Nerve Transfer Versus Interpositional Nerve Graft Reconstruction for Post-traumatic, Isolated Axillary Nerve Injuries: A Systematic Review

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INTRODUCTION: There is little consensus regarding the best method for reconstructing peripheral nerve injuries not amenable to primary repair. The purpose of this study is to compare functional outcomes between nerve grafting and nerve transfer procedures in the setting of isolated, post-traumatic axillary nerve injuries.

MATERIALS AND METHODS: A systematic review was performed using the PubMed, SCOPUS, and Cochrane databases in order to identify all cases of isolated, post-traumatic axillary nerve injuries in patients 18 years or older. Patients who underwent axillary nerve reconstruction were included and categorized by technique: graft or transfer. Demographics were recorded, including age, time to operation, and presence of concomitant injuries. Functional outcomes were evaluated, including British MRC strength and range of motion for shoulder abduction.

RESULTS: Ten retrospective studies met criteria, for a total of 66 patients (20 nerve grafts, 46 nerve transfers). Median time from injury to operation was equivalent across the nerve graft and nerve transfer groups (8.0 months versus 7.0 months; p=0.41). Postoperative follow-up was 24.0 months for nerve grafting versus 18.5 months for nerve transfers (p=0.13). Clinically useful shoulder abduction, defined as M3 or greater, was obtained in 100% of nerve graft patients versus 87% of nerve transfer patients (p=0.17). Grade M4 or better strength was obtained in 85% of nerve graft patients and 73.9% of nerve transfer patients (p=0.52).

CONCLUSION: Significant differences in functional outcomes between nerve graft and transfer procedures for post-traumatic axillary nerve injuries are not apparent at this time. Prospective outcomes studies are needed to better elucidate if functional differences do exist.

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The Groin vs. Submental Vascularized Lymph Node Flaps: A Head to Head Comparison of Surgical Outcomes following Treatment for Upper Limb Lymphedema

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INTRODUCTION: Growing experience in lymphatic microsurgery, particularly vascularized lymph node (VLN) transfer has allowed for the discovery and utilization of new lymph node sources. The groin (VGLN) and submental (VSLN) lymph node flaps have been described as valuable options in the treatment of upper limb lymphedema. Although published reports have shown success with each of these options, no comparative evaluation has been performed of these two valuable lymph node flaps. Therefore, we performed a comparative analysis following submental and groin VLN transfers in the setting of upper limb lymphedema.

METHODS: A retrospective review of a prospectively maintained database of patients who received microsurgical treatment for lymphedema was reviewed. Patients who had either submental or groin VLN transfer for upper limb lymphedema were isolated. Patient measurements were obtained at the same follow-up evaluation in both cohorts. Patient characteristics and demographics were compared. Outcomes of interest included flap characteristics, postoperative and intraoperative complications, and limb circumference changes at the designated follow-up following reconstruction.

RESULTS: Nineteen patients were identified and met inclusion criteria. More identified patients underwent VGLN (68%) as compared to VSLN (32%) flaps for upper limb lymphedema. Patient age, BMI, and symptom duration were similar between cohorts (p=0.8; p=0.7; p=0.6, respectively). On evaluating flap characteristics, similar vein diameter (2.6 v. 3.0mm; p=0.3) and artery diameter (2.1 v. 2.4mm; p=0.3) were found between VGLN and VSLN cohorts, respectively. Similar lymph node numbers were found between flaps, respectively (3 v. 4; p=0.4). Circumference reduction was higher in the VSLN cohort.