**CASE REPORTS/CAS CLINIQUES**

**ACUTE GASTRIC VOLVULUS ON MIXED HIATUS HERNIA: A CASE REPORT IN BOBO-DIOULASSO, BURKINA FASO.**

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**Abstract**

Acute organo-axial gastric volvulus is a surgical entity not well known among elderly women. We report the case of an 82-year-old known hypertensive patient on treatment, whose diagnosis was made in a private clinic with a barium meal and the surgery performed at Souro Sanou Teaching Hospital. It was an acute organo-axial gastric volvulus on a mixed hiatus hernia. Detorsion occurred spontaneously during surgical exploration. Treatment consisted of repositioning the oesophago-gastric junction intra-abdominally, followed by approximation of the oesophageal pillars and gastropexy at the diaphragm level. Unfortunately, the patient died on post-operative day one from cardiac failure.

**Keywords:** Stomach, Volvulus, Barium meal, Hiatus hernia

**Introduction**

Acute gastric volvulus is a rare surgical emergency, and the organo-axial type frequently occurs in old women.(1) The diagnosis is often made late because of its atypical symptomatology(1-3) with hiatus hernia as the dominant etiology.(2) This reported case had a mixed hiatus hernia and was managed at the Sourô Sanou Teaching hospital in Bobo-Dioulasso (CHUSS), Burkina Faso. It is presented in order to analyze the etio-pathologic characteristics, and the diagnostic and therapeutic challenges of this condition within the Burkina context.

**Case Report**

Mrs. C.S, an 82 year-old hypertensive on treatment with digoxin, amlodipine, ramipril, and aspirin, developed epigastric pain associated with vomiting seventeen days prior to reporting to CHUSS. She self-medicated with omeprazole. As the symptoms were persistent, she consulted a doctor in a private health facility where an upper endoscopy was performed. The endoscopy showed a cardia located at 28 cm from the dental arches and associated with erosive esophagitis resulting from a hiatus hernia. Despite the endoscopy result, C.S continued with self-medication and refused surgical intervention. Two days later, her health status suddenly deteriorated with uncontrollable vomiting. A barium meal was performed which showed intrathoracic position of the cardia and the middle part of the stomach with axial rotation, suggestive of an axial gastric volvulus on a mixed or typical hiatus hernia III (figure 1). In view of these findings, she was referred from the private health facility to the surgical emergency department of the Sourô Sanou Teaching Hospital (CHUSS) in Bobo-Dioulasso, Burkina Faso. There was no past history of thoraco-abdominal trauma. On physical examination when she was admitted to the CHUSS, she was dyspnoeic, moderately dehydrated, and afebrile with a temperature of 36.50C. Her pulse was 140/minute and of small volume, and the blood pressure was 105/70 mmHg. The apex beat was located in the 6th left intercostal space, mid clavicular line**.** Her respiratory rate was 28 cycles per minute, with normal breath sounds. Her oxygen saturation was 97%. We noted an epigastric distension with tenderness; bowel sounds were normal. A diagnosis of acute gastric volvulus on mixed hiatal hernia was considered in view of the epigastric pains, vomiting and the barium meal results. An attempt at passing a nasogastric tube was unsuccessful. The full blood count showed a hemoglobin of 13,2g/dl, the white blood cell count was 9000/mm3 and the platelet count was 310000/mm3. The serum creatinine level was 110 µmol/L, the serum urea 5 mmol/L, and the serum electrolyte levels (sodium, potassium, calcium, chloride) were norma**l**. An electrocardiogram showed left and right ventricular hypertrophy and myocardial ischemia. Echocardiography was not performed. An urgent pre-anesthetic consultation had classified her as ASA IIIU (decompensated heart disease in left heart failure). She was put on oxygen therapy and intravenous dobutamine. With improvement in her medical condition, she was operated on urgently under general anaesthesia with orotracheal intubation. At laparotomy, only the distal part of the stomach was discovered intra-abdominally. It was dilated and constricted anteriorly by the omentum and the transverse colon (Figure 2). Further exploration brought the entire stomach into the abdominal cavity (Figure 3). Detorsion occurred spontaneously during surgical exploration. No associated malformation was noted intraoperatively. Treatment of the etiology (mixed hiatal hernia) consisted of a dissection of the cardia and abdominal esophagus followed by repositioning of the oesophago-gastric junction intra-abdominally, bringing together the pillars of the diaphragm, and gastropexy at the diaphragm. Intraoperatively, she remained hemodynamically unstable, requiring the administration of norepinephrine at 2 mg/hour combined with dobutamin at a dose of 36 mg/hour, resulting in a mean arterial pressure of 70 mmHg. Immediately after surgery, she was admitted to the Intensive Care Unit while continuing with inotropic support. Her condition however continued to deteriorate and she unfortunately died 24 hours after surgery. Autopsy was not performed and death was presumed to be due to the medical condition.

**Discussion**

Gastric volvulus is a rare surgical entity. It was first described by Berti(4) in 1866 during a post mortem examination, and several cases have been reported with most authors reporting not more than one case each.(1-3,5-10) Larger series have been reported by Alamowitch et al(11) and Eduardo Jacob et al(4) with 3 cases and 38 cases respectively. The rarity of this pathology is not surprising given the different means of gastric fixity represented by the gastro-phrenic, gastro-hepatic, and gastro-splenic ligaments, the greater and lesser omentum, the various vessels and their anatomical relationships.(12) The case presented, to our knowledge, is the very first reported in Burkina Faso, in an 82-year-old woman. Several authors(3,11) have highlighted this type of profile. The symptomatology of gastric volvulus is often atypical.(2,3) Our patient was suffering from epigastric pains and vomiting which are two components of the Borchardt symptomatic triad (acute epigastric pain, unproductive vomiting, and inability to pass or difficulty in passing nasogastric tube).(1) The presence of epigastric pain and vomiting and the patient’s profile, 82-year-old woman, led to the suspicion of an acute gastric volvulus, requiring us to place a nasogastric tube to confirm the diagnosis. The duration of the symptoms in our patient, 17 days, shows that the diagnosis of acute gastric volvulus was made late. This could be explained by self-medication and late referral to CHUSS. Indeed, in our working environment, the financial inaccessibility of patients to health services is a frequent factor which leads them to avoid consultations or to consult late. The gastric volvulus diagnosis in our patient was made based on barium meal. Barium meal, a confirmatory diagnostic medical imaging test for gastric volvulus(7), is affordable and readily accessible in our workplace. In our environment with limited diagnostic resources, computed tomography (CT) scan considered by some as imaging modality of choice(1-2,6,9), is very costly and not readily available. The result of the barium meal performed in our patient had confirmed an organo-axial gastric volvulus which is the most common type of gastric volvulus.(1)

Gastric volvulus is usually intrathoracic due to diaphragmatic lesions, and hiatus hernia is the dominant etiology.(2) In our patient, the cardia and the middle part of the stomach were intrathoracic, corresponding to a type III hiatus hernia or mixed hernia.(13) Elsewhere, Lebeau et al reported a case of complete organo-axial intra-abdominal gastric volvulus in a 32-year-old female patient.(5) Gastric volvulus is a surgical emergency.(1) Surgical treatment can be done by several routes, including laparoscopy, thoracotomy or laparotomy, which is the most frequently performed practice.(13) We used laparotomy because laparoscopy is not yet performed in an emergency setting in our practice. Under general anesthesia, we noticed a spontaneous detorsion which is not unusual.(14) As regards the treatment of the gastric volvulus etiology, there is no current standardized and unanimously recognized surgical technique for hiatus hernias repair.(14) We performed a dissection of the cardia and abdominal esophagus followed by repositioning of the oesophago-gastric junction, approximation of diaphragm pillars, and gastropexy at the diaphragm level. This technique was deemed easy and quick given the haemodynamic status of our patient, who became unstable intraoperatively. In general, most authors report favorable postoperative aftermath.(1,2,5) Unfortunately, in our case, we lost the patient. Her death could be explained by the pre-anesthetic state and her decompensated heart disease.

**Conclusion**

Acute organo-axial gastric volvulus, a surgical emergency, is uncommon, occurring mainly among the elderly. The onset of epigastric pain and vomiting in such a patient should raise the suspicion and a barium meal requested to look for gastric volvulus, particularly in an environment where CT scan is still very costly and not readily available in emergencies.

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