doi: 10.30934/kusbed.1076397 **e-ISSN:** 2149-8571

Kocaeli Üniversitesi Sağlık Bilimleri Dergisi

Özgün Araştırma / Original Article

http://dergipark.org.tr/kusbed

REASONS FOR ADMISSION OF PATIENTS TO THE EMERGENCY DEPARTMENT AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY

Nizamettin Kutluer[1], Serhat Doğan [*2], Bahadır Öndeş[3], Feyzi Kurt[4], Burhan Hakan Kanat[2], Ali Aksu[1], Mustafa Safa Pepele[5], Yusuf Aydın[6]

[1]Elazığ Private Doğu Anadolu Hospital, General Surgery Department, Elazığ, Turkey; [2]Malatya Turgut Özal University, Faculty of Medicine, General Surgery Department, Malatya, Turkey; [3]Malatya Training and Research Hospital, General Surgery Department, Malatya, Turkey; [4]Adana Seyhan Public Hospital, General Surgery Department, Adana, Turkey; [5]Malatya Turgut Özal University, Faculty of Medicine, Emergency Medicine Department, Malatya, Turkey; [6]Malatya Training and Research Hospital, Internal Medicine Department, Malatya, Turkey

ORCID iD: Nizamettin Kutluer: 0000-0002-8737-7462; Serhat Doğan: 0000-0002-3288-2963; Bahadır Öndeş: 0000-0002-8080-9664; Feyzi Kurt: 0000-0002-8687-2031; Burhan Hakan Kanat: 0000-0003-1168-0833; Ali Aksu: 0000-0002-9226-1720; Mustafa Safa Pepele: 0000-0002-5505-6250; Yusuf Aydın: 0000-0002-9677-8575

***Sorumlu Yazar / Corresponding Author:** Serhat Doğan **e-posta / e-mail:** drserhatdogan@gmail.com

Geliş Tarihi / Received: 20.02.2022 **Kabul Tarihi / Accepted:** 14.06.2023 **Yayım Tarihi / Published:** 22.06.2023

Abstract

Objective: Obesity is defined as abnormal or excessive fat accumulation in the body to the extent that it impairs health in humans. It is a common health problem that is increasing in severity. Laparoscopic sleeve gastrectomy (LSG) is a preferred method because of satisfactory weight loss, resolution of comorbidities and performance safety. The increase in surgery has brought along the postoperative problems. New conditions related to bariatric surgery can be observed in all areas of life.

Methods: After obtaining the necessary permission from the local clinical research ethics committee, patients who had bariatric surgery in our hospital between January 2018 and December 2021 were asked to respond by sending a mini-questionnaire about their application to the emergency department after surgery. Eighty patients who agreed to answer the questions were included in the study. Questions were asked and the results were evaluated. In addition, none of the patients who applied to the hospital were admitted to the hospital.

Results: 53. 38% of the patients who applied to the hospital came with stomach spasm and vomiting. Among the 80 patients, 18.8% were admitted to the hospital again after surgery. After the operation, 53.3% of the patients applied to the hospital within the first three months, 26.6% within the 4th and 6th months, and 20.1% after the 10th month.

Conclusion: General practitioners and emergency specialists should master the management algorithm of these patients. If there is the slightest doubt, obese patients should be consulted, if possible, from a surgeon experienced in bariatrics or a general surgeon.

Keywords: *Obesity surgery, sleeve gastrectomy, postoperative, emergency admission.*

Introduction

Obesity is defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation in the body to the extent that it impairs health in humans and is measured by body mass index (BMI) (BMI ≥30 kg/m^2). It is a common health problem with increasing severity.[1,2] Obesity is a disease that can be accompanied by many comorbidities, and physical activity, diet and medical treatment are recommended for its treatment. In cases where there is no response to these treatment options, bariatric surgery may be chosen. While bariatric surgical procedures reduce morbid obesity, they also significantly improve patients' quality of life.[3] Laparoscopic sleeve gastrectomy (LSG) among all surgical procedures; It is a preferred method because of satisfactory weight loss, resolution of comorbidities, and performance safety.[4]

The relationship between obesity and various diseases is known, and its effect on increasing morbidity and mortality has been clearly demonstrated. Surgical treatment methods are chosen to eliminate this health problem and are being performed in increasing numbers today. Also, the number of patients admitted to emergency services who have undergone bariatric surgery is also increasing. The most feared situation for both the patient and the physician is the life-threatening problems; leakage and thromboembolism. It has been reported that incidence of leaks after sleeve gastrectomy varies between 0.7% and 5%, and can increase up to 20%.[5-7]

Serious mortal complications may occur after sleeve gastrectomy. These are conditions such as pulmonary embolism and leakage.[8] The general condition of the patients begin to deteriorate suddenly and progresses rapidly. Diagnosis should be made quickly and treatment should be started without wasting time. No such serious complications were identified in the current study.

Surgical treatment methods have provided great benefits, but these methods also brought postoperative problems. The bariatric surgery process chosen for obesity and its treatment is a complex and versatile process. All the factors affecting the process must be correctly defined and well managed for both patients and healthcare professionals who manage treatment and care. The effects of new situations related to bariatric surgery added to the lives of individuals living with obesity can be observed in all bio-psycho-social areas of life. It is very important to know what individuals experience in this complex process after bariatric surgery. For this reason, we aimed to present the urgent problems experienced by the patients after bariatric surgery in the light of the literature.

Methods

The study was performed after obtaining the necessary permission from the local clinical research ethics committee (Date 17.06.2020 and Decision Number 59-949). Patients who had bariatric surgery in our hospital between January 2018 and December 2021 were asked to respond by sending a mini-questionnaire about their post-operative emergency service application via communication channels. Eighty patients who agreed to answer the questions below were included in the study:

- Age
- Gender
- How many months have passed since the surgery?
- How many times did he/she apply to the emergency department after the surgery?
- In which month did the emergency admission occur after the surgery?
- For what reason did you apply to the emergency after the surgery?
- Have you been hospitalized?

Statistical Analysis

Mean and standard deviation analysis were applied for age and postoperative time values, and frequency analysis was applied for gender. In addition, the Independent Samples t-Test was applied to examine the differences in the age values of the patients in terms of whether the patients applied to the hospital after surgery or not. Chi-Square test (Chi-Square independence test) was applied to test the relationship between the gender of the patients and their admission to hospital.

Results

A total of 80 patients were examined in the current study. When the distribution of gender and age ranges of all patients was examined; of the 80 patients, 67 (83.8%) were female and 13 (16.2%) were male. Also, 15 (18.8%) of 80 patients were admitted to the hospital again after surgery (Table 1).

Table 1. Distribution of patients by gender and post surgery application

Gender	**N**	**%**
Female	67	83.8
Male	13	16.2
Post-Surgery Application		
Applied	15	18.8
Not applied	65	81.2

The range of the age was 18-60, and the mean was 31 years old. In addition, it was determined that the minimum 3 months, the maximum 41 months, and an average of 14 months have passed after surgery (Table 2).

Table 2. The minimum, maximum and mean values of age and post-operative time

Parameter	**Min**	**Max**	**Mean**
Age	18	60	31.78±9.33
Post-Surgery Time	3	41	14.77 ±7.87

The patients applied to the hospital at the earliest in the 1st month, at the latest in the 16th month, and on average at the 5th month after the operation. After the operation, 53.3% of the patients applied to the hospital within the first three months, 26.6% within the 4th and 6th months, and 20.1% after the 10th month (Table 3).

Table 3. Postoperative hospital admission time of patients

Parameter	**Min**	**Max**	**Mean**
Duration After the Surgery Application	1	16	5.0±4.29

18.8% of the patients applied to the hospital once after the operation. In addition, none of the patients who applied to the hospital were admitted to the hospital. 53.38% of the

Table 4. Postoperative hospital admission symptoms of the patients

Reasons for Applying to the Hospital	N	%
Stomach Spasm, Vomiting, Fatigue	8	53.38
Hypoglycemia	1	6.66
Suture Site Inflammation	1	6.66
Back and Groin Pain	2	13.32
Acute Otitis Media	1	6.66
Rheumatism Attack	1	6.66
Weakness, Diarrhea, Fever	1	6.66

patients admitted to the hospital came with gastric spasm and vomiting (Table 4).

When the difference between the age values of the patients who applied to the hospital after the operation and those who did not apply; A statistically significant difference was found between the age values of the patients who applied to the hospital after the operation and those who did not (p=0.022). Accordingly, the mean age values of the patients admitted to the hospital after the operation ($\bar{x}$=28.33±4.99) were smaller than the mean age values of the patients who did not apply ($\bar{x}$=32.58±9.93) (Table 5).

Table 5. Differences in age values of patients in terms of gender

Application to Hospital	Age vaules			Levene Test		t Test		
	N	x̄	ss	F	*p*	sd	t	*p*
Applied	15	28.33	4.99	1.145	.094	78	-2.838	**0.022**
Not applied	65	32.58	9.93					

When the patients who applied to the hospital after the operation and those who did not, were examined in terms of their gender; A statistically significant relationship (difference) was found between the post-operative patients' admission to the hospital and their gender (χ2=5.493 p=0.017). Accordingly, 93.3% of the patients who applied to the hospital after the operation were female patients. On the other hand, 20.9% of the female patients applied to the hospital after the operation, while 7.7% of the male patients applied to the hospital after the operation (Table 6.).

Table 6. The number of the patients who applied or did not apply to the hospital after the operation and those who did not, were examined in terms of their gender;

Patients		Gender		
		Female N (%)	Male N (%)	Total N (%)
Post-Surgery Application	Applied	14	1	15
		93.3%	6.7%	100.0%
		20.9%	7.7%	18.8%
	Not applied	53	12	65
		81.5%	18.5%	100.0%
		79.1%	92.3%	81.2%
Total		67	13	80
		83.8%	16.2%	100.0%
		100.0%	100.0%	100.0%

Discussion

Bariatric surgery is a popular operation today. Developing infrastructural opportunities can be done easily in many medical centers thanks to trained and experienced surgeons. According to the Türkiye Nutrition and Health Survey-2010 preliminary study report, the prevalence of obesity in Turkey; it was found to be 20.5% in men, 41.0% in women, and 30.3% in total.[9]

Studies have shown that 4.4% of patients return to the hospital within 30 days of the bariatric operation.[10] It should be kept in mind that even the smallest complaints of patients who have undergone bariatric surgery may have vital conditions, especially in the early stages.

In the last 20 years, the number of operations performed in our country has increased significantly. Unfortunately, undesirable catastrophic complications may occur after these operations. Complications reported in the literature were classified as intraoperative, early and juvenile complications.

In the study performed by Kassir et al., early wound infection was 3%, gastrointestinal bleeding was 2.5%, small bowel obstruction was 1.7%, deep vein thrombosis was 1%, anastomosis defect was 1%, pulmonary embolism was 0.5%, due to cardiac causes. They have published that the rate of death is 0.2% to 1%. In addition, late complications include anastomotic stenosis (3%-12%), marginal ulcer (0.5%-20%), intestinal obstruction (2.5%), incisional hernia (0.5%-8%), Dumping syndrome (most more than 30%), cholecystitis (up to 30%).[11]

With rapid planning, necessary interventions can be made for unwanted complications and catastrophic results can be prevented. It should be coordinated with the emergency service, in-service training should be given in the institution, if necessary, and mutual information should be exchanged. It should be noted that bariatric surgery is a team effort from the beginning to the end of the procedure. It should be evaluated as a whole, from pre-operative breathing exercise to post-operative admission to the emergency department.

Another problem is that patients live outside the city where they have surgery. Today, patients living in other provinces and even living in other countries undergo surgery, and post-operative follow-ups are carried out in their own residences. In fact, foreign patients who do not speak the same language have surgery in our country within the scope of health tourism and then return to their own countries. The procedure should be explained to the patient, he/she should be sure that he/she understands, and the epicrisis report should be prepared in his/her own language in detail if possible and given to him/her. Contact numbers should be given to each patient clearly and unequivocally and should be asked to be contacted at the slightest doubt or hesitation.

When the reasons for applying to the emergency service after the operations performed in our clinic were evaluated, none of the patients applied to the emergency service for a leak or life-threatening reason. 18.8% of the patients applied to the emergency department in the fifth month postoperatively. It was determined that approximately 75% of these patients applied for reasons related to surgery. The most common reason for admission was gastric problems. These were gastric spasm, vomiting, and malaise.

Although it was not a life-threatening problem in our patients, Sasaki et al. detected intra-abdominal hematoma after vomiting in a case they presented, although it was in

the 11th month postoperatively. They concluded that it originates from the omentum.[12] Again, Batayyah et al. reported fistula and subdiaphragmatic abscess at the postoperative 18th month.[13]

Conclusion

Obesity surgery is an indispensable treatment option today, as it provides continuous weight loss, increases life expectancy and reduces the complications of obesity. For this reason, the number of patients undergoing this surgery is increasing. General practitioners and emergency specialists should be familiar with the management algorithm of these patients. Complications are rare and progress insidiously and may cause irreversible neurological complications. Unfortunately, late diagnosis can be mortal. If there is the slightest doubt, obese patients should be consulted, if possible, from a surgeon experienced in bariatrics or a general surgeon.

Conflict of Interest

The authors have no conflicts of interest to disclose.

Compliance with Ethical Statement

The study was performed after obtaining the necessary permission from the local clinical research ethics committee (Date 17.06.2020 and Decision Number 59-949).

Financial Support

The authors declared that no financial support was received for this paper.

Author Contributions (Yazarların baş harfini ekleyelim)

Study idea/Hypothesis: NK, SD, BÖ, FH, BHK; Data preparation: SD, BÖ, FK, BHK, AA; Analysis: BÖ, FK, BHK, AA, MSP, YA; Literature review: FK, BHK, AA, MSP, YA; Manuscript writing: BHK, AA, MSP, YA, NK; Critical Review: AA, MSP, YA, NK, SD

References

1. Akindele MO, Phillips JS, Igumbor EU. The relationship between body fat percentage and body mass index in overweight and obese individuals in an urban African setting. *J Public Health Afr*. 2016;7(1):515. doi: 10.4081/jphia.2016.515.
2. World Health Organization. Obesity: Preventing and managing the global epidemic. Report of a WHO Consultation. Geneva: WHO; 2000. p.7-17.
3. Dadan J, Iwacewicz P, Razak Hady H. Quality of life evaluation after selected bariatric procedures using the Bariatric Analysis and Reporting Outcome System. *VSJ*. 2010;5:93–99, doi: 10.5114/wiitm.2010.16419.
4. Liu SY, Wong SK, Lam CC, *et al.* Long-term Results on Weight Loss and Diabetes Remission after Laparoscopic Sleeve Gastrectomy for A Morbidly Obese Chinese Population. *Obes Surg.*, 2015 Oct;25(10):1901-8. doi: 10.1007/s11695-015-1628-4.
5. Moszkowicz D, Arienzo R, Khettab I, *et al.* Sleeve gastrectomy severe complications: is it always a reasonable surgical option? *Obes Surg.* 2013;23:676-686. doi: 10.1007/s11695-012-0860-4.
6. Casella G, Soricelli E, Rizzello M, *et al.* Nonsurgical treatment of staple line leaks after laparoscopic sleeve gastrectomy. *Obes Surg.* 2009;19:821-826. doi: 10.1007/s11695-009-9840-8.
7. Burgos AM, Braghetto I, Csendes A, *et al.* Gastric leak after laparoscopic-sleeve gastrectomy for obesity. *Obes Surg.* 2009;19:1672. doi: 10.1007/s11695-009-9884-9.
8. Sarkhosh K, Birch DW, Sharma A, Karmali S. Complications associated with laparoscopic sleeve gastrectomy for morbid obesity: a surgeon's guide. *Can J Surg.* 2013;56:347-352.
9. "Türkiye Beslenme ve Sağlık Araştırması-2010" ön raporu https://hsgm.saglik.gov.tr/tr/obezite/turkiyede-obezitenin-gorulme-sikligi.html
10. Mora-Pinzon MC, Henkel D, Miller RE, *et al.* Emergency department visits and readmissions within 1 year of bariatric surgery: A statewide analysis using hospital discharge records. *Surgery*. 2017;162(5):1155-1162. doi: 10.1016/j.surg.2017.06.010.
11. Kassir R, Debs T, Blanc P, *et al*. Complications of bariatric surgery: Presentation and emergency management. *Int J Surg*. 2016;27:77-81. doi: 10.1016/j.ijsu.2016.01.067.
12. Sasaki T, Ishibashi Y, Hatao F, *et al*. A case of late postoperative intra-abdominal hemorrhage developing 13 months after laparoscopic sleeve gastrectomy. *Asian J Endosc Surg*. 2022;15(1):184-187. doi: 10.1111/ases.12958.
13. Batayyah E, Yaseen W, Alshareef F. Splenic abscess after laparoscopic sleeve gastrectomy. A rare complication-case report and literature review. *J Surg Case Rep*. 2021(4):rjab042. doi: 10.1093/jscr/rjab042.