A 15-YEAR-OLD GIRL with Down syndrome and severe developmental retardation came to the hospital with nausea and intractable vomiting of 24 hours’ duration. The patient’s initial examination results were unremarkable except for minimal abdominal tenderness. Her white blood cell count was 11,000/mm³. A nasogastric tube was placed with the return of “coffee-ground” material and the tube was subsequently removed. She was admitted to the hospital with the presumptive diagnoses of viral gastroenteritis and Mallory-Weiss tear. During the subsequent 16 hours, the patient developed progressively worsening tachycardia, tachypnea, fever, and generalized abdominal pain, which prompted an evaluation by the surgical team. During the initial surgical consultation, she was noted to have a temperature of 39.5°C, a heart rate of 136 beats per minute, and her blood pressure was 100/63 mm Hg. Physical examination of the abdomen revealed diffused abdominal tenderness with generalized peritoneal irritation. The abdominal and chest radiograph films obtained at that time are shown in Figures 1 and 2.

What Is The Most Likely Diagnosis?
A. Gastric volvulus  
B. Boerhaave syndrome  
C. Cecal volvulus  
D. Acute gastric dilatation with necrosis

From the Department of Surgery, The University of Texas–Houston Medical School and Lyndon B. Johnson General Hospital, Houston.
Acute Gastric Dilatation With Necrosis

The patient underwent immediate fluid resuscitation followed by an exploratory laparotomy. Findings at operation included a dilated fluid-filled stomach with near-total necrosis and multiple sites of perforation. Additionally, there was intestinal malrotation without evidence of midgut volvulus or mechanical obstruction. She underwent total gastrectomy with Roux-en-Y esophagojejunostomy and placement of a feeding jejunostomy tube. Her postoperative course was complicated by early multiple organ failure that was refractory to maximal supportive care, and she died 14 days following the operation.

Gastric necrosis is an unusual clinical problem that occurs most frequently due to strangulation from gastric volvulus and intrathoracic herniation. There have been multiple cases of gastric necrosis from acute gastric dilatation reported in the literature, with most of these occurring as complications associated with anorexia nervosa, bulimia, and psychogenic polyphagia. Abdominal distension and vomiting are the most common initial symptoms and the physical signs associated with early acute gastric dilatation are frequently nonspecific until the onset of gastric necrosis and perforation. When gastric necrosis is suspected on the basis of clinical or radiographic evidence, prompt exploratory laparotomy and resection of the gangrenous stomach is indicated. The pathogenesis of gastric necrosis from gastric dilatation remains unclear. It is speculated that gastric distension can contribute to gastric venous congestion and reduction in mucosal and submucosal blood flow, rendering the stomach more susceptible to injury from luminal acid. The mortality rate following gastrectomy for acute gastric necrosis has been reported to range from 50% to 80%. The high mortality rate is believed to be related to delays in diagnosis due to the initial mild symptoms associated with acute gastric dilatation. Gastric necrosis from acute gastric dilatation is associated with a high mortality rate, even when treated with prompt surgical intervention. When recognized, patients with acute gastric dilatation should undergo early decompression with a nasogastric tube to prevent this complication.

Corresponding author and reprints: Terrence H. Liu, MD, Department of Surgery, University of Texas–Houston Medical School, 5656 Kelley St, Suite 305 62008, Houston, TX 77026-1967 (e-mail: terrence.h.liu@uth.tmc.edu).

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