



Lymphatic System Transfer (LYST) with Pedicled Superficial Circumflex Iliac Perforator (SCIP) Flap for Patients with Lymphedema and Concomitant Chronic Venous Disease

Emily R. Finkelstein, MD*; Shangtao Wu, BS; Kashyap Tadisina, MD; Juan Mella-Catinchi, MD, MPH; Kyle Y. Xu, MD

University of Miami Miller School of Medicine, Department of Surgery, Division of Plastic Surgery, Miami, Florida

BACKGROUND

- Venous disease is prevalent in patients with lower extremity lymphedema
 - LVB and VLNT have some success, but outcomes can be unpredictable
- We present the pedicled **Superficial Circumflex Iliac Perforator (SCIP) Lymphatic System Transfer (LYST)** for the treatment of lymphedema and concomitant chronic venous disease

METHODS

- Retrospective review of **six patients**:
 - Bioimpedance spectroscopy (**L-dex**)
 - Lymphedema Life Impact Scale (**LLIS**) scores

TABLE 1. Patient Lymphedema and Venous Disease Findings

Patient	Dermal backflow on lymphoscintigraphy	Superficial system reflux on duplex US	Deep system reflux on duplex US	Venous occlusion on duplex US	Previous venous intervention
1	Yes	N/A	N/A	N/A	Yes - Left iliac stenting
2	Yes	Yes	Yes - Popliteal	No	Yes - Bilateral GSV stripping
3	Yes	Yes	No	Yes - accessory saphenous vein (left), GSV/SSV (right)	Yes - Bilateral iliac stenting
4	Yes*	Yes	No	No	No
5	N/A	Yes	Yes - Popliteal	No	No
6	N/A	Yes	No	No	Yes - Left GSV ablation

RESULTS

- **Six patients** with lower extremity lymphedema and concomitant chronic venous disease.
 - Five concurrently underwent Lymphovenous Bypass (LVB).
 - All six patients had imaging findings or preoperative diagnosis of chronic venous disease (**Table 1**).
- Average follow-up was **31 weeks** (range 10-55 weeks)
- **Outcomes:**
 - Mean decrease in **LLIS** postoperatively was **15 points (35% decrease)**
 - Mean decrease in **L-dex** postoperatively was **30 units (43% decrease)**
 - No immediate complications

CONCLUSIONS

- Patients in our study demonstrated ***both subjective and objective improvements in lymphedema parameters***
 - Combination of “pump” mechanism and stimulation of lymphangiogenesis^{1,2}
- Preliminary data may suggest that LYST could ***facilitate earlier improvements*** within weeks to months following the procedure^{1,2}
 - Inclusion of long afferent lymphatic vessels may reduce the extent of lymphangiogenesis required before physiologic function is observed
- In contrast to a free SCIP LYST, the pedicled SCIP avoids a more complex and lengthy procedure while eliminating the need for postoperative flap monitoring
- The proximal location of the pedicled flap may specifically offer advantages for patients with concurrent venous disease, as flap lymphatics and lymph nodes drain efferent to the site of venous obstruction

FIGURE 1. Intraoperative photographs demonstrating rotation of the SCIP flap about its pedicle (a and b) and flap inset with closure of donor site (c)

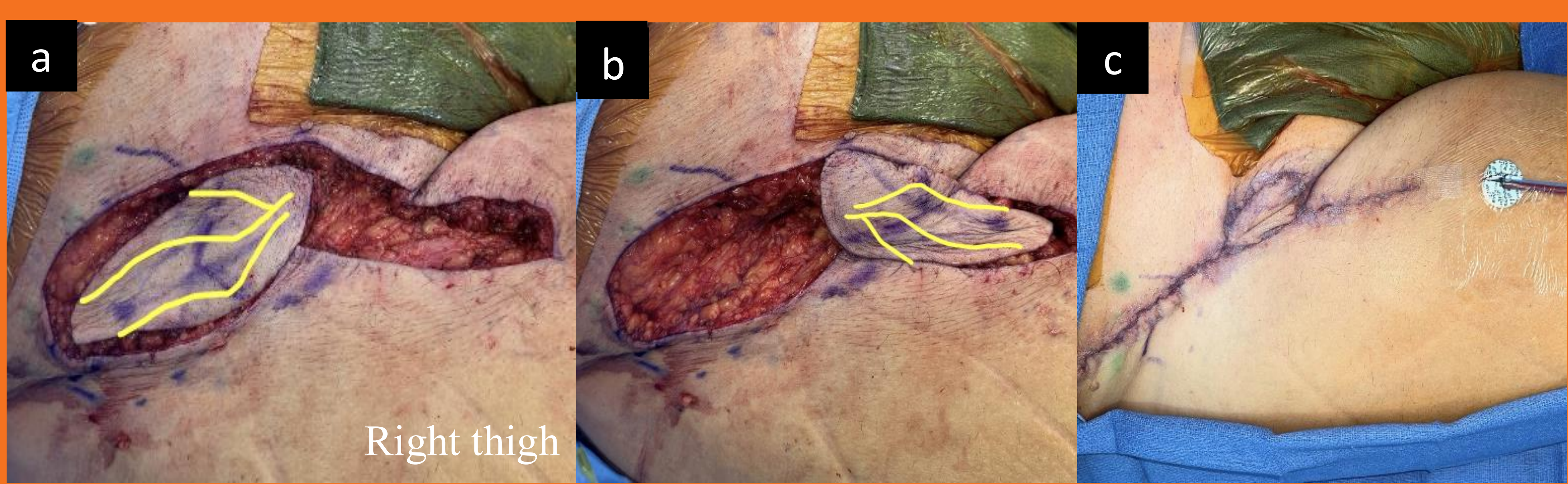


FIGURE 2. Preoperative and four months postoperative photographs of patient 6



1) Yoshimatsu H, Visconti G, Karakawa R, Hayashi A. Lymphatic system transfer for lymphedema treatment: Transferring the lymph nodes with their lymphatic vessels. *Plast Reconstr Surg Glob Open.* 2020;8(4):e2721.
2) Chen WF, McNurlen M, Ding J, Bowen M. Vascularized lymph vessel transfer for extremity lymphedema - Is transfer of lymph node still necessary? *Int Microsurg J.* 2019;3(3):1.