CASE REPORT

A Case of Organo-Axial Gastric Volvulus Following Laparoscopic Fundoplication: a Case Report

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Abstract Organo-axial gastric volvulus is a rare postoperative complication of stomach surgeries. A case is presented in which a 43-year-old patient developed acute gastric volvulus 14 months after a laparoscopic fundoplication, diagnosed by preoperative CT scan, and treated by reduction of the volvulus, closing the gap in the pars flaccida, and a sham gastro-jejunostomy, all done laparoscopically. This is being published to highlight one of the rare complications of gastric surgery, which can be treated successfully with the laparoscope.

Keywords Laparoscopy · Fundoplication · Gastric volvulus · Sham GJ · Organo axial rotation

Case Report

A 43-year-old lady presented with sudden onset acute abdominal pain and retching for 7 days. The only significant past history was that she had a large hiatus hernia and underwent laparoscopic fundoplication, 14 months before presentation. A CT scan revealed acute organo-axial gastric volvulus, with gross dilatation of the proximal stomach, with antral rotation upwards and to the right, close to the previous hiatal repair (Fig. 1). Examination showed normal vitals, and vomiting had temporarily ceased. Ultrasound revealed a dilated stomach, but little else. Endoscopy revealed a dilated stomach but no gastric wall twist. The patient had stabilized,

but in view of the CT findings, we decided to proceed with diagnostic laparoscopy.

Findings

- Intact fundal wrap
- Hiatal repair disruption
- Evidence of the antrum being partially adherent to the hiatal wrap, under the gap formed by the gastro-hepatic ligament
- Grossly dilated stomach

Operative Decision Making

The most likely explanation was an acute organo-axial volvulus, as diagnosed by CT scan, with the antrum having become adherent to the gap between the pars flaccida and the hiatus repair, which caused the gross stomach dilatation, with probable spontaneous reduction of the volvulus.

- The hiatus repair was reinforced with 2-0 polypropylene crural sutures.
- The edges of the gastro-hepatic omentum were sutured to the hiatus to prevent further herniation through the pars flaccida gap.
- An anterior loop of the jejunum was brought to the stomach, and a seromuscular set of sutures was placed, creating a laparoscopic sham gastro-jejunostomy (Fig. 2).

Postoperatively, the patient had no further complications, discharged on the third POD, and remained asymptomatic at 2-months follow-up.

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Fig. 1 CECT showing a dilated stomach

Discussion

Gastric volvulus is the abnormal rotation of the stomach of more than 180° , first reported by Berti in 1866 [1]. The classical triad of gastric volvulus is the Borchardt triad (1904) [2] of epigastric pain, retching, and inability to pass the nasogastric tube. The types are organo-axial, mesenterico-axial, and combined, with strangulation more common in the first type.

An organo-axial type of volvulus results when the greater curvature is drawn towards the lesser curvature in an anti-clockwise manner as in our case, due to the antrum adhering to the crural repair site. Preoperatively, we found no sutures at

the hiatus, suggesting the use of absorbable sutures, but the wrap was intact. A strong clue was the inability to pass a Ryle's tube, documented when she first presented with pain.

It is not a common practice to close the pars flaccida gap created in the procedure of hiatus hernia repair. However, it is our belief that it was probably the defect of the crura that caused the antrum to herniate through the pars flaccida.

Patients with congenital diaphragmatic defects can develop any type of gastric volvulus, depending upon which part of the stomach herniates [3]. Although idiopathic gastric volvulus is said to be due to abnormal laxity of the gastro-splenic, gastro-phrenic, gastro-hepatic, or gastro-duodenal ligaments [4], abnormal mobility of the stomach has also been reported in these patients. Gastric volvulus has been reported after liver transplantation because of the gap in the gastro-hepatic ligament [5]. The right choice is to optimize the patient and proceed with correction of the volvulus as soon as possible, as the overall mortality for acute gastric volvulus is 15 to 20%. We found a total of five cases, including children undergoing Nissen fundoplication [6], who developed gastric volvulus following fundoplication which was mostly managed by reduction of the volvulus and closure of the defect, and some form of fixation, either by the gastrostomy [7] tube or a sham gastro-jejunostomy.

With the increasing numbers of laparoscopic Nissen fundoplication done all over the world, one must still bear in

Fig. 2 Sham GJ

mind the rare but deadly complication of postoperative gastric volvulus and the efficiency of a laparoscopic repair of the same [8].

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

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