

Do Nipple Necrosis Rates Differ in Pre- Versus Sub-Pectoral Implant-Based Reconstruction after Nipple Sparing Mastectomy?

Mollie Dreicer, MS2; Sterling Braun MD2; James Butterworth MD2, Amanda Amin MD1, Christa Balanoff MD1, Jamie Wagner DO1, Kelsey Larson MD1

¹Department of General Surgery, Division of Breast Surgery, University of Kansas Medical Center, Kansas City, Kansas

²Department of Plastic Surgery, University of Kansas Medical Center, Kansas City, Kansas



BACKGROUND

- Nipple sparing mastectomy (NSM) has increased over time given positive aesthetic outcomes and demonstrated oncologic safety.
- Nipple areolar complex (NAC) ischemia and necrosis remain as concerning rates risks for this operation.
- Plastic surgeons have recently shifted from the traditional sub-pectoral (SP) implant placement to pre-pectoral (PP) implant placement because it eliminates the need for chest wall alteration and reduces the risk of animation deformity.¹
- It is unclear if adjusting the reconstruction plane has an impact on NAC ischemia and necrosis following NSM.

PURPOSE / AIM / HYPOTHESIS

To evaluate postoperative complications after NSM followed by immediate breast reconstruction in pre- vs. sub-pectoral planes

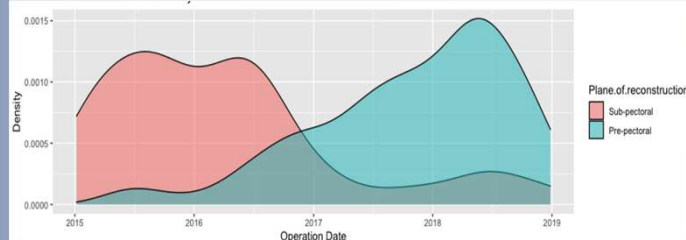
METHODS

- Retrospective review of patients undergoing NSM with immediate breast reconstruction with implant or tissue expander in either SP or PP plane from 01/01/2015 to 05/31/2019.
- Demographics, comorbidities, indications for mastectomy, reconstruction details, and complications were collected

RESULTS

The plane of reconstruction changed over time, with PP reconstruction more common in recent years which follows national trends.

Figure 1: Plane of Reconstruction by Date



RESULTS

SP (n=79) and PP (n=209) patients were similar with respect to clinicopathologic factors including risk factors for postoperative complications. (Table 1)

- Most patients had surgery for cancer indication rather than prophylactic purposes.

Table 1: Patient Factors

	Sub-Pectoral	Pre-Pectoral	P-Value
No. of Breasts	79	209	
Health Characteristics			
Mean Age ± SD, yr	45.9 ± 2	44.7 ± 1.4	0.34
Mean BMI ± SD, kg/m ²	24.0 ± 1	24.4 ± 3.5	0.44
Diabetes	0 (0%)	6 (2.9%)	0.56
Hypertension	9 (11%)	27 (13%)	0.84
Hyperlipidemia	3 (4%)	17 (8%)	0.3
Current Smoking	6 (7.6%)	3 (1.4%)	0.18
Indication			
Prophylactic	25 (32%)	76 (36%)	0.54
Cancer	54 (68%)	133 (63.6%)	-
Clinical Stage			
DCIS	28 (35%)	71 (34%)	0.99
I	15 (19%)	34 (16%)	-
II	10 (13%)	24 (11%)	-
III	2 (3%)	4 (2%)	-
Radiation			
Prior Breast XRT	3 (3.8%)	3 (1.4%)	0.35
PMRT	7 (8.9%)	14 (6.7%)	0.75

When considering postoperative complications for the two cohorts (Table 2):

- Rates of epidermolysis, partial necrosis, and total necrosis were the same. (p=0.30)
- SP patients were more likely to require wound care (p=0.015) but otherwise treatment for ischemic complications was the same including clinic & OR debridement.
- Rates of explant were the same. (p=0.33)
- Rates of non-ischemia complications were the same.

RESULTS

Table 2: Nipple Areola Complex (NAC) Outcomes and Complications by Plane

	Sub-Pectoral	Pre-Pectoral	P-Value
No. of Breasts	79	209	
NAC Complications			
No Loss	54 (68%)	131 (63%)	0.30
Epidermolysis	9 (12%)	45 (22%)	-
Partial Necrosis	11 (15%)	20 (9.7%)	-
Total Necrosis	2 (2.6%)	10 (4.9%)	-
NAC Outcomes and Treatment			
Full-thickness Necrosis	13 (16%)	30 (14%)	0.79
Wound Care	6 (7.6%)	3 (1.4%)	0.015*
Clinic Debridement	2 (2.5%)	12 (5.7%)	0.36
OR Debridement	5 (6.3%)	15 (2.7%)	1.0
Non-Ischemic Complications			
Hematoma	1 (1.3%)	2 (1%)	0.47
Seroma	1 (1.3%)	2 (1%)	1.0
Exposure	1 (1.3%)	3 (1.4%)	1.0
Infection	4 (5.1%)	22 (10%)	0.46
Explant	5 (6.3%)	23 (11%)	0.33

DISCUSSION

- Data represent one of the largest PP reconstruction cohorts in the literature, as well as the first direct comparison of NSM complications focused on reconstructive plane
- There was no difference in postoperative complications, including NAC ischemia or necrosis, based on reconstructive plane
- Shared decision making should be utilized to determine best surgical approach for patients, understanding that either SP or PP planes are safe for those individuals undergoing implant-based reconstruction following NSM

REFERENCES

- Sblatny H, Lentz R, Piper M. Prepectoral Breast Reconstruction: A Safe Alternative to Submuscular Prosthetic Reconstruction following Nipple-Sparing Mastectomy. *Plast Reconstr Surg*. 2017;140:432-443.

Contact Mollie Dreicer at mdreicer2@kumc.edu for any questions/comments.