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Laparoscopic gastric surgeries in Treatment of Morbid Obesity

Essay:

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By:
Ahmed Ismail Abd Elrahman Mohamed
M.B; B.CH.
Faculty of medicine
Ain Shams University

Supervised By:
Prof.Dr. Mohamed Ahmed Helmy
Professor of General Surgery
Faculty of Medicine
Ain Shams University
Dr. Mohamed Aboul Naga
lecturer of General Surgery
Faculty of Medicine
Ain Shams University

كلية الطب

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العلاج الجراحى للسمنة المفرطة بواسطة تنظير البطن

رسالة تمهيدية

مقدمة من الطبيب/ أحمد إسماعيل عبد الرحمن محمد

بكالوريوس الطب والجراحه

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توطئة للحصول على درجة الماجستير في الجراحة العامة

تحت إشراف

أ. د. محمد احمد حلمى

استاذ الجراحة العامه

كلية الطب – جامعة عين شمس

د. محمد أبو النجا

مدرس الجراحة العامة

كلية الطب – جامعة عين شمس

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Dedication

I dedicate this work to …

My beloved Mother and father, to whom I owe everything I ever did in my life,

My Sister for always being there for me,

Finally *my lovely wife* for being the light of my life.

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IAP	Intra-Abdominal Pressure
ICD-10	International Classification of Diseases
IL-6	Interleukin-6
IR	Insulin Resistance
IV	Intra Venous
JIB	Jejunoileal bypass
LAGB	Laparoscopic Adjustable Gastric Banding
LC	Lesser Curvature
LCD	Low calorie diet
LDL	Low-density lipoprotein
LRYGB	Laparoscopic Roux-en-Y gastric bypass
LRYGBP	Laparoscopic Roux-en-Y gastric bypass Procedure
LSG	Laparoscopic Sleeve Gastrectomy
LVBG	Laparoscopic Vertical Band Gastroplasty
MC4-R	Melanocortin four receptor geneS
MS	Metabolic Syndrome
NAFLD	Nonalcoholic Fatty Liver Disease
NCD	non communicable diseases
NOTES	natural orifice transluminal endoscopic surgery
NPY	neuropeptide Y
NSAID	Non-steroidal anti-inflammatory drugs
OHS	Obesity hypoventilation syndrome
OXM	Oxytomodulin

PE	Pulmonary embolism
PH	Power of Hydrogen
POMC	Propiomelanocortin
PSA	Prostate-specific antigen
PWS	Prader-Willi syndrome
RYGB	Roux-en-Y gastric bypass
RYGBP	Roux-en-Y gastric bypass procedure
SAN	Sino atrial node
SAS	Sleep apnea syndrome
SG	sleeve gastrectomy
TH	Thyroid Hormon
TNF-α	Tumor Necrosis Factor-alpha
TrKB	Tropomyosin receptor kinase B
TSH	Thyroid Stimulating Hormon
VBG	Vertical-banded gastroplasty
VIP	vasoactive intestinal peptide
VLCD	Very low calorie diet
WC	Waist circumference
WHO	World Health Organization
WHR	Waist-hip ratio

Introduction

Obesity was identified as a disease thirty years ago when WHO listed obesity as a disease in its international classification of diseases in 1979 ***(Kissler and Settmacher., 2013)***.

The prevalence of obesity has reached epidemic proportions. This disease has serious psychological, physical, and economic implications for patients and poses enormous challenges for the physicians caring for them. (***Colquitt JL. 2009***).

Severe obesity is associated with a large number of comorbidities. These start at the head (stroke, diabetic retinopathy,pseudo tumor cerebri, tinnitus) and go to the toes (diabetic neuropathy, venous stasis disease, foot ulcers) and affect almost every organ in between: heart, lungs, liver, gall bladder, spleen, esophagus, intestines, colon, kidneys, bladder, ovaries, prostate, breast, legs, etc.**(*Sugerman HJ et al.*, 2005)**.

Obesity requires long-term management. The goal of treatment is to lose weight to improve or eliminate related health problems, or the risk for them, not to reach an ideal weight. Treatment consists of modifying eating behaviors, monitoring behavior, physical activity. If this treatment does not help to lose weight, medications may be considered. In severe cases surgical procedures can reduce the size of the stomach and limit calories the intestines absorb. Treatment also covers the psychological and social elements of obesity. Stress management and counseling may be helpful. Family support and creating community contacts help dealing with the stereotypes and other social issues that are associated with obesity **(Jastrzebska-Mierzynska et al., 2014**).

Body mass index (BMI) is a widely and simple used method to estimate body fat mass. BMI is calculated by dividing the subject's mass in kg by the square of his or her height. Any BMI ≥ 35 is severe obesity, BMI of ≥ 40 is morbid obesity and BMI of ≥ 45 is super obese (**Sturm, 2007**).

Surgical treatment of morbid obesity (bariatric surgery) has been well established as being safe and effective. Bariatric surgery should be considered for individuals who have a body mass index (BMI) equal to or greater than 40 kg/m2 or have a

BMI equal to or greater than 35 kg/m2 and significant co-morbidities and can show that dietary attempts at weight control have been ineffective. It markedly lowers body weight, reverses or ameliorates the myriad of obesity co-morbidities and improves quality of life (**Colquitt et al., 2014**).

Recent data suggest that patients with diabetes mellitus and a BMI of 30 to 35 kg per m2 may also be reasonable candidates for bariatric surgery (Demaria EJ et al., 2010).

Four operative procedures (in three classes), are currently in general use worldwide:

1. Restrictive: (a) Vertical banded gastroplasty (VBG), (b) Laparoscopic adjustable gastric banding (LAGB).
2. Malabsorptive: Biliopancreatic diversion alone or with duodenal switch.
3. Restrictive and malabsorptive: Roux en Y gastric bypass with a standard limb, long-limb, or very long-limb. ***(Haris et al., 2010).***

Minimally invasive approaches (laparoscopy) have been widely used in bariatric surgery since 1993-1994. The benefits of a laparoscopic approach include: less postoperative pain, increased mobility, shortened hospital stay, minimal incisional scars and shorter convalescent time. In addition to dramatically

reduction of wound complications such as infection, abdominal wall hernia, seroma and hematoma. Open bariatric surgery had certain advantages over laparoscopic procedures, But in the present era of advanced Laparoscopy, greater ease and speed for lysis of adhesions, freedom to use fine suture technique and materials, possibly a lower incidence of certain perioperative complications (e.g., leaks, hemorrhage), and decreased risk of specific long term complications (e.g., anastomotic strictures, internal hernias, bowel obstructions) make laparoscopy a preferred option. By 2003, nearly two-thirds of bariatric procedures worldwide were performed laparoscopically (**Colquitt et al., 2014**).