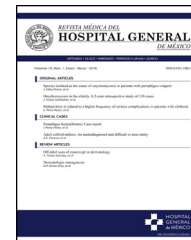




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CLINICAL CASE

Neonatal gastric perforation: A case report

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KEYWORDS

Neonatal gastric perforation;
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Abstract Gastric perforation in the newborn is a rare surgical emergency in our practice area; nevertheless, since the earlier it is diagnosed, the better the prognosis, it is a possibility that we must be aware of. Perforation would be suspected in an infant with severe abdominal distension and diagnosis is confirmed with simple abdominal X-rays, including anteroposterior and lateral projections with horizontal ray, on which pneumoperitoneum will be shown. We report the case of a neonate diagnosed with gastric perforation at 21 h of age who underwent a successful surgical intervention and was able to go home clinically healthy nine days later.

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PALABRAS CLAVE

Perforación gástrica neonatal;
Neumoperitoneo

Perforación gástrica neonatal: reporte de un caso

Resumen La perforación gástrica en el recién nacido es una emergencia quirúrgica rara en nuestro medio; pero, dado que entre mayor prontitud tenga el diagnóstico habrá un mejor pronóstico para el paciente, es necesario tener en cuenta esta patología. El diagnóstico clínico es de sospecha ante la presencia de distensión abdominal importante, y se corrobora con estudio radiológico simple de abdomen, que debe incluir proyecciones anteroposterior y lateral con rayo horizontal, donde se observa neumoperitoneo. Aquí se informa del caso de un neonato

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con perforación gástrica, con diagnóstico a las 21 horas de vida, con intervención quirúrgica exitosa, egresando clínicamente sano a su domicilio al noveno día del postoperatorio.

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Introduction

Spontaneous gastric perforation in the newborn is a rare condition in our practice area; it is the most common form of non-obstructive perforation of the gastrointestinal tract in neonates and, despite being rare, must be considered as a possibility, since early diagnosis and surgical treatment increase survival rates.

The first published reports of this problem are from 1925 and 1928,¹ but it was 1950 before the first successful operation was performed.² The incidence is 1:2900 live births.³

Among the different causes of gastric perforation,⁴⁻⁹ any condition that leads to mechanical or functional obstruction, and so may be responsible for secondary perforations, must first be ruled out (atresia, meconium ileus, etc.). If no such condition is found and iatrogenic or traumatic causes (e.g. nasogastric tube) have also been excluded, the perforation can be considered to be spontaneous or idiopathic.

As was the case we report here, neonatal gastric perforation is primarily associated with preterm newborns; possibly a result of a general lack of maturity of the different parts of the stomach and its protective factors. Our neonate's low birth-weight was a contributory factor as, along with prematurity, it is a very common cause of spontaneous perforation. Other associated factors include asphyxia, congenital abnormalities and predisposing factors for damage to the gastric mucosa, such as stress²⁵; although none of these elements featured in our case, it is important that they be mentioned because awareness is key to an early diagnosis. The actual cause of this condition is still not fully understood and it is therefore essential that we keep the main associations in mind.

Multiple gastric perforations do occur, but in most cases (85–90%), there is only a single, linear perforation, several centimetres deep and located at the greater curvature of the stomach. In the case of a punctate perforation, a traumatic factor should be considered, such as the use of gastric tubes.¹⁰

Diagnosis is usually made during the first week of life regardless of its spontaneous character.¹¹ The onset of symptoms is sudden and the newborn develops increasing abdominal distension, with vomiting or gastric residue. Once the perforation occurs, the infant's clinical condition rapidly deteriorates, with difficulty breathing and extensive pneumoperitoneum visible on simple X-ray of the abdomen; images should include anterior-posterior and lateral views with horizontal X-ray beam.¹⁰

Treatment is surgical and includes correction of electrolyte imbalance and often breathing assistance.¹² The mortality rate is close to 50% in preterm infants and a bit lower in those born at term.

Our report is of a case of spontaneous gastric perforation in a preterm newborn with a single perforation in the lesser curvature of the stomach which was successfully treated with surgery.

Case report

This was a male newborn from the first pregnancy of a clinically healthy 29-year-old woman.

During her pregnancy, the mother had been under medical supervision. Premature rupture of membranes had occurred 5 h earlier, she was 4 cm dilated and there was acute foetal distress with foetal bradycardia as low as 80 beats/min. The baby was born by emergency caesarean at 32.3 weeks; the amniotic fluid was clear but scant in quantity. The baby cried and started breathing at birth, was dried and secretions aspirated, with good response; his Apgar score was 9/9, Silverman Anderson rating 0 and the gestational age estimated by the Capurro method was 33.1 weeks. Anthropometric measurements were as follows: weight 1880 g; length 44 cm; head circumference 33 cm; chest circumference 30 cm; waist circumference 25.5 cm; upper segment 27 cm; and foot, 7 cm. The infant was admitted to Neonatal Intensive Care.

Physical examination in the NICU at 50 min of life showed: the neonate was eutrophic, active, reactive, well-hydrated and with skin good colour; with normal skull and normal pressure at anterior fontanelle; normal alignment of chest with mild lower intercostal retractions, chest-abdominal dissociation, well-ventilated lung fields with constant grunting audible at distance; regular heart sounds with no adventitious sounds; abdomen soft, depressible, no organomegaly and peristalsis present, low in intensity; limbs symmetrical with good tone, normal pulses and immediate capillary refill.

In the NICU, due to poor respiratory status, required nasal CPAP with PEEP at 5 cm H₂O and FiO₂ 40%, fasting and parenteral fluids; umbilical arterial and venous catheter inserted, with good clinical progress, chest X-ray compatible with transient tachypnoea of the newborn and arterial blood gases showing respiratory alkalosis, for which nasal CPAP was discontinued after 20 h, with the infant remaining on indirect oxygen with FiO₂ 35%.

At 21 h of age, on physical examination, abdominal circumference found to have increased to 28 cm (Fig. 1) and increased volume observed in the scrotal area secondary to tension pneumoscrotum (Fig. 2). The infant was haemodynamically stable, with heart rate of 140, mean blood pressure of 50 mmHg, immediate capillary refill, no cardiopulmonary compromise and oxygen saturation greater

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