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**ASPECTS OF TREATMENT***

# Treatment of acute and chronic gastric volvulus

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## Introduction

A gastric volvulus is defined as an abnormal rotation of the stomach. The condition was first described by Berti in 1866 in a female patient at autopsy and the first successful operation was performed by Berg in 1897 after percutaneous decompression of the stomach with a trocar and cannula. A chronic gastric volvulus was first demonstrated radiologically by Rosselet in 1920[1].

## Classification

Three types of volvulus have been described according to the axis of rotation. These are:

1) *Organoaxial* The axis of rotation passes through the pylorus and the oesophagogastric junction — that is, the long axis of the stomach. This is the commonest type, being seen in 65% of cases.

2) *Mesenterioaxial* Torsion occurs around the short axis of the stomach, which is at right angles to the long axis, passing through the greater and lesser curves. It occurs in 30% of cases.

3) *Combined* This is a mixture of the previous two types.

Gastric volvulus may be total or partial, the former being most frequent. In the organoaxial type the transverse colon comes to lie anterior to the stomach (anterior volvulus) in a ratio of 11 cases to 1[1] and in the mesenterioaxial type the pylorus moves across to the left (anterior) in a ratio of 5 cases to 1. Acute volvulus is seen more frequently than chronic (ratio 3 : 2).

## Aetiology

Primary gastric volvulus, in which there is no associated intra-abdominal abnormality, accounts for 30% of cases. The stomach is suspended along its lesser curve by the gastrohepatic omentum and along the greater curve by the gastrosplenic and gastrocolic ligaments; abnormal lengthening of these ligaments, together with the presence of a duodenal mesentery, is necessary before a primary torsion can occur.

A secondary volvulus is associated with other upper abdominal abnormalities. Diaphragmatic defects, with attraction of the stomach into an abnormal space, are the most common. These are paraoesophageal hiatus hernia, traumatic diaphragmatic hernia, and eventration of the diaphragm. Secondary volvulus has also been described in association with a choledochoduodenal band[2] and peptic ulceration[3, 4].

## Acute volvulus

An acute gastric volvulus presents as an acute abdominal emergency with abdominal pain, inability to vomit, and abdominal distension. Borchardt in 1904[1] described a diagnostic triad of retching and inability to vomit, severe epigastric pain and distension, and failure to pass a nasogastric tube. However, with gentle persistence it is usually possible to pass a nasogastric tube and thus decompress the stomach. The diagnosis can be confirmed on a plain abdominal X-ray, which will show a large air-filled viscus in the upper abdomen. Figure 1 is an X-ray of a 90-year-old woman with an acute volvulus in whom a nasogastric tube was passed with ease. She underwent successful laparotomy, reduction of the volvulus, and fixation by anterior gastropexy.

Early operation in a case of an acute volvulus is mandatory; delay may lead to strangulation and gangrene of the twisted stomach. When it is impossible to pass a nasogastric tube, in the poor-risk case direct aspiration of the stomach will effect a degree

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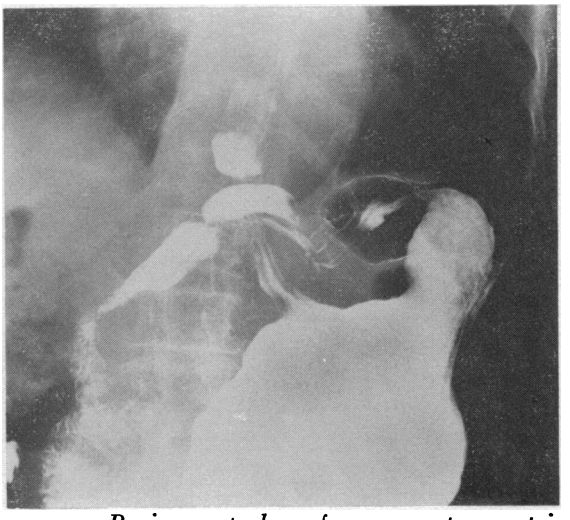
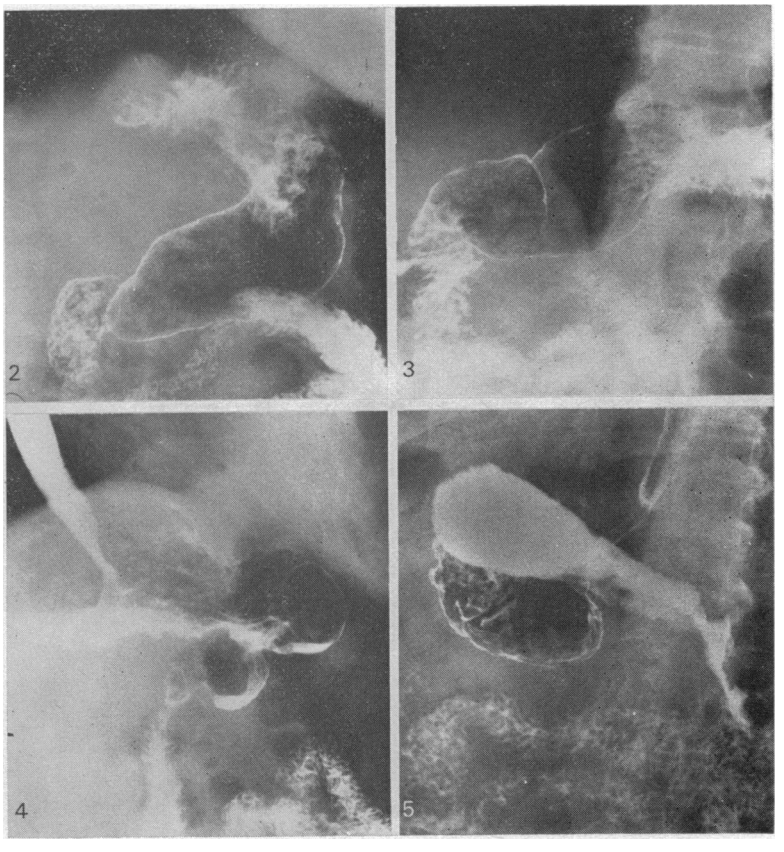


FIG. 1 *Barium study of an acute gastric volvulus.*

of decompression while the patient is prepared for surgery.

At laparotomy it may be difficult to distinguish the axis of rotation in the acute case, especially if the stomach is grossly distended. The volvulus should first be corrected and decompression of the stomach completed via the nasogastric tube. Thereafter any underlying diaphragmatic abnormality can be corrected and any congenital bands should be divided. Correction of eventration of the diaphragm by plication, prosthetic replacement, or excision and suture can be considered in the acute case if the patient is fit, and should be performed in all chronic cases.

The simplest method of fixation of the stomach to prevent rerotation is an anterior gastropexy, suturing the stomach along the length of the gastrocolic omentum to the anterior abdominal wall[1]. A more extensive gastropexy with division of the gastrocolic omentum and displacement of the colon and omentum to fill the left subphrenic area, as advocated by Tanner[4], is not indicated in the acute case. Partial gastrectomy should be performed only if there is associated hour-glass stomach or peptic ulceration or if part of the stomach wall is found to be gangrenous.




FIGS 2–5 *Consecutive barium films showing development of a gastric volvulus during a barium-meal examination.*

## Chronic volvulus

Chronic gastric volvulus may present with vague abdominal symptoms or postprandial pain, abdominal distension, belching, vomiting, or gastrointestinal bleeding. The diagnosis can be made radiologically by barium-meal examination. Great care must be taken to exclude other upper abdominal abnormalities. Associated diaphragmatic lesions will be seen in many cases. A volvulus may also be produced during a barium-meal examination. Figures 2–5 show the development of a gastric volvulus in a man who presented with vague upper abdominal discomfort and in whom no other abdominal abnormality was demonstrated radiologically. An anterior gastropexy produced relief of symptoms. The radiological appearances must be distinguished from those of a cascade (cup-and-spill) stomach, in which there is loculation and dilatation of the fundus, the contrast medium first filling the fundus and then spilling over into the body and antrum (Fig. 6). A gastric volvulus has two fluid levels, whereas a cascade stomach has only one level[5].

If there is an associated diaphragmatic abnormality this should be corrected as outlined earlier, and it may be unnecessary to add an anterior gastropexy once the volvulus has been reduced. In the recent literature there has been no case of a recurrence following repair of the diaphragmatic abnormality and simple reduction of the volvulus without additional fixation[1, 4, 6, 7]. With children simple reduction of the volvulus with or without fixation of the stomach by means of a gastrostomy gives excellent results irrespective of associated diaphragmatic abnormalities, and there has been only one recorded case of recurrence after use of this method[3]. Tanner has stated that simple anterior gastropexy usually leads to recurrence and hence advocates the more extensive procedure of colonic displacement[4], but a review of the recent literature[1, 6-8] does not support this view. Thus anterior gastropexy is the operation of choice.

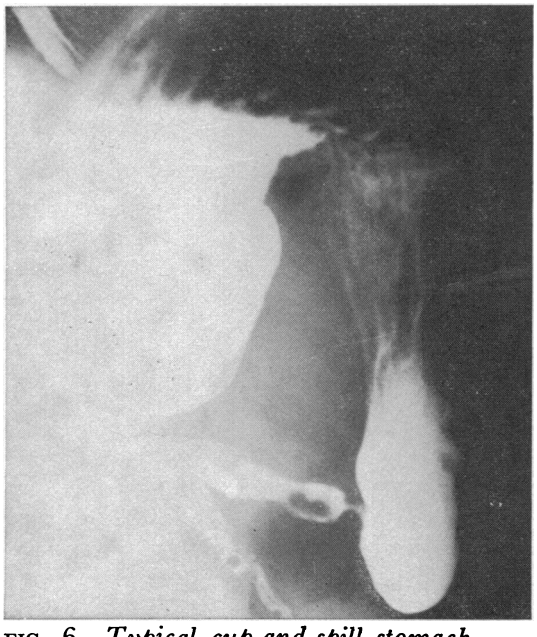


FIG. 6 *Typical cup-and-spill stomach.*

Although persistent or severe abdominal symptoms are indications for surgery, as in the acute case, there are patients with radiologically demonstrable chronic volvulus and no other detectable intra-abdominal abnormality who have been successfully managed conservatively with a bland diet and antacids. Thus a chronic gastric volvulus per se should not be regarded as an indication for surgery.

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## References

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