



The Effect of Laparoscopic Sleeve Gastrectomy on Patients' Quality of Life in Shiraz

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Abstract

Background: Laparoscopic sleeve gastrectomy (LSG) has recently become a popular procedure due to patients' perception that this method may have lower risk than other bariatric surgeries. There is a lack of adequate predicted data on quality of life (QOL) among these patients. The aim of the study is to evaluate changes in physical and social functioning, pain, and mental health after LSG surgery.

Methods: This retrospective study evaluated QOL by using the obesity-specific Moorehead-Ardelt quality of life questionnaire II (MAII) and Medical outcomes survey short form 36 (SF-36) health survey. The questionnaires were used for a group of 120 patients underwent LSG in Shiraz. Demographics, quality of life were measured by questionnaires which filled by all patients and compared with whom were scheduled for surgery. In terms of statically significance, it is valuable when the P value is under < 0.05 in comparing two groups.

Results: Their initial mean (SD) of body mass index (BMI) was 48.87 (1.38) kg/m². Six months after surgery, the mean (SD) of weight loss in patients was 36.15 (3.9) kg. Median follow-up point of patients was 14.5 months (range, 2 - 46 months). The median MAII score was 6.48 ± 0.45 after surgery with no significant difference in the comparison of pre-operation (P = 0.275), but the SF-36 scores were statistically different in all parameters (P < 0.05) except for "role limitations attributed to emotional problems" and "mental health" with no significant difference (P = 0.080, 0.074, respectively).

Conclusions: The outcomes of LSG operation compared with the pre-operation status of patients depicted that LSG is a satisfactory and effective bariatric procedure. Also, resolution of comorbidity is an important aspect and is comparable with other reports.

Keywords: Quality of Life, Obesity, Laparoscopic Sleeve Gastrectomy, Long-Term Results

1. Background

Bariatric surgery has become an important treatment for morbid obesity, therefore losing weight helps patients improve obesity-related comorbidities, quality of life and survival (1). Sleeve gastrectomy is a new bariatric procedure that has become popular over the last decade because of its relative operative simplicity and lower risk profile (2). However, the quality of life (QOL) in patients who underwent laparoscopic sleeve gastrectomy (LSG) was not surveyed in Iran yet. Some studies created their own definition for a successful operation, which often differed greatly in other countries. The national institute of health panel proposed the QOL assessment postoperatively to assess satisfaction of patients with their life (3).

Patient's health and physical, mental improvement and social well-being enhancement are main criterion

of QOL in bariatric surgery and increasing their life expectancy. Obese patients had limitations in physical activity hence they desire to loss their weights and became appear in society and happier in their life. Although mental disorders are exclusion criteria for sleeve gastrectomy in our settings, satisfaction of surgery dependents on mental health would be included. Each assessment of quality of life requires practicality, appropriateness, validity, reliability, and responsiveness.3 Medical outcomes study short form 36-item health survey (SF-36) is a generic questionnaire in health survey that can be used after bariatric surgeries (4, 5). Moorehead-Ardelt quality of life questionnaire (MAII) another assessment was the most favorable system to analyzing the bariatric surgeries more specifically (6). Oria et al. began developing a system to assess and report outcomes after bariatric surgeries that included analysis

of changes in QOL according to weight loss and improvements in obesity-related comorbidities (7, 8). It was specifically created to be included in to the bariatric analysis and reporting outcome system (BAROS). The final score classifies the results into 5 outcome groups ranging from failure to excellent (7, 8).

Subjective parameters such as quality of life could help surgeons and patients to make more informed decision. Although these parameters are personally relevant to the patient, this could be added new ways to make decision. Our aim was to evaluate the weight loss and the changes of health-related QOL and comorbidities after LSG surgery in Shiraz.

2. Methods

2.1. Participants

This is a retrospective review of a prospectively collected database from patients who underwent LSG in Shiraz between January 2014 and July 2015. All patients had the national institutes of health criteria for bariatric surgery. Surgeries were performed at Shahid Faghihi and mother and child hospitals. This study was approved by the Shiraz University of Medical Sciences ethics committee (no. 1394.S325). Written informed consent was obtained from each participant and they invited to free visits by surgeon. Then, the patients were asked to fill the study questionnaires (SF-36 and Moorehead-Ardelt II) filled in clinic by themselves before and 12 months after the operation. Approximately 700 patients who underwent Sleeve gastrectomy, only 120 patients accepted to fill the questionnaires and 30 patients filled the questionnaires pre-operatively (matched for age and gender; the mean age were the same like the same gender in each group). Number of patients was based on sample size formula of two means comparison and the results of similar qualitative studies. Self-reported details, including age, sex, pre and post-operative weight, and BMI were obtained from each participant. Factor analyzing tool variable defined as scores in each qualitative questionnaire. The MAII had 6 questions that became equally valued.

The MAII had 6 questions that became equally valued, scoring 0.5 point of each item as in modified form, we scored it from 1 - 10 point but the outcome scoring remained unchanged by using 5 groups: < 1 = failure, 1 - 3 = fair, 3 - 5 = good, 5 - 7 = very good, and 7 - 10 = excellent.

For SF-36 each item scores 0 - 100 and finally the mean of each character obtained (General health perceptions: questions 1, 2, 33, 34, 35, 36; physical functioning : questions 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; role limitations due to physical problems: questions 13, 14, 15, 16; role limitations due

to emotional problems: questions 17, 18, 19; social functioning: questions 20, 32; bodily pain: questions 21, 22; energy/fatigue: questions 23, 27, 29, 31; mental health: questions 24, 25, 26, 28, 30). The questioner was translated and standardized by Dr. Montazeri (9).

Data were analyzed using SPSS for Windows (Version 21.0, SPSS Inc.). Mann-Whitney U test was used for comparison the variables between two groups because the normality of data was not seen observed in groups by kolmogorov-smirnov test ($P < 0.05$ in all parameters). Statistical significance was set at < 0.05 for all analyses. Mean (SD) was reported for demographic data like; age, sex and weight. Median with interquartile range (IQR) used for SF-36 and MA II tests that were measured according to standards).

3. Results

A total of 150 patients were evaluated, 120 (80%) patients underwent sleeve gastrectomy and 30 (20%) participants were candidate to surgery. The mean (SD) duration of time of follow up after surgery was 15.70 (2.17) months. All operations were completed laparoscopically, and mean (SD) length of hospitalization was 2.82 (0.8) days. Weight loss after 6 months follow up post-operatively was 36.15 (3.9) kg. Demographic data was presented in Table 1.

Table 1. Demographic Data of Participants^a

Parameters	Control (N = 30)	LSG (N = 120)	Kolmogorov-Smirnov (P Value)
Sex ratio, M/F	7/23	25/95	< 0.001
Age, y	30.59 (12.51)	35.23 (10.05)	< 0.001
Pre-operative BMI, kg/m ²	40.7 (12.38)	46.87 (6.51)	< 0.001
Weight loss after 1 month	-	11.94 (8.58)	< 0.001
Weight loss after 3 months	-	21.82 (13.59)	0.002
Weight loss after 6 months	-	36.15 (13.13)	0.200
Weight loss after 1 year	-	41.33 (14.50)	0.200

^aValues are expressed as mean (SD).

From 120 patients underwent surgery, 3 (2.5%) patients underwent cholecystectomy during LSG for symptomatic gallbladder disease, bleeding developed post-surgically in 3 (2.5%) patients, 3 (2.5%) leakages reported post-surgically at the stapler line among 7 (5.8%) of patients with pre-operative diabetes diagnosed, hence two of them reduced their anti-diabetic medications. Among five (4.2%) patients with fatty liver, this problem resolved immediately after

operation. Hypertension were resolved among 2 of 7 (5.8%) patients who diagnose preoperatively, and they did not need more medication for this.

Quality of life after LSG was analyzed by two methods (SF-36 health survey and MA II questionnaires). The results for SF-36 scores in role limitations due to emotional problems and mental health were not significantly different between two groups ($P = 0.080, 0.074$, respectively; [Table 2](#)). At a median follow up point of 14.5 months after surgery the median MA II score was 6.48 ± 0.45 , and a good to excellent score could be observed for 90% of patients. The MA II scores were not significantly different between two groups ($P = 0.275$, [Table 3](#)). Kolmogorov-Smirnov test for normality of data was used and showed that all of parameters in [Tables 2 and 3](#) were not normalized and non-parametric tests like Mann-Whitney U test was used for comparison the variables between two groups ($P < 0.05$ in all parameters except energy/fatigue $P = 0.306$).

4. Discussion

Weight loss in patients that underwent LSG is a major desire but whether this satisfaction after surgery gained or not is another issue. In order to measure the level of their patient's satisfaction, considering quality of life is fundamental, meaning that it is worthwhile to mention this point as a surgeon, patient, health assistant or manager in our country. There are many questionnaires that could be used for quality of life analyses. Some of them are exhaustive and time consuming for interviewing but short form. 36-item health survey is a suitable form to achieve the goal. The MA II questionnaire is a specific one in bariatric surgery assessments with simple and valid evaluation ([6, 10](#)).

Our reported resolution of co-morbidity was in agreement with other studies ([11, 12](#)). Physical activity increased for patients after surgery significantly in SF-36 questionnaire evaluation. In most of the studies on LSG, outcomes usually assessed by weight loss and resolution of comorbidities but these are not the only criteria for evaluation. Patients should be satisfied after surgery in long-term and quality of life test can help in this regards. Enhancement of social functioning reported in patients after surgery significantly in SF-36 measurements. According to MA II the median score was 6.48 ± 0.45 at the median follow-up point of 14.5 months. These mean scores were used to compare quality of life between patients who underwent surgery and control group who were scheduled for surgery. Changes in this score after LSG was reported in some studies ([8, 13-15](#)) but in our study this comparison did not revealed statistically difference ($P = 0.275$).

SF-36 used for evaluating individual patient's health status, and monitoring and comparing limitations due their physical or mental disorders. One of the Limitations of this method was the fact that sleep variable in the questions was not considered. It validated in Iran in Persian version by Montazeri et al. ([9](#)). Our study is consistent with other studies about quality of life after bariatric surgery ([16-22](#)) but in our study almost every criterion in these questionnaires was influenced by surgery. General health was improved after surgery significantly ($P < 0.001$) and physical functioning as well as role limitations for physical functioning improved significantly ($P < 0.001$) that seems because of decrease in knee and back pain due to weight-loss after surgery. Social functioning and sense of energy increased in patients after surgery significantly ($P = 0.001, P = 0.028$, respectively) and only role limitations due to emotional problems and mental health were not significantly improved after surgery ($P = 0.08, 0.074$, respectively). For future study, it recommends to evaluate mental analysis of patients more and use specific psychological tests.

4.1. Conclusion

Our long term results demonstrate that LSG is a safe and effective approach for weight loss in morbid obese patients. Resolution of comorbidity in our study was comparable with other studies and not all scale of SF-36 questioners like role limitations and mental health influenced by surgery due to emotional problems. Also, MA II scores that were not significantly improved after surgery (P value > 0.05 in all parameters).

Footnote

Conflict of Interest: None declared.

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Table 2. SF-36 Scores in Patients^a

Groups	General Health	Physical Functioning	Role Limitations Due to Physical Health	Role Limitations Due to Emotional Problems	Social Functioning	Bodily Pain	Energy/Fatigue	Mental Health
Control (30)	20 (27.5)	45 (53.75)	12.5 (50)	33.33 (91.67)	50 (50)	62.5 (41.87)	47.5 (45)	50 (39)
LSG (120)	42.5 (20)	90 (25)	75 (75)	66.67 (66.67)	75 (46.87)	90 (32.5)	57.5 (30)	64 (28)
P value	< 0.001	< 0.001	< 0.001	0.080	0.001	0.01	0.028	0.074

^aValues are expressed as median (IQR).**Table 3.** MA II Scores in Patients^a

Groups	Self-Esteem	Physical Activity	Social Contacts	Ability to Work	Sexuality	Eating Behavior
Control (30)	10 (2.5)	7.5 (5.75)	8 (6)	5 (7)	5 (3)	5 (5)
LSG (120)	9 (2)	9 (3)	9 (3)	7 (3.25)	5 (5.25)	6 (5)
P value	0.968	0.243	0.274	0.282	0.963	0.452

^aValues are expressed as median (IQR).**Table 4.** MA II Scores in Patients

Groups	Fair	Good	Very Good	Excellent
Control (10)	2	1	3	4
LSG (118)	8	8	41	61
P value			0.474	

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