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Literature Review

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The Facial Aging Process From the “Inside Out”

Arthur Swift, MD, Steven Liew, MD, Susan Weinkle, MD, Julie K Garcia, PhD, Michael B Silberberg, MD, MBA

Abstract

The normal course of aging alters the harmonious, symmetrical, and balanced facial features found in youth, not only impacting physical attractiveness but also influencing self-esteem and causing miscommunication of affect based on facial miscues. With this evidence-based paper, the authors aim to provide a comprehensive overview of the latest research on the etiology and progression of facial aging by explaining the aging process from the “inside out,” that is, from the bony platform to the skin envelope. A general overview of the changes occurring within each of the main layers of the facial anatomy is presented, including facial skeleton remodeling, fat pad atrophy or repositioning, changes in muscle tone and thickness, and weakening and thinning of the skin. This is followed by an in-depth analysis of specific aging regions by facial thirds (upper, middle, and lower thirds). This review may help aesthetic physicians in the interpretation of the aging process and in prioritizing and rationalizing treatment decisions to establish harmonious facial balance in younger patients or to restore balance lost with age in older patients.

Clinical Evaluation of the Safety and Efficacy of a 1060-nm Diode Laser for Non-Invasive Fat Reduction of the Abdomen

Mikaela Kislevitz, MD, BSN, RN, Christine Wamsley, BA, Alison Kang, MD, Suzanne Kilmer, MD, John Hoopman, CMLSO, Jennifer Barillas, BS, Jeffrey M Kenkel, MD

Abstract

Background

Despite the proven efficacy of liposuction, there is a population of patients who prefer non-surgical alternatives. Laser hyperthermia-induced lipolysis has emerged as one non-invasive alternative to liposuction.

Objectives

The authors sought to evaluate the safety and efficacy of a 1060-nm (± 10 nm) diode laser for non-invasive fat reduction of the abdomen.

Methods

This single-arm, 2-center study enrolled 30 patients. Patients received a 25-minute 1060-nm diode laser treatment on their abdomen. Ultrasound adipose measurements, body weight, and circumference were taken at baseline and at 6- and 12-week follow-up visits. Blinded evaluators identified “before” and “after” photos of each patient. A patient satisfaction questionnaire was completed by each patient at study exit.

Results

A total 29 patients completed all treatment and follow-up visits. Ultrasound images showed an adipose reduction of 8.55% at 12 weeks post-treatment ($P < 0.0001$). Blinded evaluators correctly identified 67% of the pre- and post-treatment images at site 01 (Sacramento, CA) and 56% at site 02 (Dallas, TX). Satisfaction was high, with 72% of patients reporting being either “satisfied” or “very satisfied” with their results on a 5-point Likert scale. Pain was rated as mild by 62% of patients, moderate by 38%, and severe by none on the Wong-Baker Scale.

Conclusions

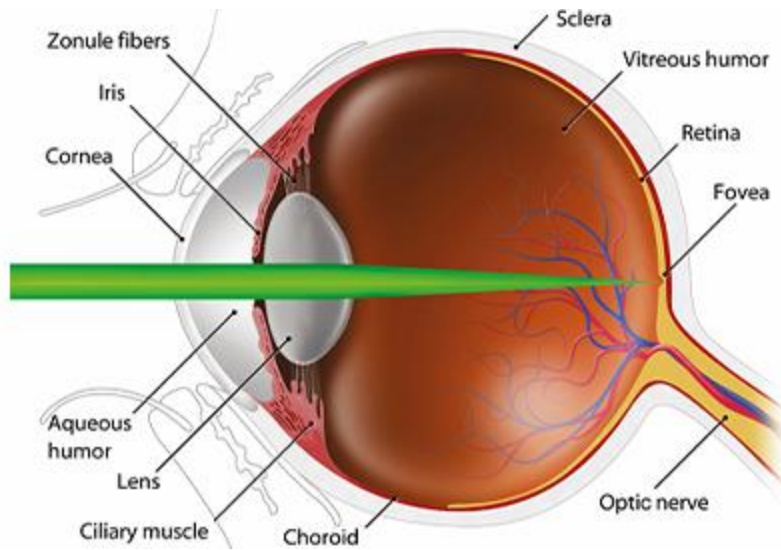
These results indicate that a single treatment with a 1060-nm (± 10 nm) diode laser, per the treatment protocol, is safe and effective in reducing unwanted fat in the abdomen as objectively measured employing ultrasound. The treatment was well-tolerated among all patients, with minimal discomfort reported and high patient satisfaction.

Safety Guidelines Concerning the Use of Protective Eyewear and Gauze During Laser Procedures

[Christine E Wamsley, BA](#), [John Hoopman, CMLSO](#), [Jeffrey M Kenkel, MD](#)

Abstract

The advancement of laser technology has seen its use gain popularity across a wide range of specialties to treat diseases, as well as address aesthetic concerns. In order to protect both the patient and the healthcare personnel providing treatment, instruction and knowledge of laser safety remain of utmost importance. In this paper, we discuss the classification of laser systems, review ocular injuries that may be caused by inappropriate laser exposure, and provide background on laser protective eyewear. In addition, we highlight the current recommendations for proper eyewear during laser use outlined in the American National Standards Institute standard Z136.3, Safe Use of Lasers in Health Care. Finally, although it is common in some healthcare facilities to place gauze under external eye shields or use gauze alone over eyes during laser procedures, this practice poses an extreme risk to both patients and healthcare personnel. Therefore, we discuss why the use of gauze under eyewear for any laser procedures is not recommended, and instead, offer suggestions to consider when acquiring safe and comfortable patient eyewear.



Ultrasonography Analysis of Vessels Around the Forehead Midline

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Abstract

Background

Filler injection into the glabella is well known to be a highly dangerous procedure due to the high risk of embolism and intravascular injection. Although it is conventional practice to insert the cannula into the middle of the forehead to perform injections into the glabella or radix, vascular structures can be observed in this region during anatomic dissection procedures.

Objectives

The aim of this study was to characterize the blood vessels around the forehead midline in order to provide crucial anatomic information for ensuring the safety of noninvasive procedures involving the forehead and glabella.

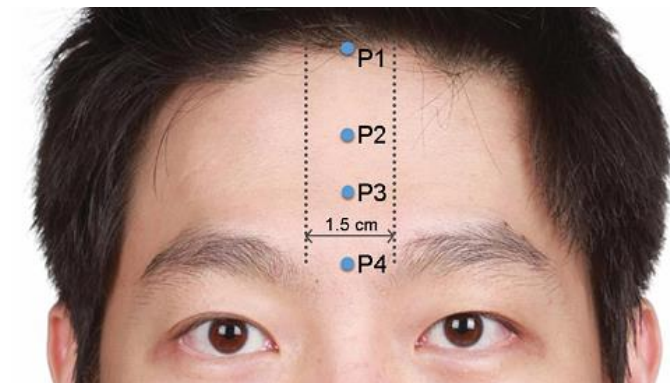
Methods

Ultrasonography image scanning was performed at the following 4 points on the forehead midline: trichion (P1), metopion (P2), halfway point between metopion and glabella (P3), and

glabella (P4). The courses and locations of vessels were identified and classified according to their proximity to the forehead midline.

Results

Vessels coursing within 0.75 cm either side of the forehead midline were found in 34% to 50% of individuals. Arteries running near the forehead midline tended to be dominant on the right side of the forehead except in the P4 area. About half of the individuals had vessels in the P4 area, of which 96.7% were veins.



Conclusions

The present results indicate that there are superficial vessels running close to the midline of the forehead. This anatomic information can explain the higher incidence of vascular complications during conventional aesthetic procedures. To ensure safety, the cannula entry point or needle puncture point for glabella augmentation should be reconsidered.

Social Perception of Facial Feminization Surgery Outcomes: Does Gender Identity Alter Gaze?

Shanique A Martin, MD, Shane D Morrison, MD, MS, Viren Patel, BS, Fermín Capitán-Cañadas, PhD, Anabel Sánchez-García, PhD, Marina Rodríguez-Conesa, MS, Raúl J Bellinga, MD, FEBOMS, Daniel Simon, DMD, Luis Capitán, MD, PhD, Thomas Satterwhite, MD et al

Abstract

Background

The evaluation of gender-affirming facial feminization surgery (FFS) outcomes can be highly subjective, which has resulted in a limited understanding of the social perception of favorable gender and aesthetic facial appearance following FFS. Eye-tracking technology has introduced an objective measure of viewer subconscious gaze.

Objectives

The aim of this study was to use eye-tracking technology to measure attention and perception of surgery-naïve cisgender female and feminized transgender faces, based on viewer gender identity.

Methods

Thirty-two participants (18 cisgender and 14 transgender) were enrolled and shown 5 photographs each of surgery-naïve cisgender female and feminized transgender faces. Gaze was captured with a Tobii Pro X2-60 eye-tracking device (Tobii, Stockholm, Sweden) and participants rated the gender and aesthetic appearance of each face on Likert-type scales.

Results

Total image gaze fixation time did not differ by participant gender identity (6.00 vs 6.04 seconds, $P = 0.889$); however, transgender participants spent more time evaluating the forehead/brow, buccal/mandibular regions, and chin ($P < 0.001$). Multivariate regression

analysis showed significant associations between viewer gender identity, age, race, and education, and the time spent evaluating gender salient facial features. Feminized faces were rated as more masculine with poorer aesthetic appearance than surgery-naive cisgender female faces; however, there was no significant difference in the distribution of gender appearance ratings assigned to each photograph by cisgender and transgender participants.



Conclusions

These results demonstrate that gender identity influences subconscious attention and gaze on female faces. Nevertheless, differences in gaze distribution did not correspond to subjective rated gender appearance for either surgery-naive cisgender female or feminized transgender faces, further illustrating the complexity of evaluating social perception of favorable FFS outcomes.

Changing Mandible Contour Using Computer Designed/Computer Manufactured Alloplastic Implants

[David M Straughan, MD](#), [Michael J Yaremchuk, MD](#)

Abstract

Background

The shape of the mandible is the fundamental determinant of the appearance and sexual dimorphism of the lower one-third of the face. Utilization of computer-aided design/computer-aided manufactured (CAD/CAM) alloplastic implants provides unparalleled planning and sophistication in the correction of skeletal deficiencies, irregularities, and asymmetry.

Objectives

This study presented the rationale, indications, techniques, and results of the senior author's (M.J.Y.) 15-year experience employing CAD/CAM alloplastic implants to correct deficiencies and asymmetries of the mandible.

Methods

A retrospective review of a prospectively maintained database was reviewed of all patients who underwent aesthetic augmentation of the mandible employing CAD/CAM alloplastic implants by the senior author.

Results

Over a 15-year period, 123 patients underwent mandibular augmentation utilizing CAD/CAM alloplastic implants. The majority of patients were men (76.4%) with an average age of 31 years (range, 24-63 years). All implants were bilateral. Complications included infection requiring implant removal (2.4%) and patient dissatisfaction resulting in either implant revision (4.1%) or implant removal (2.4%).

Conclusions

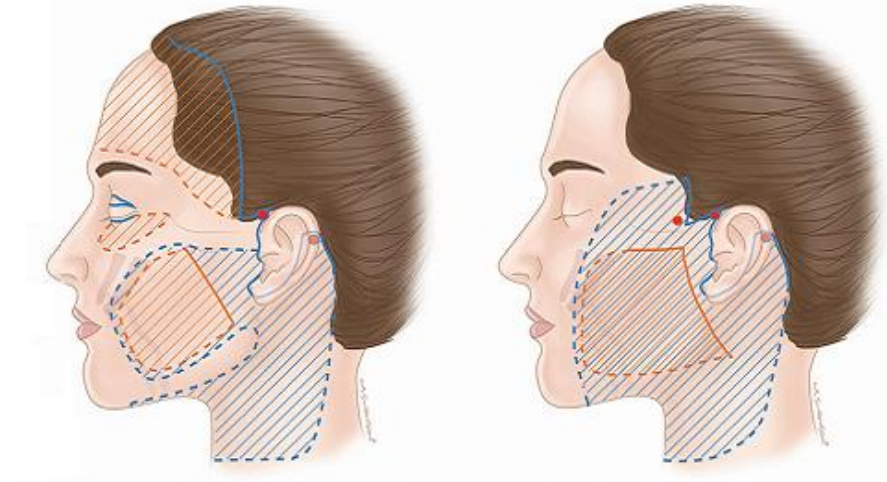
As described here, CAD/CAM alloplastic implants are an effective modality to augment aesthetic mandible contour deficiencies.

Facelift Part II: Surgical Techniques and Complications

Ahmed M Hashem, MD, Rafael A Couto, MD, Chris Surek, DO, Marco Swanson, MD, James E Zins, MD, FACS

Abstract

Although previous publications have reviewed face and necklift anatomy and technique from different perspectives, seldom were the most relevant anatomical details and widely practiced techniques comprehensively summarized in a single work. As a result, the beginner is left with a plethora of varied publications that require sorting, rearrangement, and critical reading. A recent survey of US plastic surgery residents and program directors disclosed less facility with facelift surgery compared with aesthetic surgery of the breast and trunk. To this end, 4 of the widely practiced facelift techniques (ie, minimal access cranial suspension-lift, lateral-SMASectomy, extended-SMAS, and composite rhytidectomy) are described in an easy review format. The highlights of each are formatted followed by a summary of complications. Finally, the merits and limitations of these individual techniques are thoroughly compared and discussed.



The Effect of Lipoaspirate Processing Technique on Complications in Autologous Fat Grafting for Breast Reconstruction: A Propensity Score Analysis Study

[Malke Assad, MD](#), [Skyler M Howell, BS](#), [Jun Liu, PhD](#), [Gregory P Reece, MD](#), [Edward I Chang, MD](#), [Patrick B Garvey, MD](#), [Charles E Butler, MD](#), [Summer E Hanson, MD, PhD, FACS](#)

Abstract

Background

The use of autologous fat grafting (AFG) is becoming increasingly common as an adjunct to breast reconstruction. However, there is a paucity of data comparing the varying processing devices.

Objectives

The goal of this study was to compare the outcomes of 2 commercially available AFG processing devices.

Methods

A retrospective review was conducted of patients who underwent AFG with dual-filter (Puregraft) or single-filter (Revolve) processing systems between 2016 and 2019. Propensity score matching was utilized to adjust for confounding. A total of 38 breasts from the Puregraft group were matched with 38 breasts from the Revolve group.

Results

Matching was successful in achieving a similar distribution of baseline characteristics between the 2 groups. The mean number of AFG sessions was comparable between the 2 groups ($P = 0.37$) with a similar median total volume (Puregraft, 159 mL vs Revolve, 130 mL; $P = 0.23$).

Complication rates were similar between the 2 devices (Puregraft, 26%; Revolve, 18%; $P = 0.47$). Patients with at least 1 complication had higher overall AFG volume (median, 200 mL vs 130 mL; $P = 0.03$) and number of sessions (mean, 2.4 vs 1.8, $P = 0.009$) compared with those without any postoperative complication.

Conclusions

Overall complication rates were comparable between 2 commonly used, commercially available AFG processing systems, and therefore the choice of which to use should be based on surgeon preference. Future studies are underway to decipher whether either system offers superior graft retention, cosmetic, or patient-reported outcomes.