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Original Research Paper

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ANESTHESIA MANAGEMENT FOR A PRETERM BABY PLANNED FOR EMERGENCY SURGERY FOR INTUSSUSCEPTION

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ABSTRACT The most prevalent cause of intestinal blockage in children aged 6-18 months is intussusception, yet this condition is extremely unusual in newborns and even more so in preterm infants. The developmental abnormality, small size, and accompanying issues, such as bronchopulmonary dysplasia and hypoxia, in a preterm increase the complexity of anesthetic management. Knowledge of newborn growth, development, and transitional physiology, together with proficiency in airway preservation and vascular access, is required for anesthesia in premature neonates. Premature babies, including those born at a later gestational age who undergo neonatal surgery, have a higher risk of dying after the procedure. Intussusception is a life-threatening condition that necessitates immediate surgery. We report the case of a 33-week-old premature infant who presented with intussusception at the age of 2 days old.

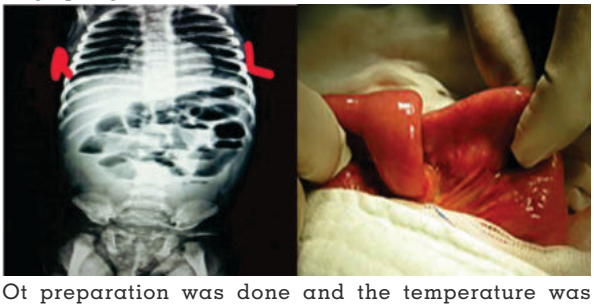
KEYWORDS : Intussusception, preterm, comorbidity, apnoea, hypothermia

INTRODUCTION

Intussusception is a condition in which there is a blockage in the intestines, resulting in intense stomach pain, crying, flexing at the waist, and perhaps a bluish tinge to the child's hair. These occurrences occur intermittently, sometimes for a short time, and are followed by times of typical, calm behavior. Undigested (non-bilious) food can be found in vomit and subsequently turns bilious. In the first stages of the sickness, the feces may be normal, but later on it may turn dark red and mucoid (like currant jelly) as a result of mucosal sloughing and intestinal ischemia. An emergency operation is needed for intussusception. [1] Even for seasoned anesthesiologists, neonatal perioperative anesthetic administration presents unique challenges. Due to their small size and the difficulty in gaining access to a vein or opening an airway, neonates and infants require skilled vascular access and airway management. Additionally, they are at increased risk for respiratory and cardiac events due to their immature physiological and developmental adaptations, which necessitates constant vigilance, early detection, and prompt correction. Preterm birth has its own unique set of complications, including but not limited to apnea, reversal of circulation, and other co-morbidities. [2] There is more risk of death for infants undergoing surgery when they are newborns than for older kids. Here, we report on a case of intussusception in a preterm infant just 2 days old (born at 33 weeks).

Case Report

A preterm infant, born at 33 weeks, was brought to the newborn intensive care unit (nicu) after suffering from bilious vomiting and abdominal distention for two days. He was diagnosed with intussusception and planned for emergency surgery.(Fig)



Ot preparation was done and the temperature was maintained. Airway cart was kept ready as per the protocol. Warm fluid was kept with line flushed. The induction agent, narcotic, and muscle relaxant dosages were determined in advance of the child's birth at the Ot. Medication administration fluid quantities were tracked. Each dosage was examined and rechecked. The requisite concentration and dosage of the emergency medications were prepared. These include (10 μg/kg, of 1:10,000 adrenaline), atropine (10–20 μg/kg), and succinylcholine (1-2 mg/kg).

Preterm infants often receive infusion rates of 100 mL/kg/24 h (4-5 mL/kg/h), with the fluid including dextrose. Replacement of operative fluid losses was done using lactated Ringer's or Plasmalyte (i.e., isotonic solutions).

Baby was taken in the ot and thoroughly covered to keep the baby warm. Monitoring of heart rate, oxygen saturation and temperature were recorded. Premedication done with ondansetron, atropine,fentanyl as per the dose calculated according to weight. Preoxygenation was done and induction with propofol and atracurium was done. Baby was intubated with Magil's blade and laryngoscope with 2.5 mm I/D uncuffed tude and maintenance with sevoflurane was done. Baby was ventilated with a Jackson Rees circuit. After surgery the baby was shifted to NICU and extubation was done in NICU after 6 hours. Preoperative, intraoperative and postoperative period was uneventful.

DISCUSSION

Most cases of intestinal blockage in children happen between the ages of 6 and 18 months, however intussusception is exceedingly rare in newborns, particularly in preterm infants. It causes only 3% of instances of intestinal blockage in newborns and around 0.3% of all intussusception cases. The incidence of intussusception is three times as high in males as in females. Intussusception affects newborns and small kids.[3] Anesthesia for preterm neonates is challenging and requires skills and good prior preparations. Thorough OT preparation should be done by maintaining ot temperature, fluid warm, airway cart, drugs according to weight and appropriate dilution. The prematurity, small stature, and related issues, including as bronchopulmonary dysplasia and hypoxia, enhance the complexity of anesthetic care. 4 Knowledge of newborn growth, development, and transitional physiology, as well as expertise in handling, airway care, and vascular access, are all necessary for safe anesthesia in premature neonates. It is crucial to have all necessary airway equipment examined and available, including with backup devices, before inducing a neonate or preterm newborn.

Facemasks of a suitable size should be on hand, ideally with as little dead space as possible. In the event of an emergency, oropharyngeal airways should be on hand. Both standard and video laryngoscopes should be prepped and ready to go with appropriately sized straight and curved blades. Preterm newborns, in particular, have a serious problem with heat loss. The operating room temperature should be set at 27 degrees Celsius in preparation for the arrival of the newborn. Cover anything that could get wet with waterproof blankets. An electric warming mattress must be stored. Heated IV fluids are

recommended. The usual monitoring should be wired in. Both the preductal (right hand) and postductal (left hand) probes of a pulse oximeter need to be used. A blood pressure cuff must be used, and one of the correct sizes must be used. Monitoring hypovolaemia using a precordial stethoscope is a simple, low-cost, and non-invasive option. All inhaled gases should be pre-conditioned by being humidified and warmed. To prevent unwell newborns from the NICU from becoming worse throughout the induction process, glucose-containing drinks should be utilized. Sensors are used to monitor core body temperature and identify signs of hypothermia by placing probes in the oesophagus or rectum and on the skin. Suction catheter of the appropriate size should be used. Drug doses should be calculated and diluted properly. The lack of airway irritation and relative cardiac stability allow for the use of inhalational medications like Sevoflurane. If adequate safety measurements are taken and prior preparations are done risks of the perioperative neonatal mortality and morbidity can be decreased.

CONCLUSION

Premature newborns are coming for surgery at higher rates as a result of the rise in the number of these children who survive to adulthood. Expertise is required for the care of these premature newborns due to their underdeveloped cardiovascular systems, susceptibility to apnea, and airway problems such tracheomalacia and stenosis. Difficulties lie in each step of the perioperative period starting from the receiving of the neonate till the shifting to the NICU. Careful management with planned and calculated doses of drugs and fluid, warm OT environment and emergency preparation are very important steps. Prior information and call for an expert when ever needed or as early as possible for such cases.

Conflict Of Interest : No

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