CENTER OF EXCELLENCE FOR THE STUDY AND OBESITY TREATMENT





Laparoscopic One Anastomosis Gastric Bypass (LOAGB) vs. Standard Roux-en Y Gastric Bypass (RYGB)

Retrospective Long-term Results in a series of LOAGB 2,200 patients vs. RYGB 477 patients

Miguel-A. Carbajo Caballero

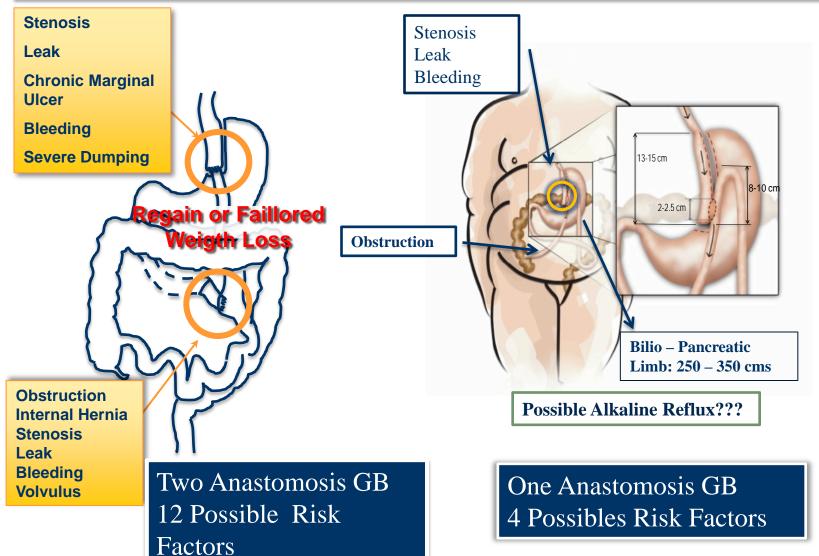
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Hospital Campo Grande, Valladolid, España





Minimising the Inter and Postoperative Risks of Gastric Bypass







Laparoscopic Roux-en-Y gastric bypass: initial 2-year experience.

Suter M, Giusti V, Heraief E, Zysset F, Calmes JM. Surg Endosc 2003;17: 603-9.

-Complication (20.5%)

-Reoperation	(8.4%)	: leak	(4.6%)
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Internal Hernia	(2.8%)
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subphrenic abscess (0.9%)

Mortality (0.9%)

CONCLUSIONS:

It is a very **complex operation**. Long and steep learning curve (100-150 pts). Weight loss and correction of comorbidities are similar to open surgery.

However, only surgeons with extensive experience in advanced laparoscopic as well as bariatric surgery should attempt this procedure.





Laparoscopic management of complications following laparoscopic Roux-en-Y gastric bypass for morbid obesity.

Papasavas PK, Caushaj PF, McCormick JT, Quinlin RF, Hayetian FD, Maurer J, Kelly JJ, Gagner DJ.

Surg Endosc. 2003;17:610-4.

Gastric remnant

Complications	(25.2%)
Reinterventions	(13.8%)
Gastrojejunostomy stricture	(8.9%)
Intestinal Obstruction: adhesions (6), internal hernia in transverse mesocolon (3)	(7.3%)
jejuno jejunostomy stricture (3), cicatrix Roux limb at	
transverse mesocolon (3).	
Gastrointestinal bleeding	(4%)
Gastrojejunostomy leak	(1.6%)
Symptomatic gallstone disease	(2.8%)

(0.8%)



Negative laparoscopy to rule out anastomotic leak 3 deaths, 2 attributable to anastomotic leak.



Laparoscopic Roux-en-Y gastric bypass (LRYGB): 1500 Cases and 5 year Follow-up

C. Boza, J. Salinas, A. Raddatz, ... *Obes. Surg. 2008;18 (8):975*

Early Complications		(8.5%)
	 Intestinal Obstruction 	(1.7%)
Gastroyeyunal Stenosis		(1.7%)
L	ate Complications	(12.3%)
L	ate Complications Intestinal Obstruction	(12.3%) (2.8%)





4000 Case Series of Simplified Lap Gastric Bypass. Outcomes and Complications

M. Galvao, A. Ramos, A. Carlo, ... Obes. Surg. 2008;18 (8):916

Complications	(11.3%)
 Marginal Ulcer 	(1.2%)
 Gastroyeyunostomy Stenosis 	(4.6%)
• Leakage	(0.9%)
Digestive Bleeding	(0.5%)
Revisional Surgery	(4.3%)
 Non satisfactory weigth loss 	(2.7%)
Complications	(0.8%)
Silastic Ring Migration	(0.8%)





Small Bowel Obstruction After Antecolic Antegastric Laparoscopic Roux-en-Y Gastric Bypass Wihtout Division of Small Bowel Mesentery: A Single Centre, 7-Year Review

M. Abasbassi, H. Pottel, B Deylgat

Obes. Surg. (2011) 21: 1822-1827

"The true rate of Internal Hernias may be underestimated in the literature. A summary recent literature regarding IH Antecolic Antegastric Roux-en Y Gastric Bypass shown a rate between 1.5% and 14.4%"





Causes of 30-day Bariatric Surgery Mortality: With Emphasis on Bypass Obstruction.

E. E. Mason; K. E. Renquist; Y-H. Huang; M. Hamal; I. Samuel; Obes. Surg. 2008,17: 9-14

"In Bypass obstruction, the usual sequence of events begins with postoperative paralytic ileus...
"Bypass obstruction" is the most urgent of all closed segment bowel obstructions...

Contrast the earliest deaths at 2 days after bypass obstruction with the earliest death at 4 days following a leak"





Marginal Ulcer after Roux-en-Y Gastric Bypass

B. Dillemans, S. Van Cauwengerg, J. Mulier Obes. Surg. 2009;19 (8): 958

In 54 (4,9%) of 1.104 patients, a marginal ulcer was diagnosed, an one 11% requiring surgical operation

Laparoscopic revision gastric bypass surgery for chronic marginal ulcers: a 10 year experiencie

F. Tercero, Khan A., Nimen A., Brokne K., Higa K. *Obes. Surg. 2008;19 (8): 958*

38 laparoscopic revisions, 30 primary revisions and 42 therapeutic endoscopies were performed for intractable marginal ulcers from 1998 to 2008...

It is associated with significant morbidity and high recurrence rate.





Laparoscopic Reoperative Bariatric Surgery: Experience from 27 consecutive patients.

Michel Gagner et al.

Obes. Surg., 2002; 12: 254-260

"10 to 25% of patients undergoing bariatric surgery will require a revision, either for unsatisfactory weight loss or for complications... In Gastric Bypass intervention, the revisional index varies between 3 to 15%."





Reinterventions for Weigth Regain After RYGastric Bypass

A. Guweidhi, F. Horber *Obes. Surg. 2009;19 (8): 976*

Following at 208 patients in the fouth year after lap-standard Roux-en-Y Gastric Bypass... showing a total of 39 (21%) of the reinterventions





Long-Term Results of Laparoscopic Roux-en- Y Gastric Bypass: Evaluation After 9 Years

J.Himpens . Anneleen Verburgghe . Guy- Bernard Cadiere . Wouter Everaerts . Jan Willem Greve OBES SURG 2012; 22: 1586-1593

- Percentage of excess BMI lost $56.2 \pm 29.3\%$
- Patient satisfaction remained good in 76% of cases
- High rate and internal hernia 9.3%
- Conclusions:
- THE LRYGB ACCEPTABLE FOR EXCESS WEIGHT LOSS, OF HIGHER RATE OF INTERNAL HERNIAS
- NOT ACHIEVE FULL MONITORING TO ALL PATIENTS





Laparoscopic Roux-en-Y gastric bypass: 10-year follow-up

K. Higa, T. Ho, F. Tercero, T. Yunus, K. Boone *SOARD*, *2011*; *7: 516-525*

*Mean excess weight loss (EWL) was 57% at 10 years

*33.2% failed to achieve an EWL of >50%

*35% of the patients had ≥ 1 complication during follow-up

- Internal Hernia rate was 16%
- Gastro-yeyunal stenosis rate was 4.9%
- Marginal ulcer rate was 4.5%

*Only 18% remained nutritionally intact during follow-up

CONCLUSION: "ALTHOUGHT OUR GOAL HAS BEEN TO IMPROVE THE HEALTH AND QUALITY OF LIFE OF OUR PATIENTS, MEASUREMENTS OF SUCCESS REMAIN NEBULOUS"



Roux en Y Gastric Bypass: Our experience in 477 Patients With 11-Year Follup-up

TECHNIQUES

•	OPEN RETROCOLIC RETROGASTRIC ROUX -EN-Y (Mc LEAN):	92
•	OPEN RETROCOLIC DISTAL ROUX –EN-Y (SALMON)	26
•	OPEN RETROCOLIC ANTEGASTRIC ROUX -EN-Y (CAPELLA):	103
•	HAND MADE ASISTED LAPAROSCOPIC OR	
	(CAPELLA):	182
•	TOTALLY ANTEGASTRIC ANTECOLIC LAPAROSCOPIC:	7 4
•	TOTAL:	477

FOLLOW-UP

• ONLY 86 PATIENTS (18%) WAS POSSIBLE ACHIEVE FULL MONITORING TEN-YEARS FOLLOW-UP





Roux en Y Gastric Bypass: Our Experience in 477 Patients With 11-Year Follow-up (1994-2002)

Early Major Complications and Mortality

Perioperative	Nº	%
Intra-abdominal bleeding	4	0.8%
Gastro-intestinal bleeding	3	0.6%
Intrabdominal abscess	4	0.8%
Gastric pouch fistula	2	0.4%
Gastric remmanent leak	1	0.2%
Gastro-jejunal leak	10	2%
Small bowell oclusion	3	0.6%
Internal hernia with obstruction	12	2.5%
Malrotación at Roux en Y level+obstruccion	2	0.4%
Mortality (bronquial breaking)	1	0.2%
SUBTOTAL	42	8.8%





Roux en Y Gastric Bypass: Our experience in 477 Patients With 11-Year Follup-up (1994-2002)

Late Major Complications

Middle and Long term	N°	%
Internal Hernia	6	1.2%
Gastro-jejunal stenosis	6	2.9%
Severe Marginal ulcer	12	2.5%
Gastro-gastric comunication (chronic ulcer)	3	0.6%
Gastric pouch cancer	1	0.2%
Severe Dumping syndrom	14	2.9%
Neuropaty (Vit B1 deficit)	2	0.4%
Malnutrition	4	0.8%
Weight Regain	62	13%
SUBTOTAL	110	24.5%





Laparoscopic Roux-en-Y vs. Mini-Gastric bypass for the treatment of morbid obesity: a prospective randomized controlled clinical trial.

Lee WJ, Yu PJ, Wang W, Chen TC, Wei PL, Huang MT. Ann Surg 2005;242:20-8.

METHODS

Eighty patients randomized **LRYGBP** (n= 40) or **LMGBP** (n= 40); followed 2 years. Late complication, EWL, BMI, GIQLI, and comorbidities.

RESULTS

- One conversion (2.5%) in LRYGBP group
- Operation time in LMGBP group (205 vs 148, p< 0.05)
- Operative morbidity LRYGBP group (20% vs 7.5%, p< 0.05)
- -Residual excess weight <50% at 2 years postoperatively was achieved in T5% LRYGBP and 95% of LMGBP (p< 0.05)

CONCLUSION

Single-Loop Gastric Bypass is superior to Roux en Y GB in Randomized Controlled Trial





Laparoscopic Mini-Gastric bypass vs. Roux-en-Y gastric bypass: 5 years results and final report of randomized trial

Lee WJ, Chen J, Ser K. Obes. Surg. 2009;19 (8):967.

This study demonstrates that LMGBP is an effective treatment for morbid obesity and can improve quality of live similar to RYGBP. LMGBP is simpler and safer procedure than LRYGBP, and no proven disadvantage after five year follow-up.





Primary Results of Laparoscopic Mini-gastric Bypass in a French Obesity Surgery Specialized University Hospital

J.M. Chevalier, G.Chakhtoura, F. Zinzindoué, Y. Ghanem, I. Ruseykin, J.M. Ferraz. Obes. Surg 2009; 19 (8): 968

METHODS

264 patientes compared with 350 LRYGBP

RESULTS

Complications: 4.5%;

SIGNIFICANTLY, NO PATIENT COMPLAINED OF BILIARY REFLUX.

CONCLUSION

After two-year regular follow-up, mini bypass seems an attractive alternative in the surgical treatment of morbid obesity.





The Single- Loop Gastric Bypass: A Powerful Alternative to Standard RYGBP

R. Tacchino, F. Greco, D. Matera. Obes. Surg 2008; 18 (8):920.

METHODS

40 patientes (20 **LSLGBP** vs. 20 **LRYGBP**), collected prospectively 2 years follow-up.

RESULTS

- BMI at 6 month were 33 vs. 37
- BMI at 12 month were 31 vs. 34
- BMI at 24 month were 31 vs. 34

CONCLUSION

- •The LSLGBP provide an improved weight loss compared with the standard RYGBP, probably due to the fact that very few pancreatic enzymes reach the efferent limb, so that no pancreatic digestion occurs.
- •The LSLGBP as an alternative procedure give us encouraging results and seems to be more powerful, faster and safer technique in the treatment of morbid obesity.





One-Anastomosis Gastric Bypass by Laparoscopy: Results of the First 209 Patients

Miguel Carbajo¹; Manuel García-Caballero²; Miguel Toledano¹; Diego Osorio²; Cándido García-Lanza^{1,3}; José Antonio Carmona^{2,3}

¹Department of Surgery, Hospital Campo Grande, Valladolid, Spain; ²Department of Surgery, University Malaga, Malaga, Spain; ³Department of Anesthesia

Background: One-Anastomosis Gastric Bypass (OAGB) by laparoscopy consists of constructing a divided 25-ml (estimated) gastric pouch between the esophago-gastric junction and the crow's foot level, parallel to the lesser curvature, which is anastomosed latero-laterally to a jejunal loop 200 cm distal to the ligament of Treitz.

Introduction

Obesity has become a major health problem and severe obesity is increasing. Morbid obesity results in poor quality of life, and its serious co-morbidities impact on the petient's ability to function in soci-

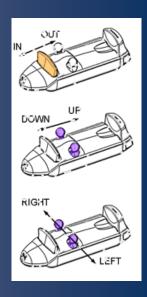




Brazo Robótico LAP-MAN











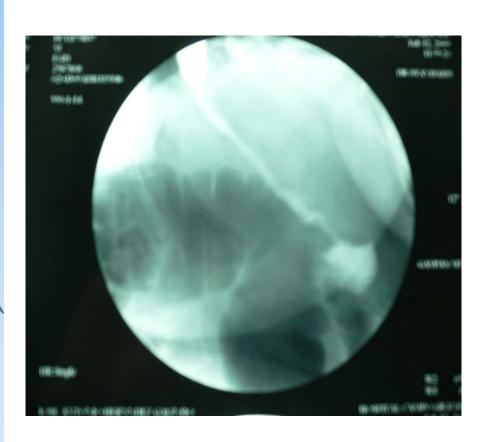
KEY STEPS OF THE PROCEDURE

- 1. INTESTINAL LOOP between 250 to 350 cm.
- 2. HISS ANGLE TOTALLY OPENED.
- 3. GASTRIC POUCH, 13 to 15 cm. Length, and 25-30 cc. Capacity (calibrated with a 36 French tube), and Radical dissection of the posterior gastric wall
- 4. ANTI-REFLUX MECHANISM, afferent loop suspended 8-10 cm to the gastric pouch.
- 5. GASTRO-ILEAL ANASTOMOSIS, 2 to 2.5 cm. width.





Post-operative X-Ray control









Radiologic control at 5 years









Laparoscopic One Anastomosis Gastric Bypass: 11-Year Experience in 2,200 patients

Patients Characteristics (June 2002 to February 2013)

Age		43 (12 - 74)
Gender	Female	1353 (61.5%)
	Male	847 (38.5%)
ВМІ		46 (32 - 86)
EBW (kg)		65 (30 - 220)





Laparoscopic One Anastomosis Gastric Bypass: 11 - Year Experience in 2,200 patients

Patients Characteristics

Primary Surgery	1271 (57.7%)
Previous Open Surgery	524 (23.8%)
Associated Procedures	360 (16.3%)
Previous Bariatric Procedures	43 (2.1%)





Laparoscopic One Anastomosis Gastric Bypass: 11 - Year Experience in 2,200 patients

Hospital stay

Hospital Stay	Uncomplicated patients	2167 (98.50%) 1 day (15-120 h.)
	Complications	33 (1.5%) 9 days (4-32 d.)





Laparoscopic One Anastomosis Gastric Bypass: 11 - year Experience in 2,200 patients

Surgical Early Complications

Intraoperative	Bleeding	6 (0.29 %)
complications resolved by Lap.		
Inmediate	Leaks	1 (0.04 %)
Postoperative Re-operations	Intestinal Obstruction	1 (0.04 %)
resolved by Open Surgery 4 (0.19%)		
Inmediate	Bleeding	10 (0.4 9%)
Postoperative Re-operations resolved by Lap. Surgery 16 (0.79%)	Leeks	1 (0.04 %)
	Intestinal Obstruction	3 (0.19 %)
	Acute Gastric Distension	1 (0.04 %)



TOTAL

23 (1.0%)



Laparoscopic One Anastomosis Gastric Bypass: Our Experience in 2,200 patients robotic assistant

No Surgical Complications: 12 Patients

Complications Treated Conservatively		
Leaks	8 (0.396%)	
Acute Pancreatitis	1 (0.04 %)	
Infected Hematoma	1 (0.04 %)	
Total	10 (0.49%)	





Laparoscopic One Anastomosis Gastric Bypass: Our Experience in 2,200 patients

Late Complications

Gastro-intestinal	Pneumatic Dilatation	7 (0.32%)
stenosis 9 (0.40%)	Prosthesis	2 (0.09%)
Acute Anastomosis Ulcer 8 (0.36%)	Medical Treatment	8 (0.36%)
Malnutrition	Medical treatment	5 (0.22%)
Tiamina deficit	Medical treatment	1 (0.04%)
Revisional surgery	0 (0%)	0 (0 %)
TOTAL		23 (1.0%)





Laparoscopic One Anastomosis Gastric Bypass: Our Experience in 2,200 patients

Weight Loss

Percent of mean EWL at:	1 year	84% (55 -112%)
	2 year	88% (58 – 115%)
	3 year	81% (55 – 103%)
	4 year	79% (51 – 102%)
	5 year	77% (48 – 100%)
	10 year	70% (46 – 98%)





Laparoscopic One Anastomosis Gastric Bypass: Our Experience in 2,200 patients

Severe Comorbidities Resolution Index

Dyslipidemia	97 %
Type 2 Diabetes	92 %
Arterial Hipertension	90 %
Sleep Apnea	99 %





Laparoscopic One Anastomosis Gastric Bypass: 11 Year Experience in 2,200 patients

Postop. Endoscopic Studies at 5-Year Follow-Up

Postoperative UGI endoscopic (control) studies were planned for all patients completing at list 5-year follow-up.

1.090 patients completed at list 5-Year Follow-up 265 (24.5%), accepted underwent UGI endoscopic studies

Results: NO significant acute or chronic lesions were found:

- . Endoscopic findings not shown chronic marginal ulcer, erosive esophagitis, or severe alkaline reflux.
- . Minor or middle sign of pouch gastritis were found in 21 patients (7.9%)
- . H. Pylory was diagnosis in 9 patients (3.4%)

UGI: upper gastrointestinal





Laparoscopic One Anastomosis Gastric Bypass (LOAGB) vs. Standard Roux-en Y Gastric Bypass (SRYGB)

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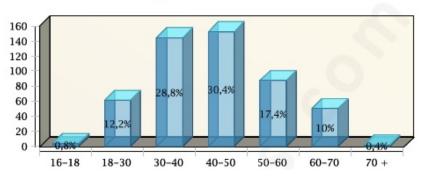
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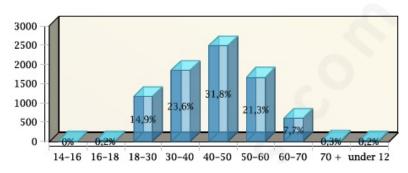
Primary Charts

Age distribution



Primary Charts of Gastric By Pass

Age distribution



TOTAL OPERATIONS 500

LOAGB

TOTAL OPERATIONS 7200

SRYGB (All Types)





Laparoscopic One Anastomosis Gastric Bypass (LOAGB) vs. Standard Roux-en Y Gastric Bypass (SRYGB)

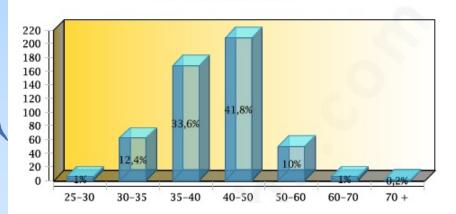
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Primary Charts

BMI distribution



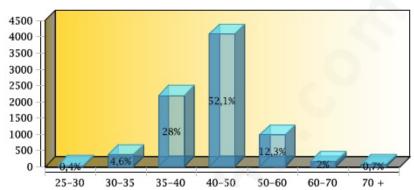
TOTAL OPERATIONS 500

LOAGB



Primary Charts of Gastric By Pass

BMI distribution



TOTAL OPERATIONS 7200

SRYGB (All Types)





IFSO- European Database Control

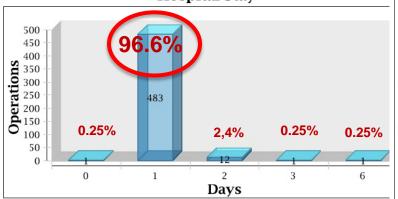
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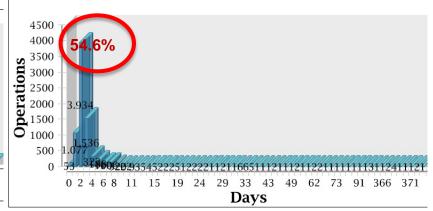
Primary Charts

Hospital Stay



Primary Charts of Gastric By Pass

Hospital Stay



TOTAL OPERATIONS 500

LOAGB

TOTAL OPERATIONS 7200





(Since January 2010)





Primary Charts

0.2%

Primary Charts of Gastric By Pass

Operative Outcome complications

0.6%

Operative Outcome complications

	Complications	Total	Percenta
1	Bleeding	1	0.2%

	Complications	Total	Percenta
1	Anastomotic Stricture	2	0.03%
2	Bleeding	19	0.24%
3	General Complications	4	0.05%
4	Intra abdominal abscess	1	0.01%
5	Leak	2	0.03%
6	Other Compliactions	10	0.13%
7	Vomiting	4	0.05%
8	Wound infection	2	0.03%

TOTAL OPERATIONS 500

TOTAL OPERATIONS 7200

LOAGB





IFSO- European Database Control

(Since January 2010)





Primary Charts

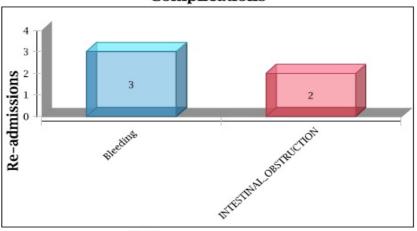
Re-admissions for early complications 1%

Primary Charts

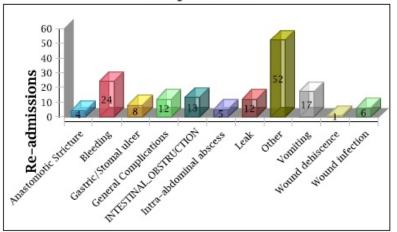
Re-admissions for early complications

2.1%

Complications



Complications



Total Complications:

5

Total Complications:

154

TOTAL OPERATIONS 500

LOAGB

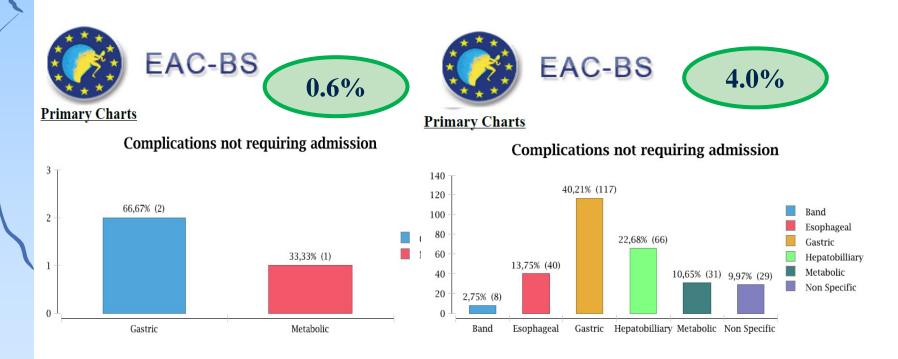
TOTAL OPERATIONS 7200





IFSO- European Database Control

(Since January 2010)



TOTAL OPERATIONS 500

LOAGB

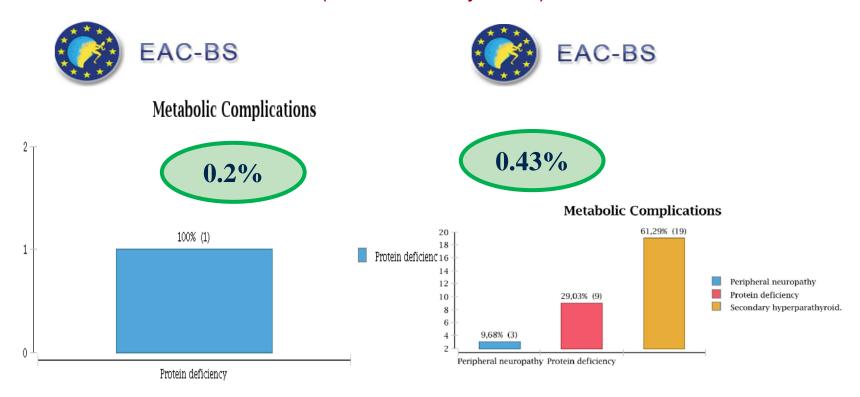
TOTAL OPERATIONS 7200





IFSO- European Database Control

(Since January 2010)



TOTAL OPERATIONS 500

LOAGB

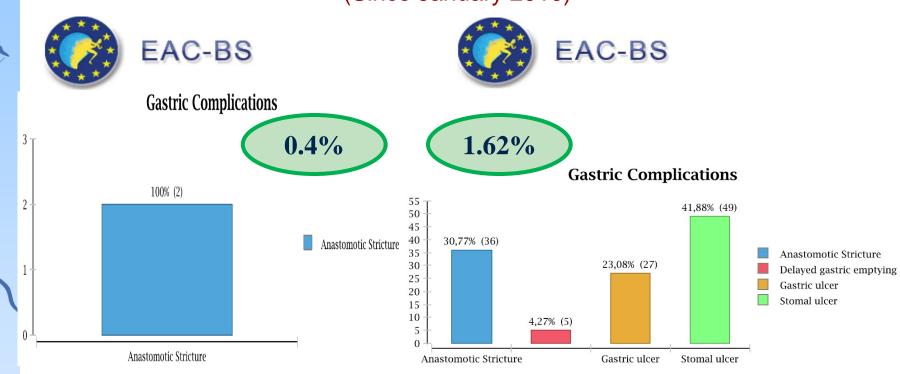
TOTAL OPERATIONS 7200





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(Since January 2010)



TOTAL OPERATIONS 500

LOAGB

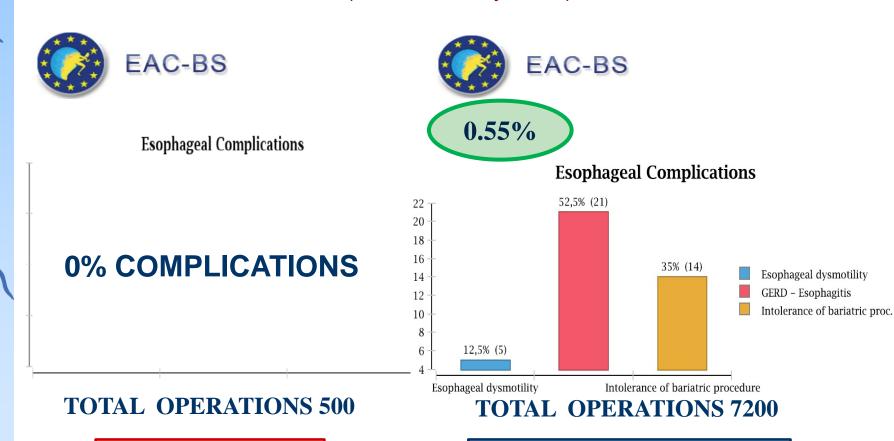
TOTAL OPERATIONS 7200





IFSO- European Database Control

(Since January 2010)



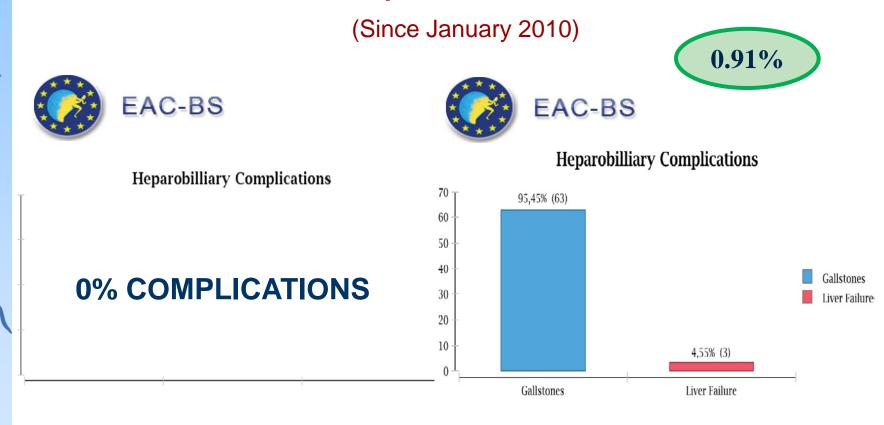
SRYGB (All Types)



LOAGB



IFSO- European Database Control



TOTAL OPERATIONS 500

LOAGB

TOTAL OPERATIONS 7200





IFSO- European Database Control

(Since January 2010)



Re-admissions for late complications

Complications

0% COMPLICATIONS

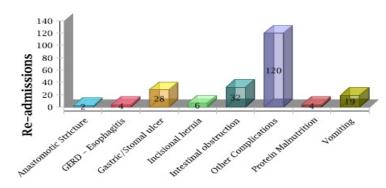


Primary Charts

Re-admissions for late complications

Complications

2.98%



TOTAL OPERATIONS 500

LOAGB

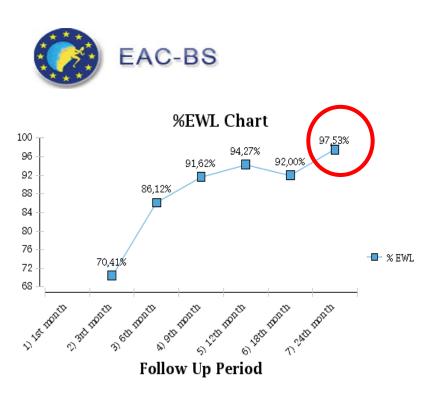
TOTAL OPERATIONS 7200



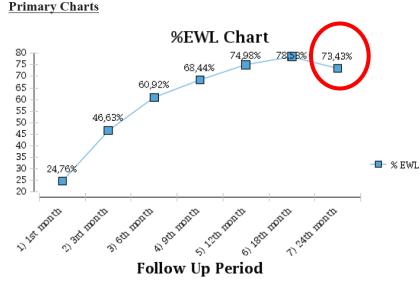


IFSO- European Database Control

(Since January 2010)







TOTAL OPERATIONS 500

LOAGB

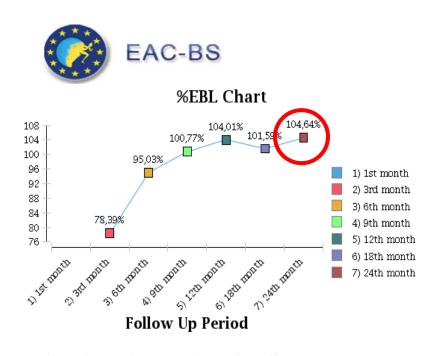
TOTAL OPERATIONS 7200





IFSO- European Database Control

(Since January 2010)



TOTAL OPERATIONS 500

LOAGB



TOTAL OPERATIONS 7200





CONCLUSIONS - I

- 1. The LOAGB technique in our experience reduces the difficulty, operative time and length of hospital stay compared to conventional LRYGB; it also substantially decreases both early and late complication rates.
- 2. Despite being a simplified form of gastric bypass with the potential of decreasing perioperative morbidity and mortality (as has been shown), we acknowledge it still is a mixed (restrictive / malabsorptive) procedure, capable of producing complications that are common to these interventions or possibly even newer ones.





CONCLUSIONS - II

- 3. The excellent results in our Long- time experience in regards to EWL, EBL, resolution of co-morbidities and quality of life (QOL) make LOAGB a safe and effective technique, and a powerful alternative for the treatment of morbid and super-morbid obesity.
- 4. Long-term results have shown LOAGB improves QOL as well (or even better) as conventional LRYGB, with no proven disadvantages after a 10-year experience.





CENTER OF EXCELLENCE FOR THE STUDY AND OBESITY SURGERY TREATMENT

