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Comparative Outcomes of Open and Endoscopic Carpal Tunnel Release in Patients with Obesity: A Retrospective Chart Review

Background: Carpal tunnel syndrome (CTS) is one of the most common compressive neuropathies of the upper extremity, resulting from compression of the median nerve as it passes through the narrow carpal tunnel at the wrist. CTS is frequently treated surgically with either open carpal tunnel release (OCTR) or endoscopic carpal tunnel release (ECTR).¹ Although CTR is generally associated with favorable outcomes, patient comorbidities may influence postoperative recovery and complication rates. Obesity is a well-established risk factor for CTS and has been associated with impaired wound healing, increased surgical complications, and delayed functional recovery across multiple surgical specialties.² However, the impact of morbid obesity on postoperative outcomes following CTR has not been well characterized. Improved understanding of this relationship may help identify patients at increased risk for adverse outcomes and inform perioperative management strategies.

Objective: The primary objective of this study is to evaluate the impact of morbid obesity on postoperative outcomes following carpal tunnel release by comparing complication rates, wound healing, symptom resolution, functional recovery, and need for additional postoperative interventions between patients with and without morbid obesity.

Methods: This retrospective chart review will evaluate adult patients (≥ 18 years of age at the time of carpal tunnel surgery) who underwent primary open or endoscopic carpal tunnel release at the UMC-NO Hand/Reconstruction clinic between 2013 and 2025. Demographic characteristics, body mass index (BMI), comorbidities, operative variables, and postoperative outcomes will be extracted from the electronic medical record. Patients will be stratified by obesity status, with morbid obesity defined as a BMI ≥ 40 kg/m². Primary outcomes include postoperative complications, including surgical site infection, wound healing complications, hematoma or seroma formation, reoperation, and emergency department visits. Secondary outcomes include symptom improvement and functional recovery. Comparative analyses will be performed between morbidly obese and non-morbidly obese patients to evaluate the association between obesity and postoperative outcomes.

Anticipated Impact: This study will improve understanding of the relationship between morbid obesity and postoperative outcomes following carpal tunnel release. Identifying obesity as a potential risk factor for surgical complications and delayed recovery may enhance preoperative risk stratification and guide perioperative management strategies. These findings could contribute to optimizing surgical care and improving outcomes for patients with obesity undergoing carpal tunnel release.

References:

1. Werner RA, Andary M. Carpal tunnel syndrome: pathophysiology and clinical neurophysiology. *Clin Neurophysiol.* 2002;113(9):1373-1381.
2. Shiri R, Pourmemari MH, Falah-Hassani K, Viikari-Juntura E. The effect of excess body mass on the risk of carpal tunnel syndrome: A meta-analysis of 58 studies. *Obes Rev.* 2015;16(12):1094-1104.