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노출된 지골 골결손에서
인공진피를 이용한 피복

(Artificial Dermis Coverage of Exposed
Phalangeal Bone Defects)



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Purpose: Traumatic phalangeal bone defects with soft-tissue loss often necessitate complex reconstruction including bone grafting. We present a case series in which artificial dermis (MegaDerm®) was applied over exposed phalangeal bone defects to report our observation of secondary bone remodeling.

Methods: Four male patients (age range, 16–64 years) treated between 2021 and 2025 were retrospectively reviewed. Injury mechanisms included industrial saw, crush, sports-related, and cutting-machine injuries involving the thumb to the ring finger at the proximal phalanx, middle phalanx, and proximal interphalangeal (PIP) joint levels. Following thorough debridement and indicated repairs—open reduction and internal fixation, extensor or extensor pollicis longus tenorrhaphy, and volar plate and collateral ligament repair as needed—MegaDerm was tailored to defect size, placed over the exposed bone or joint capsule, and secured with absorbable sutures. Serial radiographs were obtained preoperatively and during follow-up (mean, 8.1 months; range, 2.8–17.7 months).

Results: All four cases demonstrated progressive defect fill-in and improved cortical contour on follow-up radiographs. No radiographic evidence of osteomyelitis was observed. Stable soft-tissue coverage was achieved without additional bone grafting.

Conclusion: Artificial dermis coverage of exposed phalangeal bone defects was associated with secondary radiographic bone remodeling in all cases. The material may serve as a biological barrier limiting soft-tissue interposition and supporting organized hematoma formation,

thereby creating a favorable environment for bone regeneration. Prospective comparative studies are warranted to clarify the mechanism and define optimal indications.



Fig. 1. Case 1 (64-year-old man). Preoperative radiograph (A, Nov 8, 2025) shows middle-phalangeal bone defects of the left 3rd and 4th fingers. Follow-up radiograph (B, Feb 2, 2026) shows interval defect fill-in and improved cortical continuity after MegaDerm coverage.