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Laparoscopic Vertical Gastrectomy in patients with previous major abdominal surgery

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ABSTRACT: Laparoscopic Gastric Sleeve (**LSG**) has rarely been reported previously in patients with previous major abdominal surgery. *Subjects:* Five patients with previous major surgery unrelated to obesity are reported on: 1) Rectal cancer and Miles resection; 2) Female with multiple laparotomies 3) Male with splenectomy for trauma; 4) Female with laparotomy for retroperitoneal tumor and nephrectomy and 5) Male with Whipple pancreatectomy complicated with pancreatic fistula. *Results:* All of them had an LSG done due to obesity. *Conclusion*: Previous major abdominal surgery is not a contraindication for performing an LGS.

Key Words: Previous major abdominal surgery; Obesity; Vertical Gastrectomy; Gastric Sleeve.

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Introduction

Every day, more and more areas in Medicine are committed to the study and control of clinical obesity and its co-morbidities. In obesity surgery there are investigations as to why a larger and larger section of the world's population is being affected by this disease.

Materiel: We present five cases with major previous abdominal surgery not related to obesity surgery. In all of them a Laparoscopic Vertical Gastrectomy (LVG) with a gastric bougie, was successfully carried out.

Clinical Cases:

#1. The first is a 24 year-old female with a BMI-45.5 and no co-morbidities. She had a permanent colostomy 6 years ago due to a Miles operation for rectal cancer. Chemo and adjuvant radiotherapy were undergone and she was in remission at time of study.

#2. A 56 year-old female with BMI-40.6 had gastro-esophageal reflux and varicose. She had open cholecystectomy and appendectomy. A laparotomy was required later for hysterectomy, adhesions, and two ventral hernia reparations.

#3. A 36year-old male with BMI-33.4, without co-morbidities. He suffered a blunt abdominal trauma that required a laparotomy and splenectomy 19 years earlier.

#4. A 28 year-old female with BMI-32 had three laparotomies over five years for 1) a benign retroperitoneal tumor, 2) a right nephrectomy as a kidney donor, and 3) an appendectomy for gastro-esophageal reflux.

#5. A 58 year-old, chronic smoker male with BMI-32.6 and with high blood pressure, uric acid, lipids and hypothyroids. He had a Whipple procedure four years earlier for a cephalic pancreatic mass by making a bilateral subcostal incision. A pylorus preserving cephalic pancreatectomy was done and reconstructed with a single small bowel loop as shown in Fig. 1.

He had a pancreatic fistula that closed spontaneously in 6 months.

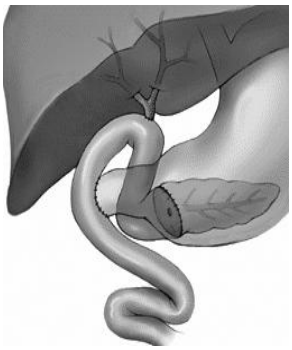

Fig.1.Single loop reconstruction. End-to-end bowel-pancreas; End-to-side hepatic and end-to side duodeno-jejunal anastomosis

The selected procedure was a LVG /gastric sleeve operation. The different specialists did routine pre-op tests and evaluations. Surgery was done in a reverse Trendelenburg position with arms and legs apart and pneumatic anti-thrombotic progressive compression and used standard pre-op medications.

The ports used were Xcel TM Bladeless from J&J. The first port, was introduced under direct vision, was supra umbilical and neumoperitoneo. In some patients with adhesions, the left upper quadrant was used making a high subcostal incision of 12mm.

The division of adhesions in the colic space was done carefully under direct vision with the harmonic scalpel to introduce the rest of the ports (fig. 2). Other ports may be needed occasionally to dissect and cut the adhesions. Small pads may be used for compression to control any bleeding.

Fig. 2. Ports positions. Previous sub costal scar

All the greater curvature and short gastric vessels are dissected and divided to expose the left crus of the diaphragm and the esophago-gastric junction. Special care should be given to the last short gastric vessel to prevent bleeding in this area due to retraction of these vessels.

The gastro-epiploic vessels are divided distally as far as 2 or 3 cm. from the pylorus. The adhesions to the pancreas ought to be divided completely by what we call the "wall maneuver" that consist on lifting the stomach completely allowing us to see up to the fundus. Then the 36 F bougie is placed by the anesthetist and along the lesser curvature down to the pylorus. We use the Echelon 60 ™ J&J linear stapler to divide the stomach sequentially. On the fourth patient only, the division was started at 6 cm from the pylorus due to adhesions that prevented any further dissection.

The number and cartridge load used are shown in Table I. The last firing has to include the whole gastric wall to reduce the possibility of a leak. A continuous Prolene ™ 2/0 suture covers the serosa.

Cartridges	☐# 1	☐# 2	☐# 3	☐# 4	☐# 5
45/3.5mm			3		
45/3.8mm					8
60/3.5mm	4		3	5	
60/3.8mm		3			
60/4.1mm	1	1			
TOTAL	5	4	6	5	8

Table I. Cartridges and lengths used in each case.

We routinely leave a JP drain in place. In none of the cases, suture testing for leaks were used. The segment of stomach removed is shown in Fig 3.

Fig. 3.Gastric segment is 75-80% of the stomach

Recovery was similar to other gastric sleeve patients. Early assisted ambulation started at three hours post-op. Liquids were given by the next day. All the patients were discharged at 48 hours with a liquid diet. The drain is removed on POD 2-3 . Normal post-op x-rays are shown in Fig.4.

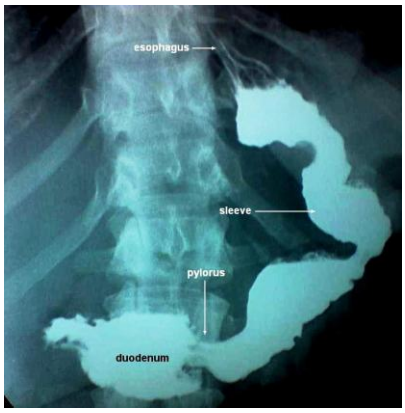

Fig. 4.Size and shape of the sleeve at 6 months

Discussion:

Previous abdominal surgery was not an important factor. There are few published reports about LVG with previous surgery unrelated to obesity. Re-sleeve surgery due to poor weight loss and regaining have been reported [1]. Previous surgery was usually done for vertical banded gastroplasty (VBG) and adjustable bands [1,3].

Revisions or conversions have shown good results [5,13]. Some surgeons decide to convert from a restrictive to a mixed surgery [1,5,6,10,12]. The gastric bypass is the first alternative [5,6]that is not excessively complex, depending on the local anatomy and adhesions.

We reported 150 LGS cases in 2007 [4], in which 8% had previously had a restrictive operation (7% adjustable band and 1% Mason VBG).

In 2008, of 231 patients, 47.6% of them had had abdominal surgery before. All of them had good recovery comparable to a primary GS. [2, 4].Table II shows the rate of patients with previous surgery.

Now we present different cases with previous major surgery that was unsuccessfully treated by diets, exercise and pharmacological programs.

In the patient with a Whipple surgery, it is important to note that the stomach was intact and whole, and this allowed us to choose the LVG. The integrity of the rest of the bowel had also been maintained and therefore had anatomical and physiological normality, since the pylorus was intact and the response was similar to all the other patients.

Surgery	N°	%
Gastric band	24	10.38
VBG	1	0.43
Cholecystectomy	9	3.89
Appendicectomy	14	6.06
Cesarean section (one or more)	18	7.79
GYN Surgery	12	5.19
+ than 1 procedure	28	12.12
Retro peritoneal tumor	1	0.43
Whipple procedure	1	0.43
Splenectomy	1	0.43
Miles AP resection	1	0.43
Total	110	47.61

Table II. Patients with previous surgeries.

Another difficulty is supposed to be access to the abdominal cavity, and this proved to not be a problem.

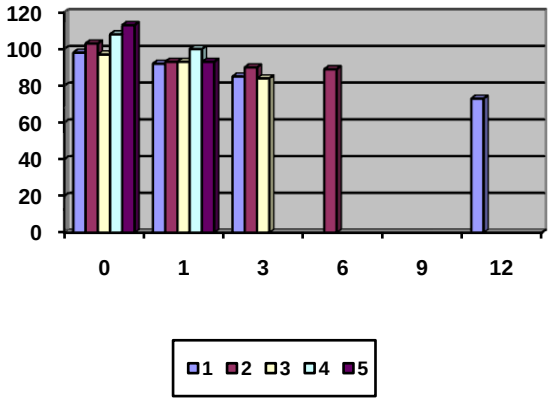

Table III. Weight in kg. is vertical and Months are horizontal. The first patient has a 12 months follow-up.

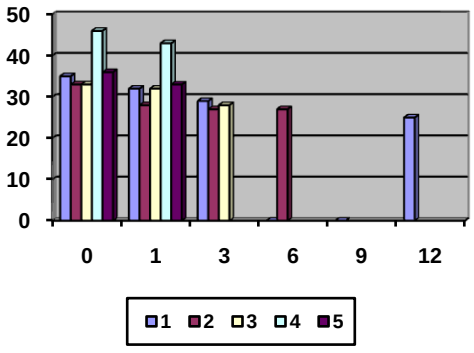

Table IV.BMI is vertical and months are horizontal.

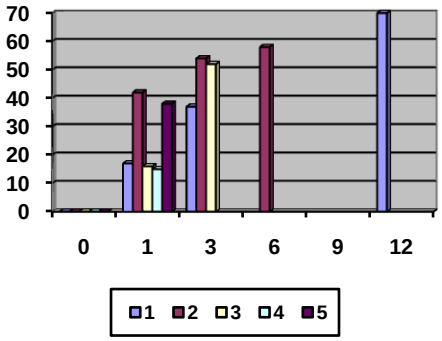

Table 5.% EWL are vertical and months horizontal

The multidisciplinary team did not discover any immediate complications. All five patients had a satisfactory follow-up. Only the first patient received a one year follow–up. Tables III-V show weight, BMI and %EWL in each patient.

Conclusion

The LVG has proven to be a good restrictive procedure [2] in different obesity grades and co-morbidities.
Since it is a relatively simple procedure, it is a good alternative for patients with previous major abdominal surgery, even with significant alteration of the digestive system such as the pancreatic-duodenectomy since the pylorus is preserved [7,8,9]. Pylorus preservation has shown to maintain good nutritional outcomes, less anastomotic ulcers and is possibly better for the mixed Bariatric procedures. Previous major abdominal surgery is not a contraindication for not performing an LVG.

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