ADULT COLOCOLIC INTUSUSSCEPTION SECONDARY TO LIPOMA – ENTEROTOMY OVER RESECTION – A DIFFERENT APPROACH

ABSTRACT

Intussusception occurs when a proximal segment of the gastrointestinal tract, called intussusceptum, telescopes into the lumen of an adjacent segment, also known as intussuscipiens. Intussusception is a serious and potentially life-threatening condition that requires immediate medical attention. In adults, it is often caused by a lead point, such as a tumor, polyp, or other abnormal growth in the gastrointestinal tract.

Diagnosis of intussusception in adults is often challenging due to the lack of specific symptoms and because it is a rare condition in adults.

In diagnosing this, a thorough history and clinical examination, as well as supplementary assistance with investigations, are all beneficial. A strong index of suspicion and a multidisciplinary approach are required for timely care. Current recommendations stipulate reduction and resection if necessary of small bowel adult intussusceptions, and resection without reduction of large bowel intussusceptions.

We report herein one such case of adult colo-colic intussusception secondary to lipoma acting as the lead point, managed unconventionally with enterotomy and excision of lipoma, as opposed to conventional resection procedures.

This case highlights the importance of considering unconventional surgical approaches in the management of rare cases like adult intussusception. Although resection procedures are the norm in such cases, an enterotomy and excision of the lead point can be a viable option, particularly in cases where the intussusception is confined to a small section of the bowel. Overall, this case contributes to the growing body of literature on the management of adult intussusception and emphasizes the need for careful consideration of surgical options based on the individual patient's presentation and circumstances.

Key Words Adult colocolic intussusception · Colon · Lipoma · Computed tomography scanning · Colonoscopy · Literature review ·

INTRODUCTION

"Adult intussusception is rare, representing only 1–5% and 5% of all bowel obstructions and intussusceptions, respectively. A definable lead point is common in 70–90% of adult intussusceptions, as opposed to paediatric intussusception, which is idiopathic in 90% of cases. The exact pathophysiology is not known, a plausible explanation being that if a lesion is present within the lumen, with the presence of food and peristaltic activity there is a narrowing above the stimulus and relaxation below, thus making the lead point telescope to the distal bowel" [1]. "Adult intussusception usually presents with subacute or chronic nonspecific symptoms. Therefore, the diagnosis is usually missed or made with a delay in the operating room. Most adult intussusceptions require surgical intervention with resection due to intraluminal lesions. However, there is controversy on whether to resect, the amount to be resected and if intussusceptions should be reduced, as there is a significant risk of malignancy regardless of anatomic site" [1, 2]. "The diagnosis and therapeutic management of factors

causing intussusception in adults has recently been made more feasible with the availability of imaging modality of multislicecontrast-enhanced computed tomography (CECT). We report a rare case of colonic lipoma presenting with intussusception diagnosed by CT scan and confirmed by histopathology, with a brief review of the literature". [1]

Case Report

A 48 year old gentlemanpresented with a 1-month history of intermittent right upper quadrant pain radiating to the umbilicus after around 1 hour of eating food. The pain was insidious in onset, dull-aching in character, gradually progressive, waxing and waning in intensity, aggravating after meals and with no significant relieving factors. He also had decreased appetite, without anysignificant weight loss over the past 6 months. Patient gave history of intermittent passage of reddish, mucous stools at least 4 times over the past 1 month. History of passage of 5-6 episodes of loose stools over past 7 days was also elicited.
He denied any chills, fevers, nausea or vomiting. Patient had no prior significant medical or surgical history, and no family history of colon cancer. Patient is addicted to chewing tobacco and smoking cigarettes occasionally.

At the time of presentation to the emergency room, his temperature was 98.1°F, blood pressure 118/78 mm Hg, pulse 70 beats per minute, respiratory rate 14 breaths per minute and oxygen saturation 99% while breathing room air.

On abdominal examination,he had appreciable bowel sounds withmild tenderness over the right sided flanks and lumbar region and no palpable abdominal mass.
Laboratory tests were within the normal range: blood cell count 6400/µl, hemoglobin 11.4 g/dl (mild anemia), with normal serum urea-creatinine and serum bilirubin levels.

CECT (Abdomen + Pelvis) was advised for this patient.

Abdominal CT scan showedcrescentic bowel loops seen in midline outer transverse and inner ascending colon and hepatic flexure s/o intussusception for 15.16 cm length with lead point being well-defined mass lesion measuring 7*3.2 cm with central non-enhancing hypodensity (HU 70) s/o fat, with peripheral enhancing 4mm rind of soft tissue s/o capsule, lesion s/o lipoma. Proximal bowel loops were minimally dilated. Rest of the bowel loops were apparently normal.

Colonoscopy was performed to further evaluate the lead point of the intussusception, and at 80 cm from the anal vergeapprox. 4.5 cm intussuscepted segment was noted with lead point being a lipomatous mass with pedicle causing partial lumen occlusionat the hepatic flexure and ascending colon, and colonoscopicpneumatic reduction was achieved during this sitting, which was confirmed on serial USG.Colonoscope-guided biopsy was not taken in this setting due to absence of necessary equipments at our facility.

Patient was indoored and kept under observation for any recurrence of pain or abdominal discomfort, and was re-evaluated when he complained of the samewithin 48 hours of colonoscopic reductionwith USG, with USG suggestive of 4*3.5 cm well-defined hypoechoic lesion in epigastric region in large bowel loops s/o lipoma with involvement of mucosa and submucosa (likely transverse colon) with pedicle of 1.8 cm involvement, with e/o bowel within bowel appearance in right hypochondrium giving target sign on transverse scan with approx. length 2.2 cm likely s/o intussusception (colocolic).The presence of stalk and well-

defined nature of the swelling pointed towards the radiological diagnosis of lipoma instead of any other diagnoses like tuberculosis of the colon or malignancy in this case.

Based on these findings and recurrent abdominal pain, patient was posted for electiveexploratory laparotomy SOS procedure.

The patient's operative details were as follows –
Midline exploratory laparotomy incision was taken extending from xiphisterum to the umbilicus and abdomen was opened in layers.
IOE – Ascending colon intussuscepting into the Transverse colon over a length of approx. 13-15 cm.
Soft mobile intraluminal 6*4*2 cm mass acting as lead point noted inside the ascending colon.
Enterotomy was done over the antimesenteric border of ascending colon over a length of approx. 5 cm and the lead point confirmed to be a soft, mobile intraluminal mass of above mentioned dimensions with stalk of approx. 1.5-2 cm length extending into submucosal region.
Excision of this mass done and submucosa along with enterotomy site repaired in double layers.
Intra-operative frozen section confirming the benign nature of the lesion with adipose character was obtained.
The postoperative course was uneventful, and patient was discharged after 7 days in good general condition with no complaints.
Further Histopathological examination of the mass revealed mature adipose tissue with thin fibrocollagenousseptae s/o 6.4*4*2.5 cm colonic lipoma.

DISCUSSION

"Intussusception is an uncommon cause of intestinal obstruction in adults. Most lead points in the small bowel are benign lesions compared to the large bowel, 66 and 30%, respectively,with the most common malignant tumors in the colon being adenocarcinomas. Chronic abdominal pain is the most common clinical feature of adult intussusception". [1,2,4]
"The least common presenting sign onphysical examination was palpable abdominal mass" [8, 9]. Cases presenting with palpable abdominal mass (24-42%) necessitate caution as patient may have bowel strangulation (presence of constitutional symptoms being the warning sign). The differentials for such a mass palpable only when patient exhibits symptoms are usually volvulus and intussusceptions [8,11,12].
Diagnostic workup with abdominal X-rays in intussusception is mostly obsolete, though it may sometimes show signs of intestinal obstruction. The most sensitive study to diagnose intussusception is abdominal CT, which provides a diagnostic accuracy of 83%. CT scans show target or sausage sign on transverse view, and pseudokidney appearance on longitudinal view. Early intussusceptions show target sign with enveloped eccentric areas of low density, while late intussusceptions show layering due to longitudinal compression and ischemia of intussusception.[6,7, 8]

Supportive evidence towards the favourable use of colonoscopy for diagnosis and biopsy is also on the rise.

CT scan is invaluable for diagnosing adult colonic intussusceptions. Colonoscopy is useful for evaluating obstructive bowel lesions. Surgery is the preferred treatment for colonic obstructing lesions and is usually done emergently due to the unfavourable response to pneumatic reduction and high recurrence rates. [2,6,12]
The extent of bowel resection and reduction of intussusception in adults is controversial. Exploratory laparotomy is recommended. Small bowel intussusceptions can be resected, with a trial of reduction undertaken in certain cases. Endoscopic reduction may be considered for benign lesions with histopathological confirmation. If the colon is involved, resection rather than reduction is safer due to the risk of malignancy. However, this idea has been recently challenged, and preoperative reduction may be beneficial in some cases to avoid emergency surgery, allow radical surgery for cancer, and reduce the extent of intestinal resection. Careful evaluation can also detect strangulated intussusception which cannot be reduced. [10,13,14]

In our case, decision to undertake only resection of the mass and not right hemicolectomy as is desirable was based on the following points –
Strong preoperative radiological evidence pointing towards lipomatous character of lesion.
Prior colonoscopicevaluation demonstrating no othersuspicious lesions/polyps.
Frozen section confirming the benign nature of the lesion.
Presence of well-defined capsule over the mass.
Intraoperative soft freely mobile mass with no foci of hardness/calcifications palpable.
Intraoperative evidence of peripheral vascularity around stalk of the lesion and demonstration of no central vascular strands during dissection.
Intraoperative cut section of the mass demonstrating capsule, and lipomatous lobulated yellowish contents with no obvious calcifications/necrosis/altered morphology.

CONCLUSION–

It can be concluded that, when a high margin of radiological diagnostic accuracy exists, coupled with colonoscopy and SOS frozen section of the mass or prior HPE reporting, total right hemicolectomy or similar high risk major surgeries may be avoided with simple resection of the mass by open or colonoscopic approach. Further confirmation of the diagnosis could be supported by preoperative HPE of the mass with polypectomy on confirmation of diagnosis, intraoperatively on frozen section analysis of the resected mass and postoperatively on immunohistochemistry.It is advisable for the patient to undergo follow-up colonoscopies on a 6 monthly basis for at least 3 years in such a scenario.

AUTHORS CONTRIBUTIONS

(I) Conception and design: All authors
(II) Administrative support: All authors
(III) Provision of study materials or patients: All authors
(IV) Collection and assembly of data: All authors
(V) Data analysis and interpretation: All authors
(VI) Manuscript writing: All authors
(VII) Final approval of manuscript: All authors

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The authors have completed the reporting checklist.

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None needed

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The authors have no conflicts of interest to declare.

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-The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
-A Written informed consent for publication was obtained.
-The study (Case report) conformed to the provisions of the Declaration of Helsinki (as revised in 2013).

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PHOTO GALLERY

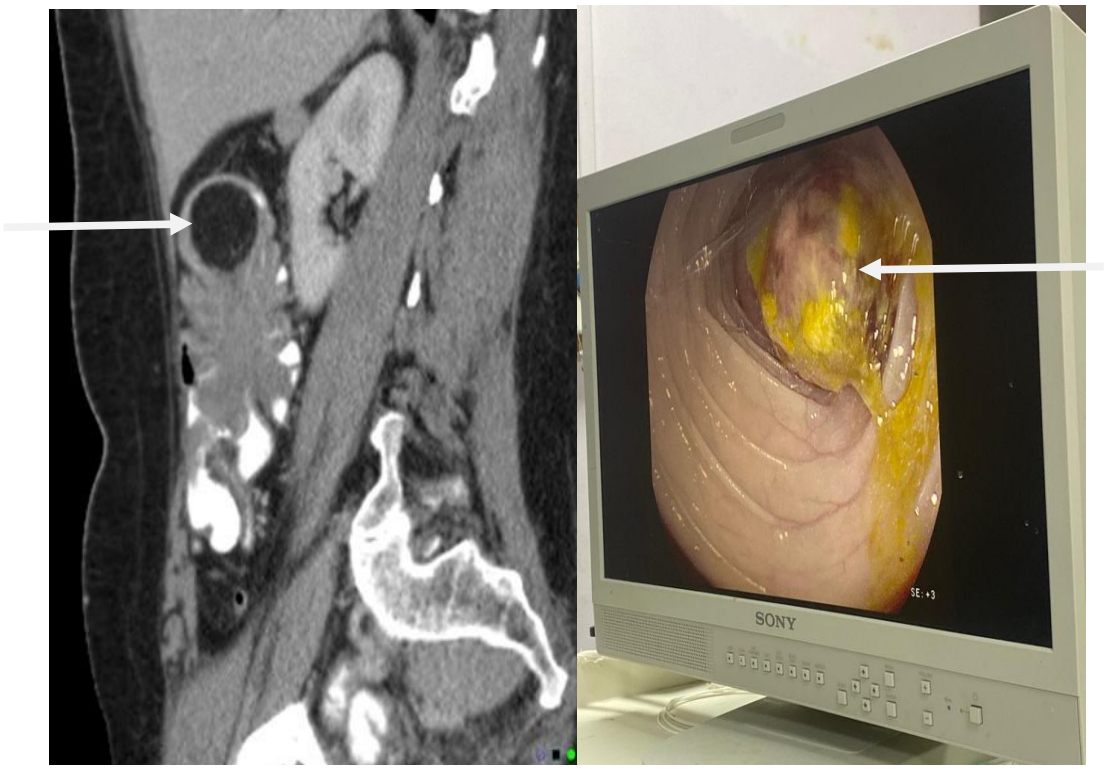

FIG (1) Colo-colic Intussusception secondary to lipoma
FIG (2) Colonic lipoma visualised on colonoscopy

FIG (3) Intra-op evidence of lead point with stalk with no other evident pathology
FIG (4) Resected specimen with no evidence of haemorrhage or necrosis

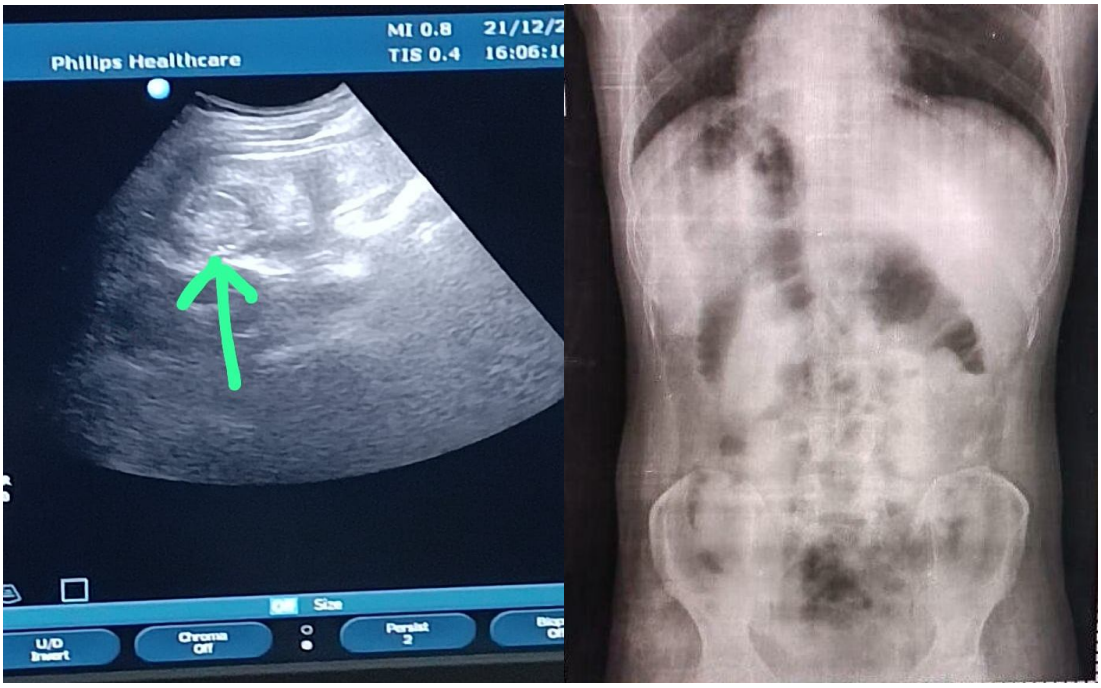

FIG (5) USG s/o Target Sign s/o intussusception
FIG (6) Abdominal erect X-ray s/o non-specific findings

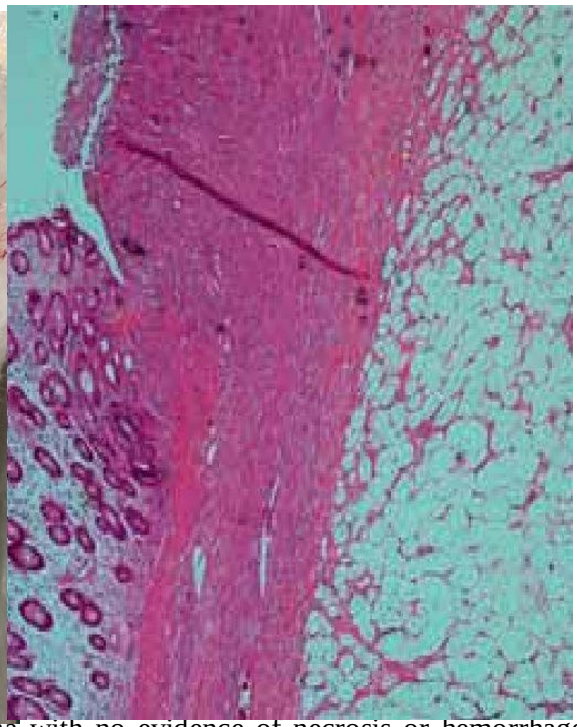

FIG (7) Cut section of lead point s/o lipoma with no evidence of necrosis or hemorrhage
FIG (8) Histology s/o benign lesion s/o lipoma

ABBREVIATIONS AND SYMBOLS

HB- Hemoglobin
CECT- Contrast Enhanced Computed Tomography
USG – Ultrasonography
AXR – Abdomen Xray Erect
FIG – Figure
HPE – Histopathological examination

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