

## Bariatric Surgery: An Asset for Obese People

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### Abstract

Bariatric surgery serves as an asset for obese people as it serves as a mean of reducing weight loss for people on long term basis. It reduces the size of the stomach by inserting a band so that people feel the feeling of fullness at an early stage than usual. It has been seen that bariatric surgery reduces the complications of diabetes, cardiovascular disease and other co-morbidities associated with it.

**Keywords:** Bariatric Surgery; Obesity; Pharmacotherapy; Gastric Band; Osteoarthritis

### Introduction

Obesity is a health issue affecting people of all ages and incomes all over the world. One is considered overweight with a weight to height ratio (BMI) of 25 or over, and obese from 30 upward [1].

In Pakistan, it is a health issue that has attracted concern in the past few years. Urbanization and unhealthy, calorie dense diet are among the root causes contributing to obesity in the country.

According to an update published on 29<sup>th</sup> May 2014 in "The Express Tribune", Pakistan has been ranked 9<sup>th</sup> out of 188 countries in the terms of obesity [2].

### Why Obesity is Harmful?

Obese people are more prone to cardiovascular disease, cancer, diabetes, arthritis and kidney diseases. While overweight can be reduced by proper diet, controlling obesity is a challenging task [3]. Weight loss is easy but long term maintenance is extremely difficult to achieve as it requires lifestyle modification.

The most common approach to treat obesity is changes in lifestyle, diet and physical activity [4]. Pharmacotherapy also aids in weight loss, but discontinuing the medications will result in rapid weight gain. Also, when the body gets immune to these medications, many patients start regaining weight despite continuing drugs.

### Importance of Bariatric Surgeries

Due to the shortcomings of diet, bariatric surgery has become recognized as the most effective solution for long-term weight loss. Bariatric surgery results in weight loss by reducing the size of the stomach with a gastric band or through removal of a portion of the stomach or by resecting or re-routing the small intestine to a small stomach pouch [5].

It has many benefits including normalizing glucose in diabetic patients, normalizing BP in hypertensive patients, decreasing joint pain, improvement in CVD status and a slight reduction in mortality and improving quality of life. However anything that has advantages comes with disadvantages as well.

The US NIH 2000 recommends bariatric surgery as an accepted form of treatment for obese people with a class III obesity or BMI of at least 40 or at least 35 with serious co-morbidities such as diabetes, hypertension, cardiopulmonary failure, asthma, infertility and arthritis.

However research is emerging that suggests that bariatric surgery could be appropriate for those with a BMI of 35 - 40 with no co-morbidities or a BMI of 30 - 35 with significant co-morbidities.

### Bariatric Surgery Procedures

Bariatric surgery may be restrictive which aims to reduce calorie intake by reducing gastric capacity.

#### \* Restrictive procedures

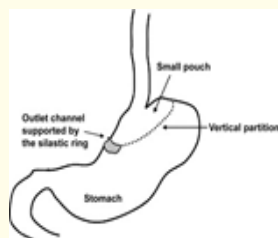
Restrictive procedures include laparoscopic adjustable gastric banding (LAGB), silastic ring gastroplasty (SRG), vertical banded gastroplasty (VBG) and sleeve gastrectomy (SG) [6].

#### 1. Laparoscopic Adjustable Gastric Banding (LAGB)

Laparoscopic gastric banding is surgery to help with weight loss. The surgeon places a band around the upper part of the stomach to create a small pouch which holds food. The band limits the amount of food by making you feel full after eating small amounts of food. During this procedure, a hollow band made of silicone rubber is placed around the upper end of the stomach, creating a small pouch and a narrow passage into the rest of the stomach. The band is then filled with a salt solution, through a tube that connects the band to an access port placed under the skin which can be tightened or loosened to change the size of the passage, by increasing or decreasing the amount of salt solution [7].

## 2. Silastic Ring Vertical Gastroplasty (SRVG)

Silastic ring vertical gastroplasty (SRVG) is a simple, effective and reproducible restrictive operation for the treatment of morbid obesity.



## 3. Vertical Banded Gastroplasty (VBG)

Vertical banded gastroplasty (VBG), also known as stomach stapling, is a form of bariatric surgery for weight control. The VBG procedure involves using bands and staples to create a small stomach pouch. Stomach stapling is a restrictive technique for managing obesity [8].

## 4. Sleeve Gastrectomy (SG)

Sleeve gastrectomy is a surgical weight-loss procedure in which the stomach is reduced to about 15% of its original size, by surgical removal of a large portion of the stomach along the greater curvature. The result is a sleeve or tube like structure. The procedure permanently reduces the size of the stomach, although there could be some dilatation of the stomach later on in life. The procedure is generally performed laparoscopically and is irreversible [9].

## Role of bariatric surgery in improving co-morbidities

Being overweight increases the chances of developing the common type of diabetes, type 2 diabetes [10]. In this disease, the body makes enough insulin but the cells in the body have become resistant to the salutary action of insulin. Bariatric treatment helps in pancreatic  $\beta$ -cell function improvement in patients, thus controlling insulin sensitivity by allowing the patient to reduce the dose of insulin to normalize the blood sugar levels.

It is also seen that blood pressure levels are also improved in patients who lose weight after bariatric surgery. Obesity and hypertension are linked, with obese patients having higher rates of hypertension than normal-weight individuals. Regardless of this, it is not compulsory that every obese patient is hypertensive. Waist circumference is considered as the strongest independent predictor of systolic and diastolic BP. Obesity-related hypertension also has a negative impact on renal function and is linked to an increased incidence of renal failure. Thus, reducing weight to treat high blood pressure will also treat renal problems [11].

If a person is overweight, he may develop hypertension, diabetes and atherosclerosis. These co-morbidities further enhance high risk of cardiovascular disease. Fat, especially intra-abdominal fat, has remarkable impact on our metabolism [12]. This fat affects your blood pressure and your blood lipid levels which consequently interfere with the ability to use insulin effectively. Our body uses insulin to process glucose extracted from food which is our body's primary fuel [13]. If a person cannot use insulin properly, he may develop diabetes which is a risk factor of cardiovascular disease. After bariatric surgery, serum total cholesterol, triglycerides and low-density lipid (LDL) decreases while high-density lipid increases. As improvements are seen in diabetes and blood pressure, the risk for cardiac arrests also improves.

Osteoarthritis, OA, is the most common type of arthritis, characterized by the breakdown of cartilage – the flexible but tough connective tissue that covers the ends of bones at joints. Age, injury, heredity and lifestyle factors all affect the risk of developing OA. OA has a logical link to obesity: The more weight that's on a joint, the more stressed the joint becomes, and the more likely it will wear down and be damaged. Losing weight by bariatric surgery will surely help to reduce the risks of arthritis [14].

Intra-abdominal fat further leads to worsening lung function and respiratory symptoms. Therefore, it is important to have a healthy BMI in order to avoid breathing problems and asthma.

## Role of bariatric surgery in improving reproductive health

Obesity is a common problem among women of child-bearing age. It has a negative impact on natural conception, pregnancy and the long-term health of mother and child due to an increased rate of congenital anomalies, pregnancy complications and the possibility of metabolic disease in later life. In addition, the likelihood of miscarriage in obese women who do conceive is raised. A maternal BMI of greater than 30 kg/m<sup>2</sup> was associated with an increased

risk of gestational diabetes, gestational hypertension, pre-eclampsia and fetal macrosomia compared with women with a BMI of less than 30 kg/m<sup>2</sup>. The effective ways to induce long-term weight reduction in women with severe obesity are either significant sustained lifestyle changes, which are not achieved by most very obese people in the long term or bariatric surgery [15].

## Conclusion

Research is ongoing into the safety, effectiveness and long term outcomes of different procedures as well as the possibility of alternative and non-surgical treatment options.

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