

Case Report

© 2021 Acosta-Farina et al.

Submitted: 24-03-2020

Accepted: 14-06-2021

License: This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

DOI: <https://doi.org/10.47338/jns.v10.959>

Intussusception in a premature newborn: A case report

Daniel Acosta-Farina,^{*1} Diego León-Ochoa,¹ Karen Serrano-Concha,¹ Manuel Cabrera-Viteri,¹ Jorge Oliveros-Rivero,¹ Daniel Acosta-Bowen,²

1 Dr. Roberto Gilbert Elizalde Children's Hospital, Guayaquil-Ecuador

2 Medical Doctor, Universidad Católica Santiago de Guayaquil. Ecuador

Correspondence*: Daniel Acosta Farina, Dr. Roberto Gilbert Elizalde Children's Hospital. Guayaquil-Ecuador.

E-mail: acofa111@yahoo.es

KEYWORDS

Intussusception,
Neonate,
Premature

ABSTRACT

Background: Intussusception is rare in the neonatal period and even less common in premature babies.

Case Presentation: We present a case of a premature newborn with an insidious clinical picture characterized by irritability and multiple vomits. Ultrasound was diagnostic of intussusception. The baby had a jejunal intussusception without any pathological lead point, with a favorable outcome.

Conclusion: Intussusception is a rare cause of neonatal intestinal obstruction especially in premature neonates.

INTRODUCTION

Intussusception is a common cause of abdominal pain and intestinal obstruction in infants between 6 to 18 months, with an incidence of 1-4/2000.[1] Only 0.3 % of cases occur during the neonatal period. It represents 3% of all the causes of neonatal intestinal obstruction. About 70-80 cases of neonatal intussusception have been published worldwide over the last 42 years.[2] We report the first case in Ecuador of a premature, born at 33 weeks of gestation with intussusception, who was treated surgically with a favorable clinical outcome.

CASE REPORT

A female newborn with a birth weight of 1970 grams was delivered at 33 weeks of gestation, by cesarean section due to premature rupture of membranes. Mother had a positive history of substance abuse (opioids). The baby developed type I respiratory failure at birth and was given intratracheal phospholipids. The baby was transferred to our hospital on mechanical ventilation on day 8 of life. At presentation, the baby had a heart rate of 152/minute, a temperature of 36.9°C, blood pressure of 69/45 mm Hg, and O₂ saturation of 94%. The abdomen was soft on examination, without any palpable mass, with bilious aspirates from the orogastric catheter. A plain abdominal

x-ray revealed dilated bowel loops. An upper gastrointestinal (GI) series with hydro-soluble contrast was normal. Laboratory investigations showed a white blood cell (WBC) count of 18.9 x 10³/L, C - reactive protein (CRP) 0.75 mg/dl, procalcitonin (PCT) 0.25 ng/dl, and a positive fecal occult blood test. After 24 hours of observation, the baby still had bilious aspirates and 2 currant-jelly stools. An abdominal ultrasound was suggestive of intussusception (Fig.1).

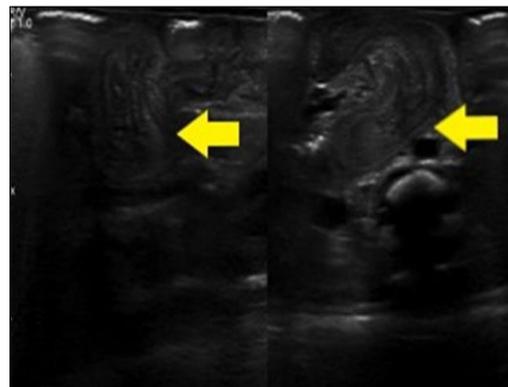


Figure 1: Abdominal Ultrasound. Transversal cut at jejunal level showing classic donut sign.

She underwent laparotomy that revealed a 10 cm long edematous, erythematous intussusceptum segment in the jejunum, 35 cm distal to the angle of Treitz (Fig.2). It was reduced manually without any signs of

perforation. The baby was kept nil per os in NICU for 2 days and was started oral feeds from postoperative day 3 after resolution of gastric aspirate. The baby was discharged and is gaining weight at 2 months of follow-up.

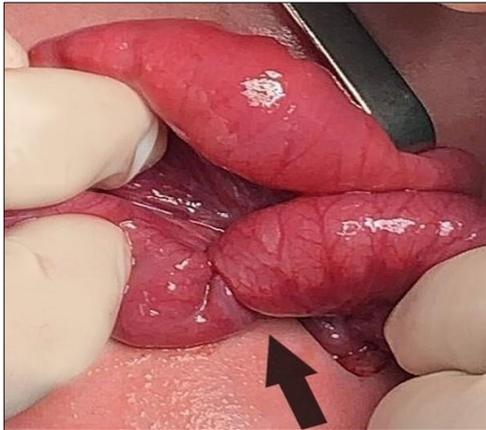


Figure 2: Intussusception 35 cm distal to the Angle of Treitz.

DISCUSSION

Intussusception is unusual in premature neonates accounting only for 0.3% of all reported cases.[1]

Premature neonates are at an increased risk of developing intestinal hypoperfusion, causing intestinal stasis and dysmotility, which may lead to intussusception.[3] The index case is the first report in Ecuador of intussusception in a premature newborn.

The etiology of intussusception is idiopathic in the majority of cases, with pathologic lead points identified in less than 25% of pediatric cases.[4] Other underlying causes mentioned in the literature are intestinal duplication, Meckel diverticulum, hamartomas, mesenchymal tumors, jejunal atresia, congenital infantile fibrosarcoma, polyps, and neoplasms.[5] In our case, there was no pathological lead point.

Adult literature describes opiates causing intestinal dysmotility due to the affection of the μ -receptors in all three intestinal layers. Opiates decrease gastrointestinal neuronal activity, reducing peristaltic activity and delaying the passage of contents through the intestines. The use of narcotics may increase the risk of intussusception in the user [6], however, we could not find any study that describes the link between maternal narcotic use and risk of intussusception in the newborn.

Table 1. Characteristics of intussusception cases in premature neonates.

S. No.	Authors	Sex	Age	Weight	GA	Surgical findings	Surgery performed	Outcome
1	Aydin et al. [3]	M	17 d	2030 g	30 w	Ileo-ileal intussusception	Manual reduction	Survived
2	Kotb et al. [7]	M	23 d	1420 g	33 w	Ileo-ileal intussusception + necrotic ileal segment	Resection + ileo-ileal anastomosis	Survived
3	Mannai et al. [8]	F	26 d	1500 g	32 w	Ileo-colic intussusception	Hydrostatic reduction	Survived
4	Tepmalai et al. [9]	M	6 d	1190 g	29 w	Ileo-ileal intussusception + 27 cm long necrotic segment	Resection of necrotic segment + ileostomy	Survived
5	Prakash et al. [10]	M	11 d	1300 g	32 w	Ileo-colic intussusception + Meckel's diverticulum	Reduction + resection of the gangrenous bowel + ileo-ileal anastomosis	Died (sepsis)
6	Saldanha et al. [11]	F	32 d	-	28 w	Ileo-ceco-colic intussusception	Manual reduction	Survived
7	Ramos-Gonzalez et al. [12]	F	30 d	-	-	Ileo-ileal intussusception	Manual reduction + partial small bowel resection + end-to-end anastomosis	Survived
8	Altuntas et al. [13]	F	12 d	1000 g	27 w	Ileo-ileal intussusception + perforation in the intussuscepted segment	Reduction + resection of necrotic segment + end-to-end anastomosis	Survived
9	Present case	F	8 d	1970 g	33 w	Jejuno-jejunal intussusception	Manual reduction	Survived

A minus sign indicates that no information was available. F, female; M, male; d, days; w, weeks; g, grams; GA, gestational age.

Intestinal obstruction in neonates is characterized by bilious vomiting. It may be associated with failure to pass meconium, distention, and/or bloody or currant

jelly bowel movements. In premature babies, it may be confused with necrotizing enterocolitis, due to delayed cardiopulmonary adaptation. Other differentials

may include intestinal atresia, intestinal malrotation, band obstruction, Hirschsprung disease, etc. Ultrasound (US) is a non-invasive and easily available bedside tool to diagnose Intussusception. The classical findings of donut sign on USG, along with red currant-jelly stools and bilious aspirates, lead to the diagnosis of intussusception in our case.

In older children, ileocolic intussusception is most common, and treatment consists of pneumatic or hydrostatic reduction under imaging or fluoroscopy. In neonates, intussusception usually involves the small intestine, and perforation risk is high. So, the reduction under imaging is not indicated and managed with laparotomy or laparoscopy depending on the surgeon's expertise and available resources. Table 1 shows the characteristics of few reported cases in the literature.

REFERENCES

1. Khorana J, Singhavejsakul J, Ukarapol N, Laohapensang M, Wakhanrittee J, Patumanond J. Enema reduction of intussusception: success rate of hydrostatic and pneumatic reduction. *Ther Clin Risk Manag.* 2015; 11:1837-42.
2. Bothara VP, Pandey A, Rawat J. Neonatal intussusception: a review. *J Neonatal Surg.* 2018; 7:5.
3. Aydin E. Intussusception in a preterm newborn. *Pediatr Neonatol.* 2018; 59:312-4.
4. Ntoulia A, Tharakan SJ, Reid JR, Mahboubi S. Failed intussusception reduction in children: Correlation between radiologic, surgical, and pathologic findings. *AJR Am J Roentgenol.* 2016; 207:424-33.
5. Edwards EA, Pigg N, Courtier J, Zapala MA, MacKenzie JD, Phelps AS. Intussusception: past, present and future. *Pediatr Radiol.* 2017; 47:1101-8.
6. Khan SJ, Desmarais AM, Joseph B, Amini R. A rare case of adult-onset intussusception complicated by narcotic dependence. *Cureus.* 2017; 9: e964.
7. Kotb M, Abdelatty M, Fawzy O, Rashwan H. Intussusception in preterm neonate. *J Pediatr Surg Case Rep.* 2019; 43:77-9.
8. Mannai H, Chourou H, Ksibi I, Cheour M, Ayari F, Kacem S. Acute intussusception in new born: A rare cause of intestinal obstruction. *J Gastroenterol Dig Dis.* 2017; 2:1-2.
9. Tepmalai K, Naowapan T, Singhavejsakul J, Laohapensang M, Khorana J. Intussusception in premature baby: Unusual cause of bowel obstruction and perforation. *J Neonatal Surg.* 2017; 6:13.
10. Prakash A, Doshi B, Singh S, Vyas T, Jain A. Intussusception in a premature neonate: A rare and often misdiagnosed clinical entity. *AJPS* 2015; 12:82-5.
11. Saldanha J, Girbal IC. Ileocolic intussusception in a premature neonate. *BMJ Case Rep.* 2016; 2016: bcr2015211245.
12. Ramos-Gonzalez G, Lugo-Rodriguez V, Camacho-Landron C, Rivera-Pedrogo F. Ileo-ileal intussusception caused by hamartomatous polyp. *J Pediatr Surg Case Rep.* 2021; 71101918.
13. Altuntas N, Boyunaga O, Karabulut R, Kazanci E, Kulali F, Onal E, et al. Ileo-ileal intussusception in a premature neonate: an unusual cause of NEC in premature babies. *J Coll Physicians Surg Pak.* 2015; 25:76-7.

In conclusion, intussusception in premature babies should be considered in the differential diagnosis of intestinal obstruction during the neonatal period. Early diagnosis and intervention can prevent bowel gangrene and hence the need for intestinal resection/diversion.

Acknowledgements: Nil

Conflict of Interest: None.

Source of Support: Nil

Consent to Publication: Author(s) declared taking informed written consent for the publication of clinical photographs/material (if any used), from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient, however it cannot be guaranteed.

Author Contributions: Author(s) declared to fulfil authorship criteria as devised by ICMJE and approved the final version.