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SUDDEN DEATH DUE TO ACUTE GASTRIC DISTENSION WITHOUT RUPTURE

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ABSTRACT

Acute dilation of the stomach is a rare condition. It is classically observed in psychiatry in eating disorders. Theses findings suggest that bulimia nervosa together with anorexia nervosa resulted in rapid dilation of the stomach. The clinical presentation is not specific; therefore the diagnosis requires the use of imaging (CT). The delay of diagnosis can cause often dramatic consequences. Insertion of a nasogastric tube urgently can avoid complications that require surgical management. We report the first autopsy case of fatal gastric dilatation without rupture occurred in a patient of 38 years old which happened at the Department of General Surgery of the University Hospital of Tizi Ouzou.

KEYWORDS: Acute gastric dilatation**;** sudden death, without rupture, anorexia nervosa, psychiatric disorders.

INTRODUCTION

Clinical cases of acute gastric dilatation have been well described[1–4], but autopsy reports are few. Reports of clinical cases[2–3] show that mortality rates without necrosis or rupture of the gastric wall, with necrosis, and with rupture are respectively: 15.4%, 37.5% and 55.6% respectively. Mean- while there are only two reports with forensic pathological details published by Ishikawa et al.[5] and Sinicina et al.[6] Complication-related mortality ranges from 80% to 100%.[7] In the literature, 37 cases have been found over 10 years.[8,9] These are the same observations of Lee et al who found some twenty cases between 1985 and 2004.[10] Its frequency has increased from 1 case per year on average 10 years ago to 3.9 cases per year according to the literature.[11] Based on the 37 cases found in the literature whose sex was not specified in 1 case, there are 26 women and 10 men. This pathology can be seen at any age.[12,13] It is a ubiquitous affection interesting all the races. The causes are diverse. The most common causes in the literature are anorexia nervosa, aerophagia and polyphagia, an excessive punctual meal, aorto-mesenteric forceps syndrome, etc.[13]

CASE PRESENTATION

A 38 years old man with history of convulsive episodes with fluid and electrolyte disturbances 10 days ago and a notion of falling from his height at the origin of a trauma to the nasal pyramid. He was admitted to the surgical emergency ward for the management of abdominal pain syndrome. An X-ray of the ASP was done, shows large gas distension by gastric dilatation. He was admitted urgently to the operating room, he died before the beginning of surgery. A medico-legal autopsy was ordered by the public prosecutor at the Tizi-Ouzou court.

External findings: We were in the presence of a male body which was 167. cm, weighed 60 kg (BMI=23.29kg/m2). The external examination was marked by abdominal distension with a large contracture of the abdomen. A tympanic sound was audible on percussion of the abdominal wall. No signs of injury were seen in subcutaneous tissues and muscles of the neck, chest and abdomen.

Internal findings: The abdominal cavity was opened; no abnormal gas or odors were noted. We were surprised by the presence of a large intra-abdominal pressure with exit from the stomach and intestines. Major gastric distention with increased volume 47 x 27 cm was found, occupying most of the abdomen and compressing the vessels and underlying organs. We carefully check the absence of volvulus, obstruction or gastric compression (no mechanical obstacle). At the opening of the stomach we found the presence of a large amount of gas and 750 ml of well digested food porridge. After emptying and washing the stomach, the gastric mucosa was congestive. The gastric wall was very thin in the fundus and body. The serosal surface showed brown marked spots on the gastric fundus and body, relatively normal appearance on the gastric antrum and duodenum. No adhesions, stenosis

or obstructions were apparent wherever in the gut tract. No hemorrhagic fluid was found in the gastrointestinal lumen. The gastric luminal surface was widely inflamed and dark black in color and showed neither ulcerative lesions nor tumor. The colon has two necrosis areas of 10 cm long axis each at the level of the ascending and transverse portion with extension to the underlying mesocolon. The other intra-abdominal organs looks to be within normal appearance.

Toxicological findings: Toxicological examinations revealed negative reactions for all items tested.

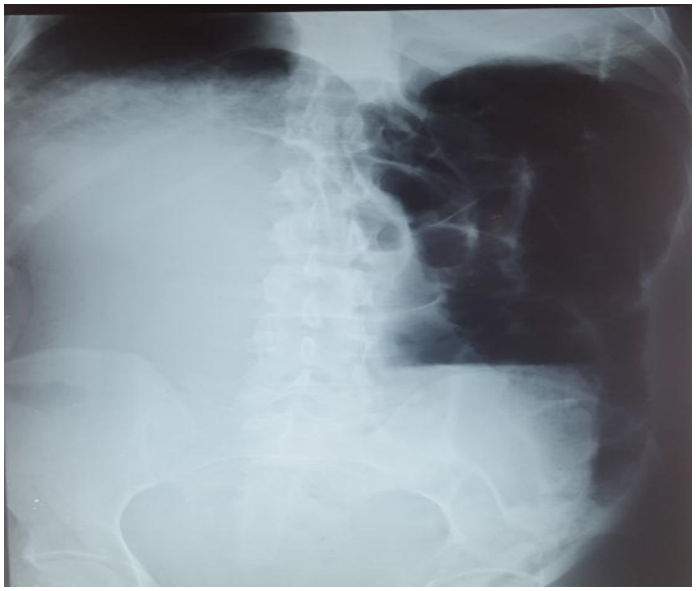

Figure 1: Showing in the Plane X-ray large distension of the stomach.

Figure 2: Showing in internal findings: dilated stomach measuring 47x27 cm with thin wall.

DISCUSSION

Severe dilatation of the stomach accompanied by gastric necrosis has been reported in patients who cannot belch or vomit after a Nissen fundoplication and as a complication of pyloric stenosis causing altered gastric emptying.[14,15] Acute gastric dilatation with infarction is recognized complication of trauma.[16] Patients were qualified to abnormal dietary behaviors resulting from psychiatric diseases, with anorexia nervosa Patients may alternate between anorexia nervosa and bulimia nervosa[17], and binge eating is recognized recurrent episodes over the course of their illness. During anorexia, it is demonstrated in manometry a decrease in duodenal and antrum peristalsis resulting in an increase in gastric emptying time responsible for gastric dilatation during a massive diet. Benson and Ward have reported the association of acute stomach dilation with pancreatitis following a fasting rupture during Ramadan, which he suggests is called Ramadan syndrome.[18] The most recognized functional signs are signs of high intestinal obstruction.[10] Functional signs may be less marked. For example, Algiakrishnan et al reported a

diabetic sexagenarian with diarrhea and painless gastric distension.[19] To determine the cause of death is difficult despite the unusual features in the abdominal cavity. Uncultured autopsy suggested acute circulatory failure, but there were no specific or characteristic findings to the cause of death. Forensic pathological details revealed no necrosis of the dilated gastric wall with rupture.[5,20] On the contrary, there was no clinical report of gastric rupture without necrotic findings of the gastric wall. The present case showed marked gastric dilatation due to bulimia without rupture. In 12 of the 20 previously reported cases without rupture, the patient was in a state of shock, pre-shock or dehydration (Table 2). Hypotension with tachycardia was found in almost all patients and fluid resuscitation was implemented to improve circulatory volume. The pathogenesis of shock is thought to be as follows: increased abdominal pressure compressed the inferior vena cava, resulting in congestion of bilateral lower limbs.[21] Dilatation of the duodenum may result from direct compression of the inferior vena cava together with the vertebral bodies. Moreover, the mesenteric root becomes compressed between the dilated stomach and duodenum, resulting in a disturbance of portal blood flow and congestion of the gut, as along with superior mesenteric artery syndrome.[22] The vascular affluence of the stomach exposes it less to necrosis. Adam et al have suggested that the seat of rupture is in 80% of cases at the level of the small sub-cardial curvature in an area of weakness.[8] On the other hand, Urfali et al have described that the rupture is involved in 40% of the anterior surface, 23% of the large curvature and 15% of the posterior surface or the small curvature.[23] The suggestive image on radiography of the abdomen without preparation (plane x-ray) is the presence of a large pocket with a gastric area ranging from the left hypochondrium to the right hypochondrium. The abdominal & pelvic CT scan has a better sensitivity to make the diagnosis, to find the complications and the cause.[24] The medical resuscitation is the first step of the care with a good correction of the disorders hydro-electrolytic especially in case of hypovolemic shock. The placement of a nasogastric tube with soft aspiration associated with a hydro-electrolytic correction is the most shared attitude.[25] Surgery is indicated for complications such as necrosis, perforation and rupture. In gastric necrosis, atypical gastrectomy or not is indicated. In our patient, atypical gastrectomy was performed. From all these autopsy findings confronted with the data of the medical file for our patient we conclude that the cause of death was acute circulatory failure from hypovolemic shock that occurred following compression of the inferior vena cava and superior mesenteric vein and superior mesenteric artery, who are causing necrosis of the colon and the mesentery and aggravated by hydro-electrolytic disorders.

CONCLUSION

Acute dilatation of the stomach is a rare emergency. The clinical finding is not specific. The plane X-ray of the abdomen and the CT scan are of a great contribution for the diagnosis. Complications such as necrosis and rupture are feared. Prognosis depends on the speed of diagnosis and the initiation of specific treatment. Surgery remains the main treatment of complications with a high rate of mortality.

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