The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 3, Issue 6, 2025

COMPARISON OF CONSERVATIVE VERSUS SURGICAL TREATMENT IN YOUNG WOMEN WITH BENIGN BREAST DISEASE

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DOI: https://doi.org/10.5281/zenodo.15645361

Keywords
Benign breast diseases, Breast disease therapy, Conservative treatment, Surgical operative procedures, young adult women.

Article History
Received on 05 May 2025
Accepted on 05 June 2025
Published on 12 June 2025

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Abstract

OBJECTIVE: *To evaluate and compare the outcomes of conservative versus surgical treatment in young women with benign breast disease.*

METHODOLOGY: *This comparative study involved 85 women aged 15–35 years diagnosed with benign breast disease confirmed by histopathology. Based on clinical evaluation, participants underwent either conservative or surgical treatment. During treatment, they underwent evaluations every two weeks, then every two months for six months. The outcomes included duration of treatment, recovery, success, and recurrence of the disease. Data was analyzed via SPSS v26 with significance set at $p \leq 0.05$.*

RESULTS: *The mean age was 26.9 ± 6.3 years (surgical) and 23.9 ± 6.1 years (conservative). No significant differences were observed in treatment duration ($p=0.824$), recovery time ($p=0.059$), treatment success (92.5% vs. 88.9%; $p=0.425$), or recurrence rates (22.5% vs. 15.6%; $p=0.414$), indicating both treatment approaches yielded comparable clinical outcomes in managing benign breast disease.*

CONCLUSION: *This investigation elucidates that both surgical and conservative interventions for benign breast pathology in younger female populations produce comparable results, exhibiting no statistically significant variances in treatment duration, recovery trajectories, success rates, or recurrence incidences. Conservative management is efficacious for select cases, particularly when aesthetic outcomes and minimized risk are prioritized, whereas surgical intervention remains crucial for larger or more aggressive lesions. Treatment modalities should be customized in accordance with clinical parameters and patient preferences.*

INTRODUCTION

Benign breast disease (BBD) constitutes a heterogeneous collection of non-malignant conditions impacting the breast, which includes developmental anomalies, proliferative epithelial and stromal alterations, benign neoplasms, and inflammatory lesions. These conditions are frequently encountered in clinical settings, particularly among younger female populations, and account for the predominant proportion of breast-associated clinical manifestations [1]. Commonly reported symptoms encompass a palpable mass in the breast, mastalgia, and, on occasion, discharge from the nipple [2,3]. The highest incidence of BBD is documented in women aged between 21 and 30 years [4].

Benign breast diseases include fibroadenomas, fibrocystic changes, intraductal papillomas, nipple adenomas, gynecomastia, as well as infrequent types such as fibromatosis and granulomatous mastitis [1,5,6,7]. Some of these lesions, such as fibromatosis and granulomatous mastitis, can have clinical features similar to more malignant pathologies making diagnosis and management initially challenging [7,8].

Management of BBD is guided by lesion characteristics, including size, growth rate, associated symptoms, and aesthetic considerations. Surgical excision is commonly recommended for masses exceeding 5 cm, rapidly enlarging lesions, or those causing structural distortion or skin changes [9,10]. In contrast, conservative management—comprising observation and periodic clinical follow-up—is typically advised for smaller, stable, and asymptomatic lesions, especially in younger women where cosmesis is a major concern [5,6]. Despite being clinically appropriate in many scenarios, the watchful waiting approach can be a source of anxiety for patients and their families, emphasizing the importance of individualized treatment decisions [10].

The extant body of literature delineates disparate outcomes pertaining to conservative versus surgical intervention. Aghanjanzadeh et al. [11] documented an aggregate treatment success rate of 42.12% among patients afflicted with granulomatous mastitis, where conservative management yielded a success rate of 40.89%, in contrast to surgical management, which attained a success rate of 100%. In a similar study, Uysal et al. reported the recurrence rate of benign breast disease (BBD) as 16.94%.[12] The conservatively managed cohort and the surgical group showed a recurrence rate of 14.34% and 20%, respectively. These disparities accentuate the prevailing ambiguity surrounding the most effective treatment protocols. Chaudhary et al. [13] supported the variability of the clinical presentation and management outcomes of BBD cases which reinforces the need for evidence-based recommendations.

The primary aim of our research is to assess and contrast the outcomes associated with conservative treatment modalities versus surgical interventions in young females diagnosed with benign breast disease. Notwithstanding its significant prevalence, the existing literature is characterized by limitations and frequent inconsistencies, often stemming from small sample sizes and heterogeneous definitions of clinical success. The results derived from our investigation aspire to enhance clinical decision-making processes and contribute to the establishment of more standardized management strategies for benign breast disease.

METHODOLOGY

This comparative investigation was executed within the confines of the Department of Surgery at Abbasi Shaheed Hospital and Karachi Medical and Dental College (KMDC), situated in Karachi. A non-probability consecutive sampling technique was employed to recruit 85 patients. The sample size was calculated using the World Health Organization (WHO) sample size calculator, based on a reported recurrence rate of benign breast disease of (16.94%)[12], with a margin of error (d) of 8% and a 95% confidence interval (CI). Participants were eligible if they were aged 15–35 years, of any gender, diagnosed with BBD. In contrast patients with any other malignant types of disease, with a history of prior therapy, or who refused to give consent to the study were excluded.

All patients who presented at the breast clinic and met the inclusion criteria were enrolled after written informed consent was obtained. Baseline clinical and demographic data was carefully recorded on admission. Postoperative histopathological findings confirmed the diagnosis of benign breast disease. Diagnosis of granulomatous mastitis was established

after identification of lobulocentric inflammation, multinucleated giant cells, and non-necrotizing granulomata. Fibroadenoma was identified by the presence of firm, well-defined, oval masses with bosselated surface, lobulations and typical slit-like spaces. Our histological diagnosis of ductal hyperplasia corresponds to the presence of small oval nuclei, rare nuclear pseudo-inclusions, coffee bean-shaped nuclei grooves, as well as close cellular growth, albeit disorganized.

All patients were evaluated by a consultant after the diagnosis was made and the suitable management was decided conservative (antibiotics, steroids) or surgical. They had been followed up every other week up to the completion of their treatment. They were then observed at 2-month intervals for a period of 6-months through the end of treatment for the outcome assessment.

Outcomes measured were treatment success (resolution of benign disease at the end of treatment), recovery time (from treatment initiation to resolution), and recurrence (appearance of disease within 6 months after treatment).

The data were analyzed using SPSS version 26. For quantitative variables, results were presented as mean ± standard deviation, whereas categorical variables were summarized as frequencies and percentages. Group comparisons for outcomes were conducted using the independent samples t-test and the Chi-square test, depending on the nature of the variables.

RESULTS

Table I presents the demographic and clinical features of the study participants (n = 85), categorized into surgical (n = 40) and non-surgical (n = 45) groups. The surgical group had a marginally higher mean age (26.85 ± 6.3 years) compared to the non-operative group (23.9 ± 6.1 years). There was no notable difference in average height between the two cohorts, with the surgical group averaging 164.0 ± 10.5 cm and the non-surgical group at 162.4 ± 9.8 cm. Similarly, mean weight was 66.17 ± 14.2 kg in the surgical group and 67.57 ± 14.0 kg in the non-surgical group. The average BMI measured 24.15 ± 2.9 kg/m² for the surgical group and 24.6 ± 3.5 kg/m² for those managed conservatively.

Participants in the non-operative group experienced a longer average duration of symptoms (201.0 ± 91.7 days) than those in the surgical group (163.9 ± 103.0 days). Most participants were either single (25.0% in the surgical group vs 26.7% in the non-surgical group) or separated (22.5% vs 20.0%), with smaller proportions being married, divorced, or widowed.

Diabetes mellitus was observed exclusively in the non-surgical group (6.7%), while hypertension was more common among surgical patients (30.0%) compared to the non-surgical group (17.8%). A family history of breast cancer was reported in 12.5% of the surgical group and 15.6% of the conservative group. Smoking prevalence was higher in the surgical cohort (17.5%) than in the non-surgical group (4.4%).

Regarding pathological diagnoses, both groups had nearly equal occurrences of breast abscesses and fibroadenomas. Ductal hyperplasia was more frequent in the non-surgical group (33.3% vs 25.0%), whereas granulomatous mastitis was slightly more common among surgical patients (27.5% vs 26.7%).

Table II provides a comparative overview of treatment outcomes between the surgical group (n = 40) and the non-surgical (conservative) group (n = 45). The mean duration of treatment was similar between the two, with 43.7 ± 26.6 days in the surgical group and 44.9 ± 24.3 days in the conservative group (p = 0.824), showing no statistically significant difference. Recovery time appeared longer in the surgical cohort, averaging 70.5 ± 35.6 days, versus 59.5 ± 33.2 days in the conservative group, though this difference did not reach statistical significance (p = 0.059).

Similarly, the mean duration before recurrence was longer among surgical patients (215.4 ± 106.8 days) compared to those treated conservatively (182.7 ± 101.4 days), but this too was not statistically significant (p = 0.115). Treatment success was notably high in both groups—92.5% in the surgical and 88.9% in the conservative group (p = 0.425)—indicating comparable effectiveness. Recurrence was slightly more frequent in the surgical cohort (22.5%) than in the conservative one (15.6%), although the difference was not statistically meaningful (p = 0.414).

DISCUSSION

Benign breast diseases (BBD) are common in young women and encompass a broad spectrum of non-malignant conditions, including granulomatous mastitis (GM), fibroadenoma, and ductal hyperplasia. The optimal management approach—whether surgical

or conservative—remains a subject of debate, particularly when considering long-term outcomes such as recovery duration, recurrence rates, and overall treatment success. This study aimed to evaluate and compare these outcomes in young women treated conservatively versus those who underwent surgical intervention.

Our findings demonstrated no statistically significant differences between the surgical and conservative treatment groups with respect to treatment duration (43.7 ± 26.6 days vs. 44.9 ± 24.3 days; $p = 0.824$), recovery period (70.5 ± 35.6 days vs. 59.5 ± 33.2 days; $p = 0.059$), or recurrence interval (215.4 ± 106.8 days vs. 182.7 ± 101.4 days; $p = 0.115$). Similarly, treatment success (92.5% vs. 88.9%; $p = 0.425$) and recurrence rates (22.5% vs. 15.6%; $p = 0.414$) did not differ significantly. These results suggest that both surgical and conservative modalities can be effective, with comparable outcomes in the majority of cases.

Notably, our results diverge from previous literature. Aghajanzadeh et al. reported markedly higher success rates with surgical management in GM cases—100% versus 40.89% in conservatively treated patients—highlighting the potential benefit of surgical intervention in selected cases [11]. Conversely, Uysal et al. observed higher recurrence following surgery (20%) compared to conservative treatment (14.34%), suggesting a possible advantage of non-operative approaches in certain scenarios [12]. These discrepancies likely reflect differences in study populations, histopathological heterogeneity, treatment protocols, and follow-up durations.

The extant literature further elucidates the clinical and pathological attributes of Benign Breast Disease (BBD). Chaudhary et al. have defined fibroadenoma as the most prevalent benign or non-cancerous lesion in women in their reproductive years, thereby highlighting the need for histopathological evaluation for determined treatment strategies [13]. In a similar vein, Chilakala and Navya have highlighted the hormonal and developmental determinants influencing BBD, advocating for tailored treatment modalities contingent upon the distinct subtypes of lesions identified [14].

The literature has also described alternative and adjunctive treatment methodologies. Parveen S elucidated the effective management of fibroadenoma through personalized homeopathic interventions, indicating that conservative treatment modalities may be appropriate for a select cohort of patients [15]. Additionally, Taib and Rahmat examined the influence of physiological variables, including pregnancy and lactation, on the progression and therapeutic approaches for benign breast disease (BBD), advocating for customized strategies for these specific populations [16]. Kudela et al. highlighted the need for predictive, preventive, and personalized approaches towards benign and malignant breast diseases as this would improve clinical outcomes and reduce long-term morbidity [17]. Patient-centered care, informed by both clinical and histopathological features, remains a cornerstone of effective management.

The findings of our study indicate that both conservative and surgical treatments offer comparable effectiveness for BBD in young women. Given similar recovery times, success rates, and recurrence profiles, conservative management may be a reasonable first-line option, particularly for patients wishing to avoid surgery. However, treatment decisions should remain individualized, guided by histopathological diagnosis, clinical presentation, and patient preferences.

This study contributes important data to the understanding of BBD management in young women. Nevertheless, several limitations must be acknowledged. The study was conducted at a single tertiary care center, limiting generalizability. The modest sample size ($n = 85$) may have reduced the power to detect smaller differences between groups, particularly regarding recurrence. The non-probability consecutive sampling method introduces a potential for selection bias. Furthermore, the observational design precludes causal inference, and treatment allocation was not randomized, raising concerns of confounding by indication. Additionally, the six-month follow-up period may have underestimated late recurrences.

Despite these limitations, the study had notable strengths, including clearly defined diagnostic and outcome criteria, histopathological confirmation of all cases, and a structured follow-up protocol that supports internal validity.

CONCLUSION

This study shows that both surgical and conservative treatments for benign breast disease in young women

yield similar outcomes, with no significant differences in treatment duration, recovery, success, or recurrence. Conservative management is effective for selected cases, especially when aesthetics and lower risk are priorities, while surgery remains important for larger or aggressive lesions. Treatment should be tailored based on clinical factors and patient preference.

Table I: Demographic and Clinical Profile of Study Participants (n=85)

(Mean ± SD)		Groups	
		Surgical (n=40)	**Conservative** (n=45)
Age in years		26.85 ± 6.3	23.9 ± 6.1
Height in cm		164.0 ± 10.5	162.4 ± 9.8
Weight in kg		66.17 ± 14.2	67.57 ± 14.0
BMI in kg/m²		24.15 ± 2.9	24.6 ± 3.5
Duration of Symptoms in days		163.9 ± 103.0	201.0 ± 91.7
Marital Status, n (%)	Single	10 (25.0)	12 (26.7)
	Married	7 (17.5)	7 (15.6)
	Divorced	8 (20.0)	7 (15.6)
	Separated	9 (22.5)	9 (20.0)
	Widowed	6 (15.0)	10 (22.2)
Diabetes Mellitus, n (%)		0 (0.0)	3 (6.7)
Hypertension, n (%)		12 (30.0)	8 (17.8)
Family H/o Breast Carcinoma, n (%)		5 (12.5)	7 (15.6)
Smoking Status, n (%)		7 (17.5)	2 (4.4)
Disease Type	Breast Abscess	10 (25.0)	9 (20.0)
	Ductal Hyperplasia	10 (25.0)	15 (33.3)
	Fibroadenoma	9 (22.5)	9 (20.0)
	Granulomatous Mastitis	11 (27.5)	12 (26.7)

Table II: Comparison of Outcomes Between Surgical and Conservative Groups (n=85)

Outcomes, (Mean ± SD)	Groups			P-Value
	Surgical (n=40)	**Conservative** (n=45)	**95% C. I**	
Duration of Treatment in days	43.7 ± 26.6	44.9 ± 24.3	-12.25---9.85	0.824
Duration of Recovery in days	70.5 ± 35.6	59.5 ± 33.2	-3.91---25.91	0.059
Recurrence in days	215.4 ± 106.8	182.7 ± 101.4	-12.39---77.79	0.115
Treatment Success, n (%)	37 (92.5)	40 (88.9)	0.344---6.906	0.425
Recurrence, n (%)	9 (22.5)	7 (15.6)	0.527---4.714	0.414

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