

# **Lymphedema Surgery Lymphatic System Transfer (LYST) in Oncology**

## **Background**

Vascularized lymph node transfer is the most common physiological procedure indicated for severe lymphedema. We described a new physiological treatment strategy for lymphedema, lymphatic system transfer (LYST), which comprises transfer of the vascularized afferent lymphatic vessels along with their draining lymph nodes.

## **Methods**

All patients undergoing LYST for treatment of lymphedema from 2017 to 2021 were identified. Patient demographics, intraoperative factors, and postoperative outcomes were reviewed.

## **Results**

Eleven patients underwent LYST. Average patient age and body-mass index were 52 years and 28.6 kg/m<sup>2</sup>. Indications for LYST were upper extremity lymphedema following mastectomy, radiation, and lymphadenectomy (2), and unilateral lower extremity lymphedema following total hysterectomy and bilateral pelvic lymphadenectomy (1). In all patients, lymphatic vessels could not be visualized by preoperative lymphoscintigraphy.

All LYST flaps were procured from the groin region. A superficial circumflex iliac artery perforator flap including the afferent lymphatic vessels and their draining lymph nodes was elevated. A large portion of the skin paddle was deepithelialized, and the LYST flap was inset into a subcutaneous tunnel made in the lymphedematous limb.

One LYST flap was lost due to congestion on postoperative day 5. A pedicled LYST flap

was performed in the patient. In one patient, a free LYST flap was transferred to the medial thigh and a pedicled LYST flap to the lateral thigh. No donor site complications were observed. The average rate of estimated volume decrease in the patients at 12th month follow up was 20.9%.

### **Conclusion**

Because the afferent lymphatic vessels are transferred with the lymph nodes, a presumably lesser degree of lymphangiogenesis is required for a LYST flap to commence its physiological function.