



Composite Fingertip Grafts in Adult Patients: Outcomes and Timeline of Healing

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Purpose: Composite graft repair has long been the standard practice for pediatric patients with distal guillotine amputations. However, the success rates in the adult population is less certain, with reported graft take ranging from 22-93%. Composite grafts undergo a period of epidermolysis and sloughing that can be mistaken for graft failure. The purpose of this study was to provide photo documentation of the clinical course of healing in composite grafts in adults and to assess the outcomes and complications in this population.

Material and Methods: This is a retrospective analysis of adult (age>18 years) subjects who were treated with composite grafts for traumatic distal fingertip amputations occurring at or distal to the lunula, over a 2 year period from January 2010 to December 2012. Patient demographics, including age, gender, occupation, handedness, smoking status and nature of the injury were collected. The objective outcomes included graft failure, infection, need for revision procedures and time to complete healing. In addition to clinical evaluation, photographic documentation was obtained at regular intervals throughout the follow up period to document the natural healing course of composite grafts.

Results: Ten patients underwent 10 composite grafts for distal fingertip amputations at or distal to the lunula. The study sample included 7 (70%) men and 3 (30%) women. Digital injuries and grafts were distributed as follows: 2 (20%) thumbs, 5 (50%) index fingers, 1 (10%) long finger and 2 (20%) ring fingers. The mechanisms of injury were 6 (60%) crush/avulsions, 3 (30%) sharp amputations and one (10%) bite. Half (50%) of the injured patients were active smokers at the time of their injury. Two (20%) of the grafts failed and required subsequent revision amputation, and one (10%) patient required thumb pad bolstering via a subsequent Moberg advancement flap. There were no infections. Patients required an average of 6.8 outpatient follow up visits, and demonstrated an average post-injury treatment window of 187 days.

Patient	Gender	Age	Digit	Mechanism	Smoker	Number of visits	Days under treatment	Reoperation
1	F	29	RRF	Crush avulsion	Y	10	110	N
2	F	35	RIF	Crush avulsion	Y	5	85	N
3	M	42	LIF	Crush avulsion	Y	2	10	N
4	M	60	LT	Laceration	N	5	173	N
5	F	35	LRF	Bite	Y	6	327	N
6	M	21	RLF	Laceration	N	7	97	Revision amp
7	M	57	LIF	Crush avulsion	Y	5	67	Revision amp
8	M	49	RT	Laceration	N	15	816	Moberg
9	M	33	RIF	Crush avulsion	N	6	88	N
10	M	22	LIF	Crush avulsion	N	7	100	N
Average	70% Male	38.1			50%	6.8	187.3	30%

RRF: Right ring finger; RIF: Right index finger; LIF: Left index finger; LT: Left thumb; LRF: Left ring finger; RLF: Right long finger; RT: Right thumb

Typical Outcomes:



Conclusions: Adult patients can have successful outcomes with composite fingertip grafting of traumatic fingertip amputations, with minimal complications, but with a long duration of time to full wound healing. Knowledge of the evolution of viable composite fingertip grafts may prevent unnecessary completion amputation of viable grafts during the healing course, and can inform provider-patient discussion about treatment options and expectations at the time of initial presentation and repair.

Timeline



Presentation

Composite Graft in ED

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7