Abstract

Acute gastric volvulus is a diagnostic and a therapeutic emergency; it can be complicated by peritonitis and gastrointestinal bleeding. 43-year-old Mrs. R.M is reported with a history of adrenal insufficiency and hypothyroidism, who consults for sudden abdominal pain as well as unproductive vomiting. The examination notes abdominal distension and polypnea, the biology marks a SIB and acute renal failure. The computed tomography examination reveals a large abundance of pneumoperitoneum and partial gastric pneumatosis. The patient was operated on for peritonitis related to gastric perforation resulting from a complete mesenteric-axial volvulus of the stomach; we also note the presence of a wandering spleen during exploration. The patient underwent mechanical resection of the necrotic peripheral portion of the stomach. The course was marked by the onset of septic shock, acute adrenal insufficiency and the death of the patient on D-3 postoperatively.

Keywords: Gastric perforation; Gastric volvulus, management; mesenteric-axial

Introduction

Gastric volvulus is a rare condition, the incidence of which is difficult to estimate. In 5% of cases this pathology is revealed by a complication [1]. In acute and complicated forms, diagnosis and treatment should be carried out urgently [2, 3]. The clinical and therapeutic peculiarities of a case of gastric volvulus revealed by acute peritonitis are reported.

Observation

This is a 43-year-old female patient with a medical history of adrenal insufficiency and treated hypothyroidism. She presented multiple episodes of vomiting progressing by seizures and giving way spontaneously for a year. She has been presenting for 3 days for epigastric pain associated with nausea and not giving way to medical treatment. Faced with the worsening and generalization of pain throughout the abdomen, she went to the emergency room.

Clinical examination of the patient found blood pressure at 90/60 mm Hg, pulse at 110 bpm, polyneuma at 32 C / min, and generalized abdominal distension with defense of the left hypochondrium. A Biologically, she had a hyperleukocytosis at 18,000 elements / mm3, an elevated CPR at 380 mg /l and acute renal failure (renal clearance at 25 ml / min).

The patient was admitted to a surgical intensive care unit. She had monitoring measures, crystalloid filling, ventilation with a mask, a nasogastric tube which brings back a bilious fluid and a preparation for the realization of an emergency surgical treatment…

An unprepared x-ray of the abdomen showed gastric gas distension and parietal emphysema of the stomach (Figure 1).
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Figure 1: Abdomen without preparation revealing pneumoperitoneum (black arrow) and thickening of the gastric wall (white arrow).

The abdominal CT scan found fluid effusion and extensive pneumoperitoneum as well as partial gastric pneumatosis (Figures 2, 3 and 4).

Figure 2: Frontal section of a thoraco-abdominal CT scan showing an ectopic position of the spleen tilted down (black arrow).

Figure 3: Axial section of an abdominal CT scan showing parietal emphysema in the volvulated portion of the stomach (black arrow).

Figure 4: Coronal slice of an abdominal CT scan showing the site of the stomach volvulus (blue arrow), parietal pneumatosis (white arrow).

In addition, the proximal gastric portion (orange arrow) is healthy and the spleen is in an ectopic position (black arrow).

After a brief resuscitation, the patient was operated on by the midline. There was generalized purulent peritonitis and complete mesenteric-axial stomach volvulus resulting in peripheral gastric necrosis that follows all around the greater curvature and part of the fundus. In addition, there was a 2 cm posterior perforation of the necrotic portion. The spleen was very mobile (wandering spleen) with hyperlaxity of the gastro-splenic and gastro-phrenic ligaments (Figures 5 and 6) with
the possibility of easily lowering the cardia more than 10 cm from the esophageal hiatus.

Figure 5: Intraoperative appearance of gastric necrosis.

Figure 6: Intraoperative appearance of gastric perforation.

The patient underwent peritoneal toilet and longitudinal gastrectomy removing the entire necrotic portion of the stomach. This was achieved by linear stapling forceps as in the case of a sleeve gastrectomy. The remaining stomach was relatively large and not tubular. The postoperative course was marked by the onset of acute adrenal insufficiency and a state of septic shock leading to the death of the patient on D-3 postoperatively.

Discussion

Gastric volvulus is defined by an abnormal rotation of all or part of the stomach with respect to one of its axes causing upper digestive stenosis with the risk of strangulation [4, 5]. This is a rare condition given the stomach's ability to fixate [6]. It is usually seen in people in their 50s [4, 5], although cases have been reported in younger subjects like our patient [1, 7]. In the literature, there is no gender predilection [2, 4] although some authors believe that there is a female predominance [3, 8]. Several etiologies of LV have been suggested: diaphragmatic hernias are the most frequent cause [2, 9]. "Wandering spleen" or "beating of the bell" spleen can also be another common cause of LV. Indeed, the absence of the gastro-splenic ligament and the posterior fixation of the meso of the spleen tilts the great curvature and the posterior face of the stomach forward as was the case of our patient [10-12]. We also cite liver abnormalities and gastric tumors [9, 13]. Ligament hyperlaxity is a constant and essential element favoring the occurrence of LV. It causes the posterior surface of the stomach to tilt forward, starting the first stage of a volvulus. It can be congenital or acquired (eg due to pregnancy, obesity, dehydration or muscle atrophy) [10, 16-18]. There are four types of LV: organo-axial rotations (along a cardio-pyloric axis) which are the most frequent (> 60%), mesenteric-axial rotations (along a medio-gastric transverse axis passing through the small and large curvatures) which are seen in 29% of cases, combined or mixed rotations (10%) and the so-called unclassifiable type (2%) [14]. Organoaxial type volvuli are often described in hiatus hernias and antrum tumors [14, 15].

LV is said to be complete when the angle of rotation of the stomach is between 180 ° and 360 ° with gastric obstruction and strangulation. LV is said to be incomplete when the rotation is less than 180 ° [14]. LV can present in an acute, subacute or chronic clinical form: in the chronic form, the symptoms are not very specific, not very noisy with an evolution by crises giving way spontaneously and suddenly [21]. The subacute form is the prerogative of mesenteric-axial forms such as our case with signs related to gastric emptying disorders [21]. The acute form is characterized by the classic Borchart triad associating acute epigastric pain. (And / or left hypochondrium), abdominal distension and nausea [1]. In the absence of this triad, the acute form can be revealed by a complication, namely mainly a high digestive stenosis of sudden installation, a gastric perforation (secondary to gastric strangulation and at the origin of peritonitis) or a hemorrhage upper digestive system [1, 19, 21]. Other complications of LV can be mediastinitis, cardiac arrhythmias, tamponade, and respiratory distress [1].

Our observation is a case of acute gastric volvulus with a history of subacute attacks, associated with ligament hyperlaxity and a wandering spleen, who consults for a Borchart triad and peritoneal syndrome evolving for three days. X-ray of the abdomen without preparation is generally not helpful but can sometimes show gas distension of the upper abdomen or parietal emphysema [20], as was the case in our observation. Thoraco-abdominal computed tomography is the gold standard: it makes it possible to make a positive diagnosis of LV, to specify the type of rotation and to look for a possible complication, mainly gastric parietal necrosis (and / or vascular suffering). It also makes it possible to highlight an associated gastric tumor or a wandering spleen [6]. LV is a
surgical emergency because it requires rapid stomach distortion and gastropexy [6, 22]. This can be done by laparotomy or by laparoscopy [3, 6, 22, 23] knowing that the laparoscopic technique offers the classic advantages of a shorter hospital stay and less morbidity [22-24]. The causes of conversion (10%) are dominated by the presence of ischemia and the difficulty of exposure [3, 25, 26]. The treatment in case of necrosis or perforation consists in performing a gastrectomy, which is exceptionally complete [2] as we did in our patient who had a longitudinal gastrectomy removing the necrotic part.

The postoperative morbidity and mortality of acute forms of LV is relatively high: the morbidity exceeds 66% and is favored by the oragano-axial type of rotation, complete obstruction and the presence of cardio-respiratory defects [3, 26, 27]. Mortality rises to more than 50%. The factors of poor prognosis are advanced age, the presence of comorbidities, the urgency of the surgery, the presence of necrosis requiring gastric resection and the delay in diagnosis and treatment [28 - 30]. Our patient was young, but had all the other criteria for a poor prognosis.

Conclusion

LV remains a rare cause of gastric perforation. This is a surgical emergency requiring partial or total gastric resection depending on the extent of the necrosis. Improved prognosis depends on early diagnosis and treatment of chronic and subacute forms.

References

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