

Chemical Depressor Myectomy With Botulinum Toxin Type A for the Treatment of Transient Paralysis of the Marginal Mandibular Branch of the Facial Nerve Following Laser-Assisted Liposuction of the Neck

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Asymmetry of the lower lip may be the result of injury to the marginal mandibular branch of the facial nerve, which can cause both psychological and functional impairment. Various etiologies, such as congenital anomalies, trauma, iatrogenic injury following rhytidectomy or surgery for oromandibular neoplasms, and

idiopathic facial palsy can result in paralysis of the marginal mandibular branch of the facial nerve. Most techniques described in the literature to restore function in cases of transient paralysis to the marginal mandibular branch of the facial nerve have been invasive, resulting in obvious scars.^{1,2} In a series of 76 cases, Chen and Tang² reported successful results with the use of botulinum toxin type A (Botox Cosmetic) injection for chemical lip depressor myectomy. In these cases the nonparalyzed side of the mouth was treated in patients with contralateral transient paralysis of the marginal mandibular branch of the facial nerve secondary to congenital anomalies, oromandibular tumors, and idiopathic causes.

We report the successful management of transient marginal mandibular nerve palsy associated with laser-assisted liposuction of the neck using chemical depressor myectomy of the nonparalyzed, contralateral depressor anguli oris muscle with botulinum toxin type A injection. To our knowledge, this is the first reported case of a patient with transient marginal mandibular nerve palsy resulting from laser-assisted liposuction of the neck.

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Treatment required only 1 session of chemical depressor myectomy with botulinum toxin type A injection for correction.

CASE REPORT

A 53-year-old woman with no remarkable medical history underwent laser-assisted liposuction of the neck using tumescent anesthesia. The surgical site was marked with the patient standing and the area was prepared and draped in a sterile fashion. Tumescent fluid (Klein formulation) was warmed to approximately 37°C and infiltrated into the surgical site. Five 2-mm incisions were made in the submental chin area and along the mandible to facilitate the introduction of the 600- μ m optical fiber, which was delivered through a 14-gauge stainless steel aspiration microcannula. A 1320 nm Nd:YAG laser system (CoolLipo) was used for laser-assisted lipolysis of the subcutaneous tissue at 20 W with a repetition rate of 50 Hz. Energy was delivered to the surgical site via the optical fiber to multiple subcutaneous planes in a fanning motion from multiple adit sites, along with aspiration through the cannula. The neck area was treated until a loss of resistance was felt when advancing the microcannula tip through the tissues. The surface temperature of the skin was measured with an external infrared thermometer and ranged from 34°C to 36°C. The residual cellular debris created by laser-assisted lipolysis was removed using a negative pressure of 30 mm Hg with a 14-gauge Klein suction cannula.

At postoperative day 1, the patient had minimal swelling and erythema of the neck that was nearly resolved by postoperative day 14. Facial asymmetry was not noted

during this time period. On postoperative day 21, the patient presented to the clinic and reported asymmetry of the lower lip consistent with transient marginal mandibular nerve palsy with no concomitant edema or erythema (Figure 1). She described experiencing difficulty whistling and pursing her lips. Four units of botulinum toxin type A were injected percutaneously into the lip depressor anguli oris muscle on the contralateral side of the mouth to achieve dynamic lip symmetry.

One week after chemical lip depressor myectomy with botulinum toxin type A, clinical improvement was noted in both smile symmetry and oral competence (Figures 2 and 3). Positive results were maintained without further intervention 4 months after chemical myectomy.

DISCUSSION

The marginal mandibular branch of the facial nerve, which courses beneath the body of the mandible deep to the platysma, is susceptible to injury during surgeries such as cervicofacial liposuction or when elevating the superficial musculoaponeurotic system to perform a rhytidectomy.³ Injury to the nerve can cause impairment of downward and lateral movement of the lower lip that results in oral incompetence, speech interference, and smile asymmetry.

Intraoperative nerve-monitoring techniques have been developed to preserve the marginal mandibular branch of the facial nerve. However, these techniques primarily are utilized for positive confirmation only after the facial nerve or other nerverlike structures have been visually identified, making this application futile during liposuction.⁴



Figure 1. A 53-year-old woman with asymmetry of the lower lip consistent with transient marginal mandibular nerve palsy without concomitant edema or erythema 21 days after undergoing laser-assisted liposuction of the neck.



Figure 2. One week after chemical lip depressor myectomy with botulinum toxin type A injection, clinical improvement in oral competence was noted.



Figure 3. One week after chemical lip depressor myectomy with botulinum toxin type A injection, clinical improvement in smile symmetry was noted.

Modalities that commonly are employed for the correction of transient marginal mandibular nerve palsy include functional muscle transfers, partial lip resection and hypoglossal nerve transfer from the paralyzed side, or neurectomy of the marginal mandibular branch of the facial nerve and lower-lip depressor myectomy from the nonparalyzed side.³ It is important to distinguish permanent nerve injuries from transient nerve injuries, such as the iatrogenic injury following submental liposuction. As we described in this case report of transient paralysis of the marginal mandibular branch of the facial nerve, one treatment session of chemical depressor myectomy with botulinum toxin type A injection on the nonparalyzed side of the face may be a simple and effective

therapy for restoring dynamic lip symmetry while function of the nerve is regained.

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