

EP-238

광범위 복합 결손을 동반한 중증 수지  
압착 손상의 수지 재건술: 역행성  
지방근막 피판술과 관절유합술을  
이용한 길이 보존 재건

(Digit Salvage in Severe Crush Injury with  
Extensive Composite Defects: Length-Preserving  
Reconstruction Using a Reverse Adipofascial Flap  
and Arthrodesis)



동국대학교 경주병원  
성형외과학 교실  
안유진, 이준호\*

**Purpose:** To report a successful length-preserving reconstruction using bone shortening arthrodesis and a reverse adipofascial flap in a severely crushed digit initially recommended for terminal amputation.

**Methods:** A 42-year-old male presented with a severe crush injury to the left hand from a woodworking machine. The ring finger sustained a severely comminuted fracture, an extensive composite tissue defect, and 75% destruction of the distal interphalangeal (DIP) joint. Despite indications for stump revision, length-preserving surgery was performed at the patient's strong request. Following debridement, bone shortening and DIP joint arthrodesis were performed using K-wire fixation. To reconstruct the remaining 2-cm composite defect over exposed bone lacking viable periosteum, a reverse adipofascial flap, pedicled on a digital proper artery perforator near the proximal interphalangeal (PIP) joint, was elevated and combined with a full-thickness skin graft (FTSG).

**Results:** At the 1-year follow-up, the reverse adipofascial flap and FTSG had survived completely without any marginal necrosis or infection. Radiographs confirmed stable bone union at the arthrodesis site. The severely crushed digit was successfully salvaged, fulfilling the patient's demand for functional length preservation without requiring secondary amputation.

**Conclusion:** Bone shortening arthrodesis paired with a reverse adipofascial flap is a reliable salvage option for complex digital defects, providing stable coverage while maximizing length preservation.



**Fig. 1.** Preoperative findings. (A) Severe crush injury with a composite tissue defect on the left ring finger. (B) Radiograph showing comminuted phalangeal fractures and extensive DIP joint destruction.



**Fig. 2.** Defect evaluation and surgical design. (A) A 2-cm composite defect with exposed bone following debridement. (B) Marking of the reverse adipofascial flap with a 1-cm pedicle base near the PIP joint to incorporate the digital artery perforator.



**Figure 3.** Surgical procedure. (A) Flap elevation and K-wire fixation for bone shortening and DIP arthrodesis. (B) Reverse flap coverage and FTSG application from the groin.



**Fig. 4.** Postoperative outcomes at 1 year. (A) Complete flap and graft survival with preserved functional digital length. (B) Radiograph confirming stable bone union at the arthrodesis site.