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Safety and Outcomes of Laparoscopic Sleeve Gastrectomy in General Surgery Residency Program

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Introduction

The role of Bariatric Surgery in weight reduction compared to intensive medical therapy is undisputed



Minimally invasive approach increased the popularity of bariatric procedures, because of the excellent outcomes, the decrease of postoperative morbidity and of hospitalization time

Laparoscopic Sleeve Gastrectomy is a highly successful surgical technique, both as a first-stage approach, and as standalone bariatric procedure

With the escalation of surgical treatment of obesity, there is a growing interest in the training of bariatric surgeons

In our country, the extensive participation of residents in the performance of these laparoscopic procedures is still not a routine

Not a lot of data is present on the capacity of the residency in General Surgery to supply adequate training and experience in bariatric surgical practice

*Mostaedi et al, JAMA surg.
2005*

This narrow field requires advanced laparoscopic skills and experience, so the effect of resident involvement on patient safety has come into question

*Zacharoulis et al, Obes Surg.
2012
Casella et al, Surg Endosc.
2016*

Objective

- Examine resident intraoperative involvement in performing LSG
- Analyze the effect of the learning process on safety and on surgical outcomes

Materials and Methods

The study setting was the Obesity Unit of University of Rome Tor Vergata

Procedures were performed either by an expert bariatric surgeon or by a general surgery resident as the first operator, with an expert surgeon as the first assistant

Retrospective analysis of data from a prospectively collected database

We included for analysis all patients with severe obesity who underwent LSG at our institution between January 2017 and January 2020

Collected data reported demographic factors, operative time, postoperative complications and short-term outcomes



Results

		Total	Surgeon		P value
			Expert	Trainee	
		N=313 (100%)	N=228 (72.8%)	N=85 (27.2%)	
Years (mean ± SD)		44.6 ± 11.1	44.9 ± 11.4	43.6 ± 10.4	0.331
Males		94 (30.0%)	74(32.5%)	20 (23.5%)	0.125
Females		219 (70.0%)	154(67.5%)	65 (76.5%)	
BMI (kg/m2, mean ± SD)		43.9 ± 7.1	44.3 ± 7.1	43.1 ± 7.0	0.176
Surgical Procedure	LSG	207 (66.1%)	152 (66.7%)	55 (64.7%)	0.192
	BSG	93 (29.7%)	67 (29.4%)	26 (30.6%)	
	LSG + Lapchol	6 (1.9%)	2 (0.9%)	4 (4.7%)	
	BSG + Lapchol	1 (0.3%)	1 (0.4%)	0	
	(ReSG)	3 (1.0%)	3 (1.3%)	0	
	(RedoSG)	3 (1.0%)	3 (1.3%)	0	
Operative time (min., mean ± SD)		67.8 ± 18.8	65.3 ± 18.8	74.3 ± 17.2	< 0.001

No significant differences in the demographic factors, as age, gender, and preoperative BMI, between the two groups

A laparoscopic banded sleeve gastrectomy defined as LSG with the positioning of MiniMizer Ring™, was performed in almost 30% of both groups

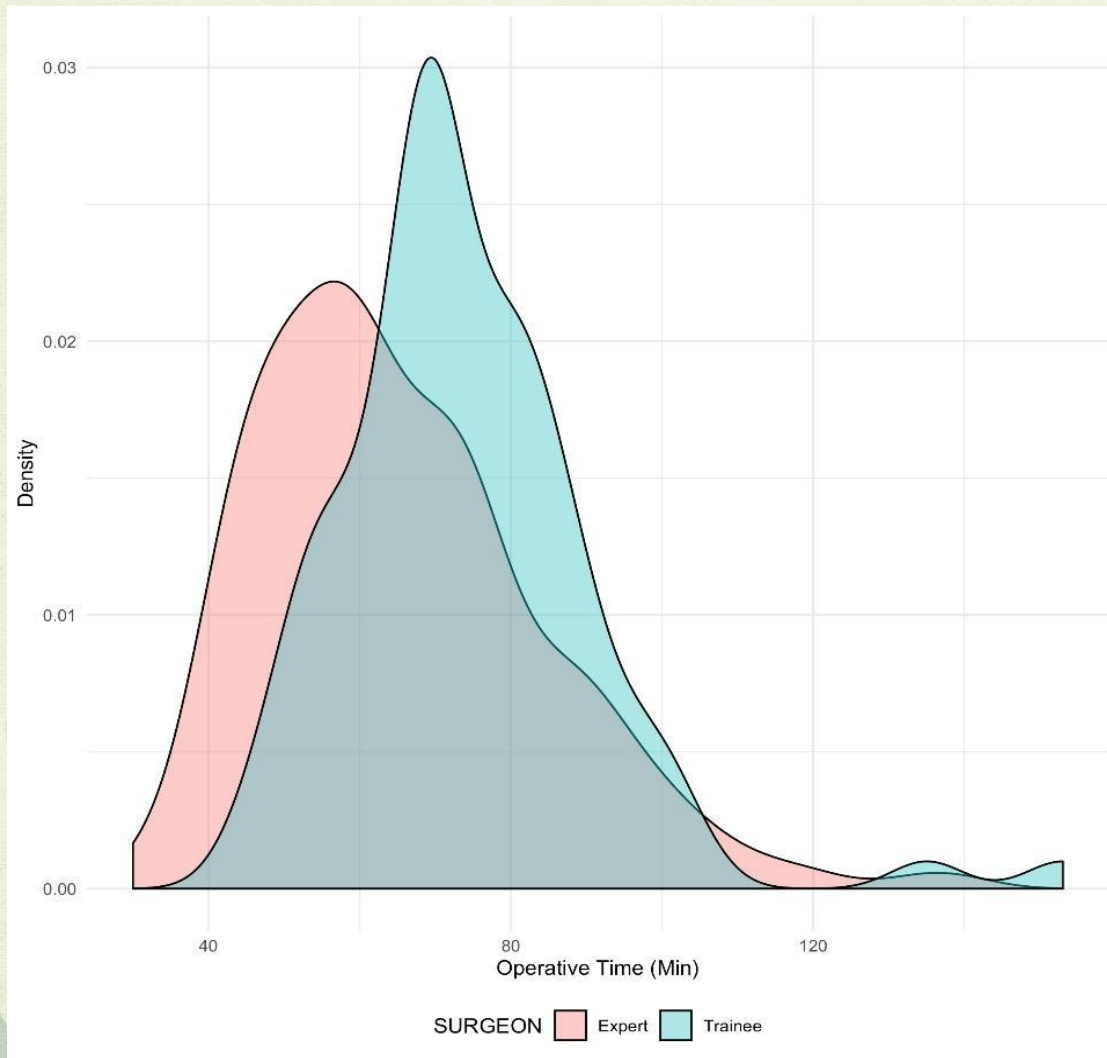
Concomitant procedure was performed in 2.2% out of LSGs, while six patients underwent revisional surgery, defined as revisional sleeve gastrectomy for failure of primary LSG, or RedoSG, after failed AGB

	Total	Surgeon		P value
		Expert	Trainee	
EBWL (%)	N=165(52.7%)	87.7 ± 28.2	81.2 ± 31.6	0.194
Adverse events	N=13(4.2%)	N=10(4.4%)	N=3(3.5%)	0.736
Leak Rate	10(3.2%)	7(3.1%)	N=3(3.5%)	0.837
Bleeding	1(0.3%)	1(0.4%)	-	-
Bowel Obstruction	1(0.3%)	1(0.4%)	-	-
Slippage Ring	1(0.3%)	1(0.4%)	-	-

Our surgical outcomes are comparable to national and international results, and short-term surgical outcomes were similar between the two groups

Despite the conversion rate that for LSG ranges from 1.0 to 1.8%, in our series no procedure required conversion to the laparotomic approach
Gagner et al, Surg Obes Relat Dis. 2016

As far as concerns postoperative complications that required reinterventions, our rates were comparable to those previously, and there were no differences between the two groups
Aminian et al, Surg Obes Relat Dis. 2015



Our results suggest that trainee involvement is related to an increase in mean operative time of LSG

Aminian et al, Obes Surg. 2016

Even if literature reports a relationship between duration of surgery and rate of postoperative complications, and the shortened operative time is a key point of ERAS protocol, in our program this was not related to increased morbidity nor to a worsening of the postoperative course

Chan et al, Surg Obes Relat Dis.

2016
Hopell et al, World J. Surg. 2016

Conclusions

General surgery residents can safely perform LSG in high volume referral centers, under supervision of an expert bariatric surgeon

Resident involvement is not related to increased risk of complications, nor to suboptimal short-term outcomes

Surgical education should be enhanced in academic bariatric centers of our country, without impairing patient safety and providing optimal outcomes

Further studies and randomized controlled trials could confirm our data on larger scale, and with a longer follow up