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Research Article

Conservative Management of Spontaneous Intestinal Perforation in Preterm: A Case Report and Review of Literature

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Abstract

Spontaneous intestinal perforation (SIP) is a single intestinal perforation typically involving the distal ileum's antimesenteric border and usually occurs in the extremely premature infant in the first 1–2 weeks of life [1]. SIP is the second common cause of intestinal perforation in neonates, especially in low-birth-weight newborn, the incidence rate is 1.1% in very low birth weight (VLBW).

Epidemiologic evidence suggests that the most common form of necrotizing enterocolitis is not triggered by a primary hypoxic-ischemic event. Its late occurrence, lack of preceding ischemic events, and evidence for microbial and inflammatory processes preclude a major role for primary hypoxic ischemia as the sentinel pathogenic event. However, term infants, especially those with congenital heart disease who have development of intestinal necrosis, and those preterm infants with spontaneous intestinal perforations, are more likely to have intestinal ischemia as a primary component of their disease pathogenesis [3].

Keywords: Spontaneous Intestinal Perforation (SIP); Milk; Feeding

Case Report

A female of quadrable twin infant was born to a 35-year-old primigravida via elective caesarean section at 36 weeks of gestation. A full course of antenatal corticosteroid therapy was administered. The birth weight was 1000g, and the Apgar score was 9 at both 1 and 5 min. The infant was admitted to the neonatal intensive care unit, with respiratory support by nasal intermittent mandatory ventilation. A venous umbilical catheter was placed, and she was started on ampicillin and gentamicin. Parenteral nutrition was initiated, and trophic enteral feeding with breast milk via gastric tube feeding began at the 11th hour of life. The first passage of meconium occurred at 38 hours of life. Abdominal distension was noted 8 hours later, despite the absence of feeding intolerance or hemodynamic instability. Necrotizing enterocolitis (NEC) was suspected, and enteral feeding was discontinued. Appropriate empirical antibiotic treatment with vancomycin, cefotaxime and metronidazole was initiated. Serial abdominal radiographs were obtained and revealed pneumoperitoneum (figure 1). gastrograffin follow through was performed reveals suspected intestinal perforation(figure 2) patient managed conservatively close observation and continues monitoring as baby remains stable with no deterioration, another gastrograffin follow through done after 4days showed no leakage (figure 3) enteric feeding was restarted 5th days and baby discharged on 8th day.

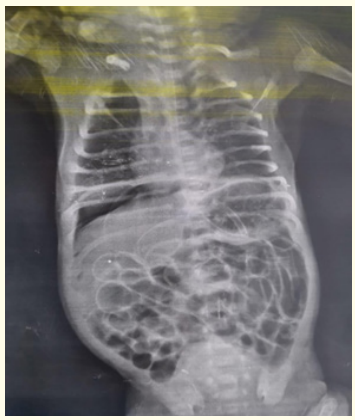

Figure 1

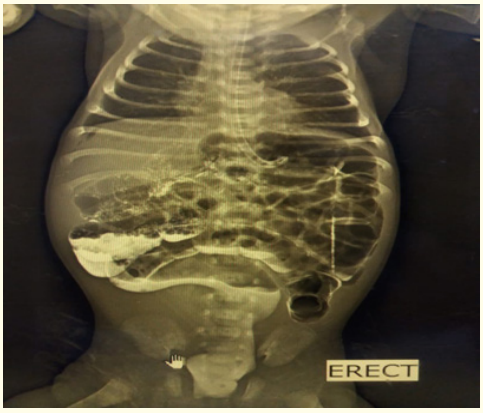

Figure 2

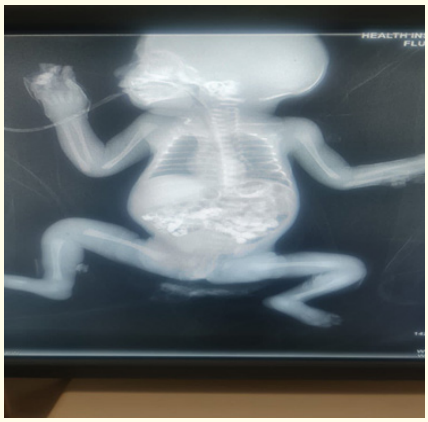

Figure 3

Discussion

Intestinal perforation is a major life-threatening complication in preterm infants, with high morbidity and mortality [4]. SIP of the small bowel is a condition occurring in premature neonates that is not associated with the clinical and pathological features of necrotizing enterocolitis, nor secondary to an obstructive phenomenon such as Hirschsprung's disease. Given the direct link between prematurity and SIP, the apparent increase in the number of cases reported in the literature would be expected with general advances in neonatal medicine leading to an increased chance of survival of the premature neonate [5].

As in the present case. Current evidence on the pathogenesis and potential risk factors, except prematurity and extremely low birth weight, remains controversial [6].

SIP presents earlier in life, at a mean age of 7 days (vs 15 days for NEC), often with a typical black-bluish discoloration of the abdomen [5,6], which was absent in our case. SIP is characterized histopathologically by a small perforation and mucosal thinning, without ischemic necrosis or neutrophil infiltrates, which are typically found in NEC. However, SIP cases with anatomopathological features of necrosis have been described [4].

It is important to distinguish between SIP and NEC-related perforation But often the clinical and radiological picture is not sufficient enough to differentiate between NEC and SIP.[7] in SIP radiological studies of the abdomen reveal the pneumoperitoneum and sometimes a gasless abdomen, generally without the imaging hallmarks of NEC (i.e., pneumatosis intestinalis or portal venous gas) [4]. Infants with SIP generally exhibit better survival rates than NEC infants, if promptly diagnosed and treated. However, both groups exhibit similar impaired long-term neurodevelopmental outcomes [4-6].

Conservative treatment alone may be carefully considered as the first-choice therapeutic option in the early postnatal period in ELBW infants with pneumoperitoneum suggestive of intestinal perforation, specifically in those infants who present with low-grade clinical symptoms suspected to be SIP. With close monitoring and appropriate supportive treatment, full recovery may be expected with conservative management alone, without the need for surgical exploration [7]. However, further studies are needed to generate more evidence and formulating guidelines for management of such cases [8].

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