Aesthetic Abstracts and Citations

Guy G. Massry, M.D.

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.

Mally P, Czyz CN, Chan NJ, Wulc AE. Vibration anesthesia for the reduction of pain with facial dermal filler injections. *Aesth Plast Surg*. Published online ahead of print January 24, 2014. DOI: 10.1007/s00266-013-0264-4

The injection of dermal fillers is now a commonly performed aesthetic intervention and the number procedures performed is growing annually. Injection pain is a consistent problem with the procedure and can be a deterrent to patient acceptance. Contemporary measures to reduce injection-associated pain and discomfort include cooling agents, topical anesthetics, and local nerve blocks. In this study, the authors evaluate the safety and efficacy of a topically applied vibrating device placed adjacent (within 1–2 cm) to the site of filler injection to reduce injection pain. The authors previously evaluated such technology for neuromodulator injections (Botox) with superior results and few complications. The mechanism behind the efficacy of vibration anesthesia is founded on Melzack and Wall's "gate control" theory of pain (Melzack R, Wall PD. Pain mechanisms: a new theory. *Science* 1965;150:971–79), which suggests that the intensity of a painful experience can be reduced by concurrent nonnoxious stimulation. In this instance, the vibratory stimulus activates mechanoreceptors in the skin, which secondarily stimulate nerve fibers that inhibit a "gate" controlling pain signals attempting to travel to the brain. Whether by gate theory or otherwise, there is published literature supporting vibratory stimulus as an effective local anesthetic (referred to in reference section of article). The authors enrolled 41 patients in this study for the injection of filler into 3 grouped sites: 1) nasolabial folds, 2) cheeks/tear trough, and 3) other (temples, superior palpebral sulcus, temporal brow, and submalar hollows). Seven patients had previously not undergone filler treatment. The fillers used included Restylane-L and Perlane-L (Medicis, Scottsdale, AZ, U.S.A.), Juvederm-XC Ultra and Juvederm-XC Ultra Plus (Allergan, Irvine, CA, U.S.A.), and Radiesse (Merz Aesthetics, San Mateo, CA, U.S.A.). All materials were manufactured with admixed preservative-free lidocaine, except Radiesse, to which lidocaine was added prior to injection. Vibration anesthesia was delivered with a small handheld, battery-operated device (PinPoint Personal Massager; Brookstone, Inc., Merrimack, NH, U.S.A.). The vibration was applied 1 to 2 cm from the needle entry site and administered 2 to 3 seconds prior to injection and until the needle was withdrawn. The study design was split faced as one side of the face was treated with adjunctive vibration and the opposite site without such stimulation. The side receiving vibration anesthesia alternated from patient to patient. Posttreatment patients responded to questions on a Likert-type scale regarding pain of injection (0, no pain; 1, mild pain; 2, moderate pain; 3, severe pain; or 4, worst pain I have ever felt). Patients were also questioned as to whether they would prefer vibration anesthesia with future dermal filler injections; and they were given the opportunity to report any postprocedural adverse effects. The salient findings of the report are that there was a statistically significant reduction in reported pain when vibration anesthesia was used. Ninety-seven percentage of patients reported such reduction at each anatomical site injected. Without vibration anesthesia, 88% of patients reported pain of injection as moderate to severe; while with adjunctive vibration anesthesia, this was reduced to 14%. In addition, 95% of patients stated that they would prefer to have vibration anesthesia with subsequent soft tissue injections. Finally, no complications of this technique were clinically noted or reported by patients.

Message: This is a concise and well-written report worth reading for those who desire alternative means of injection pain control when fillers are administered. The authors used needles rather than cannulas for injection. It would be interesting to note whether there was a difference in pain between these modalities. Also, there was no mention as to randomization of which side was injected first (with vibration or without vibration) rather than always doing one side first. This potentially can introduce bias.

Mizuno T. Subciliary augmentation of the lower eyelid in Asians using a deep temporal fascia graft: a preliminary report. *Aesth Plast Surg*. Published online ahead of print January 24, 2014. DOI: 10.1007/s00266-014-0275-9.

In the Asian population (mainly South Korea and Japan) pretarsal fullness, known as namidabukuro ("eyebags" in Japanese), has recently gained popularity because it is believed to be associated with good luck in Asian physiognomy; and it is also perceived as more attractive and youthful. This look can be accomplished with the injection of hyaluronic acid fillers, but the effect is temporary and can be associated with swelling and skin discoloration. There are little data in the literature on creating this effect surgically (orbicularis oculi muscle overlapping procedures have been described—Lewis JM. Augmentation blepharoplasty. *Ann Plast Surg* 1988;21:434–38). The author describes his experience with creating pretarsal fullness with an autologous deep temporalis fascia graft (DTFG) implanted subcutaneously in the lower eyelid. Through a post-hairline temporal incision, a DTFG is harvested in the standard way and the incision is closed with staples. A 1-cm lateral subciliary/canthal incision is made. The skin is undermined from the orbicularis to the lacrimal puncta where another small skin incision is made. The terminal lateral orbicularis is plicated to the orbital rim after which the DTFG is "rolled" in a tubular fashion and fed from lateral canthus to medial canthus with a mosquito clamp. The skin is then closed with suture. From 2009 to 2011, 7 women underwent this procedure of which 4 were followed for >1 year and were included in the report. Results were evaluated with morphometric measurements analyzed from pre- and postoperative digital photographs with the patient holding a ruler in hand. Two variables were assessed, the projection (anterior/posterior) and width (superior/inferior) of pretarsal fullness. There is an excellent artists drawing demonstrating this in the article. In the

From the Ophthalmic Plastic and Reconstructive Surgery, The Facial Paralysis Institute, Beverly Hills, California, U.S.A.

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Address correspondence and reprint requests to Guy G. Massry, M.D., Ophthalmic Plastic and Reconstructive Surgery, , 150 N. Robertson Blvd. 314, Beverly Hills, CA 90211. E-mail: gmassry@drmassry.com

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4 patients presented, the pretarsal fullness projection and width of the lower eyelid increased after surgery from 0.4 to 1.5 mm and from 4.9 to 7.0 mm, respectively. In each case, surgery was uneventful and without complication.

Message: Traditionally, eyelid surgeons have focused their attention primarily on double-eyelid blepharoplasty and epicanthoplasty in Asian patients. Namidabukuro or pretarsal fullness is a contemporary part of Asian culture as found by this reviewer when searching the topic on the Internet. For those who want to know more about pretarsal fullness, a reference is included that describes it in the Chinese population in greater detail (Chen MC, Ma H, Liao WC. Anthropometry of pretarsal fullness and eyelids in Oriental women. *Aesthetic Plast Surg* 2013;37:617–624). The authors present the surgical technique with nice diagrams, but the morphometric analysis seems crude at best. The authors omit patient quantitative assessment of outcome which they say was evaluated (no mention as to how) but was not presented. There is also no mention as to whether the graft was suture fixed (medially or laterally) or allowed to stabilize with secondary intent healing. It seems that with subcutaneous placement of the graft the potential for contour irregularities, skin adhesions or late-onset deformity could occur. This was not seen in these 4 patients whose follow up was noted to be >1 year.

Fang YH, Liao WC, Ma H. Infraeyebrow blepharoplasty incorporated browpexy in an Asian population. *Ann Plast Surg* 2013;71:S20–4.

Infraeyebrow blepharoplasty was described first in 1976 (Parkes ML. Infrabrow lift. *Laryngoscope* 1976;86:1869–72) as a variant of standard blepharoplasty to reduce excess upper eyelid skin in Caucasian patients. More recently, it is has also been reported in Asian patients. Documented complications with the technique have included wound dehiscence, hypertrophic scarring, asymmetric brows and/or supratarsal folds, trauma to the supraorbital neurovascular bundle, and lagophthalmos. For these reasons, the procedure has not gained favor over standard blepharoplasty. The authors review their experience with infraeyebrow blepharoplasty and adjunctive browpexy in a group of Taiwanese women. They emphasize the shortcomings of traditional blepharoplasty which include: 1) a lengthy incision with a potentially conspicuous scar, 2) a mismatch of the thicker eyebrow skin and the thinner eyelid skin with a traditional crease incision, 3) lengthier healing, and 4) the possibility to lower the temporal brow when addressing lateral hooding. By adding the browpexy to this blepharoplasty variant, the authors believe they can better maintain brow position after surgery, thus preserving eyelid and eyebrow proportions. In addition, they avoid standard crease incisions, which can lead to the complications mentioned above. The procedure involves an infraeyebrow incision (at the level of the cilia) that begins at the medial brow and terminates 1 cm lateral to the tail of the brow. The lower arm of the ellipse of tissue excision is then marked beginning medially and widening laterally to a maximum width of 8 to 15 mm. The skin is removed, and graded amounts of orbicularis muscle and brow fat are excised as appropriate. A standard internal browpexy is performed to stabilize or minimally elevate the brow. The wound is closed in layers. Forty women (80 eyelids) are included with an average age of 59.5 years and follow up of 24 months. The average skin excision was 12.3 mm with a mean operative time of 50 minutes. All patients were satisfied with their results, scars were inconspicuous at 6 months, and there were no significant complications (i.e., asymmetry and sensory disturbances). Four patients are photographically depicted before and after surgery. The authors measured A) pre- and postoperative mid eyebrow to pupil distance, and B) pre- and postoperative mid eyebrow to crease distance. The ratio of A to B was referred to as the eyebrow to eye ratio. The ratio was calculated and compared before and after surgery. On average, it increased from 1.46 to 1.67 after surgery. Clinically, this means that brow height descended relatively less than cease height elevated after surgery. Stated otherwise, there was skin reduction in excess of induced brow descent. The authors believe this leads to more natural and proportioned appearance. The authors also note that most Taiwanese woman routinely tattoo their brows because they believe that the eyebrows they were born with are not in their desired positions and the shape may not be attractive. Standard blepharoplasty can lower the tattooed brow, making its appearance even less appealing. With infraeyebrow blepharoplasty, the incision may be masked and the potential postoperative scar less obvious because of the preoperative tattoo.

Message: The surgical results depicted in this report are good. However, the patient photographs have blacked out eyes covering the eyelid margin and upper eyelid crease, making it hard to assess the improved postoperative eyebrow/eyelid proportions. It makes sense that this form of blepharoplasty may maintain brow height when compared with standard surgery, and the measurements presented suggest this. This can only be proven, however, with a comparative study to traditional blepharoplasty. Also, while no complications were noted in this study, it is questionable whether an infraeyebrow scar would be better tolerated than a similar complication in the hidden eyelid crease. While there may be a place for this surgery in the tattooed eyelids of Taiwanese patients, with a tendency toward postoperative brow ptosis, who refuse formal brow lift, it is hard to value the overall usefulness of the procedure until further studies are performed. That being said, the authors should be commended for their results, lack complications, and willingness to think "out-of-the-box."

Luebberding S, Krueger N, Kerscher M. Quantification of age-related facial wrinkles in men and women using a three-dimensional fringe projection method and validated assessment scales. *Dermatol Surg* 2014;40:22–32.

While it is known that both genetic predisposition and environmental insults play a critical role in the development of facial wrinkles, little information is available concerning the clinical onset and lifetime development of these changes. In this report, the authors present what they state is first systematic assessment of the lifetime development of facial wrinkles. Two hundred participants are evaluated (150 men and 50 women) for the presence of facial wrinkles in 3 distinct areas: 1) the smile lines (crow's feet), 2) the glabellar complex, and 3) the forehead. The rhytids were evaluated according to age. The patients were subdivided into 5 groups (I–V) based on 9-year increments (starting with group I ages 20–29, etc.). There were an equal number of participants in each group (30 men and 10 women). Rhytids were assessed in 2 ways. Clinically (subjectively), they were analyzed with a 5-point photonumeric validated assessment scale. This was performed with photographs (mediscope; FotoFinder Systems GmbH) at 0° and 45° with and without expression. "These grading scales currently represent one of the most precise, standardized, and validated rating scales for facial rhytids and are well established in aesthetic medicine." A quantitative (objective) measure of wrinkling was determined with a 3-dimensional (3D) fringe projection method (PRIMOS^{premium};

GFMesstechnik GmbH, Berlin, Germany), one of the most up-to-date methods for the evaluation of skin topography in real time. In essence, a digital striped pattern is projected on the skin. "By analysis of the distortions of the striped pattern, it is possible to reconstruct the 3D structure of the skin precisely in an objective and reproducible manner."

There is a wealth of data presented within the report, which the authors summarize as follows:

1. The clinical appearance of wrinkles on the face increases chronologically with age in both men and women. On average, wrinkles first manifest at the forehead (first in men), then at the crow's feet (increasing in equal increments with age), followed by wrinkles at the glabellar area (beginning at 40 years of age with significant increase in 1 decade). By 50 years of age, men and women usually have wrinkles in all 3 areas, although large deviations between locations, even in similar age groups, are observed, most likely due to the individual mimic expression.
2. Regarding sex-specific differences, it can be concluded that facial wrinkles affect men significantly earlier and more strongly than women. The influence of menopause on skin surface changes cannot be finally clarified, although it can be assumed that being postmenopausal may accelerate the development of facial wrinkles.

Message: This article was included because in contemporary oculoplastic and aesthetic practices in general, fillers, neuromodulators, and nonablative lasers are commonly used to treat facial rhytids. For this reason, having basic knowledge of the genesis and clinical progression of periorbital rhytids, which is of primary interest to our readership, is valuable. Only the general findings of the study are presented here. The article is worth reading in its entirety for those interested in a more detailed overview of relevant and more specific findings.

Lee H, Shin H, Park M, Baek S. Comparison of surgical techniques and results of upper blepharoplasty between Asian males and females. *Ann Plast Surg* 2013;70:6–9.

There are clear differences in the eyebrow/eyelid aesthetic unit between men and women. These differences should be accounted for when performing upper blepharoplasty as to maintain a natural and gender appropriate appearance after surgery. Men have deeper forehead rhytids, lower and falter brows, and fuller upper eyelids. Women generally have fewer forehead rhytids, higher and laterally arched brows, and less fullness to their upper sulci. While not an immediate adjacent eyelid finding, forehead rhytids are included as they may be a compensatory response to the fuller/heavier eyelids of men. In this study, the authors identify surgical pearls that they believe lead to successful and sex appropriate outcomes in upper blepharoplasty in an Asian patient population. The authors retrospectively evaluated upper blepharoplasty results in 78 Korean patients (28 men and 50 women). All surgeries were performed over a 3-month period in 2008. The mean patient age was 59.6 years (men) and 62 years (women) with a mean follow up of 2.4 months. The authors studied 3 parameters intraoperatively and suggested how these factors affect overall outcome. These parameters included 1) eyelid crease height, 2) skin-muscle excision amount, and 3) whether or not fat was removed. Also analyzed was the postoperative distance from the lower eyebrow margin to the eyelid crease in primary gaze at 2 months after surgery. This was assessed by a blinded observer (author Lee H), with 5-mm size tape on the patient's forehead and the NIH Image J program. Important surgical points stressed by the authors are that 1) the eyelid crease should be low in both sexes (5–7 mm from eyelid margin), 2) the skin ellipse excision design should be greatest laterally (scalpel shaped) and tapered upward, 3) the lateral orbicularis muscle should be preserved in men (for fullness) and excised in women (less full eyelids and arches brows by excising depressors), and 4) fat removal should be conservative in men to avoid feminization. Objective findings included an average crease height of 5.5 mm in men and 5.7 mm in women. The amount of skin-muscle excision was 7.1 mm in men and 9.3 mm in women, which was found to be statistically significant. Fat removal was performed in 52% of women and 25% of men (also statistically significant). Finally, the measured inferior brow-to-crease distance postoperatively was relatively equal in both sexes (11.53 mm women, 11.46 mm men).

Message: This reviewer reads Asian blepharoplasty studies with interest as it can be challenging to understand, assess, and perform surgery in a way that meets ethnic desires and avoids true, or the perception of, poor outcomes. The conclusions drawn by the authors in this report mostly substantiate results of previous studies. The main study concern is the short mean follow up. In addition, there a few areas of confusion for the reader. First, the suggestion that excising lateral preseptal orbicularis in women can lead to brow arching by increasing the advantage of the less-opposed frontalis muscle may be a weak statement as it is principally the orbital orbicularis that depress the lateral brow. Also, the authors stress fat excision should be performed in all Asian blepharoplasty patients as anatomically they are predisposed to more fullness. This is contrary to other schools of thought, which suggest that maintaining eyelid fat avoids ethnic changes in appearance (i.e., westernization). In this report, fat was excised in 25% of men and 52% of women which is in contradiction with this statement. Finally, diagrammatically the authors measure the brow eyelid fold distance, not the true crease distance. This was probably just an oversight in explanation.

Erratum

Outcomes of Endonasal Dacryocystorhinostomy without Mucosal Flap Preservation: ERRATUM

Due to an inadvertent omission, the links to two supplemental videos were not included. Those links are:
http://links.lww.com/IOP/A90
http://links.lww.com/IOP/A91

REFERENCE

Hodgson N, Bratton E, Whipple K, et al. Outcomes of Endonasal Dacryocystorhinostomy without Mucosal Flap Preservation. *Ophthal Plast Reconstr Surg*. 2014;30:24–27.

