Neonatal Intestinal Obstruction Due to Meconium Plug Syndrome

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Keypoints

What is known:
- Meconium disease is a common cause of neonatal intestinal obstruction.
- This diagnosis must be considered in cases of absent meconium emission.

What is added:
- Hyperosmolar contrast enema remains the gold standard for the diagnosis and treatment of meconium disease.
- Hirschsprung disease and cystic fibrosis should always be excluded.

Introduction

A late-premature girl, born at 36 weeks and four days from a mother with thyroid stimulating hormone receptor antibodies (TRAb) negative Graves disease, developed severe abdominal distension, feeding intolerance, and failure to pass meconium at the 30th hour of life. Orogastric drainage and rectal stimulation were performed, with no clinical improvement. Abdominal radiography showed signs of obstruction (Fig. 1). Antibiotic therapy was initiated with ampicillin and gentamicin. A water-soluble hyperosmolar contrast enema showed multiple impacted meconium pellets filling defects (Figs. 2 and 3). Immediately after the examination, the newborn spontaneously passed inspissated meconium, with multiple spontaneous meconium passages thereafter. Feeding was initiated the following day and she was discharged on the 12th day of life after feeding autonomy was gained. The metabolic screening was conducted on the 4th and 6th days of life, with normal results. Cystic fibrosis was excluded after the infant exhibited normal fecal pancreatic elastase level, and a sweat test was performed at 1st and 3rd months of age, respectively. The patient is currently 21 months old and asymptomatic.

Neonatal bowel obstruction is typically portrayed by abdominal distension, vomiting, and failure to pass meconium in the first 24 hours of life. A multitude of causes are recognized, including Hirschsprung disease, malrotation, intestinal atresia, and meconium disease.[1-3] Meconium disease includes meconium ileus and meconium plug syndrome, the latest often being a benign cause of bowel obstruction.[3-5] Meconium plug syndrome is more common in low birth weight and premature neonates.[4] The precise pathogenesis of meconium plug syndrome is unknown. Ineffective peristalsis resulting in prolonged exposure of meconium to the water-absorbing colonic mucosa may generate meconium plugs.[5] The obstruction is usually resolved after a hyperosmolar contrast enema. This examination is both diagnostic and therapeutic. Surgery is warranted in patients with unsuccessful contrast enema. The prognosis is excellent even in case of surgery.[4,6] Meconium disease may be associated with Hirschsprung disease (38% of patients) and cystic fibrosis (in around 43% of cases).[1,3,4]

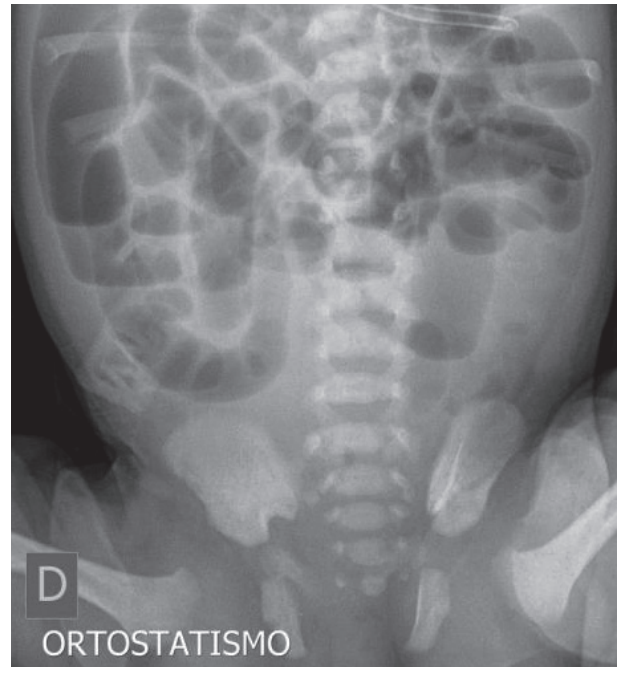

Figure 1. Newborn at 30th hour of life. Severe intestinal distension is visible, with hydro-aerial levels.

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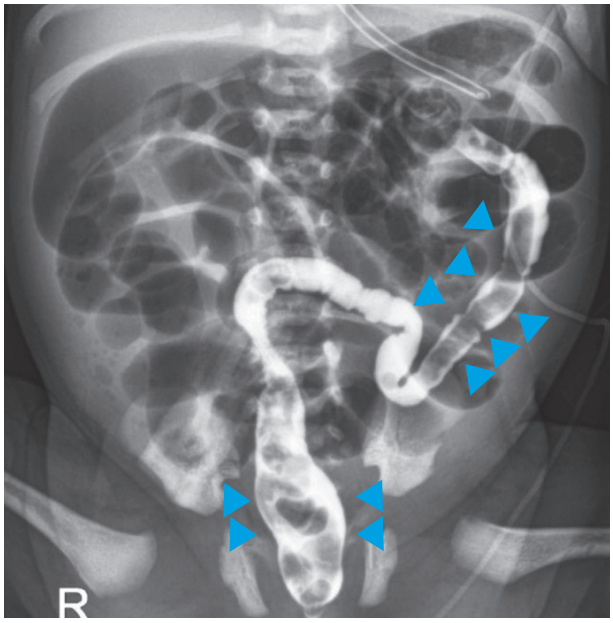

Figure 2. Water-soluble hyperosmolar contrast enema (early phase). Multiple meconium pellets filling defects are visible through the descending colon (see arrowheads).

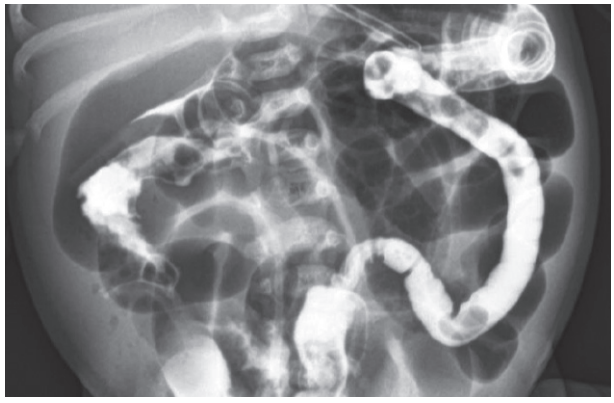

Figure 3. Water-soluble hyperosmolar contrast enema (late phase). Multiple meconium pellets filling defects are visible through the descending and transverse colon.

Keywords: Infant, Newborn; Infant, Newborn, Diseases/diagnosis; Intestinal Obstruction/diagnostic imaging; Intestinal Obstruction/etiology; Intestinal Obstruction/therapy; Meconium

Author Contribuitions

CC, FC and JBL participated in the study conception or design. CC participated in acquisition of data. CC, FC and JBL participated in the analysis or interpretation of data. CC participated in the drafting of the manuscript. FC and JBL participated in the critical revision of the manuscript. All authors approved the final manuscript and are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this study.

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Provenance and peer review

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data

Consent for publication

Consent for publication was obtained.

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