

## Laparoscopic Sleeve Gastrectomy (LSG) v/s One Anastomosis Gastric Bypass (OAGB): comparing quality of life after bariatric surgery

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### ABSTRACT

**Introduction:** Various studies have shown that obesity affects people's physical, mental and psycho-social functioning in turn affecting the Quality of Life (QoL). Research has shown an improvement in QoL after Bariatric Surgery. **Objectives:** The main aim of the study was to see whether there was any difference in QoL among patients undergoing LSG and OAGB at one and a half year after surgery. **Methods:** 32 patients (16 matched pairs each on age, gender and BMI), males and females had a mean age of 48.75 years. The mean BMI was 45.25kg/m<sup>2</sup> and 41.56kg/m<sup>2</sup> for OAGB and LSG respectively. They were administered a standardized scale: Impact of Weight on Quality of Life (IWQoL) at baseline and one and a half year post surgery. **Results:** Mean BMI dropped to 27.31 kg/m<sup>2</sup> and 29.20 kg/m<sup>2</sup> for OAGB and LSG respectively. The Mean total score on QoL scale pre-op was 12.93 and 10 and post-op 93.69 and 80.3 for OAGB and LSG respectively. But no statistically significant difference is seen among the LSG and OAGB groups on post op score on QoL. **Conclusion:** OAGB and SG both improve QoL. Larger sample size and longer duration studies are required to re-evaluate the same.

**Keywords:** LSG, OAGB, Bariatric Surgery

Obesity is a global epidemic that is seen to affect not only physical health but also psychological health which is in turn affecting the quality of life in individuals<sup>1</sup>. Obesity is rapidly growing not just in developed countries but also in developing countries and India is currently fighting the dual burden of under nutrition and over nutrition<sup>2</sup>. With a huge population still lying below poverty line, it is very difficult to comprehend that India has the third highest obese population in the world after USA and China<sup>3</sup>. With this time bomb ticking treatment options have to be such that they have long

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term effects not just in maintaining weight but also in the resolution of co-morbidities. Treatment forms vary from medical management to dietary modifications and behavioral changes to surgical treatment. Currently bariatric surgery is one of the only treatments that has the better long-term results not just in weight management but in co-morbidity resolution as compared to other conventional forms of treatments<sup>4</sup>. Laparoscopic Sleeve Gastrectomy (LSG) has become one of the most commonly performed procedures in the last decade. One Anastomosis Gastric Bypass (OAGB) is a comparatively newer procedure which was reported first only in 2001. Overtime multiple studies have shown improvement in Quality of Life (QoL) after bariatric surgery but few studies have been done for the newer procedure of OAGB and even lesser studies to compare the quality of life of patients on the basis of the type of procedure. The difference among different procedures and its impact on quality of life is yet a fairly new subject. There is a paucity of literature in this area among the Indian population especially with over 100 bariatric surgeries being performed every day in India. The present study will throw light on future awareness, prevention and treatment plans of obesity management. The aim of the study was to see if there is any difference in improvement in QoL among patients undergoing LSG and OAGB one and a half year after surgery.

### **MATERIAL AND METHODS**

A retrospective study was conducted in a group of patients who underwent bariatric surgery at Laparo Obeso Centre, Pune, India. A detailed screening of all the patients was done which included through medical detailed history, dietary history and anthropometric measurements. Further once the patient qualified for surgical treatment the type of surgery was decided upon by the patient, family and the treating surgeon after having discussed the best possible form of treatment, its effectiveness and potential complications.

The patient group was administered a standardized tool to measure quality of life called the Impact of Weight on Quality of Life- Lite (IWQoL- Lite). Baseline data of the patients was collected either through telephonic interview or email (since the patients were not from Pune and patients could not come for follow-up, hence telephonic or email follow-ups were taken) and the same was followed at one and a half years after surgery. Weight loss post surgery generally continues till about one year after surgery and then there is stagnancy post that period. Some patients could also show weight gain post the one period hence a one and a half year period was considered for the post surgery scores as that would be better to understand if these factors affect the QoL.

All the other information like demographic details, age, weight, Body Mass Index (BMI) was collected from the hospital records.

IWQOL is a 31 item self report inventory and the questionnaire measures quality of life focusing on five areas, namely: Physical Function, Self-Esteem, Sexual Life, Public Distress, and Work. The scores are on a 5 point Likert scale (5=Always True, 4=Usually True, 3= Sometimes True, 2= Rarely True & 1= Never True) here the number indicates the score for each item. Higher the score higher is the quality of life score of the patient. The scale gives a total quality of life score and each category can also be scored individually.

Paired sample T-test on SPSS was used in the present study to statistically analyze the data. The data was analyzed for patients who underwent LSG pre and post surgery and similarly for MGB for pre and post surgery.

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### RESULTS

In the present study 32 patients were included as a part of the study. 16 pairs each were matched on age, gender and BMI and they underwent either LSG or OAGB. The study included both males and females. The two groups were paired on age BMI and gender so that they could be compared and these factors would not affect the outcome of the study.

#### *Pre-surgery*

Patients answered the IWQoL-Lite questionnaire and their pre-operative quality of life score on the scale was recorded. In the group of patients who underwent LSG the average Total Quality of Life score was 10.0 pre-operatively and the patients who underwent OAGB the average Total Quality of Life score was 12.93 and there was no statistically significant difference in the two groups ( $p=0.300$ ). Co-morbidities of the patients were not considered in the present study. Not considering co-morbidities was a major drawback of the study and may have an impact on the results, but since some of the follow-ups were taken on email or telephonically investigations were not available hence scores on the QoL scale were included in the study.

#### *Surgical Treatment Result*

Post undergoing bariatric surgery (either of the two procedures) all the patients had lost a significant reduction in weight and BMI. The mean pre- BMI for patients undergoing SG and OAGB was 41.5kg/m<sup>2</sup> and 45.2 kg/m<sup>2</sup> respectively which changed to 29.25 kg/m<sup>2</sup> and 27.31 kg/m<sup>2</sup> respectively one and a half year post the surgeries. But there was no statistically significant difference in the two surgical groups on the basis of their BMI change ( $p=0.209$ ).

#### *Post-surgery*

At one and a half years post surgery for all the QoL parameters that were measured using the IWQoL-Lite questionnaire, patients who underwent LSG their post operative QoL scores improved for all the parameters of the scale and were statistically significant as compared to their baseline values ( $p=0.000$ ). Similar scores were also for patients who underwent OAGB and their QoL scores also improved for all the parameters of the scale and were statistically significant as compared to their baseline values with ( $p=0.000$ ). Table1

**Table1: Pre and post op p values on the IWQoL Scale & Comparing the post-operative p value of LSG and OAGB patients**

Quality of Life		LSG	OAGB	p value
Physical	Pre-op	8.50	12.0	0.273
Function	Post op	83.43	91.37	
Self Esteem	Pre-op	26.06	25.81	0.212
	Post op	88.12	93.87	
Sexual Function	Pre-op	11.62	8.18	0.128
	Post op	69.12	85.69	
Public Distress	Pre-op	16.87	21.94	0.002*
	Post op	74.56	98.50	
Work Life	Pre-op	10.31	13.06	0.001*
	Post op	68.00	94.94	
Total QoL	Pre-op	10.0	12.94	0.300
	Post op	80.25	93.69	

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The two surgeries were compared to see if there was any statistically significant difference in the QoL among patients depending on the type of surgery they underwent. The scores of the patients have been summarized in Table 2. From the results it can be determined that the QoL of the patients who underwent two different procedures differed on Public distress and work life where there was a statistically significant difference found among the two groups. The rest of the parameters, including the total QoL score there was no statistical difference between the two surgical groups.

### DISCUSSION

Quality of life is one of the most studied and reported measure of health status. A tremendous increase in obesity and its relating co-morbidities in the last few decades have lead to reduction in overall quality of life. Review of literature has proven that obese individuals have a poorer QoL than normal weight individuals<sup>5</sup>.

While in any weight loss treatment weight lost is an important outcome but at the same time the quality of life and improvement in it is also a vital component. There is abundant research that bariatric surgery is the most efficient modality which not only brings about weight loss and weight maintenance in the long run but also co-morbidity resolution thus improving long term quality of life<sup>6</sup>. Research over a decade has shown to improve quality of life after bariatric surgery. Even though weight loss is a major factor it is not the only factor that decides improvement in quality of life<sup>7</sup>. Some studies found that even a moderate amount of weight loss can lead to a significant improvement in the QoL of patients.

In spite of there being a huge number of studies that have documented significant improvement in QoL still there is paucity of literature comparing different bariatric procedures and comparing their impact on QoL.

With various types of procedures being performed it has now become essential to understand the impact the procedures have on weight loss, co-morbidities and quality of life and if there is a difference in these factors depending on the type of surgery. LSG has now become one of the most commonly performed procedures worldwide. Similarly OAGB is also gaining importance as procedure in the recent years.

The present study demonstrated that there was a significant improvement in the QoL but impact on QoL post bariatric surgery was the same irrespective of whether the patients underwent LSG or OAGB. But it can also be noted that though the outcome is not statistically significant there is a very minor difference in the outcome. For data to be statistically significant  $p$  value should be  $<0.05$  and in the present study the  $p$  value is 0.066 which is very close to the statistical value. Studies with a larger sample size and longer duration could be conducted to help identify if there could be a difference in the two procedures. A similar study was conducted with a 3-year follow up comparing OAGB and LSG concluded a better quality of life in patients who had undergone OAGB as compared to LSG patients at 1 & 3 year follow up. Interestingly, there are only a handful studies that have included QoL after OAGB in their study, thus making this a unique study<sup>8</sup>.

The statistical difference between the two surgical groups was also measured parameter wise. According to the findings the patients did not statistically differ on the Physical Function, Self Esteem and Sexual Function but there was a statistically significant difference between the two surgical groups of patients on the Public Distress and Work Life parameters

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( $p=0.002$  and  $0.001$  respectively). But the overall quality of life remained the same with no statistical difference between the two surgical groups. OAGB as a procedure is generally performed on patients who higher co-morbidity levels like inability to control sugar levels, high cholesterol levels, hypertension, etc which defines them as metabolically ill. Patients who undergo LSG may or may not be diagnosed with any of these co-morbidities and weight could be the only factor affecting them. Thus, there could be more co-morbidity improvement or resolution in patients undergoing OAGB as compared to LSG which could have been why the patients who underwent OAGB were better than patients who underwent LSG on Public distress and Work life factors. Further research needs to be conducted in order to get a better picture on improvement in QoL by identifying the improvement in co-morbidities, their impact on QoL and if the improvement in these co-morbidities brings about similar results in the long run.

With the rapid increase in prevalence of obesity and the co-morbidities accompanying there will be an increased demand for bariatric surgery. Further studies that will help understand the impact of various surgeries, with larger sample size and with a focus on the co-morbidities and the improvement in them post the surgery.

### CONCLUSION

The present study evaluated the improvement in Quality of life in patients who underwent bariatric surgery and also compared the impact of type of surgery on the quality of life. It can be concluded that there was a statistically significant difference post bariatric surgery as compared to pre surgery. Even though there was no significant difference between the two surgical groups on the overall quality of life but there was statistically significant difference between the two surgical groups of patients on the Public Distress and Work Life parameters.

Certain limitations in the study that can be observed, longer duration studies are required to see if similar trends in results continue. Also, in the present study no factors other than quality of life were evaluated but depression, impact of co-morbidities, stress, eating disorders etc. could have also been evaluated. In depth evaluation about why a certain procedure had a better impact on quality of life as compared to the other needs to be understood by evaluating the improvement in co-morbidities, thus helping us better understand the impact on the outcomes.

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### ***Conflict of Interest***

The author declared no conflict of interest.

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