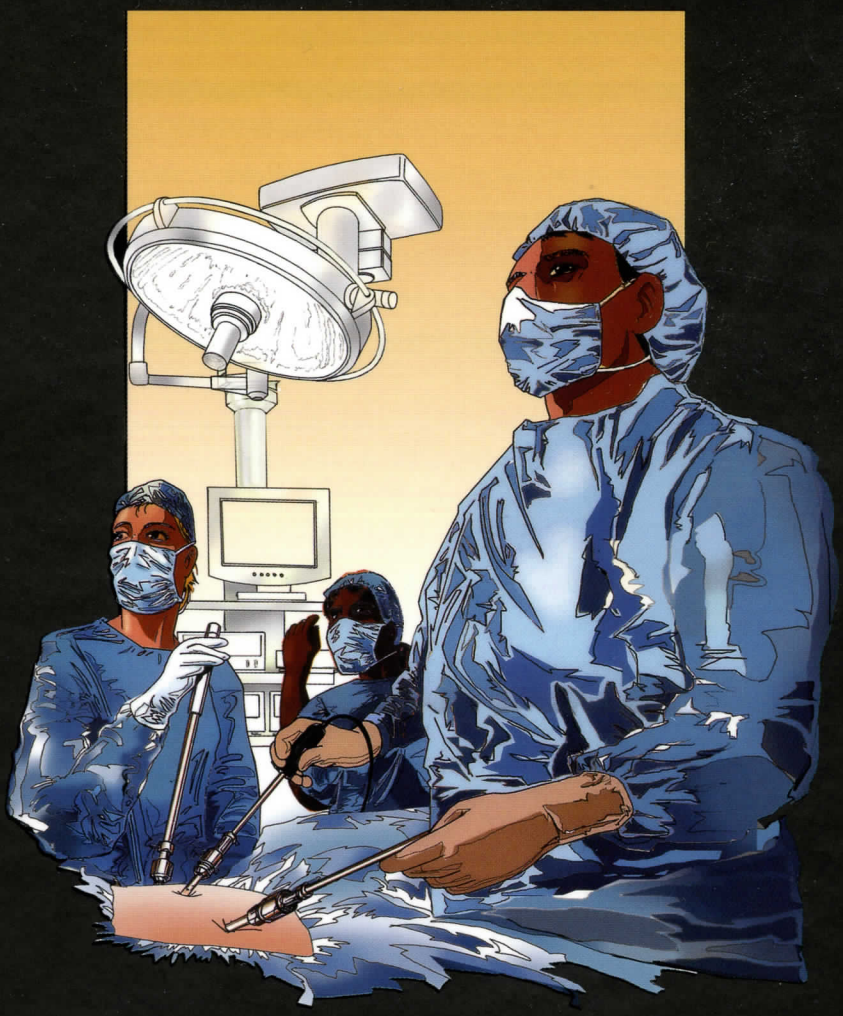
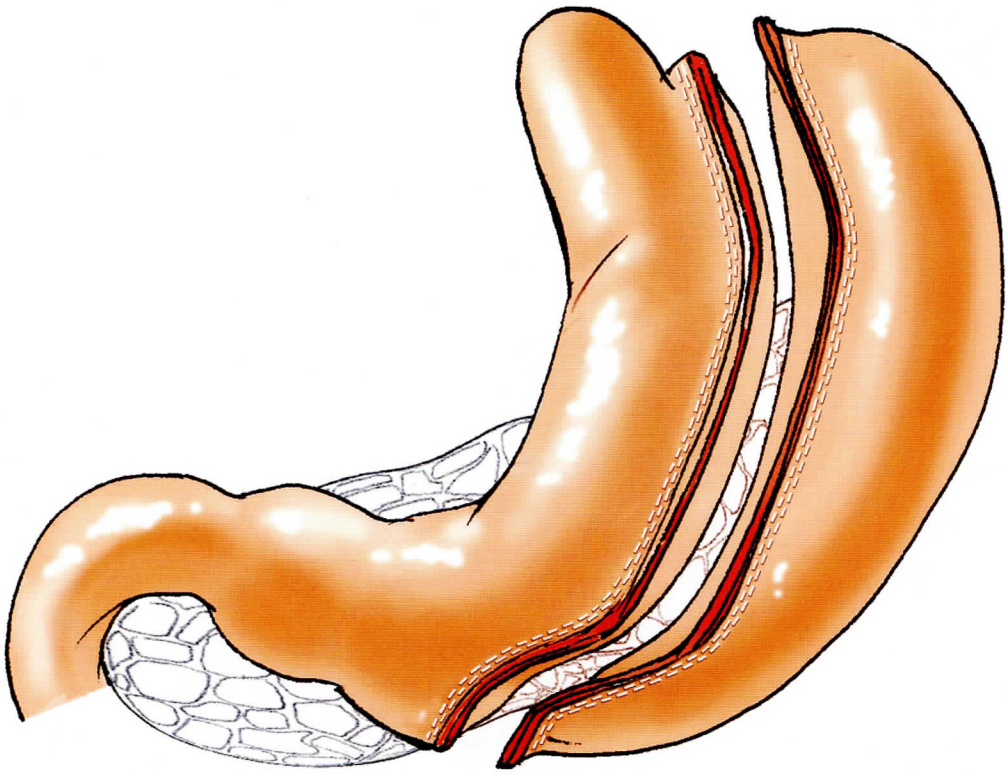


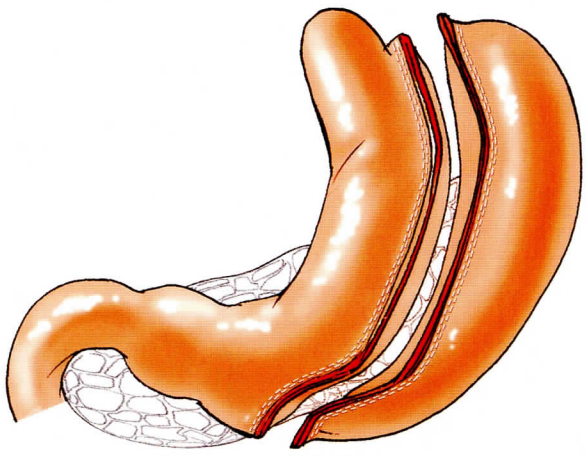
ATLAS OF LAPAROSCOPIC OBESITY SURGERY

G.B. CADIERE

J. HIMPENS

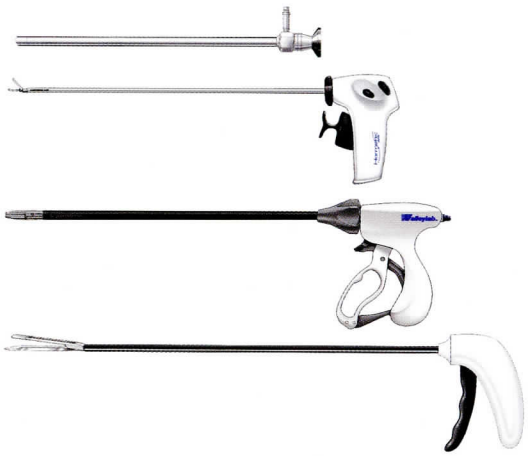
G. DAPRI





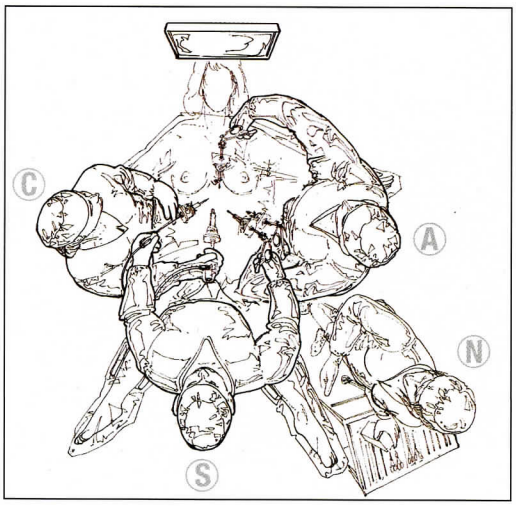
PRINCIPLE OF THE PROCEDURE

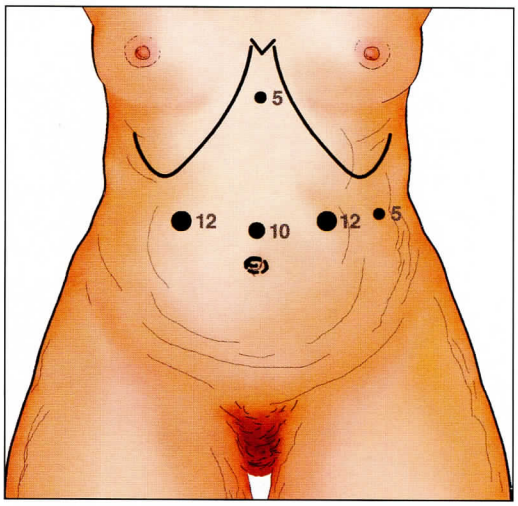
Sleeve gastrectomy is strictly restrictive procedure of the stomach, aiming at making a gastric tube of 100-150 mL, with the preservation of the antrum. The mechanism of weight loss is through a lower intake of food, with the help of impaired appetite, partially due to reduced ghrelin production.

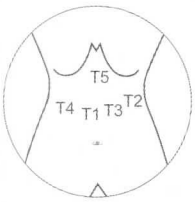


INSTRUMENTS

- 5 trocars : 2 trocars of 5 mm, 1 trocar of 10 mm, and 2 trocars of 12 mm or 15 mm in case of green loads linear stapler
- 30° degree optical system
- Veress needle
- 4 atraumatic grasping forceps (2 with 5-10 cm marks)
- coagulating hook
- suction device
- scissors
- needle-holder (5 and 10 mm)
- Harmonic scalpel / Ligasure
- 60 mm (45 mm optional) linear stapler (5-6 blue/green cartridges)
- one or two stitches of PDS 1
- one stitch of vicryl 2/0 and 1



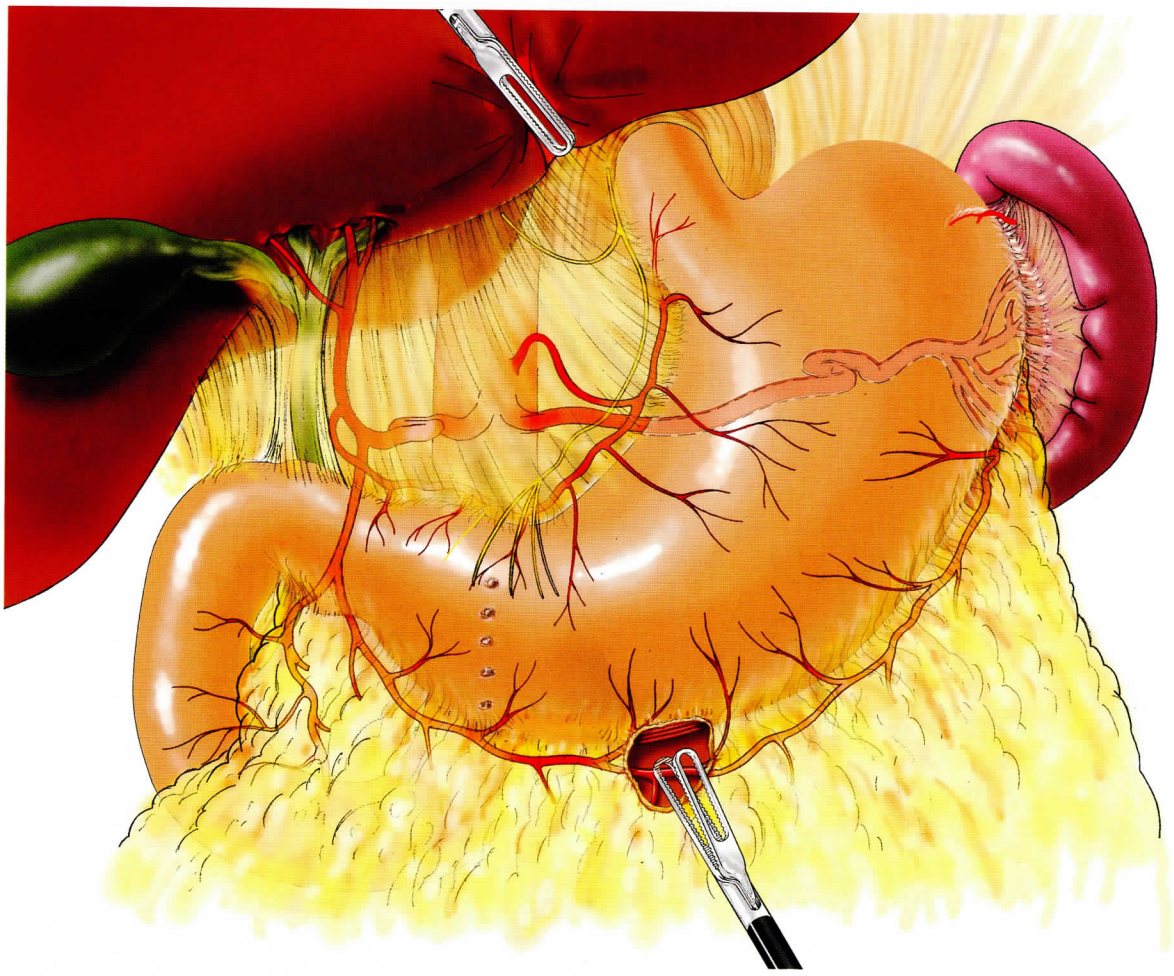


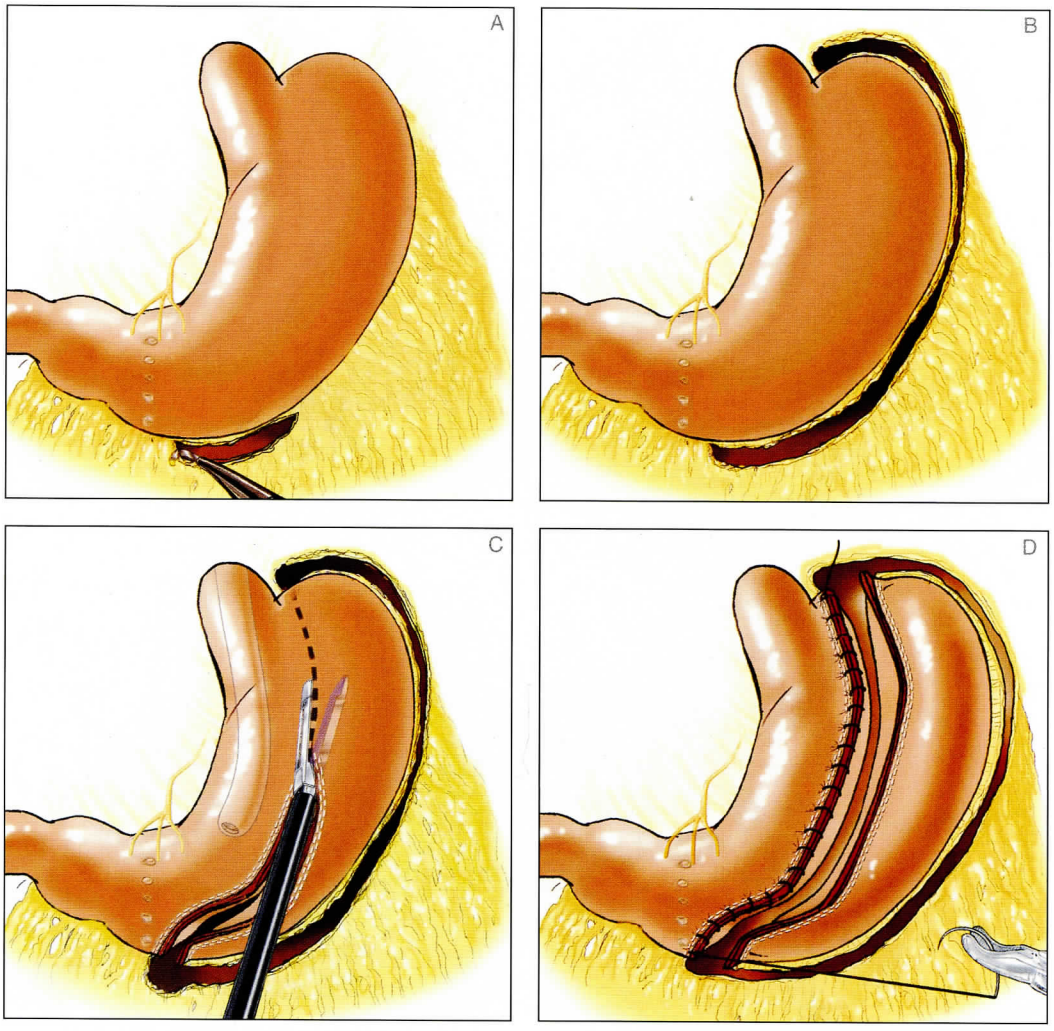


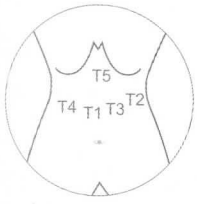
TECHNIQUE

PATIENT, TEAM AND TROCARS POSITION

The patient is positioned supine with the legs apart. The patient is carefully strapped to the operation table and the arms are placed in abduction. Shoulder supports are placed and extreme care is taken to pad the pressure points and joints with foam cushions. The patient is positioned in an anti Trendelenburg position with a 10° tilt.
The surgeon (S) stands between the patient's legs, the cameraman to the patient's right (C) and the assistant to the patient's left (A).
Abdominal insufflation up to 16 mmHg is obtained with the insertion of a Veress needle at the left upper quadrant, or at the umbilicus. Trocars are placed as follows: a 10 mm trocar (T1) 20 cm distal to the xyphoid process for the 30° optical system; a 5 mm trocar (T2) on the left anterior axillary line, 5 cm distal to the costal margin; a 12 mm trocar (T3) in the left upper quadrant on the mid clavicular line just between the 1st and the 2nd trocars; a 12 mm trocar (T4) in the right upper quadrant on the right mid clavicular line; a 5 mm trocar (T5), used for liver retraction, just distal and to the left of the xyphoid process.



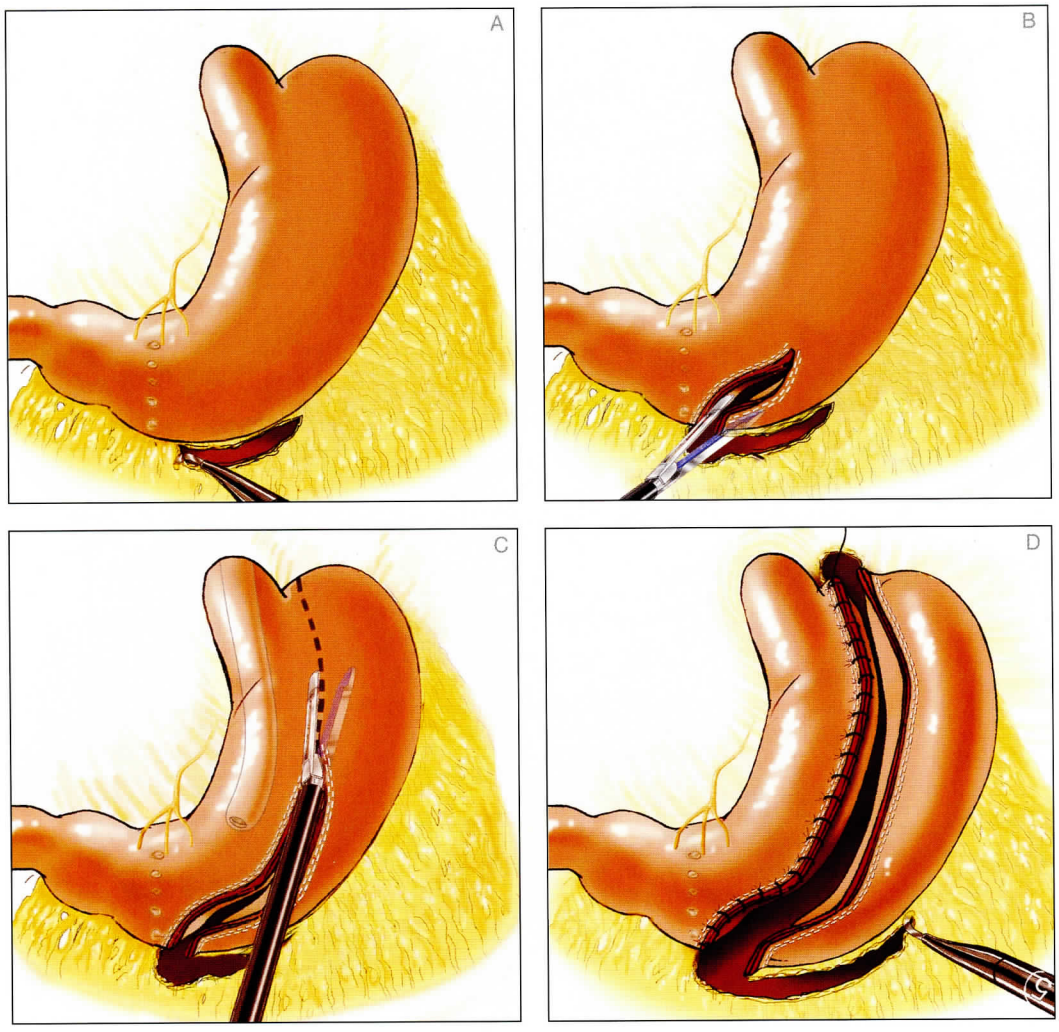




TECHNIQUE

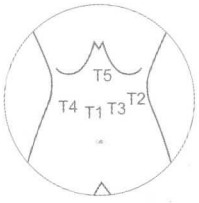
FIRST TECHNIQUE

After identification of the Crow's foot, a straight line starting from the most distal branches of the Crow's foot to the greater curve is marked with the coagulating hook. The lesser sac is accessed through a window made in the greater omentum, 3 cm to the left of the marking, close to the greater curve of the stomach, within the epiploic arch. This window is extended in a caudal direction in order to mobilize the greater curve up to the marking (A).
The dissection proceeds cranially in order to completely dissect the omentum off the greater curve.The dissection reaches the base of the left diaphragmatic pillar. The base of the right diaphragmatic pillar should be dissected as well. All retrogastric adhesions must be divided (B).
A first firing of linear stapler (blue or green load) (T4) divides the greater curve in the direction of the Crow's foot. Other firings of linear stapler (blue or green load) (T3) transect the stomach parallel to the lesser curve, from the antrum up to the angle of His. Before the thrid firing of the stapler, the anesthesiologist pushes down an orogastric tube of 34 Fr, in order to guide the gastric section (C).
A running suture (PDS 1) reinforces the staple line (D).
The resected greater curve is extracted through the 12 mm left trocar site (T3).

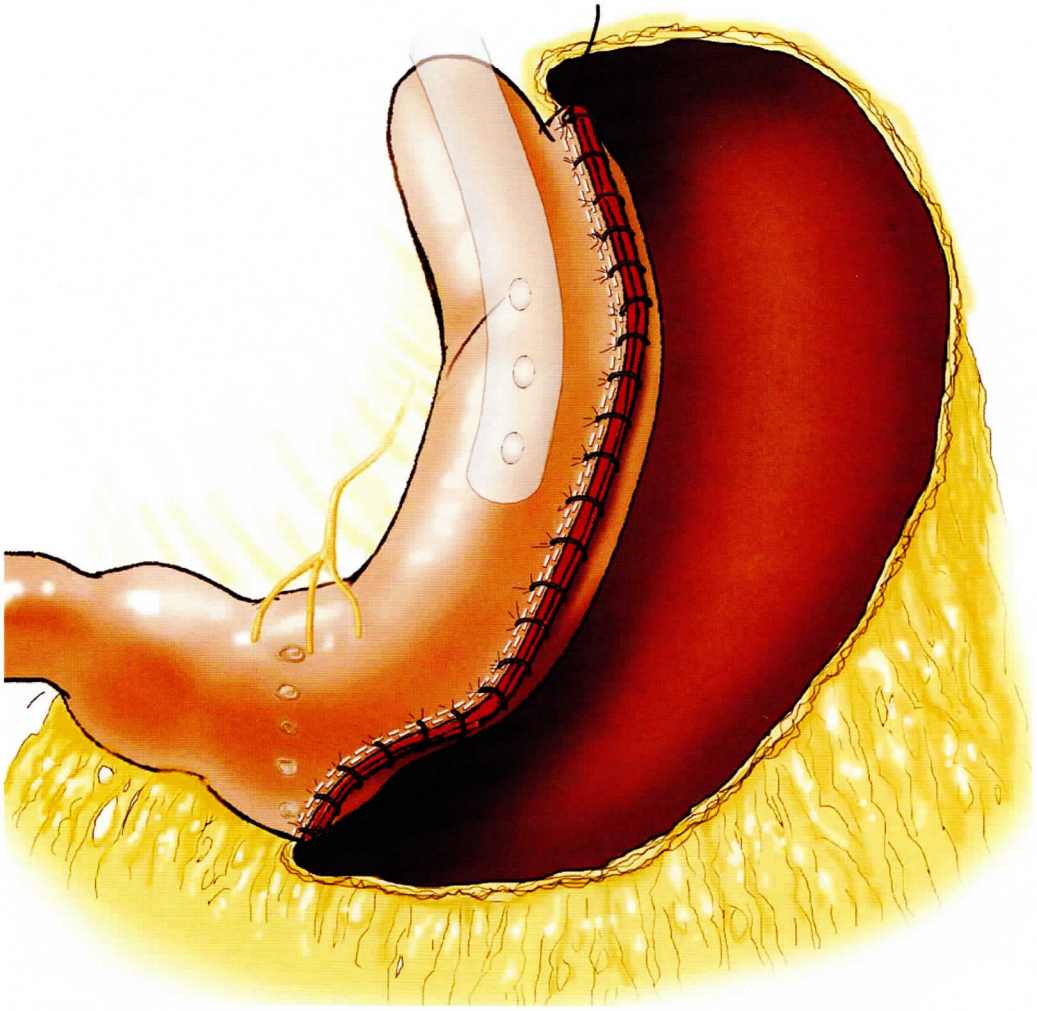


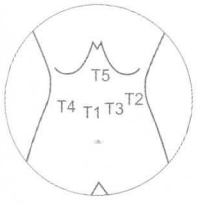
TECHNIQUE

SECOND TECHNIQUE



After marking the stomach perpendiculary from the Crow's foot in the direction of greater curve, the lesser sac is opened (A).
The window in the greater omentum, close to the greater curve, is just sufficient to permit the introduction of the linear stapler (blue or green load) (T4) for the first firing (B).
Once the size of the gastric sleeve has been determined, the stomach is transected along the marking. Further firings of the linear stapler (blue or green load) are kept parallel to the lesser curve. All posterior gastric adhesions are divided. Before the third firing of stapler (T3), the anesthesiologist pushes down the 34 Fr orogastric tube to guide the gastric transection in the direction of the angle of His (C).
Before the last firing of stapler (blue load) (T3) the angle of His is freed. The staple line is reinforced by a running suture (PDS 1). The greater omentum is dissected from the now separated greater curve of the stomach, using the coagulating hook or the Harmonic scalpel or Ligasure (D).
The resected stomach is then extracted through T3.

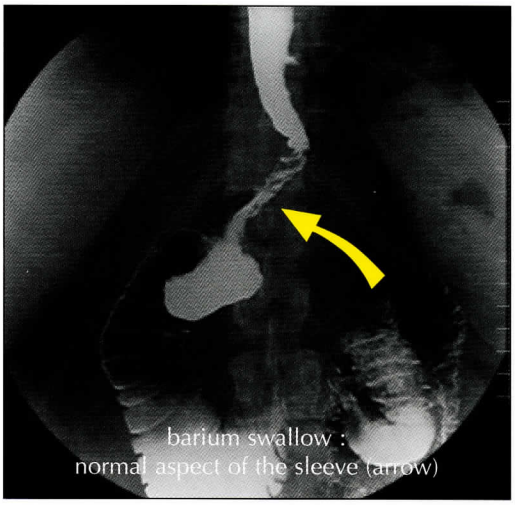




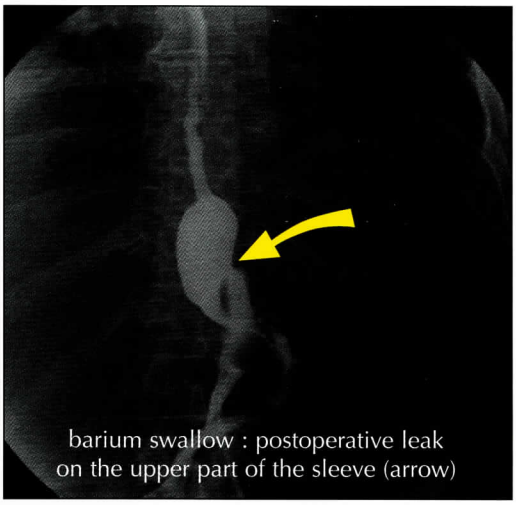
TECHNIQUE

LEAK-TEST

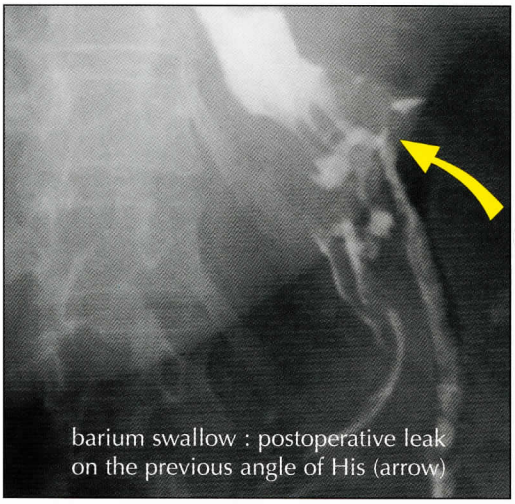
The patient is placed in the Trendelenburg position. The operating field is immersed in saline solution. Compressed air is insufflated into the gastric sleeve by the anaesthesiologist. The absence of air bubbles is testimony to the integrity of the sleeve. Moreover this manoeuvre allows to assess good symmetry of the sleeve.
The procedure is concluded with the placement of a drain along the sleeve up to the upper pole of the spleen and the 12 mm left trocar site (T3) is closed with absorbable suture (vicryl 1).



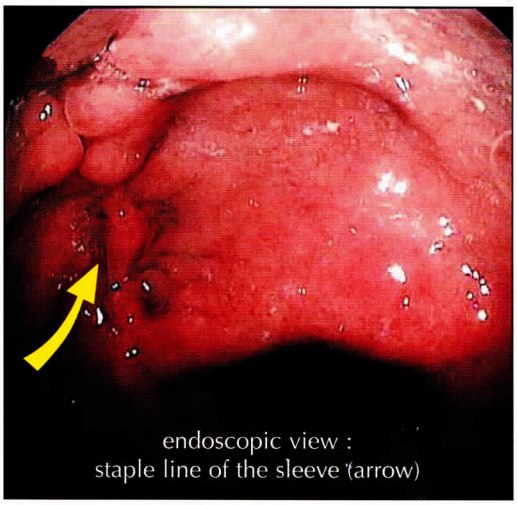
barium swallow :
normal aspect of the sleeve (arrow)



barium swallow : postoperative leak
on the upper part of the sleeve (arrow)



barium swallow : postoperative leak
on the previous angle of His (arrow)



endoscopic view :
staple line of the sleeve (arrow)

POSTOPERATIVE MANAGEMENT

First p.o. day : methylene-blue test is performed and if there is no evidence of a leak, the patient can drink water.
Third p.o. day : the drain is taken out and the patient is discharged.

The patient is restricted to a semi-liquid diet for one week, followed by a pureed diet for another four weeks. An office visit is scheduled for around that time. If there are no problems, the patient is advanced to a regular diet. Exercising is encouraged from the second postoperative week onwards. Patients are instructed to take either an H2 blocker or proton pump inhibitor for at least 30 days.

Patient is followed up by the surgeon, the nutritionist, and the psychologist. The first follow up visit is at one month after the procedure. Following that, on the first year the patient is reviewed at 3 monthly-intervals, followed by two 6 monthly visits in the second year and then further annual visits for the next three years.