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# Small Bowel Obstruction on Acute Intestinal Invagination Induced by Lipoma

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**Abstract** **Case Report**

Acute intestinal intussusception in adults is a rare condition, often due to a rarely benign malignant lesion. The clinic is subtle and therefore difficult. Imaging is important for diagnosis and determination of the aetiology. Intestinal intussusception on lipoma is exceptional. We report a case of bowel obstruction upstream of a strangulated ileo-caecal intussusception on lipoma.

**Keywords:** Occlusion; Acute intestinal obstruction; Lipoma.



## INTRODUCTION

Acute intestinal obstruction in adults is a rare condition. It accounts for 5% of cases of intussusception and is most often due to an organic cause (malignant lesion rarely benign) acting as the apex of the intussusception [1]. Its diagnosis is delayed because of its usually chronic or subacute course [1, 2]. Imaging is an important part of the diagnosis and treatment is based on surgery, although some modalities are still debated. We report a case of a bowel obstruction upstream of a strangulated intestinal intussusception on lipoma, the diagnosis of which was suggested on ultrasound and CT scan.

## OBSERVATION

A 60-year-old woman with no previous medical history was admitted to the emergency department with abdominal pain, vomiting associated with cessation of bowel movements and gas for 3 days. Physical examination revealed tenderness in the right iliac fossa, with no abdominal contractures or defences. No masses or organomegaly were palpable. Vitals were normal, hemodynamics stable and the hernial orifices free. The usual biological tests (CBC, CRP, Urea/Creatinine, Ionogram) were unremarkable. The radiography of the abdomen without preparation showed some hydroaeric levels in the groin. The abdominal ultrasound scan showed a large hyperechoic formation. On the CT scan, it was a distension of the bowel with a hydroaeric level upstream of a strangulated ileo-caecal invagination, creating a cocoon image with a well-limited endoluminal mass, with homogeneous fat density (-57 HU), unchanged by the injection of the contrast medium and trapping of the mesenteric fat at this level (Figure 1, 2 and 3). The surgical procedure consisted of an ileo-coecal resection. Histopathology confirmed the diagnosis. The postoperative course was simple.

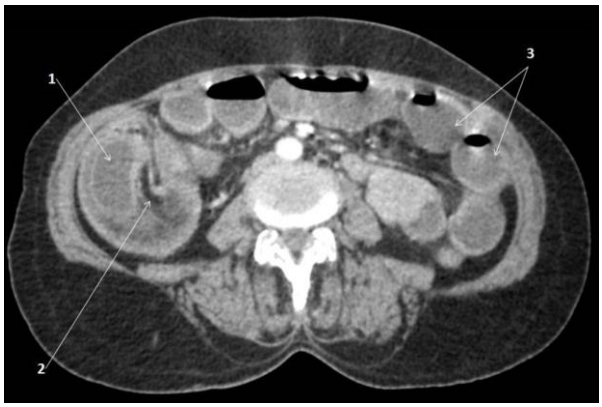


**Figure 1:** ***Axial slice abdominal CT scan at portal time:*** **Cocardial image showing an invaginated bowel loop (1) telescoped by a lipoma associated with distension of upstream gallbladder rings with hydroaeric levels (3)**

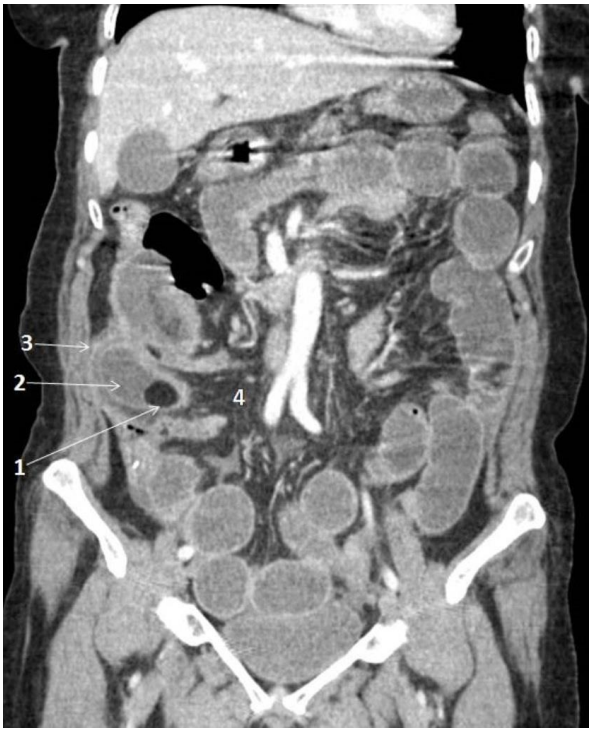


**Figure 2:** ***Coronal slice abdominal CT scan at portal time:*** **Illustration of the lipoma-induced telescoping image (1) of an ileal loop (2) which invaginates into the ileo-caecal segment (3) resulting in the entrapment of mesenteric fat (4)**


**Figure 3:** ***Abdominal CT scan in sagittal section at portal time:*** **Pseudo-rein image of the invaginated loop (1) within which the lipoma (2), invaginated loop (3) and trapped mesenteric fat (4) are found**

## DISCUSSION

Acute intestinal intussusception is defined by the telescoping of an intestinal segment into the underlying segment [1]. Lipoma is a rare lesion of the gastrointestinal tract, selectively affecting the ileum in the vicinity of the ileocecal valve and the proximal jejunum [2].

Lipoma-related intestinal intussusception is due to several mechanisms: a tumour can be grasped and pulled forward by traction, a tumour can act as a foreign body causing violent peristalsis so that the contracted intestine around the tumour can easily move into the distal dilated part [2].

The clinical manifestations of intestinal invagination in adults are not very specific, which may make it difficult to recognise, as it may present as an acute occlusive picture, a progressive occlusive picture lasting a few days to a few weeks or non-specific abdominal syndromes (transit changes, diffuse abdominal pain, digestive bleeding,...) sometimes evolving for several months with/without any alteration in the general state of health [3].

However, most lipomas are asymptomatic and the appearance of symptoms is correlated with the size of the tumour. Lesions less than 1 cm in diameter are asymptomatic, but those larger than 4 cm may become symptomatic and cause acute pain, occult bleeding due to mucosal ulceration or intestinal obstruction due to intussusception [2].

Unprepared abdominal radiographs show an occlusive syndrome with hydroaerobic levels in the bowel and may show intestinal intussusception as a mass of dense tissue tone. On standard radiography, the target and meniscus image of the intussusception is rarely visible. The meniscus image corresponds to the intraluminal air surrounding the apex of the intussusception loop; and the "target" image corresponds to that of a ring formed by the intussusception and intussusception loops surrounding a slightly eccentric fatty mass corresponding to the intussusception mesentery [4].

On ultrasound, the invagination shows an external hypoechoic annular band which corresponds to the wall of the oedematous invaginated loop. The invaginated mesentery is hyperechoic in the centre or slightly eccentric and surrounded by hypoechoic folds of the invaginated loop. In transverse section the invagination appears as a "target" or "doughnut" sign, in longitudinal section as a "trident" sign and obliquely as a "pseudo-kidney" [4, 5]. Ultrasound can be used to suggest signs of distress in the digestive tract. Ultrasound and Doppler also have an important role to play in demonstrating the volvulus of the small intestine and its spiral turns [6].

Concerning tumours, some studies have shown that ultrasound is not always efficient, because the limits of the tumour are imprecise and its exact location in relation to the peritoneum is difficult to specify with accuracy. Also, it should be noted that echogenicity varies from one lipoma to another [6].

CT is the imaging method of choice due to its sensitivity and specificity for the precise anatomical diagnosis of intestinal obstruction by intussusception and the lesion involved. It also allows for differential diagnosis.

The appearance of the intussusception on CT is pathognomonic. In axial section, it is a targetlike image formed by the invaginated folds and hyperdense replies of the invaginated loop. The hypodense mesentery is interposed between its invaginated and invaginated loop folds. The outer layer of the invagination corresponds to the invaginated loop with oedema. It appears as a slightly hypodense tissue ring [4].

The CT scan also gives indirect signs of intestinal ischaemia such as the presence of intraperitoneal fluid and the state of fluid or gas collection in the bowel wall. Although the diagnosis of intussusception is straightforward on a CT scan in general, negative results do not preclude the existence of intussusception [5].

The CT scan also reveals the lesion responsible for the intussusception, i.e. the lipoma, which appears as a homogeneous fatty mass with a negative density (-50 to -100 HU) located at the top of the intussusception [4].

Treatment is primarily surgical, consisting of surgical resection due to the high proportion of structural causes and the relatively high incidence of malignancy. Furthermore, there is controversy about the most optimal management technique [7].

## CONCLUSION

Acute intestinal intussusception due to lipoma is a rare condition. Imaging studies, namely ultrasound and CT scan, play an important role in the diagnosis and etiology of the condition. The CT scan remains the only means of better exploration of lipoma.

**Conflict of Interest:** The authors declare no conflict.

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