بسم الله الرحمن الرحيم

∞∞∞∞∞

تم رفع هذه الرسالة بواسطة / حسام الدين محمد مغربي

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات:
.....
.....
.....
.....
.....

Safety of concomitant laparoscopic cholecystectomy and laparoscopic sleeve gastrectomy in morbidly obese patients: A Meta-Analysis

Submitted for Partial Fulfillment of Master Degree in General Surgery

By

Ahmed Hany Mohamed Hosny

M.B.B.Ch (Faculty of Medicine, Ain Shams University)

Under supervision of

Prof. Dr. Youhanna Shohdy Shafik

Professor of General Surgery
Faculty of Medicine, Ain Shams University

Prof. Dr. Mohamed Gamal Elsayed

Associate Professor of General Surgery
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
2021

سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I feel always indebted to **ALLAH,**
the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to **Prof. Dr. Youhanna Shohdy Shafik,** *Professor of General Surgery, Faculty of Medicine, Ain Shams University for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

I am also delighted to express my deepest gratitude and thanks to **Dr. Mohamed Gamal Elsayed,** *Associate Professor of General Surgery, Faculty of Medicine, Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

Ahmed Hany

List of Contents

List of Abbreviations

Abb.	Full term
BMI	Body mass index
BPD-DS	Bilio-pancreatic diversion with duodenal switch
CBD	Common bile duct
CC	Concomitant cholecystectomy
CMA	Comprehensive Meta-Analysis
EBWL	Excess body weight loss
GB	Gallbladder
GERD	Gastroesophageal reflux disease
LAGB	Laparoscopic adjustable gastric banding
LC	Laparoscopic cholecystectomy
LRYGBP	Laparoscopic Roux-en-Y gastric bypass
LSG	Laparoscopic Sleeve gastrectomy
NHLBI	National Heart, Lung, and Blood Institute
OR	Odds ratio
PCC	Prophylactic cholecystectomy
PRISMA	Preferred reporting items for systematic reviews and meta-analysis statement
RCTs	Randomized controlled trial
SCC	Selective concomitant cholecystectomy
SMD	Standardized mean difference

List of Tables

List of Tables Cont...

List of Figures

ABSTRACT

Background: Laparoscopic sleeve gastrectomy is one of the most common bariatric procedure performed. The prevalence of cholelithiasis in morbidly obese individuals is 19–30 % and Gall stones are more symptomatic in obese patients than in non-obese patients. This study evaluates the safety of performing laparoscopic sleeve gastrectomy and laparoscopic cholecystectomy in the same session.

Objective: To evaluate the safety profile of performing laparoscopic cholecystectomy and sleeve gastrectomyin the same session in terms of: The incidence of biliary leakage. The incidence of gastric leakage. The incidence of intra operative bleeding from the sleeve gastrectomy and the cholecystectomy. The incidence of post-operative bleeding. The incidence of post-operative surgical site infection. Operation time. Length of hospital stay.

Method: Selected papers for the present meta-analysis included those that provided data from January 2010 to December 2020 on factors related to the patients who undergone laparoscopic sleeve gastrectomy with and without laparoscopic cholecystectomy. When institutions have published duplicate trials, only the most updated reports were included for qualitative appraisal. All publications were limited to human subjects and English language. Abstracts, case reports, conference presentations, editorials and expert opinions were excluded.

Data Sources: Medline databases (PubMed, Medscape, ScienceDirect. EMF-Portal) and all materials available in the Internet till 2021.

Data Extraction: If the studies did not fulfill the inclusion criteria, they were excluded. Study quality assessment included whether ethical approval was gained, eligibility criteria specified, appropriate controls, and adequate information and defined assessment measures.

Conclusion: Overall concomitant laparoscopic sleeve gastrectomy and laparoscopic cholecystectomy appears to be a safe procedure. The increase in surgical site infection and pneumonia may warrant prophylaxis against such infections with antibiotics. Another study is needed to determine the need and efficacy of such prophylaxis

Keywords: Laparoscopic Sleeve gastrectomy,

INTRODUCTION

There is an enormous rise in the number of the bariatric procedures performed each year. However, increased formation of gallstones either caused by obesity itself, rapid weight loss after the surgery, or type of the bariatric surgery is an important therapeutic challenge ***(Worni et al., 2012).***

Although some bariatric procedures are supposed to cause more gallstone formation by the mechanisms of poor gallbladder (GB) emptying and disturbed enterohepatic circulation of biliary salts, rapid weight loss after bariatric surgery is shown to be the most important risk factor for development of gallstones. It has been proposed that up to one-third of patients develop cholelithiasis after bariatric surgery, the requirement for subsequent cholecystectomy in these patients has been reported in ranges between 3-28% ***(Li et al., 2009).***

Laparoscopic sleeve gastrectomy (LSG) is the most commonly performed bariatric surgical procedure worldwide It has the advantage of being a technically easier operation to perform than gastric bypass. Moreover, LSG appears to be as effective as gastric bypass surgery as regards improvements in glucose homeostasis that are usually observed before substantial weight loss has occurred ***(Chung et al., 2018).***

Adding concomitant LC to LSG poses certain risks due to the increased morbidity for patients with obesity, and it may be technically challenging due to excess intra-abdominal fat and difference in ports' placement for LSG and LC with difficulties establishing and maintaining pneumo-peritoneum, the higher incidence for conversion to open surgery and bile duct injuries ***(Doulamis et al., 2019).***

Although performing concomitant cholecystectomy (CC) has been adopted by a part of the surgical community, no specific guidelines exist to date. We sought to systematically review/ meta-analysis the literature in order to compare clinical outcomes of concomitant cholecystectomy during LSG to LSG alone with the aim to answer the question whether concomitant cholecystectomy during Laparoscopic Sleeve gastrectomy is safe to bariatric patients.

AIM OF THE WORK

The aim of this work is to evaluate the safety profile of performing laparoscopic cholecystectomy and sleeve gastrectomyin the same session in terms of:

- The incidence of biliary leakage.
- The incidence of gastric leakage.
- The incidence of post-operative bleeding.
- The incidence of post-operative surgical site infection.
- Operation time.
- Length of hospital stay.
- The incidence of pneumonia.
- The incidence of DVT.

Chapter 1

LAPAROSCOPIC SLEEVE GASTRECTOMY

Laparoscopic sleeve gastrectomy (LSG) is the most commonly performed bariatric surgical procedure worldwide. It has the advantage of being a technically easier operation to perform than gastric bypass. Moreover, LSG appears to be as effective as gastric bypass surgery as regards improvements in glucose homeostasis that are usually observed before substantial weight loss has occurred. This weight loss independent benefit is probably related to a variety of factors e.g. decreased gastric volume, changes in gut peptides, expression of genes involved in glucose absorption ***(Hutch and Sandoval, 2017).***

On the other hand, compared to laparoscopic adjustable gastric banding (LAGB), sleeve gastrectomy has demonstrated higher efficacy in terms of excess weight loss and resolution of obesity-related co-morbidities ***(Brunicardi et al., 2010)*** **(Fig. 1)**

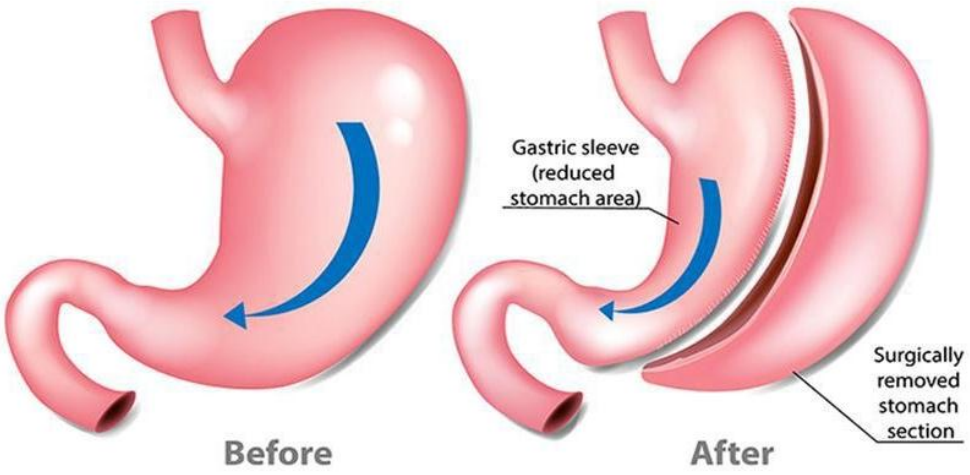

Figure (1): Diagrammatic representation of sleeve gastrectomy ***(O'Brien, 2016).***

Sleeve gastrectomy effectively treats most obesity-related co- morbidities, with the only exception being gastroesophageal reflux disease (GERD). Patients with GERD experience less resolution of their symptoms following LSG. Hence, those with long-standing severe GERD may not be good candidates for such procedure ***(O'Brien, 2016).***

Barrett's esophagus is considered a relative contraindication for sleeve gastrectomy because of the potential need for future esophagectomy in patients with Barrett's esophagus and hence, the need for an intact stomach for reconstruction outweigh the potential advantages of the bariatric procedure ***(O'Brien, 2016).***