

# Laparoscopic Gastric Banding Without Visible Scar: a Short Series with Intraumbilical SILS

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**Abstract** Single-incision laparoscopic surgery has been developed with the aims of further reducing the invasiveness of traditional laparoscopy. The technique of lap-band placement from a single intraumbilical incision is described. Three patients underwent a single-incision laparoscopic surgery gastric banding (SILS-GB) for morbid obesity from May to September 2008. All interventions were uneventful and patients were discharged on first postoperative day, after an upper gastrointestinal series. SILS-GB is virtually scarless intervention and may be performed as a day-surgery procedure for the treatment of morbid obesity.

## Background

Single-incision laparoscopic surgery (SILS) has been developed with the aim of further reducing the invasiveness of traditional laparoscopy [1]. It can be performed with refinements of existing technology, using instrumentation that permits greater articulation and rotation and may offer the advantage of better esthetic results, reduced postoperative pain, and reduced risk of bleeding and postincisional hernia from the trocar site.

This approach has been used previously for nephrectomy, gallbladder removal [1], right hemicolectomy [2, 3], and

recently for sleeve gastrectomy [4, 5] in the treatment of morbid obesity.

## Methods

Three patients underwent single-incision laparoscopic surgery gastric banding (SILS-GB) between April and September 2008 (Table 1). Patients were informed about the investigational status of the procedure and all provided written informed consent.

*Surgical Technique* A single, intraumbilical, 12-mm incision was made pulling out the umbilicus and exposing the fascia. Pneumoperitoneum was induced with the Veress needle (Autosuture™) and access to the abdominal cavity was gained through a single, intraumbilical, 12-mm incision with the Visiport Device (Autosuture™). The abdominal cavity was explored with a 5-mm, 30° scope. The band (AP Band—Allergan™) was introduced into the abdominal cavity after removal of the trocar and then the ASC-TriPort was deployed within the umbilicus and used for all instrument insertion (Figs. 1 and 2).

Retraction of the left lobe of the liver was achieved with a transfix stitch, applied on the right crus and suspended from outside (Fig. 3). The patient was put in an anti-Trendelenburg position rotated to the right. In order to create the necessary operative angle between the two working instruments, the insertion points of which are very close to each other, rotator instruments were used (Fig. 4): the one in the right hand was placed on left side of the screen and the instrument in the left hand was placed on right part of the screen; both were articulated in the opposite direction. The LAP-BAND® AP-calibrated balloon-tipped orogastric tube was inserted into the stomach.

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**Table 1** Patient characteristics

Median age, years (range)	Sex (M/F)	Median BMI (range)	Mean operative time, min (range)
30 (28–33)	(0/3)	40.6 (39–42)	101 (90–110)

Dissection of the angle of His was carried out as in the standard procedure using the roticulator ENDO DISSECT (Autosuture™ ROTICULATOR ENDO DISSECT™ 5 mm) in the left trocar and an Endograsper roticulator (Autosuture™ ROTICULATOR ENDO GRASP™ 5 mm) in the right hand. A tunnel was created behind the stomach as described for the pars flaccida technique [6], with a roticulator ENDO GRASP directly lateral to the equator of the calibration balloon. Blunt dissection was continued up to the right and then the left crus and brought out at the angle of His. The roticulator ENDO GRASP was passed through the tunnel to grasp the tip of the band and pass it behind the stomach. The band was closed around the stomach and the stoma calibrated using the inflated balloon (15 cm<sup>3</sup>). Three retention gastrogastic non-absorbable sutures were applied with ENDOSTITCH to prevent band and/or stomach slippage (Fig. 5).

At the end of the procedure, a supraumbilical subcutaneous tunnel is made and the access port is fixed above the fascia (Fig. 6). Careful reconstruction of the umbilicus will allow it to be placed back in its original position, thus achieving a completely invisible scar (Fig. 7)

## Results

Operative time decreased considerably from the first SILS-GB to approximately 90 min in the last two procedures. All interventions were uneventful and the morning after surgery all patients were discharged following an upper gastrointestinal series, done to exclude the possibility of gastric perforation.

**Fig. 1** ASC-TriPort deployed within the umbilicus

One patient showed a subcutaneous periumbilical hematoma that spontaneously evacuated and healed without consequence.

## Discussion

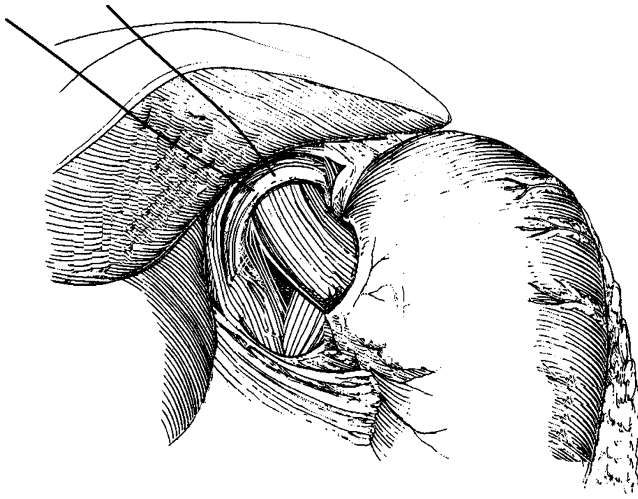
Laparoscopic adjustable gastric banding has proven to be a safe and effective procedure for the management of morbid obesity [7].

The SILS approach remains a challenging alternative to standard laparoscopy but it will soon diffuse as dedicated emerging technologies such as flexible scopes, specially designed ports with multichannel access, extra-long flexible instruments, and liver retractors become readily available on the market.

The ASC TriPort we use, for example, allows up to three instruments to be used simultaneously through a single incision, reducing loss of pneumoperitoneum during intervention and abolishing the risk of postoperative subcutaneous emphysema, thus making single-port laparoscopic surgery easier and safe.

The previous SILS technique, described for gallbladder removal [1], utilized three trocars inserted through separated fascial incision. We experienced in many cases mild to severe loss of pneumoperitoneum during the procedures because of displacement of trocar in the subcutaneous space. Moreover, at least two cases of subcutaneous emphysema were recorded, due to trocar displacement in the subcutaneous space. We do not observe such complication with the use of ASC-TriPort.

**Fig. 2** Roticulator instruments, 5-mm 30° scope, and the ASC-TriPort



**Fig. 3** A transfix suture is placed on the diaphragmatic pillar and helps in retracting the liver, exposing the gastroesophageal junction

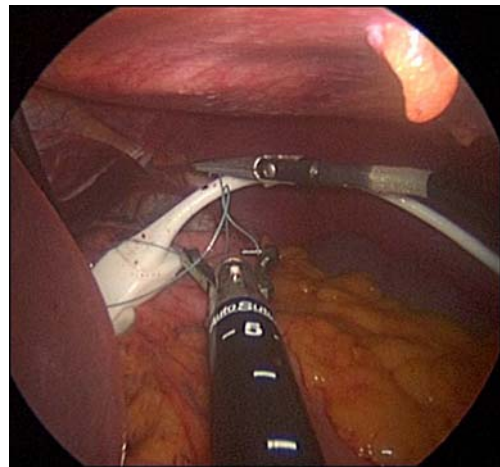
The umbilical access is a well-known and standardized site for entering the abdominal cavity to perform laparoscopy. An original intraumbilical technique is used: the umbilicus is completely extroflexed and the skin incision is made longitudinally for about 1 to 2 cm. When the fascia is exposed, it is possible to enter the abdominal cavity with various devices or with an “open” technique.

This access offers the best esthetic results and minimizes the (torching) torquing effect of trocars. It facilitates the mobility of the instruments but may require the use of extra-long instruments to reach the gastroesophageal junction because the distance between the navel and the xiphoid may expand considerably after the abdomen is inflated.

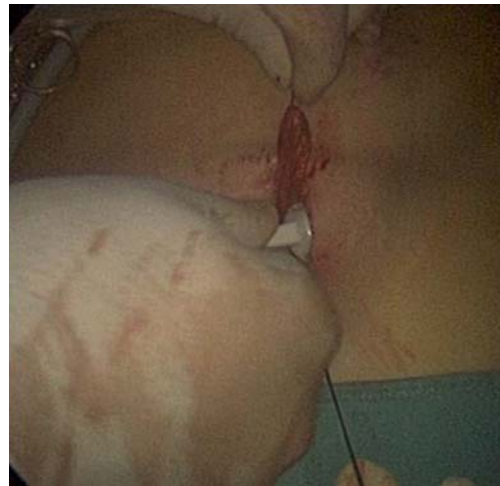
The incidence of port complications (infection, seroma, malposition) was not increased by the placement of the access port in the supraumbilical area as reported in literature [8]: port fixation in the periumbilical subcutaneous space is proven to be as safe as conventional port fixation and



**Fig. 4** The umbilical access, used for all instrument insertion



**Fig. 5** Gastrogastric nonabsorbable sutures applied with ENDOSTITCH



**Fig. 6** The reservoir port, implanted in the periumbilical subcutaneous space at the end of the procedure



**Fig. 7** Umbilicus restored in its natural position, achieving a virtually scarless intervention

provides considerable cosmetic benefit heralding the arrival of true scarless surgery.

Obese patients, particularly female, express as their primary concern “how big the scar is” and the acceptance of bariatric procedures has increased enormously with the introduction of laparoscopy: we can consider the SILS-GB to be an extremely attractive alternative that may be offered to patients as the first day-surgery and a virtually scarless intervention for the treatment of morbid obesity.

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