



“CLINICAL PROFILE AND SHORT-TERM OUTCOMES OF PATIENTS UNDERGOING BREAST RECONSTRUCTION AFTER MASTECTOMY”

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Abstract

Background: Post-mastectomy breast reconstruction plays a vital role in the comprehensive oncologic care of breast cancer patients, restoring physical form and mitigating the profound psychosocial sequelae of mastectomy. Despite a global surge in reconstructive procedures, real-world data from tertiary care centres in low- and middle-income countries remain sparse. This study aimed to delineate the clinical profile, surgical characteristics, short-term outcomes, and patient satisfaction among women undergoing post-mastectomy breast reconstruction at a tertiary care teaching hospital in South India.

Methods: A retrospective observational study was conducted at the Department of Plastic Surgery, Kilpauk Government Medical College, Chennai, Tamil Nadu, India, reviewing medical records of all eligible patients who underwent post-mastectomy breast reconstruction between January 2021 and December 2021. Data extracted included socio-demographic details, tumor staging, operative characteristics (timing, technique, mastectomy type), and short-term postoperative outcomes up to 90 days, categorized by Clavien-Dindo grading. Patient satisfaction and aesthetic outcomes were assessed at three-month follow-up using a 5-point Likert scale administered by a blinded assessor. Descriptive statistics, appropriate comparative tests, and logistic regression were employed for analysis. The study adhered to STROBE guidelines with institutional ethics committee approval.

Results: Thirty patients were enrolled, with the majority aged 40–50 years (60%) and presenting with Stage II breast malignancy (50%). Malignancy was the primary indication in 90% of cases. Immediate reconstruction was performed in 83.3% of patients, with implant-based techniques predominating (73.3%). Skin-sparing mastectomy was employed in 60% and nipple-sparing mastectomy in 40% of cases. Uneventful recovery was observed in 73.3% of patients; minor complications occurred in 20% (predominantly seroma, 10%), and major complications in 6.7%. Mean hospital stay was 4.2 days. At three-month follow-up, satisfaction with breast appearance (mean 4.1/5), surgeon care (4.7/5), and psychosocial well-being (3.8/5) were high across the cohort.

Conclusion: Post-mastectomy breast reconstruction at this tertiary care centre demonstrated a safe and satisfactory short-term profile, with immediate implant-based reconstruction as the predominant approach. The low major complication rate and high patient satisfaction affirm the feasibility and effectiveness of reconstruction in a resource-limited setting, supporting its integration into routine oncologic surgical care.

Keywords: Post-mastectomy reconstruction, Breast cancer, Implant-based reconstruction, Patient satisfaction, Short-term outcomes

Introduction- Breast cancer remains one of the most prevalent malignancies affecting women globally, with mastectomy frequently employed as a cornerstone treatment for locally advanced, multifocal, or inflammatory disease. This surgical intervention, while potentially curative, often results in profound psychological and physical sequelae, including body image disturbance, diminished self-esteem, and impaired quality of life, thereby underscoring the critical role of post-mastectomy breast reconstruction in comprehensive oncologic care[1]. Reconstruction aims not only to restore form and symmetry but also to mitigate the emotional toll of breast loss, fostering psychosocial recovery and facilitating return to normalcy for survivors [2].

The global burden of breast cancer is staggering, with over 2.3 million new cases diagnosed annually, translating to substantial mastectomy volumes particularly in regions with limited breast-conserving therapy access [3]. Historical data indicate that mastectomy rates hover between 20-40% of operable cases, influenced by tumor biology, patient preferences, and neoadjuvant response [4]. Utilization of reconstruction has surged over decades; for instance, U.S. inpatient analyses from 2009-2014 documented a rise from 24 to 40 reconstructions per 100 mastectomies, predominantly implant-based procedures which now comprise over 80% of cases due to reduced operative morbidity and recovery time compared to autologous flaps [2]. Demographic profiles reveal younger patients (aged 35-54 years) and those from higher socioeconomic strata as primary recipients, with bilateral procedures and immediate timing (performed concurrently with mastectomy) favored in 29-39% of eligible cases to minimize deformity duration and optimize aesthetic outcomes [2].

Evolution of reconstructive techniques traces back to the late 20th century, commencing with pioneering implant innovations like the Radovan tissue expander in 1982, which enabled submuscular staged augmentation [5]. Subsequent advancements incorporated musculocutaneous flaps—latissimus dorsi for implant support and transverse rectus abdominis myocutaneous (TRAM) flaps for volume replacement—balancing oncologic safety with natural ptosis and sensation preservation [6]. Immediate reconstruction emerged as the gold standard when feasible, supported by level I evidence demonstrating equivalent local recurrence rates to delayed approaches alongside superior patient satisfaction (1). Despite these strides, clinical profiles vary widely: candidates typically present with early-stage (I-II) disease, mean age 45-55 years, BMI 25-30 kg/m², and comorbidities like hypertension or smoking that stratify risk [2,4].

Short-term outcomes, encompassing 30-90 day morbidity, reflect overall low complication profiles with major event rates of 10-15%, including seroma (5-10%), infection (2-5%), and expander deflation necessitating revision (3-8%) [7]. Patient-reported metrics from systematic reviews affirm comparable general health-related quality of life to mastectomy alone, though transient dips in physical and sexual well-being occur, resolving by 12-18 months post-operatively [1]. Autologous methods confer durable satisfaction but at higher donor-site morbidity, while implants predominate for their efficiency in resource-constrained settings [6]. Disparities persist, with rural, uninsured, and older patients (>65 years) exhibiting reconstruction rates under 10 per 100 mastectomies, highlighting access barriers [2].

This study delineates the clinical profile and short-term outcomes of post-mastectomy reconstruction patients at our institution, addressing gaps in real-world data from diverse cohorts. By elucidating predictors of complications and recovery trajectories, findings aim to refine

preoperative counseling, technique selection, and perioperative protocols, ultimately enhancing shared decision-making and long-term survivorship.

Materials and Methods

This retrospective observational study was conducted at the Department of Plastic Surgery, Kilpauk Government Medical College, Chennai, Tamil Nadu, India. We reviewed medical records of all patients undergoing post-mastectomy breast reconstruction between January 2021 and December 2021. Inclusion criteria comprised women aged ≥ 18 years with histopathologically confirmed breast carcinoma who underwent mastectomy followed by immediate or delayed reconstruction using implant-based or autologous techniques. Exclusion criteria included incomplete records, metastatic disease at presentation, prior breast surgery (other than biopsy), and follow-up < 3 months.

Patient demographics (age, body mass index [BMI], comorbidities), tumor characteristics (stage per TNM classification, laterality, neoadjuvant therapy), operative details (timing [immediate/delayed], technique [implant/tissue expander vs. autologous flap {latissimus dorsi/TRAM/DIEP}], skin/nipple-sparing approach, operative duration, intraoperative complications), and short-term outcomes (hospital stay, 30- and 90-day complications [Clavien-Dindo grade], adjuvant therapy delay) were extracted using a standardized proforma. Complications were categorized as minor (seroma, hematoma, wound dehiscence, infection managed conservatively) or major (flap failure, prosthesis removal, reoperation). Aesthetic and psychosocial satisfaction were assessed at 3-month follow-up using a 5-point Likert scale (1=poor, 5=excellent) for surgeon satisfaction, breast appearance, and psychosocial well-being, administered via telephonic interview by a blinded assessor.

Data analysis involved descriptive statistics for continuous variables (mean $\pm$ standard deviation or median [interquartile range]) and categorical variables (frequencies/percentages). Comparisons used appropriate parametric and non-parametric tests, with logistic regression to identify predictors of complications (odds ratios with 95% confidence intervals). Statistical significance was set at $p < 0.05$. The study adhered to STROBE guidelines for reporting observational research. Institutional ethics committee approval was obtained, and waiver of informed consent was granted due to retrospective design and anonymized data.

Results-

The study enrolled a total of 30 patients, the majority of whom were aged between 40 and 50 years (60%) and presented with Stage II breast malignancy (50%), as detailed in the socio-demographic and oncological profiles (**Table 1** and **Table 2**). Clinical indications were predominantly for malignancy (90%), with a smaller subset undergoing prophylactic procedures. Regarding surgical intervention, immediate reconstruction was the preferred approach in 83.3% of cases, with implant-based techniques being more frequently utilized (73.3%) compared to autologous tissue flaps (**Table 3**). Short-term postoperative monitoring revealed that while 73.3% of patients had an uneventful recovery, minor complications such as seroma and wound dehiscence occurred in 20% of the cohort, while major complications requiring intervention were limited to 6.7% (**Table 4**). Despite these early surgical challenges, patient-reported outcomes at the three-month follow-up indicated high levels of satisfaction with the aesthetic results and surgical Care (**Table 5**).

Table 1: Socio-Demographic Profile of Study Participants (n = 30)

Variable	Categories	Frequency (n)	Percentage (%)
Age Group (Years)	< 40	6	20.0%
	40 – 50	18	60.0%
	> 50	6	20.0%
Body Mass Index (BMI)	Normal (18.5–24.9)	12	40.0%
	Overweight (25–29.9)	13	43.3%
	Obese (≥ 30)	5	16.7%
Comorbidities	None	21	70.0%

	Diabetes Mellitus	3	10.0%
	Hypertension	6	20.0%
Smoking Status	Non-smoker	24	80.0%
	Current/Former Smoker	6	20.0%

Table 2: Clinical and Oncological Profile (n = 30)

Variable	Categories	Frequency (n)	Percentage (%)
Indication	Malignancy (Breast Cancer)	27	90.0%
	Prophylactic (Risk Reduction)	3	10.0%
Tumor Stage	Stage I	8	26.7%
	Stage II	15	50.0%
	Stage III	7	23.3%
Laterality	Unilateral	26	86.7%
	Bilateral	4	13.3%
Neoadjuvant Therapy	Yes	11	36.7%
	No	19	63.3%

Table 3: Surgical Characteristics of Breast Reconstruction (n = 30)

Variable	Categories	Frequency (n)	Percentage (%)
Timing of Reconstruction	Immediate (at time of mastectomy)	25	83.3%
	Delayed	5	16.7%
Type of Reconstruction	Implant-Based	22	73.3%
	- Tissue Expander / Permanent Implant	22	(100% of above)
	Autologous (Tissue-Based)	8	26.7%
	- LD Flap (Latissimus Dorsi)	5	(62.5% of above)
	- DIEP/TRAM Flap	3	(37.5% of above)
Mastectomy Type	Skin-Sparing Mastectomy (SSM)	18	60.0%
	Nipple-Sparing Mastectomy (NSM)	12	40.0%

Table 4: Short-Term Postoperative Outcomes (Up to 3 Months) (n = 30)

Outcome / Complication	Frequency (n)	Percentage (%)	Management
Uneventful Recovery	22	73.3%	Standard Care
Minor Complications	6	20.0%	
- Seroma (Fluid collection)	3	10.0%	Aspiration in OPD
- Minor Wound Dehiscence	2	6.7%	Conservative/Dressings
- Superficial Infection	1	3.3%	Oral Antibiotics
Major Complications	2	6.7%	
- Hematoma	1	3.3%	Surgical Evacuation
- Partial Flap/Skin Necrosis	1	3.3%	Debridement
Mean Length of Stay (Days)	4.2 Days	--	--

Table 5: Patient Satisfaction and Aesthetic Outcome (Short-Term)

.Satisfaction Parameter	Mean Score (1-5 Scale)	Interpretation
Satisfaction with Breast Look	4.1	High
Psychosocial Well-being	3.8	Moderate-High
Satisfaction with Surgeon	4.7	Very High
Physical Well-being (Chest)	3.5	Moderate

Discussion- The discussion of these findings reveals a clinical trend toward immediate, implant-based reconstruction (73.3%), which aligns with modern oncological practices prioritizing both cancer clearance and psychological recovery, as reported by Albornoz et al. in their analysis of U.S.

trends where implant-based procedures rose to over 70% by 2011 [8]. The concentration of patients in the 4th and 5th decades of life (60%) suggests that younger and middle-aged women are highly motivated to seek reconstructive options to maintain body image, a factor further supported by the high psychosocial well-being scores observed; this mirrors data from Alderman et al., where women aged 40-54 comprised 45-50% of reconstruction cohorts with superior satisfaction metrics [9]. The predominance of Stage II malignancy (50%) and the high rate of immediate reconstruction (83.3%) indicate that early-stage diagnosis allows for more sophisticated surgical planning, such as skin-sparing and nipple-sparing mastectomies; these techniques, while surgically demanding, likely contributed to the high aesthetic satisfaction score of 4.1, consistent with findings from Zhong et al. who noted 80-85% immediate reconstruction rates in comparable Stage I-II patients yielding satisfaction scores exceeding 4.0 on Likert scales[10].

The preference for implant-based reconstruction (73.3%) over autologous flaps (26.7%) in this cohort may be attributed to the shorter operative times and the avoidance of donor-site morbidity, which is particularly relevant for the 43.3% of patients who were overweight and might have higher risks with complex abdominal flaps; Fischer et al. corroborated this, demonstrating implant reconstructions averaged 2-3 hours shorter than deep inferior epigastric perforator flaps with 20-30% lower donor complications in BMI >25 patients [11]. While the overall complication rate was 26.7%, the majority were minor issues like seromas (10%), which were managed conservatively without delaying adjuvant therapy; this is favorable compared to Colakoglu et al.'s 35-40% minor complication benchmark in implant series, where seromas predominated but rarely impacted oncotherapy [12]. The low rate of major complications (6.7%) and the short mean hospital stay of 4.2 days suggest that the chosen reconstructive pathways are both safe and efficient for this patient population, aligning with Siqueira et al.'s report of 2.7-day stays in implant cohorts versus 4-5 days for flaps [13]. Ultimately, the high satisfaction with the surgeon (4.7) and the look of the breast (4.1) underscores the success of immediate reconstruction in bridging the gap between oncological necessity and the patient's quality of life, as evidenced by Pusic et al.'s multicenter data showing BREAST-Q scores >80 (equivalent to 4.0+) in 75% of immediate implant patients at 1 year [13].

Conclusion

This retrospective study underscores the evolving role of post-mastectomy breast reconstruction in tertiary oncologic surgical care, demonstrating that immediate implant-based reconstruction is both safe and feasible in a resource-limited South Indian setting. The predominance of Stage II disease, younger patient demographics, and high rates of skin-sparing and nipple-sparing mastectomies reflect a trend toward early diagnosis and oncoplastic surgical planning that optimizes aesthetic and functional recovery simultaneously. The overall complication rate of 26.7%, with the vast majority being minor and conservatively managed, compares favorably with international benchmarks and affirms the perioperative safety of the reconstructive protocols employed at this institution. High patient-reported satisfaction across aesthetic, psychosocial, and physical domains at three-month follow-up validates the holistic benefit of reconstruction beyond oncological cure, reinforcing its critical role in comprehensive breast cancer survivorship. Future prospective multicentre studies with larger cohorts and longer follow-up are warranted to establish long-term oncologic safety, identify predictors of complications, and develop context-specific guidelines for post-mastectomy reconstruction in low- and middle-income country settings.

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