Case 15560

Eurorad

Small bowel lipoma intussusception as cause of small bowel obstruction

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Section: Abdominal imaging
Area of Interest: Gastrointestinal tract
Procedure: Surgery
Procedure: Diagnostic procedure
Imaging Technique: Experimental
Imaging Technique: CT
Imaging Technique: Ultrasound
Special Focus: Obstruction / Occlusion Pathology
Case Type: Clinical Cases
Authors: Adelard I De Backer1, Olivier Vankerschaver2, Koenraad J Mortelé3
Patient: 20 years, female

Clinical History:

A 20-year-old female patient presented with recurrent abdominal pain and abdominal distension for two months. The patient presented at the emergency department with worsening abdominal pain, one episode of diarrhoea, and vomiting for one day. On physical examination the abdomen was slightly distended with diffuse tenderness without rebound.

Imaging Findings:

Abdominal ultrasound showed fluid distension of small bowel. A mass in the lower abdomen, composed of concentric alternating echogenic and hypechogenic bands with central broad echogenic area with crescent delineation, was noted (Fig. 1a). More distally, an echogenic mass centrally located in the ileum was noted (Fig. 1b). CT scan showed invagination of a segment of the small bowel with its mesentery in an adjacent segment (Fig. 2a, b and Fig. 3a). At the end, two well-circumscribed, round, sharply delineated, homogeneous fat density masses with sharp margins were noted (Fig. 2c and Fig. 3b). Diagnosis of lead point ileoileal intussusception caused by lipomas with subsequent obstruction was made.
At laparatomy, a submucosal mass and small bowel epiploic appendage, each measuring 2.5 cm, were seen. Manual reduction and limited small bowel resection was performed (Fig. 4 and Fig. 5). Histological examination confirmed submucosal lipoma, oedematous mucosa and bowel wall inflammation.

Discussion:

Benign tumours, e.g. lipoma, of the small bowel are rare. With increasing size unspecific abdominal complaints may occur and include anaemia, intermittent pain, diarrhoea, intestinal bleeding, intestinal obstruction and intussusception [1].
In ileoileal intussusception, a small bowel loop with its associated mesentery infolds and inverts more distally into the lumen of a neighbouring loop of bowel and is carried distally by peristalsis. Intussusception in adults is uncommon and in a majority of cases resulting from a pathologic condition [2, 3]. Benign tumour (lipoma, leiomyoma, haemangioma, neurofibroma, inflammatory fibroid polyp), inverted Meckel’s diverticulum, lymphoid

hyperplasia, venous malformation, adhesion, intestinal duplication and in a minority of cases malignant mass (most often metastases), may cause intussusception by forming a lead point. Polypoid masses have been reported with higher frequency to cause intussusception as peristalsis pushes the lesion into the neighbouring loop of bowel [2, 3]. Clinical symptoms resulting from bowel obstruction may be nonspecific. Intermittent crampy abdominal complaints, nausea, and a history of vomiting may be present. A palpable abdominal mass, abdominal pain associated with red currant jelly stool may suggest lead point intussusception [2]. Intussusception with intestinal obstruction may cause ischaemia of the bowel wall and symptoms of acute abdomen [3].
On ultrasound, imaging features include a “target” or “doughnut” sign on the transverse plane: a hypoechoic rim, representing oedematous bowel wall, surrounding a hyperechoic central area, representing intussuscepted mesenteric fat, and compressed bowel loop. In the longitudinal view a “pseudo-kidney” sign or “hay-fork” sign may be seen: a hypoechoic bowel wall, mimicking the renal cortex, and hyperechoic mesentery containing vessels, mimicking the renal hilum [4]. On CT, intussusception appears as a target like or sausage-shaped mass, depending on the projection [2]. A bowel-within-bowel appearance with or without mesenteric fat is a pathognomonic sign [2, 3, 4]. Ultrasound as well as CT may show a lead mass, signs of bowel obstruction and ischaemia of the bowel wall. Impaired mesenteric circulation may result in oedema with loss of the classic three-layer appearance of the bowel wall [2, 4]. When a lead point is absent intussusception is usually smaller in diameter, shorter in length and signs of intestinal obstruction are not present [5].
Lead point intussusception with small bowel obstruction may result in bowel ischaemia.
In the presence of a benign mass as the underlying cause, surgical intervention with manual reduction and resection of the pathologic bowel segment should be performed. [4].
Differential Diagnosis List: Ileoileal intussusception with a lipoma lead point., Intussusception due to leiomyoma or inflammatory polyp, Ileocolic intussusception, Small bowel volvulus, Small bowel obstruction due to adhesions

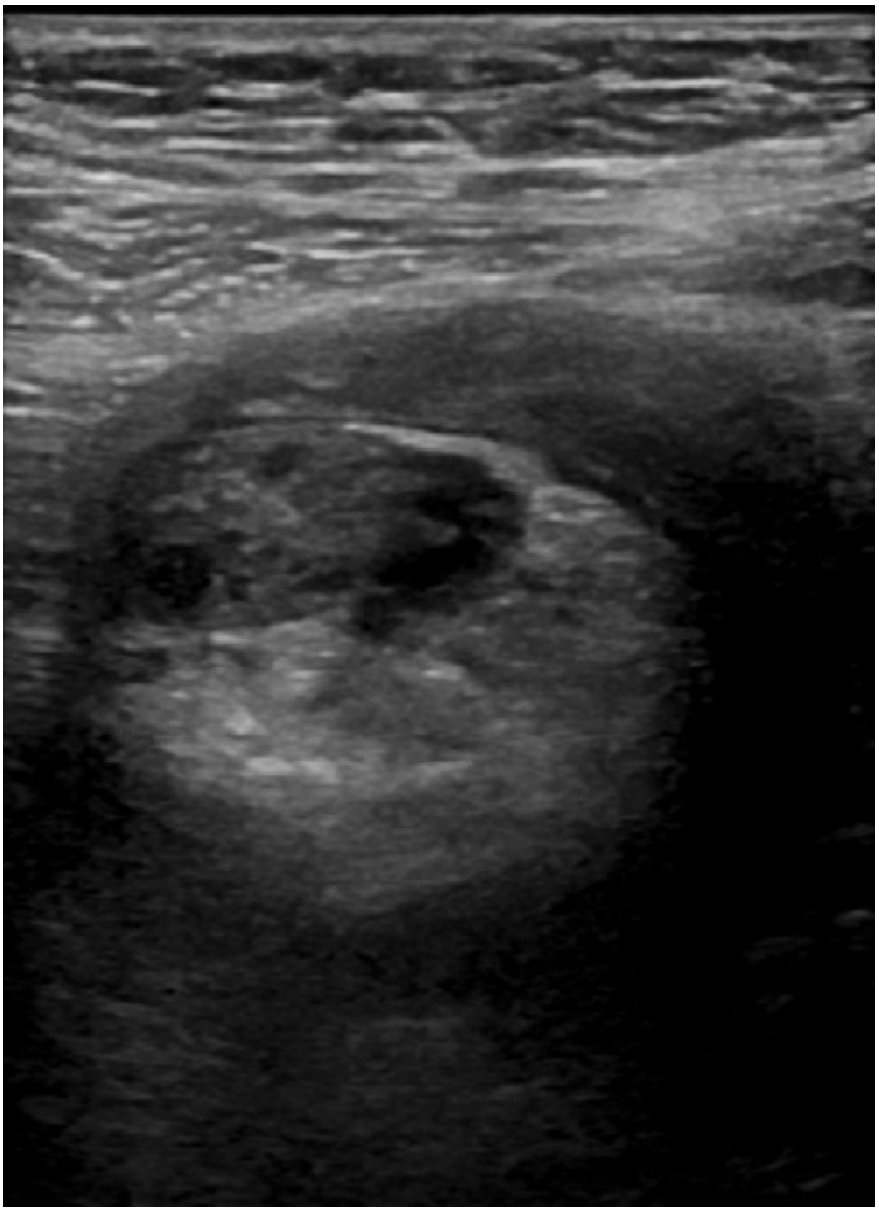
Final Diagnosis: Ileoileal intussusception with a lipoma lead point.

References:

1. Destro F, Cantone N, Maffi M, Gargano T, Lima M (2014) An Interesting Case of Double Compound Intussusception without Intestinal Occlusion in a 5-Year-Old Boy. European J Pediatr Surg Rep 2(1):20-22. doi: 10.1055/s-0033-1361925 (PMID: 25755962)
2. Bilgin M, Toprak H, Ahmad IC, Yardimci E, Kocakoc E (2012) Ileocecal Intussusception due to a Lipoma in an Adult. Case Rep Surg 684298. doi: 10.1155/2012/684298 (PMID: 22991683)
3. Kim YH, Blake MA, Harisinghani MG, Archer-Arroyo K, Hahn PF, Pitman MB, Mueller PR (2006) Adult intestinal intussusception: CT appearances and identification of a causative lead point. Radiographics 26(3):733-744 (PMID: 16702451)
4. Marinis A, Yiallourou A, Samanides L, Dafnios N, Anastasopoulos G, Vassiliou I, Theodosopoulos T (2009)) Intussusception of the bowel in adults: a review. World J Gastroenterol 15(4):407-411 doi: 10.3748/wjg.15.407 (PMID: 19152443)
5. Gayer G, Apter S, Hofmann C, Nass S, Amitai M, Zissin R, Hertz M (1998) Intussusception in adults: CT diagnosis. Clin Radiol 53(1):53-57 (PMID: 9464437)

Figure 1

a



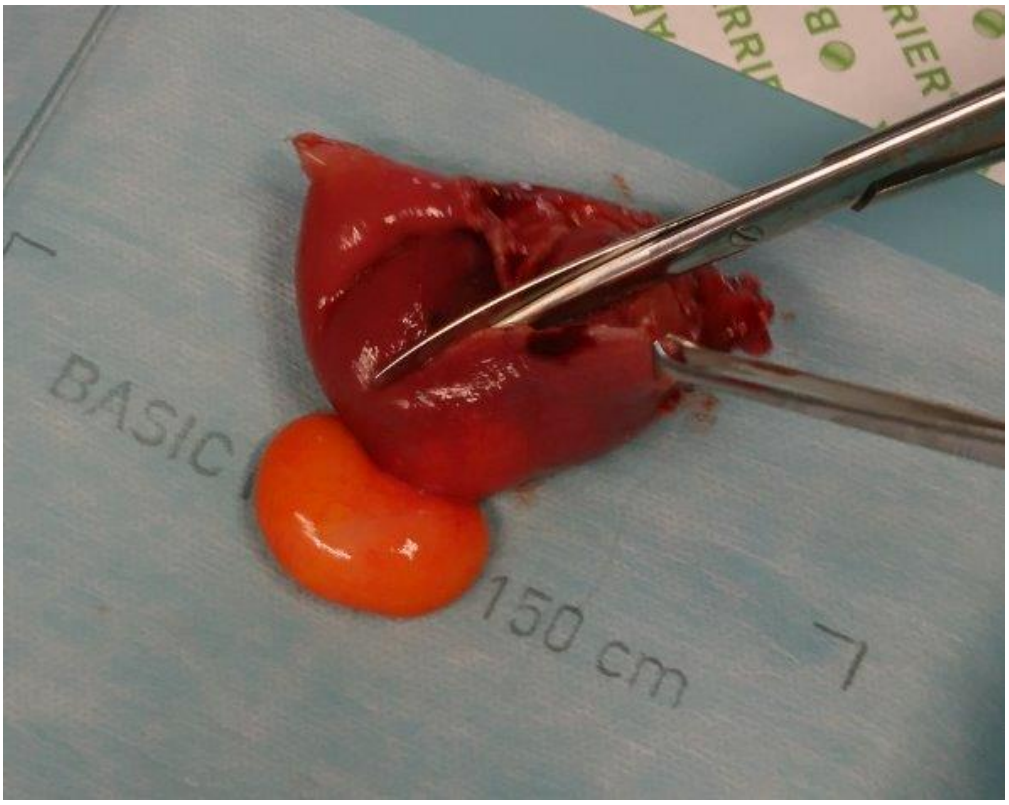
Description: Ultrasound of the abdomen showing a mass composed of echogenic bands (bowel wall) with central broad echogenic area (mesenteric fat and vessels) with crescent delineation. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

b

Description: More distally an echogenic mass centrally located in the ileum, representing a lipoma, is noted. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

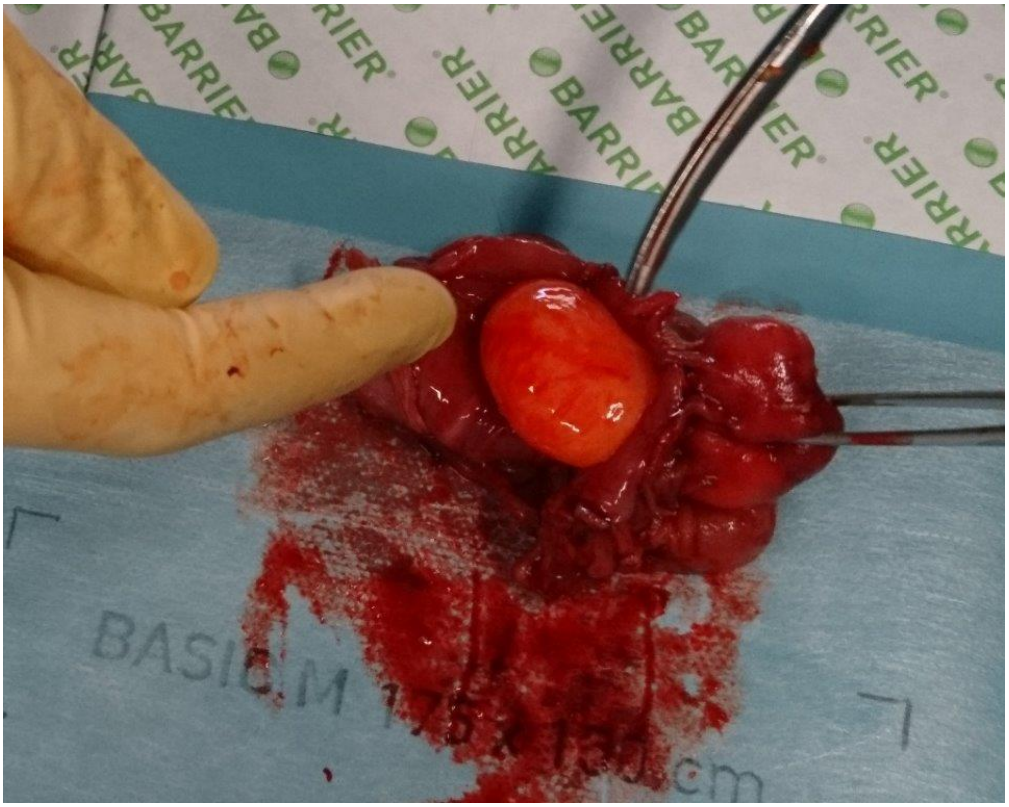
Figure 2

a



Description: The resected specimen containing the mass lesions is presented. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

b



Description: Section of the bowel wall shows a submucosal mass and oedematous mucosa. At the antimesenteric border an extraluminal lipomatous mass is seen. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

Figure 3

a

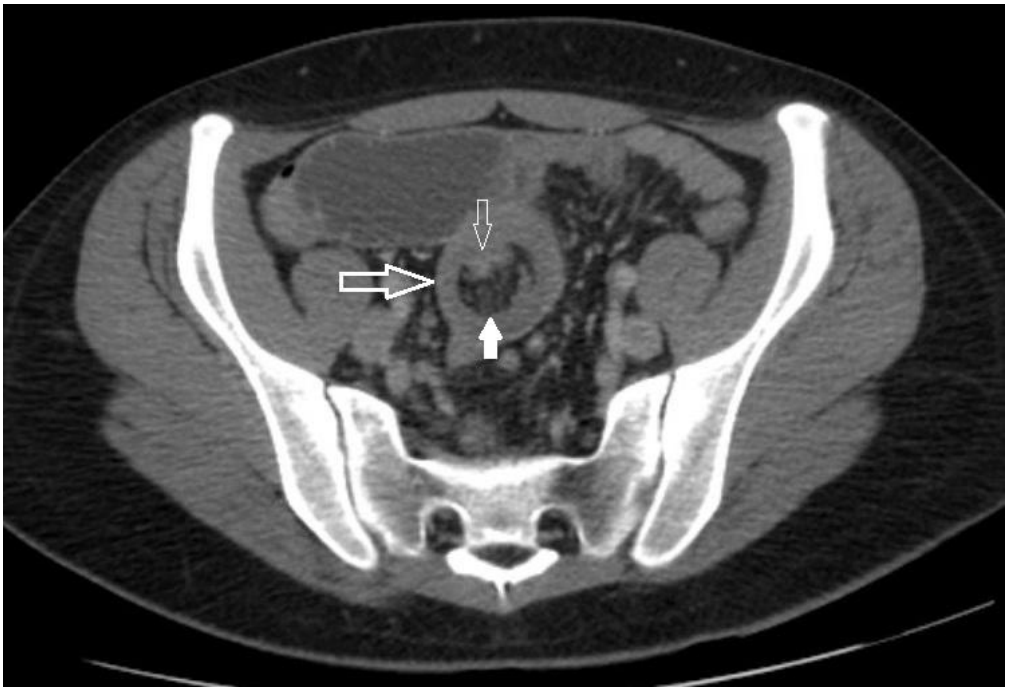
Description: Video showing ileoileal intussusception and after manual reduction a lipoma lead point.
Origin: De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

Figure 4

a

Description: Contiguous axial CT images in caudal direction showing the inner intussusceptum, an eccentric fat density mass that represents the intussuscepted mesenteric fat and the outer intussuscipiens representing the bowel wall. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgiumg

b

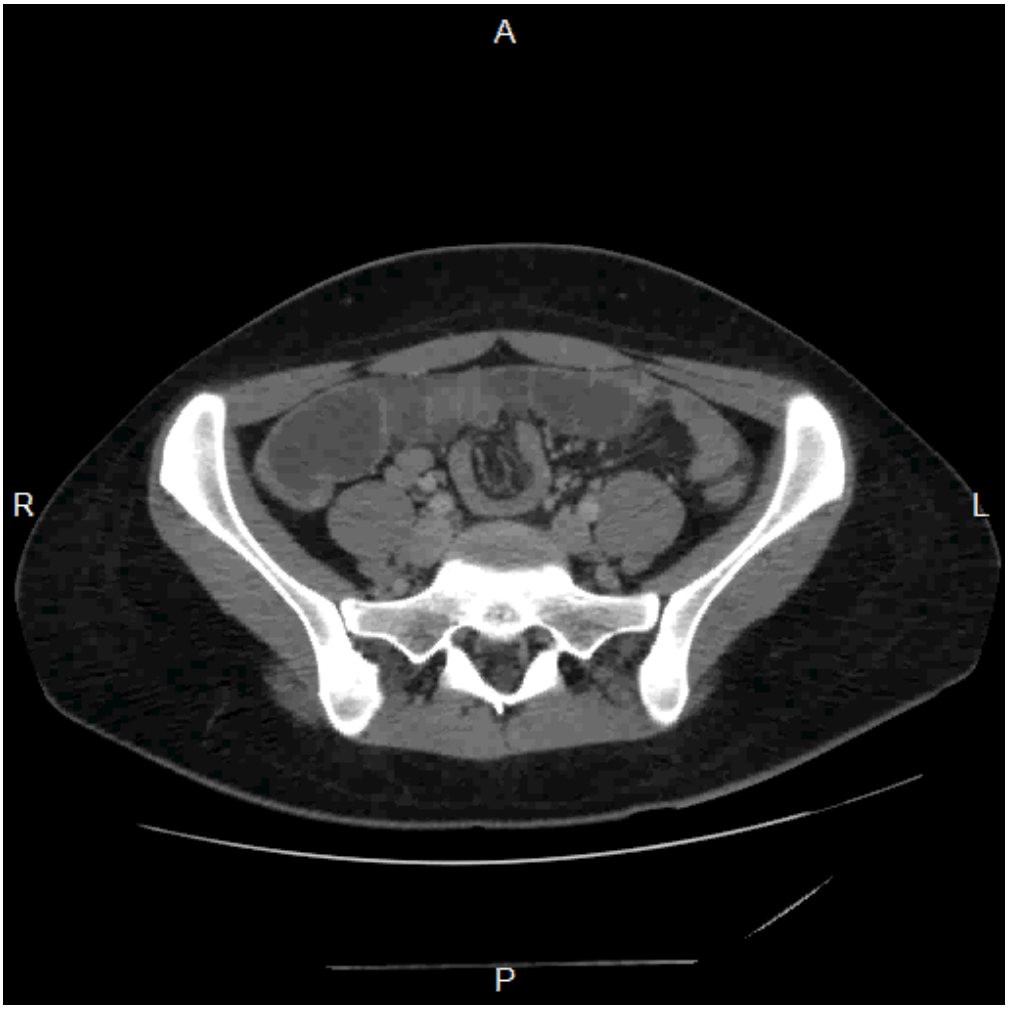


Description: Axial CT image showing 'target' or 'doughnut' sign with outher bowel wall (large open arrow) surrounding the central area of intussuscepted mesenteric fat (closed arrow) and compressed loop of bowel (small open arrow). **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgiumg

c

Description: At the end, two well-circumscribed, round sharply delineated homogenous fat density masses with sharp margins are seen (arrow). Homogeneous mass with Hounsfield Units between -80 and -120 is virtually diagnostic of a lipoma. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgiumg

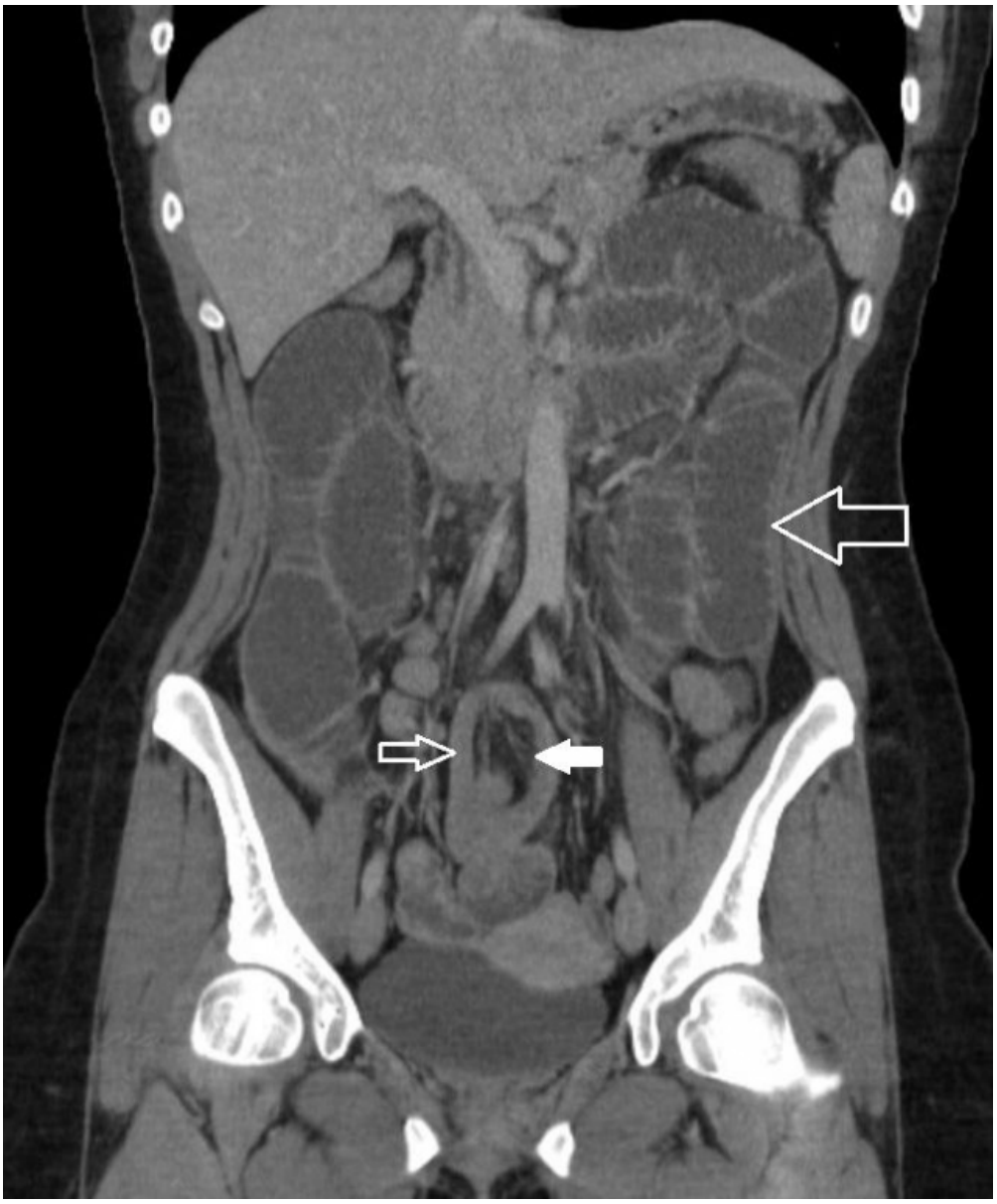
d



Description: Contiguous axial CT images in caudal direction showing the inner intussusceptum, an eccentric fat density mass that represents the intussuscepted mesenteric fat, the outer intussuscipiens representing the bowel wall and lead point lipoma. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgiumg

Figure 5

a



Description: Coronal CT image showing a ‘pseudo-kidney sign’ with bowel wall mimicking the renal cortex (open arrow) and mesentery mimicking the renal fat (closed arrow). Note also signs of small bowel obstruction (large open arrow). **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

b

Description: Coronal CT image showing two sharply delineated homogeneous fat density masses with sharp margins (arrow). Homogeneous mass with Hounsfield units between -80 and -120 is virtually diagnostic of a lipoma. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium

c

Description: Contiguous coronal CT images showing the inner intussusceptum, an eccentric fat density mass that represents the intussuscepted mesenteric fat, the outer intussuscipiens representing the bowel wall and a lead point lipoma. **Origin:** De Backer A, Department of Radiology, General Hospital Sint-Lucas, Ghent, Belgium