**ORIGINAL ARTICLE**

# Prevalence of Obesity in Surgical Patients Undergoing Abdominal Surgery at Mayo Hospital Lahore Pakistan

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## ABSTRACT

**Background:** Obesity poses problems for the patient and surgeon and it is increasing worldwide. It increases the risk of complications in operative and postoperative period

**Aim:** To assess the frequency of obese patients undergoing abdominal surgery.

**Methods:** This was descriptive case series and conducted from 06-01-2015 to 05-07-2015 on 120 patients in East and North surgical Wards Mayo Hospital Lahore. Age height and weight of all the patients was noted. From height and weight, body mass index (BMI) was calculated to determine the obesity of the patients. All this information was recorded on a predesigned proforma.

**Results**: Total of 120 patients undergoing abdominal surgery were included in the study. The age of the patients varied from 14 to 65 years having mean value of 37.10 (SD±10.26). There were 63(52.5%) males and 57(47.5%) females. The minimum height of the patients was 150.10 cm and maximum was 182 cm having mean of 165.94(SD±8.58). The weight of the patients varied from 58kg to 121 kg with mean weight of 95.23kg (SD±17.26). Body mass index ranged from 19.06 $kgm^{-2}$ to 36.14$kgm^{-2}$ having mean value of 28.64$kgm^{-2}$ (SD±4.71). Obesity was found in 37(30.8%) patients and there were 83(69.2%) non-obese patients undergoing abdominal surgery.

**Conclusion:** Obesity is quite prevalent and is increasing. It is be considered as a comorbid factor affecting the operative and postoperative course of patients .

**Keywords:** Obesity, Body Mass Index, Abdominal Surgery, Complications.

## INTRODUCTION

The most practical method for evaluating the degree of overweight and obesity is body mass index (BMI). The definition of obesity is uniformly provided by WHO[1]. It is calculated as:

***Body Mass Index =body weight (in kg)÷ square of height( in meters)***

The word "overweight" means an excessive body weight above normal limit and "obesity" refers to the excess of body fat. Both of these words can be defined by body mass index (BMI)[2]. The degree of risk and various complications is related to the BMI. The increase in BMI is associated with increase in operative and postoperative complications[3]. A BMI from 25 to 30 $kg/m^2$ is associated with low risk and above 30 kg/m2 has moderate risk. The National Center for Health Statistics and WHO have defined overweight as a BMI from 25 to 29.9 and obesity as a BMI greater than 30 $kg/m^2$[2,4]. The age of becoming overweight and obese is quiet variable[5]. There are certain times when weight gain tends to occur more, which vary between men and women.

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There is increased recognition of the prevalence of obesity and its effects on the outcomes of the patients[6]. Specifically, obesity has been validated as a risk factor for surgical site infection in the patients undergoing abdominal surgery[7]. Other problems related with surgery include blood loss during surgery, operative time, wound dehiscence, incisional hernia[8]. Obesity is also risk factor for development of various diseases which are not related with surgery like hypertension, diabetes mellitus, ischaemic heart disease, sleep apnoea etc[9].

The conventional medical and conservative therapies (i.e., diet, exercise etc) for weight reduction and treatment of obesity in these patients usually fails in the long run. The pharmacotherapy in addition to other therapeutic measure has limited effectiveness[10]. On other hand, bariatric surgery is effective in weight reduction, but only a small number of these patients undergo the surgery due to the perioperative risks and potential complications associated with the procedures[11].

Obesity affects the outcome of the patients in different ways. It is an important factor during the surgery for the patient and treating doctor[12]. In local literature, nothing has been mentioned about the obesity and its incidence in the surgical patients. So, considering this important determining factor, we

conducted a study in our unit to see the incidence of obesity in the surgical patients.

The study was done to assess the frequency of obese patients undergoing open and laparoscopic abdominal surgery .

## MATERIALS & METHODS

This was descriptive case series and conducted in North and East surgical units of Mayo Hospital /King Edward Medical University, Lahore. In this study, 120 patients were studied who underwent abdominal surgery, during 6 months from 06 -01 2015 to 05-07 2015. Non-probability, consecutive sampling technique was used using 95% confidence level, 8% margin of error. Both male and female patients of more than 12 years of age operated for abdominal surgery under general anaesthesia were included in the study. Patients of less than 13 years and underweight (BMI <18.5) were excluded.

All the patients were admitted throughout patient department and emergency of Mayo Hospital, Lahore or referred from other units and periphery. Informed consent was obtained and patient demographic information (name, age, sex, height, weight etc.) was recorded. Patients were assessed for their obesity. After measuring their weight and height, BMI was calculated as per operational definition. Postoperative findings/outcome like wound complications were noted. Postoperatively follow up was advised. All this information was recorded on a predesigned proforma

Data was analyzed by using SPSS 18. Quantitative variables like age, height, weight, BMI were calculated as mean±SD. Qualitative variables like gender, obesity, complications were presented as frequency and percentage. P-value $\leq$0.05 was considered as significant.

## RESULTS

From 120 cases undergoing abdominal surgery it was found that the minimum age of the patients was noticed as 14 years and maximum age was 65 years having mean and standard deviation 37.10±10.26 years (Table 1). It was observed that the minimum height of the patients was noticed as 150.10 cm and maximum height was 182 cm having mean and standard deviation 165.94±8.58cm. The minimum weight of the patients was observed as 58 kilograms and maximum weight was 121 kilograms having mean and standard deviation 95.23 ± 17.26 kilograms. Body mass index was also calculated, the minimum BMI of the patients was calculated as 19.06 kg $m^{-2}$ and maximum age was 36.14kg$m^{-2}$ having mean and standard deviation 28.64±4.71kg$m^{-2}$ (Table 1).

It was observed that wound complication was found in 13 (35.1%) out of 37 obese cases whereas wound complication was found in 8 (9.8%) out of 83 non-obese patients. There were 63 (52.5%) males and 57(47.5%) females (Table 2). Obesity was found in 37(30.8%) patients and there were 83(69.2%) non-obese patients undergoing abdominal surgery (Table 3). It was observed that there was significant association between obesity and complications

Table 1: Statistics of obesity

| | Min. | Max. | Mean | Std. Deviation |
|---|---|---|---|---|
| Age | 14 | 65 | 37.1 | 10.26 |
| Weight | 58.00 | 121 | 95.23 | 17.26 |
| Height | 150.1 | 182 | 165.94 | 8.58 |
| BMI | 19.06 | 36.14 | 28.64 | 4.71 |

Table 2: Frequency of Gender

| Gender | Frequency | %age |
|---|---|---|
| Male | 63 | 52.5 |
| Female | 57 | 47.5 |
| Total | 120 | 100 |

Table 3: Frequency of Obesity

| | Frequency | %age |
|---|---|---|
| Obese | 37 | 30.8 |
| Non-obese | 83 | 69.2 |
| Total | 120 | 100 |

## DISCUSSION

Obesity is one important determinant and affects outcome of the all patients including the surgical patients. In general population, its incidence is not known in our setup. The degree of perioperative risk is related to the body mass index. The obesity is associated with increase in operative and postoperative morbidity and mortality. Throughout the world its prevalence continues to escalate. Regarding the optimal and standard treatment protocol for the obesity, there is no consensus. In the past few years, there has been more knowledge regarding recognition of the prevalence of obesity and its contribution to worse outcomes among medical and surgical patients[13,14].

Merkow RP, et al described that obesity is associated with an increased risk of postoperative complications after colectomy for cancer, but it is unclear which specific complications occur more frequently in obese patients[15]. They identified 3,202 patients: 33.4% normal weight (BMI 18.5 to 24 kg/$m^2$), 35.1% overweight (BMI 25 to 29kg/$m^2$), 19% obese (BMI 30 to 34kg/$m^2$), and 12.4% morbidly obese (BMI $\geq$35 kg/$m^2$). Compared with normal weight patients, complications occurred more

frequently in the morbidly obese than nonobese patients[16].

In a study by Wakefield H et al, obesity is mentioned as a comorbid condition. On the basis of BMI they divided patients into 4 types: malnourished (less than 18), normal weight (from 18 to 30), obesity class I & II (30 to 40), and obesity class III (more than 40). They found that patients in obesity of class I & II were 1.2 times and in obesity class III were 1.4 times more prone to develop complications. However, after controlling for patient risk factors, there were no much cost differences between the various categories of body mass index[17].

In another study, patients were divided into various types and labelled as normal weight (BMI less than 25), overweight (BMI from 25 to 30), or obese (BMI more than 30). They observed that there were 42.9% normal-weight, 29.6%) overweight, and 27.5% obese patients[17]. The researcher suggested that the obesity should be considered during assessment for surgery and when counseling the patients. These findings are comparable to our study.

## CONCLUSION

The incidence of obesity is quiet significant and prevalent although less than some other countries. It is to be considered as one of the comorbid and risk factor in the surgical patients like other medical disorders.

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