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Astuces techniques pour une sleeve gastrectomie « facile ».

Technical trick for “easy” sleeve gastrectomy

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INTRODUCTION

Sleeve gastrectomy (SG) or tubular longitudinal gastrectomy has become a very popular bariatric procedure because of its apparent simplicity. We describe some important technical points to limit the risk of complications while achieving the most restrictive SG. Our technique of SG usually begins with placement of four trocars (one trocar for the hepatic retractor) and a systematic open laparoscopy technique for insertion of the 1st trocar [1,2]. The gastric tubulization is performed using a solid 34Fr. silicone bougie. For first time SG, stapling is performed without staple row reinforcements. A methylene blue test is systematically performed at the end of the procedure and drains of the abdominal cavity are not routinely used. The resumption of oral liquid diet starts on the day of the intervention and hospital discharge is possible on the day after surgery, or the same day in some selected cases for surgery performed in the context of outpatient care.

TIP 1: Gastrolysis of the gastric greater curvature

SG requires gastrolysis of the greater curvature, which is facilitated by grasping the posterior aspect of the stomach to lift the stomach and thus expose the dissection plane. This action allows freeing the stomach from the anterior surface of the pancreas and facilitates the release of the greater curvature (Figure 1A & 1B).

TIP # 2: Division of the gastropancreatic ligament.

During the dissection to free the greater curvature, gastrolisis may reveal a gastropancreatic ligament that is present in 20% of cases [3]. When present, it must be divided to allow greater mobilization of the posterior face of the stomach. This mobilization simplifies the initial gastric stapling during SG and allows resection of a sufficient portion of the posterior aspect of the stomach. If this ligament is not divided, the posterior gastric wall will be insufficiently resected and the staple applications will be carried out in a staggered manner with a tendency to resect more of the anterior face than of the posterior face. This type of abnormality during stapling may be responsible for a functional stricture or gastric twist, usually located between the 1st and 2nd staple row applications (Figure 2A & 2B).

TIP 3: Complete mobilization of the gastric fundus.

At the level of the gastric fundus, gastrolisis can be carried out anteriorly or posteriorly. We prefer the posterior route, which appears to us more secure, and especially allows a complete resection of the gastric fundus.

In order to perform this dissection safely, the hepatic retractor is positioned as a gastric retractor under the posterior surface of the fundus, thus making it possible to lift it. The short gastric vessels are thus placed under tension and sequentially divided. This tension on the short gastric vessels helps to avoid a splenic injury due to inadequate exposure. A radio-opaque marked laparotomy pad is placed in contact with the spleen to relax the greater omentum. This pad allows enlargement of the field of vision and facilitates the release of the gastric fundus and the exposure of the left pillar of the diaphragm.

The release of short gastric vessels may require previous division of the posterior gastric veins, always visible, thus allowing extension of the distance between the

gastric fundus and the spleen similar to the tented display of the triangle of Calot in cholecystectomy (Figure 3A & 3B). Once the short vessels are divided, traction on the gastric fundus to the patient's right makes it possible to approach and divide the gastrophrenic ligament and thus to release the angle of His and expose the hiatal orifice. This extended dissection will allow a final tension-free stapling of the stomach.

TIP # 4: 1st row staple application

Before starting the stapling of the stomach, a final check is made to assure that the angle of His is free and that there are no posterior adhesions.

The verification of the angle of His is carried out anteriorly. The subsequent gastric resection should not remove the lipoma usually found in this area (Belsey's lipoma).

Verification of the absence of posterior adhesions is carried out by means of an atraumatic grasper positioned at the level of the posterior face of the stomach to hold the fundus, allowing a lifting maneuver to verify the absence of obstacle for tension-free gastric stapling and to avoid the risk of hemorrhage.

To start the gastric stapling, a linear mechanical stapler is introduced into the abdominal cavity. In order to avoid creating a gastric stricture, the first staple line is performed by directing the axis of the stapler toward the left flank (outwards) in order to set up a first row of staples parallel to the axis of the lesser gastric curvature. This change of axis avoids a bend of the SG at the junction between the antrum and the body of the stomach.

The exposure of the stomach is facilitated by grasping the posterior face of the stomach, thus leaving equally as much of the anterior face as of the posterior face of the stomach, the posterior face of the stomach being naturally wider (Figure 4A & 4B).

TIP 5: Gastric stapling.

To continue the stapling of the stomach, several rows of staples are necessary, which requires changing the angulation of the stapler in the direction of the esophageal hiatus, paralleling the lesser curvature (towards the inside) and applying the stapler in contact with the calibration bougie.

In order to effect optimal stapling, particularly of the posterior face of the stomach, application of a grasper to the posterior face of the stomach and retraction of the fundus and body away from the future SG toward the spleen allows the stapler to slide into position. (Figure 5A & 5B).

Once the stapler is positioned, a grasper pulls the gastric fundus and its posterior surface, thus ensuring that the future resection will include the maximum posterior surface. Before stapling, the position of the stapler is checked to ensure that the gastric wall division, both at the anterior and posterior surfaces, is in contact with the termination of the vessels of the lesser gastric curvature.

TIP # 6: Last row of staples.

The last row of staples should not be positioned too close to the esophagus. It is best to position the stapler tip 1 to 2 cm to the left of the esophagus and leave a small "ear" of the stomach [4] (Figure 6A & 6B).

The application of the last row is similar to previous applications. A grasping forceps allows retraction of the resected stomach while the last row of staples is

positioned. Once the stapler is positioned and closed, the resected stomach is released to decrease the tension during the last stapling and division.

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Captions of Figures

Figure 1: Mobilization of the greater gastric curvature

A: Intra-operative view; **B:** Schematic view

Figure 2: Division of the gastro-pancreatic ligament.

A: Intra-operative view; **B:** Schematic view

Figure 3: Complete mobilization of the gastric fundus

A: Intra-operative view; **B:** Schematic view

Figure 4: Application of the first row of staples

A: Intra-operative view; **B:** Schematic view

Figure 5: Gastric stapling

A: Intra-operative view; **B:** Schematic view

Figure 6: Last row of staples

A: Intra-operative view; **B:** Schematic view























