



Operative Techniques

Laparoscopic technique to perform a true Stamm gastrostomy in children



Sabine Vasseur Maurer*, Olivier Reinberg

Department of Pediatric Surgery, University Hospital Center and University of Lausanne, Rue du Bugnon 46, CH-1011 Lausanne, Switzerland

ARTICLE INFO

Article history:

Received 5 August 2014

Received in revised form 9 June 2015

Accepted 10 June 2015

Key words:

Gastrostomy

Laparoscopy

Stamm

ABSTRACT

Purpose: A surgical gastrostomy is mandatory in cases where a PEG is not feasible. Various minimally invasive techniques have been described, but many involve unusable materials in small children and/or have risk of disunion. We describe a technique for true Stamm gastrostomy performed by laparoscopy (LSG) with a purse string suture and four points of attachment onto the wall.

Method: We reviewed 20 children who underwent an LSG from 2010 to 2013.

After incision of the skin at the location planned for the gastrostomy, using three 3–5 mm ports the stomach is fixed to the wall by three suspension stitches, which are entered and then emerged subcutaneously. A fourth stitch of attachment is used to make an award on the stomach and tie around the gastrostomy tube.

Results: Mean age was 4.2 years, with 70% aged <2 years. All children were malnourished, most often severely. All but two underwent a concomitant fundoplication. Feeding through the gastrostomy started on D0 or D1. Total feeding by gastrostomy was achieved in a mean duration of 2.9 day. Mean hospital stay was 4.5 days.

There was no perioperative complication. Mean follow-up was 14 months. Once, the balloon was accidentally deflated and reinflated in the wall leading to its necrosis. Five peristomal granulomas were noticed. It was always possible to replace the tube by a gastrostomy device at least 6 weeks after surgery.

Conclusion: This new technique for true Stamm gastrostomy by laparoscopy reproduces exactly the one done by laparotomy, without special equipment. It can be made since the neonatal period, in all the circumstances when a laparoscopy is possible.

© 2015 Elsevier Inc. All rights reserved.

Percutaneous endoscopic gastrostomy (PEG) [1] provides a safe and reliable method for performing gastrostomy, while avoiding laparotomy and has a low level of associated morbidity. However, the various PEG techniques [2,3] at present have several limitations with regard to tube placement; this method is not always feasible or safe, e.g., in cases in which endoscopic passage is not possible because of an obstruction in the neck or esophageal stenosis, morbid obesity, ascites, or when the colon or liver overlay the stomach [4]. Surgery has been proven to be a reliable and safe method of gastrostomy and several modified procedures of laparoscopic gastrostomy have been introduced [4–9]. These procedures do not include a parietal gastropexy with a subsequent weak attachment to the abdominal wall. The necessity of a gastropexy is a controversial discussion. There is a danger of catheter dislocation, possibly resulting in serious complications arising from using introduction methods without gastropexy. Moreover in those patients with poor healing process (immunosuppression, malnutrition) a surgical attachment to the abdominal wall seems to be safer. We describe a minimally invasive laparoscopic gastrostomy according to Stamm (1894) with a simple laparoscopic gastropexy using one nylon monofilament suture with a straight venous needle.

1. Materials and methods

We reviewed the records of all 20 children who underwent this laparoscopic Stamm gastrostomy at our institution from November 2010 to September 2013, i.e., those non eligible for a PEG.

1.1. Surgical procedure

After the induction of general anesthesia, the patient is placed in a supine position. As there will be a bowel opening, antibiotics are given preoperatively. The surgeon stands on the right side of the patient and the first assistant on the left one. A camera port for a 5 mm × 30° telescope is inserted according to the Hasson's technique into the umbilicus. A pneumoperitoneum of constant 8–10 mm Hg is created, and two additional ports with a diameter of either 3 mm or 5 mm according to ages are inserted into the right upper and left lower quadrants under view control. After exploration of the peritoneal cavity, the greater curvature of the stomach and the pylorus are located. The position of the gastrostomy is chosen on the anterior and antral parts of the stomach, near the greater curvature, at least 2 cm away from the pylorus. The stomach is grasped at this place and brought in contact with the parietal wall depressed from outside by a finger tip. The proper position is marked on the skin (Fig. 1). It has to be at least 2 cm below the costal margin to avoid any postoperative pain and directly above the chosen site for gastrostomy on the stomach.

* Corresponding author. Tel.: +41 21 79 556 16 13.

E-mail addresses: sabine.vasseur@chuv.ch (S. Vasseur Maurer), olivier.reinberg@chuv.ch (O. Reinberg).

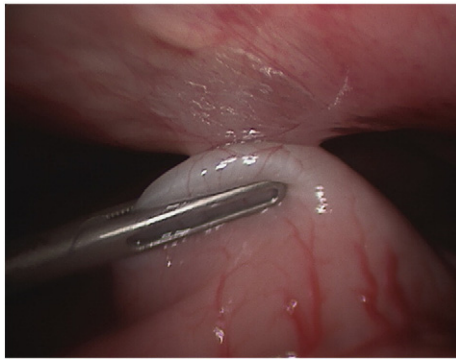


Fig. 1. The stomach is grasped and brought in contact with the parietal wall depressed by a finger tip.

A 10 mm incision of the skin is made at that place and the skin is undermined by 15 mm in the four quadrants surrounding the incision. The upper edge (at 12:00 of a clock) of the wound is retracted and 3-0 Vicryl® thread is inserted with a conventional needle holder through the muscle into the abdominal cavity under laparoscopic view control. The free end of the thread is kept out of the abdomen by a mosquito forceps. Then the needle is held with the laparoscopic needle holder and passed into the anterior gastric wall above the selected site for the gastrostomy. The needle is then emerged from the abdominal cavity a few millimeters from its entry point using any kind of Reverdin's needle (Endo Close®, by Covidien) (Fig. 2a). The two threads must merge away from each other by some millimeters so the knot can rest on the rectus muscle.

To avoid the use of expensive material, we use a substitute to the Reverdin's needle to get out our suspension threads: on the scrub nurse tray, the two ends of a loop of nylon monofilament 0 are inserted into the sharp end of a 17 gauge IV device and pulled to disappear inside the needle. Then the IV device is inserted through the abdominal wall and the loop is pushed inside the abdomen. A large loop of the thread to be extracted is passed into the nylon loop. The needle is retracted from the cannula-over-needle sheet to avoid cutting the threads, and the two ends of the loop are gently pulled out with the thread (and the needle) caught in the nylon loop. This very cheap device is reusable ad libitum (Fig. 2b).

With the same technique, a Vicryl 3-0 is introduced in the abdominal cavity from the left part of the wound (at 03:00) and secured by a mosquito

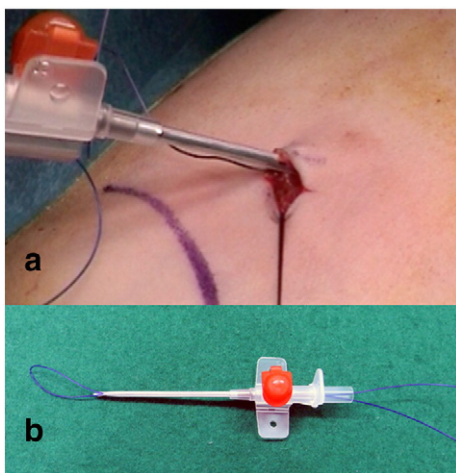


Fig. 2. (a) The upper edge (at 12:00 of a clock) of the wound is retracted and 3-0 Vicryl® thread is inserted with a conventional needle holder through the muscle into the abdominal cavity under laparoscopic view control emerged from the abdominal cavity a few millimeters from its entry point. (b) The IV cannula trick: the two ends of a loop of nylon monofilament 0 are inserted from the sharp end of a 17 gauge IV device.

clamp. A laparoscopic circular purse-string suture is made on the stomach around the gastrostomy site that begins and ends at the left lateral side of the gastrostomy (Fig. 3). The purse-string fastening is postponed.

The abdominal wall is opened with a mosquito forceps in the center of the incision. A balloon probe (Foley catheter or equivalent, i.e., Nutricia Flocare® CH14) is inserted through this opening into the abdominal cavity. The stomach is deflated through a nasogastric tube. A small opening is made in the serosa of the stomach in the center of the purse-string suture with the monopolar hook. A dissector is used to grasp the inner mucosal layer of the stomach and to open it with the scissors. The probe is inserted into the stomach with the Johan grasper without any gastric leakage. The verification of proper tube placement is done. The purse-string suture is now tight around the probe and the stitches are exteriorized by the Reverdin needle before balloon inflation.

With the same technique as for the first transperitoneally fixation stitch, two other Vicryl 3-0 wires are positioned at the 2 other quadrants of the gastric incision at 06:00 and 09:00, emerged by the Reverdin's needle. The pneumoperitoneum is carefully exsufflated and a traction is made on the 4 exteriorized threads to secure the stomach against the peritoneum and are tied in the subcutaneous tissue. The ports are removed under visual control. The umbilical and ports openings are closed as usual. One or two Donati stitches close skin around the opening of the probe taking care not to damage it.

1.2. Postoperative care

The feeding was allowed the day of the surgery according to the tolerance of the child. We preferred several small meals to avoid gastric distension. The replacement of the gastrostomy probe by a button was never done until a firm adhesion of the stomach to the abdominal wall was obtained, i.e., preferably 2 months, but at least 6 weeks after surgery. The replacement was done during the postoperative outpatient consultation without anesthesia.

2. Results

Twenty children, aged 2 months to 15 years (mean 4.2 years), underwent laparoscopic Stamm's gastrostomies. Fourteen patients (70%) were younger than 2 years of age. None of them were eligible for a PEG, either because of inability to pass a PEG ring through the larynx or the esophagus or because they needed for a concomitant antireflux laparoscopic procedure. Indications for gastrostomy included neurological impairment (13), laryngotracheal malformations (2), chronic lung disease impairing oral feeding (3), a Bartter syndrome (1), and renal insufficiency (1). Based on the Waterlow classification

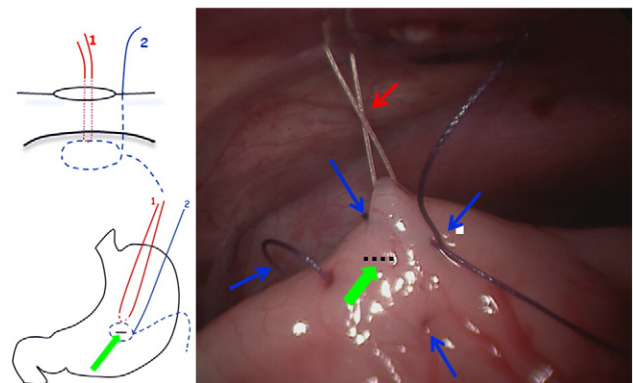


Fig. 3. Red (1): the first stitch at 12:00 of a clock. Blue (2): a Vicryl 3-0 is introduced in the abdominal cavity from the left part of the wound (at 03:00). A laparoscopic circular purse-string suture is made on the stomach around the gastrostomy site that begins and ends at the left lateral side of the gastrostomy. Green arrow: placement of gastrostomy tube.

Download English Version:

<https://daneshyari.com/en/article/4155020>

Download Persian Version:

<https://daneshyari.com/article/4155020>

[Daneshyari.com](https://daneshyari.com)