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### **Free gastroepiploic lymph nodes and omentum flap for treatment of lower limb ulcers in severe lymphedema: killing two birds with one stone.**

**Di Taranto G**<sup>1,2</sup>, MD; **Chen SH**<sup>3</sup>, MD; **Elia R**<sup>1,4</sup>, MD; **Amorosi V**<sup>1,5</sup>, MD; MD; **Sitpahul N**<sup>1,6</sup>, MD; **Chan J CY**<sup>1</sup>, MD; **Ribuffo D**<sup>2</sup>, MD; **Chen HC**<sup>1\*</sup>, MD, PhD, FACS.

1. Department of Plastic Surgery, China Medical University Hospital, Taichung, Taiwan; 2. Department of Plastic and Reconstructive Surgery, Sapienza University of Rome, Umberto I University Hospital, Rome, Italy; 3. Department of Plastic Surgery, Chang Gung Memorial Hospital, Taipei, Taiwan; 4. Division of Plastic and Reconstructive Surgery, Department of Emergency and Organ Transplantation, University of Bari, Bari; 5. Plastic Surgery Unit, Sant'Andrea Hospital, School of Medicine and Psychology, "Sapienza" Rome, Rome, Italy; 6. Faculty of Medicine Ramathibodi Hospital, Department of Plastic and Maxillofacial Surgery, Mahidol University, Bangkok, Thailand; 6. Dipartimento di Ricerca Traslationale e delle Nuove Tecnologie in Medicina e Chirurgia; Università degli Studi di Pisa, Italy.

[giuseppeditaranto89@gmail.com](mailto:giuseppeditaranto89@gmail.com)

**ABSTRACT:** In lymphedema patients, the disruption of the lymphatic network increases skin turgor and fibrosis of subcutaneous tissue, delays wound healing, causing recurrent ulcerations and infections. In these cases, management of ulcers can be challenging.

We present our technique of free gastroepiploic lymph nodes and omentum flap for the treatment of lower limb ulcers in severe lymphedema. After excision of the ulcer, the abdomen is accessed through laparoscopic and the omentum harvested and then microsurgically anastomosed. We used this technique for patients presenting with advanced secondary lymphedema and an ulcer of lower leg between January 2017 and June 2018. Patients were offered reconstruction through laparoscopic free omental lymphatic flap surgery. Objective clinical assessment was performed preoperatively and postoperatively with limb circumference measurements, photographic documentation and lymphoscintigraphy. The ulcer was excised and the recipient site was carefully debrided. The abdomen was accessed with four ports through laparoscopic. The omental flap was microsurgically anastomosed in an end-to-side fashion to the anterior tibial vessels. The omentum was then debulked, folded to fit the defect size and immediately covered with meshed split skin grafts. Ten patients successfully underwent laparoscopic free omental lymphatic flap and healed uneventfully. The patients reported notable improvements in swelling, heaviness and aching of the affected extremity over an average follow-up of 18 months (range 11-23). Physical examination confirmed significant improvement in skin turgor and

quality (Figure 1 below). The mean circumference reduction rate was 25.1%, 23.5 %, 23.4%, and 15.2% above the knee, below the knee, above the ankle, and at the foot level, respectively, despite of bulk of the flap. The post-operative lymphoscintigraphy demonstrated improved lymphatic drainage. No episodes of infection was reported during the follow-up period. The patients did not report any postoperative donor site-related complications or dyspepsia and intestinal dysmotility.

This combined procedure merges free flap techniques and lymphedema surgery: omentum covers the defect with new healthy and highly vascularized tissue and provides a new source of lymph nodes, improving the lymphatic networks of the affected limb. Despite of the demanding technical requirement, this technique can highly increases the quality of life of the patient in a single-stage operation, with fast recover and low donor site morbidity.

\* Send correspondence to

Hung Chi Chen

Department of Plastic Surgery, China Medical University Hospital

2 Yuh Der Road, Taichung City, 404, Taiwan

Tel.: (886)-4-22052121 ext 1509, 1510; Fax (886)-4g-22020038

Email: D19722@mail.cmuh.org.tw