METHODS AND MATERIALS: One hundred forty-two subjects undergoing migraine surgery were prospectively enrolled. Preoperatively, patients were asked to complete a questionnaire on MH history, including the MH index (MHI) and information on prior head or neck injury. This included data on the nature of the injury, timing in relation to their MH, and whether they attributed their MH pain to the injury itself (precipitating event). The senior author performed all surgical procedures. Follow-up surveys were sent to all patients at 12 months postoperatively.

RESULTS: Of the subjects included in this study, 50% (n = 71) reported a history of head or neck injury, and 30% (n = 42) classified the injury as the precipitating event leading to their MH. Patients who associated their injury with the onset of their MH were significantly less likely to have a positive family history of MH. There was no significant difference in mean preoperative MHI among the atraumatic (108.8 ± 80.0), traumatic (99.9 ± 92.5), and precipitating event (90.8 ± 90.1) cohorts. At 12 months postoperatively, there was no significant difference in MHI reduction between these 3 groups. The proportion of patients who experienced at least a 50% and 80% improvement in MHI per group, respectively, was 83% and 67% (ataumatic), 76% and 68% (traumatic) (P = 0.40), and 71% and 63% (precipitating event). The median follow-up time was 12.9 months (interquartile range, 11.8–15.2).

CONCLUSIONS: Fifty percent of patients undergoing migraine surgery at our center report a history of head and neck injury. This finding corroborates a higher prevalence of head and neck injury in patients with migraine as compared to the general population. Further, this study suggests that outcomes in migraine surgery patients with a prior history of head and neck injury are comparable to those without injury. Migraine surgery candidates with a history of injury can therefore expect similar outcomes as reported for migraine surgery patients overall.

REFERENCES:
1. Janis JE, Dhanik A, Howard JH. Validation of the peripheral trigger point theory of migraine headaches: single-surgeon experience using botulinum toxin and surgical decompression. Plast Reconstr Surg. 2011;128:123–131.
2. Couch JR, Lipton RB, Stewart WF, et al. Head or neck injury increases the risk of chronic daily headache: a population-based study. Neurology. 2007;69:1169–1177.

Novel Method of Double Innervated Free Gracilis Muscle Functional Transfer for Facial Reanimation

Presenter: Thanapoom Boonipat, MD

Co-Authors: Malke Asaad, MD; Mohamed Diya Sabbagh, MD; Carrie E. Robertson, MD; Samir Mardini, MD

Affiliation: Mayo Clinic, Rochester, MN

PURPOSE: Dynamic facial reanimation is the gold standard treatment for a paralyzed face. The use of cross-face nerve graft (CFNG) in combination with the masseteric nerve to innervate free gracilis muscle has been reported in various configurations, with the goal of providing both spontaneity from the CFNG and strong innervation from the masseteric nerve. We report a novel modification to the existing nerve configuration, with presentation of outcomes of our case series.

METHODS: A total of 8 patients received free gracilis muscle transfer using the new double innervation method between September 2014 and December 2017. The CFNG, which was performed 9 months prior, was sutured in an end-to-end fashion to the obturator nerve. The ipsilateral masseteric nerve was coapted to a nerve graft obtained from extra length of obturator nerve obtained during the harvest of the gracilis muscle. This nerve graft was then sutured in an end-to-side fashion to the sural nerve graft proximal to the end-to-end obturator coaptation (Figure will be provided during presentation). Video analysis was performed on preoperative and all postoperative follow-up. Two independent experienced raters performed Terzis 5 stages classification on the videos. Time to smile with biting down and time to natural smile were also assessed.

RESULT: All patients recover smile function with teeth clenching (average, 7.5 months; range, 3–12). Two patients did not recover smile function at 4 and 8 months follow-up, but achieved smile at their 10 and 12 months follow-up. Seven of 8 patients recover spontaneous smile by average of 8.4 months (range, 7–12), with 1 patient having no function after 12 months of follow-up. Average follow-up time was 22 months. Based on the Terzis reanimation grading, 4 patients achieved moderate result, 2 achieved good result, and 2 achieved excellent result.

CONCLUSION: Our new novel method of dual gracilis innervation represents a viable technique that does not risk denervation of the gracilis muscle, and provide good spontaneous emotional smile and esthetic symmetry. We hypothesize that placing the masseter nerve at a disadvantage by using the extra nerve graft which requires the signal to go through 3 anastomosis, the CFNG has more time to provide a stronger signal without being taken over by the masseter.

Volumetric Velopharyngeal Port Modification in Cleft Palate Patients Undergoing Le Fort 1 Maxillary Advancement

Presenter: Eli Saleh, MD