

Background

- Lymphedema has traditionally been considered a regional problem, leading to region specific treatments such as liposuction, lymphaticovenular anastomosis (LVA), vascularized lymph vessel transplants (VLVT), vascularized lymph node transfer (VLNT), and lymph node to vein anastomosis (LNVA), which are typically performed in the anatomically affected areas.
- Recent studies challenge the long-held assumption that lymphedema is localized and regional. Evidence has shown that surgical interventions can have systemic effects, extending benefits beyond the treated region.
- Reduction of contralateral leg lymphedema has been demonstrated following successful LVA in one leg. Pediatric chylothorax secondary to primary lymphedema has been successfully treated by performing LVA and LNVA in groins and legs.

Objectives/Purpose

- To critically examine whether the benefits of debulking liposuction for lymphedema are confined to the treated limb or extended to other areas of the lymphatic system.

Methods

- Patients who underwent liposuction for extremity lymphedema between January and June 2023 were included, excluding those with less than one year of follow-up or incomplete postoperative imaging.
- Patients selected had clinically prominent lymphedema lipodystrophy with irreversible bulk, no measurable edema on bioimpedance spectroscopy, and excess subcutaneous tissue on pinch test.
- Liposuction was performed circumferentially under general anesthesia with tumescent infiltration and tourniquet control, followed by compression therapy and evaluation of lymphatic function using indocyanine green lymphography. The treated sites included lower legs, thighs, and upper extremities.

Outcomes

- Thirty-six patients (33 female, 3 male; mean age 58 years) underwent liposuction for extremity lymphedema involving 38 limbs. Of these, 19 limbs had primary and 17 had secondary lymphedema.
- All patients experienced marked improvements following debulking liposuction, with many describing the results as life-changing. Operated limbs showed an average volume reduction of 30 percent, while non-operated limbs demonstrated a 19.5 percent reduction.
- Indocyanine green lymphography confirmed improved lymphatic drainage in all treated limbs, as well as in contralateral limbs of patients with multiple limb involvement. This was evidenced by the emergence of new linear patterns and downstaging of disease.
- Beyond symptom relief, patients reported enhanced responsiveness to compression therapy, improved limb function, reduced pain and discomfort, and greater ease with daily activities and mobility.

Surgical outcomes	Value
Number of patients	36
Only one limb involvement	12
Multiple limbs involvement	24
Post op ICGL improved (surgical limb)	38/38
Post op ICGL improved (other limbs)	24/24
Average lipoaspirate volume - Lower leg	1740 ± 915 mL
Average lipoaspirate volume - Thigh	3257 ± 1439 mL
Average lipoaspirate volume - Upper extremity	1840 ± 721 mL
Average reduction in volume (surgical site)	30.0 ± 12.3%
Average reduction in volume (other limbs)	19.5 ± 15.8%

Conclusions

- Our study demonstrates that liposuction offers systemic benefits in lymphedema treatment, improving lymphatic function and reducing volume in both treated and non-operated limbs. These findings challenge the view of lymphedema as a localized issue, emphasizing liposuction's broader therapeutic impact.
- Liposuction provides not only regional volume reduction but also systemic lymphatic improvement, as evidenced by indocyanine green lymphography changes and contralateral limb response.
- As a safe and underutilized option, liposuction deserves broader consideration in comprehensive lymphedema treatment planning.

References

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