DOI: 10.4274/anatoljmed.2025.70883
Anatol J Gen Med Res 2025;35(3):301-306

CLINICAL RESEARCH / KLİNİK ARAŞTIRMA

ANATOLIAN JOURNAL of GENERAL MEDICAL RESEARCH

Early Discharge in Breast Cancer Surgery: Safety and Patient Satisfaction with the Outpatient Approach

Meme Kanseri Cerrahisinde Erken Taburculuk: Günübirlik Cerrahi Yaklaşımının Güvenlik ve Hasta Memnuniyeti

Mahmut Onur Kültüroğlu, Ferit Aydın, Fatih Aslan, Mehmet Furkan Sağdıç, Bülent Aksel, Lütfi Doğan

University of Health Sciences Türkiye, Ankara Etlik City Hospital, Department of Surgical Oncology, Ankara, Türkiye

Cite as: Kültüroğlu MO, Aydın F, Aslan F, Sağdıç MF, Aksel B, Doğan L. Early discharge in breast cancer surgery: safety and patient satisfaction with the outpatient approach. Anatol J Gen Med Res. 2025;35(3):301-306

Abstract

Objective: Advances in minimally invasive surgery and anesthesia have enabled same-day discharge after breast cancer surgery. This study compared outcomes, complication rates, and patient satisfaction between patients discharged on the same-day of breast-conserving surgery with sentinel lymph node biopsy and patients discharged the following day.

Methods: Between December 2022 and May 2025, 349 patients with early-stage breast cancer at University of Health Sciences Türkiye, Ankara Etlik City Hospital were enrolled in the study. Same-day discharge was offered to patients who underwent general anesthesia with a laryngeal mask, had no drains or significant comorbidities, and demonstrated stable postoperative recovery. Patients accepting same-day discharge formed the outpatient group (n=215), and those who declined formed the inpatient group (n=134). Demographics, tumor characteristics, 30-day complications (Clavien-Dindo classification), and patient satisfaction (BREAST-Q) were recorded.

Results: The groups were comparable in terms of demographics and tumor features. The rates of seroma (6% vs. 6.7%), partial skin necrosis (1.4% vs. 1.5%), and surgical-site infection (1.9% vs. 1.5%) were similar (p>0.05). No major complications occurred. Overall, 90.5% of the patients experienced no complications, with minor complication rates comparable between the groups. BREAST-Q scores were slightly higher in the same-day discharge group (satisfaction: 94±4.6 vs. 92±6.3; psychosocial well-being: 91±3.8 vs. 89±4.5), although these differences were not statistically significant.

Conclusion: Outpatient breast-conserving surgery with sentinel lymph node biopsy is safe, feasible, and associated with high patient satisfaction in both groups, with no significant differences between the groups in carefully selected patients with early-stage disease who do not require axillary dissection or neoadjuvant therapy. Multicenter prospective studies are needed to evaluate long-term outcomes and optimize patient selection.

Keywords: Breast cancer, outpatient surgery, breast-conserving surgery

Öz

Amaç: Minimal invaziv cerrahi ve anestezideki gelişmeler, meme kanseri cerrahisi sonrası aynı gün taburculuğu mümkün kılmıştır. Bu çalışma, meme koruyucu cerrahi ile sentinel lenf nodu biyopsisi sonrası aynı gün taburcu edilen hastalar ile en az bir gün hastanede yatan hastalar arasında sonuçları, komplikasyon oranlarını ve hasta memnuniyetini karşılaştırmıştır.

Yöntem: Aralık 2022 ile Mayıs 2025 arasında Sağlık Bilimleri Üniversitesi, Ankara Etlik Şehir Hastanesi'nde erken evre meme kanseri tanısı alan 349 hasta çalışmaya dahil edildi. Aynı gün taburculuk; genel anestezi altında larengeal maske kullanılarak dren yerleştirilmeden, önemli ek hastalığı bulunmayan

Address for Correspondence/Yazışma Adresi: Mahmut Onur Kültüroğlu, MD, University of Health Sciences Türkiye, Ankara Etlik City Hospital, Department of Surgical Oncology, Ankara, Türkiye
E-mail: mahmutonurkulturoglu@gmail.com
ORCID ID: orcid.org/0000-0003-2293-7139

Received/Geliş tarihi: 19.09.2025
Accepted/Kabul tarihi: 30.10.2025
Published date/Yayınlanma tarihi: 30.12.2025

Öz

ve stabil postoperatif seyir gösteren hastalara önerildi. Aynı gün taburculuğu kabul edenler ayaktan grup (n=215), kabul etmeyenler ise yatan hasta grubu (n=134) olarak tanımlandı. Demografik veriler, tümör özellikleri, 30 günlük komplikasyonlar (Clavien-Dindo sınıflaması) ve hasta memnuniyeti (BREAST-Q) kaydedildi.

Bulgular: Gruplar demografik özellikler ve tümör parametreleri açısından benzerdi. Seroma (%6 vs. %6,7), kısmi cilt nekrozu (%1,4 vs. %1,5) ve cerrahi alan enfeksiyonu (%1,9 vs. %1,5) oranları benzerdi (p>0,05). Majör komplikasyon görülmedi. Genel olarak, hastaların %90,5'inde komplikasyon gelişmedi; minör komplikasyon oranları gruplar arasında karşılaştırılabilir düzeydeydi. BREAST-Q skorları ayaktan grupta biraz daha yüksek olsa da (memnuniyet: 94±4,6 vs. 92±6,3; psikososyal iyilik hali: 91±3,8 vs. 89±4,5), istatistiksel olarak anlamlı değildi.

Sonuç: Günübirlik meme koruyucu cerrahisi; aksiller diseksiyon veya neoadjuvan tedavi gerektirmeyen, erken evre hastalarda güvenli, uygulanabilir ve yüksek hasta memnuniyeti sağlayan bir yöntemdir. Uzun dönem sonuçların değerlendirilmesi ve hasta seçiminin optimize edilmesi için çok merkezli prospektif çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Meme kanseri, günübirlik cerrahi, meme koruyucu cerrahi

Introduction

Breast cancer treatment has become less invasive with advances in surgical and adjuvant therapies. Minimally invasive surgical approaches and advances in anesthetic methods have made the outpatient management of breast cancer feasible[1]. The concept of enhanced recovery, aiming to minimize pain and perioperative risk, has been adopted in various surgical fields, including breast cancer surgery. Studies have reported that outpatient surgery is associated with fewer recovery-related issues, such as postoperative pain, nausea, vomiting, and the need for psychosocial support[2].

Historically, outpatient surgery was limited to procedures performed under local or regional anesthesia, with minimal requirements for postoperative monitoring. However, it is currently possible to perform low-risk surgeries under general anesthesia in outpatient settings. In outpatient surgery, patients typically receive general anesthesia and are discharged within 12 hours of the procedure[1].

In this study, patients who underwent breast cancer surgery under general anesthesia and met specific postoperative criteria were discharged within 12 hours. Clinical outcomes were compared between those who were discharged on the same-day and those who remained hospitalized for at least one night. This study aimed to evaluate the feasibility and safety of outpatient surgery for breast cancer treatment.

Materials and Methods

Study Design and Patient Selection

This study was conducted at the Departmment of Surgical Oncology, University of Health Sciences Türkiye, Ankara Etlik City Hospital between December 2022 and May 2025 and included patients who underwent breast cancer surgery. Same-day discharge was recommended for patients who underwent breast-conserving surgery and sentinel lymph node biopsy (SLNB) in whom no drains were placed, who had no comorbidities, whose airways were managed with a laryngeal mask during surgery, and who remained hemodynamically stable postoperatively. Patients who accepted discharge within 12 hours comprised the outpatient group, while those who declined discharge for personal reasons (e.g., pain concerns or transportation difficulties) and remained hospitalized comprised the inpatient group. Demographic data [sex, age, body mass index (BMI), and smoking status, clinical and operative information (operation time and length of hospital stay), tumor characteristics (tumor size), and postoperative complications were recorded. In the same-day discharge group, patients were instructed to contact our clinic directly to communicate with the on-call physician if they experienced symptoms such as fatigue, general malaise, or deterioration in overall condition. Hospital beds were reserved for use in such situations. Our team instructed all patients and their caregivers in home wound care. For inpatients, wound care was performed by healthcare personnel during hospitalization and by patients and caregivers after discharge. In the outpatient group, all wound care was performed by the patients and caregivers. All patients were scheduled for follow-up between postoperative days 3 and 5, during which wound healing and vital signs were evaluated.

Patients who underwent mastectomy for breast cancer or axillary dissection, who received neoadjuvant therapy, who had drains placed during surgery, or who had comorbid conditions were excluded from the study. Complications that occurred within 30 days postoperatively were considered early complications. Postoperative bleeding requiring

transfusion and/or associated with hypotension was defined as "active bleeding". Wound edges that were completely separated, that required suturing, or that required prolonged dressing were defined as wound dehiscence These two were classified as major complications. Infections requiring antibiotics and/or drainage were defined as surgical-site infections (SSIs). Superficial skin necrosis or skin loss without wound dehiscence was categorized as "partial skin necrosis". Clinically stable seromas or hematomas controlled by percutaneous aspiration were considered "minor complications". The Clavien-Dindo classification was used to evaluate postoperative complications: patients without complications were classified as grade 0; complications managed with seroma aspiration or wound dressing were classified as grade 1; complications requiring antibiotics due to SSI were classified as grade 2; complications necessitating debridement under local anesthesia due to partial skin necrosis were classified as grade 3a; and patients with major complications were classified as grade 4. At the first postoperative follow-up visit (one month postoperatively), patient satisfaction and psychosocial well-being were assessed using the latest version of the BREAST-Q questionnaire. Ethical approval for this study was obtained from the Ethics Committee of University of Health Sciences Türkiye, Ankara Etlik City Hospital (approval number: AEŞH-BADEK2-2025-199, date: 08.07.2025). This study was conducted in accordance with the Declaration of Helsinki, with informed consent obtained from eligible participants.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics for Windows (version 25.0; IBM Corp., Armonk, NY, USA). Continuous variables (age, operation time, length of hospital stay, and tumor size) were reported as mean ± standard deviation and range (minimum-maximum). Categorical variables (smoking status and complications) were presented as frequencies (n) and percentages (%). The independent samples t-test was used to compare continuous variables between groups, while the chi-square test (χ^2) was used for categorical variables. The BREAST-Q satisfaction scores were compared between the outpatient and inpatient groups using the Mann-Whitney U test, as the scores did not follow a normal distribution. Statistical significance was set at $p<0.05$.

Results

Same-day discharge was offered to 349 patients who met the established criteria, of whom 215 accepted and were discharged. A total of 134 patients declined same-day discharge for personal reasons, such as concerns about pain or transportation, and spent their first postoperative day in the hospital. No patient received antibiotics at discharge, and all were prescribed oral analgesics (paracetamol 500 mg twice daily). All patients were female. Table 1 presents the age distribution, smoking status, BMI, operation time, and length of hospital stay by group.

The tumor sizes were similar between the outpatient and inpatient groups. The incidence of seroma, partial skin necrosis, SSI, and minor complications did not differ between the groups. No patient experienced major complications. None of the outpatients required unplanned readmission at night, and routine follow-up visits were completed as scheduled. During the first postoperative month, no patient required rehospitalization or reoperation because of complications (Table 2).

According to the Clavien-Dindo classification, 90.5% of patients experienced no postoperative complications. The most common complication was seroma; all cases were managed conservatively (grade 1). Six patients developed SSIs requiring antibiotic treatment (grade 2), and five patients required local debridement for partial skin necrosis

Table 1. Distribution of clinical characteristics and time-related parameters

Variable	Outpatient group (n=215)	Inpatient group (n=134)	p-value
Age, mean ± SD (minimum-maximum)	53.1±9.76 (26-70)	53.5±10.2 (28-72)	0.72
Smoking, n (%)	40 (18.6)	26 (19.4)	0.89
BMI, median (IQR)	28.2 (27.8-30.6)	28.6 (27.2-30.8)	0.14
Operation time (minutes), mean ± SD (minimum-maximum)	55.6±8.73 (45-75)	56.9±9.5 (45-75)	0.20
Length of hospital stay (hours), mean ± SD (minimum-maximum)	10.8 (9.2-12)	32.4 (18-41.5)	<0.001

SD: Standard deviation, BMI: Body mass index, IQR: Interquartile range

(grade 3). No major complications (grade 4) were observed. No statistically significant difference in the Clavien-Dindo distribution was found between the outpatient and inpatient groups (p>0.05; Table 3).

At the first month of postoperative follow-up, the BREAST-Q questionnaire, which assesses patient satisfaction and psychosocial well-being, showed higher scores in the outpatient group; however, the differences were not statistically significant (Tables 4 and 5).

Table 2. Distribution of histopathological data and complication

Variable	Outpatient group (n=215)	Inpatient group (n=134)	p-value
Tumor size (mm), mean ± SD (minimum-maximum)	16.6±6.3 (2-36)	17.2±5.8 (4-39)	0.36
Major complications, n	0	0	N/A
Seroma, n (%)	13 (6)	9 (6.7)	0.80
Partial skin necrosis, n (%)	3 (1.4)	2 (1.5)	0.95
Surgical-site infection, n (%)	4 (1.9)	2 (1.5)	0.80

SD: Standard deviation, N/A: Not applicable

Table 3. Postoperative complications according to the Clavien-Dindo classification

Clavien-Dindo grade	Outpatient group (n=215)	Inpatient group (n=134)	Total (n=349)
Grade 0	195 (90.7%)	121 (90.3%)	316 (90.5%)
Grade 1	13 (6.0%)	9 (6.7%)	22 (6.3%)
Grade 2	4 (1.9%)	2 (1.5%)	6 (1.7%)
Grade 3	3 (1.4%)	2 (1.5%)	5 (1.5%)
Grade 4	0	0	0

Table 4. BREAST-Q questionnaire results

Variable	Outpatient group (n=215)	Inpatient group (n=134)	p-value
BREAST-Q satisfaction, mean ± SD (minimum-maximum)	94±4.6 (70-100)	92±6.3 (65-100)	0.08
BREAST-Q psychosocial well-being, mean ± SD (minimum-maximum)	91±3.8 (68-100)	89±4.5 (65-100)	0.11

SD: Standard deviation

Table 5. Categorical distribution of BREAST-Q questionnaire results

Measurement/level	Outpatient group (n=215)	Inpatient group (n=134)	p-value
BREAST-Q satisfaction			
≥90 (high)	188 (87.4%)	108 (80.6%)	0.08
80-89 (moderate)	26 (12.1%)	24 (17.9%)	
<80 (low)	1 (0.5%)	2 (1.5%)	
Psychosocial well-being			
≥90 (high)	183 (85.1%)	106 (79.1%)	0.11
80-89 (moderate)	30 (14.0%)	25 (18.7%)	
<80 (low)	2 (0.9%)	3 (2.2%)	

Discussion

In our study, data from patients with similar clinical characteristics who underwent surgery under general anesthesia with a laryngeal mask and who were either discharged on the same-day or hospitalized were analyzed. Outpatient breast cancer surgery can be safely performed in patients with early-stage disease (T1-2, N0) whose airway is managed using a laryngeal mask, who do not require axillary dissection based on SLNB results, in whom no drains are placed at the surgical site, who have no comorbidities, and whose postoperative vital signs remain stable.

In recent years, outpatient approaches to breast cancer surgery have become increasingly widespread and have been implemented in many centers. This approach allows patients to be discharged on the day of surgery, thereby reducing the burden on the healthcare system and enabling a more comfortable postoperative recovery at home. Numerous studies have demonstrated that outpatient surgery provides clear advantages in terms of patient satisfaction, low complication rates, and cost-effectiveness[3]. Furthermore, modern anesthetic techniques, minimally invasive surgical approaches, and effective pain management have largely eliminated the need for prolonged hospitalization. Early mobilization, reduced risk of infection, and preservation of psychological well-being are additional key benefits of this approach[4]. Outpatient treatment allows patients with early-stage tumors who are scheduled for breast-conserving surgery to be discharged on the day of surgery.

The increase in the number of outpatient surgical procedures has raised concerns about patient safety, particularly regarding postoperative complications. However, studies have shown that outpatient breast cancer surgery, when performed with appropriate patient selection, does not increase complication rates. In particular, the incidence of complications such as SSI, hematoma, and seroma in patients discharged early has been reported to be comparable to that in traditional inpatient care[5,6]. Furthermore, outpatient surgeries conducted under structured protocols for postoperative pain management, mobilization, and patient education have been shown to reduce hospitalization without negatively affecting patient satisfaction or clinical outcomes[7]. In our study, the incidence of complications was similar between the two groups; no differences were observed in postoperative complications according to the Clavien-Dindo classification. These findings suggest that outpatient surgery can be safely implemented with appropriate infrastructure and patient selection.

Outpatient surgical procedures offer significant psychological benefits. Same-day discharge has been associated with reduced levels of anxiety, depression, and stress, owing to shorter hospital stays. Prolonged hospitalization has been reported to increase the patients' sense of dependency, which may negatively affect their psychological well-being. Early discharge allows patients to recover in their own environment, enhances comfort, and promotes better psychosocial adaptation through improved interactions with family members[8]. In a previous study, patients who underwent outpatient breast cancer surgery exhibited lower psychological distress scores on the psychological distress scale and better emotional adjustment scores on the emotional adjustment index[9]. This early recovery, facilitated by outpatient surgery, may positively influence patients' adherence to treatment, which in turn contributes to overall improvements in quality of life[10]. Patients' emotional status can be assessed using various tools, including the BREAST-Q questionnaire. The BREAST-Q is a widely used, patient-reported, breast-specific outcome measure that evaluates health-related quality of life. It is increasingly used to assess the impact of breast cancer treatment and surgical outcomes[11]. In our study, the BREAST-Q assessments of satisfaction and psychosocial well-being showed higher scores in patients who underwent outpatient breast cancer surgery; however, the differences between the groups were not statistically significant.

Outpatient surgery allows for faster turnover of hospital beds than traditional inpatient procedures, enabling healthcare institutions to serve more patients with the same bed capacity. Shorter hospitalization not only reduces costs but also allows more efficient use of hospital resources[3]. In outpatient surgeries, both the reduction in direct healthcare costs and the prevention of indirect productivity losses contribute to a more favorable cost-benefit ratio[8]. Outpatient breast surgery not only facilitates faster bed turnover and enables hospitals to serve more patients per unit time but also indirectly reduces productivity losses by decreasing the need for accompanying caregivers. Cost-effectiveness analyses have demonstrated that this approach is advantageous with respect to both direct costs (reduced hospital expenditures) and indirect costs (caregivers' time spent in the hospital and associated productivity losses)[12].

Study Limitations

The limitations of this study include the relatively small sample size and the lack of long-term follow-up data for patients who underwent outpatient surgery.

Conclusion

Outpatient breast cancer surgery is safe and effective for carefully selected patients. Particularly in early stage patients who have not received neoadjuvant therapy and who do not require axillary dissection, outpatient surgery has emerged as a sustainable option to ensure patient safety and improve healthcare system efficiency. However, prospective multicenter studies with long-term follow-up are needed to further evaluate the outcomes and refine the patient selection criteria.

Ethics

Ethics Committee Approval: Ethical approval for this study was obtained from the Ethics Committee of University of Health Sciences Türkiye, Ankara Etlik City Hospital (approval number: AEŞH-BADEK2-2025-199, date: 08.07.2025).

Informed Consent: This study was conducted in accordance with the Declaration of Helsinki, with informed consent obtained from eligible participants.

Acknowledgments

We would like to thank Editage (www.editage.com) for English language editing.

Footnotes

Authorship Contributions

Surgical and Medical Practises: M.O.K., F.A., L.D., Concept: M.O.K., F.A., B.A., L.D., Design: M.O.K., F.A., B.A., L.D., Data Collection or Processing: M.O.K., Fa.A., L.D., Analysis or Interpretation: M.O.K., Fa.A., M.F.S., L.D., Literature Search: M.O.K., M.F.S., L.D., Writing: M.O.K., M.F.S., B.A., L.D.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Kim R, Pharm AK, Wakisaka M, et al. Outcomes of outpatient breast cancer surgery at a private breast clinic. Breast J. 2018;24:628-32.
2. Duriaud HM, Kroman N, Kehlet H. Feasibility and safety of outpatient breast cancer surgery. Dan Med J. 2018;65:A5458.
3. Levine A, Khan M, Kelley JK, et al. Timing of mastectomy and the effect on the likelihood of outpatient surgery and cost savings in breast cancer patients. Surgery. 2024;175:671-6.
4. Cordeiro E, Zhong T, Jackson T, Cil T. The safety of same-day breast reconstructive surgery: an analysis of short-term outcomes. Am J Surg. 2017;214:495-500.
5. Bonnema J, van Wersch AM, van Geel AN, et al. Medical and psychosocial effects of early discharge after surgery for breast cancer: randomised trial. BMJ. 1998;316:1267-71.
6. Cordeiro E, Jackson T, Cil T. Same-day major breast cancer surgery is safe: an analysis of short-term outcomes using NSQIP data. Ann Surg Oncol. 2016;23:2480-6.
7. Purushotham AD, McLatchie E, Young D, et al. Randomized clinical trial of no wound drains and early discharge in the treatment of women with breast cancer. Br J Surg. 2002;89:286-92.
8. Susini T, Carriero C, Tani F, et al. Day surgery management of early breast cancer: feasibility and psychological outcomes. Anticancer Res. 2019;39:3141-6.
9. Marla S, Stallard S. Systematic review of day surgery for breast cancer. Int J Surg. 2009;7:318-23.
10. Dawe DE, Bennett LR, Kearney A, Westera D. Emotional and informational needs of women experiencing outpatient surgery for breast cancer. Can Oncol Nurs J. 2014;24:20-30.
11. Kuhlefelt C, Repo JP, Rasi V, et al. Preoperative reference values for breast cancer patients using the BREAST-Q. Breast. 2024;78:103832.
12. de Kok M, Dirksen CD, Kessels AG, et al. Cost-effectiveness of a short stay admission programme for breast cancer surgery. Acta Oncol. 2010;49:338-46.