

Perfusion-Related Complications and Strategies for Success following Distal Vascularized Lymph Node Transfers

Ketan M Patel MD, Michael Sosin MD, Thomas Constantinescu MD, Chia-Yu Lin MSc, and Ming-Huei Cheng MD, MBA, FACS

Introduction:

Distal vascularized lymph node (VLN) transfers have shown success in the treatment of symptomatic lymphedema. Although successful in long-term limb circumference reduction, the early post-operative period may be plagued with complications due to flap swelling and interstitial fluid engorgement unique to VLN transfers. These events create a unique set of early complications that may lead to flap loss. The purpose of this study is to evaluate these early complications and review management strategies that have led to successful early outcomes.

Methods:

An IRB-approved review of a prospective database was performed for patients who underwent distal VLN transfer for upper and lower extremity lymphedema. Perfusion and flap swelling-related complications were critically reviewed. Management strategies related to early complications were analyzed. An *a priori* value of 0.05 was considered statistically significant.

Results:

Sixty-three cases of distal VLN transfer were performed during the study period. In the perioperative period, 22.2% of patients required salvage techniques for flap perfusion-related complications. Within this cohort, venous insufficiency (85.7%; $p < 0.01$) resulted in most complications. In addition, utilizing the deep venous system significantly increased the chance of a perfusion-related complication as compared to the superficial venous system ($p < 0.05$). Operative and non-operative strategies were utilized in the intra-operative (4.8%) and post-operative (17.5%) periods. All cases (100%) were successfully salvaged.

Conclusions:

Distal VLN transfers have a higher early complication rate as compared to traditional flap procedures. Venous insufficiency is most often the cause of early complications and is related to flap swelling and local fluid absorption from the lymphedematous extremity. The superficial venous system appears to provide improved drainage for VLN transfers as compared to the deep venous system in the distal extremity likely due to lymphedema-related compressive forces on the deep extremity compartments. Operative and non-operative strategies can be a valuable tool for flap salvage in these challenging scenarios.