EP-155

즉시보형물유방재건술에서 보형물 삽입 위치 결정에서 고려 요소들

(Considering Factors for Deciding Implant Planes in Direct-to-Implant Breast Reconstruction)

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Purpose: Considering the increasing importance placed on the quality of life among those who survive cancer, breast reconstruction is no longer limited to only compensating for breast loss; achieving the patient's preferences is now considered. However, the optimal surgical approach (subpectoral plane vs. prepectoral plane) in single-stage direct-to-implant breast reconstruction (DTIBR) has not been established. The aim of this study was to summarize the principles for selecting between the subpectoral and prepectoral planes in DTIBR.

Methods: In this retrospective study, we evaluated 543 patients with breast cancer who underwent DTIBR between March 2018 and October 2025. Postmastectomy reconstruction was performed in the subpectoral plane when the defect showed greater breast height than width, whereas the prepectoral plane was used when breast width exceeded height (Figure 1). Complications requiring reoperation were analyzed. Patient satisfaction was evaluated based on overall satisfaction, esthetic outcome, physical symptoms, psychosocial impact, and decision satisfaction using a visual analog scale.

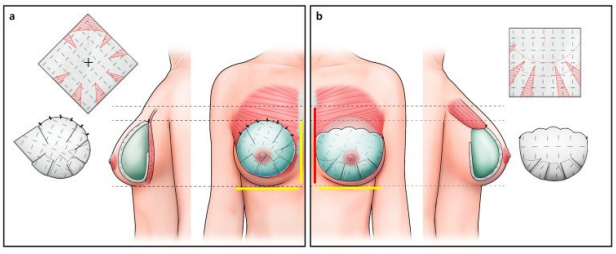

Figure 1. Direct-to-implant breast reconstruction. (a) Prepectoral breast reconstruction. Following nipple-sparing mastectomy, when the breast width was greater than or equal to the breast height, a large diamond-shaped acellular dermal matrix (ADM) was designed and positioned in the prepectoral plane. The ADM was radially trimmed to create a pocket that adequately enveloped the implant, allowing for optimal direct-to-implant (DTI) placement. (b) Subpectoral breast reconstruction. Following nipple-sparing mastectomy, a rectangular ADM was used if the breast width was smaller than the height. The pectoralis major muscle was adequately released over the upper pole to relieve tension, and the ADM was shaped in an octopus-like pattern to provide smooth, supportive coverage of the lower pole. DTI was then performed in the subpectoral plane. Yellow stick length < red stick length.

Results: The subpectoral dual-plane approach was most commonly used between 2018 and 2019, while the prepectoral plane became predominant after 2020. Overall, 83 (14.4%) patients developed major complications. The overall satisfaction score was 4.1 ± 0.80 in the subpectoral group and 4.35 ± 0.70 in the prepectoral group, showing a statistically significant difference (p value = 0.012) (Table 1) (Figure 2).

Category	Questions	Subpectoral Plane (n = 213)	Prepectoral Plane (n = 363)	*p* Value
Overall part	Q1. Overall, are you satisfied with your breast reconstruction?	4.10 ± 0.80	4.35 ± 0.70	0.012 *
Esthetic part (mean = 4.5)	Q2. Are you satisfied with breast symmetry achieved after reconstruction?	4.45 ± 0.75	4.55 ± 0.70	0.28
	Q3. Are you satisfied with the size of your breast after reconstruction?	4.50 ± 0.70	4.60 ± 0.65	0.22
	Q4. Are you satisfied with the shape of your breast after reconstruction?	4.40 ± 0.80	4.55 ± 0.75	0.18
	Q5. Are you satisfied with the scar resulted after breast reconstruction?	4.35 ± 0.85	4.50 ± 0.80	0.21
Physical symptoms (mean = 4.0)	Q6. Are you satisfied with how your breasts feel after reconstruction?	4.10 ± 0.85	3.95 ± 0.90	0.19
	Q7. Are you satisfied with the level of pain you had to endure after reconstruction?	3.85 ± 0.95	4.15 ± 0.90	0.008 *
Psychosocial part (mean = 4.2)	Q8. Have you experienced a loss of confidence or self-esteem after breast reconstruction?	4.35 ± 0.85	4.05 ± 0.90	0.018 *
	Q9. Are you satisfied with your sexual attractiveness after breast reconstruction?	4.25 ± 0.80	4.65 ± 0.65	0.24
Decisional part	Total score	4.40 ± 0.55	4.05 ± 0.85	0.091

Table 1. Patient's satisfaction using modified KNU Breast-Q. * Statistically significant difference between the two groups ($p < 0.05$).

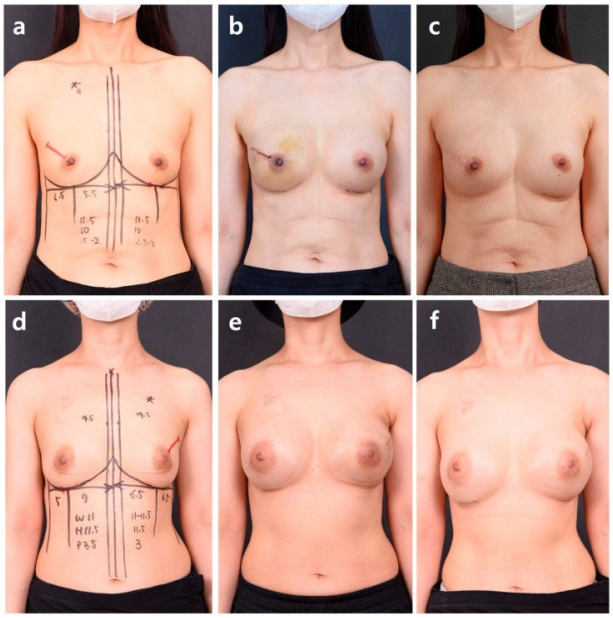

Figure 2. Prepectoral plane selection. Cases in which the preoperative breast width was greater than its height and the postmastectomy defect profile showed the same relationship. A 47-year-old woman with cancer of the right breast who has undergone right nipple-sparing mastectomy and contralateral balancing augmentation. Direct-to-implant breast reconstruction was performed on the right side using a Mentor 275 cc smooth round high-profile implant (diameter, 10.8 cm; projection, 4.4 cm), and a Sebbin LSM 210 cc implant (diameter, 11.0 cm; projection, 3.2 cm) was placed in the left breast for esthetic balancing. (a) Preoperative findings show breast volume of 180 cc. (b) Postoperative findings at 3 weeks. (c) Postoperative findings at 6 months. Cases in which the preoperative breast width smaller than its height exhibited the reversed pattern postmastectomy, showing a defect profile of breast width being greater than the height. A 44-year-old woman with cancer of the left breast who has undergone left nipple-sparing mastectomy and contralateral balancing augmentation. Direct-to-implant breast reconstruction was performed on the left side using a Mentor 330 cc smooth round high-profile implant (diameter, 10.8 cm; projection, 4.4 cm), and a Sebbin Integrity 210 cc implant (diameter, 11.0 cm; projection, 3.2 cm) was placed in the right breast for esthetic balancing. (d) Preoperative findings show breast volume of 180 cc. (e) Postoperative findings at 1 month. (f) Postoperative findings at 6 months.

Conclusion: The subpectoral and prepectoral planes have distinct advantages and limitations. Ultimately, the reconstructive surgeon should determine the most appropriate option in DTIBR. Selecting the surgical plane based on the postmastectomy defect reduces complications while improving patient satisfaction.