Case Report

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Intussusception-induced acute abdomin caused by a giant lipoma in the transverse colon: a rare case report

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Clinical discussion: Intussusception is a common finding among children. Conversely, it is infrequent in adults. Colonic lipomas are generally clinically silent making them a very rare aetiology of intussusception.

Presentation of case: The authors present a case of a 48-year-old male who presented to the emergency department suffering from severe abdominal pain. Following examination and investigations, a giant lipoma (GL) in the transverse colon was identified via ultrasound which showed the classical "target sign" Intussusception among adults is unusual as it accounts for only 1% of bowel obstruction cases. Being colo-colonic makes it even more unlikely since it occurs only in 17% of intestinal obstruction cases. GLs exceeding 5 cm in size can present with a variety of symptoms. Intussusception is an uncommon presentation of a GL. Preoperative diagnosis of GL-induced intussusception is highly improbable and surgical resection is the treatment of choice.

Conclusion: Despite the dominance of the asymptomatic presentation of lipomas, considering its diagnosis in the case of an intussusception-induced acute abdomen should cross physicians' minds.

Keywords: acute abdomen, case report, giant lipoma, intussusception, laparotomy, transverse colon

Introduction

Lipomas are benign non-epithelial (mesenchymal) tumours derived from mature lipocytes. They are found in numerous locations including the skin, adrenal glands, parapharyngeal space, breast, mediastinum, pleura, heart, vessels, brand, and along the entirety of the gastrointestinal tract (GIT)[1,2].

Lipomas of the GIT, which were first described by Bauer in 1757, develop most commonly in the colon-accounts for 65–75% of all GIT, and are considered its second most frequent benign lesion after adenomatous polyps[1,3].

The incidence rate of these tumours ranges from 0.2 to 4.4%[2,4]. Lipomas can be subserosal, intramucosal, or submucosal, and the last represents 90% of all cases[4,5].

HIGHLIGHTS

- Colonic lipomas can cause emergency abdominal pain and hematochezia.
- Lipoma can be encountered in uncommon parts of the gastrointestinal tract including the transverse colon and can grow tremendously to become a giant lipoma.
- Intussusception is very rare in adults; however, it can be a complication of giant colonic lipomas.

In terms of size, colonic lipomas (CLs) vary in size (2 mm–30 cm), and a lipoma is classified as a "giant lipoma (GL)" if it exceeds 5 cm in size[2,5].

On the whole, lipomas are clinically silent, especially the ones that do not exceed 2 cm in size, and they are diagnosed incidentally during colonoscopy, surgery, or even autopsy[2,4]. On the other hand, 75% of cases are symptomatic if a GL is present[2,6].

Symptoms include abdominal pain, diarrhoea, constipation, anaemia, and bleeding, which hinder the diagnosis as they mimic colon malignancies' presentation. In addition, lipomas may induce intussusception[2,3].

Intestinal Intussusception occurs when a proximal loop along with its mesenteric fold (also referred to as intussusceptum) invaginates into a distal one (also referred to as intussuscipiens) following peristalsis[2].

This condition is fairly common among children, and it is also characterized by the typical triad of palpable mass, abdominal pain, and hematochezia. In contrast, intussusception is an unusual finding among adults as it is only responsible for 1–5% of all bowel obstruction cases[4,6].

Moreover, intussusception in adults is much more likely to be caused by a malignant lesion such as adenocarcinoma[4].

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Considering the rare nature of the condition, it can be challenging to diagnose preoperatively. Similarly, preoperative identification of the underlying causes seems highly improbable, and the conclusive diagnosis is confirmed via pathohistological examination[2,4].

We present a case of a GL-induced intussusception in the transverse colon which led to severe abdominal pain.

This case has been reported in line with the SCARE criteria[7].

Presentation of case

A 48-year-old male was admitted to the emergency department due to severe abdominal pain. The patient also complained of nausea, difficulty passing stools, and bloody faeces 2 days prior to admission. Moreover, the patient experienced fear of eating due to postprandial pain which resulted in weight loss over a fortnight. In synchronous with the postprandial pain, changes in bowel movement in the form of new-onset constipation were reported as well.

The patient's past medical history was unremarkable.

During the physical examination, the abdomen was distended and tender and no palpable mass was detected. The rebound tenderness sign was positive as well.

In terms of Initial laboratory results, the haematocrit was slightly decreased due to bleeding [39.3% (reference value: 41–53% for males)]. Conversely, the total white blood cell count (WBC) was elevated [13 000/mm^3 85% neutrophils (reference value: 4500–11 000/mm^3 54–62% Neutrophils)] and so was the C-reactive protein (CRP) [0.5 mg/dl (reference value: Low: < 1.0 mg/dl, Average: 1.0–3.0 mg/dl High: > 3.0 mg/dl)].

An abdominal ultrasound (US) revealed a mass at the umbilical region, consisting of alternating hyperechoic and hypoechoic bands giving the appearance of a "Target Sign", which is indicative of Intestinal intussusception. Moreover, the surrounding mesentery was exhibiting hyper echogenicity which is suggestive of lymph nodes enlargement (Fig. 1).

So to save the intestine from necrosis, the patient was submitted to undergo an urgent exploratory laparotomy as the patient was suffering from an acute abdomen, and due to the high suspicion of a malignant lesion. During the operation, a giant ulcerated lesion causing the intussusception was identified in the transverse colon. In addition, an enlargement in the mesenteric lymph nodes was observed supporting the initial diagnosis of a malignant lesion. Consequently; a radical colectomy was performed in which the ascending colon, intussusception complex, and 6 cm of the transverse colon along with the associated mesentery were resected (Fig. 2). Furthermore, end-to-end colonic anastomosis was performed after the resection.

The histopathological examination revealed submucosal mature lipocytes constituting a benign mass with the presence of mild inflammatory infiltrates (Fig. 3).

The patient was observed in the hospital for a fortnight.

During that period, intravenous fluids were administered along with prophylactic antibiotics (Metronidazole and ceftriaxone), and intestinal motility showed gradual improvement. By the third day, the patient was able to pass wind. On the seventh day, the patient was started on a high-protein diet, and normal defecation ensued.

Figure 1. An abdominal ultrasound was conducted revealing a mass at the site of the transverse colon, consisting of alternating hyperechoic and hypoechoic bands giving the appearance of a "Target Sign", which is indicative of an Intestinal intussusception. Moreover, the surrounding mesentery is exhibiting hyper echogenicity which is suggestive of lymph nodes enlargement.

Laboratory values normalized as the white blood cell count declined to 10 000/mm^3, and so did the C-reactive protein to 15 mg/dl.

The patient was subsequently discharged and followed up for 2 years using repeated US images and blood tests, no abnormalities were recorded.

Discussion

CLs are benign mesenchymal tumours arising from adipocytes. Despite being the second most common benign mesenchymal tumour of GIT following hyperplastic or adenomatous polyps, they are still classified as rare findings as their incidence ranges from 0.035 to 4.4%[3,5].

The incidence of CL peaks between the fifth and the sixth decade with a mean age of 59.3 (1) with a slight deviation towards females (57%)[2].

CL can be encountered in all portions of the colon; however, the ascending colon represents the most common site (61%), followed by the descending colon (21.1%), the transverse colon (15.5%), and the rectum (3.4%).

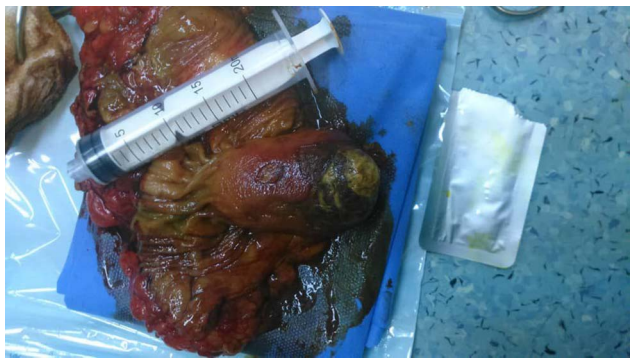

Figure 2. The resected portion of the colon containing the lipoma.

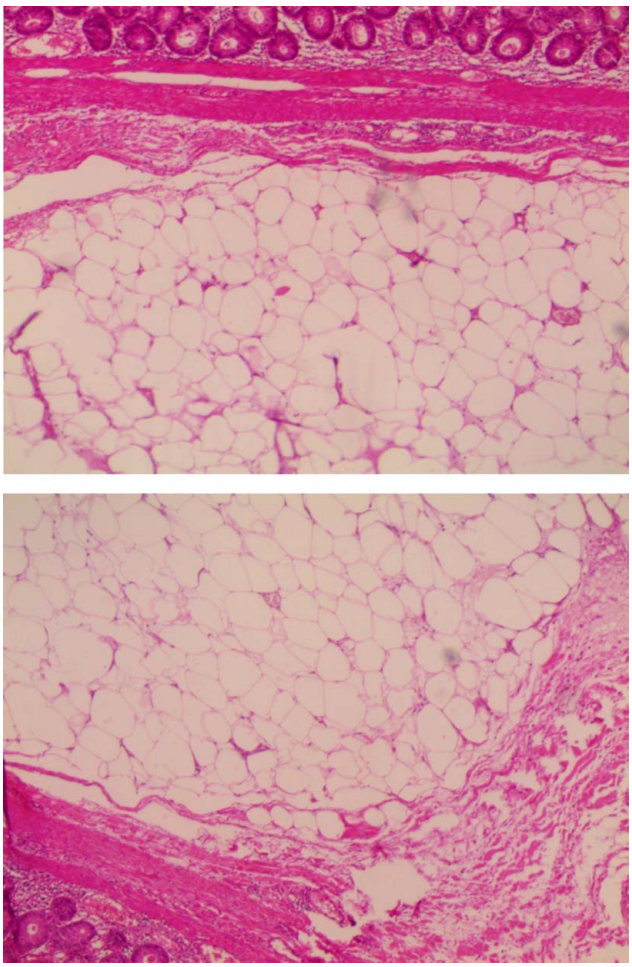

Figure 3. Microscopic examination shows the proliferation of benign lipocytes surrounded by fibrous tissue and mild inflammatory cells.

On the whole, CL measuring 2 cm or less in size are asymptomatic. On the contrary, CL exceeding 2 cm induce symptoms[3].

Our case features a GL measuring 9 cm in size (Fig. 1).

Intussusception is a rare complication of CL accounting for 1% of bowel obstruction cases in adults.

Intussusception requires a lead point that causes the telescoping of the loop.

Different coexisting disorders could contribute to this process including, Inflammatory bowel disease, Meckel's diverticulum, adhesions, iatrogenic lesions, and malignant or benign lesions[3]. Despite that, 20% of cases in adults are idiopathic.

As such, intussusception in adults is a secondary lesion, unlike what is seen in children where it is considered primary with no concomitant lesion. In addition, intussusception among children is more common in comparison to adults[8].

Although the ascending colon is the most common location for CL as mentioned earlier, only 15% of CL at that site will induce intussusception. The transverse colon represents the predominate localization of intussusception-inducing CL (28%)[2].

In addition, colo-colonic intussusception in adults is infrequent as it is encountered in 17% of all intestinal intussusception.

This corresponds well with our case where the CL was situated in the transverse colon.

Intussusception can present with a wide variety of symptoms, abdominal pain is the most common one (83%), followed by constipation (18%), hematochezia (11%), and weight loss (11%)[2].

Our patient reported having all of the symptoms mentioned above.

Other nonspecific symptoms including vomiting (14%) nausea (9%), bloating (3%), tenesmus (3%) fever (2%), and dyspepsia (1%) were also reported in the literature; however, our patient reported none of them.

Regarding the signs, abdominal tenderness is present in (37%) of cases, followed by abdominal distention.

These two signs were positive in our patient.

Unlike our patient, laboratory tests are normal in (61%) of cases[2].

Due to the diverse presentation of the condition, a conclusive diagnosis can be challenging to obtain.

However, imaging methods can be utilized to aid with diagnosis.

Computed tomography scans have a sensitivity of 71–87% and a specificity of 100%. Therefore, it is the most common test (72%)[2].

Colonoscopy represents the second most common test used in (62%) of all cases.

Although colonoscopy is inferior in its sensitivity in comparison to computed tomography scans, it can reveal various signs which are indicative of lipomas. These signs are the tenting sign, the cushion sign, and the naked fat sign[9].

US imaging is the first approach done by physicians; this is due to its rapid nature.

US is used in 18% of cases as it holds a sensitivity of 33% limiting its practicality.

Despite that, the detection of hyper/hypoechoic bands on a solid mass can suggest the presence of a CL[2].

In our case, US was utilized revealing the "Target Sign" (Fig. 1) which was sufficiently suggestive of an intussusception considering the patient's acute abdomen.

The use of MRI is known for its great ability to detect fat tissue, nevertheless, it is not commonly used to observe intestinal lesions[2].

All in all, the definitive diagnosis is confirmed via pathohistological examination[9].

In this case, the pathological examination showed a proliferation of benign lipocytes surrounded by fibrous tissue and mild inflammatory cells (Fig. 3), which confirmed the diagnosis to be a benign lipoma.

Regarding the treatment, it is reliant on several factors including the size, location, presentation, and morphology of the lesion.

Laparoscopic is preferred in lesions smaller than 2 cm, this kind of procedure is minimally invasive, therefore, it shortens the postoperative hospital stay and the recovery period[1].

On the other hand, bigger lesions require a more radical surgical approach[3].

In case of failure to obtain a solid preoperative diagnosis, bowel resection is necessary due to the high possibility of malignancy[2].

As such, our patient underwent a radical colectomy (Fig. 2) followed by end-to-end anastomosis.

Conclusion

CLs are asymptomatic in the vast majority of cases; nonetheless, they can present with intussusception causing an acute abdomen. Physicians should consider colonic lipoma as a differential diagnosis in cases of intussusception-induced acute abdomen.

Ethical approval

Not applicable.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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Author contribution

Conception and design: A.M.W., G.I.A.S. Analysis and interpretation of the data: A.M.W., G.I.A.S. Drafting of the article: A.M.W., G.I.A.S., M.M. Critical revision of the article for important intellectual content: A.M.A., M.S., R.S., M.M. All authors read and approved the final version of the manuscript.

Conflicts of interest disclosure

NA.

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