

Case Report / Olgu Sunumu

Nonsurgical Gastric Pneumatosis in a Newborn

Bir Yenidoğanda Cerrahi İşlem Gerektirmeyen Gastrik Pnömatozis

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ABSTRACT

Pneumatosis intestinalis refers to an accumulation of gas in the bowel wall. It may occur throughout the gastrointestinal tract but is rarely seen in the stomach. Gastric pneumatosis is primarily a radiological diagnosis. Its origin is not completely understood. In this article, we describe a newborn with nonsurgical gastric pneumatosis associated with necrotizing enterocolitis.

Keywords: Newborn, Gastric pneumatosis, Necrotizing enterocolitis

ÖZET

Pnömatozis intestinalis, barsak duvarlarında gaz birikimi anlamına gelmektedir. Tüm gastrointestinal trakt boyunca gözlemlenebilir fakat midede nadir olarak görülmektedir. Gastrik pnömatozis primer olarak radyolojik bir tanıdır. Orijini tam olarak anlaşılamamıştır. Bu yazıda, cerrahi işlem gerektirmeyen gastrik pnömatozisi olan nekrotizan enterokolit gelişen bir olguyu tarifledik.

Anahtar Kelimeler: Yenidoğan, Gastrik pnömatozis, Nekrotizan enterokolit

INTRODUCTION

Pneumatosis intestinalis (PI), known since 1730, is seen in more than 50 % of preterm infants who develop necrotizing enterocolitis (NEC)¹. This entity was first described in 1889 by Fraenkel in adults^{2,3}. PI can occur in any part of the gastrointestinal tract, from the oesophagus to rectum^{1,4-6}.

Gastric pneumatosis, is an infiltration of the stomach wall by air and is a rare condition^{7,8}. In adults, infection with gas forming organisms (Escherichia coli, Proteus, Clostridium welchii, and Staphylococcus aureus), gastric outlet obstruction, or instrumentation are the more commonly reported associations. In newborn babies, it is usually associated with NEC^{5,7}.

In this article, we describe a neonate with nonsurgical gastric pneumatosis associated with NEC.

CASE REPORT

A male neonate, was born by cesarean delivery at 35 weeks of gestation. There were no signs of chorioamnionitis and no antibiotics were used in labour. Apgar scores were 9/10/10 at 1/5/10 minutes respectively. The birth weight was 1800 gr (10-50 percentile), height, 48 cm (10-50 percentile) and head circumference, 32 cm (50 percentile). The neonate did not need any ventilatory support. He was clinically stable for three days and was started on enteral feeds. On the fourth day he developed abdominal distension with sanguineous gastric aspirates. A plain abdominal x-ray showed gastric pneumatosis without any evidence of free intraperitoneal or portal venous air (Fig. 1). His condition was diagnosed as NEC stage 2A because of temperature instability, bradycardia, absent bowel sounds, heme-positive stool and feedings were stopped.

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The white blood cell count was 9100 cells / mm³ platelet count 210.000 cells / mm³ and serum creatinine concentration, 10 mg/dL (normal: 0-1 mg/dL). Other biochemistry values were normal.

He was empirically treated with vancomycin, meropenem and metronidazol. Twelve hours after the diagnosis his clinical condition was better. Culture results were negative. No laparotomy was made. The signs of NEC regressed after three days. Subsequent to a progressive recovery, feeds were started. In the absence of clinical signs of feed intolerance, feeds were again introduced and gradually increased. At 14 days of age, the patient weighed 1920 gr and was discharged from the hospital in stable condition on full feeds.



Fig 1 : Abdominal radiograph showing a dilation of intestinal loops and gastric pneumatosis intestinalis

DISCUSSION

The appearance of gas within the wall of the stomach is an extremely rare occurrence. PI is seen primarily in the small intestine, but it can occur throughout the gastrointestinal tract, from the esophagus to the rectum^{1,4,5}.

Gastric pneumatosis is a very rare occurrence and it has only been reported a few times to date¹⁰⁻¹². Gastric PI, is primarily a radiological diagnosis and has been described in several conditions for example pyloric stenosis, duodenal atresia, acid ingestion, non-specific erosive gastritis, intramural placement of feeding catheter, gastric hematoma following child abuse and cardiac surgery^{5,10,11,13-16}. In 2004, a 32-week gestation baby acutely became unwell on day four. Abdominal radiography showed widespread PI. At operation on day ten, there were multiple areas of

small intestinal necrosis¹⁷. In infants the most common etiology for PI is NEC¹⁷.

In the literature, gastric PI can be subdivided into emphysematous gastritis and gastric emphysema. Emphysematous gastritis includes inflammatory conditions of the gastric wall, radiographic or clinical evidence of intramural gas of infectious origin and systemic toxicity^{5,8}. The pathogenesis of gastric emphysema is thought to be high intragastric pressure due to intestinal obstruction^{5,18}. Also, it comprises of gastric wall inflammation, radiographic or intraoperative evidence of intramural gas formed by infectious agents and systemic toxicity⁵.

In summary, gas within the stomach wall is rare. In infancy, it is usually associated with NEC or gastric outlet obstruction. Differential diagnosis is mainly based on associated clinical findings. However, gastric involvement in NEC is unusual^{18,19}.

In the literature gastric PI has been considered as a serious finding requiring urgent surgical intervention^{8,18}. In our case the outcome was satisfactory without surgical intervention.

NEC is the most common gastrointestinal emergency in newborn infants. In the newborn gastric pneumatosis is associated with NEC and may play a role as a prognostic factor.

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