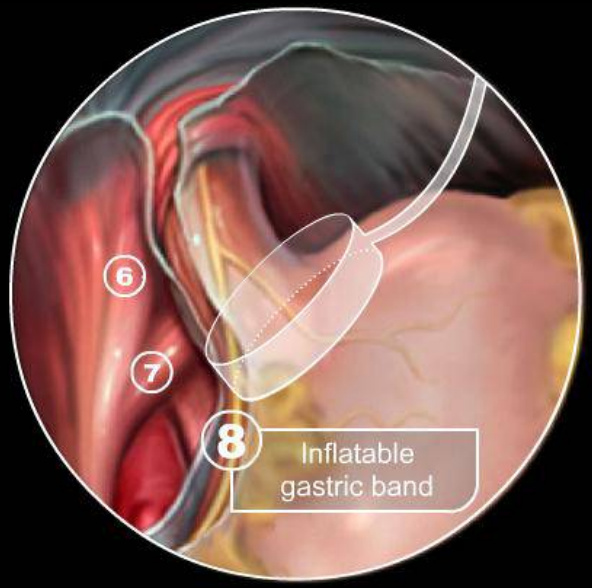
Gastric Banding



R.K. Mishra

Definition

- Gastric banding is a restrictive procedure which creates an hourglass stomach, with superior portion extremely limited volume 15ml only.
- Kuzmak in New Jersey developed first adjustable gastric band.

Principle

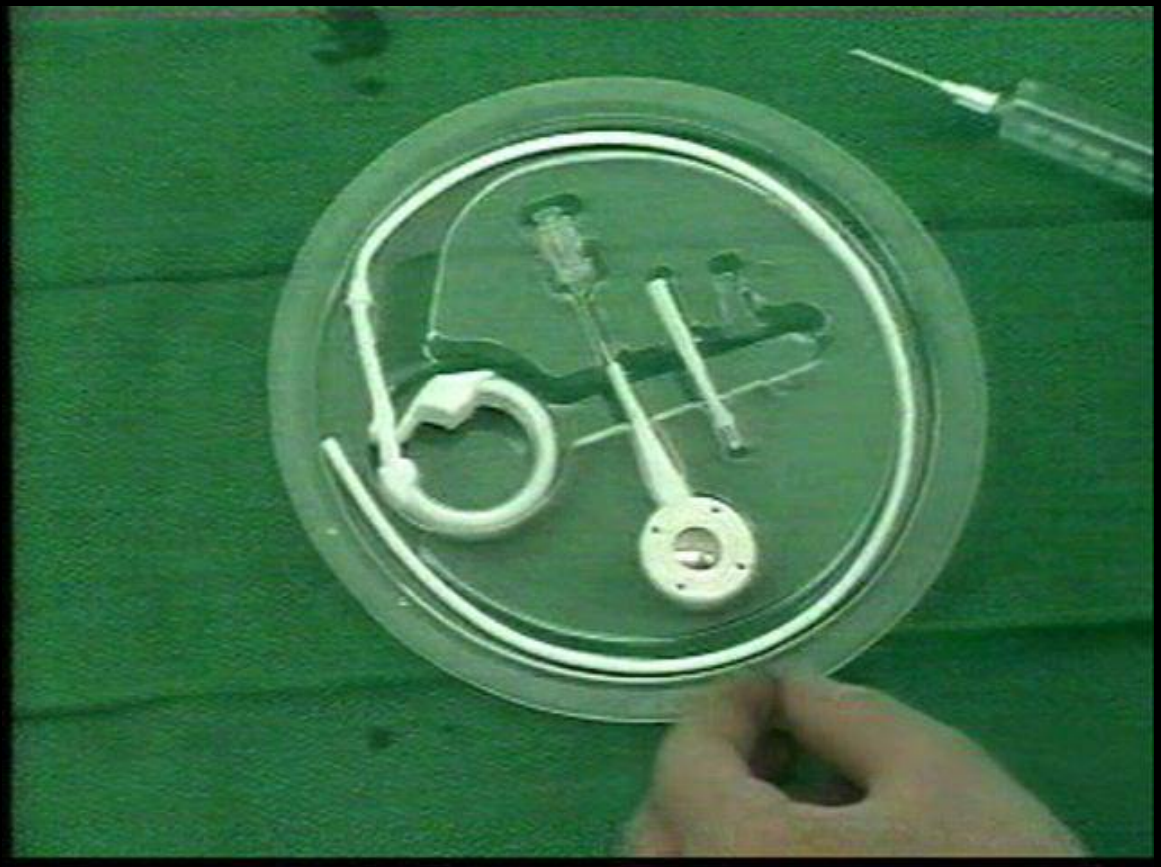
Adjustable gastric band is placed around the superior portion of the stomach, near the esophageal hiatus, leaving a 15 ml pouch

Indications

- Bady mass index greater than 40
- BMI 35 and 40 associated with severe comorbidity

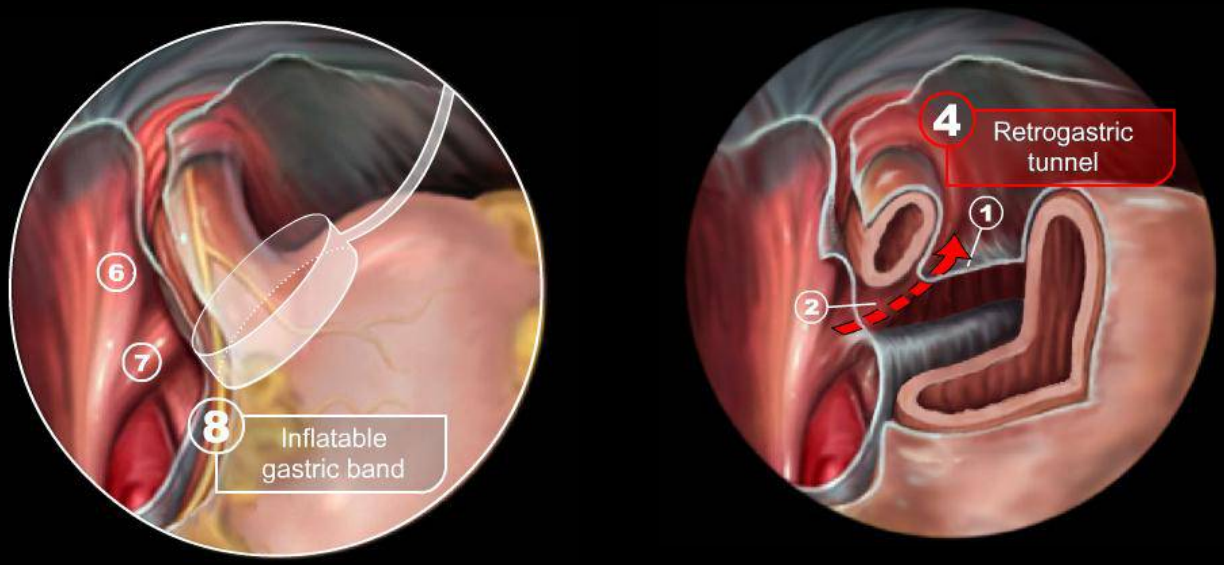
  - BMI = Weight in kg/height in m2
  - Click here to calculate BMI

Gastric Band



Dissection Principle

This creates a retrogastric tunnel

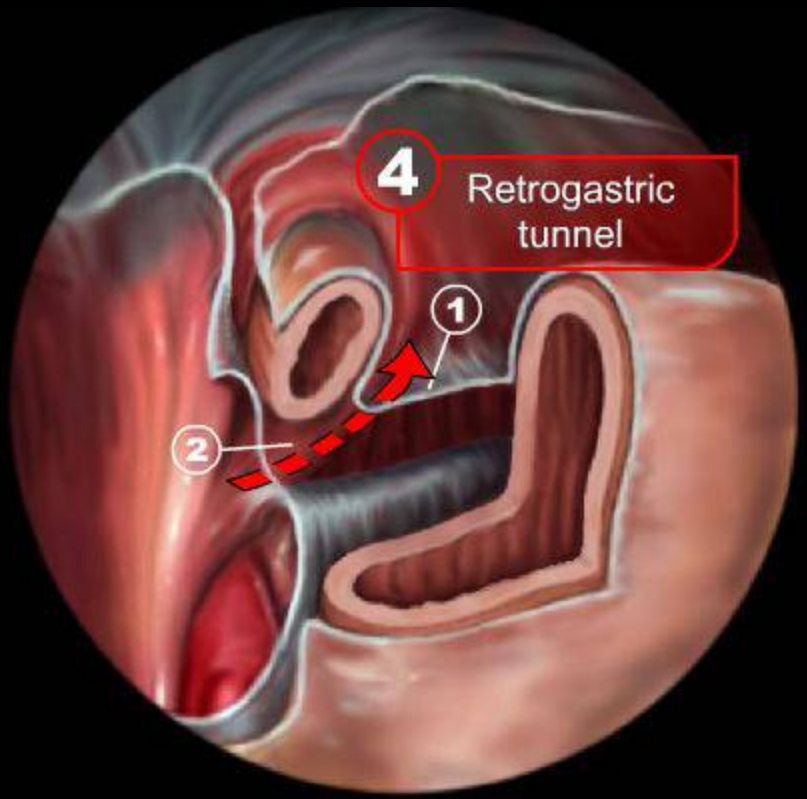


Dissection is performed in contact with the crura. It is begun right after the opening of the inferior part of the lesser omentum by incision of the peritoneum anterior to the right crus. A tunnel is created in contact with the crura, thereby allowing for a posterior gastric pathway.

Anatomy

1. Gastrophrenic ligament
2. Loose areolar retrogastric tissue
3. Omental bursa

Retrogastric tunnel



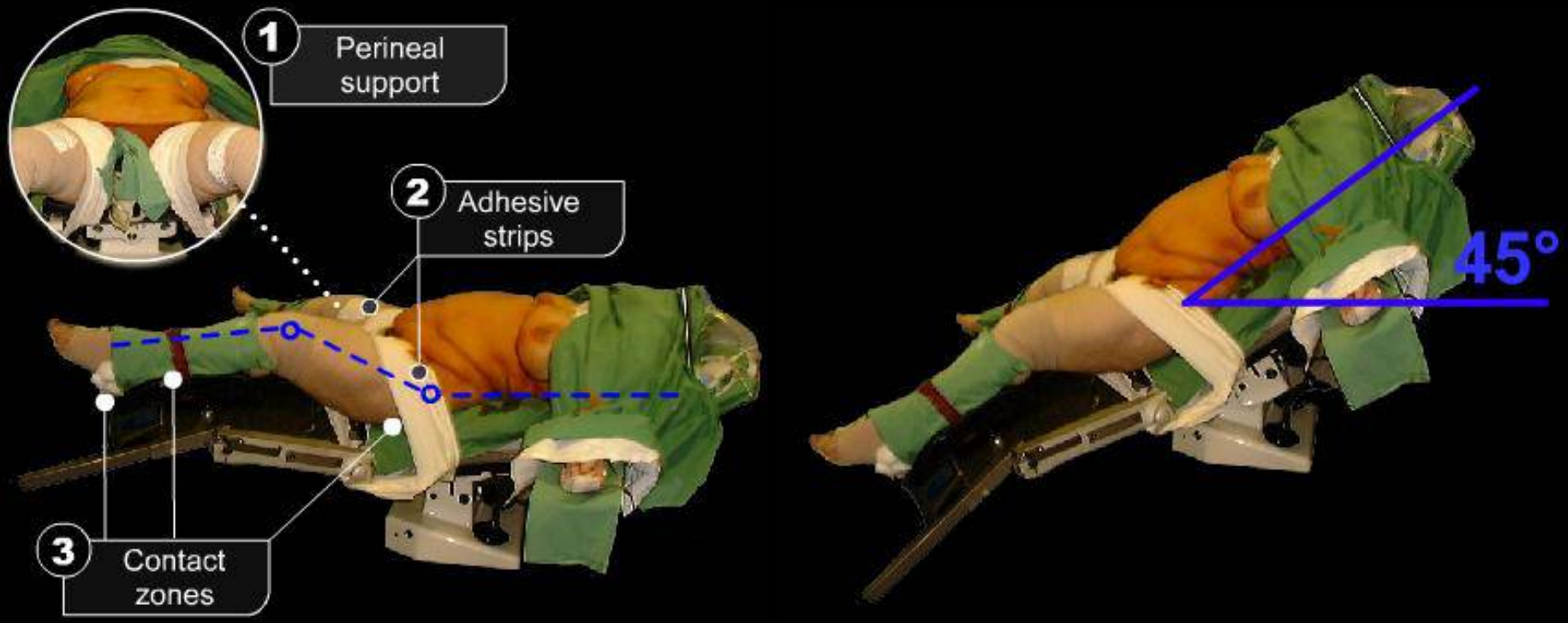
Contraindication

- BMI less than 35
- Unable to tolerate G.A
- Pregnancy
- Severe mental illness

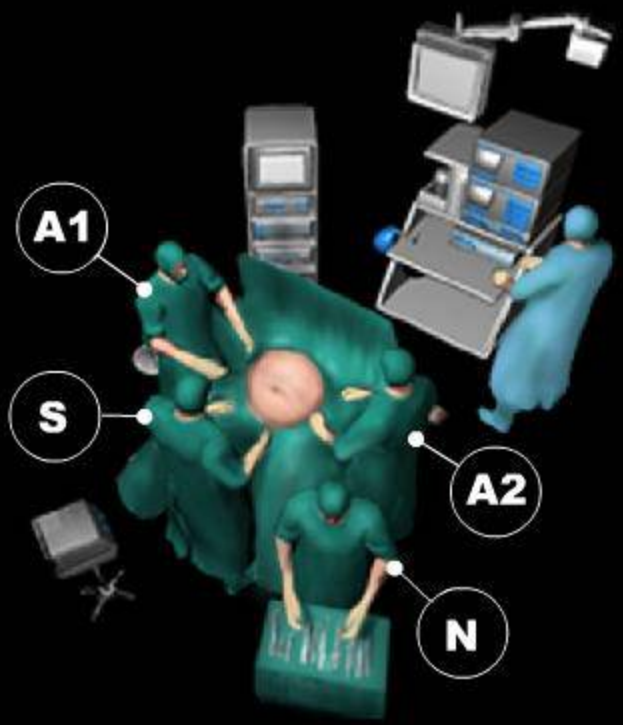
Relative contraindication:

- Previous upper abdomen laparotomy
- Hiatal Hernia

Patient Position

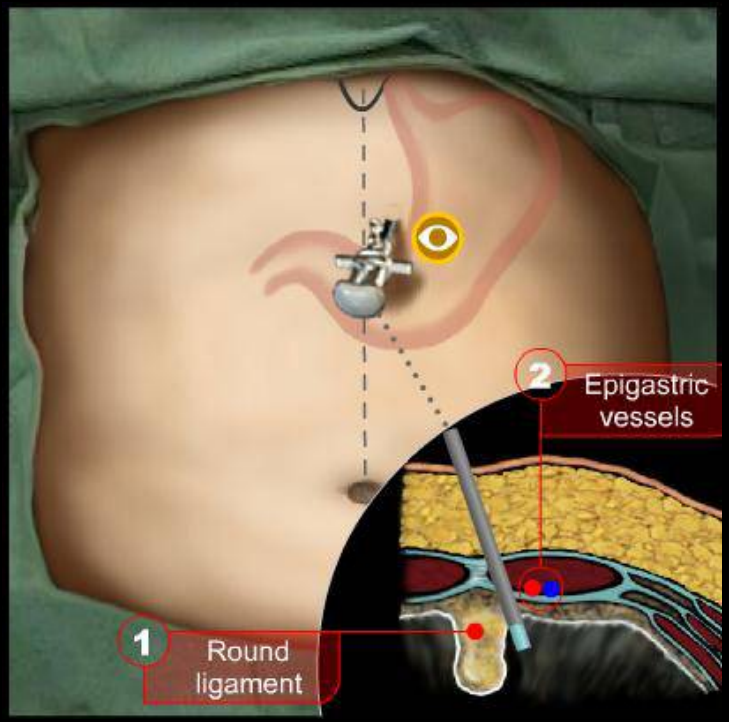


Position of surgical team

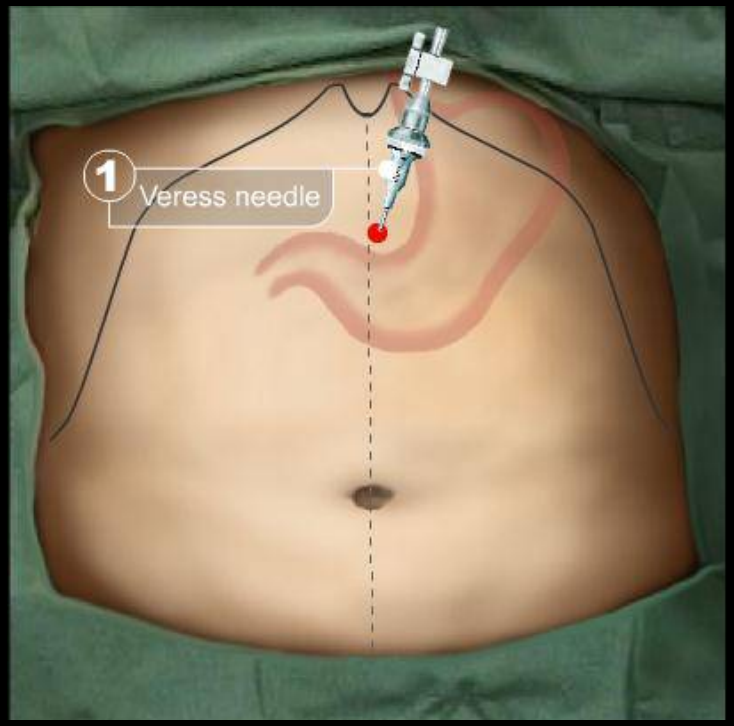


Access Technique

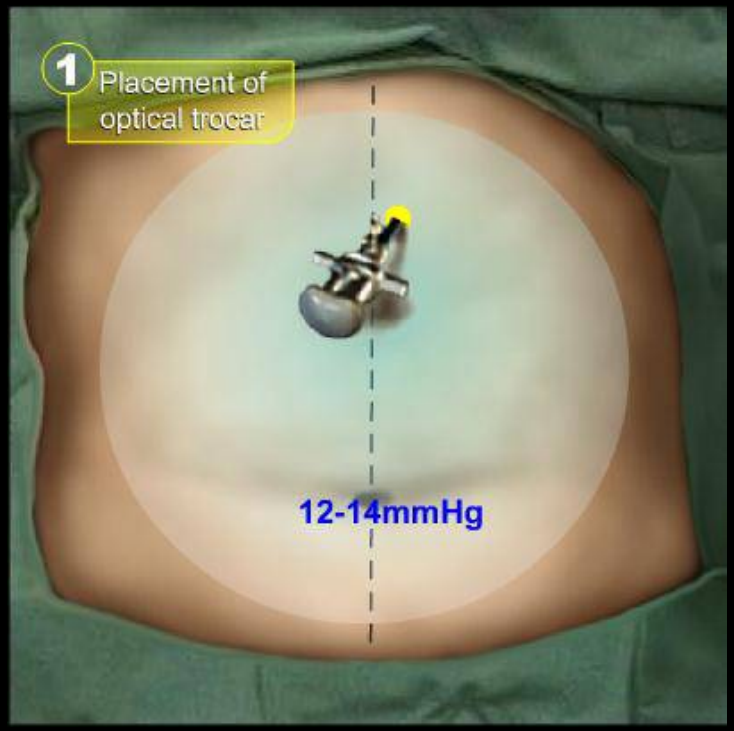
The position of the umbilicus varies depending on the patient's degree of obesity. Therefore, the position of the optical trocar is chosen with the xiphoid process as the anatomical landmark.
This first trocar is placed a hand's breadth below the xiphoid process slightly to the left of the midline to keep from passing through the round ligament.
If the round ligament is entered along its center, a long trocar must be placed in order to avoid soiling the laparoscope each time it is introduced.
1. Round ligament
2. Epigastric vessels

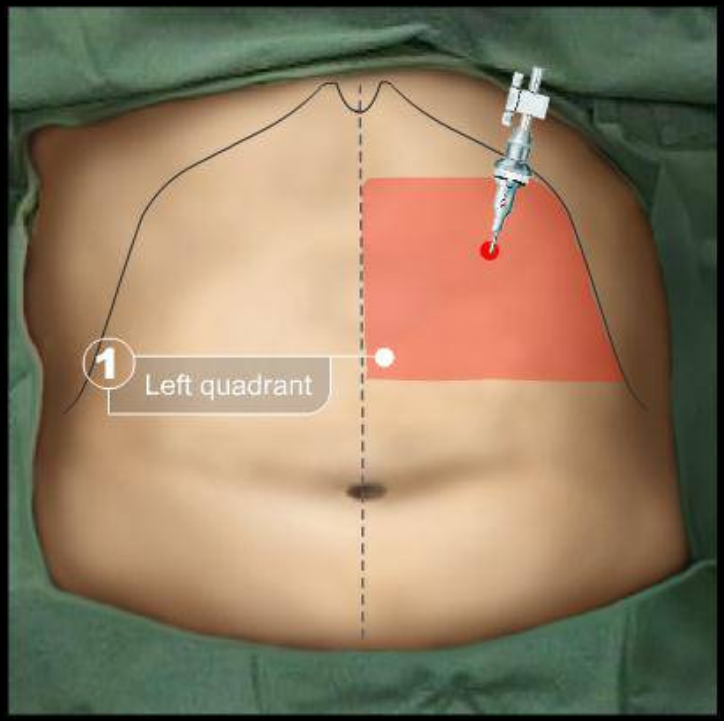


Access Technique



Access Technique

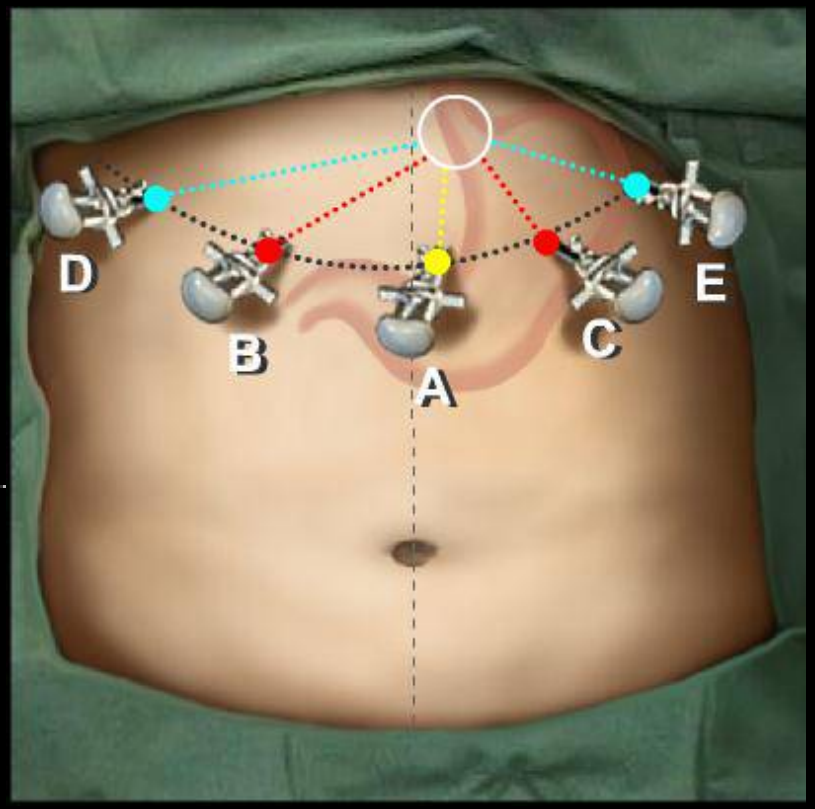




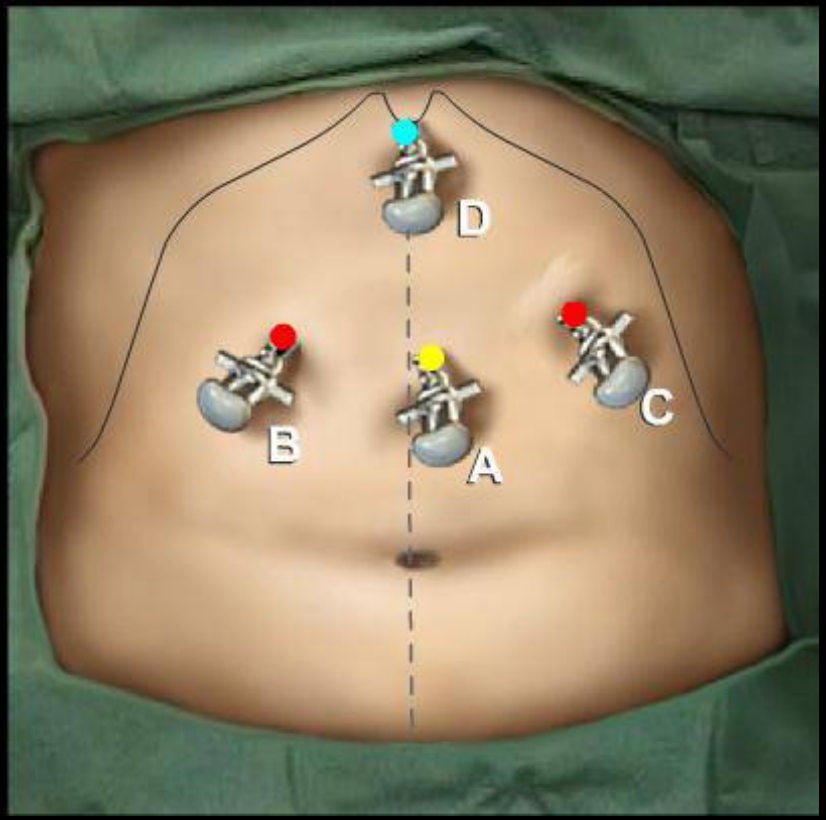
Port Position

A: 12 mm optical
B: 5 mm operating
C: 5 mm operating
D: 5 mm liver retractor
E: 5 mm stomach retractor

D: Liver retractor
E: Stomach retractor
B and C: Operating trocars

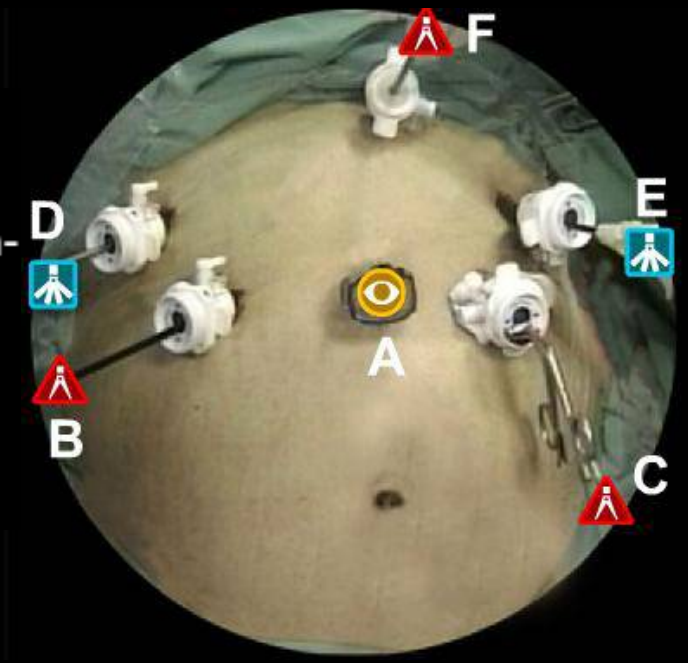


Alternative Port Position

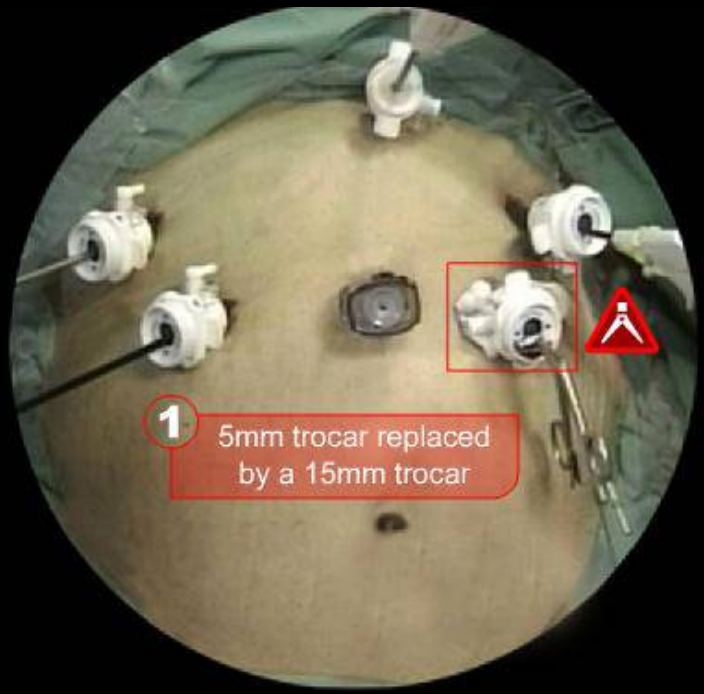


Alternative Port Position

A: Laparoscope
B: Grasper
C: Hook dissector, bipolar grasper, scissors, suction-irrigation device
D: Liver retractor
E: Stomach retractor (grasper)
F: Grasper, suction-irrigation device



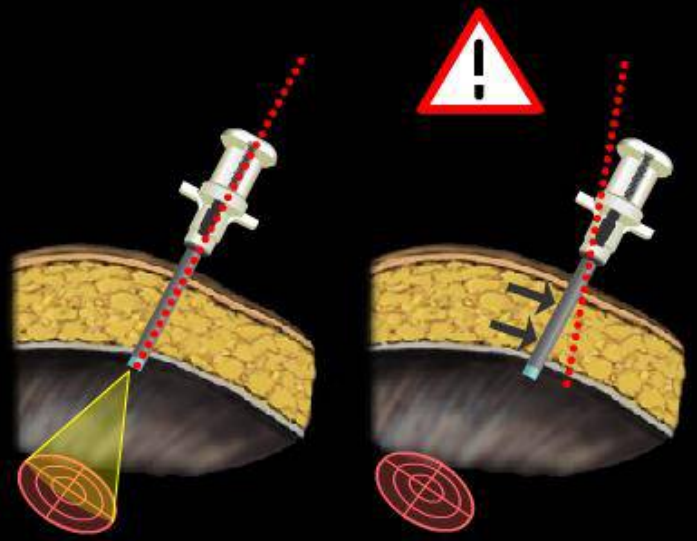
Port Alteration



One of the operating trocars is replaced with a 15 mm trocar after dissection of the retrogastric tunnel, in order to insert the band (all the other non-optical trocars are 5 mm trocars).

Care for trocar

The trocar insertion angle is critical. The trocar must be directed toward the hiatal region.
In very obese patients, correct insertion of the trocar is especially important. If the trocar is poorly aligned, the thickness of the abdominal wall exerts a force, which prevents the surgeon from rectifying its direction and results in a constant struggle.



Task Analysis

1) Gastric restriction procedure, with preservation of the anatomy
2) Fashioning of a retrogastric tunnel to encircle the stomach with an inflatable silicone band. The tunnel runs either in contact with the gastric wall or immediately anterior to the crura.
3) Partitioning the stomach into two parts: one 15 mL part for food intake and the remaining part for digestive purposes
4) Fixation of the band by suturing stomach over it. The stomach may also be sutured on its left, right, and middle parts to the diaphragm, right crus and stomach respectively.
5) Avoid passage of the band into the omental bursa with the risk of band migration

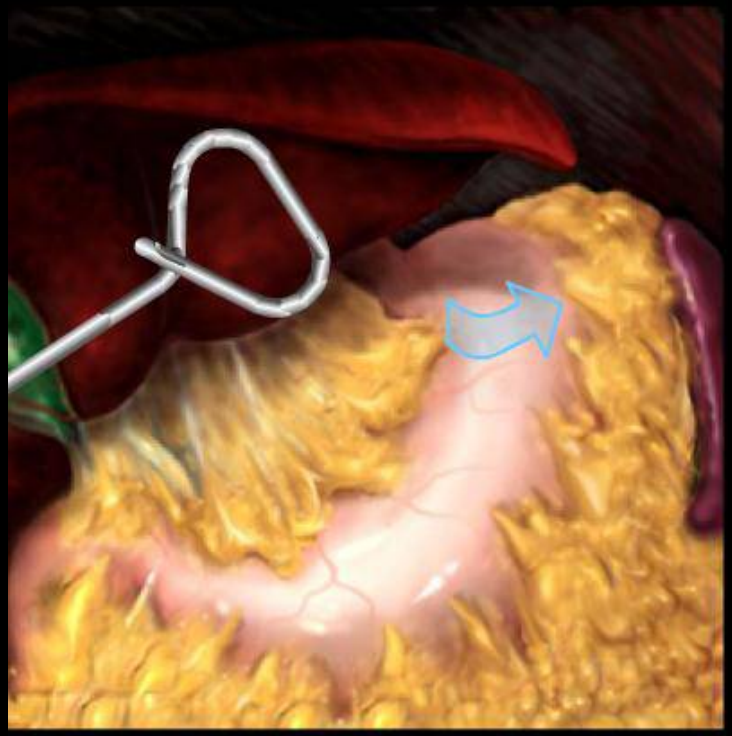
Exposure

Because of the size of the left lobe of the liver and of the omentum, retraction plays a fundamental role.
The liver is more voluminous in women, and the omentum is more developed in men.

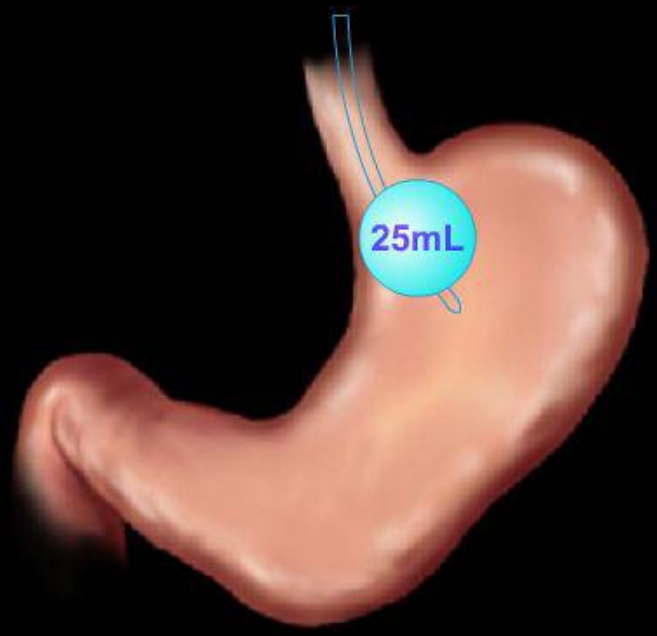
Exposure

Retracting the liver

Exposure of Greater Curvature

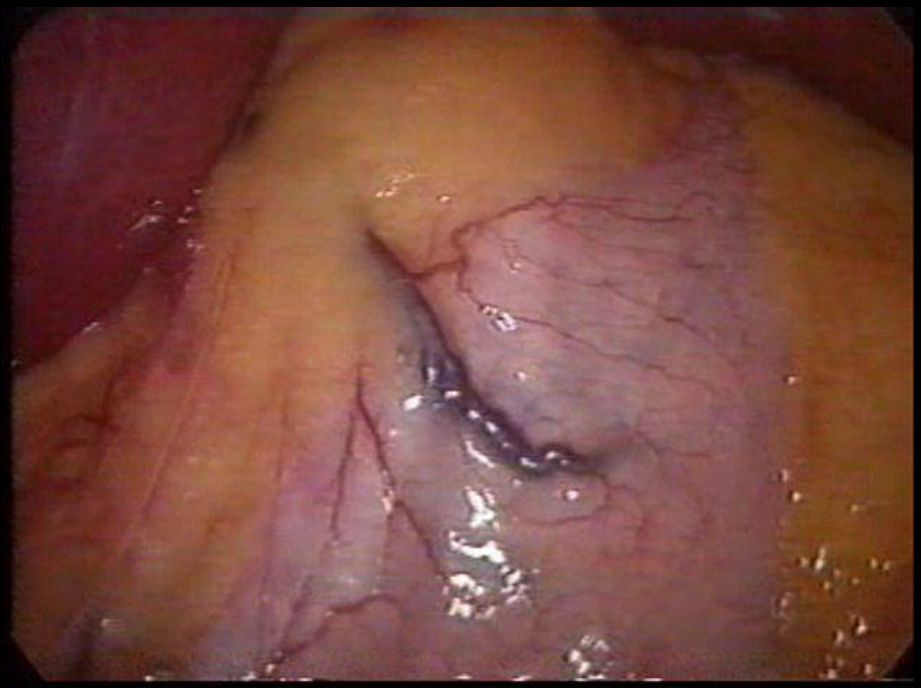


Where to start Dissection ?

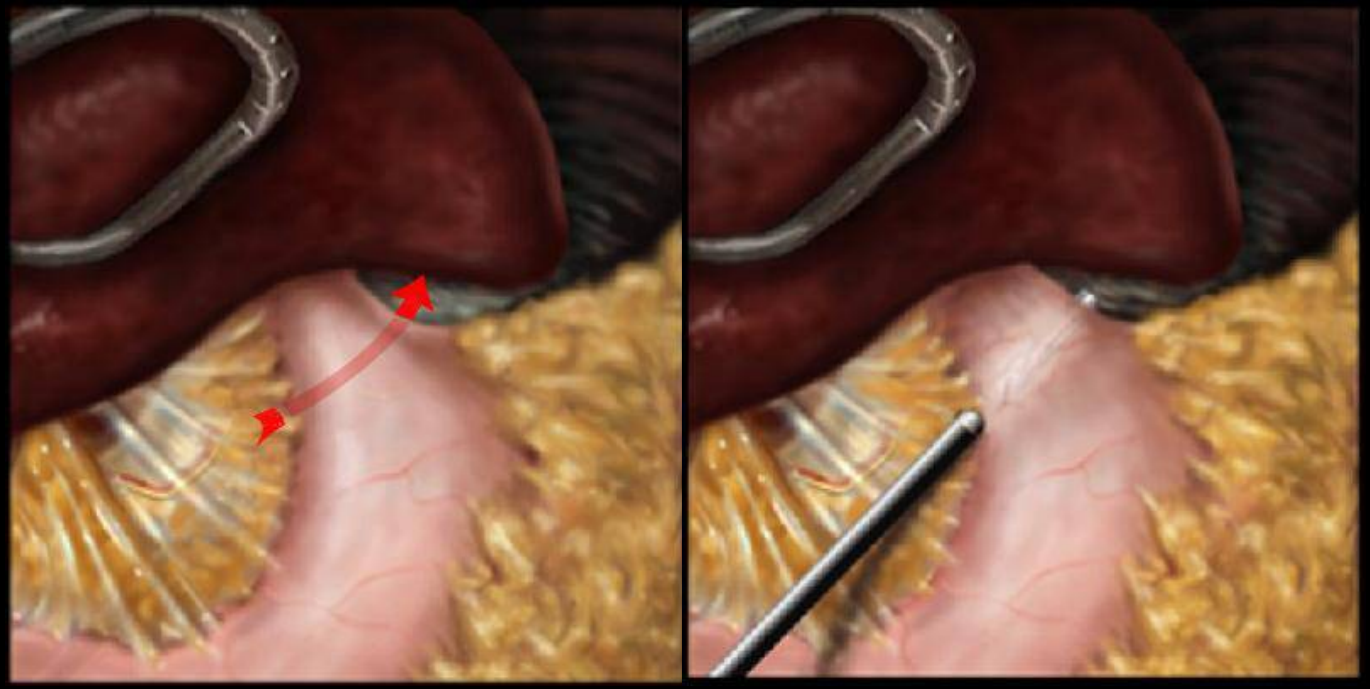


Equator of balloon is the land mark to start Dissection

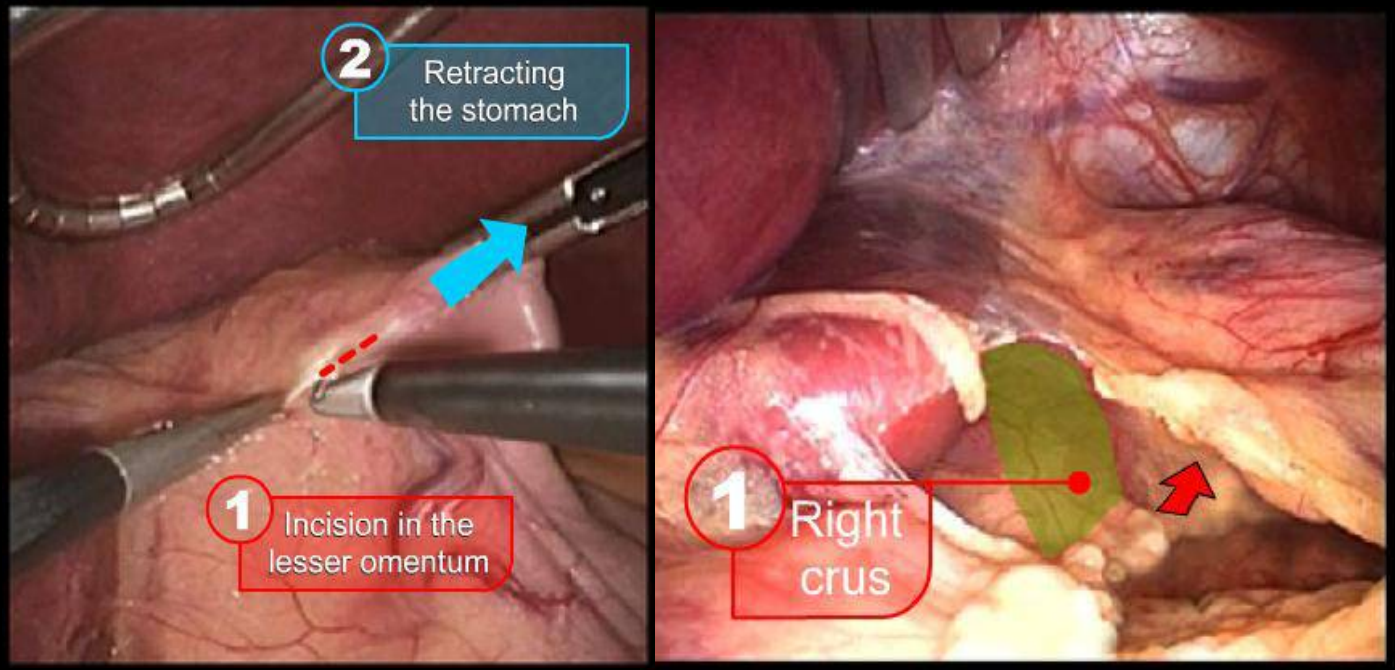
Introduction of Measuring Probe



Creation of retro gastric tunnel

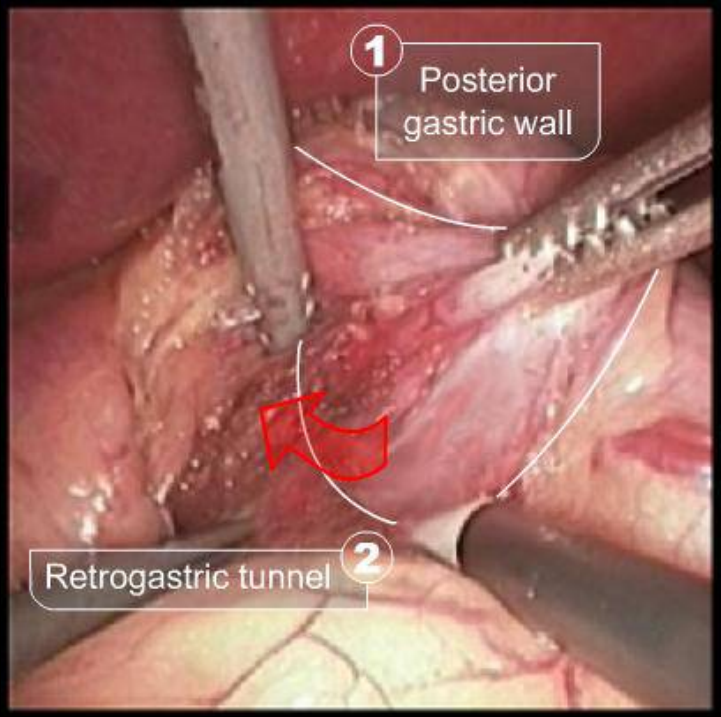


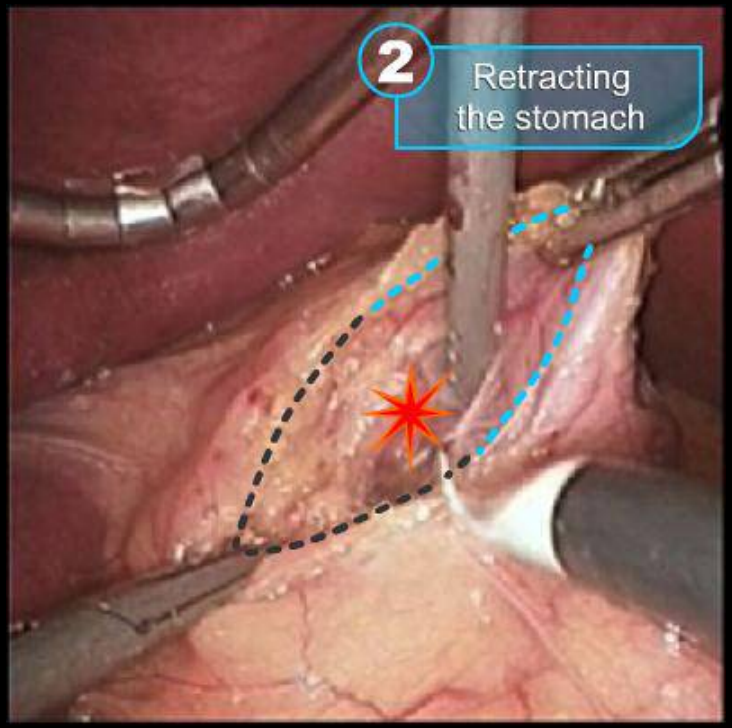
Start of Dissection



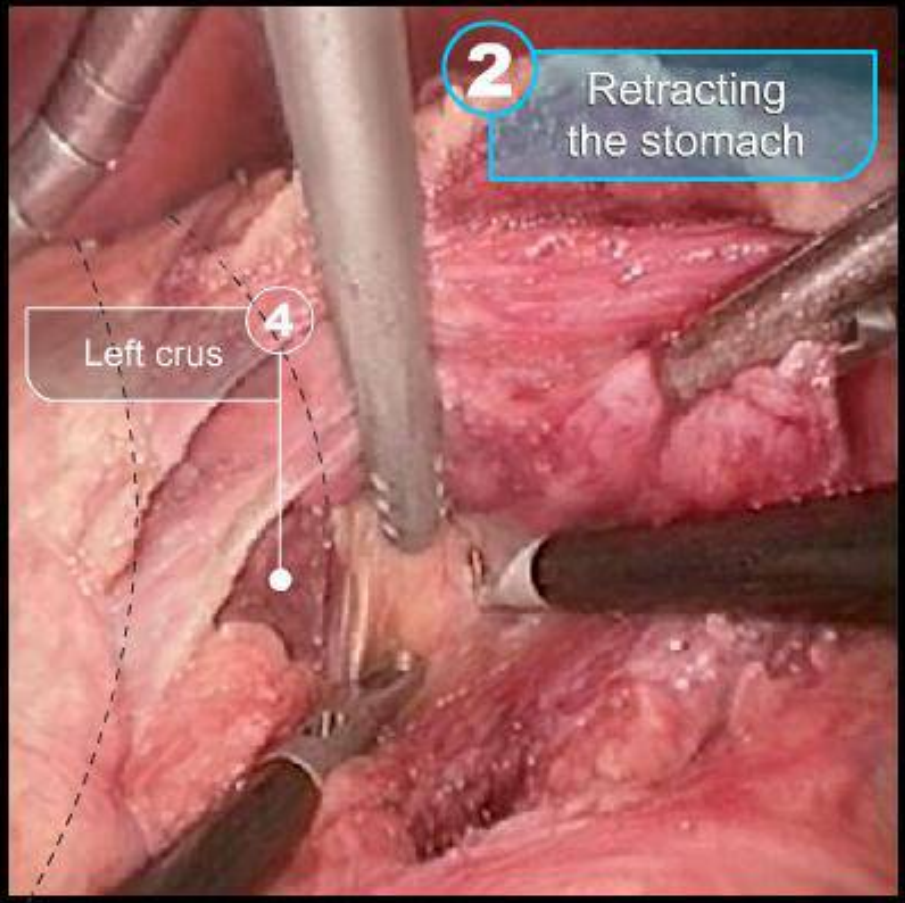
Once the inferior part of the lesser omentum has been opened, the right crus is exposed by retracting the stomach to the left. Dissection is begun at the medial and inferior part of the right crus by opening the peritoneum.

Creation of retro gastric tunnel

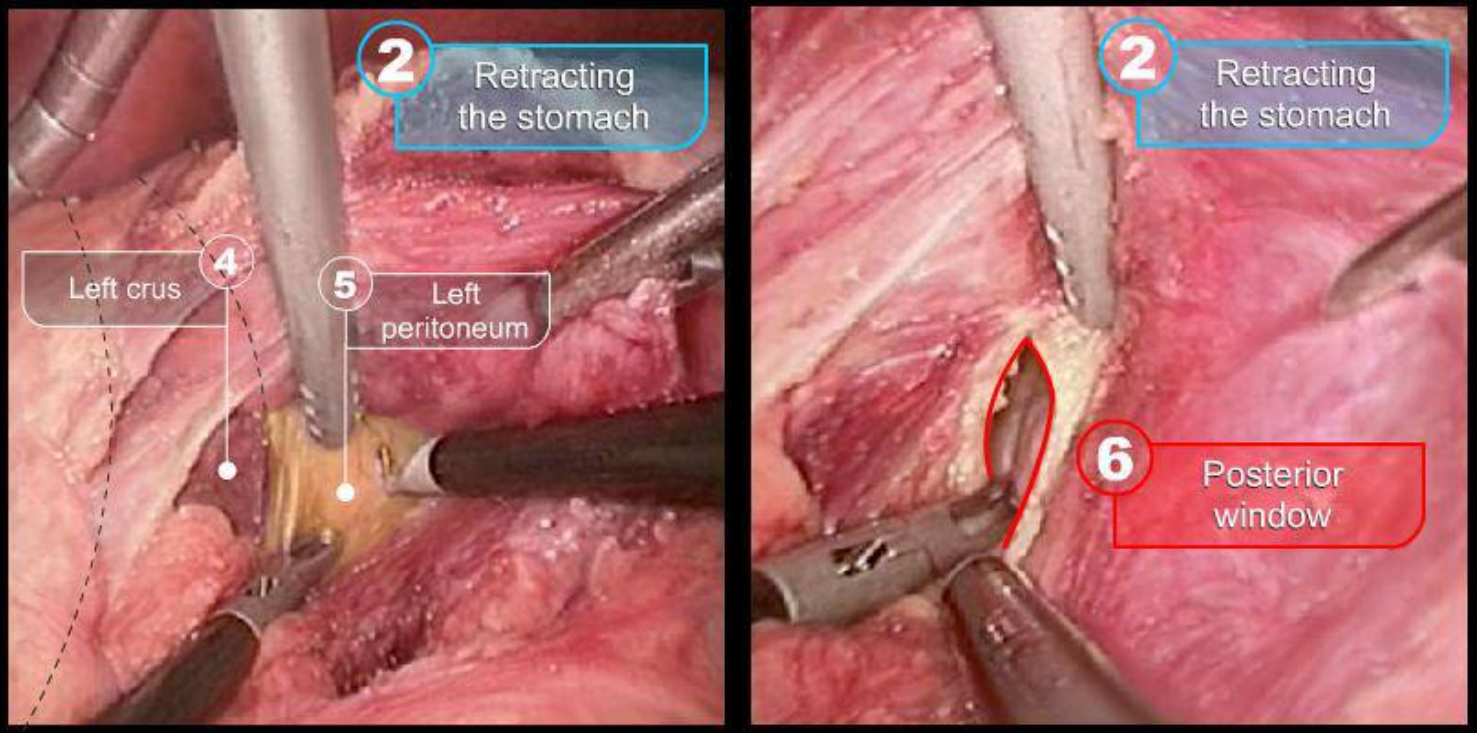




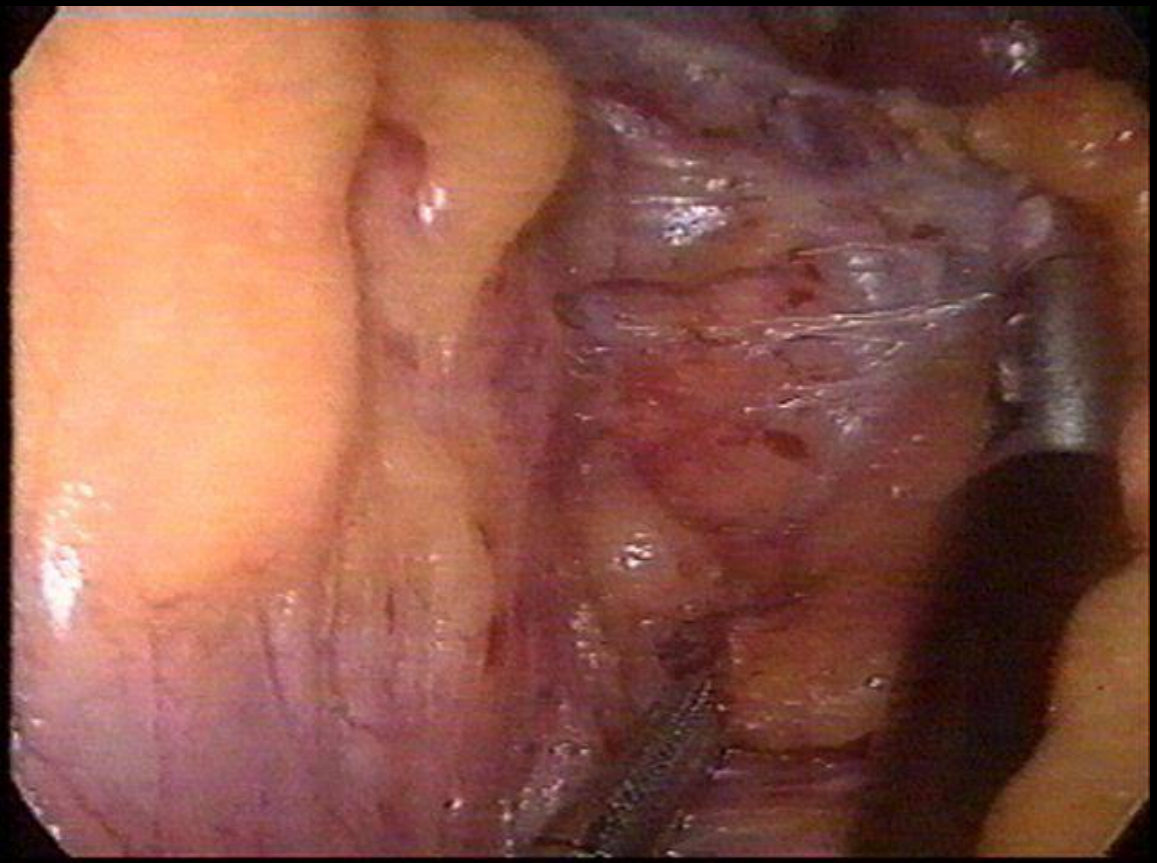
Creation of retro gastric tunnel



Creation of retro gastric tunnel

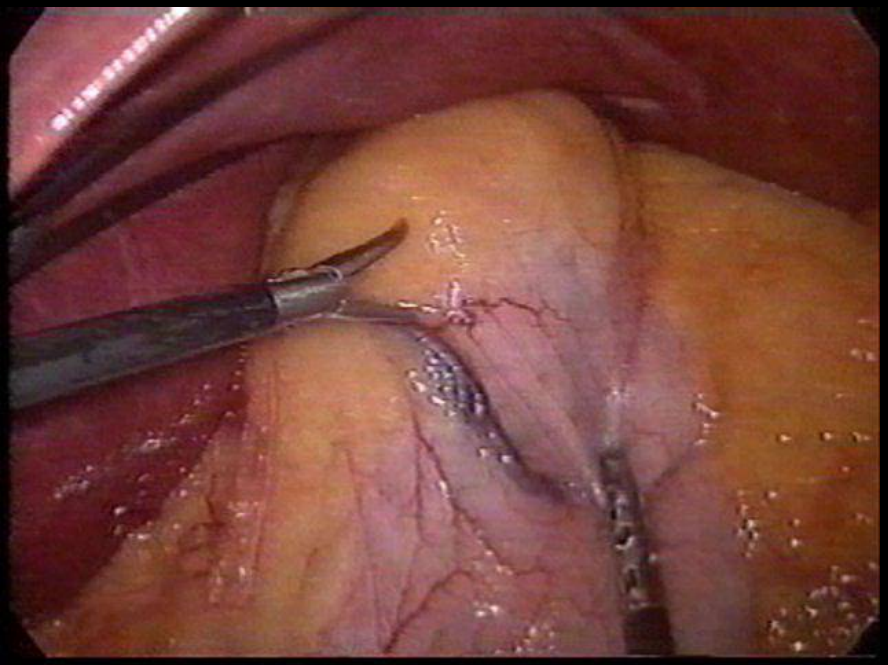


Dissection starts at Equator of balloon

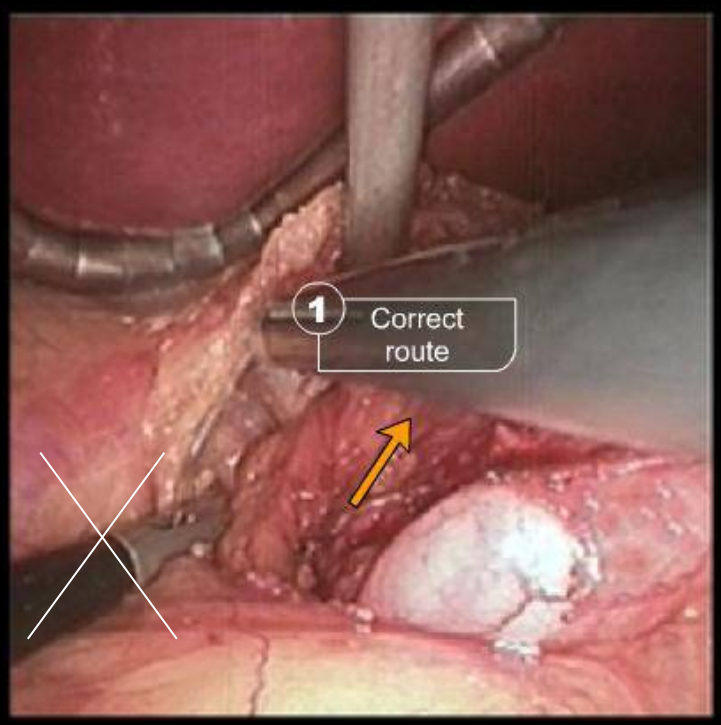


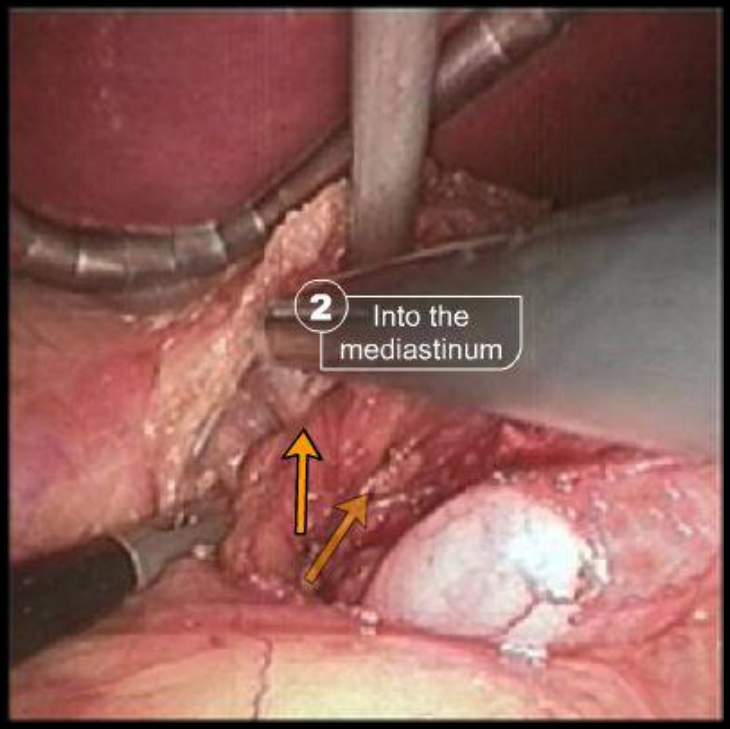
Dissection at Equator of balloon

Gastrosplenic Ligament is dissected then plane is created behind caudal end of the fundus of stomach

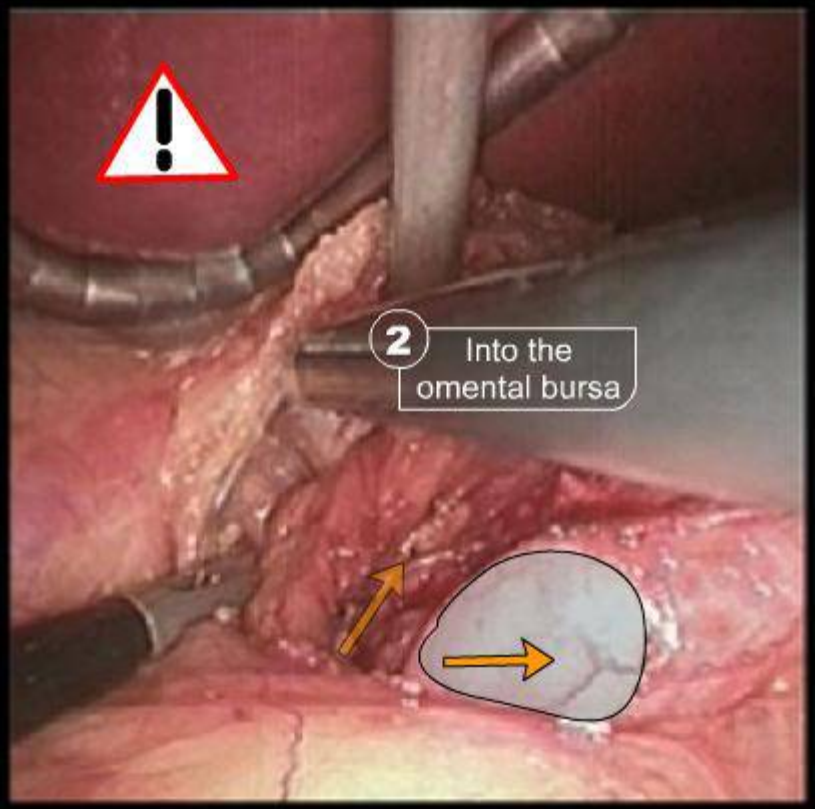


Danger entering mediastinum

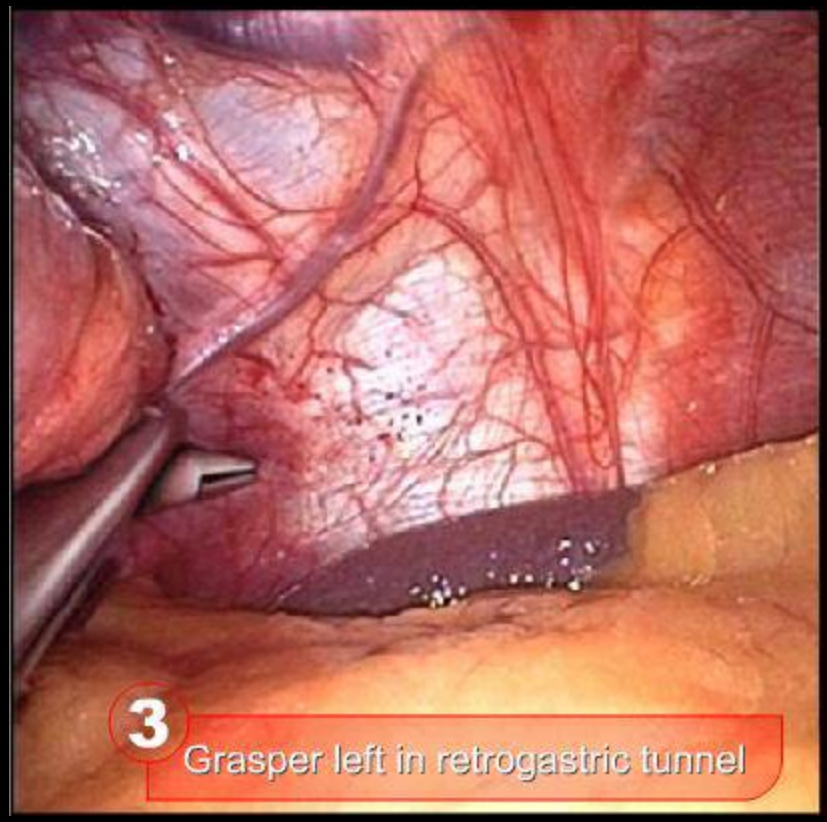




Danger entering Omental bursa

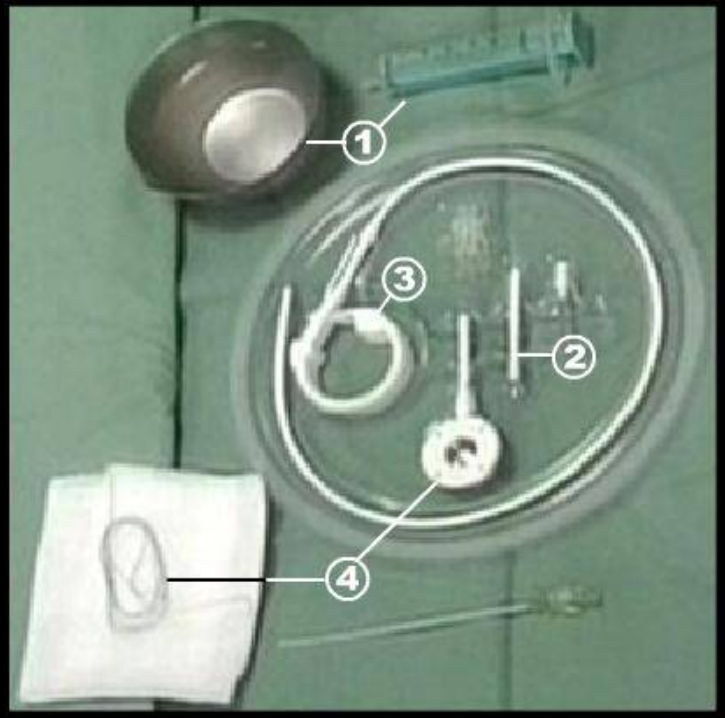


Finishing Dissection

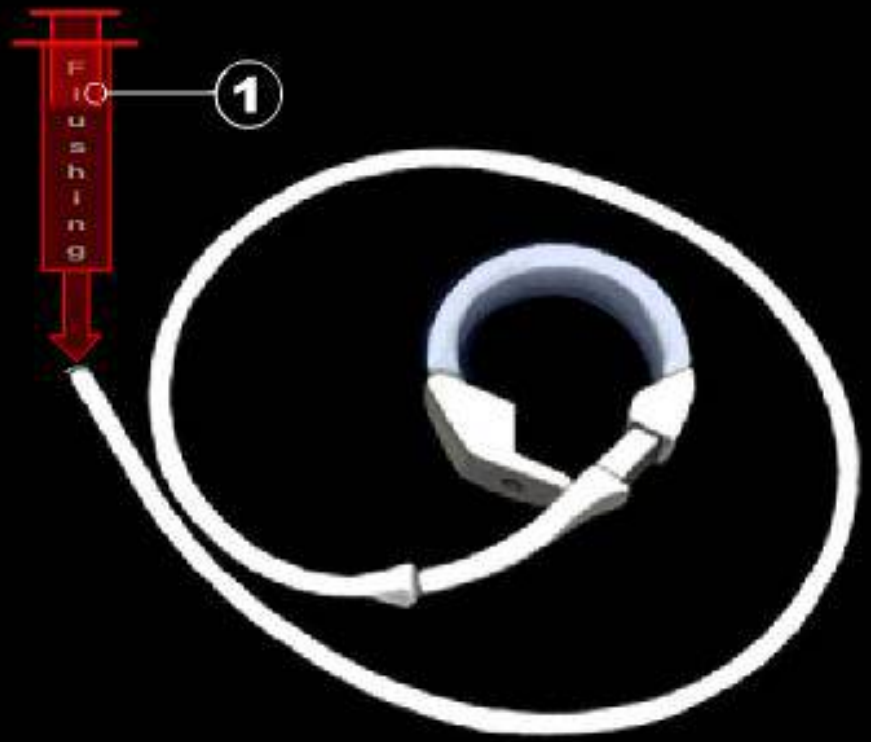


Gastric Band

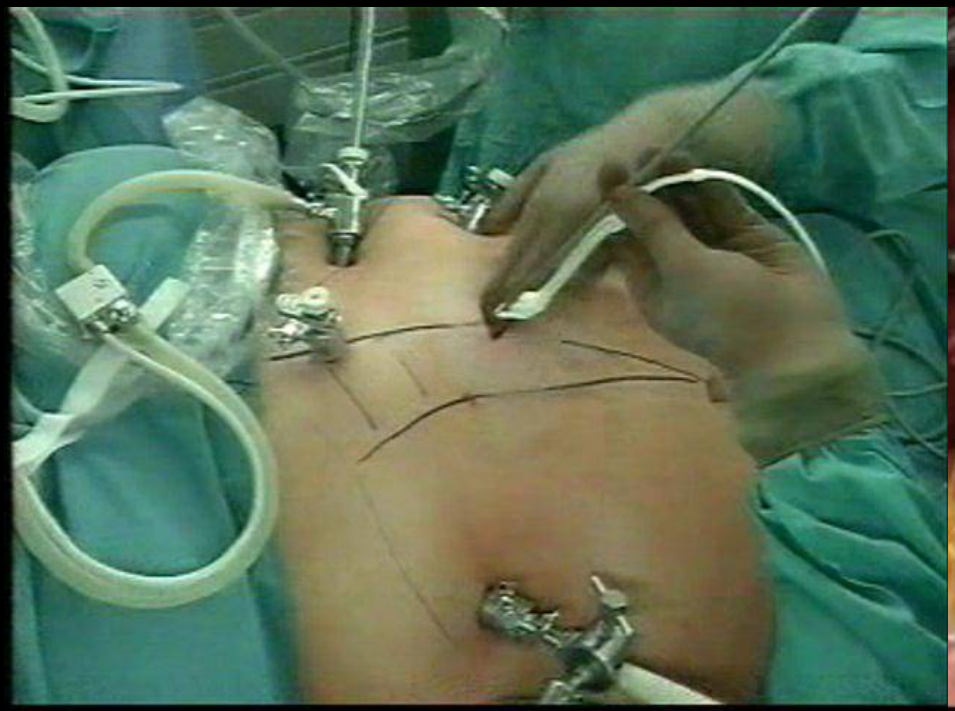
1. Syringe and saline
2. Stopper
3. Balloon
4. Reservoir and fixation suture



Preparing Band by flushing Saline



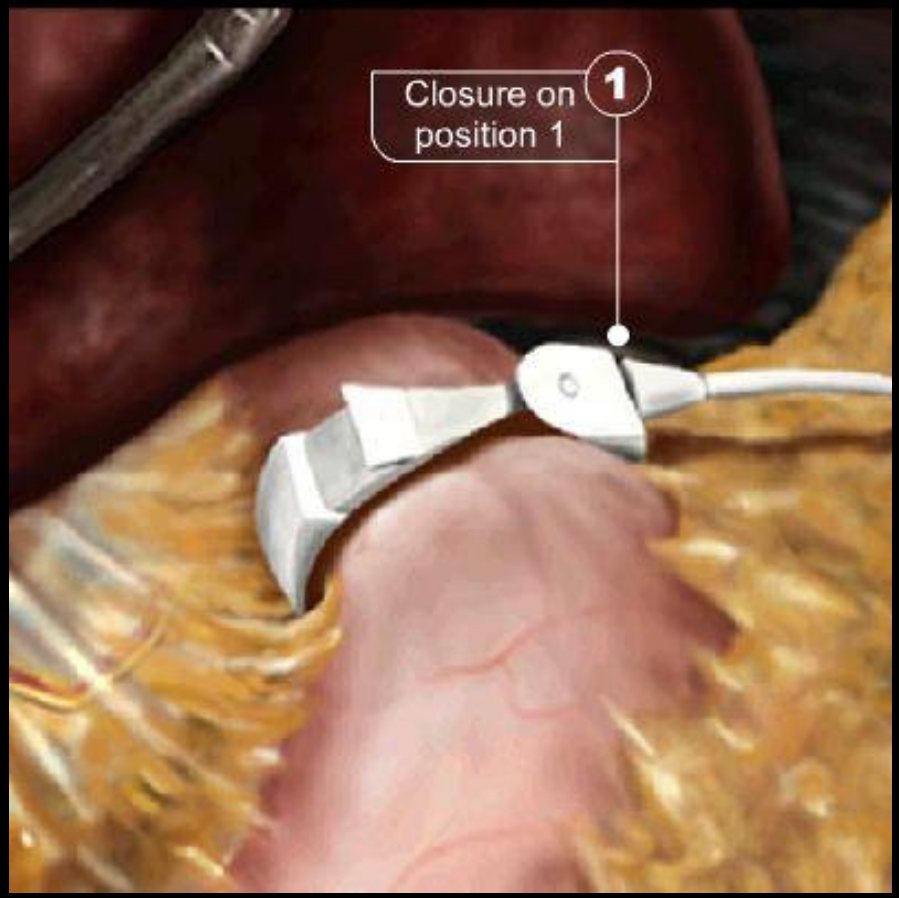
Introduction of Band into abdomen



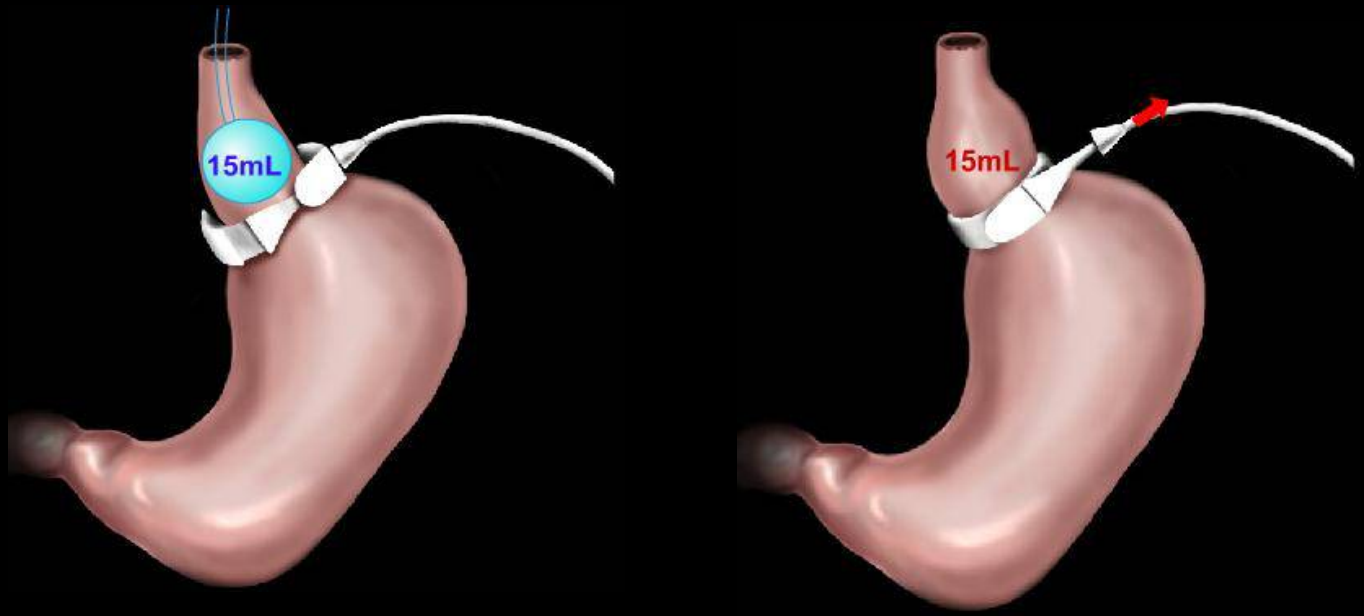
Applying Band

The tip of the catheter is drawn into the retrogastric tunnel, whereafter the whole of the band is slipped through this tunnel. The band is then loosely closed

Loose Closure of Band

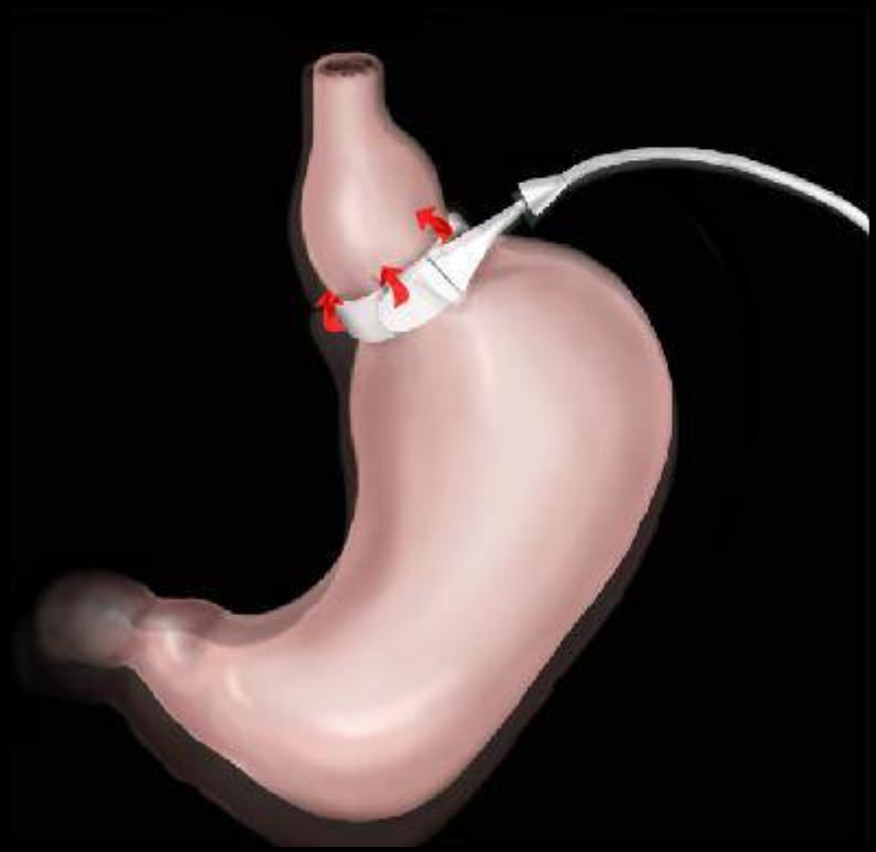


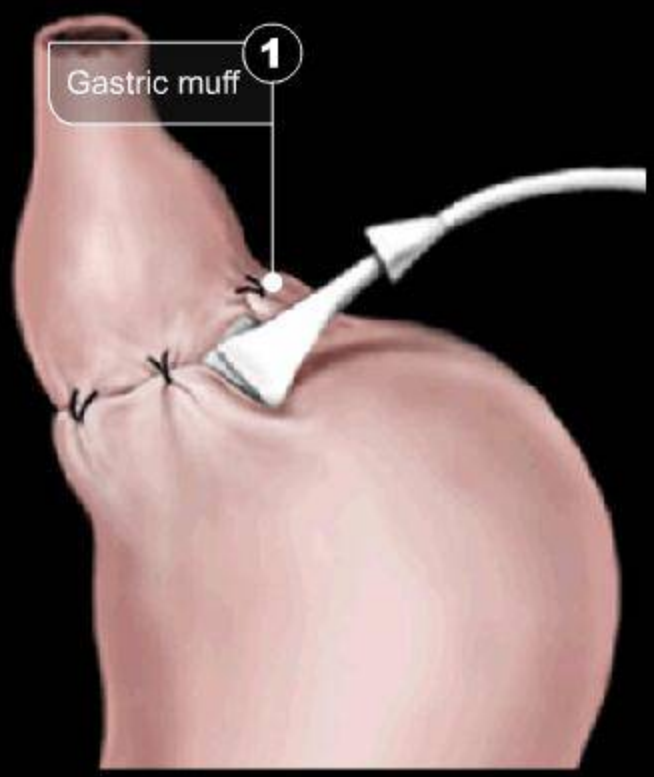
Re inflation of balloon & Tight closure



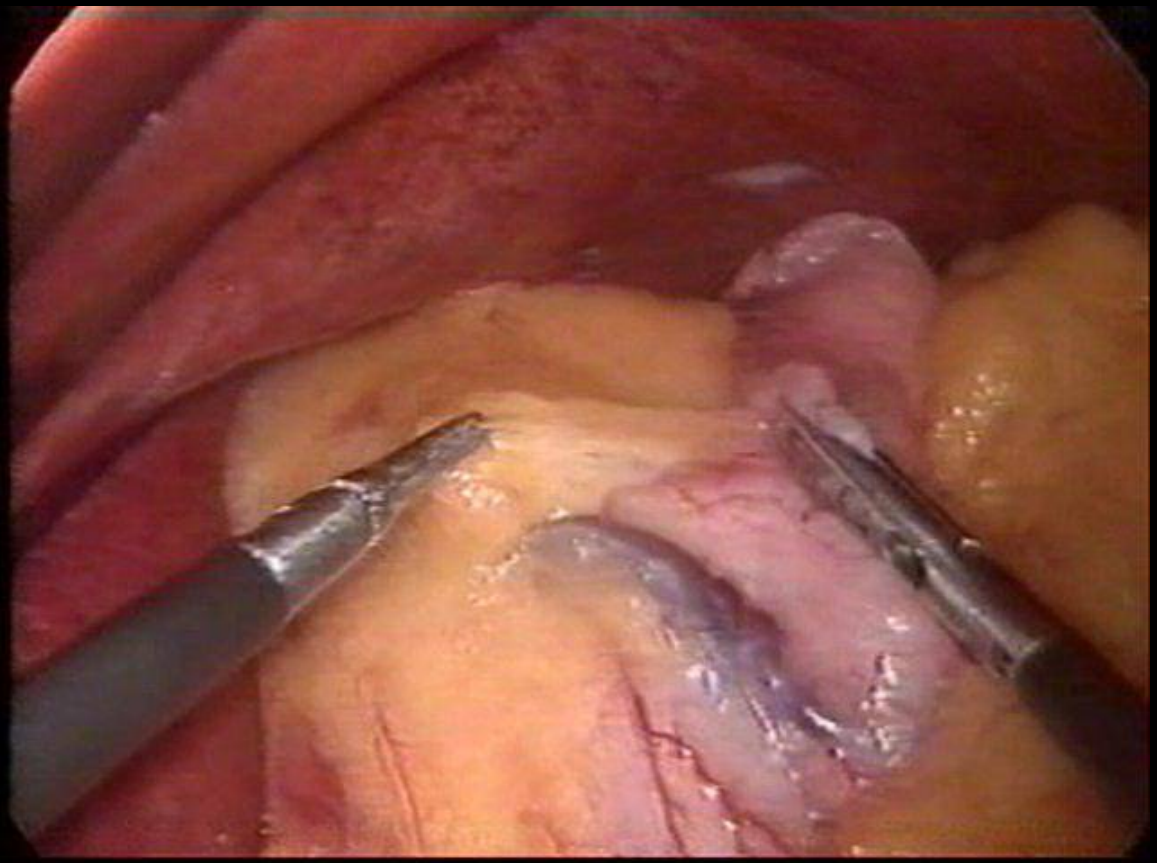
The balloon of the gastric tube is once again inflated, but to only 15 mL. It is positioned just below the cardia, creating a 15 mL upper gastric pouch.

Fixation of Band

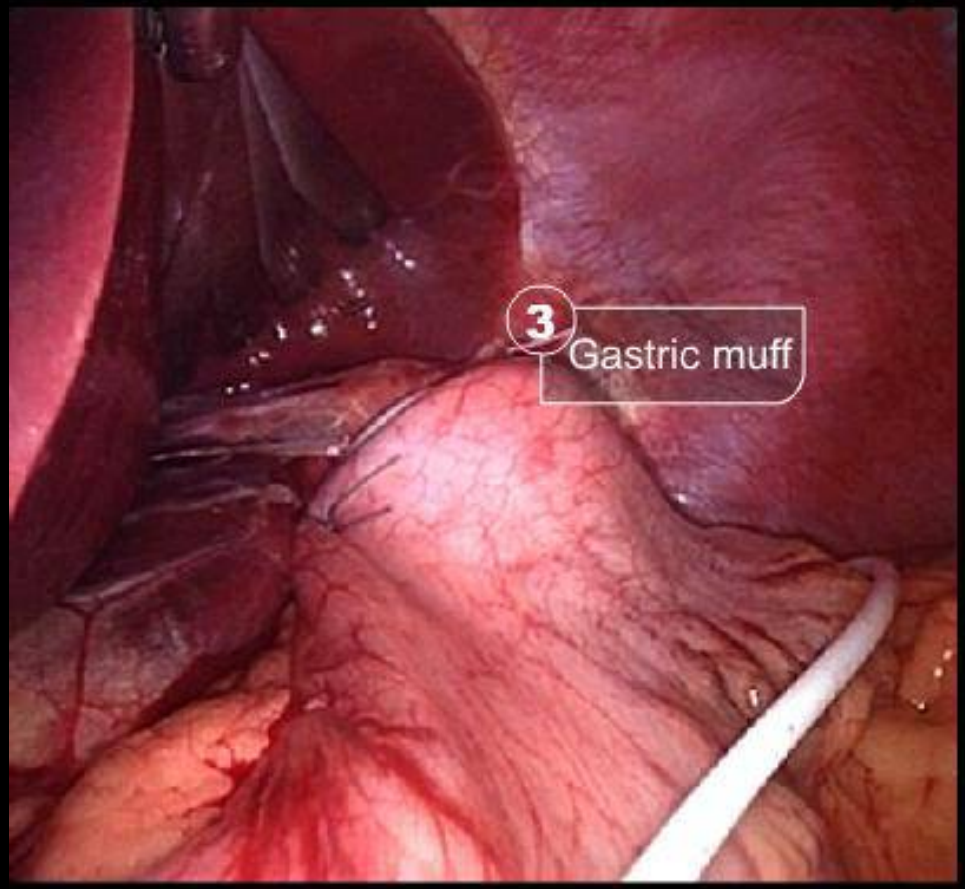




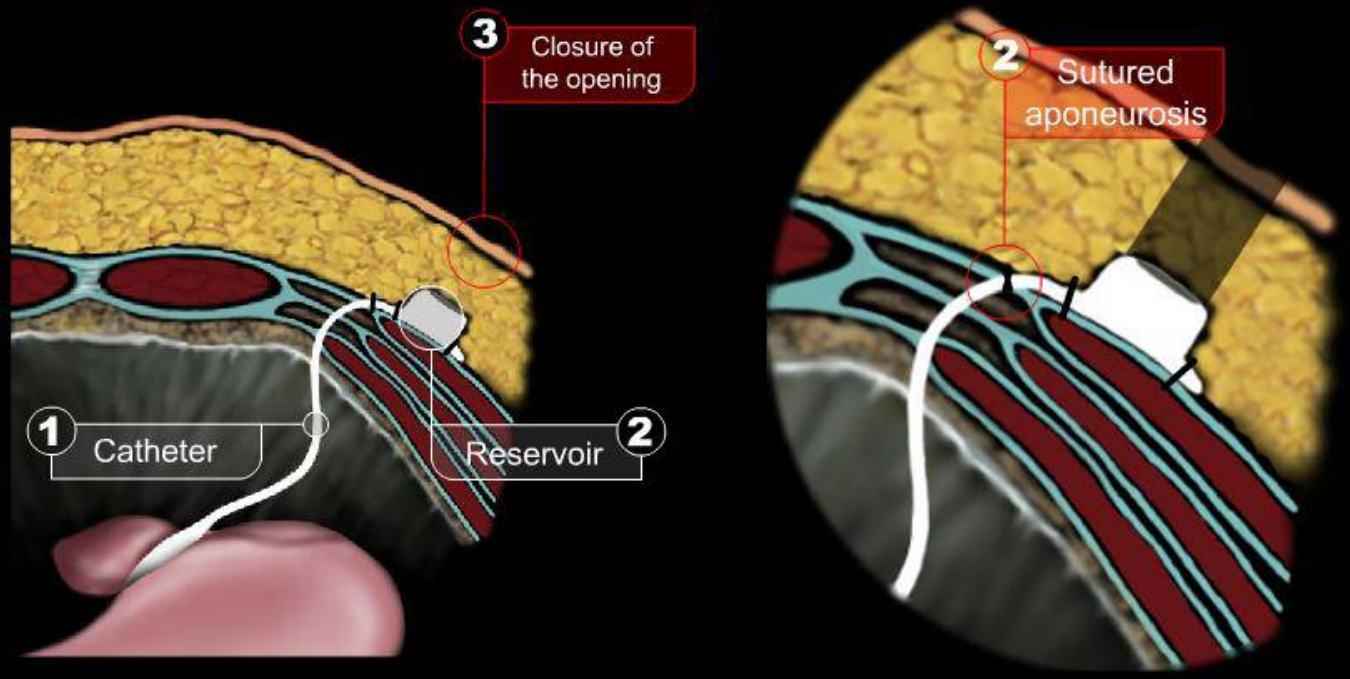
Procedure



Gastric Muff



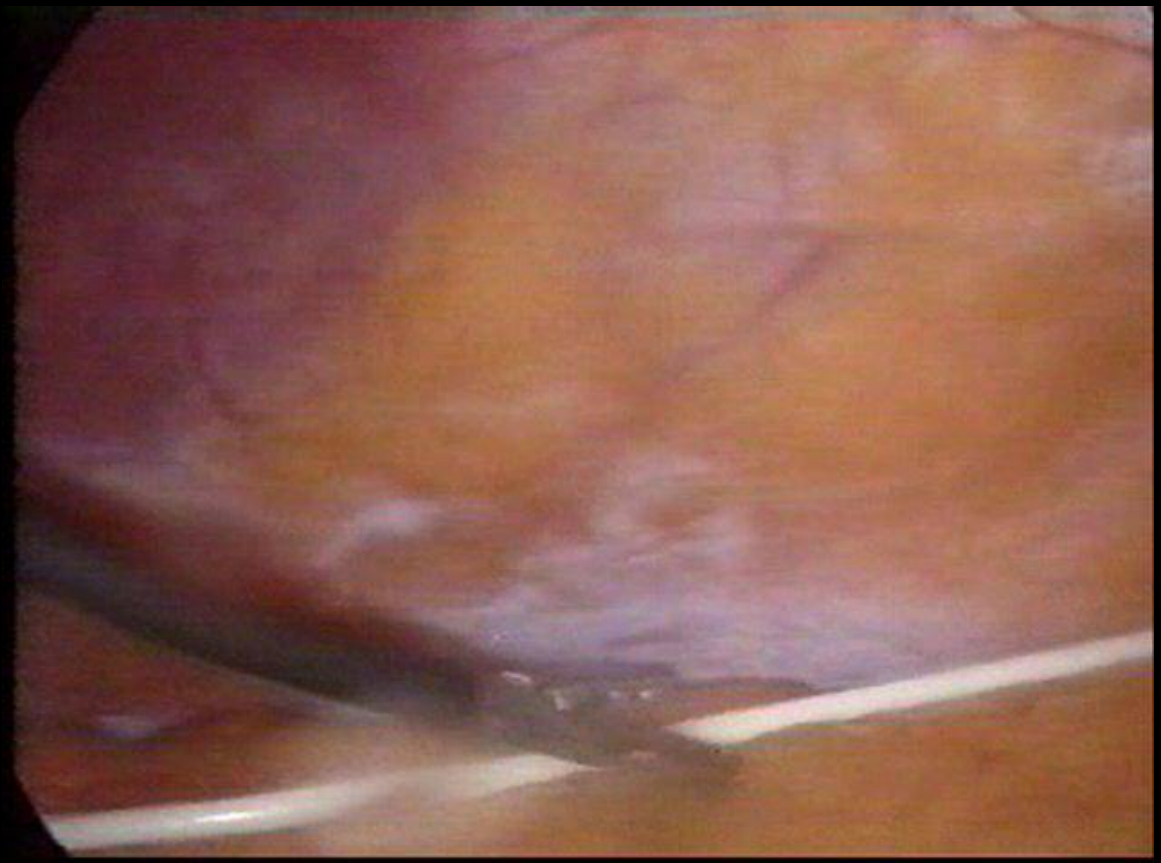
Fixation of Reservoir



Fixation of Reservoir

Subcutaneous positioning of the reservoir:
The 15 mm trocar opening is enlarged at the level of the skin incision to allow for the positioning of the reservoir.

Fixation of Reservoir



Post Operative Course

A nasogastric tube can be left in place for the first 24 hours to prevent acute gastric dilatation, which may induce gastric necrosis. This can be difficult to diagnose.

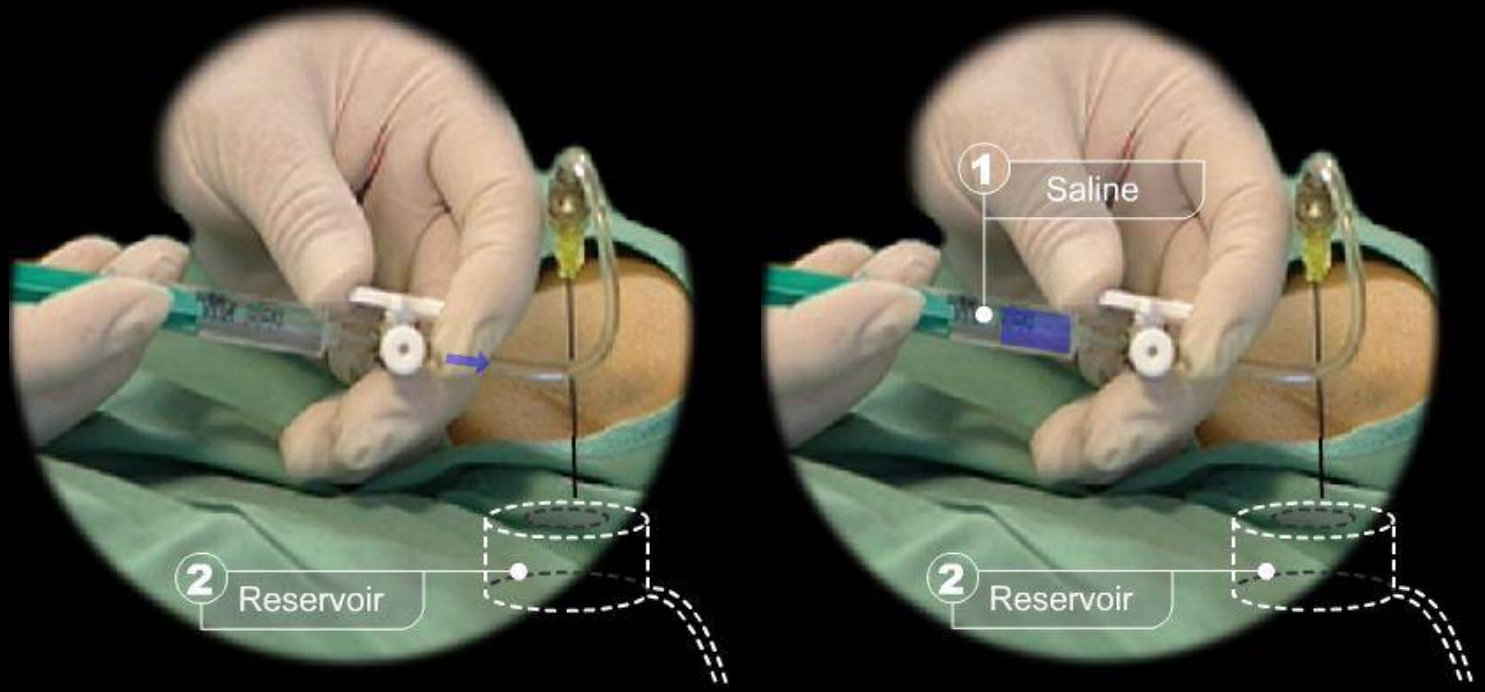
The day after the procedure, a water-soluble contrast examination is performed to confirm:
- good band position;
- absence of gastric perforation.

Once this examination has been performed, the patient can progressively return to normal drinking and eating. For the first few days, food is mixed with fluids to prevent early bolus obstruction. The patient can then resume a normal diet, with the recommendation to chew adequately.

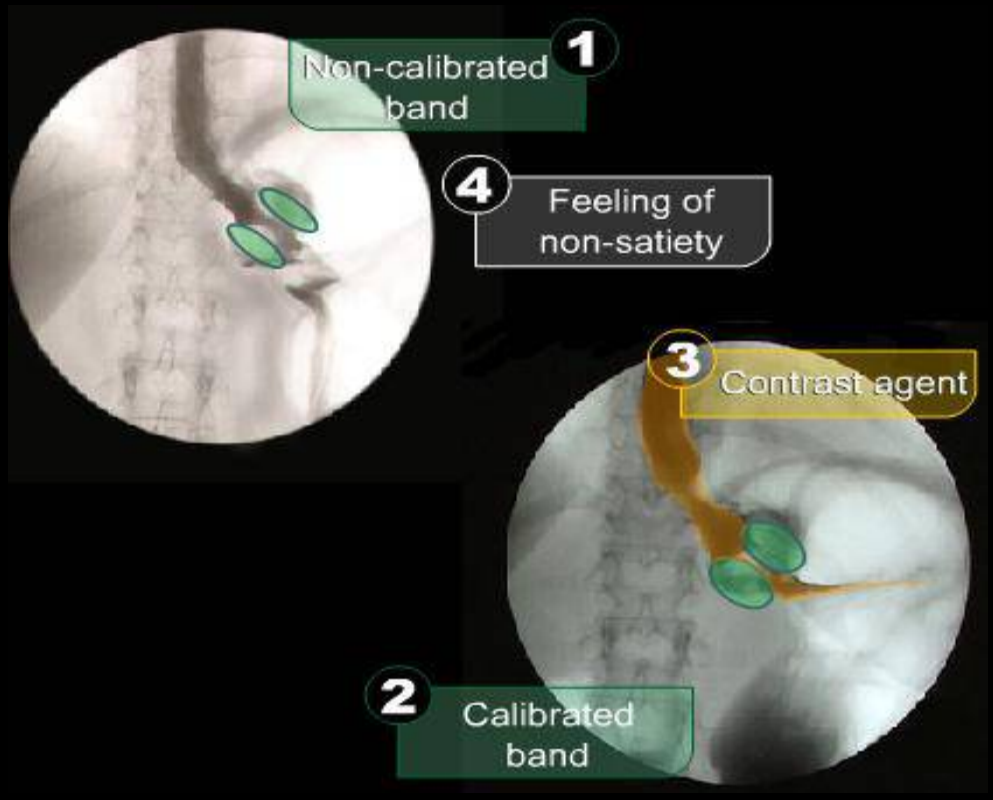
The patient usually leaves the hospital 48 to 72 hours after the procedure.

Follow-up is performed at one week, when sutures are also removed.

Band Calibration after 3 week



Band Calibration under radiological control



Complications

Hemorrhage:
- in dissecting the retrogastric tunnel;
- injury of the short gastric vessels;
- injury of the spleen.

Gastric perforation:
- dissection of the stomach wall.

Thank You

Certification Ceremony Batch November 2007