

EP-146

**Skin-sparing mastectomy 후 유두재건에서 Long V-Y flap technique의 유두 크기 유지 및 대칭성 향상에 대한 유효성**

(Advancing Nipple Reconstruction in Skin-Sparing Mastectomy: The Efficacy of the Long V-Y Flap Technique for Enhanced Size Retention and Symmetry)



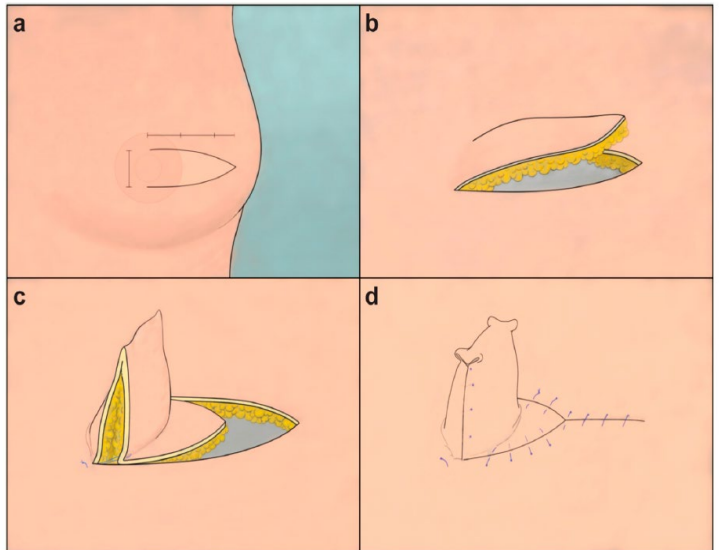
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**Purpose:** Nipple reconstruction is the final stage of breast reconstruction after skin-sparing mastectomy (SSM) and is important for achieving breast symmetry and aesthetic completion. Although several techniques have been described, long-term maintenance of nipple projection and volume remains a common limitation due to postoperative tissue contraction and resorption. This study aimed to evaluate the clinical outcomes of the previously described long V-Y flap technique, with particular focus on postoperative projection and volume changes.

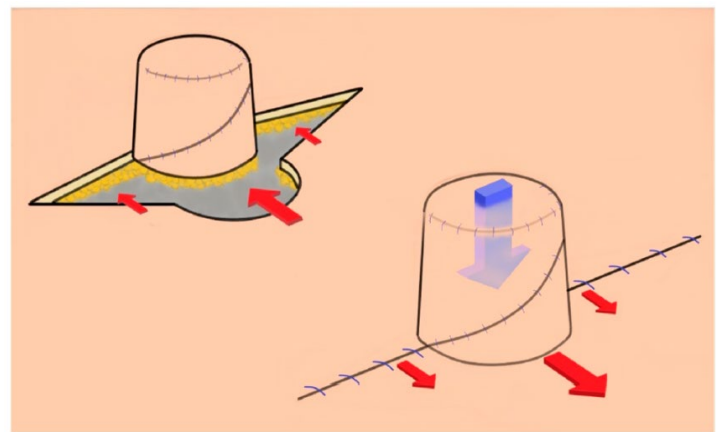
**Methods:** This study retrospectively reviewed 27 patients who underwent nipple reconstruction using the long V-Y flap after SSM with tissue expander-implant reconstruction. Nipple projection and volume were measured immediately postoperatively and at follow-up beyond 6 months. The rates of projection and volume loss were calculated. Outcomes were descriptively compared with projection loss rates reported for other flap techniques in the literature.

**Results:** The mean nipple volume loss was 34.23%, and the mean projection loss was 32.79% at follow-up. Nipple width showed minimal change over time. Compared with previously reported data for skate, star, bell, and arrow flaps, the long V-Y flap demonstrated numerically lower projection loss rates.

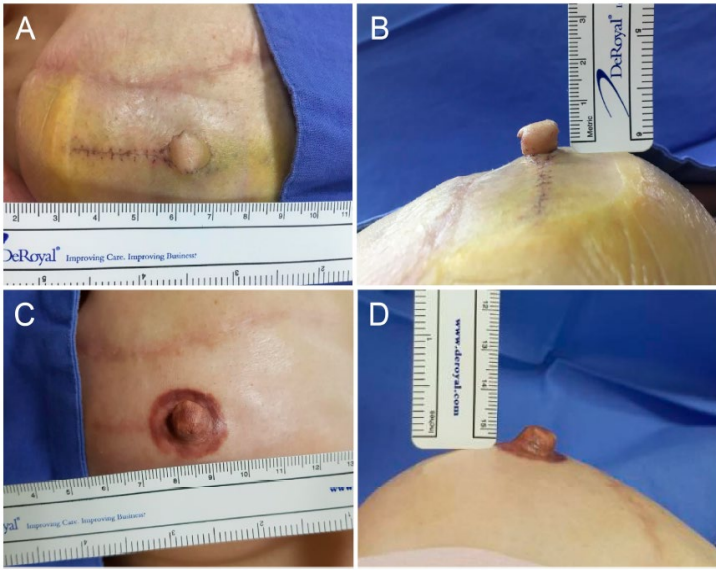
**Conclusion:** The long V-Y flap may be a useful option for nipple reconstruction after SSM, particularly in cases requiring larger nipple reconstruction. In our cohort, it showed relatively favorable short- to mid-term maintenance of projection and volume. Further studies with larger sample sizes and longer follow-up are warranted.



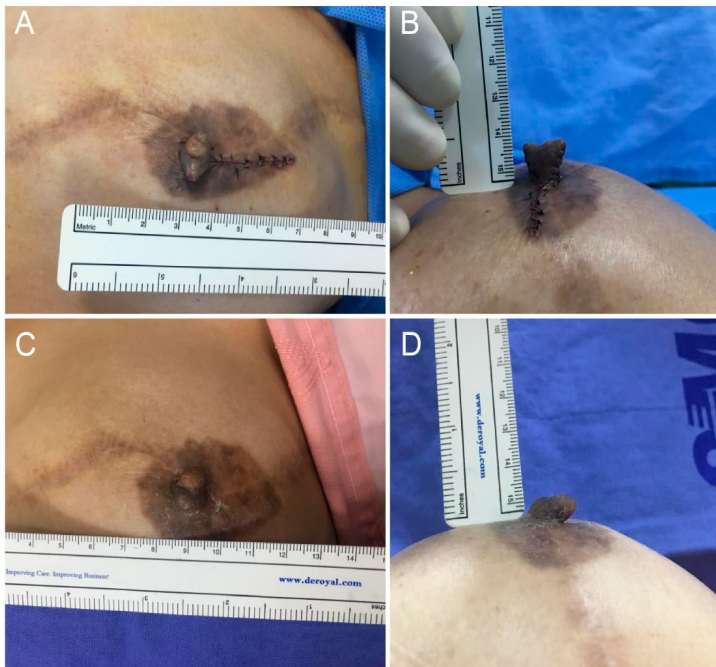
**Figure 1.** Diagrammatic representation of the long V-Y flap design for nipple reconstruction. (a) The flap base is marked at the planned nipple site, designed with a 1:2.5 width-to-length ratio and a half-fusiform shape, tapering in the middle. (b) The flap is meticulously separated with concurrent elevation of the skin and subcutaneous fat layers. (c) The flap is advanced toward the base and folded to achieve the desired height. (d) Depiction of the flap-folding, highlighting the inward manipulation of sharp rectangular tips at the top using a three-point suture, avoiding cuts that could restrict blood flow.



**Figure 2.** Nipple reconstruction using the CV flap method. Shown is the nipple reconstruction using the CV flap method illustrating various mechanisms that contribute to the reduction in nipple size post-reconstruction. The red arrows indicate the donor skin retraction forces triggered by the closure of the donor defect, leading to retraction of the adjacent skin. The blue arrow represents two factors: (a) the number of lobules, where multiple lobules increase scar formation and disrupt the blood supply, potentially resulting in necrosis, fat atrophy, and (b) external pressure forces exerted by clothing or posture.



**Figure 3.** Clinical photographs of a 36-year-old female patient who underwent nipple reconstruction using the Long V-Y Flap Technique. (A,B) Immediate postoperative appearance showing a nipple width of 11 mm and height of 8 mm. (C,D) At 3 months postoperatively, the nipple maintained its width at 11 mm with a slight reduction in height to 7 mm.



**Figure 4.** Clinical photographs of a 60-year-old female patient who underwent nipple reconstruction using the Long V-Y Flap Technique. (A,B) Immediate postoperative views showing a nipple width of 10 mm and height of 11 mm. (C,D) At 3 months postoperatively, the nipple width was slightly increased to 11 mm while the height decreased to 7 mm.