

Expanding Access to Minor Hand Surgery Procedures: Safety and Efficacy of a Minor Procedure Clinic in an Urban Safety-Net Hospital

Devon Marie O'Brien, Caitlin C Francoise, Luke Nicholson

INTRODUCTION: In recent years, specialized procedure rooms (PR) have gained traction as a potential alternative for minor procedures rather than the conventional operating room (OR) setting. This could greatly improve access in underserved areas where OR access is limited, however few have attempted to apply this model to this setting. This study aims to determine the safety and efficacy of PR-based minor hand surgeries performed at an urban safety net teaching hospital among an underserved patient population.

METHODS: An Institutional Review Board approved retrospective review of PR-based minor hand surgeries was conducted from January 2022 to February 2024. Patients without intraoperative records, postoperative records, or surgeries performed in the PR were excluded. Demographics, comorbidities, surgical encounter details, and postoperative outcomes were analyzed. Outcomes investigated included intraoperative and postoperative complications. Patient demographics and complications were analyzed using Pearson’s chi-squared test for categorical variables. Data analyses for race and insurance type were not included due to a lack of patient population heterogeneity (>99% from underrepresented racial groups, 100% public insurance).

RESULTS: Of 202 surgical encounters, the most common surgeries were carpal tunnel release (n=108, 46.4%), followed by trigger finger release (n=65, 27.9%), and mass excision (n=37, 15.9%). Among those who provided racial demographic and language preference information, 99.4% were from underrepresented groups and 65.3% were non-English speaking. All patients were enrolled in public insurance. A total of 91.1% (n=184) of cases were performed without any postoperative complications; 8.9% (n=18) had postoperative complications. Among postoperative complications, 90.5% were minor (i.e., pillar pain, catching/locking). No postoperative course was complicated by superficial surgical site infection. The two major postoperative complications include complex regional pain syndrome (n=1, 0.5%) and deep surgical site infection (n=1, 0.05%) requiring hospitalization for intravenous antibiotics and irrigation and debridement in the OR. No other surgical encounters required subsequent hospitalization or reoperation. No intraoperative complications or death occurred. There was no significant difference in postoperative complications based on language preference (p=0.902).

DISCUSSION AND CONCLUSION:

Minor hand surgeries performed in the PR setting demonstrate low complication rates at an urban safety net teaching hospital, suggesting safety and efficacy among this specific underserved patient population. Further research should explore multicenter cohorts to identify risk factors for postoperative complications and quantify financial implications, aiding surgical decision-making among vulnerable groups and resource allocation strategies in the era of value-based care.

Table 1 - Minor Hand Surgeries Performed in the Procedure Room by Type

Procedures	n (%)
Carpal Tunnel Release (CTR)	108 (46.4%)
Trigger Finger Release (TFR)	65 (27.9%)
Mass Excision	37 (15.9%)
Foreign Body Removal	8 (4.4%)
Amputation/Revision Amputation	6 (2.6%)
Hardware Removal	2 (0.9%)
Other Surgery*	7 (3.0%)
Total procedures	233

*Other Surgery = 1st dorsal compartment (De Quervain's) release (3), finger debridement (2), Guyton canal release (1), local fat thickness site flap (1)

Table 2 - Patient Demographics and Comorbidities across Surgical Encounters

	Surgical Encounters (n=202) (%)
Age (SD)	52.9 (9.7)
Gender	
Male	55 (27.2%)
Female	147 (72.8%)
Race	
Hispanic/Latino	156 (77.2%)
Unknown/Not Provided	22 (10.9%)
Black	13 (6.4%)
Asian	10 (5.0%)
White/Caucasian	1 (0.5%)
Preferred Language	
Spanish	125 (61.9%)
English	70 (34.7%)
Other	7 (3.5%)
BMI (SD)	32.9 (6.6)
Other	
Hypertension	82 (44.3%)
Diabetes Mellitus	62 (33.5%)
Pre-diabetes	35 (18.9%)
Smoking Status	
None	166 (82.2%)
Previous	23 (11.4%)
Active	13 (6.4%)

Table 3 - Surgical Encounter Details

	Surgical Encounters (n=202)
Average Number of Procedures per Single Visit (SD)	1.17 (0.53)
Total Number of Procedures per Single Visit	
1	177 (87.6%)
2	16 (7.9%)
3	8 (4.0%)
4	1 (0.5%)
Epihineprine Use	
Yes	127 (62.9%)
No	75 (37.1%)
Tourniquet Use	
Yes	58 (28.7%)
No	144 (71.3%)
Average Tourniquet Time (minutes) (SD)	11.9 (7.3)

Table 4. Minor and Major Complications

Legend <i>Blue</i> = Carpal Tunnel Release (CTR) Only <i>Red</i> = Trigger Finger Release (TFR) Only <i>Grey</i> = TFR (3), CTR (2), and Amputation at distal interphalangeal joint level (1)			
	Surgical Encounters (n=202)		
	Initial Follow-up Visit	Final Follow-up Visit	
Major Complications	1 (0.5%)	0 (0.0%)	
<i>Complex Regional Pain Syndrome</i>	1 (0.5%)	0 (0.0%)	
<i>Deep infection</i>	1 (0.5%)	0 (0.0%)	
<i>Neurovascular injury</i>	0 (0.0%)	0 (0.0%)	
<i>Death</i>	0 (0.0%)	0 (0.0%)	
Minor Complications*			
<i>Pillar Pain/Scar Sensitivity</i>	10 (5.0%)	8 (4.0%)	
<i>Decreased finger range of motion</i>	4 (2.0%)	4 (2.0%)	
<i>Recurrent, no reoperation</i>	1 (0.5%)	1 (0.5%)	
<i>Catching/locking</i>	2 (1.0%)	1 (0.5%)	
<i>Superficial infection</i>	0 (0.0%)	0 (0.0%)	
<i>Days off Follow-Up</i>			
Average Days of Follow-Up (SD)	14.0 (6.2)	56.0 (92.3)	

*For minor complications, one or more complications occurred after a single surgical encounter. All patients with minor complications were provided supportive treatment.