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CASE REPORT
Reconstructive

Immediate Lymphovenous Bypass Treated Donor Site Lymphedema during Phalloplasty for Gender Dysphoria

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Summary: Demand for gender-affirming phalloplasty continues to grow worldwide, and the extended radial forearm flap phalloplasty remains one of the most commonly performed techniques. One potential morbidity that has emerged is postoperative donor site lymphedema, which was susceptible to develop after harvest of extended radial forearm flap. In the setting of preventative or immediate lymphovenous bypass (LVB) with axillary lymph node dissection for the treatment of breast cancer, it is possible that a subset of patients undergoing gender-affirmation surgery would benefit from immediate lymphatic reconstruction at the time of primary phalloplasty. Here, we report a case in which intraoperative indocyanine green lymphography demonstrated lymphatic obstruction within the left donor hand after flap harvest, and was treated with immediate LVB at the time of extended radial forearm phalloplasty. Two surgical teams operated simultaneously: the reconstructive urology team performed the vaginectomy, perineal urethral lengthening, scrotoplasty, and perineal reconstruction; and the microsurgery team harvested the extended radial forearm, constructed the penile urethra, shaped the phallus, and performed the immediate LVB. Lymphography showed no dermal backflow at 5 months follow-up; at 13 months, the patient demonstrated no signs or symptoms of lymphedema in the left forearm or hand. To the authors' best knowledge, this is the first report of confirmed donor site lymphedema following extended radial forearm flap harvest, which was successfully treated with immediate LVB. Careful evaluation of lymphatic vessels with indocyanine green lymphography in the forearm before and after extended flap harvest may be warranted.
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The extended radial forearm flap has become one of the most popular options for providing an aesthetic phalloplasty with excellent sensation while permitting standing micturition and penetrative sexual function. During flap harvest, preservation of a 3–5 cm strip of native ulnar forearm skin is generally recommended to prevent hand lymphedema.[1] However, the common tube-within-a-tube design[2] requires an extended skin paddle that compromises major lymphatic vessels along a significant circumference of the forearm.

Susceptible patients may present with pitting edema, tightness, heaviness, and achiness in the dorsal hand typically within the first 4 months postoperatively. Postoperative indocyanine green (ICG) lymphography demonstrated severe dermal backflow within the dorsal hand, with near-complete absence of flow at the level of the skin graft (Fig. 1). Here, we present a patient identified to have impaired lymphatic drainage intraoperatively after flap harvest, which was treated with prophylactic immediate lymphatic reconstruction using a lymphovenous bypass (LVB) at the time of phalloplasty.

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