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Case Report

Colocolic intussusception caused by a large lipoma of the ascending colon: A rare case report[☆]

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ABSTRACT

Intussusception is a rare condition in adults that occurs when a segment of the bowel telescopes into the lumen of the more distal segment. Colocolic intussusception accounts for only 8.3–38% of all intussusception cases in adults, the majority due to malignant causes such as adenocarcinoma, lymphoma, leiomyosarcoma, undifferentiated carcinoma... Lipoma is the most common benign cause, followed by gastrointestinal stromal tumors and adenomatous polyps. Surgery is the recommended treatment for colonic lipoma-induced intussusception. In this report, we describe a rare case of a 52-year-old female patient with colocolic intussusception due to an ascending colon lipoma which was diagnosed by ultrasound and computed tomography.

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Introduction

Intussusception is a condition that occurs when a segment of the bowel telescopes into the lumen of the distal segment. This condition is commonly seen in infants and children, but adults account for 8.2%–31.3% of intussusception cases [1,2]. Depending on the parts of the intestine involved, intussusception is categorized as enteric, colocolic, or ileocolic. Colocolic

intussusception is rare in adults, accounting for only 8.3%–38% of all intussusception cases [1–3].

Colocolic intussusception, caused by benign lesions such as lipoma, leiomyoma, adenomyoma, ..., is less frequent than malignant causes such as adenocarcinoma, lymphoma, Malignant etiologies account for approximately 66% of cases [3]. Lipoma is the most common benign cause, which usually occurs when the tumor is over 4 cm in diameter [4]. Colonic lipomas can be diagnosed based on various techniques, of which

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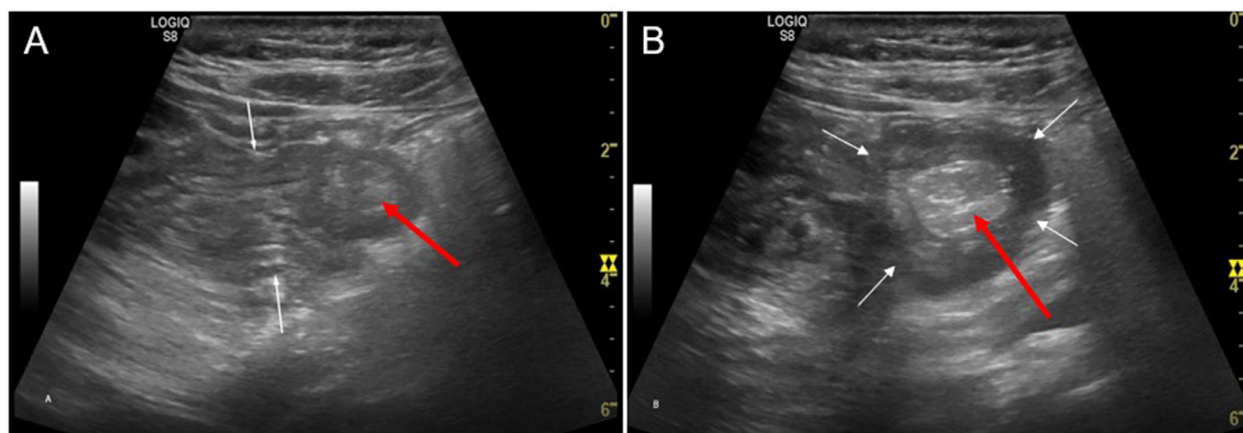


Fig. 1 – Abdominal ultrasound revealed ascending colocolic intussusception which has a sandwich-shaped appearance on longitudinal views (white arrows in A) and target sign on transverse views (white arrows in B), was adjacent to a hyperechoic mass in the colon lumen (red arrows in A and B).

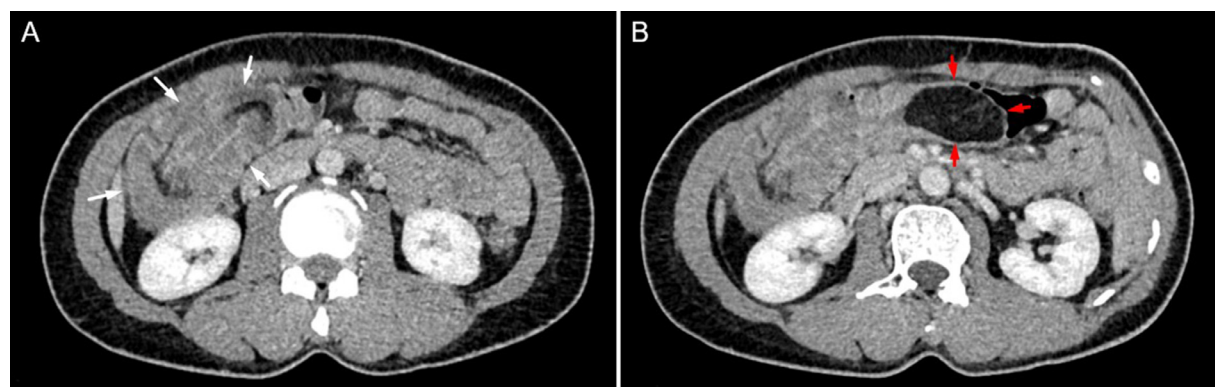


Fig. 2 – The ascending colocolic intussusception (white arrows in A) was caused by a colonic lipoma (red arrows in B).

colonoscopy and abdominal computed tomography are the 2 most commonly used examinations in clinical practice. Ultrasound is a rapid and noninvasive imaging method. However, its effectiveness is limited by factors such as small tumor size, high body mass index, and bloating, resulting in its restricted use in a limited percentage of cases [5].

Various strategies are available for treating colonic lipomas, such as follow-up, endoscopic, or surgical resection, depending on symptoms and tumor size. Surgery is recommended in cases of colonic lipoma-induced intussusception.

Case report

A 52-year-old female patient was admitted to our hospital because of lower right quadrant intermittent abdominal pain for 1 month without vomiting, nausea, fever, weight loss, or change in bowel habits. Her previous history did not reveal any anomalies.

Abdominal ultrasound revealed an intussusception of the ascending colon with a sandwich-shaped appearance in the

longitudinal slices. In the colon lumen, a hyperechoic mass located next to the intussusception with internal septa, and no posterior acoustic shadowing, resembling fat lobules. There was no fat infiltration or fluid collection around the lesion (Fig. 1).

The abdominal computed tomography demonstrated a 68×43mm mass in the ascending colon. The mass had smooth edges, clear boundaries, relatively homogeneous fat density (mean -51 Hounsfield units), and some internal septa. It did not enhance after contrast administration. This mass caused ascending colo-colic intussusception. However, the colon wall still showed good enhancement. No fluid or pneumoperitoneum was detected (Fig. 2). The preoperative diagnosis was colocolic intussusception due to an ascending colon lipoma.

The patient underwent a laparoscopy to excise the ascending colon. Reduction before resection revealed a submucosa mass protruding into the ascending colon lumen. Fat protrudes out when incising this mass (Fig. 3). Histopathological examination confirmed the diagnosis of submucosal lipoma with no signs of fat necrosis or malignancy. The patient recovered uneventfully and was discharged from our hospital 3 days after the surgery.

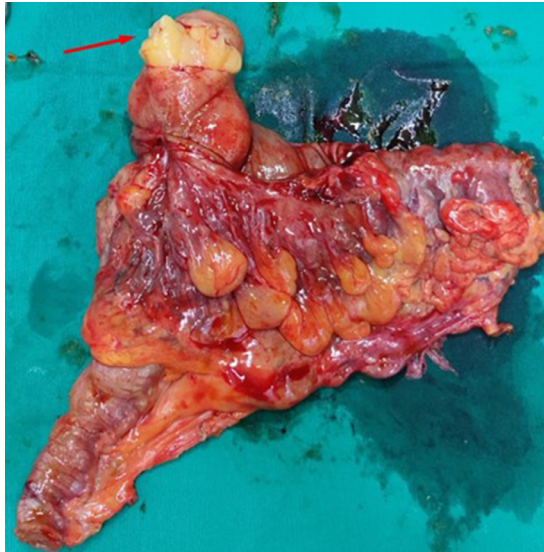


Fig. 3 – After the intussusception reduction and resection, a mass was discovered beneath the mucosa of the ascending colon. The cut surface of the mass appeared bright yellow, indicating possible protruding fat (red arrow).

Discussion

Intussusception is a condition in which a segment of the bowel telescopes into the lumen of the more distal segment, causing intestinal obstruction that can lead to severe complications such as ischemia, necrosis, bleeding, perforation, and peritonitis. While this condition is more frequent in infants and children, it can also occur in adults, accounting for only 8.2%–31.3% of intussusception cases [1,2]. Intussusception typically occurs at the junctions between freely moving segments and adhesional fixed segments. In adults, colocolic intussusception is a rare condition that accounts for only 8.3%–38% of all intussusception cases and is mostly associated with malignant diseases [1–3].

Lipoma is a common benign cause. The transverse colon has the highest incidence of lipomas, followed by the sigmoid colon, the cecum, the ascending colon, the descending colon and the rectum, with rates of 28%, 20%, 19%, 15%, 14% and 4%, respectively [5]. Most colonic lipomas are solitary, with only 10%–20% of patients having multiple colonic lipomas [6].

Colonic lipomas are often asymptomatic and discovered incidentally during colonoscopy or abdominal computed tomography. Only 25% of patients have symptoms, with the most common being abdominal pain, bloody stool, and alteration in bowel habits [7]. Colocolic intussusception is a complication of lipomas, which usually occurs when the tumor is over 4 cm in diameter [4]. While the classic triad of intussusception, including abdominal cramps, bloody stools, and a palpable mass, is common in children, it is extremely rare in adults [3].

Colonic lipomas can be diagnosed based on several methods such as double-contrast barium enema, ultrasound, colonoscopy, abdominal computed tomography, and magnetic

resonance imaging. Ultrasound is a noninvasive, rapid, inexpensive, and widely available method. A lipoma appears as a well-defined hyperechoic mass, with minimal or without vascularization. Ultrasound can also demonstrate 2 typical signs of colocolic intussusception: the sandwich and target signs. The sandwich sign can be seen in the longitudinal orientation, with the hyperechoic mesentery of the intussusceptum partially surrounded by a hypoechoic stripe corresponding to the wall of the loops. The target sign appears as concentric hypo- and hyperechoic stripes in the transverse orientation of the loop, representing 1 loop inside another. However, ultrasound has limitations, such as difficulty in detecting small lesions, challenges in patients with large body mass, and interference from bloating.

Colonoscopy and abdominal computed tomography are the 2 most commonly used examinations in clinical practice. Colonoscopy enables direct observation of tumors and biopsies. Lipomas can be determined by their typical features such as a yellow mass with a smooth surface, with or without a stalk. Blood vessels can be seen on the surface of the tumors because the majority of lipomas originate from the submucosa [8]. Some may have a lobular appearance due to internal septa or show ulceration of the overlying mucosa, which can be misdiagnosed as malignant tumors. Lipomas are soft and elastic masses that can be easily distorted when an endoscope or biopsy forceps are applied to them. However, they quickly return to their original shape, resembling a cushion, when the forceps are removed. This is called the cushion sign, which aids in differentiating lipomas from hard lesions like myomas. During the biopsy of a lipoma, a portion of the overlying mucosa is removed, causing the fat inside the tumor to protrude through the biopsy site. This is a typical feature of a lipoma, referred to as the naked fat sign [4].

Colonic lipomas are easily identified through abdominal computed tomography. They usually appear as submucosal masses with homogenous fat density ranging from -80 to -120 HU and have a spherical or oval shape. However, in some cases, such as tumor ulcers or intussusception, the tumor becomes heterogeneous, containing soft tissue density due to infarction and fat necrosis, which can make diagnosis more challenging and lead to misdiagnosis. Additionally, when the mass has a soft tissue density component, it's essential to differentiate it from liposarcoma [4].

Various strategies are available for treating colonic lipomas, such as follow-up, endoscopic, or surgical removal, depending on their size and symptoms. If the lipoma is small and asymptomatic, follow-up is sufficient. However, if the tumor is symptomatic or larger than 2 cm in diameter, removal should be considered. Endoscopic resection is the preferred method for lipomas that are less than 2 cm in diameter or pedunculated. However, for lipomas that are larger than 2 cm, endoscopic removal has a high risk of complications, including colonic bleeding and perforation [6].

The treatment of intussusception in adults usually requires surgical resection due to a high rate of structural anomalies and malignancy. The choice of surgical method depends on the location, size, cause of intussusception, and condition of the intestinal loop. During colocolic intussusception surgery, reduction before resection is not recommended because most intussusceptions are caused by malignant tumors

[8]. Reduction can increase the risk of intraluminal seeding or venous tumor dissemination. It may also cause perforation and spread of microorganisms, feces, and malignant cells into the peritoneal cavity [3]. Reduction is contraindicated when bowel necrosis is suspected. However, if the benign cause is determined and the intestinal loop shows no signs of necrosis, intussusception can be reduced before surgery to limit the length of the removed colon. Thus, it is essential to distinguish benign from malignant lesions before reduction.

Conclusion

Colocolic intussusception is rare in adults, usually caused by malignant tumors. However, lipoma is one of the benign causes that can be diagnosed by various techniques. Among these, colonoscopy and abdominal computed tomography are the 2 most commonly used examinations in clinical practice. Ultrasound is a rapid and noninvasive imaging method, but its effectiveness is limited. Surgical treatment is the recommended option for colonic lipoma-induced intussusception.

Patient consent

Informed consent for patient information to be published in this article was obtained.

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