Gracilis Muscle Vs Lengthening Temporalis Myoplasty for Smile Reanimation

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INTRODUCTION: Gracilis muscle free tissue transfer is considered the gold standard for smile reanimation in facial paralysis. The lengthening temporalis myoplasty (LTM) is a relatively newer technique based on McLaughlin's original description of the temporalis muscle in facial paralysis.[1,2] The temporalis is used in an orthograde fashion as opposed to a turnover flap to attach to the oral commissure for smile reanimation. There are several potential advantages that LTM may have over gracilis muscle. A single-surgeon, side-by-side comparison is made.

METHODS: A single-surgeon retrospective review was performed between 2008 and 2016, examining patients undergoing smile reanimation using either gracilis free muscle transfer or LTM. Patient demographics, diagnosis, operative time, smile excursion, laterality, stages, complications, and length of stay were recorded. Photos and video were obtained for all patients both pre- and postoperatively.

RESULTS: A total of 42 patients underwent smile reanimation between 2008 and 2016. Nineteen patients underwent free gracilis muscle transfer in one or two stages, and 23 patients under LTM. Of the gracilis group, 11 underwent single-stage procedures, and 8 underwent dual-stage procedures. Average operative times for unilateral gracilis and LTM groups were 435 and 297 minutes, respectively. Smile excursion was equivalent with both techniques (range 5-17 mm). There were 2 failures and 1 infection requiring drainage in the gracilis group. Asymmetric cheek bulk was present in nearly all patients despite small segmental gracilis harvest. There were no failures in the LTM group but approximately 15 patients (65%) required at least one revision to re-establish movement at the oral commissure due to tendon avulsion and/or adhesions. An additional 2 patients demonstrated temporal hollowing, requiring subsequent fat injection.

CONCLUSION: Lengthening temporalis myoplasty possesses several advantages over gracilis muscle transfer for smile reanimation. Decreased cheek bulk, lack of secondary donor site, shorter operative time, ease of on-table adjustments, and shorter hospital stays are notable advantages. However, revision rates for LTM are high and avoidance of the nasolabial fold scar is challenging. Although early cases of temporal hollowing occurred, these were avoided for the remainder of the series. The LTM and gracilis transfer to masseter nerve both possess the disadvantage of lacking spontaneity, thereby, necessitating extended therapy postoperatively.

REFERENCES:

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