

Case Report

Intussusception in Five Months Old Infant, A Rare Cause Colocolica without Pathologic Lead Point: A Case Report

Yusri Dianne¹, Mutiara Annisa Amadea¹, Yorva Sayoeti¹

¹ Department of Child Health University Andalas, DR. M. Djamil Padang Hospital, West Sumatra, Indonesia

Corresponding author:

Yusri Dianne

dianneyusri5@gmail.com

Published:

25 August 2022

Citation:

Dianne Y, Amadea MA, and Sayoeti Y. Intussusception in five months old infant, a rare cause of colocolica without pathological lead point: A case report. *Arch Pediatr Gastr Hepatol Nutr.* 2022(2):24-9

Abstract:

Intussusception is a common cause in gastrointestinal obstruction and one of condition in which early treatment is critical. Given the risk of acute bowel ischemia, intussusception represents an abdominal emergency in the pediatric population. The symptoms are generally related to intestinal obstruction, as intussusception accounts for up to 50% of pediatric small bowel obstructions in some series. Colocolica intussusception is an uncommon type of intussusception in children that is usually associated with a pathological lead point. This report depicts a five-months-old female baby with a chief complaint of bloody stool 7 hours before admission, accompanied with non-bilious vomit. Patient exhibited the classic triad of intussusception and upon the radiologic examination, a colocolica was noted. Patient then underwent urgent exploratory laparotomy, and the colocolica was reduced through manual reduction (milking technique).

Keywords: infant, colocolica, intussusception

Introduction

Intussusception is one of the major causes of pediatric gastrointestinal obstruction and acute abdominal pain. Global incident rates of intussusception were estimated at around 15 to 34 cases per 100000 children.¹ Approximately 50% of cases were reported in infants, with peak incidences ranging from 4 to 9 months. Furthermore, the cases were twice as prevalent in males.^{1,2}

Intussusception is developed due to bowel invagination into the adjacent segment, and was reported to affect small bowel in half of the pediatric cases.³ In most cases, the etiology was idiopathic. However, about 10% of cases were presented with predisposing condition such as congenital abnormalities, infection, vascular

malformation, neoplasm, bleeding disorder, and associated systemic diseases.⁴ These factors are thought to be a key pathological lead point resulting in bowel movement interference that leads to invagination.⁵ In intussusception, the invaginate segment is known as intussusceptum. Meanwhile, the recipient segment is termed as intussusciptient.⁵

The intestinal junctions between the movable and fixed retroperitoneal parts are primarily susceptible to intussusception.⁵ Accordingly, about 95% of intussusception cases were ileocolic, in which distal ileum invaginates into the colon.⁶ However, colon to colon invagination called colocolic intussusception may occur in sporadic cases.⁶ Previous report has documented a rare case of colocolic intussusception and intestinal malrotation with the presence of pathological lead point in a seven-year-old child.⁷ In contrast, intussusception in infants without pathological lead point was rarely reported in literature. Hence, through this report, we aimed to elaborate the clinical presentation of idiopathic colocolic intussusception and management in infants.

Case

A five-month-old female baby came to the emergency department with a chief complaint of bloody stool 7 hours before admission, accompanied by non-bilious vomit. The patient exhibited the same complaints one month ago; however, the symptoms resolved spontaneously. The patient had history of switching formula milk at two months old and one week ago. The patient parents also reported two previous episodes of active bloody stool with no history of fever, vomit, dyspnea, or seizure. Any underlying disease was not present. The patient was born full term through section caesarian due to cephalopelvic disproportion with a birth weight of 3400 gr.

On examination, the patient was lethargic, pale, and irritable. The vital signs showed blood pressure of 80/50 mmHg, heart rate of 135 times/min, respiratory rate of 30 times/min, and body temperature of 37,5°C. The nutritional status was within normal limits, with body weight and length of 6,6 kgs and 65 cm, respectively. The abdomen was distended without abnormal bowel sound. A sausage-shaped mass was found during palpation at the right hypochondrium, and unoccupied spaces in the right iliac fossa were noted. Moreover, a bloody jelly stool was found during the rectal examination. The laboratory result was within normal limits. Abdominal ultrasonography (**Figure 1**) revealed suggestive intussusception in the left region (colocolic).

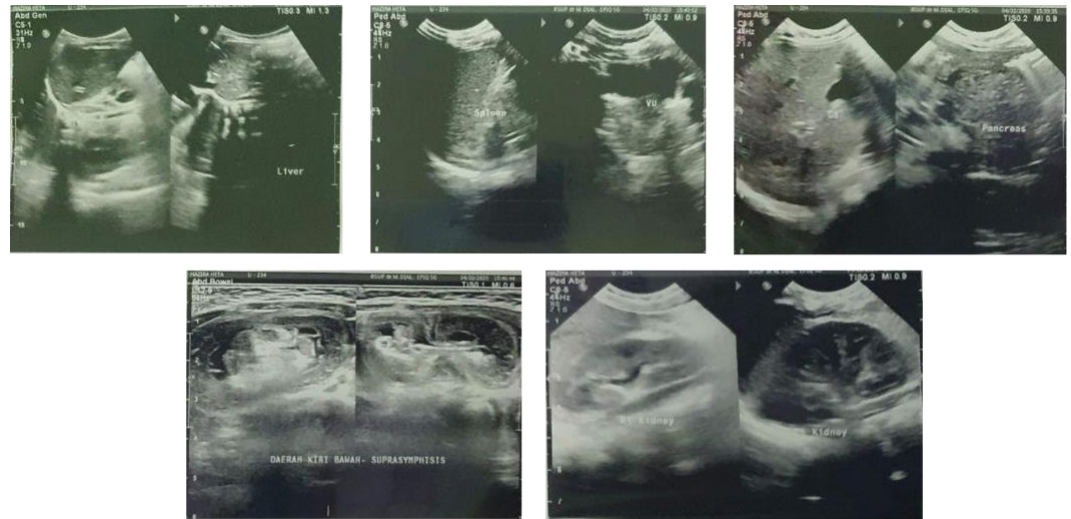


Figure 1. Abdominal ultrasonography results

Urgent exploratory laparotomy was performed, and the colocolic intussusception in the colon was recorded (**Figure 2**). The bowel was manually reduced by milking technique. Venous congestion was discovered; however, it spontaneously resolved after a short period of observation.



Figure 2. (a) Intraoperative intussusception. (b) Intestinal reduction through milking technique

After the procedure, the patient was transferred to the intensive care and was given total parenteral nutrition for the next two days. The patient was discharged on the seventh-day post-operation after exhibiting good tolerance to the breast milk diet. During the follow-up visit two weeks post-discharge, the patient continued to tolerate the regular diet and exhibited normal bowel movements with no evidence of recurrent obstruction.

Discussion

Our case presented colocolica intussusception occurring in a five-month-old female baby. Literature from Hasan Sadikin Hospital showed that intussusception incidence peaked before the first year of live, specifically at eight months old.⁸ Similarly, several studies stated that intussusceptions cases occurred most commonly in children under one year old. The prevalence of intussusception in children under one year old were expected around 60%, while 80% of the cases occurred before the age of 24 months old.⁹ This indicates that our patient was within the age range with a higher risk of intussusception.

The typical presentation of intussusception, known as the classic triad, consists of abdominal pain, red currant jelly stool, and the presence of palpable abdominal mass with history of viral prodrome; however, not all infants exhibit these manifestations. A study by Bruce et al. demonstrated that the presence of all triad symptoms, including crampy abdominal pain, vomiting, and bloody stool, were only observed in 21% of patients, while the presence of two out of three manifestations was seen in 70% of cases.⁴ Furthermore, Schollin et al. showed that this classical manifestation only present in less than 25% of cases in children under three.¹⁰ Pain and vomiting may appear in almost 80% of cases and around 65% of cases experienced palpable abdominal mass.¹¹ In our case, the patient exhibit all of the classic triad manifestations, which highly indicating of intussusception.

Children, particularly infants, were typically healthy prior to the initial symptom, although some of the patient experienced history of antecedent gastrointestinal infection. Patients commonly experienced sudden onset of abdominal pain, presented as crying, and as the intussusception progressed, the obstruction prolonged and vomiting became prominent to reduce pressure and pain.^{4,12} Majority of the cases (90%) was idiopathic with no apparent trigger. However, a variety of pathological conditions associated with intussusception had been observed in neonates or older children, such as small bowel lymphoma, Meckel diverticulum, duplication cysts, polyps, vascular malformations, inverted appendiceal stumps, parasites (e.g., *Ascaris lumbricoides*), Henoch-Schönlein purpura, and cystic fibrosis.⁴ Most cases of intussusception were ileocolic (95%); however, ileocolocolic intussusception in infant without a pathological lead point is very rare. Furthermore, the occurrence of colocolic intussusception in children was also uncommon.⁶

Radiologic imaging was thought to be beneficial in establishing the diagnosis. Plain abdominal X-rays demonstrated relatively low sensitivity (29-50%) towards intussusception; thus, this modality was not the primary option in such perforation cases.¹³ In contrast, abdominal ultrasonography exhibited better sensitivity (98-100%) and specificity (88-100%), allowing it to be the main modality in diagnosing

intussusception.¹³ Ultrasound is not only subtle and specific in diagnostic; the non-ionizing radiation properties may benefit pediatric patients.¹² Furthermore, pathological lead foci can be identified using ultrasound. The intussusceptum and intussuscipient have different intestinal characteristics with distinct mucosal and serosal layer interfaces in ultrasound.¹⁴ Longitudinal view of the affected bowel segment may demonstrate a crescent-like-shaped hyperechoic rim resembling a kidney, known as pseudokidney.¹³ Additionally, color doppler could be performed to identify bowel ischemia and bowel necrosis.¹⁵ This modality may detect the alteration of blood flow, which is essential in considering the appropriate management.¹⁵ Despite the excellent resolution of CT scan in diagnosing intussusceptions, it is hardly utilized due to higher radiation dosage and anesthesia requirements.¹⁵

Some invagination cases were spontaneously self-resolved. For uncomplicated cases, hydrostatic or pneumatic enema reduction could be the treatment of choice.¹⁵ However, the surgical approach is preferable in patients with certain conditions, such as unstable patients with evidence of peritonitis or perforation, healthcare centers with inadequate radiologic modality, and most commonly, unsuccessful douche reduction.¹⁵ Untreatable intussusception will lead to complications such as intestinal bleeding, necrotic, perforation with peritonitis, shock, sepsis, repetitive invagination, and death.¹⁶ In our case, the pathological lead point was not found during laparotomy, and no bowel resection was done. Prophylaxis antimicrobial treatment was given to anticipate septicemia. The patient was discharged after seven days of hospitalization in stable condition. Any gastrointestinal complaints during the follow-up visit were not reported.

Conclusion

Intussusception is one of the most common emergencies in pediatric patients. A complete investigation of the clinical history, physical examination, laboratory analysis, and abdominal ultrasonography is essential in diagnosing intussusception. Abdominal ultrasonography, in particular, is a useful modality because of its sensitivity and specificity. Explorative laparotomy followed by milking and manual reduction can be chosen as a treatment option in infants with colocolica intussusception without a pathological lead point. Early determination and intervention are exceedingly important to attain better results and prevent death.

Abbreviation

PICU : Pediatric Intensive Care Unit

References

1. Jiang J, Jiang B, Parashar U, Nguyen T, Bines J, Patel MM. Childhood intussusception: a literature review. *PLoS One*. 2013;8(7):e68482.
2. Edwards EA, Pigg N, Courtier J, Zapala MA, MacKenzie JD, Phelps AS. Intussusception: past, present and future. *Pediatr Radiol*. 2017;47(9):1101-8.
3. Fialkowski EW, BW. Intestinal Obstructions. Walker's pediatric gastrointestinal disease: physiology, diagnosis, management. 6th Edition. North Carolina: PMPH USA, Ltd; 2018. p. 1424–30.
4. Bruce J, Huh YS, Cooney DR, Karp MP, Allen JE, Jewett Jr TC. Intussusception: evolution of current management. *Journal of pediatric gastroenterology and nutrition*. 1987;6(5):663-74.
5. Marsicovetere P, Ivatury SJ, White B, Holubar SD. Intestinal intussusception: etiology, diagnosis, and treatment. *Clinics in colon and rectal surgery*. 2017;30(01):030-9.
6. Kennedy M, Liacouras C. Ileus, Adhesions, Intussusception, and Closed-Loop Obstructions. *Nelson Textbook of Pediatrics*. 20th Edition. Philadelphia: Elsevier; 2018. p. 1287–9.
7. Tripathy PK, Jena PK. Colocolic intussusception in a child with pathologic lead point along with intestinal malrotation-a rare case report and brief review. *J Clin Diagnostic Res*. 2016;10(12):PD09.
8. Kusmaheidi S, Diposarosa R, Nugraha HG. Pattern of Intussusception on Infants and Children in Dr. Hasan Sadikin Hospital Bandung. *Althea Medical Journal*. 2015;2(3):458-62.
9. Clark AD, Hasso-Agopsowicz M, Kraus MW, Stockdale LK, Sanderson CF, Parashar UD, et al. Update on the global epidemiology of intussusception: a systematic review of incidence rates, age distributions and case-fatality ratios among children aged < 5 years, before the introduction of rotavirus vaccination. *Int J Epidemiol*. 2019;48(4):1316-26.
10. Schollin Ask L, Svensson JF, Olén O, Örtqvist Å. Clinical presentation of intussusception in Swedish children under 3 years of age and the validity of diagnostic coding. *Pediatr Surg Int*. 2019;35(3):373-81.
11. Manning A, Little D. Intussusception in Infants and Children. *Pediatric Gastrointestinal and Liver Disease*. 5th ed. Philadelphia: Elsevier; 2015. p. 607–13.
12. Zhang M, Zhou X, Hu Q, Jin L. Accurately distinguishing pediatric ileocolic intussusception from small-bowel intussusception using ultrasonography. *J Pediatr Surg*. 2021;56(4):721-6.
13. Charles T, Penninga L, Reurings J, Berry M. Intussusception in children: a clinical review. *Acta Chir Belg*. 2015;115(5):327-33.
14. Caruso AM, Pane A, Scanu A, Muscas A, Garau R, Caddeo F, et al. Intussusception in children: not only surgical treatment. *J Pediatric Neonatal Individ Med*. 2017;6(1):e060135-e.
15. Ito Y, Kusakawa I, Murata Y, Ukiyama E, Kawase H, Kamagata S, et al. Japanese guidelines for the management of intussusception in children, 2011. *Pediatr Int*. 2012;54(6):948-58.
16. Smith CA, Maloney E. Diagnosis and Management of Pediatric Patients with Intussusception. *Digestive Disease Interventions*. 2019;3(04):326-32.