



HHS Public Access

Author manuscript

Microsurgery. Author manuscript; available in PMC 2024 September 01.

Published in final edited form as:

Microsurgery. 2023 September ; 43(6): 639–640. doi:10.1002/micr.31077.

Surgical Management of Lymphedema: Does a Microsurgeon's Bias Exist?

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Keywords

lymphedema; microsurgeon's bias; debulking lipectomy; lymphovenous bypass

Dear Editor

Microsurgical procedures for the treatment of lymphedema have become increasingly popularized over recent decades and an expanding body of evidence continues to demonstrate efficacy of these procedures. While many studies have reported a reduction in patient limb volume following microsurgical procedures, such reductions can be modest or may be limited to those with early-stage lymphedema.¹ Additionally, microsurgical procedures do not address the adipose component of the disease, which contributes to excess extremity volume in the majority of patients.²

Debulking lipectomy procedures are targeted at the removal of adipose tissue from the affected limb resulting in immediate, substantial reductions in limb volume followed by sustained reduction in cellulitis occurrence and improvement in quality of life (Table 1).³ Despite the considerable benefits of debulking lipectomy, lymphatic surgery literature has disproportionately highlighted microsurgical procedures for the treatment of lymphedema. Based on the consensus statement from the American Association of Plastic Surgeons, 55 studies include microsurgical procedures (lymphovenous bypass and lymph node transplantation), compared to 12 studies for debulking procedures.⁴

As lymphatic surgeons are trained in microsurgery, this emphasis on microsurgical techniques may reflect a so-called, "microsurgeon's bias." As a result of this bias, debulking lipectomy is often an afterthought or a secondary consideration during treatment planning for lymphedema and is less mentioned in academic discourse regarding lymphedema management.

With the development of lymphatic surgery programs, it is important to consider the microsurgeon's bias as we define our operative treatment algorithms. It will be imperative

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Disclosure Statement (Conflicts of Interest): The authors do not have any conflicts of interest to disclose.

that we ensure algorithms represent current evidence-based approaches and align with the patient's goals and disease features, while recognizing that the optimal procedure for a patient may not always draw on the full breadth of training or technical capabilities of the surgeon.

Certain patients may require a staged approach involving consecutive debulking and microsurgical procedures whereas others may benefit from an isolated procedure. This decision depends on the relative proportions of fat versus fluid accumulation within the limb. Therefore, thoughtful consideration of debulking will allow for a more tailored approach to treatment and optimization of outcomes. Selection of the appropriate procedure for patients will be contingent on centralizing lymphatic procedures to high-volume centers and through the cross-institutional standardization in the evaluation, indication, and execution of each procedure.

Similar to the microsurgeon's bias, there appears to be an analogous patient bias toward microsurgical procedures for the treatment of lymphedema. Patients would like to feel they are receiving state-of-the-art treatments and may be under the assumption that a more complex procedure is superior. This bias can be especially noticeable in patients who review online content suggesting microsurgical procedures are required to treat lymphedema. For example, the American Society of Plastic Surgeon's online educational content on lymphedema does not list debulking lipectomy as a surgical treatment option.⁵

Overall, the plastic surgery community needs to be thoughtful moving forward with the appropriate procedure for lymphedema bearing in mind a patient-centered approach. Equitable emphasis on debulking in lymphatic surgery treatment algorithms, literature, and online educational materials, will help attenuate the influence of the microsurgeon's bias on patient care and any patient bias that may exist.

Financial Disclosure Statement:

Research reported in this publication was supported in part by the National Heart, Lung, and Blood Institute of the National Institutes of Health under award number R01HL157991 (D.S.) and the NIH Common Fund under award number U54HL165440 (D.S.). Rosie Friedman is supported by the 2022 JOBST Lymphatic Research Grant awarded by the Boston Lymphatic Symposium, Inc. Common Fund U.S. Department of Health and Human Services, National Institutes of Health, Office of Strategic Coordination.

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Table 1.

Summary of physiologic procedures (lymphovenous anastomosis and lymph node transplantation) versus debulking lipectomy for lymphedema

Procedure	Mechanism	Postoperative Compression Therapy	Volume Reduction
Debulking Lipectomy	- Manual removal of adipose deposition and fibrosis	Continued requirement for compression therapy	Moderate to major
Microsurgical Procedures (e.g. Lymphovenous Bypass and Lymph Node Transplantation)	- Restoration of lymphatic flow and drainage	Compression therapy can be variably weaned over time	Minimal

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