Outcomes Following Revision Carpal Tunnel Release

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INTRODUCTION: The need for revision carpal tunnel release (CTR) is a rare but significant complication of both open and endoscopic CTR. We hypothesized that patients undergoing revision CTR would have worse patient reported outcomes scores at 1-year follow-up compared to primary CTR.

METHODS: We retrospectively compared the outcomes of 521 primary CTR and 57 revision CTR patients. Patients with a minimum of one-year follow up including PROMIS/Patient Acceptable Symptom State (PASS) scores were included. Demographic information, surgical approach, timing and symptoms prior to revision were obtained via chart review. PASS, and PROMIS Upper Extremity (UE), Pain Interference (PI) and Physical Function (PF) at 1-year follow-up were compared. Statistical analysis was completed with combination of t-test and Chi-square tests. RESULTS:

Comparted to the primary CTR group, the revision group had a higher BMI (31 vs 29; p=0.038) and was more likely to be male (56% vs 41%; p=0.029). Age, race, and ethnicity were similar between groups (p>0.05). There was a greater proportion of revision patients who underwent endoscopic release compared to the primary group (53% vs 39%; p=0.043). Revision CTR occurred at an average of 149 days, the majority being indicated for persistence of symptoms (78%) versus return of symptoms after a period of symptom resolution (22%). The primary symptoms prior to revision included pain (51%), parasthesias (40%), and weakness (9%). PROMIS UE and PF were greater in the primary group at both pre-op and 1-year post-op visits. PROMIS PI was similar between groups at pre-op (p>0.05) but improved in the primary group at 1-year (p=0.024). PROMIS UE. PI and PF did not significantly improve at 1-year follow up in the revision group compared to pre-op. However, the final PROMIS scores were improved in the primary CTR group compared to revision group in all categories. The positive PASS response in the revision group was significantly lower at 1-year (77% vs 93%; p=0.001).

DISCUSSION AND CONCLUSION: Patients undergoing revision CTR demonstrated improved PASS response and PROMIS UE, PI and PF scores at 1-year follow-up compared to primary CTR. Revisions occurred at an average 149

PASS Response at 1-Year (%Yes)

persistent

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Table 1: Characteristics of Revision Carpal Tunnel and Primary Carpal Tunnel Patient				
Characteristic	Primary CTR (n=521)	Revision CTR (n=57)	p value	
Age, years (SD)	54.8 (13)	51.7 (12)	0.086	
BMI (SD)	29 (7)	31 (6)	0.038	
Sex (%)				
Female	307 (59)	25 (44)		
Male	214 (41)	32 (56)	0.029	
Race (%)			0.89	
White	453 (87)	49 (86)		
Black	52 (10)	6(11)		
Other	16 (3)	2 (3)		
Ethnicity (%)			0.076	
Not Hispanic	485 (93)	52 (91)		
Hispanic	26 (5)	4(7)		
Unknown	10(2)	1(2)		
Surgical Approach (% of total)			0.043	
Open	319 (61)	27 (47)		
Endoscopic	202 (39)	30 (53)		
Length of Follow Up (months; SD)	13.8 (4)	15.1 (6)	0.028	
Time to Revision (days; SD)		149 (14)		
Reason for Revision (%)				
Persistent Symptoms		44 (78)		
Return of Symptoms		13 (22)		
Primary Symptom Prior to Revision				
Pain		29 (51)		
Weakness		5 (9)		
Paresthesias		23 (40)		

Patient Reported Outcome	Primary CTR (n=521)	Revision CTR	p value
		(n=57)	
Pre-Op PROMIS Upper Extremity	37.7 (6)	36.0 (7)	0.046
Pre-Op PROMIS Physical Function	42.8 (5)	41.8 (6)	0.16
Pre-Op PROMIS Pain Interference	56.5 (4)	57.7 (4)	0.032
1-Year PROMIS Upper Extremity	38.4 (6)	36.7 (7)	0.046
1-Year PROMIS Physical Function	43.6 (5)	42.0 (5)	0.022
1-Year PROMIS Pain Interference	55.9 (6)	57.8 (6)	0.024
Change in PROMIS Upper Extremity	0.7 (p<0.05)	0.7 (p=0.59)	
Change in PROMIS Physical Function	0.8 (p<0.05)	0.2 (p=0.83)	
Change in PROMIS Pain Interference	-0.6 (p<0.05)	0.1 (p=0.92)	
	<u> </u>		

488 (93)

symptoms

0.001

44 (77)

(78%).