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Volvulus in two preterm infants: abdominal massage as a risk factor?

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This is a report about two preterm infants with a diagnosis of intestinal volvulus without identifiable predisposing intestinal malformation.

CASE 1

The first case involves an 800 g female infant born to a 34-year-old G2/P2 mother by cesarean section at 27 weeks of gestation because of preeclampsia and silent CTG. Apgar scores were 2, 7, 6 at 1, 5, and 10 minutes, respectively. The baby developed respiratory distress, necessitating nasal CPAP and on the second day of life mechanical ventilation. She was extubated on the third day of life and placed on nasal CPAP. During the following weeks, the abdomen was noticed to be distended but soft, and defecation was difficult although the baby was exclusively fed with breast milk. Intensive abdominal massage was performed several times a day by the nurses. The baby was also reported to be rather fussy. On the 32nd day of life, she became acutely ill with a distended and tense abdomen (Fig. 1), hypothermia (35.9° C), poor skin perfusion, and apneas. Stools were normal but gastric aspirates were bilious. The abdominal X-ray showed markedly dilated loops of bowel with air-fluid levels and no evidence for necrotizing enterocolitis (Fig. 2). The baby was intubated, put on antibiotics and transferred to the pediatric surgical unit. On laparotomy, volvulus of the small bowel was diagnosed. 120 cm of small bowel were resected and a jejunostomy and colostomy were placed. The postoperative course was

Fig. 1

Tensely distended abdomen with increased venous markings.

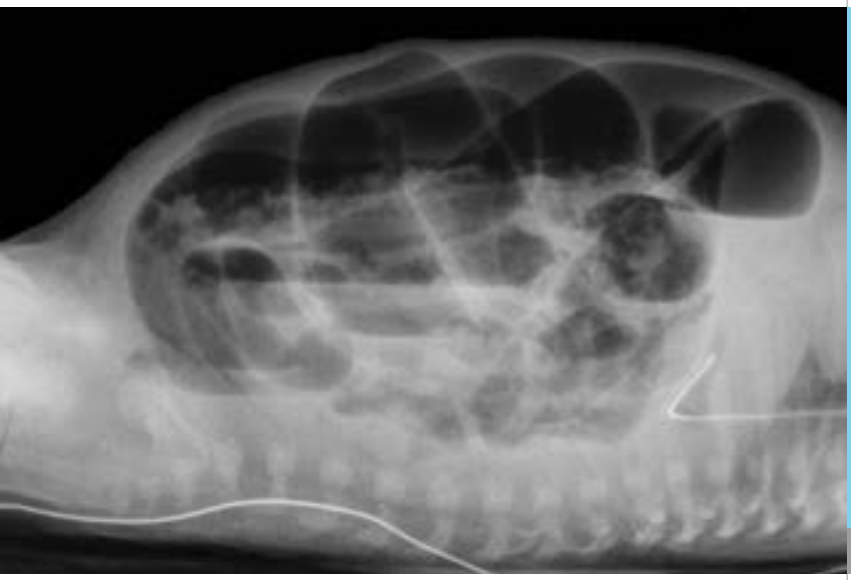

Fig. 2

Abdominal x-ray (horizontal beam technique) showing dilated loops of bowel but no free air or pneumatosis intestinalis.

complicated by several episodes of nosocomial infections and stenosis of the stoma. The baby was discharged from hospital in good condition at a corrected age of seven months with a weight of 5120 g.

CASE 2

The second case was very similar: a preterm 800 g female infant was born to 37-year-old G1/P1 by cesarean section at 27 weeks of gestation because of maternal preeclampsia. Apgar scores were 7, 9, and 9 at 1, 5, and 10 minutes, respectively. The baby was placed on nasal CPAP because of RDS. Within the first two hours of life she required mechanical ventilation and surfactant was given. She was extubated on the 4th day of life and put on nasal CPAP. Enteral feedings with breast milk were started on the second day of life and tolerated without problems. Abdominal massage was performed several times a day because of abdominal distension felt to be secondary to nasal CPAP. On the 19th day of life, the baby developed clinical (tense, distended abdomen, absence of stools, biliary gastric aspirates) and radiological signs of an ileus (Fig. 3). She was described as being uncomfortable and crying inconsolably. An enema with normal saline did not lead to any improvement. Antibiotics were started and the baby was transferred to the pediatric surgery unit. On laparotomy, volvulus of the ileum was found. 14 cm of ileum were resected and an end-to-end anastomosis was performed. The further course was complicated by gastro-esophageal reflux necessitating enteral feeding through a jejunal tube for several weeks. The baby was

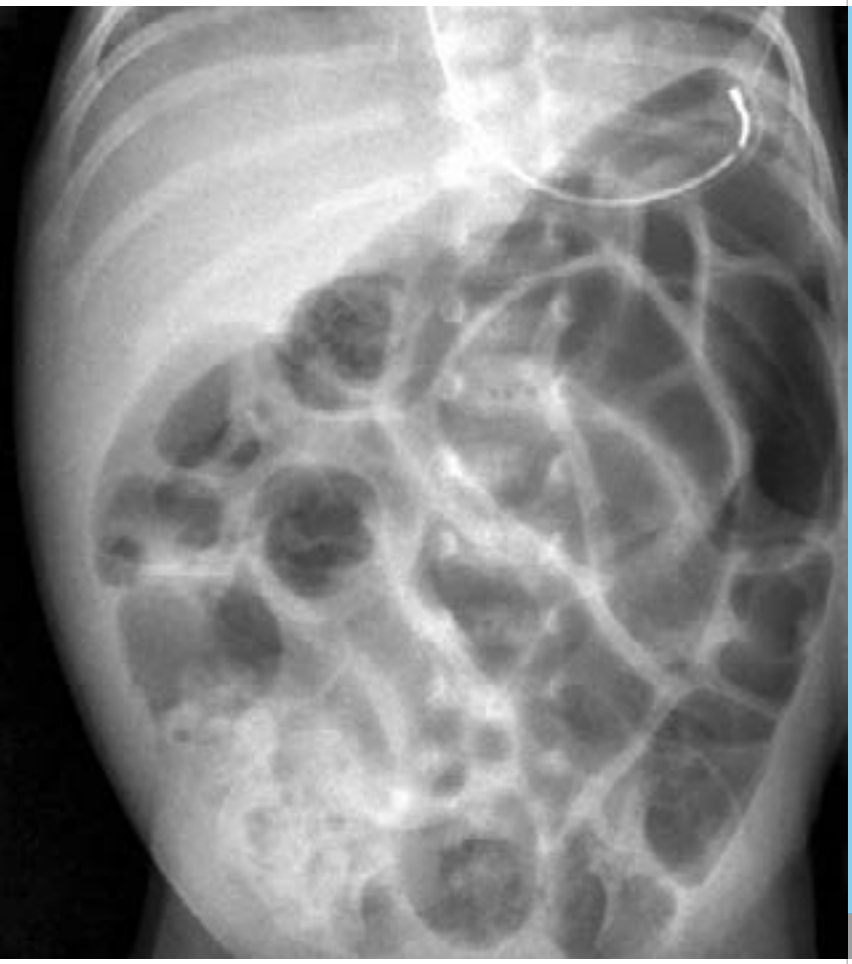

Fig. 3

Babygram showing dilated and thickened loops of bowel.

discharged from hospital at a corrected age of seven weeks with a weight of 2700 g.

DISCUSSION

Volvulus of the small intestines is rare in neonates (1). Malrotation, which occurs in 1/6000 live births, is a classical risk factor for volvulus, but was not present in both of the babies described (2). Kitano et al. reported on 38 newborns with a diagnosis of volvulus and found a malrotation in 74% of the cases (3). In Nigeria, Ameh et al. analysed 28 newborns with volvulus: 32% of cases were associated with malrotation, one case with a Meckel's diverticulum, one with internal herniation and one case with a ventriculoperitoneal shunt. In 39% of the newborns no etiology could be identified (4). None of the above mentioned conditions was found in our patients. Recently, Billiemaz et al. described seven preterm infants with volvulus and raised the hypothesis that abdominal massage could be responsible for causing the volvulus (5). The seven premature infants had a mean gestational age of 28 weeks and volvulus occurred at an average postnatal age of 21 days. As soon as the babies were fed enterally, enemas were given regularly, and abdominal massage was performed every three hours in order to stimulate peristalsis. Following their observation, this routine intervention was definitively discontinued and no further cases of volvulus have since occurred.

In the two reported cases, we could not find any risk

factor for the volvulus, except for repeated intensive abdominal massage. This procedure has been abandoned as a routine nursing procedure and has only been used in select cases. With this change of policy, no further cases of volvulus have been observed in our unit.

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