

CASE REPORT

Neonatal Gastric Perforation: Smallest Baby Ever Operated and Survived: A Case Report

Nikhilesh Nain*, Sunil Janged

Jivanta Children Hospital, Udaipur, Rajasthan, India

How to cite: Nain N, Janged S. Neonatal gastric perforation: Smallest baby ever operated and survived: A case report. J Neonatal Surg. 2018;7:24.

This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Neonatal gastric perforation is a rare surgical emergency with no certain etiology. Due to its high mortality prompt diagnosis and emergency exploration surgery is mandatory. Hereby, we report a case of neonatal gastric perforation in a 4-day-old extreme low birth weight baby (645 g) born at 29 weeks who presented with complaints of abdominal distension, lethargy, and respiratory distress. X-ray abdomen revealed free gas under the diaphragm. Emergency surgery was performed. On exploration, a tear was seen along the greater curvature of the stomach with necrotic walls. Partial gastrectomy was done and perforation closed. Postoperatively baby was managed with invasive ventilation, IV antibiotics, parenteral nutrition, and continuous gastric decompression by nasogastric tube. Baby survived with intensive post-operative management and was discharged after 90 days of NICU stay. As far as literature is concerned this is the case of a smallest baby ever operated and survived after neonatal gastric perforation.

Key words: Neonatal gastric perforation; Premature baby; Survival

INTRODUCTION

Neonatal gastric perforation is a rare surgical emergency, comprising only 7% of all gastrointestinal perforations, with poor prognosis and high mortality [1,2]. Despite having such high mortality and poor prognosis, its etiology is widely debated; some of the suggested causes are congenital absence of musculature, stress ulceration secondary to neuro-genic difficulties, perforation secondary to ischemia, and trauma [3]. Metabolic acidosis, low birth weight (LBW), prematurity, and male gender are associated with worst prognosis [4].

We report a case of neonatal gastric perforation in extreme LBW baby (645 g) who was operated and who survived.

CASE REPORT

A 4-day-old, premature (29 weeks), male neonate, weighing 645 g, developed abdominal distension, lethargy, and vomiting. The baby was on bubble CPAP, parenteral nutrition, and trophic feeds. The baby

passed meconium, urine and was apparently stable for first 4 days. On the day of life-4, the baby's condition started deteriorating, and examination revealed a lethargic baby with marked abdominal distension, respiratory distress, cyanosis, heart rate of 170/min, and RR of 54/min with decreased bowel sounds. Abdominal X-ray revealed free gas under diaphragm and viscera displaced medially giving saddle bag appearance or football sign (Figure 1).

Emergency laparotomy was performed to find free fluid (10–15 mL) in peritoneal cavity with flakes all over abdomen and intestines. There was a 6 cm tear along the greater curvature of the stomach with necrotic walls. Partial gastrectomy was performed and the gap closed, the baby was ventilated, received broad-spectrum antibiotics and parenteral nutrition. Continued stomach decompression was done. Gradually condition of the baby starting improving and baby was weaned off ventilator. Trophic feeds were started on post-operative day 16 and slowly increased. The baby was tolerating full feeds by post-operative day 30. Ultimately, the baby was discharged after 93 days of NICU stay.

Correspondence*: Nikhilesh Nain, Jivanta Children Hospital, Udaipur - 313 002, Rajasthan, India.

E-mail: nikhilesh.nain@gmail.com

Submitted: 26-10-17

Conflict of interest: None

© 2018, Nain et al

Accepted: 22-03-18

Source of Support: Nil

Table 1: Outcome analysis of several studies with gastric perforation

Authors	Birth weight		Birth weight		Birth weight		Birth weight	
	<1000 g		1000–1500 g		1501–2000 g		>2500 g	
	Died	Total	Died	Total	Died	Total	Died	Total
Shashikumar et al. [7]	0	0	0	1	6	11	2	7
Jones et al. [8]	0	0	2	3	1	1	0	0
Holgersen [6]	0	0	4	5	3	11	2	12
Rosser et al. [2]	0	0	0	0	3	8	1	8
Chung et al. [4]	0	0	0	0	2	3	5	9
Leone and Krasna [9]	2	2	0	0	2	4	0	1



Figure 1: X-ray abdomen erect

DISCUSSION

Neonatal gastric perforation is a rare surgical emergency with no established etiopathogenesis, although three common causes are trauma, ischemia, and spontaneous perforation [3,4]. Most common cause is trauma either by vigorous placement of nasogastric tube or by positive pressure ventilation. No such evidence was found in our case.

Most common cause of neonatal G.I perforation is necrotizing enterocolitis.

Prematurity is commonly associated with neonatal gastric perforation. Only 20% of babies have no underlying etiopathology and are considered as spontaneous. Incidence of spontaneous gastric perforation is 1 in 2900 live birth [5]. Although spontaneous perforation is common in term babies, it is reported

in premature and LBW hypoxic, twin babies [3]. In this case, the baby was LBW and premature, so it is assumed that it was a spontaneous perforation.

Spontaneous perforation is commonly observed between 2nd and 7th day of life with the highest incidence on being the 3rd day of life [5]. This was preterm, LBW baby, and perforation occurred on the fourth day of life.

We found that the mortality of infants with gastric perforation was higher among premature and LBW neonates than in full-term babies. There is possibly a higher incidence of gastric perforation in LBW neonates than in term neonates. Death was also more likely to occur in LBW than in normal-weight neonates, and in premature rather than in full-term neonates. Although mortality was inversely associated with birth weight, there was no particular predilection for gastric perforation in extremely low birth weight neonates. Presented herewith in Table 1 is outcome analysis of some large case series from 1960 onward.

Leone and Krasna [9] had reported mortality in both the extremely low birth weight babies with spontaneous gastric perforation in their series. The index case reported here weighed 645gm and survived after surgery on day 4 of life. Byun et al [10] had similarly reported a 730 gm survivor with spontaneous gastric perforation who was operated on day 5 of life.

REFERENCES

1. St-Vil D, Le Bouthillier G, Luks FI, Bensoussan AL, Blanchard H, Youssef S. Neonatal gastrointestinal perforations. *J Pediatr Surg.* 1992;27:1340-2.
2. Rosser SB, Clark CH, Elechi EN. Spontaneous neonatal gastric perforation. *J Pediatr Surg.* 1982;17:390-4.

3. Gathwala G, Rattan KN, Abrol P. Spontaneous gastric perforation in a neonate. *J Indian Pediatr.* 1994;31:1013-5.
4. Chung MT, Kuo CY, Wang JW, Hsieh WS, Huang CB, Lin JN, et al. Gastric perforation in the neonate: Clinical analysis of 12 cases. *Zhonghua Min Guo Xiao Er Ke Yi Xue Hui Za Zhi.* 1994;35:460-5.
5. Kara CS, Ilce I, Celayir S, Sarimurat N, Erdogem E, Yeker D. Neonatal gastric perforation; Review of 23 years' experience. *Surg Today.* 2004;34:243-5.
6. Holgersen LO. The etiology of spontaneous gastric perforation of the newborn: A reevaluation. *J Pediatr Surg.* 1981;16:608-13.
7. Shashikumar VL, Bassuk A, Pilling GP IV, Cresson SL. Spontaneous gastric rupture in the newborn: A clinical review of nineteen cases. *Ann Surg.* 1975;182:22-5.
8. Jones TB, Kirchner SG, Lee FA, Heller RM. Stomach rupture associated with esophageal atresia, tracheoesophageal fistula and ventilatory assistance. *AJR Am J Roentgenol.* 1980;134:675-7.
9. Leone RJ Jr., Krasna IH. 'Spontaneous' neonatal gastric perforation: Is it really spontaneous? *J Pediatr Surg.* 2000;35:1066-9.
10. Byun J, Kim HY, Noh SY, Kim SH, Jung SE, Lee SC, et al. Neonatal gastric perforation: A single center experience. *World J Gastrointest Surg.* 2014;6:151-5.