



Morbidity of marginal mandibular nerve post vascularized submental lymph node flap transplantation

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Abstract

Background: This study investigated the morbidity of the marginal mandibular nerve (MMN) post vascularized submental lymph node (VSLN) harvest.

Methods: The VSLN with sacrificing or preserving the medial platysma was retrospectively classified as group I or II. Midline deviation and horizontal tilt were subjectively evaluated. Horizontal, vertical, and “area distribution” of the lower lip excursions of the surgical site were objectively compared with the nonsurgical site.

Results: Seventeen patients in group I and 12 patients in group II were included. At a median follow-up of 48.6 ± 16.8 months in group I and 14.8 ± 7.5 months in group II, no MMN palsy was found in both groups. Median midline deviation and horizontal tilt were 4.53 ± 0.52 and 5 ± 0 in group I and 4.67 ± 0.65 and 5 ± 0 in group II, respectively ($P = .419$ and 1.000). Median horizontal, vertical and area of distribution of lower lip excursions were $97.5 \pm 12.3\%$, $98.8 \pm 14.4\%$ and $87.2 \pm 14.7\%$ in group I, and $99.3 \pm 15.1\%$, $95.8 \pm 8.2\%$ and $84.2 \pm 14.2\%$ in group II, respectively ($P = .679$, $.948$ and $.711$).

Conclusion: The VSLN flap was a safe procedure with minimal MMN morbidity.

KEY WORDS

lymphedema, lymphedema microsurgery, marginal mandibular nerve, platysma, vascularized submental lymph node transfer

1 | INTRODUCTION

Vascularized lymph node transfer is a promising microsurgical technique beneficial in lymphedema patients with Cheng's lymphedema grading II-IV.¹ The typical donor sites include the submental, supraclavicular, groin, lateral thoracic, and great omental regions.²⁻⁴ In 2012, Cheng et al⁵ invented the vascularized submental lymph node (VSLN) flap and successfully transferred it to a distal recipient site to treat lower extremity lymphedema with good clinical outcomes. Compared with other lymph node donor sites, the submental region is an excellent donor site for vascularized lymph node flap transfer because of the (a) robustness of the lymph nodes; (b) adequate length and size of the vascular pedicle; (c) thin and pliable skin paddle; (d) minimal risk of intragenic lymphedema; and (e) easily hidden donor site scar with a neck lift.^{3,4,6-12}

The main concern of the submental area as the donor site is the potential palsy of the lower lip and the neck muscles, which are controlled by the marginal mandibular branch and the cervical branch of the facial nerve. The marginal mandibular branch supplies the muscles of the excursion of the lower lip and chin, while injury to the marginal mandibular branch will cause lower lip palsy.^{13,14} On the other hand, although the cervical branch supplies the platysma muscle, changes are sometimes mistakenly attributed to marginal mandibular branch lesions, so in specific cases, palsy of the cervical branch will cause dysfunction of not only the platysma but also lower lip depressors.¹⁵ Tzou et al reviewed the anatomy of the submental lymph node flap and showed that the submental lymph node flap had a constant vascular supply by the submental-facial artery. The marginal mandibular nerve (MMN) lies superficial to the facial artery and crosses the artery at 75% of the mandible body length.⁷