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Case report

UNVEILING UNFORESEEN COMPLICATIONS: A NEONATAL CASE REPORT ON CORD CLAMPING AND ACUTE INTESTINAL OBSTRUCTION

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Abstract

This neonatal case report presents an unexpected and rare complication associated with cord clamping during the immediate postnatal period. The report focuses on a newborn who developed acute intestinal obstruction shortly after birth. The neonate's clinical course was examined, detailing the sequence of events from cord clamping to the emergence of gastrointestinal complications. Despite the routine nature of cord clamping and its perceived safety, this case highlights the need for heightened awareness of potential complications that can arise in the delicate transition from intrauterine to extrauterine life. Timely recognition of abdominal distension, impaired feeding, and other clinical signs prompted surgical intervention, leading to the diagnosis of intestinal obstruction. The management and subsequent outcomes of this case underscore the significance of careful monitoring and prompt intervention in neonatal care. This case report serves as a reminder that while cord clamping is a routine procedure, healthcare providers should remain vigilant to unforeseen complications that may demand immediate attention in the early moments of neonatal life.

Keywords: umbilical cord, umbilical cord hernia, cord clamping, acute intestinal obstruction, neonatal surgery

Introduction

Cord clamping is a standard procedure performed shortly after birth to separate the newborn from the placenta. While considered safe and routine, recent medical literature has drawn attention to potential complications arising from this procedure. Newborns diagnosed with a congenital hernia of the umbilical cord belong to a high-risk category when it comes to potential injuries associated with herniated structures (Figure 1).

This condition, characterized by the protrusion of abdominal contents through an opening in the abdominal wall near the umbilical cord insertion, demands close medical attention due to the increased vulnerability these infants face. The umbilical cord hernia occurs during fetal development when a small section of the abdominal contents, such as intestines, can herniate into the base of the umbilical cord. This results in the formation of a sac-like protrusion at the umbilical region[1-2] . While these hernias are typically benign and resolve on their own within the first few years of life, they still warrant thorough assessment and care due to the potential complications that may arise.

Fig. 1 . Visible mass of 3 cm in the proximal portion of the umbilical cord (**a**). Lateral view of the same mass (**b**). A close-up of the mass shows clearly the intestinal loops trapped inside the sac, which is consistent with an umbilical cord hernia (**c**). Cizmeci MN, Kanburoglu MK, Akelma AZ, *et al.* Do not overlook an umbilical cord hernia before clamping. *Eur J Pediatr* **172**, 1139 (2013). https://doi.org/10.1007/s00431-013-1991-x

We present a case of a 3-day-old male child admitted to our clinic, who experienced acute intestinal obstruction due to the placement of the umbilical cord clamp (Figure 2).

Fig. 2. Three-day-old neonate with clamped umbilical cord hernia

Case report

We report the case of a 3-day-old male neonate, born at 38 weeks gestation via spontaneous vaginal delivery. The infant's birth weight was 2.7 kg, and Apgar scores at 1 and 5 minutes were 8 and 9, respectively. The neonate excreted meconium and initiated breastfeeding with its mother. Initially, the infant's condition was stable, however, one day later, the baby showed reluctance to nurse from the breast. The baby was admitted to our clinic with symptoms of abdominal distension, bilious vomiting, stool from umbilical cord and lethargy. Initial physical examination revealed an enlarged abdomen with tenderness upon palpation.

Routine Management and Complications: The newborn had an uneventful medical history and received standard postnatal care. Cord clamping followed standard protocol and took place within 30 seconds of birth. However, on the second day of life, the infant began to experience increasing abdominal discomfort and developed bilious vomiting. By the third day, the infant refused to eat, continued bilious vomiting and the passed stool through the umbilical cord site. These concerning symptoms led the parents to bring the infant to our clinic for evaluation. Upon clinical examination, the baby's abdomen was visibly distended, and there

was no passage of stool during provocation. Subsequent abdominal X-rays unveiled the presence of expanded segments of the small intestine, suggesting a potential obstruction in the digestive tract (Figure 3).

Fig. 3. The X-ray images, taken from anterior-posterior (AP) and lateral perspectives reveal the presence of bowel distension and the presence of well-defined gas-fluid levels

Treatment and outcome

An emergency surgical intervention was performed to release the entrapped segment of the intestine. During the surgery, it became apparent that the placement of the cord clamp had resulted in the compression and reduced blood supply to the affected portion of the intestine (Figure 4). The clamped section of the intestine exhibited dilation in its proximal part and constriction in its distal part (Figure 5). The affected portion of the distal ileum, which was compromised, underwent resection. Due to the constriction observed in both the distal ileum and the entire colon, the distal section of the ileum and the cecum, including the appendix, were also resected. Subsequently, an ileo-ascending anastomosis was performed using a termino-lateral approach to establish the necessary connection. The patient recovered well postoperatively and was discharged from the hospital after an uneventful recovery period.

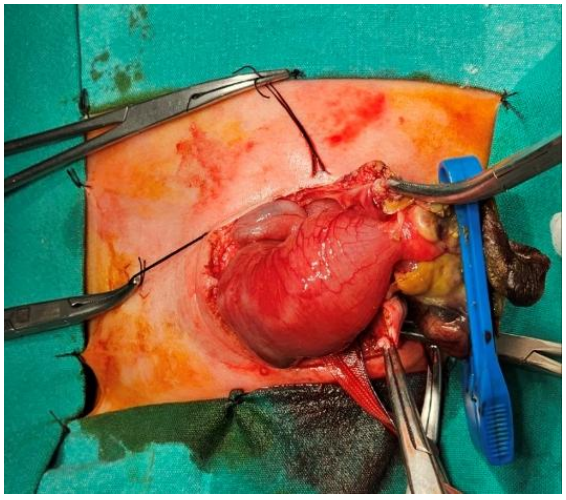

Fig. 4. Intraoperative site of clamped cord

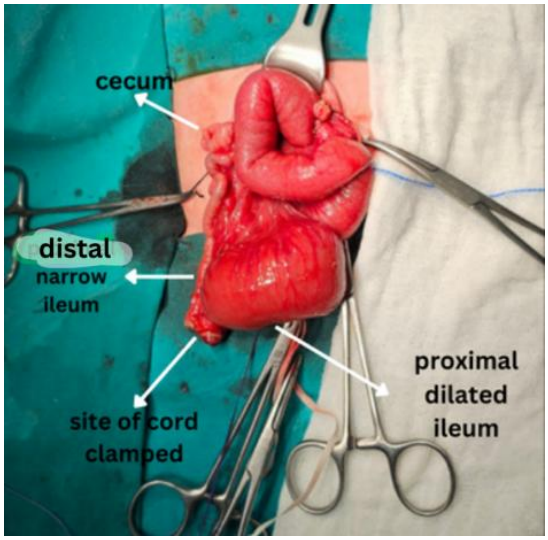

Fig. 5. Released bowel from cord

Discussion

This case highlights the unexpected and rare complication of acute intestinal obstruction resulting from cord clamping in a neonate. While cord clamping is an essential procedure to transition the newborn to independent respiration, its potential impact on neonatal physiology cannot be overlooked. The high-risk nature of this condition stems from the delicate and exposed nature of the herniated structures. The herniated abdominal contents are not protected by the abdominal muscles, leaving them vulnerable to injury. Factors such as pressure, manipulation, or inadvertent trauma can harm the herniated structures. Since newborns have fragile and developing nature of organs, any damage to these structures could lead to severe consequences and subsequent complications[3].

The potential injuries that can occur in newborns with a congenital hernia of the umbilical cord are diverse. These injuries may range from minor irritation or inflammation to more significant issues such as bowel obstruction, strangulation, or compromise of blood supply. Strangulation occurs when the herniated structure becomes trapped and constricted, impairing blood flow and potentially causing tissue necrosis. This situation demands immediate medical intervention to prevent life-threatening complications[4-6].

Given these inherent risks, healthcare professionals must exercise utmost caution when handling newborns with a congenital hernia of the umbilical cord. Any changes in the appearance, color, or sensitivity of the herniated area should be promptly evaluated. Monitoring for signs of distress, such as fussiness, persistent crying, or changes in feeding patterns, is essential in identifying potential injuries early[7].

Ultimately, early diagnosis, careful monitoring, and appropriate medical intervention are crucial in managing newborns with a congenital hernia of the umbilical cord and preventing injuries to herniated structures. Parents, caregivers, and healthcare providers must work collaboratively to ensure the well-being of these vulnerable infants. While most cases resolve naturally, the high-risk potential underscores the importance of vigilance and timely medical care in optimizing outcomes for these newborns. This incident emphasizes the need for a personalized approach to neonatal care and the importance of closely monitoring for any signs of complications after routine interventions.

Conclusion

The case of acute intestinal obstruction in this neonate serves as a stark reminder that even routine medical interventions can lead to unforeseen complications. While cord clamping remains a fundamental step in neonatal care, healthcare providers must remain vigilant and

attuned to potential complications, ensuring that the well-being of each neonate is prioritized through personalized and cautious care approaches.

Conflict of interest statement. None declared.

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