

# Acute Gastric Volvulus in the Elderly Patient: Favourable Resolution by Endoscopic Reduction

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## Abstract

Gastric volvulus (GV) is an infrequent disease that consists in longitudinal or transverse rotation. If this entity is not recognized promptly it can cause ischemia and gastric necrosis with shock and death, notably in the elderly patient that is usually more weakened due to associate diseases. We present a case of gastric volvulus that resolved with medical management in an 80-year-old man with multiple pathological precedents. We have revised the aetiological aspects, the clinical manifestations, the diagnostic tests and the therapeutic options of this disease in the elderly patient.

## INTRODUCTION

Gastric volvulus (GV) is an uncommon condition, comprising abnormal rotation of the stomach along its longitudinal (organo-axial) or transverse (mesenteroaxial) axis of more than 180 degrees<sup>1</sup>. This entity can range from a transient event to complete obstruction followed by ischemia and necrosis that can result in shock and death if it is not recognized and treated promptly. In the last case, it is a medical emergency.

The first case was described by Paré in 1579 after a diaphragmatic stab wound.<sup>2</sup> Previous reports of gastric volvulus are limited and the therapeutic attitude has changed in the last years<sup>2</sup>.

We present a case of GV in an 80-year-old patient that presented like an intestinal obstruction due to the axial rotation of the stomach.

## CASE REPORT

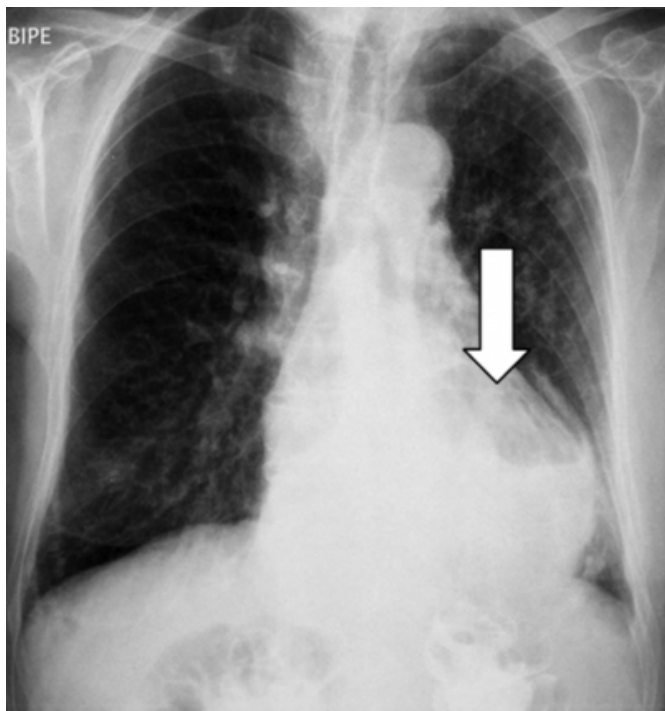
The patient was an 80-year-old male with a history of ischemic cardiopathy (acute heart attack in 2002), chronic atrial fibrillation and a previous ischemic stroke in 2004 with residual paresis of the left side and complex epileptic attacks. He was admitted to the hospital for a new ischemic stroke with left hemiplegia accompanied by partial epileptic attacks. He was in treatment with antiaggregants and anticonvulsivants. He evolved favourably as for the

neurological symptoms but on the fifth day of his hospital stay he presented vomits and inability to tolerate any liquids or solids, suggesting intestinal occlusion.

Blood pressure and heart rate were normal. On physical examination, the abdomen was mildly distended without signs of peritonism. Bowel sounds were absent and on rectal digital examination, there were dregs of normal coloration. A nasogastric tube was placed with aspiration of approximately 4 litres of liquid with fecaloid aspect. Laboratory tests such as hemogram, ions, urea, creatinin and creatinin phosphokinase (CPK) were normal. A chest and abdominal X-ray showed an alveolar consolidation in the lower left hemithorax and a large air-bubble in the central lower thoracic region suggestive of air in the gastric camera, there was no expansion of the intestinal loops, air-fluid levels or pneumoperitoneum (Fig. 1).

**Figure 1**

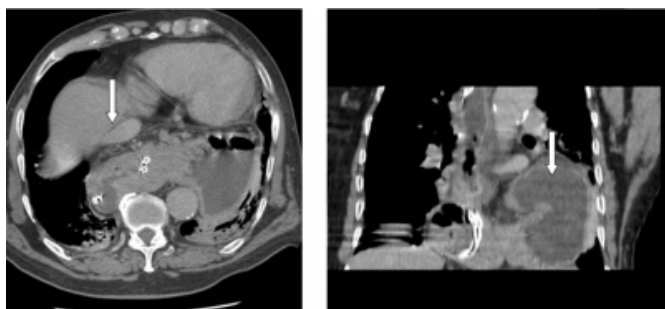
Figure 1: Thorax x-ray showed a large air-bubble suggestive of the gastric camera (arrow).



Abdominal computerized tomography (CT) showed an important expansion of the oesophageal lumen and a part of the body of the stomach within the thoracic cavity with great quantity of liquid. The picture was suggestive of organo-axial gastric volvulus. Another finding was a malformation in the left hepatic lobe that was slimmed spreading across the midline up to the left hypochondrium with the pancreas in anomalous position (Fig. 2).

**Figure 2**

Figure 2: Abdominal CT scan showed organo-axial gastric volvulus (arrow)



An urgent upper digestive endoscopy was performed (Olympus GIF V2). Passage of the endoscope through the oesophagus was achieved without difficulty. Upon entering the proximal stomach, the lumen was not readily visualized because of the twisting of the mucosal folds, suggesting an

organo-axial volvulus. We advanced the endoscope carefully through the narrowed lumen into the distal body and antrum of the stomach going on later to the duodenum. Once the antrum was entered, a J-turn manoeuvre was executed to confirm the passage of the endoscope through the gastric volvulus. Later, the gastric cavity was explored in ante- and retroversion to check the continuity of the gastric cavity; stepwise manoeuvres were repeated up to the apparent resolution of the volvulus.

In the successive days the patient remained stable without signs of new obstruction. Three days later, we performed a gastrointestinal barium series that showed a giant mixed hiatal hernia with most of the stomach in a supradiaphragmatic and intrathoracic position and with suitable gastric voidance through the pylorus (Fig. 3). Twelve months after the acute episode, the patient is asymptomatic from the digestive point of view. Given his neurological and basal clinical situation, no surgery of the diaphragmatic hernia was done.

**Figure 3**

Figure 3: Gastrointestinal barium study revealed a giant mixed hiatal hernia with most of the stomach in intrathoracic position.



## DISCUSSION

Gastric volvulus is produced when the stomach or part of it is twisted more than 180 degrees. Its incidence and prevalence are unknown. GV can range from a transient and intermittent event with mild symptoms to complete obstruction with ischemia and necrosis. About 15-20 % of gastric volvulus appears in younger children associated with congenital diaphragmatic defects. The peak incidence in adults is the 5<sup>th</sup> decade, and GV is commonly seen in association with paraesophageal hernias. Other causes are

diaphragmatic traumatic hernia, eventration of diaphragm due to nerve paralysis, mass in adjacent organs, abdominal adhesions or laxity in one or more of the suspensory ligaments of the stomach. It has not been described associated with sliding hiatal hernias <sup>2</sup> .

Anatomically, GV is classified based on the axis of rotation: mesentero-axial and organo-axial. The first type is produced when the stomach rotates on its minor axis from the lesser curvature to the major one and is frequently intermittent. The second type is the organo-axial volvulus; this occurs when the stomach rotates on its long axis, the stomach then rotates anteriorly and superiorly, often in conjunction with diaphragmatic defects. Strangulation and vascular compromise may occur and usually this is an acute event <sup>2,3</sup> .

Clinical manifestations change depending on the quickness of the beginning, the anatomical orientation, the degree of rotation, and finally the quantity of the obstruction. It will manifest with slight or unspecific symptoms such as abdominal pain and vomits if it is a transitory event as the chronic volvulus, or produce a complete intestinal obstruction in case of acute GV as our case. The classic Borchart's triad that includes acute epigastric pain, vomiting and difficulty to pass the nasogastric tube, can be present in these cases. GV has a mortality of up to 30-50%, due to gastric ischemia with secondary necrosis, perforation and shock <sup>2,3</sup> . Nevertheless, in elderly patients it can demonstrate vague and unspecific symptoms as in our patient, requiring a high degree of suspicion for diagnosis.

Initial diagnosis is clinical. Plain radiographs may give a clue to suspect this condition showing intrathoracic air. Upper gastrointestinal barium studies are more sensitive, careful attention should be paid to the location of gastroesophageal junction that confirms the upside-down position of the stomach and documents the degree of obstruction. In our case, the CT pointed towards the presence of an organo-axial volvulus. It is a very useful diagnosis test because it helps both for the diagnosis and for the detection of possible complications <sup>4,5</sup> .

Acute GV is an emergency. Nasogastric decompression should be performed. Classically, treatment of GV has been surgical for decompression the stomach, reduction of the volvulus and correction of underlying causes with or without fixation of the stomach. Given the high mortality of this process, especially if a delay in the diagnosis exists, surgery must be realized in an urgent way in order to diminish the complications <sup>6,7</sup> .

Surgical approach of GV has changed in the last years from conventional surgery to laparoscopic approach, because this represents acceptable managing with minor morbidity, especially in elderly patients. Nevertheless, in comparative studies it does not differ from open surgery <sup>8,9,10</sup> .

Recently, cases of correction of the volvulus by endoscopy pathway have been described. The majority of them were corresponding to chronic GV. However, some descriptions correspond to acute GV (as our case), that have been solved with success after treatment by endoscopic approach without complications associated with the procedure. Endoscopic techniques described by the authors include non-specific rotational maneuvers, a J-shape maneuver or an alpha-loop maneuver in very poor surgical candidates <sup>11,12,13</sup> . In practice, if signs of gastric necrosis are not present, endoscopic devolvulation can be considered <sup>14</sup> . A concern of performing endoscopic reduction is the possibility of an increased risk of perforation due to gastric ischemia <sup>11</sup> .

Approximately two thirds of patients with GV have a secondary underlying abdominal process which predisposes to GV formation. For this reason, surgical correction of the hiatal hernia is recommended after endoscopic reduction.

Several cases of fixation of the stomach by endoscopic percutaneous gastrostomy alone or combined with laparoscopy repair of the hiatal hernia have been described <sup>15,16,17</sup> .

### **CONCLUSION**

GV is a rare condition with non-specific and vague symptoms requiring a high index of suspicion for diagnosis. Initial treatment, especially in elderly patients, is endoscopic devolvulation, which provides valuable time for optimizing medical conditions before elective reparation. Surgery, preferably with laparoscopic approach, is the definitive treatment.

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