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Review of the optimal timing and technique for extensor tendon reconstruction in composite dorsal hand wounds

Shelby Lies¹, Asher Horowitz¹, Gordon Lee², Andrew Y. Zhang¹

¹Department Plastic Surgery, University Texas Southwestern, Dallas, TX 75390, USA.

²Department Plastic Surgery, Stanford University, Palo Alto, CA 94304, USA.

Correspondence to: Dr. Shelby Lies, Department Plastic Surgery, University Texas Southwestern, 1801 Inwood Road, Dallas, TX 75390-9132, USA. E-mail: Shelby.Lies@UTSouthwestern.edu

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Abstract

Aim: The management of complex dorsal hand wounds with extensor tendon loss is controversial. Treatment has focused on soft tissue coverage, but there is limited evidence comparing immediate *vs.* staged tendon reconstruction. This review evaluates existing literature to determine the optimal management of composite hand defects.

Methods: A MEDLINE database review was performed including objective measurements such as number of operations, total active motion, grip strength, days to maximum range of motion (ROM), and return to work. Data extraction included demographics, surgical techniques, complications, and relative outcome. We compared primary and secondary staged reconstruction to correlate any significant differences in outcome and determine optimal timing and technique for extensor tendon reconstruction. We extracted information on flap types including regional and free tissue transfer with tendinous components *vs.* staged tendon grafts.

Results: Comparison of outcomes showed that patients with immediate reconstruction had fewer operations, faster return to maximum ROM, and greater chance of returning to work. The most successful single stage flaps include the radial forearm, suitable for reconstructing one to three tendons and the dorsalis pedis for three or four tendons; however, there were significantly more complications in immediate reconstruction particularly regarding donor site morbidity. Pedicled flaps had better total active motion. The two-stage approach resulted in acceptable functional outcomes without significant complications.



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