Aesthetic Abstracts and Citations

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In this Aesthetic Abstract and Citations section, we highlight and briefly discuss recently published manuscripts from other peer-reviewed journals that may be of interest to our readership in oculoplastic surgery. These are just cursory reviews to peak an interest on subjects, which the individual reader may desire to pursue in more detail by reading the manuscript in full.

Kolstad CK, Quatela VC. A quantitative analysis of lateral canthal position following endoscopic forehead-midface–lift surgery. *JAMA Facial Plast Surg*. Published online July 4, 2013.

There have been anecdotal reports that the superotemporal vector suspension in endoscopic midface lifting can lead to lateral canthal distortion postoperatively. Only 1 published report has actually studied this.[1] Those authors found no change in canthal position after surgery using the mean deviation in horizontal palpebral fissure width and lateral canthal angle inclination as measurement parameters. The authors of this current report suggest the discrepancy in anecdotal and studied data may be related to measurement design. Mean change (used in the previous study) averages positive and negative alterations. In this setting, a 25% elevation and 25% depression in measurement would have a mean change of 0. The authors emphasize measuring the mean actual change (which eliminates positive or negative changes) is a better measure. In the same example above, the mean overall change would be 25% (positive and negative do not cancel each other out).

In the current study, the authors retrospectively reviewed the charts of 40 patients (80 eyes) who underwent endoscopic-assisted forehead and midface lift with adjunctive lower blepharoplasty (transconjunctival [TC] with skin pinch) and objectively assessed changes in lateral canthal position postoperatively at an average 13-month follow up. The measurements assessed to determine the canthal alteration before and after surgery were percent changes in horizontal palpebral fissure width (medial to lateral canthus distance in horizontal plane), diagonal palpebral fissure width (direct medial to lateral canthus distance), vertical height of the lateral to medial canthal angle, and percent changes in lateral canthal angle deflection as measured in degrees. Please refer to article for detailed description and photo representation of these parameters.

Measured parameters were photographically standardized before and after surgery using the horizontal visible iris diameter (HVID) as a constant (it is not altered by surgery). The study found that while there were changes in all 4 parameters measured (both mean and absolute mean changes), none were statistically significant. As expected, the absolute value mean change tended to be greater than the mean change. The authors stress that the critical surgical step needed to maintain canthal position after surgery is to leave a minimum of 2 cm^2 of periosteum in the region of the lateral canthus undisturbed. This will preserve canthal integrity and position.

1. Williams EF 3rd, Vargas H, Dahiya R, et al. Midfacial rejuvenation via a minimal-incision brow-lift approach: critical evaluation of a 5-year experience. *Arch Facial Plast Surg* 2003;5:470–8.

Message: Canthal distortion after any eyelid surgery is troublesome. The authors objectively document maintenance of canthal position (statistically) after endoforehead/midface lifting surgery when surgery is performed with limited subperisoteal dissection around the canthus. This reviewer has been more aggressive with dissection to the canthus with the proviso of leaving the attachment of the limbs of the lateral canthal tendon to the orbital rim intact. In this scenario, a similar lack of canthal positional change has been subjectively observed. A potential confounding variable in the study is the addition of TC lower blepharoplasty with skin pinch. It is possible that even minor inferior canthal displacement due to the skin pinch could offset a small elevation in canthal position related to vector pull of the endoscopic component of surgery.

Panella NJ, Wallin JL, Goldman ND. Patient outcomes, satisfaction, and improvement in headaches after endoscopic brow-lift. *JAMA Facial Plast Surg* 2013;15:263–7.

There is ample information in the literature regarding surgical technique, outcomes, and complications with endoscopic brow lifting (EBL). What is generally lacking is objective data on patient interpretation of surgical outcome. In this study, the authors performed phone call interviews regarding their experience with EBL (± other cosmetic procedures–see below) on 57 patients (from January 2004 to January 2010) who were reachable or agreed to participate (107 total patients eligible). The interview was conducted in each case by the lead author (N.J.P.) who had no previous contact with any patients included in the study. The participants were asked 47 questions including an assessment of bleeding, scarring, pain, numbness, asymmetry, vision, recovery time, degree of satisfaction, hair loss, and improvement in headaches after surgery. Fifty-five patients (97%) were women with a mean age of 49.5 years. Forty-three participants (75%) had concurrent blepharoplasty, 8 participants (14%) had an added rhytidectomy, and in 40 participants (70%), the goal of surgery was functional or noncosmetic. Scarring was assessed on a 1 to 10 scale (10 barely noticeable). Eighty-nine percent of patients scored scarring from 7 to 10, with a mean score of 9.12. Ninety-five percent of patients noted that their scars were never noted by others. Eighty-nine percent of patients reported bleeding that lasted 1 day or less, and none required intervention to assist in homeostasis. Sixteen patients (28%) developed alopecia at 1 or multiple sites, most reporting it to be the size of a dime or smaller. Hair grew back in the majority within 2 months, and in 6 (11%) patients, it was permanent. Forty-three patients (75%) experienced pain after surgery, resolving within a week in most. Thirty-six patients (63%) described some numbness after surgery, while 25 patients (44%) experienced some degree of numbness for 3 months or longer. Sixteen patients (28%) reported regular headaches

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prior to EBL. After surgery, 2 patients (13%) had resolution of their headaches, and in 6 (38%) patients, there was reduction in frequency or intensity of headache. After surgery, 42 patients (74%) stated others, unaware that surgery was performed, suggested they looked younger, 42 patients (74%) felt their confidence was improved, 53 patients (93%) felt surgery was a success, and 54 patients (96%) would recommend surgery to a friend. When subdividing results to those who did (8 patients) and did not (49 patients) have concurrent rhytidectomy, those with rhytidectomy experienced less postoperative pain (after postop day 3) but returned to work (or normal activities) later.

Message: In aesthetic surgery, patient perception is much more important than surgeon assessment of outcome. The major complications of EBL typically reported are regression of result, scarring, alopecia, and sensory disturbance. From this report, patients did not think that scarring was a major issue; alopecia was a permanent problem in 11% of patients, and numbness was present in 25% of patients after 3 months. This is useful information. The study does not identify patient follow up after surgery, and there were no questions regarding postoperative itching (a troublesome problem to treat). Also, the authors acknowledge potential bias to results as 50 patients could not be reached or did not respond to the phone call interview. These may have been unhappy patients (the authors believe these were few). Finally, in 40 patients (70% of the study population), surgery was for functional or "noncosmetic" reasons. It seems unusual that EBL was so commonly used as a functional procedure. It is possible that patient satisfaction assessments may have been different in a more aesthetically biased patient group. Considering its limitations, this is a well-done study definitely worth reading.

Fagien S, Walt JG, Carruthers J, et al. Patient-reported outcomes of bimatoprost for eyelash growth: results from a randomized, double-masked, vehicle-controlled, parallel-group study. *Aesthet Surg J* 2013;33:789–98.

The U.S. Food and Drug Administration (FDA) recently approved the use of bimatoprost ophthalmic solution 0.03% (LATISSE; Allergan, Inc, Irvine, CA, U.S.A.) for the treatment of hypotrichosis of the eyelashes. Administered topically once daily to the upper eyelid margins of healthy patients for up to 16 weeks, it has been shown that bimatoprost is safe and effective at increasing eyelash growth and enhancing prominence.[1] These effects last up to 1 month after discontinuing the medication. Efficacy was assessed by clinical eyelash ratings (i.e., Global Eyelash Assessment [GEA] scores) and digital image analyses (DIA) assessing eyelash length, fullness/thickness, and darkness. This report is a phase 3, multicenter, randomized, double-masked, vehicle-controlled study supported by Allergan, which also had input in the study design and data review. In this current report, the authors, using 4 separate patient-reported outcome (PRO) instruments (questionnaires), evaluate patient-rated measures of the effectiveness of bimatoprost treatment for eyelash hypotrichosis. These measures include an assessment of patient satisfaction with the physical attributes of their eyelashes (length, fullness, and thickness), and how these eyelash physical attributes affect patient confidence and feelings of attractiveness. The data analyzed are from the same patient population of the Allergan clinical study mentioned above.[1] Inclusion/exclusion criteria are defined in the report, and there were 8 study visits (4 months of treatment) from baseline to 1 month after cessation of treatment (5 months). At baseline, patients were randomized to bimatoprost treatment or control vehicle. The medication was applied to each upper eyelid margin using a disposable, single-use-per-eye applicator and brushed along the upper eyelid margins at night for 4 months. The PRO instruments used (see manuscript for details) found that before treatment, patients thought it was very important to make their eyelashes longer, darker, and fuller/thicker, and/or to increase their number. After treatment, patients were more satisfied with their eyelash prominence, more confident in their looks, and believed more attractive than before treatment or compared with those patients receiving vehicle. The data correlated well with the clinical measures defined in the initial trial.[1] The main adverse event associated with the use of bimatoprost as described was conjunctival hyperemia which occurred in 3.6% of patients, markedly less than as seen with the use of the medication for the treatment of glaucoma.

1. Smith S, Fagien S, Somogyi C, et al. Eyelash growth in subjects treated with bimatoprost ophthalmic solution 0.03%: a multicenter, randomized, double-masked, vehicle-controlled, parallel study. Poster presented at: the 67th Annual Meeting American Academy of Dermatology; March 6–9, 2009; San Francisco, CA.

Message: This study correlates patient assessment of outcome with the use of Latisse for eyelash growth and prominence to the previously reported clinical data (as measured by GEA scores and DIA). As expected, there is a direct correlation of the clinical response to patient satisfaction. There is a large amount of data presented which was only touched on in this review. For those clinicians who dispense Latisse, it is of value to review the study in detail.

Amodeo CA, Andrea Casasco A, Cornaglia AI, Kang R, Keller GS. The suborbicularis oculi fat (soof) and the fascial planes: has everything already been explained? *JAMA Facial Plast Surg*. Published online June 27, 2013.

In this anatomical dissection study, the authors identify an anatomical fascial continuity of the temporal region to the midface (prezygomatic area). In a dissection of 24 hemifaces from fresh cadavers, it was shown that the superficial layer of the deep temporal fascia is in connection with a deep fascial layer in the midface. This fascial layer splits the suborbicularis fat in the suborbicularis oculi fat (SOOF) above and a second deeper fat layer below (connected to the malar bone). This finding is in sharp contrast to previous thought that the deep temporal fascia always inserts on the zygomatic arch without connection to the midface. The superficial layer of the deep temporal fascia was a continuous layer from the temporal region to the prezygomatic area in 43% of specimens. In 57% of specimens, the fascia inserted at the level of the zygomatic bone and lateral orbit, as classically described, continuing after this insertion as a defined deep fascial layer over the malar area. Thus, the anatomical dissection revealed the following fat and fascial layers from superficial to deep in the infraorbital midface: superficial subcutaneous fat, superficial musculoaponeurotic system, SOOF, deep fascia, and deep fat. The fascia and these distinct fat layers were found not only on dissection but also on histological examination of biopsy samples. In addition, histology showed that the 3 fat layer (superficial, SOOF, deep) lobules appeared distinct in color and shape within each of the various layers. It was also noted that this deep fascia of the midface is in the same plane as the orbital septum, and the fat deep to this fascia is in the same surgical plane as the superficial temporal fat pad (the fat pad between the 2 layers of deep temporal fascia).

Finally, the authors suggest concepts as to how this deep fascia may play a role in the continuity and coordination of muscle activity and the transmission of load between facial compartments and muscles.

Message: This article is worth reading as it introduces a new concept whose importance in terms of function and surgical application has yet to be elucidated. It is another in the ever growing body of information and knowledge on the complex anatomy of the temple, infraorbital, and midface areas.

de Aquino MS, Haddad A, Ferreira LM. Assessment of quality of life in patients who underwent minimally invasive cosmetic procedures. *Aesth Plast Surg* 2013;37:497–503.

The authors emphasize that recent trends in contemporary cosmetic enhancements have shifted significantly from purely surgical interventions to less invasive procedures aimed at 3 dimensionally improving facial shape, contour, and restoring a harmonious and youthful appearance. In particular, neuromodulation (in this case with Botox) and facial filling (specifically with Hyaluronic acid [HA] gels) have grown in popularity tremendously with 2.6 and 1.2 million procedures performed, respectively. This emphasis on less invasive interventions has evolved from physician comfort with the procedures, what these modalities can accomplish (without surgery), and their high level of patient satisfaction (minimal downtime, few complications, and quick results). This study was aimed at objectively determining patient quality of life and self-esteem levels before and after treatment with Botox (to crow's feet, glabellar furrows, and horizontal forehead lines) and HA filler (to nasolabial fold) combined. It also attempted to identify pain levels associated with the use of HA filler with (Juvéderm) and without (Surgiderm) Lidocaine in the formula (both fillers 24 mg/ml). The dermatology life quality index (DLQI), a 10-question assessment tool, and the self-esteem scale by Rosenberg (EPM/Rosenberg) (see manuscript for details) were used to quantify these parameters. These tests were given at 3 points in time: pretreatment, within 3 months of treatment, and at 6 months after treatment. A randomized injection of Juvéderm and Surgiderm to opposite nasolabial folds was given to assess the impact of Lidocaine admixed in the HA gel on pain levels. Pain levels were assessed by patients on a 1 to 10 scale (0-no pain, 10-unbearable pain) on each side of the nasolabial fold.

The authors found that the administration of Botox and HA filler as described leads to an improvement in the quality of life and self-esteem reported by patients. Although this improvement is stronger in the first 3 months after treatment, at 6 months, it still remains better than pretreatment assessments. As expected, pain levels with injection of HA gel with admixed Lidocaine showed a statistically significant reduction in pain ($p < 0.001$), with average pain scores of 3.1 with Juvéderm and 6.7 with Surgiderm.

Message: Less invasive cosmetic interventions should be adapted to by all who are involved in aesthetic facial rejuvenation. They have their place in the appropriate patient, especially the patient who is not a candidate for or not ready for surgery. As is shown, in the trained practitioner's hands, they can be a useful tool to improve patient quality of life and self-esteem. Read the report to become familiar with the study assessment tools used (DLQI and EPM/Rosenberg) which can be reviewed in detail through citations in the reference section. The Figure 1 legend is mislabeled as treatment sites for Hyaluronic acid (actually it is Botox treatment sites).