**ABSTRACT**

Gastric perforation with necrosis caused by acute massive gastric dilatation is an extremely rare presenting scenario. We experienced a rare case of gastric perforation caused by acute massive gastric dilatation after a binge-eating episode. A 43-year-old man was admitted with a chief complaint of acute abdominal pain with severe abdominal distension after a heavy meal 1 day back. He had no history of abdominal surgery. On computed tomography, the stomach and the duodenum were severely dilated with food content. There was no tumor in the peritoneal cavity. Emergency laparotomy was planned. Laparotomy revealed that the stomach were severely dilated. There was a small perforation on the prepyloric region of the stomach. We performed decompression through intraoperative guided ryles tube aspiration and graham patch closure was performed. The patient’s postoperative recovery was uneventful. Surgeons should be aware that binge-eating habits may cause acute massive gastric dilatation in the absence of a typical eating disorder history and may result in acute abdomen conditions like gastric perforation or gastric necrosis.

**Discussion**

Acute gastric dilatation can occur due to many causes such as postoperative complications after abdominal surgery, anorexia nervosa and bulimia, psychogenic polyphagia, trauma, electrolyte disturbance, or diabetes mellitus [1-5]. The etiopathogenesis of acute gastric dilatation and its complications is not commonly known. At times superior mesenteric artery syndrome was an underlying cause of increased intragastric pressure, which is a known risk factor of acute gastric dilatation [6, 7]. Other authors suggest that acute gastric dilatation may be a functional entity secondary to regional disease, such as pancreatitis, peptic ulcer, gallbladder stone, or appendicitis [8, 9]. Otherwise, some cases of acute gastric dilatation were reported in patients with eating disorders, such as anorexia nervosa or bulimic binge [2, 6, 8, 10]. Starvation period in patients with anorexia nervosa may result in atony and muscular atrophy of the stomach. This may also be a predisposing factor for acute gastric dilatation after those attacks [10].

Although the rich collateral blood supply of the stomach may protect it from ischemia, increased intragastric pressure that exceeds the gastric venous pressure, may result in ischemia and infarction. The stomach luminal pressure was exceeding 30 cmH2O results in decreased intramural blood flow of the stomach [11]. The symptoms of acute gastric dilatation are usually progressive disturbance, or diabetes mellitus [1-5]. The etiopathogenesis of acute gastric dilatation and its complications is not commonly known. At times superior mesenteric artery syndrome was an underlying cause of increased intragastric pressure, which is a known risk factor of acute gastric dilatation [6, 7]. Other authors suggest that acute gastric dilatation may be a functional entity secondary to regional disease, such as pancreatitis, peptic ulcer, gallbladder stone, or appendicitis [8, 9]. Otherwise, some cases of acute gastric dilatation were reported in patients with eating disorders, such as anorexia nervosa or bulimic binge [2, 6, 8, 10]. Starvation period in patients with anorexia nervosa may result in atony and muscular atrophy of the stomach. This may also be a predisposing factor for acute gastric dilatation after those attacks [10].

The symptoms of acute gastric dilatation are usually progressive disturbance, or diabetes mellitus [1-5]. The etiopathogenesis of acute gastric dilatation and its complications is not commonly known. At times superior mesenteric artery syndrome was an underlying cause of increased intragastric pressure, which is a known risk factor of acute gastric dilatation [6, 7]. Other authors suggest that acute gastric dilatation may be a functional entity secondary to regional disease, such as pancreatitis, peptic ulcer, gallbladder stone, or appendicitis [8, 9]. Otherwise, some cases of acute gastric dilatation were reported in patients with eating disorders, such as anorexia nervosa or bulimic binge [2, 6, 8, 10]. Starvation period in patients with anorexia nervosa may result in atony and muscular atrophy of the stomach. This may also be a predisposing factor for acute gastric dilatation after those attacks [10].

**Introduction**

Gastric perforation caused by acute gastric dilatation is an extremely uncommon complication. In most cases, acute gastric dilatation is encountered as a postoperative complication after abdominal surgery and in several disorders, such as anorexia nervosa and bulimia, psychogenic polyphagia, or trauma [1-3].

Acute massive gastric dilatation has been described as an extreme distention of the stomach, in which it occupies the abdomen from the diaphragm to the pelvis and from left to right [4]. Acute massive gastric dilatation can cause ischemia, necrosis, and perforation of the stomach. In most cases of acute massive gastric dilatation, surgery has been necessary to prevent or to treat the complications. Early diagnosis with prompt gastric decompression may avoid unnecessary laparotomy.

We present the case of a patient with gastric perforation caused by acute massive gastric dilatation occurring after a binge eating episode.

**Case Report**

A 43-year-old male patient presented to the emergency department with a chief complaint of abdominal pain and abdominal fullness after a heavy meal. He reported having a tendency to overeat and drink when felt emotional stress; however, he had no history of consultation for emotional stress. One day prior to binge-eating, he experienced a stressful event at work. On the day of admission, he had two bowels of steamed rice and 4-5 chicken pieces of for lunch. After lunch, he abruptly experienced abdominal pain and abdominal fullness. The symptoms were not improved after taking digestive medicines. He experienced abdominal pain and abdominal fullness after a heavy meal. He reported having a pain is sometimes mild in intensity in contrast with the massive distended abdomen. The intensity of abdominal pain may be aggravating after perforation of the stomach. Emesis is also a common symptom of acute gastric dilatation [13]. However, there are reports of patients with acute gastric dilatation who were unable to vomit [4, 14]. It has been suggested that this is caused by the occlusion of the gastroesophageal junction by the distended fundus. In these cases, the patients had intermittent nausea symptoms, but no episodes of vomiting.

For diagnosis of acute gastric dilatation, plain abdominal films may reveal an air-fluid level in a markedly distended stomach without...
small bowel gas shadows. The most useful diagnostic investigation is an abdominal CT scan that can clearly demonstrate gastric distension [7]. The CT scan may reveal a massively distended stomach reaching the pubic region, displacing organs, and compressing vessels [15]. If perforation is concurrent, pneumoperitoneum may be identified on radiologic investigations.

In some cases of gastric dilatation, recovery may occur with nasogastric decompression without surgery [4, 16]. Partial decompression with nasogastric tube drainage may be helpful for decreasing the intragastric pressure and reducing the risk of necrosis and perforation. After binge-eating, treatment with gastric decompression using a normal sized nasogastric tube is generally unsuccessful [4, 15]. When semisolid material is present in the stomach, even a large tube may be insufficient. If conservative management fails, immediate surgical intervention is mandatory. Surgical options include surgical decompression, total gastrectomy with cervical esophagostomy and feeding jejunostomy bypass duodeno-jejunostomy, partial gastrectomy, total gastrectomy with esophago-jejunostomy [3-5, 17, 18]. In the case presented here, superior mesenteric syndrome was suspected as a predisposing factor of acute gastric dilatation. The CT scan showed massive dilatation of both the stomach and the second portion of the duodenum with pneumoperitoneum. Therefore, decompression of stomach with graham patch closure was planned and performed.

Early recognition of gastric infarction is essential for surgical intervention. Gastric necrosis or perforation has been reported as lethal complications of acute gastric dilatation [3, 5, 15, 16, 19]. Progressive abdominal distension, peritonitis, subcutaneous emphysema, and shock may be helpful signs for recognition of gastric necrosis or perforation. In this case, surgical intervention was considered without radiologic investigation for gastric perforation. The patient had suffered progressive abdominal pain and abdominal distension. Emergent laparotomy was performed for surgical gastric decompression and drainage. On laparotomy, perforation on the prepyloric region of the stomach was identified. Although it is very rare, acute massive gastric dilatation after a binge-eating episode may result in gastric necrosis or perforation, even in patients without a prior history of eating disorder [4]. Careful monitoring for gastric infarction is critical in the management of acute gastric dilatation., immediate surgical intervention is mandatory.

References