Meconium peritonitis following intestinal atresia: A case report

Riley K. Kitamura*, Peter Midulla, Tamar Mirensky

Department of Surgery, Division of Pediatric Surgery, Mount Sinai Medical Center, Icahn School of Medicine at Mount Sinai, New York, NY, USA

A R T I C L E   I N F O

Article history:
Received 4 January 2016
Received in revised form 17 March 2016
Accepted 21 March 2016

Key words:
Meconium peritonitis
Intestinal atresia
Bowel perforation

A B S T R A C T

Meconium peritonitis is a sterile chemical peritonitis, which frequently occurs after intestinal perforation in utero. Overall mortality rates have drastically decreased with earlier prenatal diagnosis and improved perinatal care. However, perinatal surgical management of meconium peritonitis is largely dependent on individual surgeon experience. We present a case of meconium peritonitis with emergent cesarean section delivery after the patient developed massive meconium ascites, hydrops fetalis, and non-reassuring fetal monitoring. In the immediate post-natal period, the patient was intubated and a peritoneal drain was placed for respiratory and hemodynamic stabilization. He was then taken to the operating room the following day for laparotomy and bowel resection. His post-operative course was uneventful, and he was discharged home in good clinical condition.

© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Meconium peritonitis (MP) is a sterile chemical peritonitis caused by intestinal perforation in utero and carries an incidence rate of 1 in 30–35,000 births [1]. Historically, mortality rates of 60–90% have been reported; however, advances in perinatal care and surgical management have improved survival rates to 80–92% [1–3]. Despite the increasing numbers of prenatally diagnosed cases of MP, surgical management is largely dependent on fetal imaging. We present a case of MP, which presented as massive meconium ascites delivered emergently due to acute fetal decompensation, followed by bedside stabilization and peritoneal drainage. Surgical exploration was performed the following day with good clinical outcomes.

1. Case report

A 41-year-old G2P1 female, in her 28th gestational week of pregnancy complicated by gestational diabetes and Trisomy 21 (diagnosed at 13 weeks by chorionic villus sampling and amniocentesis; karyotype 46, XY/47, XR, +21), was discovered to have new fetal ascites and dilated bowel on routine sonography at 28 weeks. She had previously underwent sonogram at 20 weeks, which was normal. At 32 weeks, sonography demonstrated markedly increased ascites and now collapsed bowel, suspicious for intestinal perforation. Expectant management continued and imaging at 33 weeks and 5 days revealed worsening polyhydramnios, massive ascites, hyperextension of the fetal neck, new fetal pericardial effusion—concerning for hydrops fetalis. Fetal monitoring was non-reassuring and emergent cesarean section was elected. Apgar scores were 6 at 1 min and 8 at 5 min of life, and the patient was immediately intubated for respiratory distress. The abdomen was distended and tense and likely contributing to respiratory distress, thus an 8.5 French pigtail abdominal drain was placed immediately at the bedside following birth with removal of 100 mL of bilious ascites. The patient remained in the neonatal intensive care unit overnight, with gradual removal of an additional 240 cc of ascites over the following 12 h and weaning of respiratory support.

The following day, the patient was taken to the operating room for exploration. Approximately 200 mL of bilious ascites was evacuated upon entering the abdomen. The large bowel was identified and appeared normal and collapsed. The small bowel was run proximally until the mid-jejunum, where a severely narrowed segment with proximal dilation and perforation was encountered, consistent with intestinal atresia. Approximately 15 cm of non-viable bowel was resected (Fig. 1) and an anastomosis with a distal Cheatle slit to minimize size discrepancy was performed.

Post-operatively, the patient remained on dopamine for hemodynamic support, which was weaned off by post-operative day 3. His respiratory status continued to improve and he was extubated on post-operative day 5. He regained bowel function on post-operative day 7 and was started on low volume enteral feeds with gradual advancement. The remainder of his hospital course was
uneventful and his discharge weight was 2475 g (birth weight 3010 g) at 28 days of life. He has since been followed up at 42 days of life. He was brought to the operating room for exploration, bowel resection, and primary anastomosis, and had a favorable outcome following this approach.

3. Conclusion

Meconium peritonitis is increasingly diagnosed earlier in gestation. Timing of delivery is based on whether the case is simple or complex, and then observing the development of hydrops fetalis or other grave signs of fetal danger. In our experience, newborns with significant ascites can be treated with bedside abdominal drainage for stabilization, relief of respiratory distress and hemodynamic instability, and preparation for operation.

Fig. 1. Excised segment of non-viable bowel including atretic segment and overlying meconium ascitic fluid.

References