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## Colo-colic intussusception secondary to colon lipoma: A case report

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## ABSTRACT

**INTRODUCTION AND IMPORTANCE:** Intestinal intussusception is rare in adults and it is associated with lead points affecting the colon in around 17% of patients. Lipomas are very rare benign tumors which may act as lead points for intestinal intussusception. Indeed, the incidence of intestinal intussusception is much rare when caused by lipomas.

**CASE PRESENTATION:** Our patient is a 29-year-old male, previously healthy and admitted for severe right lower quadrant abdominal pain of 2-day duration. Computed tomography (CT) scan of the abdomen and pelvis showed large mass of fat consistency containing colon structure.

**CLINICAL DISCUSSION:** Urgent laparotomy was opted during which colo-colic intussusception was diagnosed and right hemicolectomy with primary ileocolic anastomosis was performed. Pathology report showed that intussusception was induced by a colon lipoma. Patient had an uneventful hospital stay and was discharged on post-operative day 5.

**CONCLUSION:** Thus we recommend that colo-colic intussusception caused by lipoma be considered in the differential when diagnosing adults with right lower quadrant pain.

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## 1. Introduction

Intussusception is defined as telescoping of one segment of bowel into another and was first described by Barbet of Amsterdam in 1674 [1]. It is rare in adults and the overall incidence is around 2–3 cases per 1,000,000 of the general population annually [2]. Moreover, it was shown to account for up to 5% of gastrointestinal obstructions [3]. Baurer was the first to describe lipoma in the gastrointestinal tract [4]. It is rare condition reported in only 0.2%–4.4% in previous autopsy studies [4]. Lipomas ranks second among the most common benign tumor arising in the small bowel, and they occur mostly in the ileum and duodenum. They arise from

either submucosal adipose tissue or serosal fat and may have different clinical presentations or present as an incidental finding. Second only to hyperplastic and adenomatous polyps occurring in the large bowel, lipoma is the third most common benign tumor with an incidence of 4.4% [5–7]. A lead point is common and can be found in 70–90% of adult intussusceptions, contrary to pediatric intussusception, which is idiopathic in 90% of cases [8–10]. The lead point is malignant in approximately 30 percent of the cases [9,11]. Pathological conditions like carcinoma, lymphoma, diverticulum, and adenomatous polyp act as a lead point and produce invagination within lumen, thus predisposing to intussusception. Similarly, lipomas can act as lead points causing around 17% of intestinal intussusceptions [5,12]. A review of the literature reveals the ascending colon being the most typically affected site [7].

In this paper, we present a case of 29 years old Lebanese male diagnosed with CCI at the ascending colon and the management we undertook. This case was reported in accordance with the SCARE 2020 criteria [13].

## 2. Case

A 29-year-old Lebanese male, with no relevant family or drug history, walked into the emergency department with a chief com-

**Abbreviations:** CCI, colo-colic intussusception; CT, computed tomography; HHUMC, Hammoud Hospital University Medical Center.

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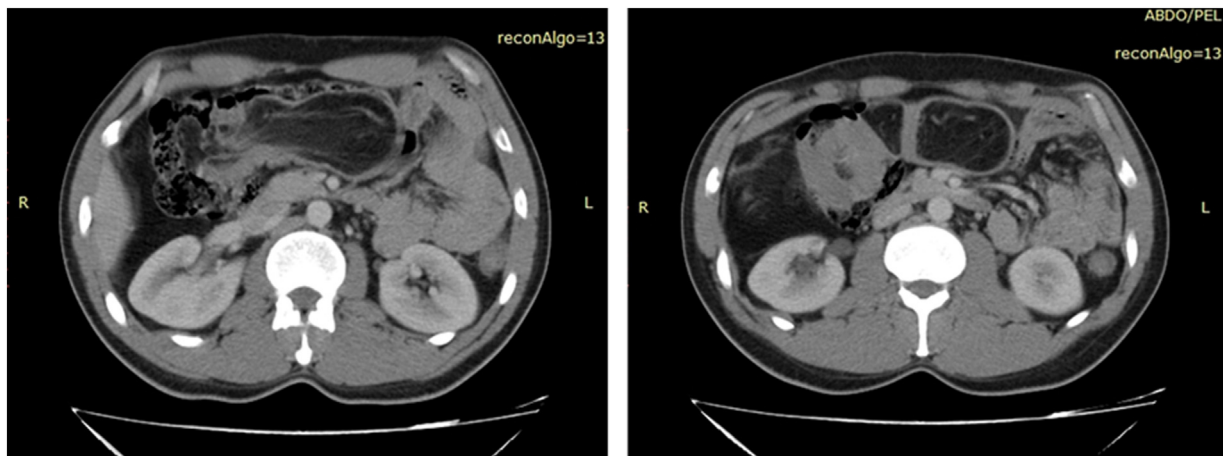


Fig. 1. CT scan axial cut showing intra-luminal mass of ascending and transverse colon with thickening of ileo-cecal valve.

plaint of abdominal pain being diffuse starting 2 days ago and then localized to the right lower quadrant. Patient denied nausea, vomiting, fever, chills, or change in bowel habits. Moreover, he is a smoker (10 pack-year) with no food or drug allergy. His past medical and surgical history is remarkable for open left varicocelectomy in 2011 and open reduction internal fixation of right zygomatic, maxillary and orbital fractures due to a facial trauma in 2014. Particularly, physical examination was remarkable for distention on inspection; positive bowel sounds on auscultation; hypertympanism on percussion; diffuse tenderness and rebound tenderness on palpation of the right iliac fossa. Interestingly, Computed tomography (CT) scan of the abdomen and pelvis was done. It showed a large 15 × 5 cm conglomerate containing soft-tissue mass and colon loops with surrounding significant thickening of ileo-cecal valve. Moreover, there was stranding of meso-cecum and meso-colon with no evidence of small bowel obstruction (Fig. 1). Differential diagnosis was established, and on top of the list we thought of malignant tumor engulfing the colon or CCI.

The patient benefited of one dose of antibiotherapy by Ciprofloxacin 400 mg and Metronidazole 500 mg on call to the operation. The patient underwent laparotomy by the general surgery team under general anesthesia according to the regular protocol of anesthesia. During exploration, the affected bowels (intussusceptum and intussuscipien) in addition to a colonic mass were identified and resected as shown in (Fig. 2). The resected part measured 28 × 14 × 8 cm with a protruding soft mass measuring 12.5 × 8 × 5 cm and an attached appendix measuring 5 cm in length and 0.5 cm in width. Right hemicolectomy was done followed by side to side ileo-transverse anastomosis using stapler device. Furthermore, histopathological studies showed that the mass grossly appears to arise from the colonic wall 14 cm away from the ileo-cecal valve and has a yellow soft homogeneous cut surface confirming a lipoma. Besides, (Fig. 3) is a microscopic view that shows how the lipoma is present in the vicinity of the colon. The appendix was free of disease. Post-operatively patient progressed gradually having an uneventful hospital stay and was discharged on day 5 post operation. Patient was seen again after 3 weeks where sutures were removed. In addition, he was counseled about the need for colonoscopy 6 weeks later, but patient lost follow up (Fig. 4).

### 3. Discussion

Intussusception can be classified by etiology or location based on the part of the bowel involved. Etiology is further classified into benign or malignant lesions [14]. For instance, according to location; intussusception can include different types as ileoileal,

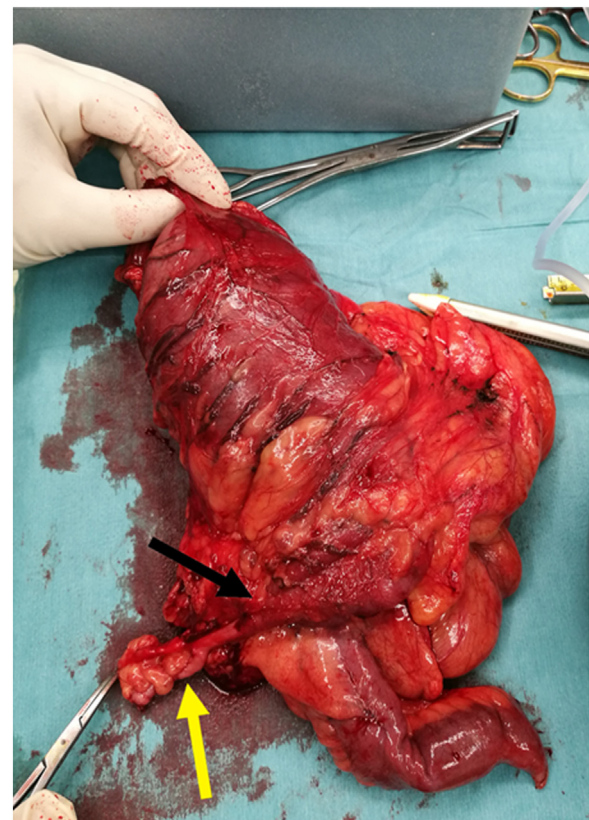
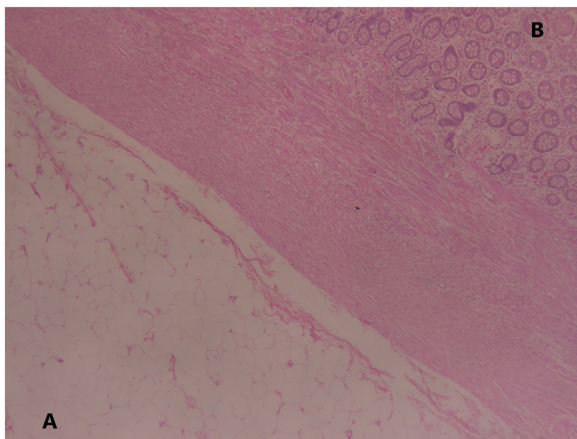
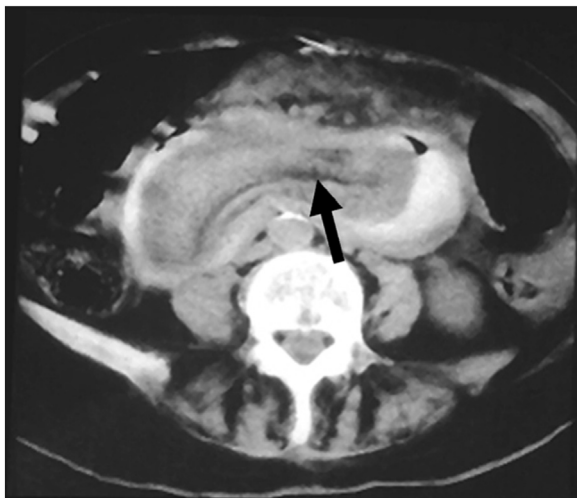


Fig. 2. Gross examination of the resected colon measuring 28 × 14 × 8 cm with protruding soft tissue mass measuring 12.5 × 8 × 5 cm showing the site of intussusception marked by the (Black Arrow). Also it shows the attached appendix marked by the (Yellow Arrow) measuring 5 × 0.5 cm.

colocolic, ileocolic, and ileocecal in addition to other types reported [15]. Intussusception rate is low in adults, particularly in the descending colon, thanks to the attachments rendering it immobile [5,16]. It was shown by previous reports that around two thirds of adult CCI have a malignant etiology [5]. However, other etiologies may include polyps, adenomas, endometriosis, previous anastomosis, and interestingly lipomas [5,17]. Contrary to our case, lipomas in the colon mostly occur in women and they peak in the 5th decade of life [18]. On the other hand, our case reported was consistent with the literature in which colon lipoma is mostly located in the right colon: 19% in cecum, 38% in ascending colon, 22% in trans-



**Fig. 3.** Microscopic view (x4) showing lipoma present in proximity to the intussuscepted colon. A letter shows the adipose tissue and B letter shows the mucosa corresponding to the colon.



**Fig. 4.** CT scan axial cut showing the sausage- appearance of intussusception as marked by the (Arrow).

verse colon, 13% in the descending colon, and 8% into the sigmoid [12]. Lipomas are almost always asymptomatic and are found incidentally during interventions as colonoscopy, surgery or autopsy [5,6]. However, lipomas larger than 5 cm may cause symptoms in the majority of cases. Symptoms vary from unspecific abdominal pains to bleeding or even obstruction similar to our case [5]. In these patients, the slow growth of the tumor accounts for the paucity in the development of these symptoms. Therefore, it was shown that lipomas larger than 2 cm are better removed lest CCI and obstruction occur [5,19]. Among the symptoms, abdominal pain is the most common; however, change in bowel habits can ensue hinting for obstruction or even CCI [20].

Preoperative diagnosis is essential for planning and different imaging studies could help in establishing the differential diagnosis. CT scan remains the best diagnostic test evaluating colonic lipomas being able to differentiate its fat density. For instance, (Fig. 3) shows the “target sign” on the sagittal view and the sausage shape of the mass on the axial view. It was shown that CT scan aids in detecting lipomas larger than 2 cm [5]. However, small lipomas may be missed by CT scans. Thus, its diagnostic power is a function of the size and volume of the lesion [21]. In fact, diagnosing CCI per se is not the ultimate aim when obstruction is present since obstruction will suffice to rush for surgical intervention.

Moreover, magnetic resonance imaging is gaining more attention regarding colon lipoma entity however it needs further evaluation to incorporate it in the diagnostic testing [22]. By colonoscopy, a lipoma can be seen by the naked eye. Some endoscopic features are characteristic for lipoma such as ‘cushion sign’ and ‘naked fat sign’. Colonoscopy was not performed in our case, instead we relied on the CT of the abdomen which revealed a CCI with a lead point being a 15 × 5 cm fat containing intraluminal mass of transverse and ascending colon.

#### 4. Conclusion

CCI is a rare entity which becomes rarer when it is caused by a lipoma. Accurate diagnosis of intussusception can best be attained using CT scan of the abdomen and pelvis. Therefore, CCI should be considered when diagnosing adults with right lower quadrant pain mimicking acute appendicitis and the management should be guided by pathology to rule out malignant etiology.

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This article has no conflict of interest with any parties.

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#### Ethical approval

The study type is exempt from ethical approval.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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