Neonatal Perforation of Meckel Diverticulum: About Two Cases

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Abstract

Two cases of neonatal perforation of Meckel’s diverticulum (MD) are reported. The clinical course showed the appearance of pneumoperitoneum successively at 20 h and the 7th day of life. Laparotomy revealed Meckel’s perforation, which was associated with meconium peritonitis in the second case.

Although rare, MD should be kept in mind as one cause of gastrointestinal perforation in neonate.

Keywords: Newborn; Meckel’s diverticulum; Intestinal perforation; Pneumoperitoneum; Premature

Introduction

Gastrointestinal perforation is a common situation in neonatology which complicated most often the evolution of necrotizing enterocolitis in premature with a low weight of birth. In other cases, gastrointestinal perforation can be iatrogenic or occurring spontaneously without signs of enterocolitis. We report two cases of intestinal perforation of MD in the first days of life.

Case 1

A male baby, 28 week gestation weighing 1400 g was born by urgent cesarean section for chorioamnionitis. He was born to a 31 year old primipara mother with no medical history. The Apgar score was 8 at 1 min and 9 at 5 min, the infant was transferred to our neonatal intensive care unit with a mild respiratory distress. Routine thoraco abdominal radiograph taken 10 h after birth showed none expanded stomach and a dilated intestinal loop beneath the liver edge. Therefore, he was treated in nil-by-mouth status and was supplied with intravenous fluid [1-5]. Clinically the abdomen was progressively distended but palpated softly without tenderness. An abdominal X-ray was performed again at 20 h of age and showed pneumoperitoneum. All vital signs were stable except mild tachypnea. An emergency operation was performed 24 h after birth under a suspected diagnosis of gastrointestinal perforation. Before the operation, no meconium was passed. At laparotomy, a wide-based Meckel’s diverticulum was found located 12 cm above the ileocecal valve with several thin-walled irregular bulges in the antimesenteric side. A tiny perforation was found over one bulge. The perforation was a blowout-like lesion and the appearance of the surrounding bowel was healthy without any inflammatory reaction. A wedge resection of the intestine with end-to-end anastomosis was performed. The postoperative course was uneventful [6-10].

Case 2

A 750 g boy was born by a normal vaginal delivery at 26 weeks’ gestation. He was born of a 38 year old multigravida nulliparous mother who was followed for an incompetent cervix [11]. The Apgar score was 8 at 1 min, 9 at 5 min. Severe respiratory distress was noted immediately after birth necessitating his rapid transfer to our intensive care unit. On admission, he had cyanosis and severe respiratory distress [12-14]. The diagnosis of hyaline membrane disease was confirmed by the chest radiograph. Clinical outcome was favorable after surfactant administration. The infant presented at the 7th day of life severe apnea requiring mechanical ventilation with oxygen requirement of 21% [15]. The chest radiograph was normal but the abdomen radiograph showed a pneumoperitoneum. The infant had a soft and no distending abdomen. An emergency laparotomy was performed on suspicion of a gut perforation. At laparotomy, a perforated MD was found 10 cm before the ileocecal valve, with meconium peritonitis. The appearance of the surrounding bowel was healthy. A segmental resection of the intestine with a stoma was performed. No aerobic or anaerobic organisms were cultured in the effusion taken from the peritoneal cavity [16-19]. Our patient recovered well from surgery. He required a prolonged total parenteral nutrition via a central venous catheter.

Discussion

MD is a vestigial remnant of the omphalomesenteric duct which is caused by an incomplete obliteration of the vitelline duct. It is the most common malformation of the gastrointestinal tract and is present in approximately 2% of the population [1]. Most of these are asymptomatic and occur during childhood in the first two years of life, with a male-to-female ratio of 2:1 [2]. The most common symptoms are gastrointestinal bleeding, bowel obstruction and diverticulitis [20].

Symptomatic MD in neonates is rare. The most common presenting symptoms is bowel obstruction [3], gastrointestinal bleeding was reported in one case [4]. Perforation of MD in neonates is rare, a review of the literature revealed only 22 cases from 1953 to 2016 with a sex ratio equal to 4.6 (M/F: 14/3) and a gestational age ranging from 28 to 41 weeks (Table 1). The onset of symptoms was between 1 day of life and 17 [21,22]. Our patients were very preterm babies born at 28 and 26 week gestation, the pneumoperitoneum was discovered during abdomen distension in the first case, incidentally on the thoraco-abdominal x-ray in the other patient. There are risk factors predisposing to MD perforation such as antenatal and postnatal steroid therapy, hypoxia, and poor intrauterine blood flow, congenital absence of the muscles in the gastrointestinal wall and exchange transfusion for hemolytic disease [5,23]. Our two babies actually received antenatal steroid therapy [24].
Conclusion

Because perforation of MD is the newborn is very rare, early recognition and prompt management with surgical intervention is essential for a positive outcome.

References


Table 1: Reported cases of neonatal Meckel’s diverticulum in the literature.