

Midface Effects of the Deep-Plane vs the Superficial Musculoaponeurotic System Plication Face-lift

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Objective: To determine if there is any observable difference in the midface of patients who have undergone a deep-plane face-lift vs a standard superficial musculoaponeurotic system (SMAS) plication face-lift.

Design: Preoperative and postoperative photographs of 25 patients undergoing each type of face-lift were rated by 3 independent and blinded observers. A 7-point scale was used to grade improvement in 5 areas on the face and neck: malar eminence, melolabial fold, jowls, cervicomenal angle, and anterior neck banding.

Results: All 3 independent observers rated the patients who underwent a deep-plane face-lift as having a significantly better result ($P < .01$) in 2 of the measured locations; the observed improvements in the deep-plane group were twice those in the SMAS plication group.

Conclusion: In our study of 50 patients, the deep-plane face-lift proved to have results that were clinically and statistically better than those of the SMAS plication face-lift in both the midface and the neck.

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ALTHOUGH THE BEST WAY TO perform a face-lift has always been, and continues to be, a matter of debate, there is even greater controversy when it comes to the best way to address the midface.¹⁻³ The midface is commonly defined as that part of the face that begins below the orbital rim and extends to the melolabial fold, including the area as far posterior as the malar prominence. Although “traditional” face-lifting techniques can achieve an excellent improvement along the jawline and neck, they often have little or no impact on the area of the midface. Thus, many different types of procedures, including approaches from the infraorbital area and the temporal region, have been developed to provide rejuvenation in this region.⁴⁻¹³ Although various degrees of success have been reported, to our knowledge there is no single procedure that has demonstrated unequivocal improvement.¹⁴⁻¹⁶ Moreover, each approach represents an additional procedure for the patient if he or she is seeking rejuvenation of the lower part of the face as well.

Clinically, we found that patients who underwent a deep-plane face-lift showed improved volume in the area of the midface, an improvement that we had not seen

with previously used, more limited lifting techniques. Certainly, if there is a real difference in the midface with the deep-plane face-lift, it would make sense to perform this single procedure rather than a more traditional face-lift with the addition of a separate procedure for lifting the midface. Therefore, we designed a randomized, retrospective study to determine if there is any objective evidence to support our clinical impression.

METHODS

We reviewed preoperative and postoperative photographs of 25 patients who underwent a superficial musculoaponeurotic system (SMAS) plication face-lift and 25 patients who underwent a deep-plane face-lift. The postoperative photographs were taken at least 6 months after surgery. Frontal and lateral views were examined. Three observers, all facial plastic surgeons, were blinded to the procedure that each patient underwent, and the photographs were randomized. Five aspects of the face and neck were rated for degree of improvement: the malar eminence, the melolabial fold, the jawline (or jowls), neck banding, and the cervicomenal angle. A 7-point visual analog scale was used to rate the photographs at these given points (**Figure**). Patients who underwent laser resurfacing or a chemical peel at the time of the procedure or during the postoperative period

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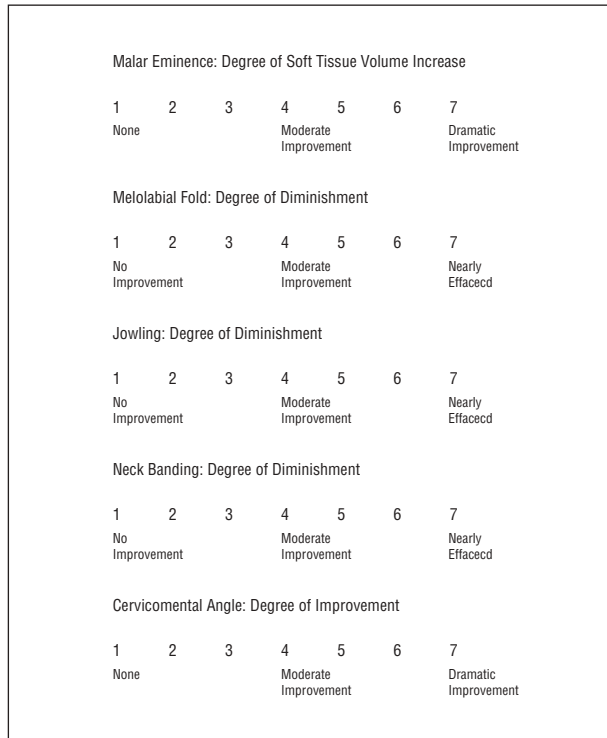


Figure. The observers used this visual analog scale to rate the patients' photographs.

were excluded. The resulting mean scores were compared with 2 sample *t* tests and generalized estimation equations. Each observer's scores were compared with the other observers' scores using a κ measure of agreement.

RESULTS

The results are summarized in the **Table**. Most notably, there was a statistically significant difference ($P < .001$) seen at all points of comparison with the exception of neck banding. Not only was there a statistical difference at each of the other areas of the face and neck but also, more importantly, these differences were clinically relevant. For example, in the area of the malar eminence, the mean score for the degree of increase in soft tissue volume in the SMAS plication group was 2.69, which is just higher than that for "none." In contrast, the mean score in that area in the deep-plane face-lift group was 4.64, which is higher than the score correlating to moderate improvement. These differences between treatment groups were statistically significant for each independent observer as well as when all the mean scores were averaged together. The highest overall improvement in the deep-plane face-lift group was in the area of the jowls, with a mean score of 5.29. In the SMAS plication group, the greatest improvement was seen in the cervicomenal angle, with a mean score of 4.40.

COMMENT

The deep-plane face-lift has certainly shown many advantages both in the degree and the duration of improvement.¹⁷⁻²² The midface effects of this lift have been debated.²³⁻²⁷ When Hamra¹⁸ first described his large series

Table. Comparison of 5 Aspects of the Face and Neck After Deep-Plane and SMAS Plication Face-lifts

| Aspect | Treatment Group* | Mean (95% CI) |
|--------|------------------|------------------|
| ME | 1 | 4.64 (4.19-5.09) |
| ME | 2 | 2.69 (2.34-3.05) |
| MF | 1 | 4.17 (3.76-4.58) |
| MF | 2 | 2.45 (2.05-2.85) |
| J | 1 | 5.29 (5.00-5.59) |
| J | 2 | 4.23 (3.89-4.57) |
| NB | 1 | 4.49 (4.10-4.89) |
| NB | 2 | 4.08 (3.78-4.38) |
| CA | 1 | 5.16 (4.91-5.41) |
| CA | 2 | 4.40 (4.03-4.77) |

Abbreviations: CA, cervicomenal angle; CI, confidence interval; J, jowls; ME, malar eminence; MF, melolabial fold; NB, neck banding; SMAS, superficial musculoaponeurotic system.

*Treatment group 1 consisted of 25 patients who underwent a deep-plane face-lift; treatment group 2 consisted of 25 patients who underwent an SMAS plication face-lift. For all 5 aspects, the methods were pooled, the variances were equal, the *df* was 48, and the *P* values were all less than .001 except that for neck banding, which was .09.

of deep-plane face-lifts in 1990, he specifically noted the improvement in the melolabial or nasolabial fold. Since then, others have also noted some midface improvement with the deep-plane face-lift.^{1-3,17-20} Many of these previous accounts have been based on subjective analysis. The goal of our study was to determine if there is any objective support for these observations in the midface. Certainly, to be truly objective is difficult when comparing volume in the midface between 2 individuals or 2 treatment groups. Such measurements of facial volume are inherently challenging if not impossible to obtain. Randomizing patients into 2 treatment groups for a prospective study is not feasible either with this type of procedure for the obvious reasons. Therefore, we thought that the best study design should include a review of photographs of patients who were all operated on by the same surgeon using the 2 techniques in question. Randomizing the photographs and blinding each of the 3 observers provided objectivity and eliminated the biases that would be inherent in a study based on 1 observer who has knowledge of the procedure performed.

Perhaps the most compelling finding was that all 3 observers observed the same differences between the 2 treatment groups. Moreover, the results were most notable in the midface, which we defined as the degree of increased volume at the malar eminence and the amount of effacement of the melolabial fold. There was almost a 2-fold difference at these 2 observation points, which translates into a significant clinical difference between the 2 treatment groups. The postoperative photographs were taken on average about 10 months after surgery, so initial edema would not explain the observed changes in the midface.

Our data support the clinical observation that the deep-plane face-lift is better than other, more conservative face-lift techniques at counteracting the effects of midface aging. This finding certainly supports using the deep-plane face-lift rather than these other techniques, because, for most patients, aging of the midface actually begins with

the lower face. Also, it could be argued that performing a second procedure that specifically addresses the midface may not be necessary if the deep-plane face-lift has already improved the area. Surely, there are cases in which a midface-lift is more appropriate than a lower face-lift or a neck-lift and is performed as an isolated procedure or in conjunction with an endoscopic brow-lift. However, the midface and the lower face tend to age at a similar rate; therefore, the 2 areas more often require rejuvenation at the same time. Based on our findings and clinical observations, an effective way to achieve this more comprehensive rejuvenation is through a deep-plane face-lift.

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