

Adolescent Morbid Obesity Is there any role of surgery?

Essay

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Index

List of tables -----	i
List of figures -----	ii
List of abbreviations -----	v
Chapter 1 <i>Etiology and Classification of Adolescent Morbid Obesity</i>	
▪ Definition of obesity-----	1
▪ Prevalence of overweight and obesity-----	2
▪ Causes of obesity-----	6
▪ Assessment of obesity -----	21
Chapter 2 <i>Pathophysiology & Complications of Adolescent Morbid Obesity</i>	
▪ Pathophysiology of Adolescent Morbid Obesity-----	40
▪ The Complications of Overweight and Obesity-----	56
▪ Metabolic Syndrome & Obesity-----	82
Chapter 3 <i>Management of Adolescent Morbid Obesity</i>	
▪ The Health benefits of modest Weight Loss -----	88
▪ Guidelines for prevention and management of obesity for children and adolescents-----	89
▪ Prevention of obesity-----	95
▪ Medical Treatment of Morbid Obesity-----	102
○ Diet Regimen-----	103
○ Behaviour Modification-----	106
○ Physical activity-----	108
○ Pharmacotherapy -----	112
○ Community-Based Interventions-----	116
○ Active Physical Interventions-----	118
▪ Surgical treatment of adolescent Morbid Obesity-----	127
Chapter 4 <i>Surgical Procedures</i>	
○ Gastric Banding-----	133
○ Sleeve Gastrectomy-----	145
○ Vertical banded gastroplasty-----	150
○ Bilio-pancreatic Bypass	160
○ Biliopancreatic bypass with duodenal switch---	162

○ Biliopancreatic diversion with anteral preservation	164
○ Lesser curvature gastric Bypass-----	165
○ Intestinal Jejunal Bypass-----	166
○ Gastric Bypass (Roux-en-Y)-----	168
• Open approach Gastric Bypass-----	171
• Laparoscopic approach-----	175
• Gastrojejunostomy: Linear-stapled Technique	178
• Gastrojejunostomy: Circular Stapled	179
• Hand-sewn Gastrojejunostomy	184
○ Mini-Gastric Bypass	189
○ Other procedures	206
Summary & Conclusion-----	208
References-----	210
Arabic Summary-----	252

List of Tables

Table 1. Single gene disorder related to obesity	10
Table 2: syndromes related to obesity	
Table 3: Medications that may promote weight gain and suggested treatment alternatives	20
Table 4: Classification of adults according to BMI	23
Table 5: Classification of weight status and comorbid risk in adults based on BMI	32
Table 6: Review of systems for weight-related problems	54
Table 7: Physical examination in primary care settings which is directed to assess and detect complications of adolescent obesity	55
Table 8: Recommended workup to screen at high risk and follow-up of adolescent obese	80
Table 9: Clinical comorbidity assessment	81
Table 10: ATP III Clinical Identification of the Metabolic Syndrome-	84
Table11: Stages of obesity treatment	93
Table 12: Bariatric surgery for management of obesity	101
Table13: early & late complications of MGB	203

List of Figures

Figure 1: Prevalence rates of overweight / obesity (2000 to 2008)	4
Figure 2: BMI related terminology in adult	22
Figure 3: BMI percentiles for girls ages 2–20 years	25
Figure 4: BMI percentiles for girls ages 2–20 years	26
Figure 5: Measuring waist circumference	31
Figure 6: Measuring subcutaneous skin fold thicknesses	34
Figure 7: Commercially available units for measurement of bioelectrical impedance	35
Figure 9: CT images of the abdomen (at L4/L5 level) of a man with central obesity	37
Figure 10: MRI whole body scans and fat maps of young adult women (24-30 y	39
Figure 10: Normal afferent signals	42
Figure 11: Normal efferent signals	42
Figure 12: Signalization after RYGB	43
Figure 13: Guidelines for prevention and management of obesity for children and adolescents	91
Figure 14: Universal assessment of obesity risk and steps to prevention and treatment.	92
Figure 15: Staged treatment for 12- to 18-year-old youths	94
Figure 16: Life-course opportunities for intervention	98
Figure 17: Intra-gastric Balloon in place within the lumen of the stomach	121
Figure 18: Some examples of acupoints used for promoting weight loss (ICMHL, Shen-Nong Info. c	125
Figure 19: Different types of surgical therapy	132
Figure 20: The two commonly used forms of LAGB	133
Figure 21: Adjustable Gastric Banding	136
Figure 22: Port site in LAGB	138
Figure 23: Laparoscopic adjustable gastric banding	139

Figure 24: Fluoroscopic AP view shows disconnection of the ALGB system	143
Figure 25: Sleeve Gastrectomy	145
Figure 26: Supine split-leg position (French position	147
Figure 27: SG is performed using 7 trocars	147
Figure 28: Greater curvature dissection	147
Figure 29: Selecting the point in the antrum where the stapler firing will start	148
Figure 30: Final appearance of the stomach after completion of the SG	149
Figure 31: VBG	150
Figure 32: Note the neleton catheter around the esophagus and another one along lesser curvature 7 cm from the angel of His	151
Figure 33: Note the pouch, the four rows of staples and the reminant of the stomach	152
Figure 34: The final picture of the open vertical banded gastroplasty	153
Figure 35: Trocar placement for laparoscopic VBG.	156
Figure 36: Another method of laparoscopic VBG using articulating endo GIA beginning from the angel of His	158
Figure 37: VBG: Diagram after cutting the stomach by stapler	158
Figure 38: Biliopancreatic Bypass	161
Figure 39: Biliopancreatic bypass (with duodenal switch	163
Figure 40: Lesser curvature gastric Bypass	165
Figure 41: Jejunocolic bypass	166
Figure 42 (A)Jejunioileal end-to-end bypass & (B) Jejunioileal end-to-side bypass	167
Figure 43: Gastric bypass	171
Figure 44: LGB, The mobility of the Roux limb depends on an adequate mesenteric division	175
Figure 45: LGB, Upward traction on the shaft of the linear stapler ensures that the anastomosis is created of	

the bowel's antimesenteric aspect-----	176

Figure 46: LGB, First a 60-mm transverse staple line is started 5 cm distal to the gastroesophageal junction-----	177
Figure 47: LGB, Creation of a linear stapled gastrojejunostomy in the antegastric position-----	178

Figure 48: Circular stapler and anvil attached to nasogastric tube----	179
Figure 49: Circular Stapled Gastrojejunostomy, High section of the stomach with a linear stapler 45 blue load. Most of the time, three loads of this stapler are used	180
Figure 50: Circular Stapled Gastrojejunostomy: An opening is made in the gastric pouch with a cautery and the tube is pulled down through by one of the trocars and sectioned with harmonic shears	181
Figure 51: Transoral circular stapler method	182
Figure 52: Circular Stapled Gastrojejunostomy: An enterotomy is created in the Roux limb to admit the circular stapler	183
Figure 53: Circular Stapled Gastrojejunostomy: The circular stapler is placed within the abdomen	183
Figure 54: Circular Stapled Gastrojejunostomy: The circular stapler is prepared to fire	184
Figure 55: Mini-Gastric bypass & progression of elements	190
Figure 56: Mini-Gastric bypass	192
Figure 57: The distal part of vertical gastric transection is facilitated by insertion of the lower jaw of the GIA stapler into the guidance Foley tube	193
Figure 58: Schema of the LMGB port sites	195
Figure 59: Comparison of RYGB & MGB	199

List of Abbreviation

LCD	Low Calories Diet
LRYGB	Laparoscopic Roux en-Y Gastric Bypass
LSG	Laparoscopic Sleeve Gastrectomy
PAI-1	Plasminogen Activator Inhibitor 1
BMI	Body Mass Index
BPD-DS	Bilio-Pancreatic Diversion with Duodenal Switch
CCK	Cholecystokinin
GLP-1	Glucagon-Like Peptide 1
HDL-C	High Density Lipoprotein Cholesterol
L MGB	Laparoscopic Mini-Gastric Bypass
LASGB	Laparoscopic Adjustable Silicone Gastric Banding
LBPD-DS	Laparoscopic Bilio-Pancreatic Diversion with Duodenal Switch
LDL-C	Low Density Lipoprotein Cholesterol
MGB	Mini-Gastric Bypass
MRI	Magnetic Resonance Interface
NPY	Neuropeptide Y
OXM	Oxyntomodulin
PAI-1	Plasminogen Activator Inhibitor 1
RGB	Roux en-y Gastric Bypass
SAS	Sleep Apnea Syndrome
SFT	Skin Fold Thickness
VBG	Vertical Band Gastroplasty
VLCDs	Very Low Calorie Diets
WHO	World Health Organization



Chapter 1:

Etiology & Classification of

Adolescent Morbid Obesity



Definition of obesity:

The definition and conceptualization of obesity varies, it is generally accepted that “obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems **(Haslam et al., 2006)**).

It is defined as the accumulation of excess body fat that leads to pathology. Its severity is based on the degree of excess body fat. And may also be defined as body weight that exceeds ideal body weight by 20% **(Schauer et al., 2007)**. While severe obesity defined as having a BMI (body mass index) greater than 35 kg/m², and morbid obesity is having a BMI greater than 40 kg/m² or a BMI greater than 35 kg/m² with concomitant obesity-related morbidity **(Brunnicardi et al., 2005)**.

Operational definitions of obesity in adults are derived from statistical data that analyze the association between body mass and the risk of acute and long-term morbidity and mortality. Because acute medical complications of obesity are less common in children and

adolescents than in adults, and because longitudinal data on the relation between childhood weight and adult morbidity and mortality are more difficult to interpret, no single definition of obesity in childhood and adolescence has gained universal approval. Some investigators have used the terms overweight, obese, and morbidly obese to refer to children and adolescents whose weights exceed those expected for heights by 20%, 50%, and 80-100%, respectively. The body mass index (BMI) has not been consistently used or validated in children younger than 2 years. Because weight varies in a continuous rather than a stepwise fashion, the use of these arbitrary criteria is problematic and may be misleading. Nevertheless, children and adolescents defined as overweight or obese according to published criteria are highly likely to maintain this ponderal status as adults (Steven, 2013).

Body mass index

The BMI is a continuous, although imperfect, measure of body fatness. Calculated as weight (kg) divided by height (m²), BMI corrects for body size and can be readily and reliably quantified in clinical settings. The BMI correlates closely with total body fat (TBF), which is estimated using dual-energy x-ray absorptiometry (DEXA)

scanning in children who are overweight and obese BMI levels correlate with body fat and with concurrent health risks (**Barlow, 2007**).

Prevalence of overweight and obesity

Obesity is not a new phenomenon, but there is mounting evidence that obesity is increasing and continues to become more prevalent (**Hedley et al., 2004**).

The prevalence of obesity has increased dramatically over the past three decades. Health problems related to obesity represent a significant cost to society from lost wages and increased costs. The financial impact is such that the obesity epidemic consumes approximately 6% of all health care expenditures (**Mc Tighe et al., 2003**) .

It is estimated that as many as 300,000 patients may die annually from obesity or obesity-related diseases & over 100 billion are spent yearly on obesity related health care problems (**Fernandez et al., 2004**).

The increase in obesity rates in developing countries has coincided with “westernization” (**De Onis et al., 2010**).

Childhood obesity has more than doubled in children and tripled in adolescents in the past 30 years (**Ogden CL**

et al., 2010) (National Center for Health Statistics.; 2012).

Obesity is epidemic among all ages of children and is global in scope. The World Health Organization (WHO) estimated that 43 million children are overweight and obese even in their preschool years, and 35 million of these children are in developing countries **(Elizabeth et al., 2010)**. Modern lifestyles (inactivity, passive overeating and/or sociocultural/economic influences) in an obesogenic environment cause increased prevalence of obesity among children **(Shaheen & Tawfik 2000)**.

Childhood/adolescent obesity is associated with health problems for the child/adolescent including heightened risk of psychosocial morbidity, cardiovascular complications, and type 1 and 2 diabetes. Of further concern is the fact that obese children and adolescents are likely to be obese adults at increased risk of cardiovascular diseases and other morbidity, premature death, and impaired social, educational and economic productivity **(Shaheen et al., 2004)**.

The following figure illustrates the prevalence rates of overweight/ obesity (> 85th) in adolescents through years 2000 to 2008 and shows that overweight and obesity