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The management of gastric volvulus in elderly patients

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ABSTRACT

INTRODUCTION: Gastric volvulus is torsion of the stomach and requires immediate treatment. The optimal treatment strategy for patients with gastric volvulus is not established, because of significant variations in the cause and clinical course of this condition.

PRESENTATION OF CASES: We describe our experience with six elderly patients with gastric volvulus caused by different conditions using various approaches. This includes two patients managed with endoscopic reduction, followed by endoscopic or laparoscopic gastropexy.

DISCUSSION: Endoscopy is a necessary first step to determine the optimal treatment strategy, and endoscopic reduction is often effective. The indications for surgical repair of gastric volvulus depend on the patient's overall condition, and several options are available. In some elderly patients with severe comorbidities, major surgery may have an unacceptably high risk. We propose a novel treatment strategy for gastric volvulus in the elderly and a review of the literature.

CONCLUSION: Early endoscopy is necessary in patients with gastric volvulus. Endoscopic or laparoscopic gastropexy may be adequate therapy in selected elderly patients.

1. Introduction

Gastric volvulus is a relatively rare condition, which is a rotation (torsion) of the stomach, and can have a life-threatening clinical course because of resulting ischemia of the gastric wall [1]. The typical symptoms are abdominal pain and recurrent vomiting, which are not specific to this condition. The optimal treatment strategy for patients with gastric volvulus has not been established, because the cause and the clinical course in these patients have numerous patterns. We managed six elderly patients with gastric volvulus, all of whom had different patterns of this condition, in the last three years (Table 1). We present two patients in detail, and propose a novel treatment strategy based on this series of patients and a review of the literature.

2. Presentation of cases

2.1. Patient 1

An 84-year-old man presented to the emergency room with repeated emesis of black material. He had undergone coronary artery bypass grafting for angina pectoris 20 years ago. Computed tomography (CT) scan revealed that the distended stomach was twisted along the axis of the right gastroepiploic artery, which was connected to the coronary artery (Fig. 1A, B). A 3D-CT scan demonstrated mesentero-axial gastric volvulus (Fig. 1C). Emergency endoscopy revealed twisting of the gastric body and congestion with oozing of blood from the gastric mucosa (Fig. 2A). Endoscopic reduction was successfully performed under X-ray guidance. The patient tolerated oral intake soon after reduction and was discharged five days later, but he returned with the same symptoms two weeks after discharge. We then performed endoscopic reduction again and in addition, performed an endoscopic gastropexy using a Funada-type gastropexy device, which we use for placement of a percutaneous endoscopic gastrostomy (Fig. 2C). The gastropexy was placed at three points in the anterior gastric

Abbreviations: CT, Computed Tomography.

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Table 1
Management of six patients with gastric volvulus.

Age	Gender	Cause	Endoscopic Reduction Successful	Method of Repair
84	M	CABG surgery	Yes	Endoscopic gastropexy
73	M	Hiatal hernia	Yes	Laparoscopic hernia repair and Nissen fundoplication
85	F	Morgagni hernia	No	Laparoscopy → small incision laparotomy, direct closure
85	F	Hiatal hernia	Yes	Laparoscopic hernia repair and Nissen fundoplication
87	F	Hiatal hernia	Yes	Laparoscopic gatropexy
90	F	Hiatal hernia	Yes	None, observation

CABG: Coronary artery bypass graft.

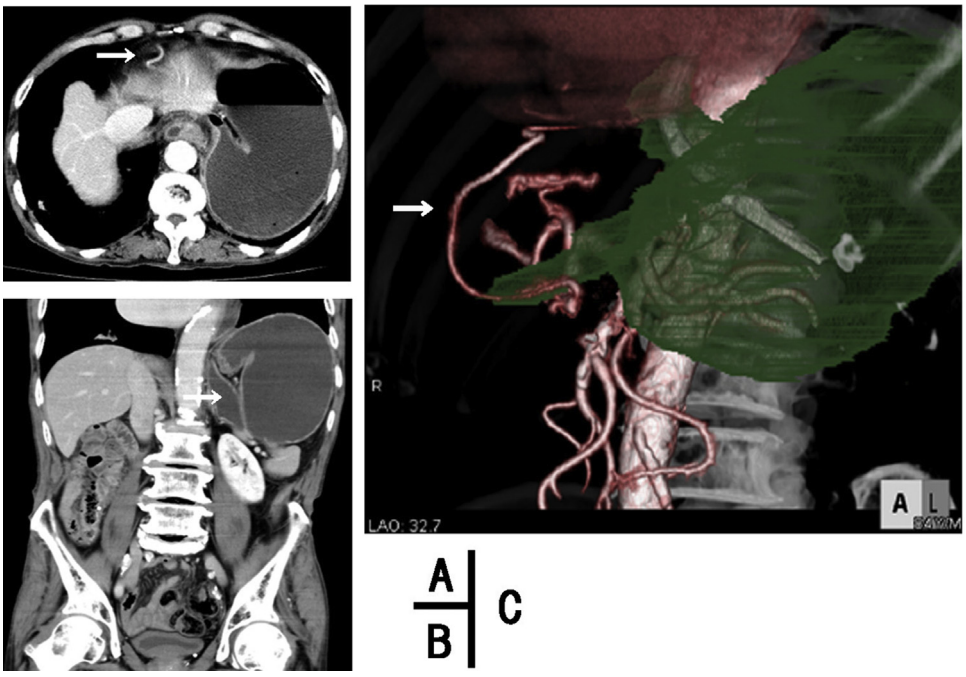

Fig. 1. Computed Tomography (CT) scan findings.
A. CT scan revealed a distended stomach and right gastroepiploic artery (arrow) anterior to the left lateral segment of the liver.
B. CT scan images in the coronal plane revealed twisting of the gastric body (arrow).
C. Three dimensional CT scan revealed mesenteroaxial gastric volvulus (in green) and the right gastroepiploic artery (arrow).

wall (Fig. 2D). The sutures used for gastropexy remained in place for three weeks. After the endoscopic gastropexy, gastric volvulus has not recurred for 38 months.

2.2. Patient 2

An 87-year-old woman was admitted with fever due to aspiration pneumonia. She was bedridden and had severe recurrent emesis after admission. CT scan of the abdomen revealed a large esophageal hiatal hernia, and most of the stomach was in the inferior mediastinum (Fig. 3A). Endoscopy revealed torsion of the stomach and endoscopic reduction was successful (Fig. 3B), but endoscopic gastropexy was impossible because the stomach was still in the mediastinum after reduction (Fig. 3C). The patient's activity level was poor, and laparoscopic gastropexy without hernia repair was felt to be suitable for this patient. Laparoscopic findings revealed a widened esophageal hiatus. The stomach did not adhere to the hernia sac in the mediastinum and was easily reduced into the abdomen. We performed gastropexy by intracorporeal suturing using non-absorbable sutures at nine points on the anterior gastric wall to prevent recurrence of torsion and herniation (Fig. 4). The postoperative course was uneventful and the patient was able to resume oral intake without vomiting. The gastric volvulus has not recurred after seven months of follow-up.

3. Discussion

We treated six elderly patients with gastric volvulus, which raised two important clinical issues. First, we recommend early endoscopy and decompression to identify the presence of ischemia in the gastric wall. Endoscopic decompression is effective in many patients, and reduction will be successful in some of them. Surgery is necessary in many patients to treat the underlying cause of volvulus. Second, endoscopic or laparoscopic gastropexy may be appropriate management for selected elderly patients with gastric volvulus.

Gastric volvulus is classified based on the axis of torsion, organoaxial type, mesentero-axial type, and a combined type [2,3]. The cause of volvulus is classified as primary or secondary. Primary gastric volvulus is due to the absence or laxity of the gastrocolic and gastrosplenic ligaments. Secondary volvulus is related to a splenic or diaphragmatic disorder often seen in children [2]. A patient with gastric volvulus after coronary bypass surgery has been previously reported [4], quite similar to patient 1 in this report. The clinical