

SURGICAL TREATMENT OF OBESITY

Submitted in Fulfilment of Requirements

of Master Degree

General Surgery

BY

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Under Supervision of

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Assistant Professor of Surgery

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Acknowledgment

I am greatly honoured to express my sincere gratitude and utmost thanks to my Professor Dr. Fawzi Bahanassy, Professor of Surgery, Ain Shams University for his goodness and kindness.

I am deeply indebted and much obliged for his incessant encouragement, advice and marvellous help in conducting this thesis.

I would like to express my cordial thanks to Assist. Professor Dr. Adel Abdel Kader, Assist. Professor of Surgery, for his kind care, fine touches and great help to proceed with work. He spent a lot of time in meticulously revising this work.

Introduction

Obesity is the most common disorder of metabolism in humans and is also one of the oldest documented metabolic disturbances in history. Similar historical evidence for obesity is found in Egyptian mummies and Greek sculpture.

The importance of the problem of obesity in relation to the health of individual and to the welfare of the population as a whole is becoming increasingly apparent.

Because of the unsuccessful medical treatment in most instances, in this thesis we undertook to review the subject from the surgical point of view. We expect that this surgical line of treatment of obesity will be more popular in the future.

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Definition of obesity

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Overweight or Obesity

Overweight or obesity is a condition in which there is an excessive deposit of fat. The condition may be either slight and called overweight or gross and called obesity¹.

A weight that is 10% above the desirable weight in the normal individuals is considered overweight. A deviation of 20% above this weight is indicative of obesity.

The morbidly obese patient is the one who has reached 2 or 3 times the ideal weight and who maintained this level for 5 years despite efforts to loose that weight².

The following table gives the % ideal body weight based on Insurance Company Tables³.

Metric Height (cm)	Men (Kg)		Women (Kg)	
	Accepted Wt. range	Average	Accepted wt. range	Average
145			42 - 53	46
148			42 - 54	46.5
150			43 - 55	47
152			44 - 57	48.5
154			44 - 58	49.5
156			45 - 58	50.4
158	51 - 64	55.8	46 - 59	51.3
160	52 - 65	57.6	48 - 61	52.6
162	53 - 66	58.6	49 - 62	54
164	54 - 67	59.6	50 - 64	55.4
166	55 - 69	60	51 - 65	56.8
168	56 - 71	61.7	52 - 66	56.8
170	58 - 73	63.5	53 - 67	60
172	59 - 74	65	55 - 69	61.3
174	60 - 75	66.5	56 - 70	62.6
176	62 - 77	68	58 - 72	64
178	64 - 79	69.4	59 - 74	65.3
180	65 - 80	71		
182	66 - 82	72.6		
184	67 - 84	74.2		
186	69 - 86	75.8		
188	71 - 88	77.6		
190	73 - 90	79.3		
192	75 - 93	81		

Diagnosis of obesity

Diagnosis of obesity

Skin Fold Thickness

Since more than 50% of body fat is deposited subcutaneously, an estimate of the amount of subcutaneous fat gives a good index of obesity⁵

Normally the skin fold thickness is from 10 - 20 mm in women and from 2 to 3 mm less in men. So measurements of over 25 mm in women and 20 mm in men indicate too much subcutaneous fat and hence obesity⁶

Measuring of subcutaneous fat only gives an index of relative fatness, but it cannot determine the total amount of fat in the body which can be measured by other methods. From these methods:

- . Fat soluble gas method
- . Body density method
- . Other methods depend on measurement of total body water or total body potassium⁴.

Fat Soluble Gas Method

If a person breaths in atmosphere containing a known concentration of fat soluble gas as krypton or cyclopropan, the gas will dissolve in his body fat untill an equilibrium is reached in which the partial pressure of the gas in the fat equals the partial pressure in the expired air. At this stage no further uptake of the gas occurs. Thus, if the equilibrium concentration and the amount of gas taken up is measured, the total body fat can be calculated⁴

Classification of obesity

Classification of Obesity¹

Obesity is generally accepted to be the result of excess caloric intake over energy expenditure and it may result from any combination of increased caloric intake or decreased energy expenditure.

It may be classified as:

1. Exogenous or alimentary type: develops through an excessive food intake and low activity level.
2. Endogenous or constitutional type resulting from some metabolic or other physiological or psychological disorder.

Another classification depends on clinical grounds³

1. Lifelong obesity:

The patients are generally of normal birth weight and they tend to be heavier as children and to have a large spurt in weight gain during puberty and (in females who have been pregnant) to give a history of irreversibly gaining weight with each successive pregnancy.

These individuals usually have tried all available methods for caloric restriction and weight reduction without success.

After successful weight loss, regardless of the

return gradually to approximately weight. These individuals tend

ty:

common. These individuals give a n or of average weight till age of in associated with a more sedentary environmental factors. This type of life is extremely common and is : populations.

esity simply reflects an imbalance re and utilization based on the dually do not reduce their caloric priately for their change in body

is calculated that the daily calo- eight maintenance of adults ories/Decade/m² rface are for males ories/Decade/m² rface area for females.

Classification

le presents those elements reco- : as either primary or contributing ment and/or maintenance of obesity.

I- Aetiologic

A- Hypothalamic dysfunction

- 1- Tumours.
- 2- Inflammation.
- 3- Trauma and surgical injury.
- 4- Increased intracranial pressure.

B- Endocrine

- 1- Glucocorticoid excess: Cushing syndrome.
- 2- Thyroid hormone deficiency: Hypothyroidism.
- 3- Hypopituitarism.
- 4- Gonadal deficiency: 1^{ry} and 2^{ry} hypogonadism
- 5- Hyperinsulinism: insulinoma or excess exogenous insulin.

C- Genetic

- 1- Inherited predisposition to obesity.
- 2- Genetic syndromes associated with obesity:
Laurence Moon Biedl Syndrome.

D- Nutritional

- 1- Maternal nutritional factors.
- 2- Infant feeding practices.

E- Drugs

- 1- Phenothiazines.
- 2- Insulin.
- 3- Corticosteroid.
- 4- Tricyclic antidepressants.

II- Anatomic

A- Hypercellular - hypertrophic; early age of onset,
severe obesity.

B- Hypertrophic - normal cellular: adult onset,
milder obesity.

III- Contributory factors.

A- Familial tendency.

B- Physical inactivity.

C- Dietary factors.

D- Socioeconomic.

E- Educational.

F- Psychologic.