Ann Surg Oncol
https://doi.org/10.1245/s10434-020-08720-2

Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – RECONSTRUCTIVE ONCOLOGY

Simultaneous Ipsilateral Vascularized Lymph Node Transplantation and Contralateral Lymphovenous Anastomosis in Bilateral Extremity Lymphedema with Different Severities

M.-H. Cheng, MD, MBA[1,2], R. Tee, MBBS, PhD[1,2], C. Chen, MD[3], C.-Y. Lin, MSc[1], and M. Pappalardo, MD[4]

[1]Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, College of Medicine, Chang Gung University, Taoyuan, Taiwan; [2]Center for Tissue Engineering, Chang Gung Memorial Hospital, Taoyuan, Taiwan; [3]Department of General Surgery, Cedars Sinai Medical Center, Los Angeles, CA; [4]Plastic and Reconstructive Surgery, Department of Surgical, Oncological and Oral Sciences, University of Palermo, Palermo, Italy

ABSTRACT

Background. Extremity lymphedema can occur bilaterally with different severities on each side. The aim of this study is to investigate the treatment outcomes of such patients with bilateral extremity lymphedema of different severities.

Patients and Methods. Between 2013 and 2017, patients with bilateral extremity lymphedema of different severities according to the Taiwan Lymphoscintigraphy Staging (TLS) system were retrospectively reviewed. Ipsilateral vascularized lymph node transplantation (VLNT) was indicated in TLS total obstruction and contralateral lymphovenous anastomosis (LVA) in TLS partial obstruction with patent lymphatic vessels on indocyanine green lymphography. Outcomes were assessed using circumference improvement, frequency of cellulitis, and lymphedema-specific quality of life (LYMQoL) questionnaires.

Results. A total of 10 patients with bilateral extremity lymphedema with median age of 63 (range 12–75) years were included. The median symptom duration of the lymphedematous limb was 60 (range 36–168) months and 12 (range 1–60) months in the VLNT and LVA group, respectively ($p < 0.05$). At average follow-up of 37.5 (range 14–58) months, the average limb circumference improvement was 2.4 (range − 3.3 to 7.8) cm in the VLNT group and 2.3 (range 0.3–7) cm in the LVA group ($p = 1$). The median episodes of cellulitis decreased significantly from 4 to 0.5 and 1 to 0 times/year in the VLNT and LVA group, respectively ($p = 0.02$, $p = 0.06$). The overall LYMQoL score improved from 4.5 preoperatively to 7.5 postoperatively ($p < 0.01$).

Conclusions. Limb-specific VLNT and LVA selected by TLS effectively treated bilateral extremity lymphedema with different severities.

Secondary extremity lymphedema is a burdensome sequela experienced by cancer survivors.[1] Lymphedema management typically consists of complex decongestive therapy, which is only partially effective and does not prevent the progression of extremity lymphedema.[2] Advances in lymphedema microsurgery including lymphovenous anastomosis (LVA)[3] and vascularized lymph node transplantation (VLNT)[4] have yielded promising outcomes over the last decade. Both techniques redirect stagnant lymph in the lymphedematous limb to the venous system, which is achieved by directly shunting the lymph into a subdermal venule in the LVA technique or by bypassing lymph through transplanted lymph nodes in VLNT.[5,6]

Independently, the selection of LVA versus VLNT for treatment of extremity lymphedema has been the subject of academic debate across centers owing to a variance in disease assessments and plans, including the presentations of severity, staging/grading systems, insurance limitations, patient preferences, and even surgeon experience.[6] The

First Received: 23 October 2019

M.-H. Cheng, MD, MBA
e-mail: minghueicheng@gmail.com;
minghuei@adm.cgmh.org.tw

Published online: 18 June 2020