Suction-Assisted Lipectomy May Improve Physiologic Function in Patients with Lymphedema

Reid A. Maclellan MD, MMSc, Arin K. Greene MD, MMSc

Department of Plastic and Oral Surgery
Lymphedema Program
Boston Children's Hospital
Harvard Medical School

Background: Surgical management of lymphedema includes removal of affected tissues (excisional procedures), or operations that create new lymphatic connections (physiologic procedures). The purpose of this study was to determine if suction-assisted lipectomy (an excisional procedure) has physiologic effects and improves lymphatic function.

Methods: Inclusion criteria for patients with lymphedema treated with liposuction between 2007 and 2015 were: (1) documentation of pre- and post-operative Stemmer sign (the inability to pinch the skin on the dorsum of the affected hand or foot) and (2) lymphoscintigraphy. Patient gender, type of lymphedema (primary or secondary), duration and location of disease, and infection history were recorded.

Results: Two out of 6 patients who met inclusion criteria developed a normal Stemmer sign post-operatively indicating improved lymphatic function. Patient #1 had a 6 year history of secondary upper extremity lymphedema, no infections, and a lipoaspirate of 1200 mL. Patient #2 had a 10 year history of primary lower extremity disease, absent infections, 2800 mL of lipoaspirate (74% volume reduction), and post-operative lymphoscintigraphy that illustrated improved lymphatic drainage. Duration and location of disease, history of infections, and type of lymphedema was not different between patients with improved and unchanged lymphatic function ($p=0.42$).

Conclusions: Suction-assisted lipectomy which reduces extremity volume by removing excess subcutaneous adipose, also may improve lymphatic function.