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화상 재건에서의 흉배동맥 기반 유리피판술의 역할: 1차와 2차 화상 비교를 중심으로

Thoracodorsal Vessel-Based Free Flap Reconstruction for Burn Injuries: A Comparison of Primary and Secondary Cases

한양대학교 의과대학
성형외과학교실

왕형우, 장란숙, 김효성, 김지영, 김연환*

Purpose: Free tissue transfer plays an important role in burn management, both for acute wound coverage when simpler methods are inadequate and for subsequent scar contracture release. Thoracodorsal vessel-based flaps offer distinct advantages for burn reconstruction, including a reliable pedicle and versatility for complex defects. This study compared patient characteristics, operative parameters, and outcomes between primary reconstruction for acute burn wounds and secondary reconstruction for scar contracture release.

Methods: A retrospective review was conducted of 65 consecutive patients who underwent free flap reconstruction for burn-related defects at a single institution between 2012 and 2024. Patients were categorized into primary reconstruction (acute burn or early wound coverage) and secondary reconstruction (scar contracture release) groups.

Results: The secondary reconstruction group was significantly younger (39.4 vs 55.4 years, $p < 0.001$) and had a higher proportion of female patients (68% vs 32%, $p = 0.01$) compared to the primary group. Operative time was significantly longer in secondary reconstruction (237 vs 174 minutes, $p < 0.001$), attributable to technical challenges of dissection in scarred tissue rather than flap complexity. Overall flap survival was 98.5% with no significant difference between groups.

Conclusion: Secondary burn reconstruction patients differ demographically from primary reconstruction patients and require longer operative times due to scarred tissue dissection. Thoracodorsal vessel-based flaps demonstrated versatility across the spectrum of burn reconstruction, from perforator flaps to complex chimeric designs, with high success rates in both clinical scenarios.

Fig. 1. Primary burn reconstruction. (A-C) A 50-year-old woman with a contact burn to the hand reconstructed with a thoracodorsal artery perforator (TDAP) flap, shown 3 years and 6 months postoperatively after debulking and web space release. (D-F) A 27-year-old woman with a severe flame burn reconstructed with a TDAP-ALT linked flap to create a mitten hand, shown 3 months postoperatively

Fig. 2. Secondary burn reconstruction. (A-C) A 20-year-old woman with lower extremity contractures following friction burn, resurfaced with a TDAP flap, shown 2 years postoperatively. (D-F) A 28-year-old woman with scarring after previous latissimus dorsi flap reconstruction, revised with a latissimus dorsi muscle-sparing flap and DIEP flap, shown 2 years postoperatively

Table 1. Comparison of Primary and Secondary Reconstruction Groups

Variable	Primary (n = 37)	Secondary (n = 28)	*p*-value	Effect Size
Age (years)	55.4 ± 16.5	39.4 ± 17.6	< 0.001	$d = 0.94$
Sex (Female), n (%)	12 (32%)	19 (68%)	0.01	OR = 4.40
Operative time (min)	173.5 ± 51.0	237.3 ± 90.6	< 0.001	$d = 0.90$
Defect size (cm²)	247.9 ± 215.5	316.3 ± 225.1	0.22	$d = 0.31$
Complications, n (%)	1 (2.7%)	2 (7.1%)	0.57	-

Values are presented as mean ± SD or n (%). Effect sizes: Cohen's *d* for continuous variables, odds ratio (OR) for categorical variables.