Axillary Lymph Node Transfer for the Treatment of Lymphedema: Technique and Case Series

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Background: Vascularized groin lymph node transfer has been successfully used to treat lymphedema. However, not all patients are candidates for groin lymph node harvest (i.e. patients with bilateral lower extremity lymphedema). Additionally, the short pedicle of the groin lymph node flap may be inadequate if the recipient site requires greater pedicle length. Technical details of vascularized axillary lymph node transfer based on the thoracodorsal and lateral thoracic arteries are described in this study along with case presentations.

Methods: Four patients underwent axillary lymph node transfer between October 2011 and June 2012: two patients with lower extremity lymphedema and two with upper extremity lymphedema. Reverse lymphatic mapping using technetium injection into the upper extremity and indocyanine green into the chest wall was used to avoid harvesting lymph nodes draining the upper limb and to facilitate chest wall lymph node harvest. Donor lymph nodes were harvested based on the thoracodorsal artery in two cases, based on both the thoracodorsal and lateral thoracic arteries in two cases, and based on the lateral thoracic artery in 1 case. A thoracodorsal artery perforator skin paddle was included in three cases where soft tissue replacement was necessary (Figure 1). Intravenous indocyanine green and SPY evaluation was used to confirm perfusion of lymph nodes following anastomosis.

Results: All patients had viable free flap transfers with satisfactory perfusion of the lymph nodes confirmed by intraoperative SPY evaluation. There were no postoperative

Figure 1. Axillary Lymph Node flap with skin paddle
complications and no observed lymphedema in the limb adjacent to the lymph node harvest donor site. Our first patient experienced a significant reduction in upper extremity limb volume.

**Conclusion:** Vascularized axillary lymph node transfer is a useful alternative to groin lymph nodes and provides a long pedicle which may be preferable in a severely radiated or unfavorable recipient environment. A thoracodorsal artery based skin flap may be included in cases where a severe axillary contracture requires release and resurfacing or in distal extremity transfer which requires skin coverage.