylin-eosin [H-E] stain, low magnification, panel A) shows a polypoid lesion with superficial hemorrhage. The polyp axis is composed of fibrous tissue with numerous congestive thin-walled blood vessels. Magnification image (H-E stain, ×200, panel B) depicts concentric onion-like fibrosis surrounding blood vessels in the lesion stalk. A moderate inflammatory infiltrate with plasma cells and eosinophils is also present. Immunohistochemical study (×100, panel C) confirms focal CD34 expression in stromal cells.

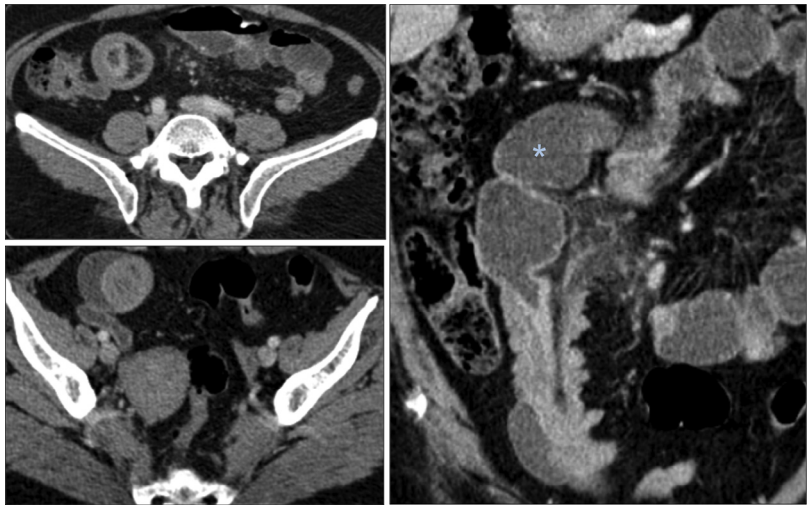

Fig. 6 – Contrast-enhanced computed tomography (CT) scan. Axial images (left panel) and coronal view (right panel) depict bowel-in-bowel appearance of intussusception. Note dilatation of bowel loops proximal to the intussusception (asterisk). There was no free peritoneal fluid, lymphadenopathy, or liver metastasis.

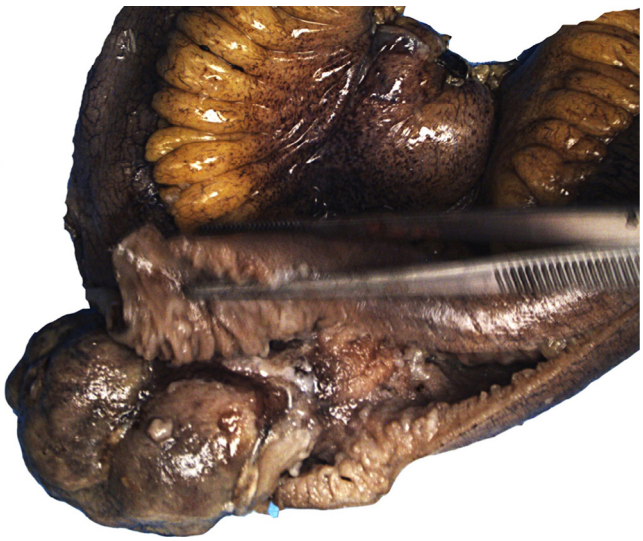

Fig. 7 – Macroscopic specimen from segmental enterectomy. A polypoid lesion with slight surface erosions is seen in the mucosa, protruding into the bowel lumen.

Contrast-enhanced CT of the abdomen and pelvis was performed, confirming obstruction secondary to an ileoileal intussusception in the right lower quadrant (Fig. 6). No ascites, peritoneal, or hepatic nodules were reported.

Exploratory abdominal laparotomy was decided, and segmental enterectomy was performed. The postoperative period was unremarkable, and the patient was discharged after 6 days.

The surgical specimen consisted of a 22-cm-long small intestine segment without significant bowel wall changes. A 55-mm polypoid lesion was present in the mucosa (Fig. 7).

Histologic examination (Fig. 8) revealed a polypoid neoformation with superficial erosions. An inflammatory infiltrate was present. Immunohistochemical study was positive for focal CD34 expression in stromal cells. The final pathologic diagnosis was IFP.

Discussion

Intussusception of the bowel refers to the process in which a loop of small bowel with part of its mesentery invaginates into

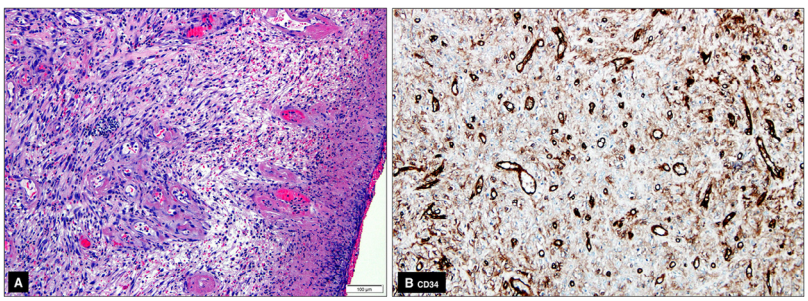

Fig. 8 – Photomicrograph (hematoxylin-eosin [H-E] stain, ×100, panel A) shows a polypoid lesion with superficial erosions. The axis of the polyp is mainly composed of fibrotic tissue along with congestive thin-walled vessels with concentric onion-like fibrosis. A moderate inflammatory infiltrate with plasma cells and eosinophils is present. Immunohistochemical study (×100, panel B) confirms CD34 expression in stromal cells.

the lumen of the bowel segment immediately distal to it. This condition is frequent and usually transient in children. Intussusception in adults accounts for only 5% of all intussusceptions and for only about 1% of all bowel obstructions [4,6]. Regarding location, intussusception is most often enteroenteric, ileocolic, or colo-colic. Most pediatric cases of intussusception are colo-colic, and no leading point is identified. In adults, however, an organic lesion acts as a leading point in about 90% of cases. This is usually a benign lesion in enteroenteric intussusception (eg, Meckel diverticula, polyps) and a malignant lesion in colo-colic intussusception (eg, carcinoma) [4,5,7]. Transient intussusception of the small bowel has been reported both in children and in adults with celiac disease or Crohn disease [5]. Clinically, patients usually present with colicky abdominal pain, nausea, and vomiting. An abdominal mass may be palpable in less than 50% of patients [4,6]. Although ultrasonography can be a useful tool in diagnosing intussusception, particularly in children (with its classic "target" or "pseudokidney" appearances), CT is considered the modality of choice to diagnose, determine the cause, find a lead point, and evaluate for possible complications of intussusception, especially in adults [4,7]. The characteristic features at CT include a target-like appearance when the beam is perpendicular to the longitudinal axis of the intussusception, progressing to a "sausage"-shaped soft tissue mass with layering effect [4,7].

IFPs are rare, benign neoplastic lesions of the GI tract that originate from the submucosa and denote polypoid growth [4]. It occurs most commonly in the stomach, followed by the small bowel, being extremely rare in the esophagus and colon [3,5,8,9]. Its etiology is still largely unknown [3,4]. Peak incidence is between the sixth and the seventh decades of life, and no gender predilection has been noted [2–4]. These lesions have been shown to ulcerate and cause GI bleeding [5], but because of their polypoid morphology and intraluminal growth, they can also rarely present as bowel obstruction or intussusception.

Macroscopically, lesions may be polypoid or sessile, have frequently superficial erosions or ulceration, and can range in size from 0.2 to 12 cm, with an average size of 4 cm [2,3].

At histology, IFPs appear as a submucosal proliferation of monomorphic spindle and stellate cells in fibromyxoid stroma with an inflammatory infiltrate dominated by eosinophils [9]. Spindle-shaped cells are occasionally arranged around vessels and mucosal glands [9], as in our cases. The lesion arises in the submucosa, pushing into the muscularis mucosa, eventually disrupting the mucosa, causing ulceration [8]. The CD34 immunostain is the most useful to confirm the diagnosis of IFP, with stromal cells staining positive for CD34, most often around vessels [8,9]. These lesions show low mitotic activity and low recurrence rate, and absence of necrosis and distant metastasis are evidence of their reactive rather than neoplastic nature [9]. The main differential diagnosis considerations are inflammatory myofibroblastic tumor, GI stromal tumor, and inflammatory polyp related to inflammatory bowel disease (Crohn disease or ulcerative colitis).

Owing to the larger proportion of organic and often malignant lesions acting as leading point for intussusception in adults, surgery remains the treatment of choice in this group of patients [7,10]. In the particular case of IFP, surgical resection is favored over endoscopic biopsy because of the submucosal origin of the lesion [4]. The type of surgical procedure depends mainly on patient's medical history and intraoperative findings [10].

In conclusion, intussusception of the small intestine is a rare cause of bowel obstruction in adults. In the majority of the cases, a pathologic mass acting as leading point is identified. Benign lesions are more frequent in this anatomic location (benign GI stromal tumors, inflammatory polyps, congenital anomalies—eg, Meckel diverticulum—enteric duplication cysts and lipomas). Although no distinctive radiologic features are reported, radiologists must keep in mind IFPs in the differential diagnosis of large, single, mural, or intramural lesions causing intussusception of the small bowel.

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