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Atrogenic Gastric Perforation in an 18-Month-Old Infant: A Case Report

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Atrogenic Gastric Perforation in an 18-Month-Old Infant: A Case Report

Abstract: We report the case of an 18-month-old Moroccan infant admitted for suspected foreign body ingestion, who developed an iatrogenic gastric perforation. Bronchoscopy, performed without evidence of a foreign body, was complicated by severe bronchospasm requiring intubation, mechanical ventilation, and prolonged sedation. During the ICU stay, the placement of a nasogastric tube led to gastric mucosal micro-erosions, promoting the formation of a stress ulcer and its subsequent perforation. Three days post-intubation, abdominal distension with peritoneal signs prompted a CT scan, confirming massive pneumoperitoneum. Emergency laparotomy with gastric suturing and peritoneal lavage was performed but was unsuccessful due to a fatal hypovolemic shock.

Keywords: Iatrogenic gastric perforation, infant, nasogastric tube, laparotomy, hypovolemic shock.

Introduction: Iatrogenic gastric perforation is a rare but serious complication that can be life-threatening if not managed promptly. We present the case of an infant who developed gastric perforation secondary to an intervention, highlighting clinical, radiological, and therapeutic aspects.

Methodology: This is a retrospective case report conducted in October 2024 at the Pediatric Intensive Care Unit of Abderrahim Harouchi Mother-Child Hospital, Ibn Rochd University Hospital, Casablanca. The study is based on a detailed analysis of the medical records of an 18-month-old infant admitted for suspected foreign body ingestion, who subsequently developed an iatrogenic gastric perforation.

Clinical data were comprehensively collected from the patient's medical records, including medical history, clinical and paraclinical findings, as well as diagnostic and therapeutic interventions performed during hospitalization. The patient's clinical course was chronologically reviewed to identify factors contributing to this complication.

Results: An 18-month-old Moroccan infant, with no significant medical history, was initially admitted for suspected foreign body ingestion. The patient presented with persistent cough and respiratory discomfort. Bronchoscopy was performed but revealed no foreign body. This procedure was complicated by severe bronchospasm requiring intubation, mechanical ventilation, and prolonged sedation for 48 hours.

During this period, a nasogastric tube was inserted for gastric decompression due to mechanical ventilation. However, gastric mucosal micro-erosions induced by the tube, combined with stress ulceration, led to gastric perforation.

Three days post-intubation, the patient developed marked abdominal distension with worsening general condition. The abdomen was tympanic, and peritonitis was strongly suspected. An abdominal CT scan confirmed a massive pneumoperitoneum.

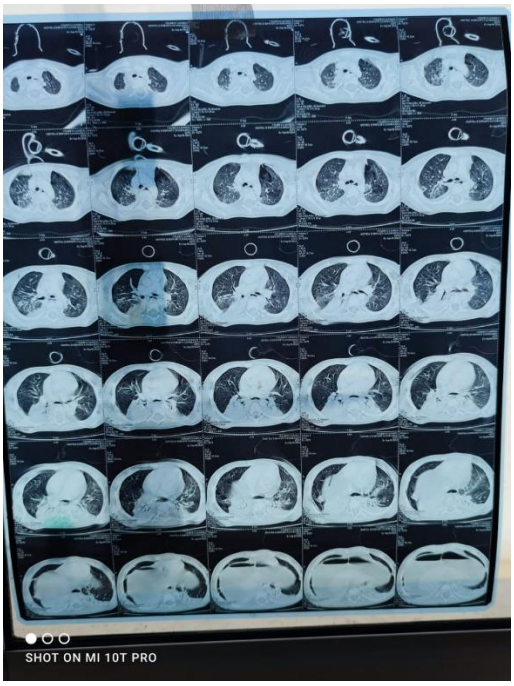

Figure 1: Thoraco-abdominal CT scan showing massive pneumoperitoneum, indicative of gastric perforation.

Before transfer to the operating room, the patient experienced cardiac arrest, which was reversed following intensive resuscitation. Emergency laparotomy revealed an antral gastric perforation associated with massive pneumoperitoneum and purulent intra-abdominal fluid. A single-layer gastric suture was performed, along with extensive peritoneal lavage and drain placement.

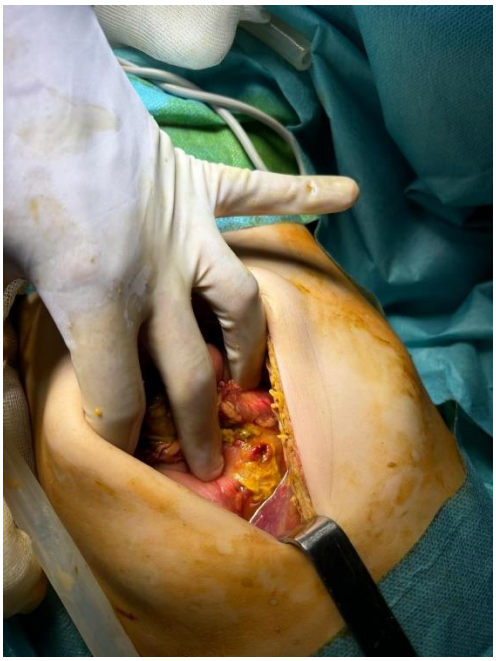

Figure 2: Laparotomy for pneumoperitoneum due to gastric perforation in an infant.

Despite surgical management and post-operative resuscitation efforts, the patient suffered another cardiac arrest in the recovery room, which was irreversible. Death was declared shortly after, directly resulting from complications related to massive pneumoperitoneum and hypovolemic shock.

Discussion: Iatrogenic gastric perforation is a rare but potentially fatal complication in infants. In our case, the 18-month-old infant developed gastric perforation secondary to an initial intervention for suspected foreign body ingestion, complicated by nasogastric tube placement and prolonged mechanical ventilation. This iatrogenic mechanism has been described in the literature, with several contributing factors, including mechanical trauma from repeated device insertion (1,2).

Nasogastric tube insertion is a common procedure in pediatric intensive care; however, it carries risks such as gastric mucosal micro-erosions, which, in the presence of a stress ulcer, can progress to perforation (3). Prolonged mechanical ventilation further contributes to gastric distension and increased intra-abdominal pressure, facilitating perforation (4). The rapid clinical deterioration of our patient, marked by severe abdominal distension and peritoneal signs, underscores the importance of early imaging diagnosis, particularly CT scans, to confirm massive pneumoperitoneum (5).

Emergency surgical management is crucial in such cases. The laparotomy performed in our case, involving gastric perforation suturing and peritoneal lavage, is the recommended therapeutic approach to limit peritoneal contamination (6). Despite this intervention, multiorgan failure and hypovolemic shock due to generalized peritoneal infection led to the

patient’s death. These complications have also been reported in other studies, highlighting the high mortality rate in cases of delayed management (7).

This case underscores the importance of close monitoring and early intervention in suspected iatrogenic gastric perforation. Prevention includes careful handling during invasive device insertion and regular position verification to reduce microtrauma risks, particularly in infants with fragile gastric walls.

Conclusion: Iatrogenic gastric perforation in infants remains a diagnostic and therapeutic challenge requiring a multidisciplinary approach. This case report highlights the critical importance of early recognition and urgent surgical intervention to improve outcomes.

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