

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

Adult intussusception with multiple intestinal adhesions: A case report ☆

Yopi Simargi, MD*, Apriliani P. Dewi, MD, Resley O. Mulia, MD, Anita F. Puspasari, MD, Ayuningtyas Puspaningrum, MD, Ronny, MD, Fenny Susilo, MD

Department of Radiology, School of Medicine, and Health Sciences, Atma Jaya Catholic University of Indonesia-Atma Jaya Hospital, Jakarta, Indonesia

ARTICLE INFO

Article history:

Received 8 August 2023

Revised 16 October 2023

Accepted 19 October 2023

Keywords:

Adult

Intussusception

Ileus obstruction

Abdominal CT

Multiple adhesions

ABSTRACT

Intussusception occurs when a part of the intestine enters another segment of the intestine causing bowel obstruction. It is common in children but not in adults with only <5% of prevalence of all intussusceptions. Most of the cases have an underlying neoplastic pathology. However, we found a case where an adult patient with 2 weeks of ileus obstruction is caused by intussusception with multiple intestinal adhesions. A 59-year-old man complained of being unable to defecate, or vomit and had a tender abdomen for 2 weeks. Contrast abdominal CT showed a dilated and thickened intestinal wall, with ileo-ileal intussusception in the distal terminal ileum, indicating a diagnosis of ileus obstruction due to intussusception. During laparotomy, intussusception was found but released spontaneously followed by ancillary findings were multiple adhesions in the ileum that caused the intussusception and obstruction. In conclusion, transient intussusception in adults with multiple adhesions has never been reported before, and a CT scan is an important clinical tool to diagnose and identify the cause of this condition. Recognizing the imaging abnormalities earlier is important to prevent further complications.

© 2023 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Background

Intussusception is a condition in which a part of the intestine enters another segment of the intestine and causes bowel obstruction. It commonly occurs in children but not in adults [1]. Its prevalence in adults accounts for less than 5% of all intussusception cases, and only 1% of patients experience bowel

obstruction, with the small bowel more commonly involved than the large bowel [2]. Due to the absence of specific clinical signs, diagnosis is often delayed, and misdiagnosis can occur [1,2].

Utilizing radiodiagnostic tools is crucial for accurately distinguishing intussusception from similar intestinal conditions. CT scan in particular is valuable as they not only diagnose but can also pin-point any lead-point intussusception

☆ Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

* Corresponding author.

E-mail address: yopi.simargi@atmajaya.ac.id (Y. Simargi).

<https://doi.org/10.1016/j.radcr.2023.10.044>

1930-0433/© 2023 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

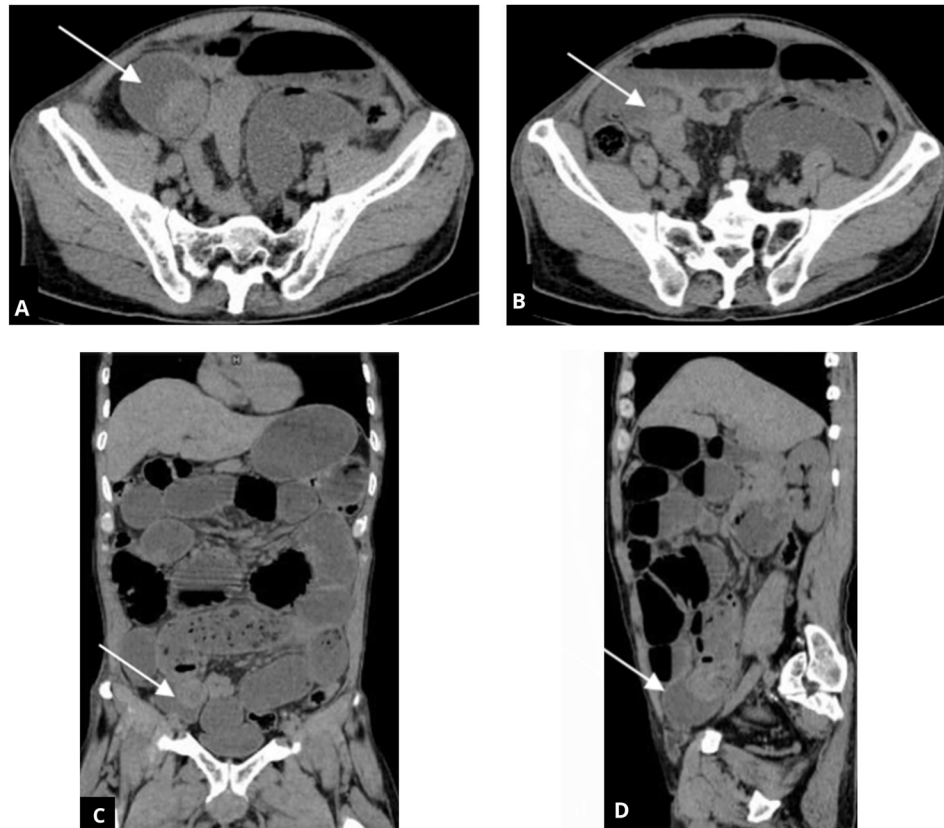


Fig. 1 – Contrast-enhanced abdominal CT scan showing intussusception. (A) Image of crescent-like in intussusception (white arrow) from axial view. (B) Image of target sign from axial view (white arrow). (C) Image of a crescent-like caused by the proximal segment of intestine is embedded within a distal segment of intestine from the coronal view (white arrow) and (D) sagittal view.

in different parts of the bowel [2]. Here, we present a case in which an adult patient with 2-week ileus obstruction is caused by ileo-ileal intussusception with multiple adhesions.

Case presentation

A 59-year-old man complained of being unable to defecate for 2 weeks. He reported no changes in bowel patterns with positive flatus. The patient also complained of nausea, brownish vomiting, and abdominal distress. There was no history of other diseases. On physical examination, abdominal tenderness and absence of bowel sounds were observed.

Laboratory examination showed leukocytosis ($14.10 \times 10^3/\text{mm}^3$) and electrolyte imbalances such as hyponatremia (130.4 mmol/L), hypocalcemia (1.04 mmol/L) and hypochloremia (92 mmol/L). Other laboratory results showed no abnormalities. Contrast-enhanced abdominal CT revealed dilatation with thickening of the intestinal wall, along with ileo-ileal intussusception in the distal terminal ileum (Fig. 1). Based on the imaging results, the presumptive diagnosis was ileus obstruction due to ileo-ileal intussusception in the distal terminal ileum.

This patient was managed by laparotomy within 24 hours of patient's arrival. During the operation, abdominal exploration revealed proximal dilatation and distal collapse of the small intestine, including the caecum leading to the rectum. Intussusception was observed but spontaneously released, indicating it was a transient condition. However, multiple intestinal adhesions were also found in the ileum. These adhesions were specifically located 110 cm away from ligament of Treitz, affecting approximately 4 loops of the intestines. A significant adhesion was present in the descending colon, located 60 cm from distal adhesion (Fig. 2). A perforation occurred during the release of these adhesions. The perforated section of the intestine was resected, followed by an end-to-end anastomosis (E-to-E). Subsequently, a passage and leakage test were conducted, yielding negative results. However, despite these efforts, the patient's condition did not improve, and led to his passing.

Discussion

Intussusception in adults is considered a rare occurrence, accounting for only <5% and its clinical manifestation is usually

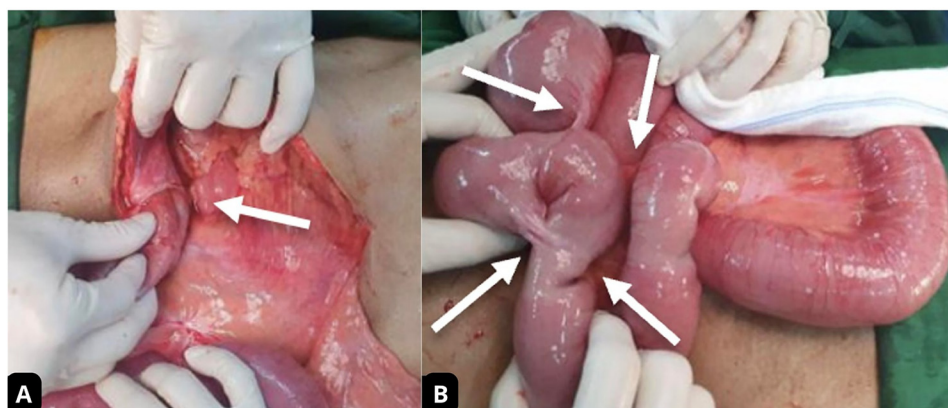


Fig. 2 – Intraoperative evidence showing (A) intussusception and (B) multiple intestinal adhesions.

not specific, occult, and intermittent leading to delayed diagnosis and potential misdiagnosis [1–3]. In contrast to children, where almost all the cases are idiopathic, 80%–90% of adult intussusception cases have an underlying pathological condition that may serve as a pathological lead point. The primary causes are either benign or malignant neoplasms, accounting for two-thirds of cases, with the remaining cases attributed to factors such as infections, intestinal adhesions, Chron's granuloma, intestinal ulcers, and congenital abnormalities [4–6]. These conditions result in a range of symptoms including abdominal pain, vomiting, abdominal distension, constipation, palpable abdominal mass, diarrhea, weight loss, anorexia, and even rectal bleeding and fever [7,8]. In our case, the patient experienced 2 weeks without bowel movements, accompanied by nausea, brownish vomit, abdominal pain, and absence of bowel sounds. No other symptoms were reported. During surgery, no signs of malignancy were found; instead, the condition was caused by multiple intestinal adhesions. While many literatures mention adhesions as the cause of intussusception, but the prevalence is unknown and rarely reported. Therefore, in this report, we emphasize another cause of adult intussusception which is adhesions in multiple locations.

Given its rare prevalence and confusing clinical picture, diagnosing adult intussusception can be challenging without imaging studies. Particularly, in cases of transient intestinal intussusception like the one described here, the clinical picture can be perplexing. Previously reported cases of transient type intussusception also presented with nonspecific abdominal pain. The mechanism of this rare entity, transient small bowel intussusception, is not well described in medical literature. Transient adult intussusception cases have only been reported in patients with celiac or Crohn's disease [9]. However, in this case, it is known that this transient intussusception is related to multiple adhesions found in multiple loops of the small intestine.

Several radiodiagnostic tools such as radiography, CT scan, ultrasound, angiography, and radionuclide can be used to diagnose intussusception [10]. Among these tools, CT scan is considered the most sensitive (92.6%), and specific (96%), with an accuracy rate of approximately 90%–95% compared to other modalities [11]. Although it cannot precisely determine the

etiology (malignancy/benign), a CT scan is effective in diagnosing intussusception by revealing a part of the intestine embedded within the distal part of the intestine at an exact location, forming a crescent-like, target or sausage-shaped sign, causing dilatation in the proximal part [3,10,12]. The pattern of the image changes depending on the location, section axis, thickness of the bowel wall, and openness of the lumen. When viewing an intussusception on CT images, it resembles a “target” shape when the CT beam is at a right angle to the intussusception's lengthwise axis. However, it appears as a “sausage” shape when the CT beam is parallel or at an angle to the lengthwise axis. The radiological appearance of intussusception can be influenced by various factors, including the presence of a lead point, the configuration of the lead mass, the extent of bowel wall edema, and the amount of invaginated mesenteric fat [13]. Like in this case, the CT result confirms the diagnosis of ileo-ileal type intussusception due to the presence of a crescent-like target sign in the distal ileum from the axial view and an image of the intestine within the intestine in sagittal view, accompanied by dilatation and thickening of the bowel wall.

Even though laparotomy with adhesiolysis is the current gold standard treatment, many studies recommend laparoscopic surgery as a safer method due to the reduced of surgery duration, postoperative length of stay, overall complication rate, and adhesion recurrence [11,14]. However, in our case, the patient still underwent laparotomy, adhesion reduction, and resection around perforated area, followed by E-to-E anastomosis due to operator preference. The prognosis is generally poor given the rarity of the disease. Delays in diagnosis and treatment can cause severe complications and lead to high mortality rates. In cases like this, during the operation, the patient experienced a complication in the form of perforation during adhesiolysis, which worsened the patient's prognosis. Ultimately, the patient did not show any improvement and passed away.

In conclusion, transient intussusception in adults with multiple adhesion has never been reported before. The CT scan still holds an important clinical tool for diagnosing and identifying the cause of this condition. Recognizing these imaging abnormalities early is essential to prevent further complications.

Patient consent

Written informed consent for this publication was obtained from patient's family because the patient has deceased.

REFERENCES

- [1] Sun M, Li Z, Shu Z, Wu Q, Liu X. Adult intussusception: a challenge to laparoscopic surgery. *Peer J* 2022;10:e14495.
- [2] Tang X, Gu P, Lu W. A rare case of adult colocolic intussusception secondary to splenosis. *J Int Med Res* 2022;50(8):3000605221115386.
- [3] Al-Radaideh AM, Omari HZ, Bani-Hani KE. Adult intussusception: a 14-year retrospective study of clinical assessment and computed tomography diagnosis. *Acta Gastroenterol Belg* 2018;81(3):367–72.
- [4] Kim KH. Intussusception in adults: a retrospective review from a single institution. *Open Access Emerg Med* 2021;31(13):233–7.
- [5] Brill A, Lopez RA. Intussusception in Adults. *StatPearls [Internet]* 2023.
- [6] Panzera F, Di Venere B, Rizzi M, Biscaglia A, Praticò CA, Nasti G, et al. Bowel intussusception in adult: prevalence, diagnostic tools, and therapy. *World J Methodol* 2021;11(3):81–7.
- [7] Marsicovetere P, Ivatury SJ, White B, Holubar SD. Intestinal intussusception: etiology, diagnosis, and treatment. *Clin Colon Rectal Surg* 2017;30(1):30–9.
- [8] Tarchouli M, Ait Ali A. Adult intussusception: an uncommon condition and challenging management. *Visceral Med* 2021;37(2):120–7.
- [9] Aref H, Nawawi A, Altaf A, Aljiffry M. Transient small bowel intussusception in an adult: case report with intraoperative video and literature review. *BMC Surg* 2015;15(1):36.
- [10] Shi C, Pan L, Song B, Gao Y, Zhang L, Feng Y. Ileocolic intussusception caused by ileal lipoma: a case report. *Medicine (Baltimore)* 2020;99(31):e21525.
- [11] Tong JWV, Lingam P, Shelat VG. Adhesive small bowel obstruction - an update. *Acute Med Surg* 2020;7(1):e587.
- [12] Hejazi P, Yousefi S, Hemmati H, Faraji N, Mohammadyari F. Intussusception of the bowel in a young woman: a case report. *Clinical Case Rep* 2022;10(9):e6309.
- [13] Valentini V, Buquicchio GL, Galluzzo M, Ianniello S, Di Grezia G, Ambrosio R, et al. Intussusception in adults: the role of MDCT in the identification of the site and cause of obstruction. *Gastroenterol Res Pract* 2016;2016:5623718.
- [14] Hong KD, Kim J, Ji W, Wexner SD. Adult intussusception: a systematic review and meta-analysis. *Tech Coloproctol* 2019;23(4):315–24.