Laparoscopic Sleeve gastrectomy versus Minigastric bypass in management of Morbid Obesity

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بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

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Mahmoud Younis Hassan

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List of Abbreviations

BBB	Blood-brain barrier
BMI	Body mass index
BPD	Bilopancreatic diversion
BPD-DS	Bilopancreatic diversion with duodenal switch
CRP	C-reactive protein
CSF	cerebral spinal fluid
CT	computerized tomography
DVT	Deep venous thrombosis
EBWL	Excess body weight loss
EW	Excess weight
FFA	Free fatty acids
FFP	Fresh frozen plasma
GERD	Gastro esophageal reflux disease
GHR	ghrelin hormone
GLP-1	Glucagon link peptide
HDL	High density lipoprotein
IF	Intrinsic factor
IFSO-EC	International Federation for the Surgery of Morbid Obesity and Metabolic Disorders– European chapter
LAGB	Laparoscopic adjustable gastric banding

List of Abbreviations (Cont.)

LGCP	Laparoscopic greater curvature plication
LMWH	Low molecular weight heparin
LRYGB	Laparoscopic roux en y gastric bypass
LVBG	Laparoscopic Vertical Gastroplasty
NASH	Nonalcoholic steatohepatitis
NIDDM	Non insulin dependent diabetes mellitus
NIH	National institute of health
NPY	Neuropeptide Y
NSAIDS	non-steroidal anti-inflammatory drugs
OHS	Obesity hypoventilation syndrome
OSAS	Obstructive sleep apnea syndrome
PAI-1	plasminogen activation inhibitor
PCC	Prothrombin Complex Concentrate
RYGB	Roux en y gastric bypass
SOS	Swedish obese subject
T2DM	Type 2 diabetes mellitus
TIBC	total iron binding capacity
TNF	Tumor necrosis factor
VBG	Vertical banded gastroplasty
WHO	World health organization
WHR	Waist hip ratio

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Introduction

Obesity has become a major health problem in both developed and developing countries in the twenty first century because of its high prevalence and causal relationship with serious medical and psychological complications ***(Singh et al., 2011).***

Obesity is an extremely significant and increasing public health challenge in both economically developed and developing regions of the world. In 2008, more than 1.4 billion adults, worldwide, were overweight and of these more than 200 million men and nearly 300 million women were obese, a number that has doubled since the 1980s ***(WHO, 2013).***

The current estimates are that 33 % of the world's population of 7.08 billion about 2.36 billion people are overweight or obese. There are an estimated 2.5 people added to the global population each second and one of them will be obese or overweight. It is estimated that 35.7 % of the adult population in the United States is obese ***(Ogden et al., 2012).***

The World Health Organization (WHO).defines obesity as a condition of excessive fat accumulation in the body to the extent that health and well-being are adversely affected ***(WHO, 2013).***

If the amount of body fat exceeds normal physiological values, a person is obese. Although this definition appears simple, it has major limitations. The physiologically normal amount of body fat depends on age and sex with high variation among individuals. Newborns have 10–15 % body fat, and during the first year of life, this increases to about 25 %. After that, slowly decreases again to 15 % of body weight at the age of 10 years, when amount of body fat percentage differences between the sexes become more apparent. During

sexual maturation, girls experience an increase in their body fat again, up to about 25 %, whereas boys keep about the same percentage. During adulthood, BF% increases slowly with age in both males and females ***(R. Armour and Devi, 2015).***

According to BMI, overweight is defined as a body mass index ≥ 25 kg/m^2, obesity is a BMI ≥ 30 kg/m^2 while morbid obesity is a BMI ≥ 40 kg/m^2 or BMI > 35 with co-morbidity while a BMI of ≥ 45 or 50 is a super obesity ***(Jacobs et al., 2010).***

Obesity is associated with markedly reduced life expectancy, thus becoming a leading cause of preventable deaths allover the world. It has been shown to be associated with hypertension, hyperlipidemia, coronary artery disease abnormal glucose tolerance or diabetes, sleep apnea, nonalcoholic fatty liver disease, and certain cancers including esophageal, pancreatic, renal cell, postmenopausal breast, endometrial, cervical, and prostate cancers. Even more alarming is that at least 2.8 million people across the world are dying each year directly as a result of being overweight or obese ***(WHO, 2013).***

Social, psychological, and economic consequences are also well recognized. A large amount of research is directed towards the understanding of obesity and many public health efforts have been directed towards controlling its exponential growth ***(R. Armour and Devi, 2015).***

Clinical assessment is important in the management of the morbidly obese patients. The assessment includes the co-morbid risk factors, body mass index, waist circumference, certain relevant biochemical parameters and psychological evaluation (***Jacobs et al., 2010).***

Failure to lose weight or intractable symptoms after bariatric surgery presents a complex diagnostic and management challenge, that has led to a rapidly increasing

demand for revisional bariatric surgery, performed to resolve mechanical complications and metabolic problems caused by the primary operation or to provide satisfactory weight loss. Conversion of failed bariatric procedures to a resectional gastric bypasscan achieve symptomatic relief and acceptable weight loss, also gastric banding is one potential solution ***(Gallagher et al., 2000).***

There are several reasons why patients may seek out revisional bariatric surgery. For many patients, a single operation to treat obesity is sufficient to produce durable, long-term weight loss without complications. For some patients, however, a weight-loss procedure may yield less than optimal results, either through inadequate weight loss, inadequate resolution of co-morbidities or by medical complications specifically related to their weight loss surgery ***(Fox et al., 2008).***

Minimally invasive techniques have been used in bariatric surgery since 1993. Advanced surgical techniques are required. Although not all patients are candidates for this approach. Laparoscopy involves using a specialized telescope to view the stomach, which typically allows smaller abdominal incisions.Laparoscopic surgery can accelerate recovery of the patients and subsequent resumingtheir activities (***Jones, 2011).***

Advantages of Laparoscopic surgery include minimal pain &minimal ileus, improved cosmosis, shorter hospital stay and faster recovery. Non muscle splitting incision & less blood loss. Post operative respiratory muscle function returns to normal faster than following normal surgery. Wound complications i.e. infection & dehiscence are less than with normal surgery. Laparoscopic surgery can be done as a day care surgery, but **disadvantages** are relative longer duration of surgery. Loss of 3D view, impaired touch sensation, risk of unrecognized visceral or vessel.Injury.Relative longer learning curve for surgeons **(*Gutt, 2009).***

Aim of the Work

The aim of this study to review and compare between laparoscopic Sleeve gastrectomy and laparoscopic Mini-gastricbypass (single anastomosis) in management of morbid obesity.

Definitions, Classification and complications of morbid obesity

Obesity is no longer considered a cosmetic issue that is caused by overeating and a lack of self-control. The World Health Organization (WHO). along with National and International medical and scientific societies, now recognizes obesity as a chronic progressive *disease* resulting from multiple environmental and genetic factors. The disease of obesity is extremely costly not only in terms of economics, but also in terms of individual societal health, and psychological well-being. Due to its progressive nature, obesity requires life-long treatment and control ***(ASMBS, 2015).***

In 2010, overweight and obesity were estimated to cause 3·4 million deaths, 3·9% of years of life lost, and 3·8% of disability-adjusted life-years (DALYs).worldwide. The rise in obesity has led to widespread call for regular monitoring of changes in overweight and obesity prevalence in all populations. Comparable, up-to-date information about levels and trends is essential to quantify population health effects and to prompt decision makers to priorities action (***Marie et al., 2014).***

Morbid obesity is defined as severe obesity that threatens one's health. Obesity can be treated medically and surgically. Medical treatment for obesity is difficult, because the amount of weight lost is small and patients tend to regain most of the weight lost. Operations designed to result in significant and long-lasting weight loss in patients who are severely obese are called bariatric surgeries. BMI is based on height and weight and applies to adults of both sexes. BMI is calculated as follows: BMI equals weight in kg/height in m2 (***Marie et al., 2014).***