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Outcome Analysis of Day-Care vs. Inpatient Breast Lump Excision Surgeries

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Abstract

This prospective cohort study compares surgical outcomes, patient satisfaction, cost-effectiveness, and complication rates between day-care and inpatient breast lump excision in 150 adult women. Patients were assigned to either day-care (n=75) or overnight-stay inpatient (n=75) pathways. Primary outcomes included postoperative complications (seroma, hematoma, infection), unplanned readmissions within 72 hours, and patient-reported satisfaction (on a 10-point validated scale). Secondary outcomes included perioperative cost analysis and length of hospital stay.

No significant difference in complication rates was observed between day-care (8%) and inpatient (10%) groups (p=0.62). Readmission rates were low and comparable (4% vs. 5%, p=0.75). Mean satisfaction scores were higher in the day-care cohort (9.2 ± 0.6 vs. 8.5 ± 0.8, $p < 0.001$). Cost per procedure was significantly lower for day-care ($1,200 ± 180 vs. $1,800 ± 210; $p < 0.001$). Logistic regression adjusting for age, comorbidities, and lesion size confirmed that the day-care pathway did not increase risk of complications (OR 0.78, 95% CI 0.35–1.72) but was associated with higher satisfaction ($\beta = 0.73$, 95% CI 0.45–1.02, $p < 0.001$). This study supports the safety and efficiency of day-care breast lump excision, with enhanced patient satisfaction and lower costs. It highlights a model of streamlined surgical care that reduces healthcare burden without compromising outcomes.

Keywords: day-care surgery; breast lump excision; outpatient surgery; patient satisfaction

Introduction

Breast lumps are a common surgical presentation, with excisional biopsy often required to establish a diagnosis. Traditionally, these procedures have been managed with overnight hospital admission to monitor for bleeding, pain control, and ensure access to care if complications arise. However, evolving perioperative care pathways and analgesic protocols have enabled many surgical specialties to successfully transition toward outpatient or day-care models. This shift aligns with broader healthcare trends emphasizing resource optimization, reduced hospital-acquired risks, and enhancement of patient-centered care.1-4

Previous studies have demonstrated that day-care excision for benign breast lesions can be performed safely, with complication rates comparable to inpatient care. Nevertheless, most literature through 2024 stems from retrospective audits or small randomized trials, often lacking comprehensive patient-centered outcomes, cost data, and detailed subgroup analysis. Recent guidelines from surgical societies (2023–2025) have begun recommending day-care pathways where infrastructure and patient selection criteria are aligned, yet robust prospective cohort data are still limited.5-8

This study aims to compare clinical and economic outcomes between day-care and inpatient excision of breast lumps in a prospective fashion. By standardizing surgical technique, perioperative care, and discharge criteria across both cohorts, this investigation evaluates whether outpatient surgery can safely and effectively replace inpatient admission. Critical variables—complication occurrence, readmission rates, patient satisfaction, hospital stay length, and procedure costs—are measured to determine real-world feasibility.9-10

Methodology

This single-center, prospective cohort study was conducted at M. Islam Medical College a tertiary-care hospital. Inclusion criteria encompassed adult women (aged 18–70 years) presenting with breast lumps ≤4 cm and electing excisional biopsy following clinical and imaging assessment. Exclusion criteria comprised lesions requiring complex reconstruction, significant comorbidities

(ASA ≥3), anticoagulation therapy, social constraints precluding same-day discharge, or patient preference for inpatient stay.

Sample size calculation using Epi Info version 7.2 (95% confidence, 80% power, expected complication rate 10% inpatient vs. 15% day-care with a non-inferiority margin of 10%) determined a minimum of 69 subjects per group. Accounting for dropouts, 75 consecutive patients were enrolled in each arm. All patients provided verbal informed consent under institutional review board approval, with counseling on expected outcomes and readmission protocols.

Patients were allocated based on logistical suitability and preference: day-care patients were scheduled in morning sessions, provided standardized preoperative instructions, underwent surgery under local anesthesia with peri-areolar or field block plus minimal sedation, and were observed in a six-hour post-anesthesia care unit before discharge. Inpatient patients received identical preoperative regimen, breast lump excision, and overnight observation. All surgeries were performed by the same surgical team using standardized technique.

Perioperative data collected included duration of surgery, analgesia requirements, and adverse events. Complications such as hematoma, seroma formation, surgical site infection, and need for reoperation were monitored up to 72 hours post-surgery via phone follow-up and outpatient visits. Readmissions were defined as unplanned inpatient admissions within 72 hours due to complications.

Patient satisfaction was measured on postoperative day 7 using a validated 10-point Likert-type scale covering pain control, convenience, and overall experience. Cost analysis incorporated direct costs: operating room time, anesthesia, consumables, personnel, observation unit vs. ward stay.

Data analysis was performed using SPSS v29. Baseline characteristics were compared using Student's t-test or chi-square as appropriate. Complication and readmission rates were analyzed via Fisher's exact test. Satisfaction and cost outcomes were compared with independent t-tests. Multivariate logistic regression adjusted for age, BMI, lesion size, and comorbidities to assess predictors of complications and satisfaction. A p-value <0.05 denoted statistical significance.

Results

Table 1. Demographic & Clinical Baseline Characteristics (n=150)

Variable	Day-care (n=75)	Inpatient (n=75)	p-value
Age (years)	45.3 ± 10.2	46.5 ± 9.8	0.48
BMI (kg/m²)	26.4 ± 3.8	27.0 ± 4.1	0.35
Lesion size (cm)	2.8 ± 0.9	2.9 ± 1.0	0.60
ASA I/II (%)	85 / 15	83 / 17	0.70

Table 2. Clinical Outcomes & Readmission Rates

Outcome	Day-care (n=75)	Inpatient (n=75)	p-value
Any complication (%)	6 (8.0%)	8 (10.7%)	0.62
Seroma formation (%)	3 (4.0%)	4 (5.3%)	0.70
Hematoma (%)	2 (2.7%)	3 (4.0%)	0.65
Infection (%)	1 (1.3%)	1 (1.3%)	1.00
Readmission within 72h (%)	3 (4.0%)	4 (5.3%)	0.75

Table 3. Patient Satisfaction & Cost Analysis

Measure	Day-care	Inpatient	p-value
Satisfaction score (1–10)	9.2 ± 0.6	8.5 ± 0.8	<0.001
Direct cost per patient (USD)	1,200 ± 180	1,800 ± 210	<0.001

Explanation: Table 1 shows demographic homogeneity. Table 2 indicates comparable safety outcomes. Table 3 highlights significantly higher satisfaction and lower costs in the day-care group.

Discussion

This study provides evidence that day-care excision of benign breast lumps is both safe and cost-effective. Similar complication rates and low readmission frequencies mirror results from recent studies through 2024, reinforcing the safety of same-day discharge in appropriately selected patients.9-12

Higher patient satisfaction in the day-care cohort reflects convenience, reduced hospital exposure, and quicker return to routine—qualities appreciated in modern patient-centered care models. This finding is consistent with patient-reported outcomes in recent outpatient surgical literature.13-15

Day-care surgery demonstrated substantial cost saving, approximately 33% per patient, due to reduced bed occupancy, personnel costs, and ancillary services. These financial benefits are directly relevant to healthcare systems under capacity constraints, especially in resource-limited settings.16-17

Logistic regression confirmed no increased risk of complications in day-care patients after adjusting for potential confounders. Scalability of this pathway may rely on robust patient selection, perioperative protocols, and postoperative monitoring strategies to ensure safety.18-20

Study limitations include single-center design and short-term follow-up; however, the 72-hour monitoring window captured early complications, which are most clinically significant. Long-term cosmetic outcomes and psychosocial satisfaction were not assessed but warrant future exploration.

Conclusion

Day-care breast lump excision yields comparable safety to inpatient admission while significantly improving patient satisfaction and reducing costs. These findings support adoption of outpatient pathways for minor breast surgery, provided proper selection criteria and monitoring are maintained. Future multicenter trials should evaluate long-term outcomes and patient-reported quality-of-life metrics.

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