



Secondary surgery following initial replantation/revascularization or completion amputation in the hand or digits



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Introduction

- Replantation and revascularization are increasingly viable option for many patients
- The aim of this study was to determine the rate of secondary surgery following replantation/revascularization or completion amputation for a traumatic, dysvascular injury in the hand or digits
- We aimed to study the trends in secondary surgery as well as the number of operations undergone by these patients over time (in years)
- In addition, we hypothesized that the distance a patient lives from the hospital does not influence having one or multiple secondary surgeries

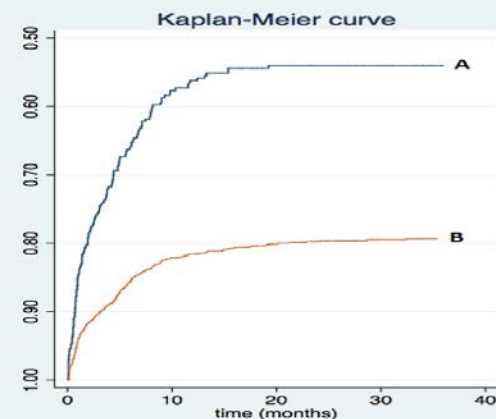
Methods

- A retrospective review was performed including 1,254 patients presenting from 2006 to 2014.
- A multivariable regression analysis was performed to determine factors associated with secondary surgery analyzing several independent variables
- An ordinal logistic regression was performed to determine the association of living at a further distance (> 50 miles) and having 0, 1 or multiple secondary surgeries.

Results

- Rate of secondary surgery was 25% for all patients; 51% following replantation revascularization and 22% following completion amputation
- Mean number of secondary surgeries after replantation/revascularization was 1.2 and after completion amputation was 0.45
- Avulsion and multiple digit injuries associated with higher odds and Hispanic race with lower odds of secondary surgery
- Patients living >50 miles from hospital had higher likelihood of undergoing 1 or multiple secondary surgeries
- Most commonly performed secondary surgeries were completion amputation (38%) and tenolysis/capsulectomy (15%) (Table 1)
- Probability for secondary surgery was 46% at 20 months after revascularization and 20% at 20 months after completion amputation (Figure 1)

Figure 1: Kaplan-Meier curve - probability of secondary surgery



A. Initial revascularization
B. Completion amputation.

Table 1: Secondary Surgery Rate and Description

	Initial Amputation n=132 (42%)	Initial Revascularization n=179 (58%)
Completion Amputation	33 (11)	88 (28)
Tenolysis/Capsulotomy/ Capsulectomy	9 (3)	38 (12)
Incision and Drainage	16 (5)	14 (5)
Neurolysis/Neurectomy	23 (7)	2 (1)
Joint Fusion	6 (2)	18 (6)
Fingernail Remnant Removal	22 (7)	0 (0)
Skin Graft	13 (4)	4 (1)
Hardware Removal	5 (2)	10 (3)
Scar and Contracture Release	1 (0)	4 (1)
Other*	4 (1)	1 (0)

*Osteotomy, toe-to-thumb transfer, and excision of mucous cyst, finger mass, and finger lesion

Conclusion

- 25% of patients undergo secondary surgery following traumatic injuries in the hand and digits
- Patients undergoing initial revascularization or replantation were more than twice as likely to undergo secondary surgery than patients undergoing initial revision amputation
- Patients living at farther distances may undergo more secondary surgeries due to higher level of injury complexity and greater level of investment in injury and related reconstruction