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Acute Vascular Compromise Risk Factors and Management in Vascularized Lymph Node Transfer for Breast Cancer Related Lymphedema: A 10 Year Review

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Background: Acute vascular compromise is a potential complication of any free flap but differences exist specific to the flap and the pathology prompting free tissue transfer. This study seeks to identify risk factors for early vascular compromise specific to vascularized lymph node transfer (VLNT) for breast cancer related lymphedema (BCRL).

Methods: All patients undergoing VLNT for BCRL 2008 and 2018 were retrospectively reviewed for emergent re-operative episodes. Demographics, medical history, lymphedema history, and peri-operative factors, and 1 year outcomes were analyzed. Rate of VLNT vascular compromise was compared to breast reconstruction free flaps from the same time period.

Results: Fifty-four patients received 55 upper extremity VLNT between 2008 and 2018. Patient mean age was 57.11 ± 8.73 years and mean BMI was 27.03 ± 4.15 kg/m². Patients had experienced 3.58 ± 2.52 years of lymphedema symptoms with increased circumferential differentiation in the affected arm and 2.48 ± 1.84 cellulitis episodes per year. There were 8 vascular compromises: 2 arterial occlusions, 4 venous occlusions, and 2 partial skin paddle necroses. All VLNT flaps survived. Re-exploration rate was 15%, which twice the rate for DIEP flaps during the same period (8%). Compared to non-vascular compromise patients, vascular compromise patients were more likely to require anastomotic revision during their initial surgery ($p=0.048$). While length of stay was longer with vascular compromise patients, lymphedema outcomes at 1 year (circumferential limb measurements & cellulitis episodes) were not statistically different from non-compromise patients.

Conclusions: Vascular compromise has an incidence of 15% in VLNT. Potential associated risk factors include need for anastomotic revision. Lymphedema outcomes at 1 year do not seem to be affected by vascular compromise events.