Oncoplastic and Reconstructive Breast Surgery: Experience in a Public Tertiary Hospital of the Brazilian Unified Health System (SUS)

Carolina Vasconcelos, MD, MSc[1]; Irla Valença, MD[1]; Marcelo Salgado, MD, PhD[1]; Denise Sobral, MD, PhD[1]; Carlos Caiado, MD, PhD[1], Cinthya de Jesus, MD[1]; Leuridan Torres, MD, PhD [1,2]
[1]Sociedade Pernambucana de Combate ao Cancer, Hospital de Câncer de Pernambuco (HCP), Recife – Brazil,, [2]Instituto de Medicina Integral Prof. Fernando figueira, International Research Center

Introduction

BC is the most common malignancy among women and the leading cause of cancer-related deaths. Advances in surgical approaches have improved both quality of life and aesthetic results. Oncoplastic techniques, which combine oncologic and reconstructive principles offers better satisfaction, body image, and sexual well-being.

Methods and Materials

This study aimed to evaluate the clinical and epidemiological profile of patients who underwent oncoplastic breast surgery with immediate or delayed reconstruction at the Mastology Department of the Hospital de Câncer de Pernambuco (HCP) between March 2023 and July 2024, and to assess complication rates. Data analysis was performed using IBM SPSS version 27. Associations between categorical variables were tested using Pearson's Chi-square or Fisher's Exact test, adopting a 5% significance level. Ethical approval was obtained from the hospital's Research Ethics Committee, in compliance with the Declaration of Helsinki and Resolution 466/2012 of the Brazilian National Health Council.

Results

A total of 102 oncoplastic breast surgeries were performed at HCP between March 2023 and July 2024. Two patients were excluded due to incomplete medical records, resulting in a final cohort of 100 patients. All were female, with ages ranging from 21 to 78 years (mean age 50.2). Of these, 55% were premenopausal, 34% had a first-degree family history of breast cancer, and arterial hypertension was the most prevalent comorbidity (37%), followed by diabetes mellitus (14%). Most patients were non-smokers (87%). Genetic testing was performed in 13 patients, of whom 8 (61.5%) carried pathogenic BRCA1 variants. Early clinical-stage disease (T1–T2) was observed in 72% of the cohort, with negative axillary nodes in 73%. The most common histologic grade was grade II (39%), the luminal subtype predominated (70%), and pathological stage II was the most frequent (49%). Adjuvant therapies included chemotherapy (60%), RT (64%), HT (57%), and anti-HER2 therapy (14%). Regarding surgical approaches, 59% underwent oncoplastic lumpectomies and 39% mastectomy with immediate reconstruction. The most common oncoplastic technique was oncologic mammoplasty (17%), followed by the Burrow's triangle technique (12%). Contralateral symmetrization was performed in 29% of cases, and lipofilling in 5%. Among patients undergoing mastectomy with implant placement, the majority (56.4%) received subpectoral implants (**Table 1**). Postoperative complications occurred in 14% of patients, with wound dehiscence being the most frequent, documented in seven cases. Reoperations were required in five patients: two due to implant removal following exposure caused by partial flap necrosis, and three due to margin re-excision after compromised margins were identified on final pathology (**Table 2**).

Variable	n (%)
Primary surgery	
Oncoplastic lumpectomy	59
Nipple-sparing mastectomy	25
Skin-sparing mastectomy	14
Expander Exchange	1
Expander reconstruction	1
Oncoplastic lumpectomy type	
Mammoplasty	17
Burrow's Triangle	12
Thoracolateral Flap	8
Double Circle	5
Grizotti	4
Batwing	3
Racket	3
Bilobed Flap	3
Thoracoepigastric Flap	2
VY Flap	2
Not applicable (mastectomy)	41
Symmetrization	
Yes	29
No	71
Fat grafting	
Yes	5
No	95
Reconstruction method	
Subpectoral implant	22
Prepectoral implant	17
Not applicable	61

Table 1: Types of surgical procedures performed by patients

Variable	n (%)
Complications	
No	86
Yes	14
Surgical wound dehiscence	7
Hematoma	2
Prosthesis exposure	2
Partial flap necrosis	1
Keloid	1
Partial NAC necrosis	1
Reoperation	
No	
Yes	95
Second surgical procedure	5
Implant removal	3
	2

Table 2: Types of complications and reoperations

At the predetermined 5% significance level, no statistically significant associations were identified between the occurrence of complications and the variables analyzed. Nonetheless, it is noteworthy that the absolute number of complications was substantially higher among patients who underwent mastectomy compared to those who underwent oncoplastic lumpectomy, with more than twice as many complications recorded in the mastectomy group (**Table 3**).

	Occurrence of complication			
Variable	Yes	No	Total	P value
	n (%)	n (%)	n (%)	
Total group	14	86	100	
SAH				p(1) = 0,625
Yes	6 (16,2)	31 (83,8)	37 (100,0)	
No	8 (12,7)	55 (87,3)	63 (100,0)	
DM				p(1) = 0,208
Yes	-	14 (100,0)	14 (100,0)	
No	14 (16,3)	72 (83,7)	86 (100,0)	
Smoking				p(2) = 0,465
No	12 (13,8)	75 (86,2)	87 (100,0)	
Ex-smoker	1 (10,0)	9 (90,0)	10 (100,0)	
Smoker	1 (33,3)	2 (66,7)	3 (100,0)	
Primary Surgery				p(1) = 0,056
Oncoplastic Lumpectomy	5 (8,5)	54 (91,5)	59 (100,0)	
Adenomastectomies	9 (22,0)	32 (78,0)	41 (100,0)	
Type of oncoplastic				p(1) = 0,151
Mammoplasty	1 (5,9)	16 (94,1)	17 (100,0)	
Adenomastectomies	9 (22,0)	32 (78,0)	41 (100,0)	
Local breast flaps	4 (9,5)	38 (90,5)	42 (100,0)	
Staging				p(2) = 0,075
0	6 (19,4)	25 (80,6)	31 (100,0)	
I	3 (23,1)	10 (76,9)	13 (100,0)	
II	3 (6,1)	46 (93,9)	49 (100,0)	
III	2 (28,6)	5 (71,4)	7 (100,0)	
Chemotherapy				p(1) = 0,347
Yes	10 (16,7)	50 (83,3)	60 (100,0)	
No	4 (10,0)	36 (90,0)	40 (100,0)	
Radiotherapy				p(1) = 0,076
Yes	6 (9,4)	58 (90,6)	64 (100,0)	
No	8 (22,2)	28 (77,8)	36 (100,0)	

Table 3: Assessment of the occurrence of complications according to comorbidities, smoking, primary surgery, type of oncoplastic surgery, staging, chemotherapy, and radiotherapy.
(1) Pearson's Chi-square test
(2) Fisher's Exact Test.

Discussion

Oncoplastic breast surgery has evolved as an approach that combines oncologic safety with improved cosmetic outcomes, becoming increasingly relevant with rising life expectancy and patient demand for quality after treatment. At the Pernambuco Cancer Hospital—responsible for approximately 50% of breast cancer cases in the state—the high patient volume and limited availability of plastic surgeons highlight the importance of incorporating oncoplastic training into breast surgery residency programs.

In this retrospective study, distinct patient profiles were observed: younger women were more frequently submitted to mastectomy with immediate reconstruction (mean age 41.9 years), whereas older patients with more comorbidities were more often selected for breast-conserving surgery (mean age 55.5 years), a pattern consistent with the literature. Most patients underwent conservative surgery, predominantly using mammaplasty-based techniques, which are associated with low complication rates and reliable oncologic safety.

Although patient satisfaction and the impact of radiotherapy could not be assessed due to the short follow-up time and limitations in medical records, the results align with recent meta-analyses showing comparable satisfaction between conventional and oncoplastic breast-conserving surgery, with oncoplastic techniques maintaining high satisfaction rates even in cases of larger tumors.

Genetic testing was performed in only 13% of patients, reflecting its lack of availability in the public healthcare system. Immediate implant-based reconstruction predominated, following global trends facilitated by advancements in skin-sparing and nipple-sparing mastectomy techniques.

Complication rates could not be correlated with clinical variables, likely due to the retrospective design, small sample size, and limited postoperative documentation—particularly regarding seroma, a common postoperative complication.

Conclusions

Breast reconstruction, particularly through oncoplastic techniques, is an essential component of comprehensive breast cancer care, contributing to anatomical restoration, emotional well-being, and overall quality of life. Oncoplastic surgery enables individualized planning, improved symmetry, and superior aesthetic outcomes without compromising oncologic safety. Incorporating these techniques into the HCP mastology residency has expanded access to breast-preserving and reconstructive procedures within the public health system, reinforcing the role of oncoplasty in achieving complete recovery and psychosocial reintegration for patients.

Contact

Carolina de Souza Vasconcelos
Hospital de Câncer de Pernambuco
Email: carolsouza116@gmail.com
Website: hcp.org.br

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