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Gastric Pneumatosis in a 12 Month Old Down Syndrome Child with Isolated Duodenal Stenosis

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Abstract

Gastric pneumatosis in infants is a concerning radiographic finding that can be associated with ischemia, infection, trauma, and dissection of mediastinal air. However, in rare conditions, the etiology can be a benign obstruction. We present a case of spontaneous resolution of gastric pneumatosis from duodenal obstruction in an infant with Down syndrome.

Keywords

Gastric pneumatosis; Isolated duodenal stenosis; Pediatric surgery; Down Syndrome

Introduction

Gastric pneumatosis is a very rare radiographic finding that has previously been described in adults with gastric outlet or duodenal obstruction [1]. In adults, gastric pneumatosis may also be caused by ischemia, infection, trauma, and dissection of mediastinal air [2,3]. Similarly, in children, gastric pneumatosis has been described in relation to ischemia but has also been reported in three case reports of children with congenital duodenal obstruction [4-6]. There have been no previously published reports in pediatric literature of spontaneous resolution of gastric pneumatosis from duodenal obstruction prior to surgical correction of the obstruction.

Case Presentation

A 12 month-old male with Down syndrome with normal growth and development presented to an outside hospital (OSH) with a four day history of abdominal distension and postprandial emesis. Prior to this episode, he was tolerating feeds at home without difficulty. All previous care was provided at an outside institution and his past medical and surgical history was significant for a congenital cardiac malformation that required mitral valve repair at six months of age. Of note, the patient had a prenatal ultrasound that suggested duodenal obstruction; however, a postnatal contrast study performed was normal. On admission at the outside hospital, the patient was alert, playful, and hungry. His abdominal examination was normal. Due to his symptoms, an abdominal radiograph was obtained (**Figure 1**). The

radiograph was initially interpreted as normal and the patient was discharged from the emergency room. After review of the radiograph by a radiologist and identification of gastric pneumatosis, the family was called the next day and instructed to seek further medical care. Upon arrival to our institution, the patient was clinically stable with normal vital signs and a benign abdominal exam; however, his family continued to vocalize concern regarding persistent vomiting. He was placed on bowel rest (nothing per mouth, NPO) and intravenous fluids and a repeat abdominal radiograph on admission showed complete resolution of the gastric pneumatosis (**Figure 2**). An upper gastrointestinal contrast study was performed, which revealed a dilated loop of proximal duodenum with distal narrowing consistent with obstruction (**Figure 3**). In order to evaluate him for a duodenal web, an esophagogastroduodenoscopy was performed. Upon advancing the endoscope to the second portion of the duodenum, no web was seen but there was a small opening with bilious secretion noted (**Figure 4**). The endoscope could not be advanced further.

The patient was later taken to the operating room to correct the duodenal obstruction. The cecum lacked attachment to the abdominal wall and was located in the right upper quadrant with thin bands overlying the duodenum. The Ligament of Treitz was in a normal position. The proximal duodenum was dilated secondary to the obstruction from the area of stenosis (**Figure5**). A duodenoduodenostomy was performed without difficulty and his post-operative course was uncomplicated. The patient was kept NPO throughout his hospitalization and was started on enteral feeds on postoperative day (POD) six and advanced to full feeds by POD 7.

Discussion

This is the fourth case report of an infant with congenital duodenal stenosis causing gastric pneumatosis and the first that documents spontaneous resolution of the pneumatosis. Gastric pneumatosis is thought to be due to increased intra-gastric pressure, which leads to tears in the gastric mucosa allowing air to enter the gastric wall [4,6,7]. A unique finding in our case is the rapid resolution of the pneumatosis prior to surgical correction. Intestinal pneumatosis from non-ischemic causes has been reported to spontaneously resolve with an average time to resolution of nine days [8]. Our patient had radiographic resolution within two days. The clinical significance of the rapid resolution remains unknown. Additionally, it is unclear why his radiographic findings resolved quickly as he continued to have the source of obstruction, but it may have been related to prompt decompression and withholding of oral intake.

Figures

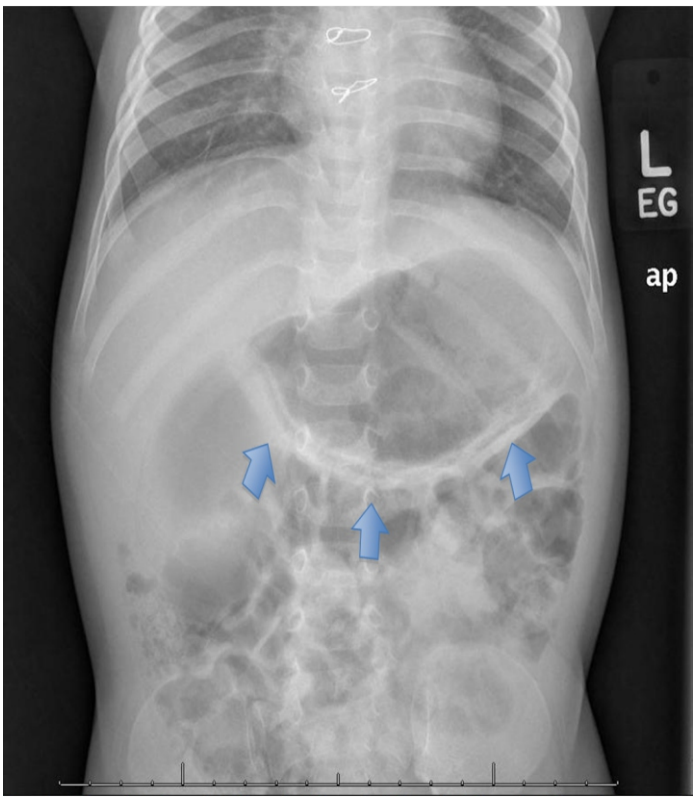

Figure 1: Demonstration of gastric pneumatosis (arrows) from outside imaging

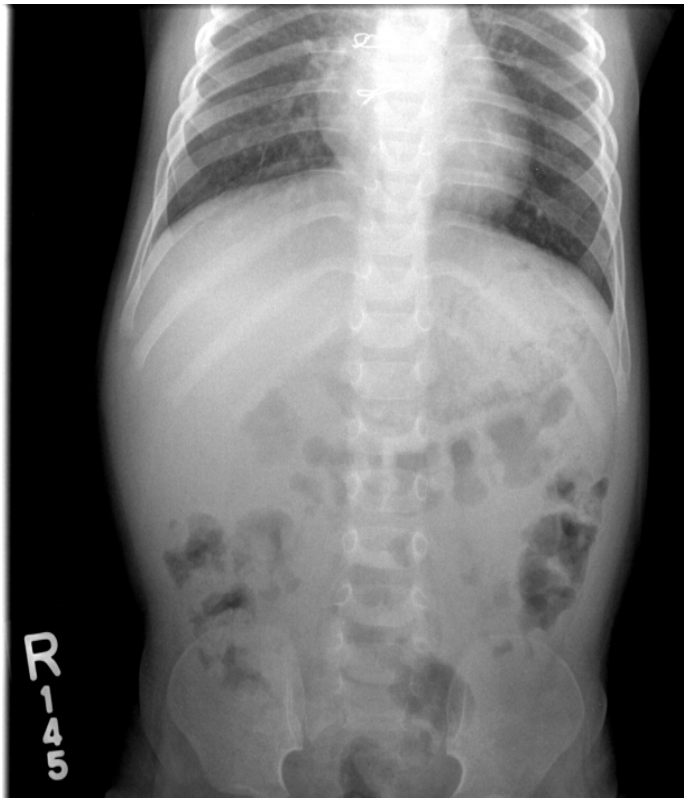

Figure 2: Resolution of gastric pneumatosis on admitting abdominal radiograph at our institution

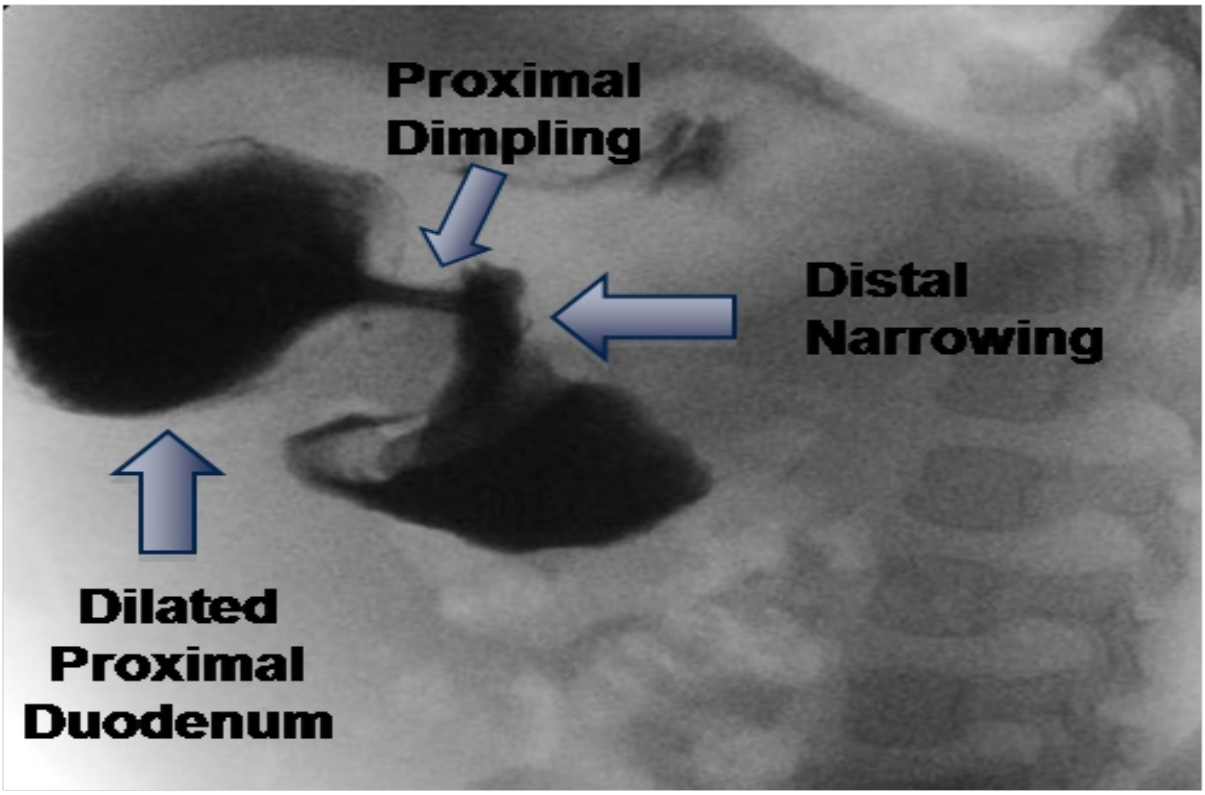

Figure 3: Upper GI revealing a loop of dilated bowel proximally with narrowing as contrast passes through area of distal stenosis

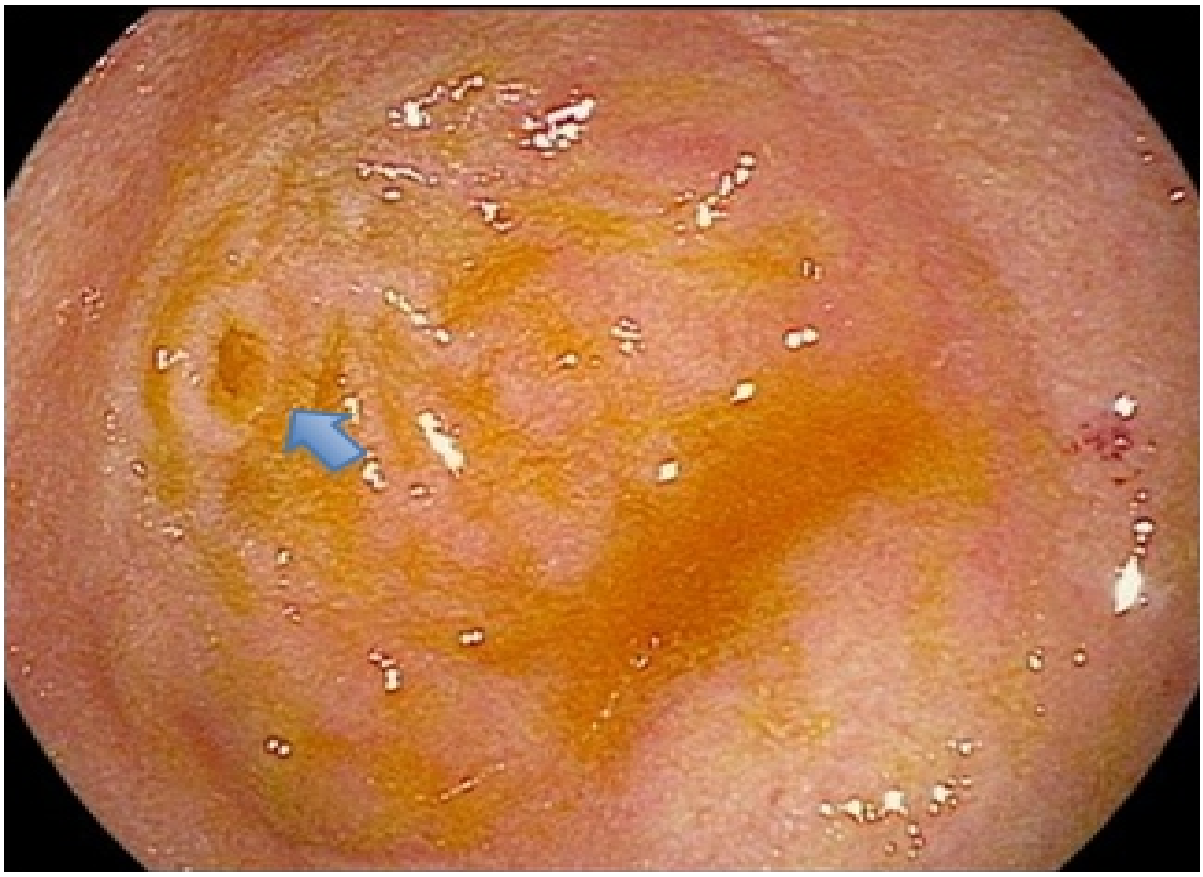

Figure 4: EGD revealing area of luminal occlusion. Small opening with bilious secretions (arrow). No web seen

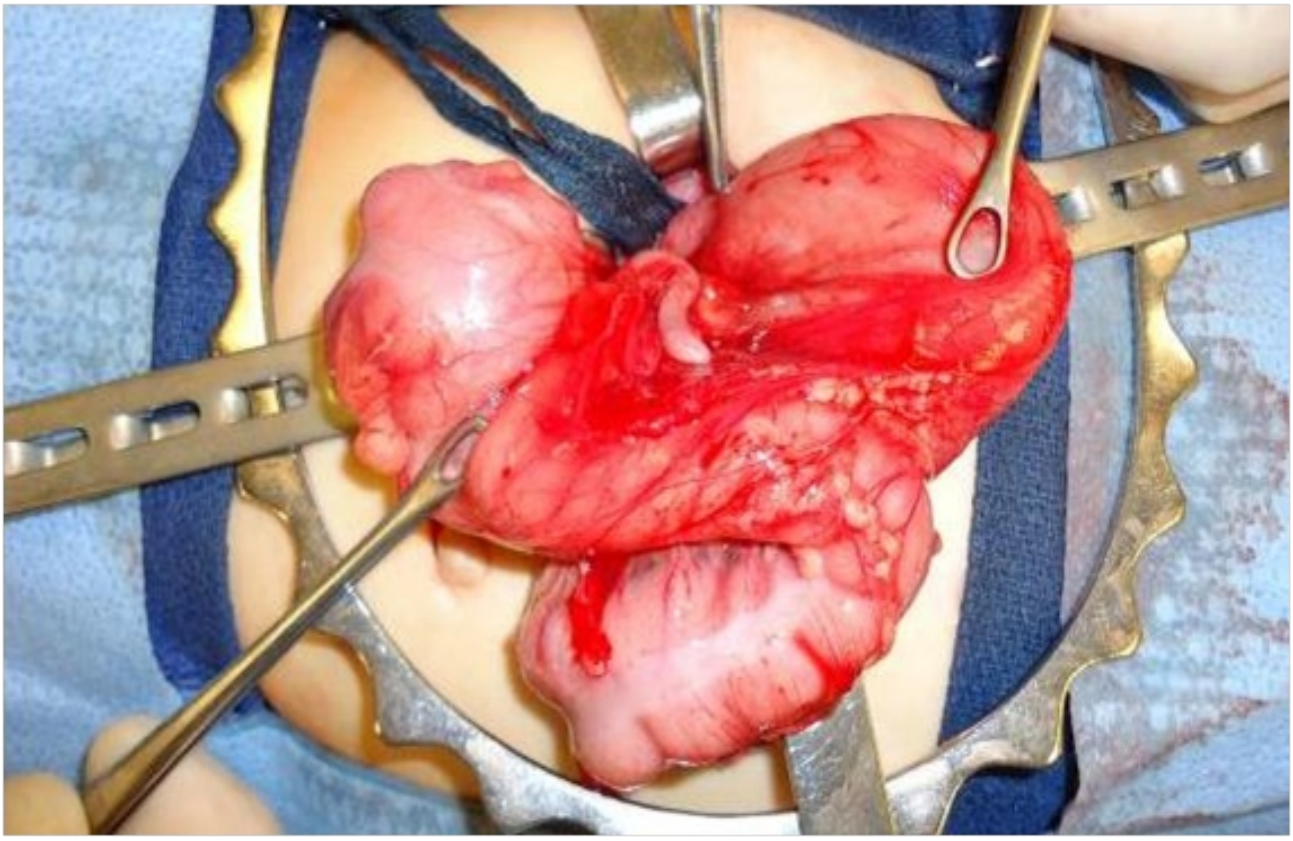

Figure 5: Intraoperative finding of bowel obstruction from duodenal stenosis without any pancreatic or other solid organ abnormalities

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