



# globalnewsletter

BHATIA GLOBAL HOSPITAL & ENDOSURGERY INSTITUTE NEWSLETTER

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## " The Joy of Giving ! " Shubham Bhatia

A woman who was traveling alone in the mountains found a precious stone in a stream. The next day, she met another traveler who was hungry; the woman opened her bag to share her food. The hungry traveler saw the precious stone and asked the woman to give it to him. She did so without hesitation.

The traveler left, rejoicing in his great fortune. He knew the stone was worth enough to give him security for a lifetime. But a few days later, he came back to return the stone to the woman. "I've been thinking," he said, "I know how valuable the stone is, but I give it back in the hope that you can give me something even more precious. Give me what you have within you that enabled you to give me the stone."

The woman smiled, "**The joy of giving!**"

The joy of giving is known in Buddhism as "**Mudita**" - joy at the good fortune of others. The meditation teacher Joseph Goldstein describes how the Buddha speaks of **three levels of generosity**:

"He called the first **beggarly giving** - we give the worst of what we have, what we don't want, the leftovers. Even then, we have a lot of doubt: "Should I give it? Shouldn't I? Next year I'll probably have a use for it." Giving may make all sorts of animals feel good, but grappling with this particular sort of dilemma would appear to rely on a uniquely human part of the brain.

"The next level is **friendly giving** - we give what we would use for ourselves, and we give it with more spontaneity and ease, with more joy in the mind.

"The highest kind of generosity is **queenly or kingly giving**. The mind takes delight in offering the best of what we

have, giving what we value most. This is the perfection of generosity."

Even business barons know that giving leads to feelings of empowerment, pride and accomplishment. U.S. millionaire, Bill Black gave \$5,000,000 to Columbia University toward an 18-story medical-research building. It was the largest gift from a living person ever received by Columbia. Said Black: "I have found that there is a tremendous joy in giving. It is a very important part of the joy of living."

Every religion extols the virtues of giving. 'Zakat', the amount set aside from one's earning for charity, is one of the tenets of Islam. The concept of 'Daan' is something every Hindu is familiar with and the Bible abounds with stories of charity. Guru Nanak, the founder of Sikhism, gave away all he had to the needy, right from his childhood. The ancient seers understood that giving was one of the paths to spiritual fulfillment.

A path that could add immense meaning to life and give birth to new relationships. Many of us have experienced the miracle of connecting with strangers in minutes by the simple act of giving.

Reggie's brother gave him an automobile as a Christmas present. On Christmas Eve, Reggie came out of his office, and saw a street urchin admiring his shiny new car.

"Is this your car, Mister?" he asked.

Reggie nodded in affirmation, "My brother gave it to me for Christmas." The boy was surprised. "You mean, your brother gave it to you and it didn't cost you anything? Boy, I wish..." He hesitated. Reggie knew what he was going to wish for. He was going to wish he had a brother like the one Reggie has. But

what the lad said was far beyond Reggie's expectation.

"I wish," the boy went on, "that I could be a brother like that."

For a few seconds, words failed Reggie and then he impulsively added, "Would you like to take a ride in my automobile?"

"Oh yes, I'd love that."

After a short ride, the boy turned towards Reggie. His eyes were glowing and he said, "Mister, would you mind driving in front of my house?" Reggie smiled a little. He thought he understood what the lad wanted. He wanted to show it off to his neighbors that he could ride home in a big automobile. But Reggie was wrong again.

"Will you stop where those two steps are?" the boy asked. He ran up the steps. In a little while, Reggie heard him coming back, but he was not coming fast. He was carrying his little brother who was physically challenged. He sat him down on the bottom step, then sort of squeezed up against him and pointed to the car. "There she is, Buddy, just like I told you upstairs. His brother gave it to him for Christmas and it didn't cost him a cent. And some day, I'm going to give you one just like it...then you can see for yourself all the pretty things in the Christmas windows that I've been trying to tell you about."

Reggie got out and lifted the lad to the front seat of his car. His brother whose eyes were gleaming with joy climbed in beside him and the three of them embarked on a memorable holiday ride.

That Christmas Eve, Reggie learned what Jesus meant when he said: "**It is more blessed to give...**"

**Inside me there's a thin person struggling to get out,  
but I can usually sedate him with four or five cupcakes. - Bob Thaves**

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# Weight Loss Surgery: Surgical treatment of morbid obesity

## Ten Steps of Laparoscopic Sleeve Gastrectomy

### INTRODUCTION

Laparoscopic sleeve gastrectomy (LSG) as a stand alone procedure for the surgical management of morbid obesity represents 2% of the bariatric operations in the United States of America. In the USA, this technique was developed as a modification of the biliopancreatic diversion in 1988, and in the United Kingdom, the concept of LSG evolved as a modification of the Magenstrasse and Mill procedure.

Its acceptance as an alternative surgical treatment for obesity in the last years is due to the fact that it is a rapid and less traumatic operation and thus far is demonstrating good resolution of co-morbidities and good weight loss. A further second surgical step is then easily feasible, if necessary.



Greater Curvature Gastrectomy, Vertical or Longitudinal Gastrectomy or Pylorus preserving 'gastric tube' creation

### BASICS OF THE PROCEDURE

#### Definition and principles

The sleeve gastrectomy is also known as the **greater curvature gastrectomy, vertical or longitudinal gastrectomy** or **Pylorus preserving 'gastric tube creation'**.

A gastric tube of 60 to 120ml (approx 100ml) is created by resecting the greater curvature of the stomach.

#### Physiology

The sleeve gastrectomy (SG) induces weight loss by 2 mechanisms:

1. Mechanical restriction by reducing the volume of the stomach and impairing stomach mobility. Also called 'Food limiting' operation.

2. Hormonal modification by removing a great part of the **Ghrelin (Hunger Hormone)** production tissue. Ghrelin is a 28 amino-acid-peptide, secreted by the oxyntic glands of the gastric fundus (Ariyasu et al., 2001). It is a potent orexigenic (appetite-stimulating) peptide mediated by the activation of its receptors in the hypothalamus or pituitary area (Mognol et al., 2005; Himpens et al., 2006). The gastric fundus contains 10 to 20 times more ghrelin per one gram of tissue than the duodenum. In the SG, resection of the fundus removes the major site of ghrelin release, therefore, appetite decreases.

### INDICATIONS AND CONTRAINDICATIONS

#### Standard indications:

As for all morbid obesity surgery, standard rules apply:

- BMI > 40;
- BMI > 35 with co-morbidities;
- Medical treatment followed by the patient for the one year fails;
- Regular physical activity.

#### Specific indications:

The SG is preferred over a gastric bypass or a biliopancreatic diversion in the case of:

- Hepatic cirrhosis;
- Inflammatory bowel disease;
- Major bowel adhesions;
- Major co-morbidities;
- ASA III or IV morbidly obese patient;
- Gastric polyps; gastric endocrine tumors.

The SG will be the first stage of the procedure, followed by a gastric bypass or a biliopancreatic diversion when:

- BMI > 60;
- BMI > 50 with ASA III-IV patients.

#### Absolute contraindications:

- BMI < 35;
- Contraindication to general anesthesia;
- Pregnancy;
- Severe psychiatric disorders;

- Drug and alcohol addiction;
- Untreated esophagitis;
- Giant hiatal hernia.

### PREOPERATIVE PERIOD

#### Laboratory evaluation:

Basic chemistry panel, full blood count, thyroid function tests. Serum cortisol, urine cortisol, serum cholesterol, serum triglycerides, measurements of vitamin (A, B1, B6, B12, C).

#### Upper endoscopy:

- Rule out inflammatory ulcerous gastric pathology, search and treat H pylori infection when present.

#### Ultrasound of the abdomen:

- To rule out cholelithiasis, which would indicate cholecystectomy along with the gastric sleeve.

#### Cardiovascular/Respiratory evaluation:

- Exclude any contraindications to anesthesia by Echo, PFT, ABG etc.

#### Psychiatric evaluation:

- To rule out any behavioral abnormalities that would contraindicate limited food intake.

#### Endocrine evaluation:

- Rule out an endocrine abnormality as the etiology of morbid obesity.

#### Dental evaluation

### TEN STEPS OF LAPAROSCOPIC SLEEVE GASTRECTOMY:

1. Assembly of instruments, in order of use
2. OT set up and Trocar Position
3. Liver retraction.
4. Identification and Preservation of Pyloric Antrum
5. Gastrolysis of greater curvature
6. Resection by Stapling
7. Suturing for staple line reinforcement
8. Leak test
9. Extraction of the specimen
10. Closure of wounds

**Step-1: Instruments (special)**

1. 30° laparoscope, Hook dissector, Scissors, Bipolar grasper, Fenestrated grasper, Suction-irrigation device
2. Liver retractor (Nathanson's or fan shaped)
3. Ligasure device (10mm Atlas® probe preferred)
4. Harmonic ACE (5mm)
5. Linear stapler Echelon 60, Endo GIA with Green and Blue cartridges
6. Needle holder or Endostitch
7. Gastric calibration tube (36F)



Instruments, in order of use

**Step-2: Operating room set-up**



Patient Position



Compression Devices

**• Patient**

- Supine position.
- Intermittent pneumatic leg compressions for preventing deep vein thrombosis.
- Both arms extended.

- All contact zones are carefully checked and padded to avoid nerve and arterial compression or pressure sores.

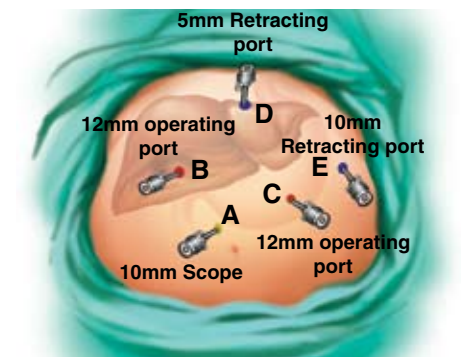
**• Team**



OT set up

1. The surgeon stands on patient's right side.
2. The first assistant stands on the patient's left.
3. The second assistant stands on the patient's right behind surgeon.
4. The scrub nurse stands on the first assistant's left.
5. The anesthesiologist stands at the head of the patient.

**TROCAR PLACEMENT**



Trocar Position



Due to the abdominal wall's thickness and the depth of the surgical field, trocar placement is of utmost importance.

This technique is usually performed with 5 trocars:

A: optical trocar

B and C: operating trocars

D and E: retracting trocars

**• Optical trocar**

The optical trocar is the first one. Its position is one and a half hand's breadth below the xiphoid process. The main difficulty in this region is the presence of the large, fatty, falciform ligament that can be avoided by just placing the trocar slightly to the left of the midline. In difficult situation, hitching suture can hold the falciform ligament.

**• Reverse Trendelenburg**

The patient is then placed in reverse Trendelenburg position, lowering the abdominal viscera and freeing the operative field in the upper abdomen.

**• Operating trocars**

The other trocars are then introduced under visual control.

Trocar B and C are operating trocars. (12-15mm in size depending upon the type of stapler use (Echelon, Ethicon -12mm) EndoGIA® auto suture-15mm).

**• Retracting trocars**

Trocar D accommodates the liver retractor.

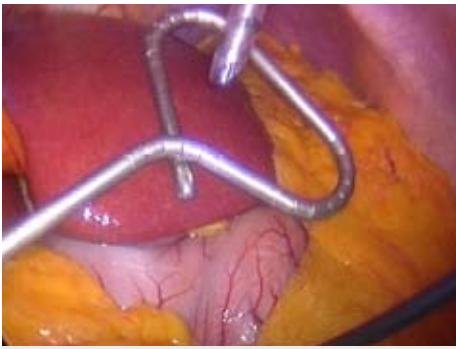
Trocar E accommodates the stomach retractor.

**Step-3: Liver retraction:**

The left lobe of the liver is retracted cephalad and laterally to visualize the upper part to the stomach and the hiatal region. The contact



Fan Liver retractor



Nathanson's (snake) liver retractor

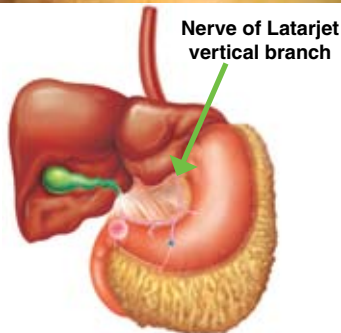
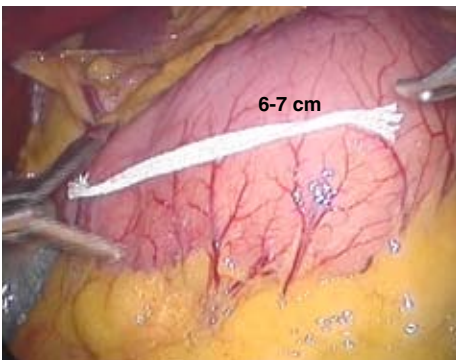
area between the retracting device and the liver must be large enough in order to avoid rupture of the fibrous capsule of the liver. Any bleeding will impair visualization of the operative field and will absorb part of the light intensity.

**Step-4: Identification and preservation of the Pyloric Antrum.**

The gastric resection starts at 6-7cm proximal to the pylorus. The pylorus has to be carefully identified by palpation. The last nerve of the Crow's foot should be identified.

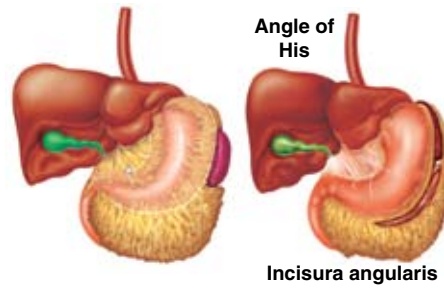
6cm of pylorus are then measured proximally with the help of the umbilical tape. This corresponds to the location of the Latarjet's nerve vertical division.

The greater omentum is then opened to enter the lesser sac. This prepares for the gastrolisis of the greater curvature.



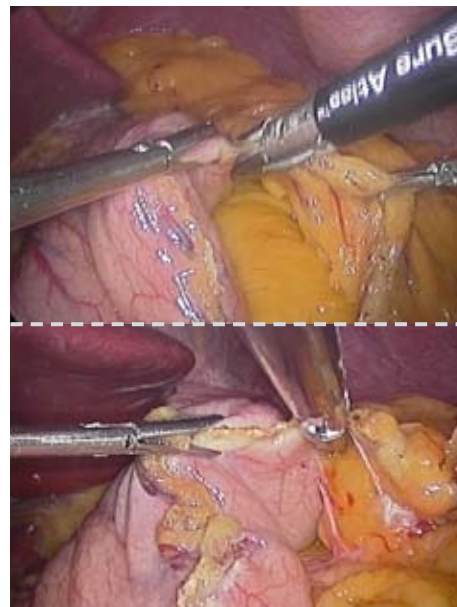
Preservation of Pyloric Antrum

**Step-5: Gastrolisis of Greater Curvature**



Gastrolisis of greater curvature and opening of the lesser sac

Division of the greater omentum is performed from distal to proximal, with the aid of the Ligasure® device. The greater omentum is divided close to the stomach. In the upper third, we run into the short gastric vessels. The freeing of the greater curvature is continued up to the angle of His.



Division of the greater omentum

**Cardia dissection:**

This step prepares for the last part of the gastrolisis and the gastric section. Care should be taken that there should be no posterior pancreatic attachments.

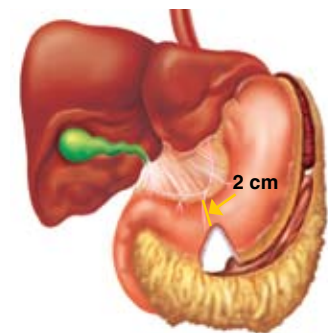
**Step-6: Resection by stapling:**

- Beginning of the staple line

The sleeve gastrectomy is begun with sequential firings of linear stapler (60mm) placed through the left 12-15mm trocar, starting at the level of the Crow's Foot just distal to the Incisura Angularis. The stomach should be retracted laterally.

The first 60mm stapler (4.8 mm staples, green cartridge) is positioned approximately 2cm from the lesser curvature in order to ensure adequate blood supply and avoid obstructing the gastric lumen.

The anterior and posterior vagus nerves are preserved for normal gastric emptying.



- Calibration of the gastric pouch



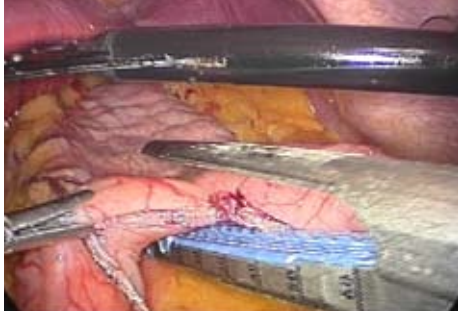
36F Bougie passed now

Then a 36 French bougie (Gastric calibration tube) is inserted into the stomach by the anesthesiologist and aligned medially along the lesser curvature into the duodenum to continue with the Sleeve Gastrectomy. This bougie may be replaced by a gastroscop

allowing for a correct visualization of the gastric pouch at the end of the procedure.

**• Gastric resection**

Sequential firing of 60mm linear staplers is performed up to the angle of His (3.5mm staples, blue cartridges) remaining close to the 36F bougie. Before firing, care should be taken that both anterior and posterior aspects are seen and lesser curvature is not devascularized



At the angle of His, fundus, spleen, oesophagus, inferior phrenic vein, Left crus should be excluded from the final firing.



Resection near angle of His

**Step-7: Suturing for Staple line reinforcement**

Staple-line reinforcement is used to reduce the risk of intraoperative bleeding and leakage.

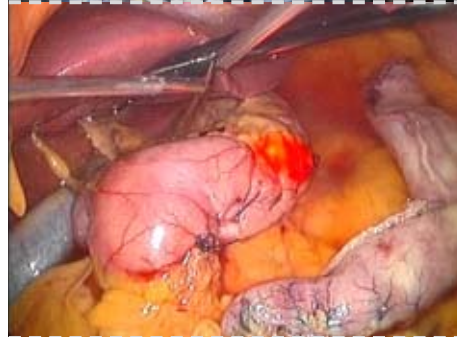
The following materials may be used:

- Continuous absorbable imbricating suture;
- Bio-absorbable glycolide copolymer (Seamguard, W.L. Gore & Associates);
- Fibrin glue.



**Step-8: Leak Test:**

It is essential to test for leaks. It can be done



We believe in the 'Extracorporeal' leak test with normal saline additionally.

by methylene blue through the calibration tube, or by upper GI Endoscopy. 9 out of 10 leaks will be in the first 3cm of stomach from the angle of His.

**Step-9: Extraction of the specimen**

The resected specimen is removed through the 12mm left lateral port or through the optical port by holding the specimen with abdominal sponge and taking out by fish tail movements.

We believe in the 'Extracorporeal' leak test with normal saline additionally.



Fish tail movements

**Step-10: Closure of Port Sites**



This is performed by using the suture passer needle

## POSTOPERATIVE PERIOD

No nasogastric tube is placed at the end of the procedure.

### Gastrograffin study:

A water-soluble upper gastrointestinal study is performed in selected cases (intraoperative difficulties), and for patients with clinical symptoms and signs of leakage (fever, tachycardia, tachypnea, severe leukocytosis).

If the examination is performed and reveals no anomalies, the patient is allowed to drink.

From POD2 to POD9, the patient remains on a liquid diet. Over the next 3 weeks, the food must be soft or chopped. After this period, the patient can progressively return to normal drinking and eating habits, with the recommendation to chew adequately.

The patient is usually discharged on POD2 with advice to take PPI.

The first follow-up is performed one week after discharge, when sutures or clips are removed, and then at 1, 3, 6 and 12 months.

## ADVANTAGES/ DISADVANTAGES

### Advantages:

- No digestive anastomosis involved
- No mesenteric defect is created
- No foreign material is used (no foreign body complication nor adjustments).
- The digestive tract is accessible to endoscopy
- Low risk of peptic ulcer
- Vitamins and mineral absorption not altered

- Short hospital stay
- Avoidance of foreign material to create a restrictive band
- Maintenance of normal GI continuity with preservation of antrum and nerve supply permitting adequate gastric emptying
- Ability to convert this procedure into multiple other operations (such as gastric bypass or Biliopancreatic diversion).

### Disadvantages:

- Stapling complications
- Irreversibility

## RESULTS

The sleeve gastrectomy is an effective primary bariatric procedure in the short term; the overall excessive weight loss (EWL) at 6 and 12 months ranges from 35 to 71% and 33 to 81% respectively.

The EWL at 3 years has been reported to be similar to that after RY Gastric Bypass (Gumbs et al., 2007; Baltasar et al., 2005; Lee et al., 2007).

Long-term results are influenced by the size of the bougie used as a guide. Its size must be inferior to 40 French. The volume of the gastric remnant will then be reduced (Weiner et al., 2007).

### Weight loss failure

Weight regain after a sleeve gastrectomy is associated with the dilatation of the gastric remnant. Differences on surgical techniques can explain why this event may happen to any patient:

- Excessively large bougie.
- True gastric dilatation over time.

- Inadequate resection of posterior gastric folds.
- Excessive pressure against the pouch wall by large meals, repeated vomiting or distal obstruction.

This weight loss failure can be surgically managed by (Baltasar et al., 2006; Gagner and Rogula, 2003):

- Laparoscopic re-sleeve gastrectomy again reducing the gastric pouch.
- Gastric bypass.
- Laparoscopic duodenal switch (LDS).

## COMPLICATIONS

### Acute (intraoperatively)

- Hemorrhage.
- Splenic injury.
- Liver injury.
- Abscess.
- Sleeve stricture.

### Postoperatively:

- Incisional hernia.
- Gastroesophageal reflux.
- Stenosis.
- Thrombosis.
- Pulmonary embolism.
- Gastric atony
- Wernicke's syndrome due to thiamine deficiency from excessive vomiting.
- Leaks.
- Weight regain due to gastric reservoir dilatation.

Details and Video available on  
our website  
[www.bhatiaglobalhospital.com](http://www.bhatiaglobalhospital.com)

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