


Intrauterine intussusception leading to ileal atresia: a case report.

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Abstract

Intrauterine intussusception is a rare cause of intestinal atresia. Intrauterine intussusception was identified as etiological factor in only 0.6% of the cases. The pathophysiology of this correlation remains unclear. Antenatal intussusception leads to a partial intestinal necrosis and intestinal atresia in the concerned digestive segment. Here we report a case of ileal atresia consequent to intrauterine intussusception.

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A full-term neonate presented with features of neonatal intestinal obstruction. Antenatal ultrasound was normal. Screening neonatal examination at birth was normal. At presentation, vital signs were normal, abdomen was distended with bilious residue in the nasogastric tube. Abdominal radiography showed dilated small intestine with multiple air-fluid levels. Pre-operative Ultrasound scan showed intussusception with dilated bowel loops. At surgical exploration the neonate had ileal atresia with ileo-ileal intussusception, just distal to the atretic ileal segment. The neonate was managed successfully by resection and end to back anastomosis.

The authors conclude that intrauterine intussusception is one of the rare causes of intestinal atresia and if an antenatal scan shows any target sign without any bowel dilatation, the baby should be delivered at a tertiary care center having neonatal intensive care facility, as it might lead to ischemia and atresia of the involved bowel.

Keywords

- Intussusception
- Intestinal Atresia
- Neonate

Introduction

Intestinal atresia are the most common congenital anomalies of the small intestine and are a major cause of neonatal intestinal obstruction. Various factors like use of pseudoephedrine with acetaminophen and receiving ergotamine tartrate and caffeine for the management of migraine headaches during pregnancy increase the risk of developing small intestinal atresia. It is also evident that mesenteric defects, volvulus, and infarction or other interruptions of

local blood supply can produce this anomaly in the fetus. Intestinal atresia secondary to late intrauterine mesenteric vascular insults is often seen in patients with volvulus, intussusception, internal hernia, and tight anterior abdominal wall defects.¹

Intussusception is a well-known cause of acute intestinal obstruction in infants and young children, but is rare during intrauterine life.² In a review of 1500 cases

of intestinal atresia, intrauterine intussusception was identified as etiological factor in only 0.6% of the cases.³ The pathophysiology of this correlation remains unclear.² Antenatal intussusception leads to a partial intestinal necrosis and intestinal atresia in the concerned digestive segment.⁴ The diagnosis is usually made postnatally based on the intra-operative findings of neonatal surgery. We present a case of Type 3 ileal atresia consequent to intrauterine intussusception.

Case presentation

A 2200-gram, term neonate was born by normal vaginal delivery. There was no significant antenatal history except meconium stained liquor. Antenatal ultrasound was normal. Screening neonatal examination at birth was normal. The patient was referred to our department at Day 4 of life for abdominal distension with bilious vomiting. On presentation, vital signs were normal, abdomen was distended with bilious residue in the nasogastric tube.

On introduction of rectal tube, anus was normally permeable without presence of meconium. There were no signs of peritonitis. Abdominal radiography showed dilated small intestine with multiple air-fluid levels (**Figure 1**). Pre-operative Ultrasound scan showed intussusception with dilated bowel loops. Patient was explored after adequate resuscitation with provisional diagnosis of intestinal atresia. Intra-operatively there was type 3a ileal atresia with distal ileo-ileal intussusception of around 5 centimeters (**Figure 2**). The case was managed successfully by resection of proximal dilated ileum, distal ileum with intussusception and end to back ileo-ileal anastomosis. Post operatively the baby was kept under neonatal intensive care. The baby passed stool on the 7th post-operative day and allowed oral feeds. Feeds were tolerated well and baby was discharged after 10 days of hospital stay. The baby was doing well and gaining weight at 6 months of follow up.

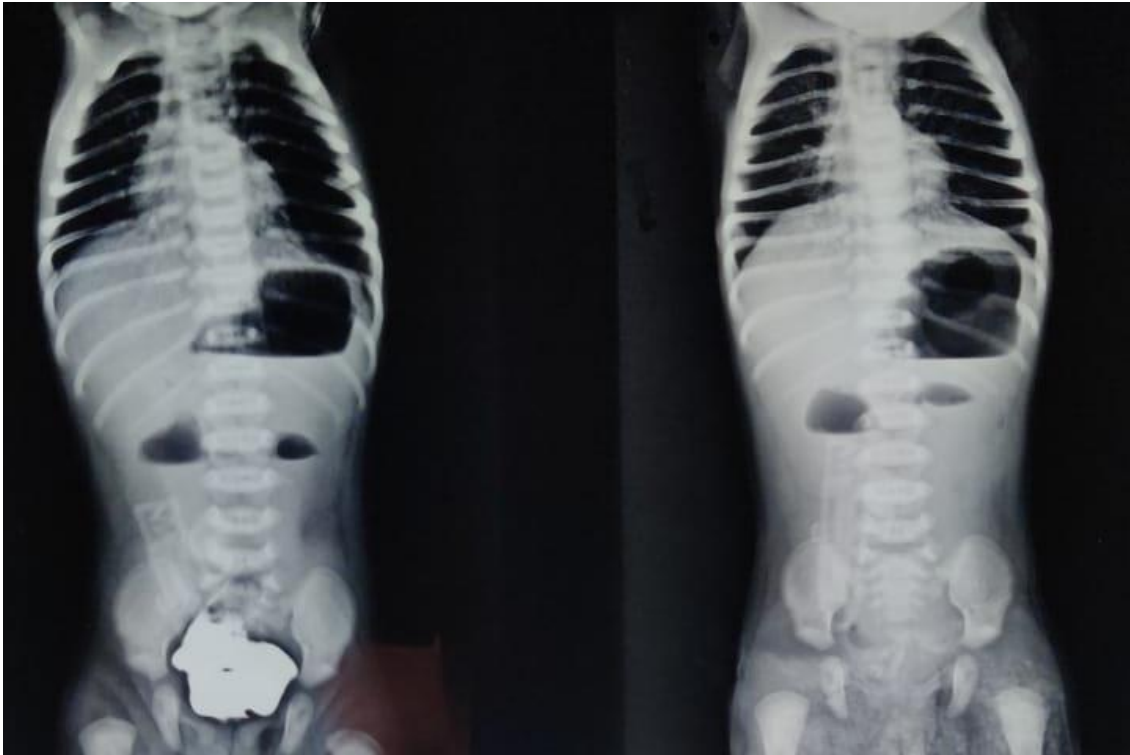


Figure 1: Abdominal radiography showing dilated small intestine with multiple air-fluid levels.

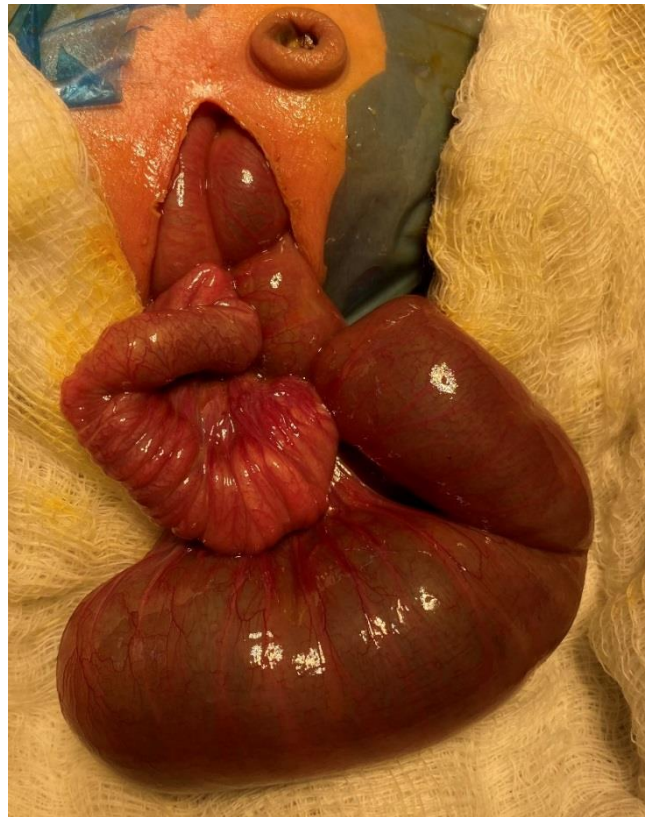


Figure 2: Type 3a ileal atresia with distal ileo-ileal intussusception.

Discussion

Though the intestinal atresias are considered as a result of intrauterine vascular accidents, the etiology of intestinal atresia has been explained by two theories in the literature. According to First theory (Louw-Bernard theory), late intrauterine mesenteric vascular catastrophe leads to ischemic bowel damage resulting in necrosis of intestinal segment with consequent resorption and

creation of an atretic pouch. Second theory (Tandler's) says that lack of re-vacuolization of the solid cord stage of intestinal development in the early intrauterine life leads to intestinal atresia.⁵ Mesenteric vascular accidents leading to intestinal atresia includes volvulus, intussusception, internal hernia, and tight anterior abdominal wall defects.¹ Amongst the above said causes, intrauterine

intussusception as cause of jejuno-ileal atresia was first recognized by Chiari in 1888, and then reported for the first time in English literature by Davis and Poynter in 1922.⁶ The exact incidence and etiology of intrauterine intussusception is unknown. Finding of normal colon intraoperatively supports the diagnosis of a late intrauterine event leading to atresia.⁴ Viscid meconium may result in excessive peristalsis and thus intussusception.⁷ Antenatal diagnosis is uncommon but has been reported.⁴ Antenatal ultrasound may show dilated bowel loops, ascites, intraperitoneal calcifications suggestive of bowel obstruction, but definitive diagnosis is only made at the time of surgical exploration.⁸⁻⁹ Although type 2 atresia has also been reported by few authors, the commonest type and site of atresia is type 3 ileal atresia as was also seen in our case.⁴⁻⁵ The newborn presents with neonatal intestinal obstruction, refusal to feeds and sometimes with sepsis and shock if delayed. The excessively dilated proximal bowel may get perforated and the baby might present with pneumoperitoneum and shock. Abdominal radiography is sufficient to clinch the diagnosis of intestinal

obstruction but intrauterine intussusception is evident only at exploration, or in the histopathological examination. Histology may suggest polypoid intussusceptum or fused intussusciences and intussusceptum.⁶⁻⁷ The surgical management is exploratory laparotomy with either resection and anastomosis, or stoma and delayed anastomosis of bowel. The prognosis is good as mostly these are full term neonates and having good birth weight.⁴ This case supports that intrauterine intussusceptions are late events, rarely picked up on antenatal scans, can lead to intestinal atresia, and if diagnosed early or referred to a tertiary care center early, they have good survival.

Conclusion

The authors conclude that intrauterine intussusception is one of the rare causes of intestinal atresia and if an antenatal scan shows any target sign without any bowel dilatation, the baby should be delivered at a tertiary care center having neonatal intensive care facility as it might lead to ischemia and atresia of the involved bowel.

Ethical Consideration

Written consent for participation was obtained from the parent or guardian of the participant in the study. This study was approved by Department of Pediatric Surgery, SMS Medical College and SPINCH Jaipur

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Conflict of interests

There is no conflict of interest

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