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(RESEARCH ARTICLE)

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Febrile occlusive syndrome: When acute pyelonephritis masks a complicated Meckel's diverticulum in newborn

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Abstract

Meckel's diverticulum is a rare congenital anomaly in newborns that often presents with acute complications. Diagnosis is challenging due to sometimes atypical clinical manifestations, non-specific imaging findings, and the need for prompt surgical intervention. We report the case of a 22-day-old newborn admitted for pyelonephritis suspected in the context of a congenital urinary tract malformation and clinical symptoms consisting of postprandial vomiting accompanied by a fever of 39°C; the CRP was positive and the urine culture was positive. Despite appropriate intravenous antibiotic therapy, the course of the illness was marked by the onset of abdominal distension and bilious vomiting. An abdominal X-ray without preparation revealed fluid-air levels. An emergency laparotomy revealed a Meckel's diverticulum, which was surgically treated with uncomplicated postoperative outcomes. The presence of heterotopic gastric tissue was confirmed by histological examination. This case illustrates how signs of concomitant pyelonephritis can mask an underlying gastrointestinal condition in newborns or infants. The diagnosis of Meckel's diverticulum should be considered in any case of febrile intestinal obstruction.

Keywords: Meckel's diverticulum; Obstruction; Pyelonephritis; Delayed diagnosis; Peritonitis

1. Introduction

Meckel's diverticulum in the neonatal period is rare but can cause intestinal obstruction or perforation, requiring urgent surgery. Clinical presentation ranges from a distended abdomen and bilious vomiting to overt pneumoperitoneum [1].

Diagnosis may be guided by imaging, which does not replace surgical exploration in cases of peritonitis or persistent obstruction. Neonatal management requires appropriate resuscitation and early intervention.

2. Materials and Methods

We present the case of a full-term, underweight male newborn born via cesarean section f resulting from a monitored pregnancy with an Apgar score of 9/10/10.

Admitted at birth for IUGR, consistent with a birth weight of 1980 g, length 44 cm, and head circumference 33 cm. Clinical examination revealed a hypotrophic, toned, responsive, and eupneic newborn with hypospadias; the cytomegalovirus (CMV) PCR test was negative, and a renal ultrasound revealed unilateral ureterohydronephrosis.

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The patient was discharged after a favorable course of recovery, placed on mixed feeding with breast milk and formula for preterm infants, and given iron and vitamin D supplementation. Follow-up was scheduled with urological surgery and at a multidisciplinary clinic at the Medical-Psychosocial Assistance Center (CAMPS).

He was readmitted on day 22 of life for suspected pyelonephritis, given the history of congenital urinary tract malformation and clinical symptoms consisting of postprandial vomiting accompanied by a fever of 39°C; the CRP was positive, the urine culture was positive, and the lumbar puncture was negative. An abdominal ultrasound was performed due to postprandial vomiting, with a free space that appeared normal.

The course of the illness was marked by a cessation of bowel movements and flatus, accompanied by abdominal distension and a massive amount of residual gastric contents.

An abdominal X-ray without preparation revealed diffuse fluid-air levels; a repeat renal ultrasound showed unilateral hydronephrosis without signs of compression. At this stage, the question was: was this an infectious ileus or an organic obstruction? Surgical exploration (laparotomy) revealed a Meckel's diverticulum, which was treated surgically with wedge resection and anastomosis, along with an appendectomy. The postoperative course was uneventful, and the histopathological examination was consistent with a Meckel's diverticulum with diverticulitis lesions and a peritoneal reaction, noting the presence of gastric-type heterotopic tissue [2].

3. Results and Discussion

Symptomatic Meckel's diverticulum in newborns most commonly presents with signs of obstruction or with a picture of peritonitis secondary to perforation; these presentations are predominant, accounting for 58.3% and 33.3% of reported cases, respectively [3].

Our case is unique because the initial clinical presentation was that of pyelonephritis in the context of a congenital urinary tract malformation (unilateral ureterohydronephrosis), characterized by postprandial vomiting developing against a background of fever reaching 39°C. Given the progression marked by cessation of bowel movements and flatus with abdominal distension and massive gastric residue, infectious ileus was suspected (Figure 1).

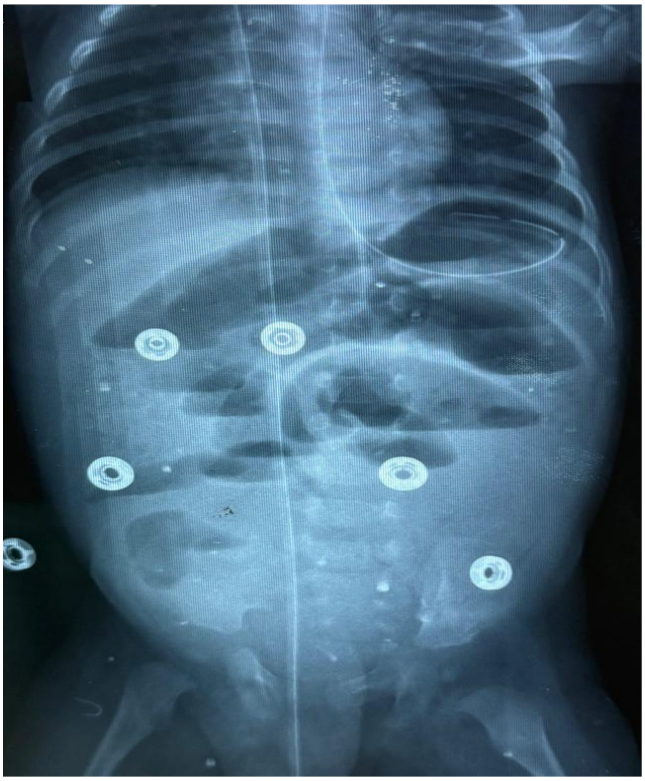

Figure 1 Unprepared abdomen with hydro-air levels

The ASP showed diffuse hydroaerial levels; a repeat renal ultrasound revealed unilateral UHN with no signs of compression. Surgical exploration (laparotomy) revealed a Meckel's diverticulum, which was treated surgically with wedge resection and anastomosis, along with a routine appendectomy.

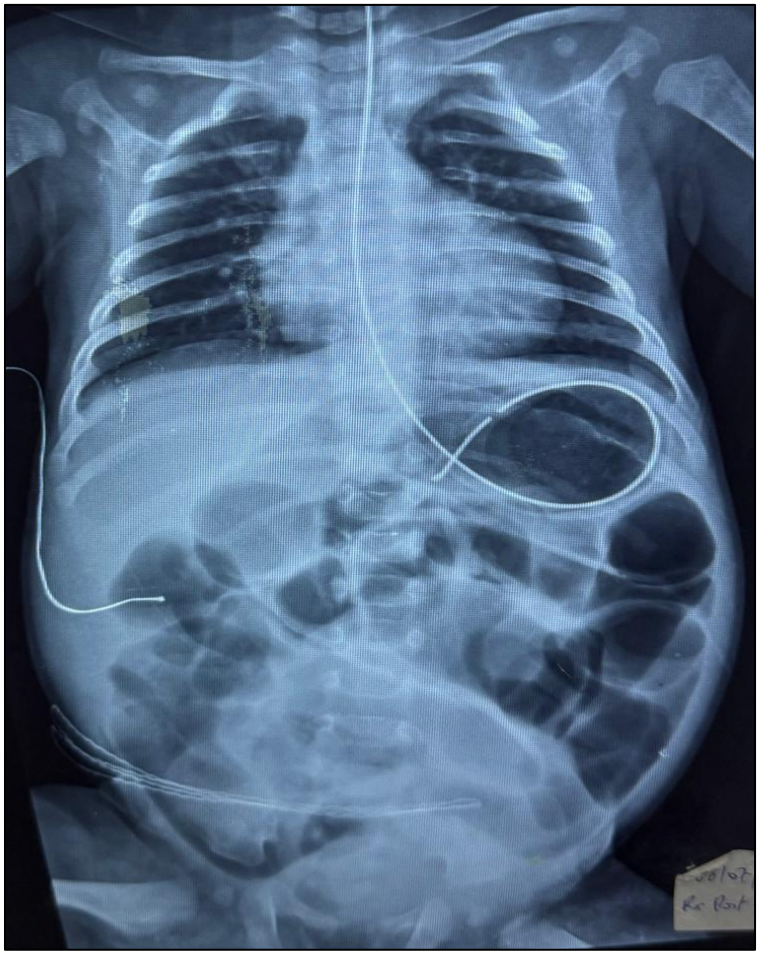

Figure 2 Postoperative ASP

An abdominal X-ray may reveal pneumoperitoneum or signs of obstruction; however, the absence of radiographic evidence of obstruction does not rule out perforation, as there have been reported cases with non-suggestive imaging findings [4,5].

Diagnostic surgical exploration (laparoscopy or laparotomy) confirms the diagnosis and is often essential in symptomatic newborns [6,7]. In our case, the infectious process masked the obstructive syndrome, but the decision to perform surgical exploration led to the correct diagnosis.

Abdominal ultrasound is of no value, and the priority is to evaluate the situation and decide on the surgical procedure, as there is no neonatal imaging method in the neonatal series that can replace confirmatory surgical exploration[3,4].

Neonatal management requires appropriate resuscitation and early intervention; hemodynamic stability and the condition of the adjacent intestinal segment determine the surgical procedure, which can range from limited resection of the diverticulum to segmental resection with anastomosis or creation of a stoma[5].

There are several surgical techniques. One option is segmental resection and ileal anastomosis in cases of involvement of the adjacent small intestine or perforation; this technique is reliable even in low-birth-weight newborns following resection for perforation [4]. Another option is a temporary stoma [5,8].

Meanwhile, the minimally invasive approach laparoscopy has been successfully used to confirm the diagnosis and resect the diverticulum in cases of obstruction without overt peritonitis, when the patient's hemodynamic status permits [7].

In our case, surgical exploration (laparotomy) revealed a Meckel's diverticulum, leading to resection with a cuneiform anastomosis and routine appendectomy.

Appropriate resection generally leads to a favorable outcome.

4. Conclusion

Neonatal Meckel's diverticulum remains a major diagnostic challenge due to its borderline presentation. Delayed diagnosis, intestinal necrosis, and hemodynamic instability are poor prognostic factors that increase the risk of extensive resection and morbidity. In our case, the infectious presentation masked the Meckel's diverticulum complicated by obstruction, and surgery allowed for a rapid correction of the diagnosis.

Only close collaboration between pediatricians, radiologists, and surgeons enables rapid diagnosis, initial resuscitation, and a decision to perform early surgical exploration to ensure a favorable outcome.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

If studies involve use of animal/human subject, authors must give appropriate statement of ethical approval. If not applicable then mention 'The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study."

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