

Vascularized lymph node transfer for treatment of extremity lymphedema: An overview of current controversies regarding donor sites, recipient sites and outcomes

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As lymphatic microsurgery has become more common, vascularized lymph node transfer ascended to the forefront in many centers for the surgical management of advanced stages of lymphedema showing substantial clinical improvement. However, no consensus has been reached among experts regarding many details of the procedures, including patient selection criteria, type of treatment, donor, and recipient sites and postoperative evaluation of the outcome. Here, we will review these issues and provide the current results of this procedure.

KEYWORDS

lymphatic microsurgery, lymphedema, vascularized lymph node transfer

1 | INTRODUCTION

Lymphedema represents a debilitating chronic and progressive condition affecting the patient's emotional, functional, social/family, and physical quality of life.¹ Despite a better understanding of the pathogenesis of extremity lymphedema and increased attention to treatment, extremity lymphedema remains an incurable disease.² In developed countries, most commonly lymphedema of the extremities results from breast and gynecologic cancer treatment. Approximately 29-49% of patients undergoing axillary lymph node dissection develop upper extremity lymphedema with a variable onset of the disease.^{3,4} Similarly, following gynecologic cancer excision and pelvic lymph node dissection, lower extremity lymphedema can occur in 10-49% of patients.^{5,6}

In recent years, lymphatic microsurgery procedures have increased in popularity, bringing in a new wave of physiologic surgical options for the management of lymphedema. The two most common microsurgical options include lymphovenous anastomosis (LVA) and

vascularized lymph node (VLN) transfer. Each treatment option has the potential to bypass areas of damaged lymphatics by rerouting the lymph into the venous system or by replacing the lost lymph nodes and, or lymphatic ducts.⁷⁻¹⁰ LVA with a supermicrosurgery technique has been shown to be more effective in early stage lymphedema before development of fibrosis but less effective in advanced-stage lymphedema.¹⁰ Lymph node transfer is the latest addition in the management of lymphedema of the extremities, and has shown promising results, but it could incur the risk of donor-site lymphedema.^{11,12} However, VLN transfer is not a new surgical procedure, as it was first described in an animal model by Shesol in 1979 and clinically in human patients by Clodius et al.^{13,14} The procedure started to be popularized by Becker et al¹⁵ with the publication of the first clinical series using groin lymph node flap for postmastectomy lymphedema with the axilla as the recipient site.¹⁵ After that, the senior author's group shed some light reporting anatomic studies and clinical application of the groin and submental lymph node flaps transferred