Double-Level Vascularized Lymph Node Transfer for Treatment of Extremity Lymphedema

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Surgical treatments for lymphedema, such as vascularized lymph node transfer, are becoming more popular. Reported donor sites include the groin, axilla, submentum, supraclavicular, omental, and recently described, the jejunal mesentery.1–20 Improvements in lymphedema following vascularized lymph node transfer have varied greatly. Placement of the vascularized lymph node can be either proximal or distal on the extremity. Literature has shown improvements in lymphedema regardless of recipient site; however, some suggest that the benefit may be greater when placed distally.8 Others believe that release of scar tissue in the axilla or groin prior to inset of the vascularized lymph node contributes greatly to the effectiveness of the procedure.

Here, we describe an innovative combination of these techniques: jejunal mesenteric vascularized lymph node transfer to the distal wrist and scar release/excision with free omental flap to the axilla. Additionally, we propose a scar scale to categorize scarring of the previously dissected nodal basin.

The jejunal mesenteric lymph node transfer is performed as previously described to the distal wrist.17 Briefly, the flap is harvested through a midline mini-laparotomy, supraumbilical incision approximately 5 cm in length. The jejunum is delivered through the incision and run proximally toward the ligament of Trietz. A cluster of lymph nodes in the proximal jejunal mesentery with an appropriately sized artery and vein is identified by transillumination and palpation. The flap is raised with the cluster of lymph nodes and mesenteric vascular pedicle en bloc while preserving bowel continuity. The flap is anastomosed to the distal wrist, typically in an end-to-side fashion to the radial artery and end-to-end fashion to the radial vein or cephalic vein. Inset is performed by removing subcutaneous tissue, creating a pocket for the flap. Primary closure is usually obtained (►Fig. 1). A full-thickness skin graft can be harvested as an ellipse adjacent to the abdominal incision and used if primary closure cannot be obtained. Flap monitoring can be achieved by an implantable doppler crystal inserted directly into the flap or percutaneously with a hand-held doppler.

Attention is then turned to the axilla where the area of scar is released and excised. This usually includes a careful dissection of the axillary vein, which is often encased in scar and may be narrowed by scar bands. We then utilize the open abdomen

►Fig. 1 Double-level vascularized lymph node transfer. Photographs of standard patient before surgical intervention (top), after anastomosis of the omental flap to the axillary vessels (left center) and jejunal mesenteric lymph node flap to the wrist (right center), and after inset and closure (bottom).
Table 1 The Ohio scar scale (for axillary or inguinal node dissections)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>No scar, no surgical intervention to area</td>
</tr>
<tr>
<td>1</td>
<td>Superficial scar, mobile (no tethering, adequate subcutaneous fat layer)</td>
</tr>
<tr>
<td>2</td>
<td>Scar extending into subdermal structures, deep palpable scar, remains mobile against deeper structures (i.e., chest wall, groin, fascia/musculature)</td>
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<tr>
<td>3</td>
<td>Visible tethering of skin, scar tethering skin to underlying deeper structure (i.e., chest wall, deep fascia of the groin), scar is usually depressed/dimpling</td>
</tr>
<tr>
<td>4</td>
<td>Painful tethered scar</td>
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Conflict of Interest
None.

References