Intussusception by Colonic Lipoma in a 51-year-old Patient – A Case Report

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Abstract: Intussusception is a rare condition in adults, and often presents with non-specific symptoms. Lipoma, a benign tumour of adipose tissue, is an infrequent cause of intussusception. Standard diagnostic methods include computed tomography (CT) imaging, with typical radiological features such as "bowel-within-bowel" sign enabling a prompt diagnosis with a high sensitivity and specificity. This case report describes a 51-year-old female patient who presented to the emergency department with abdominal pain caused by intussusception, with a gastrointestinal lipoma as the lead point, diagnosed through CT imaging. The article highlights the rarity of colonic lipoma, its potential to cause intussusception and the importance of timely diagnosis to avoid complications like bowel obstruction or necrosis.

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Introduction

By definition, intestinal intussusception presents the invagination of an intestinal loop with a mesenteric fold (intussusceptum) in the lumen of an immediately adjacent segment of the bowel (intussuscipiens) following peristalsis (Balzano et al., 2024).

Lipoma, a benign tumour of adipose tissue, is an uncommon cause of intussusception in contrast to colonic cancer (Busa et al., 2022).

It is more common in pediatric than in adult patients and therefore represents a challenge to be diagnosed in adult groups (Goyal et al., 2023).

Colocolic intussusception caused by lipoma affects female patients more often, typical age being between the fifth and sixth decade of life (Niazi et al., 2023).

It is mainly characterized by non-specific signs and symptoms; most commonly tenderness, followed by abdominal distension joined with abdominal pain, altered bowel movements and low gastrointestinal bleeding (Niazi et al., 2023).

The most common location of gastrointestinal lipoma is the ascending colon (45%) and the rarest is the transverse colon (9%) (Niazi et al., 2023).

Standard diagnostic procedures for identifying lipoma include computed tomography (CT) and magnetic resonance imaging (MRI) (Niazi et al., 2023).

In this report, we present a case of a 51-year-old female patient with gastrointestinal lipoma causing intussusception that was diagnosed via CT imaging.

Case report

A 51-year-old female patient was admitted to the emergency department with non-specific abdominal pain in the lower left quadrant lasting for five days.

Physical examination revealed a soft abdomen with mild tenderness in the lower left quadrant.

Laboratory blood tests showed elevated CRP (C-reactive protein) of 29.3 (mg/l) and leukocytes of 10.34 (thou/µl), while renal and liver function tests were within normal values.

Due to the previous findings, clinicians suspected acute abdomen and requested a CT.

Hydro-CT of the abdomen with native and contrast venous phase revealed a thickening of up to 3 cm of the colon transversum with a "bowel-within-bowel" sign (Figure 1). The wall of the colon showed no enhancement of contrast agent. These findings were indicative of colocolic intussusception.

Aboral of the invagination a mass measuring 3.2×3.9×4 cm (AP [anteroposterior] × CC [craniocaudal] × LL [laterolateral]), mostly consisting of adipose tissue, was found (Figures 2 and 3). The small intestine showed no signs of dilatation. Additionally, there was no evidence of passage disruption. Pericolic fat stranding in the region of intussusception was observed.

Furthermore, two lymph nodes in the surrounding area of the mass were detected, the bigger one measuring 0.7×0.6 cm. No signs of free air or free fluids were seen.

A colonoscopy was performed the next day which confirmed a mass suspicious of colon carcinoma causing the invagination. A histopathologic study afterward was not able to confirm the dignity of the lesion.

A laparoscopic resection of the bowel was performed: the histopathological report described a colon segment with a completely removed submucosal lipoma measuring 3.5 cm, no positivity for CD117 (c-kit), no reaction to CK 7 and no evidence of malignancy.

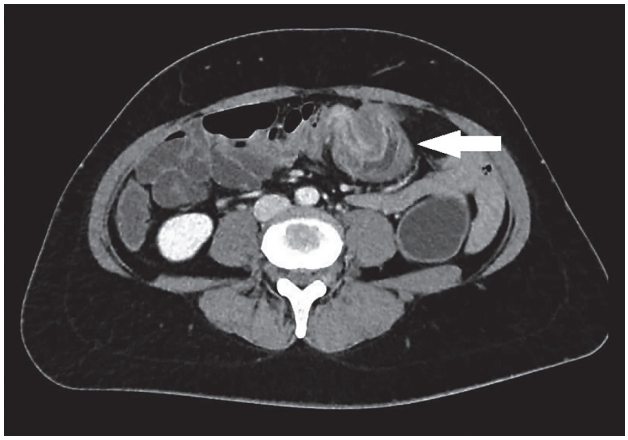

Figure 1: Abdominal hydro-computed tomography, venous phase, axial view. The "bowel-within-bowel" configuration of transversal colon, in which the layers of the bowel are duplicated forming concentric rings.

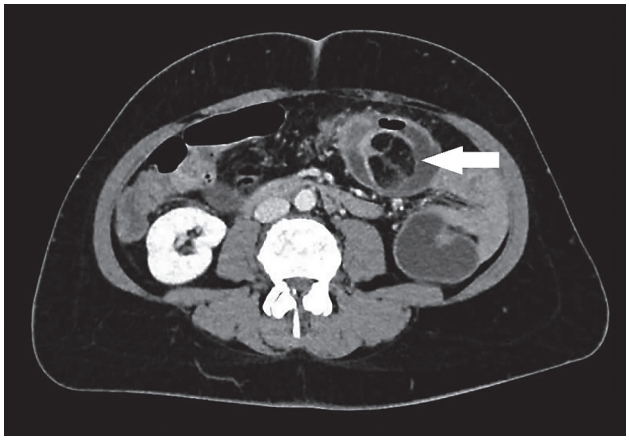

Figure 2: Abdominal hydro-computed tomography, venous phase, axial view. The lipomatous mass lesion aborally to the intussusception showed as a well-defined, fat-density lesion.

Figure 3: Abdominal hydro-computed tomography, venous phase, coronal view. The pedunculated lipomatous mass as the leading point of the intussusception.

Discussion

While intussusception represents a common condition in pediatric patients with 95% of all intussusception cases, it is a rare finding among adults with the remaining 5%, affecting mainly female patients with a typical age being between 40 and 70 years (Goyal et al., 2023; Niazi et al., 2023).

The incidence rate of colonic lipoma is reported to be between 0.2 and 4.5% worldwide, with only 17% resulting in colocolic intussusception (Panagiotakis et al., 2017; Niazi et al., 2023). They are the third most common benign tumours found in the large intestine, following hyperplastic and adenomatous polyps (Panagiotakis et al., 2017).

Smaller lipomas are mostly asymptomatic, while lipomas larger than 2 cm, even though they are rare, can cause abdominal pain, intussusception, change in bowel habits and gastrointestinal bleeding (Abu-Khalaf et al., 2024).

A literature review indicates that larger lipomas are associated with an increased risk of intussusception, with many sources using the term "giant lipoma", although a clear definition is not established.

Some authors use the term giant lipoma for lipomatous masses that exceed 4.5, some define the limit to be 5 cm, while Yaman et al. (2013) define it as a lesion with a measurement of at least 10 cm in one dimension or a minimum weight of a 1,000 g (Panagiotakis et al., 2017; Abu-Khalaf et al., 2024).

A few pathophysiological mechanisms have been proposed to lead to this condition: a tumour may act as a foreign body, inducing intense peristalsis that allows the contracted bowel to slip into the dilated section. Furthermore, the tumour can inhibit muscle function or be pulled forward by traction (Mouaqit et al., 2013).

In 90% of the cases, the lipomas of the colon are submucosal (Kim et al., 2006).

Characteristic signs of lipoma seen on CT include the "pillow mark", which is a soft lesion that shows a cushion-like indentation in the mucosa when pressed with closed biopsy forceps and the "bare fat mark" which refers to the leakage of fat following a biopsy (Niazi et al., 2023).

Additionally, if a lesion has a fat-equivalent density (–40 to –120 Hounsfields units [HU]) and sharp margins, there is a strong suspicion that it is a lipomatous lesion (Mouaqit et al., 2013).

The invagination of the intussusceptum into the intussuscipiens presents as a "target" sign due to the alternating patterns of intestinal walls and mesenteric fat when viewed in a plane perpendicular to the main axis of the affected segment (Balzano et al., 2024).

A pathognomonic sign, also observed in our case, is the "bowel-within-bowel" configuration, where the bowel layers overlap, resulting in a circular formation (Kim et al., 2006).

The appearance of intussusception is influenced by factors such as the presence of a lead point, the configuration of the lead mass, the extent of bowel walls edema, and the amount of invaginated mesenteric fat. When bowel wall edema occurs due to compromised circulation in the mesenteric vessels, thickened bowel loops can complicate the distinction between a lead mass and inflammation, as the lead mass may present as amorphous (Kim et al., 2006).

The sensitivity of CT scans for diagnosing intussusception ranges from 71.4 to 87.5%, with a specificity of 100% (Mouaqit et al., 2013; Panagiotakis et al., 2017). Therefore, CT continues to be the diagnostic modality of choice for intussusception as it can precisely identify the intussusceptive tissue and the lead point (Goyal et al., 2023).

Endoscopy offers insight into the external features of a lesion, but without a biopsy, it is not a diagnostic procedure by itself, as it can misidentify lipomas as adenomas (Busa et al., 2022; Abu-Khalaf et al., 2024).

The importance of prompt diagnosis in this condition lies in its potential to lead to obstruction of the inner passage, which can affect the mesentery, impair blood flow, and ultimately cause tissue damage.

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This can result in various further complications, such as intestinal blockage, necrosis, and sepsis (Goyal et al., 2023). Additionally, large internal lipomas can cause abdominal pain, kidney failure and other systemic issues, and they may even undergo sarcomatous transformation (Yaman et al., 2013).

Approximately two-thirds of colonic intussusceptions result from primary adenocarcinoma. Consequently, if a lipoma is not identified before surgery, as in our case, it should be managed as if it were cancer, necessitating the removal of a significant portion of the colon (Niazi et al., 2023).

Conclusion

The diagnosis of intussusception caused by lipoma is challenging, given the rarity and non-specific symptoms of the condition.

Given that abdominal pain is one of the most frequent reasons for emergency room visits, it is crucial to consider it as a possible differential diagnosis in these patients.

The emphasis is on a detailed diagnostic approach, centered around CT imaging, to prevent potential complications.

Our case report is an ideal example of intussusception caused by lipoma that was recognized promptly using CT diagnostics.

Additional reports on intussusception are needed to enhance the diagnostic approach for this rare condition.

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