

Letter to Editor

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# Omental lymph nodes transfer for limb lymphedema

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## MAIN TEXT

Dear Sir,

I have read with great interest the article “Vascularized omental tissue transfer for the treatment of lymphedema: a review” published in *Plast Aesthet Res* 2023<sup>[1]</sup>. The review provides a comprehensive overview of vascularized omental tissue transfer (VOLT) for lymphedema treatment, a subject of considerable clinical importance. I believe it is appropriate to particularly commend the authors for their detailed analysis of techniques and various surgical options. The discussion on the immunological properties of the omentum and its value as a donor site for lymph nodes was notably insightful. Significant points from this review include the efficacy of VOLT in reducing the volume of limbs with lymphedema and related symptoms, and the insight into the use of robotic surgery, which opens new perspectives on harvesting techniques. I would like to congratulate the authors for their meticulous research because a better level of evidence is needed in the field of lymphedema surgery. This article not only enriches our understanding of lymphedema and its treatment options but also offers a valuable guide for physicians dealing with this debilitating complication. At our center, we perform vascularized omental lymph node transfer for the treatment of limb lymphedema, mainly after gynecological cancer<sup>[2,3]</sup>. We also use this



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technique for the treatment of upper limb lymphedema following breast cancer surgery. In the case of lower limb lymphedema, we divide the omental flap into two parts and insert it into two different areas of the limb. One position is consistently on the posterior surface of the proximal third of the leg, where we use the medial sural vessels as recipients. The choice of the second insertion point depends on the distribution of the edema throughout the limb: if proximal, in the groin, we resort to the descending branch of the Lateral Circumflex Femoral vessels as recipients; if distal, in the leg, we use the Posterior Tibial vessels. For the upper limb, we perform an insertion at the anterior part of the elbow, using the radial vessels as recipients, and possibly an additional insertion in the axilla, using the thoracodorsal or lateral thoracic. I think that it would be useful to share some perspectives we have gained from our experience. First, we always perform preoperative gastroscopy on our patients to exclude the presence of asymptomatic gastric tumors or precancerous lesions that could potentially involve the omental lymph nodes. Before subjecting a patient affected by secondary limb lymphedema to surgical therapy, it is important to exclude an active oncological disease, whether it derives from the original tumor or a new neoplasm. In addition to excluding a possible gastric cancer before the transfer of the omentum, a procedure we conduct through gastroscopy, we are particularly careful to verify the absence of skin neoplasms on the affected limb. The frequency of skin neoplasms such as non-melanoma skin cancer<sup>[4]</sup> or lymphangiosarcoma increases in a limb affected by secondary lymphedema, due to decreased locoregional immunity. We believe it is essential to verify their absence through a simple clinical examination, because any surgical procedure on the affected limb would be inadvisable for us. This is because the inset of a flap or other lymphatic surgical procedures could accelerate the spread of cutaneous neoplastic cells.

Second, we believe that the omental flap is superior to other lymph node flaps for the same reasons outlined by the authors, namely the safety in avoiding iatrogenic lymphedema and the absence of significant cutaneous scars, but also because previous studies have shown that the omental lymph node flap contains an average of about 15 lymph nodes, with a range varying between 1 and 49, partly due to the presence of micro lymph nodes smaller than 1.5 mm. This number is significantly higher than any flap taken from superficial sites (inguinal, supraclavicular, lateral thoracic, submental). This feature makes it particularly interesting because it has been suggested that patient improvement may depend on the number of transferred lymph nodes<sup>[5]</sup>. On the other hand, we do not consider a laparoscopic procedure, generally lasting less than an hour, to be a major abdominal surgery. Just because we are treating the consequences of an oncological condition and not an active tumor, we do find it inappropriate to resort to the harvesting of superficial lymph nodes, which may entail side effects such as visible scars, the risk of iatrogenic lymphedema at the harvest site, or nerve damage (as in the case of the submental flap). Third, the issue related to overweight and obesity should be considered. In overweight or obese patients, the omentum is notably thick<sup>[6-8]</sup>, which can create problems when inseting the flap into the lymphedematous limb. In overweight patients, it is often necessary to thin the cutaneous flaps beneath which the lymph node flap will be buried to avoid excessive compression or the need for skin grafting. Also, we use the split greater omental lymph node flap (GOLF) for treating upper and lower limb lymphedema, and this topic has already been extensively addressed in the literature<sup>[9]</sup>. In our opinion, the omental lymph node flap represents today one of the best options for the treatment of lymphedema where derivative surgery is not feasible<sup>[10]</sup> and could potentially become, like other lymphatic flaps, an option for the preventive surgery of lymphedema, concurrently with lymphadenectomy.

## DECLARATIONS

### Authors' contributions

Made substantial contributions to the conception and design of the study: Gentileschi S, Caretto AA.

**Availability of data and materials**

Not applicable.

**Financial support and sponsorship**

None.

**Conflicts of interest**

Both authors declared that there are no conflicts of interest.

**Ethical approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

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**REFERENCES**

1. Skladman R, Moritz WR, Tenenbaum EJ, Christensen JM, Sacks JM. Vascularized omental tissue transfer for the treatment of lymphedema: a review. *Plast Aesthet Res* 2023;10:66. [DOI](#)
2. Mantovani G, Fragomeni SM, Inzani F, et al. Molecular pathways in vulvar squamous cell carcinoma: implications for target therapeutic strategies. *J Cancer Res Clin Oncol* 2020;146:1647-58. [DOI](#)
3. Garganese G, Inzani F, Mantovani G, et al. The vulvar immunohistochemical panel (VIP) project: molecular profiles of vulvar Paget's disease. *J Cancer Res Clin Oncol* 2019;145:2211-25. [DOI](#)
4. Gentileschi S, Caretto AA, Tagliaferri L, Salgarello M, Peris K. Skin cancer plastic surgery during the COVID-19 pandemic. *Eur J Surg Oncol* 2020;46:1194-5. [DOI](#) [PubMed](#) [PMC](#)
5. Agko M, Ciudad P, Chen HC. Histo-anatomical basis of the gastroepiploic vascularized lymph node flap: The overlooked "micro" lymph nodes. *J Plast Reconstr Aesthet Surg* 2018;71:118-20. [DOI](#) [PubMed](#)
6. Bracaglia R, D'Ettorre M, Gniuli D, Giglio Fiorito P, Gentileschi S, Mingrone G. Morbidly obese patients undergoing bariatric and body contouring surgery: psychological evaluation after treatments. *J Plast Reconstr Aesthet Surg* 2011;64:1246-8. [DOI](#) [PubMed](#)
7. Bracaglia R, Tambasco D, D'Ettorre M, Gentileschi S. "Inverted-Y": a modified vest-over-pants abdominoplasty pattern following bariatric surgery. *Aesthetic Plast Surg* 2012;36:1179-85. [DOI](#) [PubMed](#)
8. Bracaglia R, D'Ettorre M, Gentileschi S, Mingrone G, Tambasco D. "Kris knife" brachioplasty after bariatric surgery and massive weight loss. *Aesthetic Plast Surg* 2013;37:640-2. [DOI](#) [PubMed](#)
9. Chu YY, Allen RJ Jr, Wu TJ, Cheng MH. Greater omental lymph node flap for upper limb lymphedema with lymph nodes-depleted patient. *Plast Reconstr Surg Glob Open* 2017;5:e1288. [DOI](#) [PubMed](#) [PMC](#)
10. Gentileschi S, Albanese R, Pino V, et al. SPECT/CT and fusion ultrasound to target the efferent groin lymph node for lymphatic surgery. *Microsurgery* 2019;39:605-12. [DOI](#)