

LETTER TO THE EDITOR

Pneumoperitoneum in a Micro – Preemie due to Perforated Meckel's Diverticulum

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DEAR SIR

Premature neonates are at high risk of developing infection and perforation within the gastrointestinal tract usually due to necrotizing enterocolitis (NEC). Although rare, perforated Meckel's diverticulum (MD) has been reported in neonates causing pneumoperitoneum. [1] We report probably the youngest case of a perforated MD in a micro-preemie, as defined by gestational age less than 26 weeks and weighing less than 800 grams.

A 23 week and 4-day gestational age, Twin B, infant weighing 625g at birth was transferred to our neonatal intensive care unit (NICU) for prematurity without congenital abnormalities. He was born to a 24-year-old Hispanic mother, gravida 1, para 4, by emergency cesarean section under general anesthesia for mal-presentation of Twin A and potential abruption. The patient's appearance, pulse, grimace, activity, and respiration (APGAR) scores were 1, 6, and 6 at 1 min, 5 min, and 10 min respectively. The patient was intubated following delivery for respiratory distress. There were no known complications during pregnancy, however his mother had no prenatal care. The patient required active resuscitation for respiratory distress syndrome (RDS) and possible sepsis. He was started on broad spectrum parenteral antibiotics and was placed on total parenteral nutrition (TPN) with plans to hold enteral feeds. On day of life (DOL) 4, the patient developed metabolic acidosis, and had not yet passed meconium. His chest x-ray (CXR) confirmed RDS, and physical exam did not demonstrate any signs of abdominal discomfort. On DOL 5, a routine x-ray of the chest and abdomen showed pneumoperitoneum;

the orogastric tube was seen pushed too much inside.

The patient dropped weight to 520g. A left upper quadrant approach was used due to consideration of a gastric injury from the orogastric tube as a source of pneumoperitoneum. Free air was confirmed upon entering the peritoneum. Complete exploration revealed a perforated MD (Fig.1).

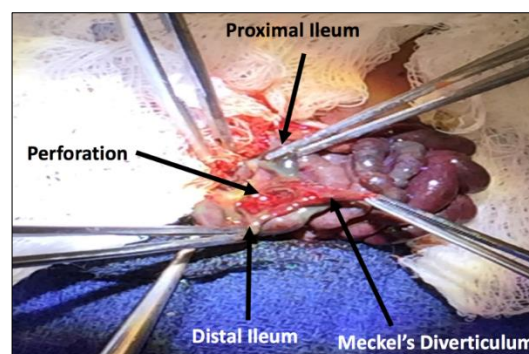


Figure 1: Perforated Meckel's diverticulum.

A small bowel resection was performed that included the Meckel's diverticulum and an ileostomy and mucus fistula were created. The patient tolerated the procedure well and was transferred back to the NICU in stable condition. Pathological examination demonstrated hemorrhage and focal mural disruption consistent with perforation. No heterotopic tissue was identified in the mucosal lining. His post-operative course was complicated by feeding intolerance, NEC (managed medically); Klebsiella tracheitis (treated with antibiotics), patent ductus arteriosus, and bilateral intraventricular hemorrhage. Full feeds were finally reached on DOL 33. At 3 months

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of age, the patient was operated for ileostomy reversal and discharged finally in stable condition from the hospital on DOL 150.

Review of the literature reveals that there have been 10 reported cases, including ours, of preterm neonates, less than 37 weeks old, with perforated MD. [1-5] Our patient is probably the youngest micro-preemie baby reported with a perforated MD to date. Despite worsening clinical status, the patient did not have radiographic evidence of pneumoperitoneum until DOL 5. The etiology of pneumoperitoneum at the time was unclear, however we suspected several possibilities prior to the exploratory laparotomy. The most obvious concern was of an intra-abdominal process; however, with predominantly ongoing respiratory issues, a possible ruptured pulmonary bleb from patient's emphysema and RDS as a source of the pneumoperitoneum was considered. Additionally, the neurally adjusted ventilator assist (NAVA) catheter placement within the stomach was questioned for its risk of causing a gastric perforation that could have contributed to the pneumoperitoneum. This was proven not to be the case intraoperatively. NEC remained lower on the differential, as there were no clinical or radiographic findings to support NEC.

Consent: Authors have submitted signed consent form from legal guardian of the patient and available with editorial office.

Authors' contribution: All the authors equally contributed in concept, design, drafting of manuscript, and approved final version of the manuscript.

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