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Patent Vitellointestinal Duct with Inverted Ileal Loop Prolapse with Strangulation at Birth in Preterm (34 Weeks): A Rare Presentation

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Abstract

Patent vitellointestinal duct (VID) can present to us in many variety of congenital intestinal malformations. Patient presents with either anomaly alone or complications secondary to the anomaly. Most common reported anomaly of residual vitelline duct is Meckel's diverticulum with different presentations like bleeding, intestinal obstruction or diverticulitis. Prolapsed ileal loops through a patent VID is a rare presentation of the above. To date only fifteen cases of this presentation have been reported in the English medical literature but none reported in a premature newborn baby presenting with it from the time of birth, which to the best of our knowledge has not been reported before and therefore this the youngest reported case of its nature in the current English medical literature.

Keywords: Patent vitellointestinal duct; Preterm birth

Introduction

During the fifth to seventh week of gestation, midgut enlarges rapidly and as it becomes too large for the abdominal cavity, it herniates through the umbilical cord. The apex of the herniated midgut is continuous with VID and yolk sac. Superior mesenteric artery forms the axis of this herniated midgut. Around tenth week of gestation herniated midgut returns back into the peritoneal cavity [1,2]. During this complex developmental process several anomalies may occur because of the complexity of the process. Examples include bowel atresias and stenoses, abnormalities of the vitellointestinal duct (Meckel's diverticulum, patent vitellointestinal duct (PVID), umbilical fistulas, umbilical sinus tracts, umbilical cysts and umbilical polyps), failure of ceacal descent, malrotation, malfixation, reversed bowel rotation and exomphalos [1-3]. VID is more common in males and mostly presents in first 28 days of life. This anomaly needs to be managed urgently to prevent gangrene.

Case Presentation

A male neonate delivered via LSCS (CAUSE- PREVIOUS LSCS) which was unbooked delivery 34 weeks with LMP-3/12/16 and EDD-10/9/17 WITH G4P3L3A1 was admitted in Yashoda Hospital, Ghazaibad, U.P. Baby was born at preterm. Antenatal scans were reported to be abnormal showing anterior wall depressed-pouch and part of intestine coming out from umbilicus. Birth weight was 2250 g and Apgar scores were 8/1, 9/1, 10/10. On examination at birth, newborn was having respiratory distress and grunting, so oxygen was started immediately and chest x-ray and arterial blood gas (ABG) was done. Chest x-ray showed grade 2 Hyaline Membrane Disease (HMD) and ABG showed respiratory acidosis, for which child was intubated and ventilated, also received surfactant. Abdominal examination revealed a bright red 'Y' shaped loop of small intestine was protruding from the umbilical ring. It was fixed to the umbilicus, with easily bleeding mucosa and irreducibility. Rest of the abdomen was not distended non tender (Figures 1 and 2). Bowel sounds were absent. There was no bilious aspirate in the orogastric tube. Anal opening was normally placed and patent, however, he had not passed any meconium. Patient had passed clear urine twice and the bladder was not palpable. Rest of the systemic examination was normal.

Laboratory investigation including full hemogram, biochemistry and coagulation profile was normal. The newborn was started on intravenous fluids, antibiotics intravenous ceotaxim (100 mg/kg/day) and amikacin (15 mg/kg/day) and intramuscular vitamin K, 1 mg. Pediatric surgeon opinion was taken and patient was prepared for an emergency laparotomy because of the prolapsed ileal loops. Examination under anaesthesia revealed that prolapsed bowel loops, so patent VID was resected and end to end anastamosis was done in 2 layers and patient shifted to NICU. Baby was extubated successfully after 2 hours of surgery and remained haemodynamically stable. Baby was started on TPN as baby was kept NPO. On day-2 of admission child had abdominal distension with bilious aspirates along with no stools

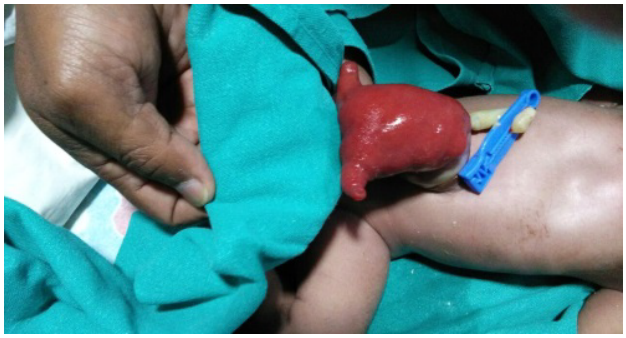

Figure 1: Vitellointestinal duct.

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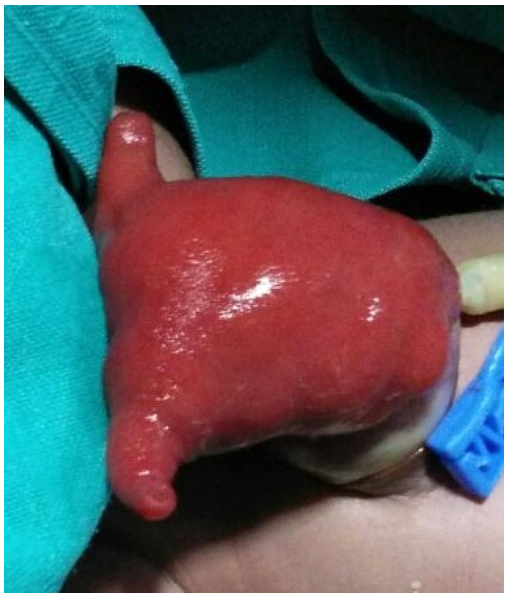

Figure 2: Closer view of VID at birth.

passed till then. So, baby received enema of normal saline 5ml twice daily for next 3 days, after which baby passed stools and abdominal distension settled and was started on feeds. Feeds were gradually increased and TPN was tapered off and stopped. On day 10 of hospital stay child was discharged from the hospital.

Discussion

Vitellointestinal duct (VID) or Omphalomesenteric duct connecting the primitive gut to the yolk sac usually obliterates around the seventh or eighth week of gestation. Failure to obliterate may lead to variety of congenital anomalies including; Meckel's diverticulum, vitelline cord, umbilical sinus, enteric fistula and or haemorrhagic umbilical mass [1-4]. To date only 15 cases have been reported in the English medical literature [5-15]. Moreover, to the best of our knowledge there is no reported case of a new born presenting with patent VID with prolapsed (intussusceptions) of proximal and distal ileal loop. Antenatal diagnosis of a PVID anomaly can be confused with hernia of the umbilical cord or exomphalos minor which fails to obliterate on serial ultrasonography. Early diagnosis of PVID anomalies mandates surgeons to have a high index of suspicion in suspected cases. This would lead to prompt diagnosis and management of this rarity and save the neonate the morbidity and mortality associated with subsequent intestinal obstruction and ischemia. As noted in the previous case reports on the topic [1,2,15], outcome is highly dependent on time of presentation, early diagnosis, associated anomalies and the size of defect. When patients present late the approach must be more conservative with formal laparotomy and or ileostomies. However, if patients present early a trans-umbilical approach can be taken comfortably with good outcomes. Clinicians' especially general practitioners need to be varying of a possible VID malformation in susceptible neonates when they present with intermittent discharge from the umbilicus. It is the widely patent type of PVID which are more likely to present with either complete or partial prolapse of ileum through the defect. The prolapse itself is probably caused by a sudden increase in intra-abdominal pressure associated with straining in neonates with a widely patent VID. Moreover, since the distance between the ileocecal valve and VID is shorter in neonates it leads to higher intraluminal pressure causing double intussusception [14]. Resection and anastomosis is preferable to wedge resection of PVID because of the associated risk of ectopic gastric or pancreatic mucosa as well as the associated ischemia secondary to intestinal obstruction and strangulation [16]. We believe that this is a neonatal emergency which must be dealt with urgently due to the associated intestinal obstruction from intussusception, strangulation and gangrene of the prolapsed intestinal loop. In our case, we were able to do a primary closure of the VID following reduction of the prolapse due to the early presentation of the patient. All reported cases before this presented during late neonatal period or infancy. This patient however, presented with it from the time of birth, which makes us wonder whether perinatal events lead to its earlier presentation or was it a prenatal event. Therefore, clinician must have a very high index of suspicion for diagnosing it timely, though its management will always follow principals of standard neonatal bowel surgery.

Conclusion

Patent vitellointestinal duct with prolapsed (intussusceptions) of both proximal and distal ileal loop is a very rare occurrence together with being a neonatal surgical emergency due to the associated morbidity.

Acknowledgment

Consent for publication obtained from the parents of the patient.

References

1. Mohite PN, Bhatnagar AM, Hathila VP, Mistry JH (2007) Patent vitellointestinal duct with prolapse of inverted loop of small intestine: A case report. J Med Case Rep 1: 49.
2. Zea M, Chana R, Anees A, Khan S (2008) Inverted ileal prolapse through patent vitellointestinal duct: A case report. Internet J Pediatr Neonatol 10: 72-74.
3. Stone PA, Hofeldt MJ, Campbell JE, Vedula G, DeLuca JA, et al. (2004) Meckel diverticulum: Ten-year experience in adults. South Med J 97: 1038-1041.
4. Cullen JJ, Kelly KA, Moir CR, Hodge DO, Zinsmeister AR, et al. (1994) Surgical management of Meckel's diverticulum: An epidemiologic, population-based study. Ann Surg 220: 564-569.
5. Elebute EA, Ransome-Kuti O (1965) Patent vitello-intestinal duct with ileal prolapse. Arch Surg 91: 456-60.
6. Davis RM, Kehm RW (1967). Omphalocele with patent vitellointestinal duct and ileal prolapse. Am J Surg 113: 571-573.
7. Lal MM, Dhall JC (1976) Ileal prolapse through patent vitello-intestinal duct: A report of 3 cases with review of literature. Indian Pediatr 13: 571-573.
8. Rohatgi M, Gorthi SN (1984) Omphalocele with patent omphalomesenteric duct and ileal prolapse. Indian J Pediatr 51: 119-123.
9. Gvalani AK, Acharya AG, Rao RV (1985) Ileal prolapsed through a patent vitellointestinal. Indian Pr 38: 629-632.
10. Agrawal S, Memon A (2010) Patent vitellointestinal duct. BMJ Case Rep.
11. Singh S, Pandey A, Ahmed I, Rawat JD, Sharma A, et al. (2011) Prolapse of bowel via patent vitello intestinal ductda rare occurrence. Hernia 15: 567-569.
12. Pauleau G, Commandeur D, Andro C (2012) Intestinal prolapse through a persistent omphalomesenteric duct causing small-bowel obstruction. S Afr J Surg 50: 102-103.
13. Patel RV, Kumar H, Sinha CK, Patricolo M (2013) Neonatal prolapsed patent vitellointestinal duct. BMJ Case Rep 2013.
14. Kadian YS (2015) Patent vitellointestinal duct with inverted ileal loop prolapse: A rare presentation. Onc Gas Hep Rep 4: 95-97.
15. Fariha AF, James MN, Humdun S, Josephat N, Fred K (2017) New-born born with patent vitellointestinal duct with prolapsed (intussusceptions) of proximal and distal ileal loop: A case presentation. J Pediatr Surg Case Rep 20: 14-16.
16. Pathak A, Agarwal N, Singh P, Dhaneria M (2015) Prolapse of inverted ileal loops through a patent vitellointestinal duct. BMJ Case Rep.