

Oculofacial Plastic Surgery 2021

Face Forward

Program Directors

Catherine J Hwang MD and Thomas E Johnson MD

In conjunction with the American Society of Ophthalmic Plastic and Reconstructive Surgery

Ernest N Morial Convention Center
New Orleans, Louisiana
Saturday, Nov. 13, 2021

Presented by:
The American Academy of Ophthalmology

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OF OPHTHALMOLOGY®
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2021 Oculofacial Plastic Surgery Planning Group

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2021 Oculofacial Plastic Surgery Subspecialty Day Planning Group

On behalf of the American Academy of Ophthalmology and the American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS), it is our pleasure to welcome you to New Orleans and Oculofacial Plastic Surgery 2021: Face Forward.



Catherine J Hwang MD
Program Director

None



Thomas E Johnson MD
Program Director

None

2021 Subspecialty Day Advisory Committee

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CME Credit

The Academy's CME Mission Statement

The purpose of the American Academy of Ophthalmology's Continuing Medical Education (CME) program is to present ophthalmologists with the highest quality lifelong learning opportunities that promote improvement and change in physician practices, performance, or competence, thus enabling such physicians to maintain or improve the competence and professional performance needed to provide the best possible eye care for their patients.

2021 Oculofacial Plastic Surgery Subspecialty Day Meeting Learning Objectives

Upon completion of this activity, participants should be able to:

- Identify modern, evidence-based algorithms in oculofacial plastic surgery disease treatment and determine how to effectively apply them
- Introduce into practice the contemporary management of congenital eyelid and orbital disease, orbital inflammatory disease, eyelid and orbital oncology, and orbital trauma
- Evaluate complex orbital and oculoplastics cases to understand treatment outcomes
- Gain familiarity with the practice patterns of experienced oculofacial practitioners and understand differences in preferred practice patterns

2021 Oculofacial Plastic Surgery Subspecialty Day Meeting Target Audience

The intended audience for this program is practicing oculofacial surgeons and comprehensive ophthalmologists from around the world with an interest in oculofacial surgery.

Teaching at a Live Activity

Teaching instruction courses or delivering a scientific paper or poster is not an *AMA PRA Category 1 Credit™* activity and should not be included when calculating your total *AMA PRA Category 1 Credits™*. Presenters may claim *AMA PRA Category 1 Credits™* through the American Medical Association. To obtain an application form, please contact the AMA at www.ama-assn.org.

Scientific Integrity and Disclosure of Conflicts of Interest

The American Academy of Ophthalmology is committed to ensuring that all continuing medical education (CME) information is based on the application of research findings and the implementation of evidence-based medicine. It seeks to promote balance, objectivity, and absence of commercial bias in its content. All persons in a position to control the content of this activity must disclose any and all financial interests. The

Academy has mechanisms in place to resolve all conflicts of interest prior to an educational activity being delivered to the learners.

Control of Content

The American Academy of Ophthalmology considers presenting authors, not coauthors, to be in control of the educational content. It is Academy policy and traditional scientific publishing and professional courtesy to acknowledge all people contributing to the research, regardless of CME control of the live presentation of that content. This acknowledgement is made in a similar way in other Academy CME activities. Though coauthors are acknowledged, they do not have control of the CME content, and their disclosures are not published or resolved.

2021 Oculofacial Plastic Surgery Subspecialty Day CME Credit

The American Academy of Ophthalmology is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide CME for physicians.

Friday Subspecialty Day Activity: Glaucoma, Neuro-Ophthalmology, Pediatric Ophthalmology, Refractive Surgery, and Retina (Day 1)

The Academy designates this Other (blended live and enduring material) activity for a maximum of *12 AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Saturday Subspecialty Day Activity: Cornea, Oculofacial Plastic Surgery, and Retina (Day 2)

The Academy designates this Other (blended live and enduring material) activity for a maximum of *12 AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Physicians registered as In Person and Virtual are eligible to claim the above CME credit.

How to Claim CME

Attendees can [claim credits online](#).

For AAO 2021, you can claim CME credit multiple times, up to the 50-credit maximum, through Aug. 1, 2022. You can claim some in 2021 and some in 2022, or all in the same year.

For 2021 Subspecialty Day, you can claim CME credit multiple times, up to the 12-credit maximum per day, through Aug. 1, 2022. You can claim some in 2021 and some in 2022, or all in the same year.

You do not need to track which sessions you attend, just the total number of hours you spend in sessions for each claim.

Academy Members

CME transcripts that include AAOE Half-Day Coding Sessions, Subspecialty Day and/or AAO 2021 credits will be available to Academy members through the Academy's [CME Central web page](#).

The Academy transcript cannot list individual course attendance. It will list only the overall credits claimed for educational activities at AAOE Half-Day Coding Sessions, Subspecialty Day and/or AAO 2021.

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The Academy provides nonmembers with verification of credits earned and reported for a single Academy-sponsored CME activity.

Proof of Attendance

You will be able to obtain a CME credit reporting/ proof-of-attendance letter for reimbursement or hospital privileges, or for nonmembers who need it to report CME credit:

Academy Members

When you claim CME credits and complete the evaluation, you will be able to print a certificate/proof of attendance letter from your transcript page. Your certificate will also be emailed to you.

Nonmembers

When you claim CME credits and complete the evaluation, a new browser window will open with a PDF of your certificate. Please disable your pop-up blocker. Your certificate will also be emailed to you.

CME Questions

Send your questions about CME credit reporting to cme@ao.org.

For Continuing Certification questions, contact the American Board of Ophthalmology at MOC@abpo.org.

Faculty



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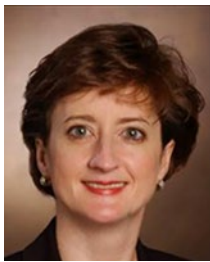
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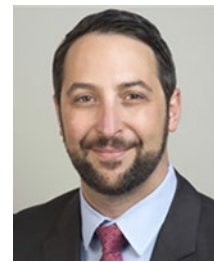
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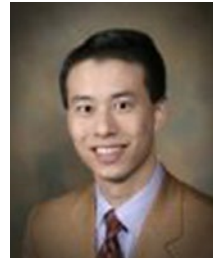
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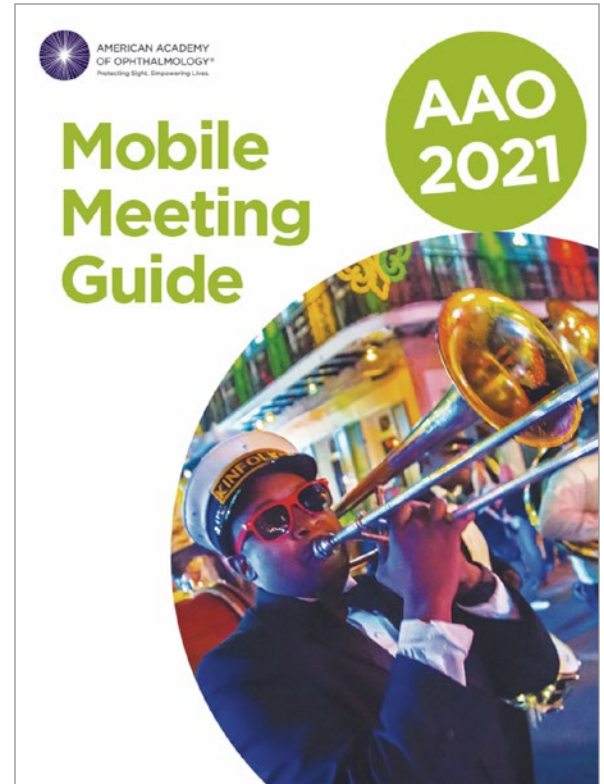


Michael T Yen MD
Houston, TX

Ask a Question Live During the Meeting Using the Mobile Meeting Guide

To submit an answer to a poll or ask the moderator a question during the meeting, follow the directions below.

- Access at www.aao.org/mobile
- Select “Program,” “Handouts & Evals”
- Filter by Meeting: Oculofacial Plastic Surgery Meeting
- Select “Current Session”
- Select “Interact with this session (live)” to open a new window
- Choose “Ask a Question”



Oculofacial Plastic Surgery 2021: Face Forward

In conjunction with the American Society of Ophthalmic Plastic and Reconstructive Surgery

SATURDAY, NOV. 13, 2021

7:00 AM	CONTINENTAL BREAKFAST		
8:00 AM	Welcome and Introductions	Catherine J Hwang MD Thomas Edward Johnson MD	

Section I: Face Forward—Practice Perfect

Moderator: Catherine J Hwang MD

Virtual Moderator: Cat Burkat MD FACS

8:05 AM	Building Social Media Presence	Andrea A Tooley MD	1
8:17 AM	Skin Care in Your Practice	Tanuj Nakra MD*	2
8:32 AM	Practical Lasers for Your Practice	Julie A Woodward MD*	3
8:44 AM	Physician Extenders in My Practice		
8:50 AM	Q&A/Discussion		

Section II: Surgical Videos and Pearls

Moderator: Wendy W Lee MD*

Virtual Moderator: Cat Burkat MD FACS

9:05 AM	Asian Blepharoplasty Complications	Kyung In Woo MD	4
9:15 AM	Managing Festoons	Julian D Perry MD	5
9:25 AM	Nuances in Brow Lifting	Evan H Black MD	6
9:35 AM	Q&A/Discussion		
9:50 AM	In These Unprecedented Times . . .	John Bryan Holds MD*	8
9:55 AM	REFRESHMENT BREAK and AAO 2021 EXHIBITS		

Section III: Filler Up—Injectables

Moderator: Angelo Tsirbas MBBS

Virtual Moderator: Cat Burkat MD FACS

10:25 AM	Advanced Periorbital Rejuvenation	Jose R Montes MD*	10
10:37 AM	Expert Lower Face and Neck Injectables	John Joseph Martin MD*	11
10:49 AM	Lip Service: Lip Injectables	Andrea N Kossler MD*	12
11:01 AM	One-Minute Neurotoxin Secret		
11:05 AM	Q&A/Discussion		
11:20 AM	Cosmetic Cases: What Would You Do?	Panel Moderator: Catherine J Hwang MD	
11:40 AM	LUNCH and AAO 2021 EXHIBITS		

* Indicates that the presenter has financial interest. No asterisk indicates that the presenter has no financial interest.

Section IV: Eyes Wide Open—Updates in Thyroid Eye Disease

Moderator: M Reza Vagefi MD*

Virtual Moderator: Vikram D Durairaj MD*

1:00 PM	Managing the Active Thyroid Eye Disease Patient	Michael Kazim MD	14
1:10 PM	How Teprotumumab Fits Into My Practice	Suzanne K Freitag MD*	15
1:20 PM	Surgery for the Inactive Thyroid Eye Disease Patient	Louise A Mawn MD*	16
1:30 PM	Thyroid Eye Disease Cases: What Would You Do?		
1:40 PM	Q&A/Discussion		

Section V: Orbiting

Moderator: Daniel B Rootman MD*

Virtual Moderator: Vikram D Durairaj MD*

1:55 PM	What's New in Orbital and Adnexal Cancers?	Bitia Esmaeli MD FACS	17
2:07 PM	New Instrumentation in Orbital Surgery	Edward J Wladis MD*	18
2:17 PM	Custom 3-D Implants: Tips for Getting Started	Nicholas R Mahoney MD*	19
2:27 PM	Q&A/Discussion		
2:42 PM	REFRESHMENT BREAK and AAO 2021 EXHIBIT		

Section VI: Trending

Moderator: Cat Burkat MD FACS

Virtual Moderator: Vikram D Durairaj MD*

3:12 PM	Orbital Approach to Managing the Neurotrophic Cornea	Michael T Yen MD	22
3:24 PM	Corneal Neurotization: Breaking the Barriers	Alon Kahana MD PhD*	23
3:36 PM	Managing the Lower Lid in Facial Nerve Palsy	Elizabeth A Bradley MD	24
3:46 PM	Management of Synkinesis With Toxins	Mark J Lucarelli MD FACS	25
3:52 PM	Q&A/Discussion		

Section VII: OMIC Risk Management

Moderator: Catherine J Hwang MD

Virtual Moderator: Vikram D Durairaj MD*

4:07 PM	PPP: Pandemonium in the Practice of Plastics	Robert G Fante MD FACS* Linda D Harrison PhD	27
4:22 PM	Q&A/Discussion		
4:47 PM	Closing Remarks	Catherine J Hwang MD Thomas Edward Johnson MD	

Building Social Media Presence

Andrea A Tooley MD

I. Introduction

Social media is ubiquitous in today's culture, and more and more physicians are building their presence on social media platforms to educate, market, and network. In this presentation, we will discuss strategies for building social media presence, connecting with your audience, and forming lasting social media accounts to meet individual goals.

II. Find Your "Why"

Step 1 is understanding your individual motivation and "why" for developing a social media presence. Creating a mission statement will help direct your purpose and goals for posting.

III. Platforms

We will briefly touch on a variety of platforms and how to use them to meet your individual goals and purpose online.

A. Twitter

1. Best for networking within ophthalmology
2. Good for industry relationships and for mentorship

B. Facebook

1. Best for marketing your practice
2. Always post an image or video. Keep videos to around 1 minute.

C. Instagram

1. Best for marketing your practice to younger generation
2. Great for mentorship and brand building
3. Most multifunctional, with video, photos, live streams, stories

D. TikTok

1. Fastest growing platform
2. Great for engaging younger audiences
3. Opportunities to "go viral"
4. Untapped space for surgical videos

E. YouTube

1. Still the best platform for surgical videos
2. Great for patient education and teaching in general
3. Videos around 5 minutes do best but okay for longer as well

IV. Develop Content for Your Goals

A. Begin to develop content, depending on your platform of choice.

B. Text/tweets/FB posts

1. Include hashtags, take advantage of trending hashtags, tag friends and colleagues or other accounts who might share.
2. Photos: A cohesive color scheme on Instagram is labor intensive but can be worth it to create an attractive aesthetic. Use purchased presets to edit photos or use apps like Lightroom, Darkroom, and VSCO.
3. Video: Keep under 1 minute for Instagram and Facebook, under 5 minutes for YouTube.

V. Work With the Algorithms

Instagram especially will reward you for consistency (#1 importance), so post daily, utilizing all aspects of Instagram, including live, stories, and reels, for interacting and engaging with others. Reply to comments within 1 hour of posting. Comment on other accounts often.

VI. Feeling Overwhelmed?

We will conclude the discussion with some action items and strategies to jumpstart or invigorate your social media accounts.

Asian Blepharoplasty Complications

Kyung In Woo MD

- I. Nonincisional Double Eyelid Surgery
 - A. Faint or weak crease
 - B. Asymmetry
 - C. Corneal irritation due to exposed suture
- II. Incisional Double Eyelid Surgery
 - A. High eyelid crease
 - 1. Unnoticed or occurrence of blepharoptosis after double eyelid surgery
 - 2. High fixation
 - 3. Scar adhesion superior to a crease line
 - B. Low eyelid crease
 - 1. Skin hooding over an eyelid crease
 - 2. Falsely designed crease
 - C. Multiple creases
 - Overzealous soft tissue removal superior to a double eyelid crease
 - D. Pretarsal fullness
 - Thick skin and orbicularis muscle
 - E. Fading creases
 - 1. Thick skin and abundant soft tissue
 - 2. Unnoticed blepharoptosis
 - 3. Weak adhesion at the crease line
 - 4. Epicanthus

Managing Festoons

Julian D Perry MD

I. Etiology of Festoons

- A. Laxity of orbitomalar and zygomaticocutaneous ligaments
- B. Dermal attachments

II. Medical Treatment Options: Tetracycline

- A. Tetracycline properties
- B. Tetracycline for pleurodesis
- C. Formulation
- D. Injection
- E. Data

III. Surgical Options

- A. Midface lift with lysis of orbitomalar and zygomaticocutaneous ligaments
- B. Fat repositioning camouflage
- C. Skin excision
- D. Combination approaches
- E. Combination approaches with tetracycline injection

Selected Readings

1. Perry JD, Mehta VJ, Costin BR. Intralesional tetracycline injection for treatment of lower eyelid festoons: a preliminary report. *Ophthalmic Plast Reconstr Surg.* 2015; 31(1):50-52.
2. Perry JD. Reply Re: Intralesional tetracycline injection for treatment of lower eyelid festoons. *Ophthalmic Plast Reconstr Surg.* 2016; 32(2):154-155.
3. Chon B, Hwang C, Perry JD. Long term patient experience with tetracycline injections for festoons. *Plast Reconstr Surg.* 2020; 146(6):737-743.
4. Newberry CI, Mccrary H, Regan Thomas J, Cerrati EW. Updated management of malar edema, mounds and festoons: a systematic review. *Aesthet Surg J.* 2020; 40(3):246-258.

Nuances in Brow Lifting

Endoscopic Forehead Lifting: Concepts, Nuances, and Pearls

Evan H Black MD

Introduction

The endoscopic forehead lift is an elegant option for the cosmetic patient who shows signs of brow, glabellar, and/or temporal forehead descent. In addition to patients who specifically complain of a low eyebrow, forehead and brow ptosis should be suspected in anyone who presents with redundant upper eyelid skin. Patients may demonstrate “Flower’s sign,” a lifting of the brow with their finger when presented with a mirror, when their desired outcome is a brow/forehead elevation. This may be preferred in addition to (or rather than) a subtractive upper eyelid blepharoplasty. Upper eyelid skin extending over the eyelid margin in the lateral periorbital area (Connell’s sign) and dense glabellar creases are also hallmarks of brow ptosis.

It is useful to discuss the concept of brow and forehead ptosis with all patients in whom this exists. The happy human equation $H = R - E$ (happiness = reality – expectations) is exemplified in facial plastic surgery, and ensuring that patients understand the brow contribution to their upper eyelid appearance is essential in functional eyelid surgery as well as aesthetic eyelid and forehead procedures.

The Procedure

The essence of the endoscopic forehead lift is simply two steps: complete release and good fixation. The nuances and the successful performance of these two steps are what we will review.^{1,2,4}

Marking

- The supraorbital notch is palpated and marked bilaterally, with a semicircular “danger zone” demarcated ~1.5 cm above the notch.
- The conjoint tendon is marked bilaterally for orientation.
- Temporal ellipses, perpendicular to an imaginary line from the nasal alar fold to the lateral canthus, are placed over the temporalis muscle behind the hairline. These typically measure 3.5-5 cm in length and 1-1.5 cm in width (as wide as can be comfortably closed based on tissue laxity).
- Central and paracentral forehead incisions and paracentral fixation placement is where the procedure differs between men and women. For women, we typically place 3 vertical incisions (1 central, 2 paracentral) behind the hairline and mark areas for fixation more laterally, over the lateral canthal area. For men, there are 2 horizontal paracentral incisions corresponding to the medial canthal region, with placement behind the hairline or similar appropriate location if hair is not currently available! These heal well and are usually not noticeable in male pattern baldness.

Hair control

We recommend placing rubber bands around the hair bundles between the incisions.

The temporal pocket

- The ellipses are incised with a scalpel, to the subcutaneous fat, while looking for larger veins and temporal artery branches. The ellipses are removed with scissors.
- The superficial temporal fascia is picked up and vertically incised with the scissors to expose the deep temporal fascia.
- Blind blunt dissection is performed to the tail of the brow using an elevator or with finger dissection.
- The endoscope is then used to complete the release of the tail of the brow to the sentinel vein (the lateral extent of the dissection) and over the lateral orbital rim.

The blind forehead dissection

- The paracentral and central (if applicable) forehead incisions are created in a full-thickness fashion with a scalpel, right through the periosteum.
- A periosteal elevator is then used to free up the entire subperiosteal plane between the conjoint tendons and inferiorly to the marked supraorbital “danger zone.”
- The superior most portion of the conjoint tendon can be opened with the elevator and the entire attachment of this tendon is released inferiorly to the tail of the brow.

The endoscopic forehead dissection:

This is where the endoscope is most needed.

- A complete periosteal separation should be accomplished across the entire sub brow area, while protecting the supraorbital and supratrochlear nerves and vascular structures. Metzenbaum scissors and periosteal elevators are great choices here, as are a variety of endoscopic scissors, endoscopic spreaders, and upcutting elevators.
- The corrugator and procerus muscles should be disinserted but generally not removed, as this can create an unnatural horizontal spread to the glabellar space.

Fixation

There are several options for fixation centrally. Permanent or absorbable screws, bone-bridge suture techniques, tissue glues, and absorbable anchors. We prefer the Endotine device for most of our patients, as these provide a broad area of fixation for many months while adhesion occurs, then absorb. We avoid the Ultratine because of a high rate of cyst formation complications necessitating removal.³

- Drill holes with the 4-mm bit are placed in the outer table of the skull in the appropriate positions.
- The fixation devices are secured in the drill holes and the periosteum is lifted over the devices and secured. Variations in fixation placement can adjust for brow asymmetry.
- The temporal fixation is accomplished with tight closure of the superficial fascia over the deep fascia using a larger (2-0 or 3-0) monofilament absorbable sutures.

Skin closure

Skin staples or sutures may be used, according to surgeon preference. With the temporal incisions well approximated by the superficial temporal fascial closure and the central/paracentral incisions being small, skin closure alone is usually adequate at this point.

Dressing

A compression dressing is recommended. We use ABD pads and Kerlex wrap to create a moderate pressure dressing around the cranium. This is removed by the patient in 24 hours.

Postoperative considerations

Pain medications and antiemetics are useful, especially for the first 24 hours. Oral fluid replacement is helpful. Maintaining head elevation for the first 3 days is recommended. Postoperative antibiotics are not indicated and have no data to support their use. After removal of dressing, ice packs may help with edema and ecchymosis.

References

1. Stuzin JM, Wagstrom L, Kawamoto HK, et al. Anatomy of the frontal branch of the facial nerve: the significance of the temporal fat pad. *Plast Reconstr Surg*. 1989; 83(2):265-271.
2. Nesi FA, Gladstone GJ, Brazzo BG, Myint S, Black EH. *Ophthalmic and Facial Plastic Surgery: A Compendium of Reconstructive and Aesthetic Techniques*. Thorofare, NJ: Slack. Inc.; 2001:219-225.
3. Servat JJ, Black EH. A comparison of surgical outcomes with the use of two different biodegradable multipoint fixation devices for endoscopy forehead lift. *Ophthalmic Plast Reconstr Surg*. 2012; 28(6):401-404.
4. Black EH, Schlachter D. Forehead/brow ptosis. In: Servat J, Black EH, et al., eds. *Smith and Nesi's Ophthalmic Plastic and Reconstructive Surgery*. 4th ed. New York: Springer Publishing; 2020:351-357.

In These Unprecedented Times . . .

2021 Oculofacial Plastic Surgery Subspecialty Day

John B Holds MD

The COVID-19 pandemic has impacted us in many ways, including our ability to effectively raise critical funds used to protect sight and empower lives. This objective requires active participation and commitment to advocacy from every ophthalmologist. Contributions to the following three critical funds are a part of that commitment:

- OPHTHPAC®
- Surgical Scope Fund (SSF)
- State Eye PAC

During AAO 2021 in New Orleans, invest in OPHTHPAC and Surgical Scope Fund at one of our two booths in the convention center or [online](#). You may also invest via phone by texting MDEYE to 41444 for OPHTHPAC and SCOPE to 51555 for the Surgical Scope Fund.

We also encourage you to stop by our booth in the Hall B Lobby to learn more about [OPHTHPAC Direct](#), a unique program that lets you decide who receives your political support.

Please help us in these unprecedented times to continue to protect quality patient eye care for everybody. Two Academy committees made up of your ophthalmology colleagues are working hard on your behalf to ensure this outcome. The OPHTHPAC Committee continues to identify Congressional Advocates in each state to maintain close relationships with federal legislators to advance ophthalmology and patient causes. The Surgical Scope Fund Committee is raising funds to be used to protect Surgery by Surgeons during scope battles at the state level.

Our mission of “protecting sight and empowering lives” requires robust funding of both OPHTHPAC and the Surgical Scope Fund. Each of us has a responsibility to ensure that these funds are strong so that ophthalmology continues to strive, especially in these unprecedented times.

OPHTHPAC®

OPHTHPAC represents the profession of ophthalmology to the U.S. Congress. OPHTHPAC’s most recent victories include the following:

Physician Relief

- ✓ Securing access to COVID-19 relief, including Provider Relief Funds and forgivable small business loans
- ✓ Pushing Congress to enact a provider-friendly “surprise” medical billing law

Medicare Payment

- ✓ Mitigating drastic Medicare cuts
- ✓ Obtaining a one-year moratorium extension on the 2% Medicare budget sequestration cut

Research & Relationships

- ✓ Increasing vision research funding by \$11.6 million
- ✓ Helping get three new physicians elected to Congress, including an ophthalmologist

However, facing ophthalmology’s federal issues is a continuous battle, and OPHTHPAC is always under pressure to ensure we have strong political connections in place to help protect ophthalmology, its members, and their patients.

The support OPHTHPAC receives from invested U.S. Academy members helps build the federal relationships that advance ophthalmology’s agenda on Capitol Hill. These relationships allow us to have a seat at the table with legislators willing to work on issues important to us and our patients. We also use these congressional relationships to help shape the rules and regulations being developed by federal health agencies.

Get engaged with OPHTHPAC and help strengthen ophthalmology’s voice on Capitol Hill as we address the following legislative and regulatory issues this year:

- Improving Medicare physician payments
- Fighting optometric scope expansion in the Veterans’ Health Administration
- Obtaining relief from prior authorization and step therapy requirements that delay patient care
- Seeking solutions for rising drug prices and access to drugs in shortage
- Ensuring fair reimbursements for Part B drugs

At the Academy’s annual Congressional Advocacy Day, the Academy and the American Society of Ophthalmic Plastic & Reconstructive Surgery (ASOPRS) ensure a strong presence of oculofacial plastic specialists to support ophthalmology’s priorities. ASOPRS also supports participation of young ophthalmologists via the Academy’s Advocacy Ambassador Program. Ophthalmologists visit members of Congress and their key health staff to discuss ophthalmology priorities as part of Congressional Advocacy Day. ASOPRS remains a crucial partner with the Academy in its ongoing federal and state advocacy initiatives.

Surgical Scope Fund

The Surgical Scope Fund (SSF) provides grants to state ophthalmology societies to support their efforts to protect patient safety from dangerous optometric surgery proposals. Since its inception, the Surgery by Surgeons campaign and the SSF, in partnership with state ophthalmology societies, has helped 41 state/territorial ophthalmology societies reject optometric scope-of-practice expansions into surgery.

If you already have made a SSF contribution, please go to safesurgerycoalition.org to see the impact of your gift.

Dollars from the SSF are critical to building complete, cutting-edge political campaigns, including media efforts (TV, radio, and social media), educating and building relationships with legislators, and educating the voting public to contact their legislators. These political campaigns help the SSF to protect patient safety by defeating optometry’s surgical initiatives.

Each of these endeavors is very expensive, and no one state has the critical resources to battle big optometry on their own. Ophthalmologists must join together and donate to the SSF and fight for patient safety.

The Secretariat for State Affairs thanks the American Society of Ophthalmic Plastic & Reconstructive Surgery, who has joined state ophthalmology societies in the past in contributing to the SSF and has already contributed again in 2021. These ophthalmic organizations complete the necessary SSF support structure for the protection of our patients’ sight.

State Eye PAC

It is increasingly important for all ophthalmologists to support their respective State Eye PACs because campaign contributions to legislators at the state level must come from individual ophthalmologists and cannot come from the Academy, OPHTHPAC, or the Surgical Scope Fund. The presence of a strong State Eye PAC providing financial support for campaign contributions and legislative education to elect ophthalmology-friendly candidates to the state legislature is critical, as scope-of-practice battles and many regulatory issues are all fought on the state level.

ACTION REQUESTED: Support ophthalmology’s advocacy efforts

Academy Surgical Scope Fund contributions are used to support the infrastructure necessary in state legislative/regulatory battles and for public education. State PAC and OPHTHPAC contributions are necessary at the state and federal level, respectively, to help elect officials who will support the interests of our patients. Contributions to each of these three funds are necessary and help us protect sight and empower lives. Surgical Scope Fund contributions are completely confidential and may be made with corporate checks or credit cards. PAC contributions may be subject to reporting requirements.

Please respond to your Academy colleagues and be part of the community that contributes to OPHTHPAC, the Surgical Scope Fund, and your State Eye PAC. Please be part of the community that ensures ophthalmology has a strong voice in advocating for patients.

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Surgical Scope Fund	OPHTHPAC®	State Eye PAC
To protect patient safety by defeating optometric surgical scope-of-practice initiatives that threaten quality surgical care	Working across the political spectrum to advance ophthalmology and protect its members and patients at the federal level. Support for candidates for U.S. Congress.	Support for candidates for state House, Senate, and governor
Political grassroots activities, government relations, PR and media campaigns No funds may be used for campaign contributions or PACs.	Campaign contributions, legislative education	Campaign contributions, legislative education
Contributions: Unlimited	Contributions: Limited to \$5,000	Contribution limits vary based on state regulations.
Individual, practice, corporate, and organization	Personal and corporate contributions are accepted.	
Contributions are 100% confidential.	Contributions \$200 and above are on the public record.	Contributions are on the public record depending upon state statutes.

Advanced Periorbital Rejuvenation

Anatomic Findings: Guiding Treatment Approach to the Periocular Region

José Raúl Montes MD

- I. Patient Assessment
 - A. Signature features
 - B. Symmetry
 - C. Volume and proportion
- II. Dermal Fillers
 - A. Hyaluronic acid (HA) fillers
 - B. Biostimulant agents
- III. Periorbital Area and Tear Trough
 - A. Anatomy/safety considerations
 - B. Technique
 - C. Filler choice
- IV. Temporal Fossa
 - A. Anatomy/safety considerations
 - B. Technique
 - C. Filler choice
- V. Upper Eyelid
 - A. Anatomy/safety considerations
 - B. Technique
 - C. Filler choice
- VI. Roof /Eyebrow
 - A. Anatomy/safety considerations
 - B. Technique
 - C. Filler choice
- VII. Negative Vector Patient
 - A. Concavity demands convexity.
 - B. Two-pronged approach
- VIII. Shallow Orbit Patient
 - Infraorbital area demands support.
- IX. Deep-Set Eyes Patient
- X. Peanut Face Patient
 - Biostimulant agents to round out facial contour
- XI. Iatrogenically Altered Anatomy
 - Periocular surgery and prevailing concept of volume conservation
- XII. Trauma Patient
 - A. Biostimulant agent
 - B. Filler injection
 - C. Neurotoxin injections

Expert Lower Face and Neck Injectables

John J Martin Jr MD

Lower Face Injectables: Neurotoxins and Fillers

Neurotoxins

- Depressor angularis oris (DAO)
- Lips
- Mentalis
- Masseter/TMJ
- Neck: Platysmal bands, Nefertiti lift

Fillers

- Lips – body of lip, vermillion line, lip lines
- Marionettes, oral commissure
- Lateral cheek
- Pre-jowl sulcus
- Chin augmentation
- Jawline
- Neck

Lip Service: Lip Injectables

Andrea N Kossler MD

Introduction

Rejuvenating the lip with fillers is a popular cosmetic procedure that requires expertise. Aging lips lose volume, shape, and definition due to loss of collagen, actinic damage, and extrinsic factors. Visually, the aging lip is characterized by lengthening of the upper lip, decrease in vermilion show, blunting of the Cupid's bow, and an attenuated white roll. Although there is no consensus on the best injection technique or filler option, it is important to understand central concepts to achieve optimal cosmetic results. This talk will cover lip anatomy, injectable options, techniques, and complications.

Anatomy

While there is no single formula for a “perfect” lip, there are important anatomic landmarks that should be preserved to create an attractive, natural, and aesthetically pleasing lip. The upper lip extends from the base of the nose to the *vermillion border* (junction of the cutaneous portion to the mucosa) and further inferiorly to the mucosa. The upper lip is divided transversely into medial and lateral subunits. The medial subunit extends from the midline to the philtrum columns and contains *Cupid's bow complex*, which is created by 2 high points of the vermilion adjacent to the inferior point of the philtral columns, characterized by a sloping depression between them in the central lip. The lateral subunit extends from the philtrum column to the oral commissure. The *philtrum* is made up of two philtral columns and the philtral dimple. The *philtral columns* are vertical columns that typically line up with the two raised curves of the Cupid's bow. The *white roll* is the raised cutaneous portion, of variable prominence, immediately adjacent to the vermilion border. There are natural prominences in the lips called *tubercles*. Maintaining these landmarks will help give the often-coveted “pouty” look. Three tubercles exist in the upper lip: 1 midline and 2 laterally. Two in the lower lip: just lateral to midline. The mucosa consists of the dry and wet portions, and the wet-to-dry junction is the *wet line*.

Ratios

The upper lip to lower lip vertical height ratio can vary based on ethnicity, sex, and age, anywhere from 1:1 to 1:2; however, the “golden ratio” is 1:1.618.¹ The upper lip should project more anteriorly than the lower lip, by 3.5 mm and 2.2 mm, respectively, or 1.6:1, when drawing a line from the subnasale to the pogonion.² The lower lip (menton to vermilion border) is approximately twice the height of the upper lip complex.

Vascular anatomy

Deep to the skin and mucosa is the sphincter-link orbicularis oris muscle. The labial artery branches from the facial artery approximately 1.5 mm superolateral to the oral commissure. The depth of the labial artery varies in the upper and lower lip: 78.1% between the orbicularis oris and the oral mucosa, 17.6% intramuscularly, and 2.6% between the skin and the muscle.³ These arteries are ordinarily located posterior to the wet-dry

border; thus, treating this area should be avoided. These arteries are more superficial medially. A general rule is to avoid injecting filler deeper than 2.5 mm at any point.³

Injectable Options

There are several injectable options; however, hyaluronic acid (HA) fillers are the most popular due to their effectiveness, biocompatibility, and safety profile, making up nearly 77% of market shares.⁴ The semipermanent dermal fillers, such as calcium hydroxyapatite and poly-L-lactic acid, as well as permanent fillers, are not preferred for lip augmentation because they have an increased risk of irregularity and nodule formation.⁵ Autologous fat grafting is also an option.

Injection Techniques

Anesthetic

Topical anesthetic and/or ice is used to numb the area. Regional blocks, of the infraorbital and mental nerves, may be performed with 2% lidocaine 1:100,000 with epinephrine by passing the needle through the mucosa at the level of the eye tooth toward the infraorbital fissure or mental foramen, respectively.

Techniques

Several injection techniques exist, including serial puncture, linear threading, cross-hatching, and fanning in a retrograde or anterograde manner. Other approaches include “tenting or fence posting,” using serial tiny pillars along the lip's outer edge from vermilion border to the body of the lip, starting at the corners and working medially. The depth of injection varies by filler type but typically is submucosal, deep dermal, or subdermal, with an angle of approximately 30 to 45 parallel to the length of the lip. A blunt microcannula (27 gauge) may be used in place of sharp needles and offers the benefit of increased patient comfort and reduced edema and ecchymosis. Gentle massage of the product after injection can assist with an even contour.

Preparation

I evaluate the patient's anatomy and asymmetries (with frontal and lateral preinjection photos) and discuss realistic expectations. I use HA fillers and select the filler based on patient anatomy and goals. I review medications (blood thinners), injectable/surgical history, and HSV history and discuss downtime, expected swelling, risks, benefits, and alternatives and obtain informed consent. In my toolbox, I have hyaluronidase and nitro paste in case of arterial injection/compression. I used 29-gauge needles, avoid overfilling, inject slowly, avoid deep injections, and typically avoid injections posterior to the wet to dry border.

How I do it

Injection patterns are customized to the patient. In general, I start with the upper lip vermilion border at the medial portion

of the lateral subunit in a linear threading retrograde fashion. If needed, I inject the medial subunit vermilion border to accentuate Cupid's bow, with care to avoid obliterating Cupid's bow, which can cause the "sausage or duck lip." The lateral portion of the lateral subunit is injected as needed.

Next, I inject the body of Cupid's bow by placing the needle at the base of the philtral column vermilion border and advancing inferiorly toward the wet line. If accentuated philtral columns are desirable, I inject from the philtral column vermilion border, superiorly, to enhance the inverted V shape of the columns, in a retrograde linear threading fashion. Pinching up the column minimizes discomfort and filler migration. Vertical rhytids can also be injected as needed.

Next, I focus on the "pillows" or tubercles on each side of midline, based on the patient's anatomy, by injecting at the wet line. If additional volume is needed, I add filler laterally at the wet line and massage. Next, I move to the lower lip and inject the vermilion border in linear retrograde fashion, followed by injecting the 2 tubercles at the wet line.

Finally, I inject the oral commissures in a horse-shoe fanning fashion, starting at the most lateral aspect of the commissure, injecting superiorly and inferiorly as needed to provide upward support. OnabotulinumtoxinA to the depressor anguli oris is an important adjunct for the commissures.

Complications and Management

Complications

Complications are mostly mild. Immediate and early complications include ecchymosis, significant swelling, infections, herpetic outbreak, and nodules. Rare complications include arterial occlusion/compression or ischemia. Delayed complications include ecchymosis, swelling, skin discoloration, hyperpigmentation, infection, and nodule formation.

Management

Bruising and swelling can be minimized with cold compress and arnica. If possible, anticoagulants should be discontinued for 7-10 days prior to treatment. Delayed or persistent bruising can be treated with vascular lasers such as the pulsed dye laser. Moderate swelling may require NSAIDs or antihistamines. Severe swelling may require oral corticosteroids.

Rarely, patients may develop a hypersensitivity to filler. The immune response may be a more acute, type I hypersensitivity (responsive to antihistamines or steroids) or a delayed type IV hypersensitivity (not responsive to antihistamines and may require treatment with hyaluronidase).⁶ Acute infections are rare; mild forms respond to oral antibiotics such as amoxicillin-clavulanic acid or ciprofloxacin. Herpetic outbreaks are rare but can be avoided with antiviral medication (eg, valacyclovir) 1 day before and 3 days after treatment in patients with a history of oral HSV. Injections should be avoided if there is an active outbreak.

Early nodules are generally painless and may respond to massage. Noninflammatory nodules or persistent nodules may be addressed by steroid/5-fluorouracil injection, minimal stab wound incision with evacuation, and/or hyaluronidase injection. Intravascular infiltration and skin necrosis are rare complications and occur in an estimated 0.001% of filler procedures.⁷ This should be treated immediately with warm compresses and flooding the area with hyaluronidase.

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How Teprotumumab Fits Into My Practice

Suzanne K Freitag MD

Teprotumumab was USFDA approved in January 2020 for the treatment of thyroid eye disease. An IGF-1R blocking monoclonal antibody, it was shown to be significantly effective in clinical trials at reducing proptosis, improving diplopia, decreasing clinical activity scores, and improving quality of life, among other parameters. Subsequent publications have demonstrated its efficacy in compressive optic neuropathy due to thyroid eye disease and in chronic thyroid eye disease, etc.

The drug is given as an infusion every 3 weeks for a total of 8 doses. The side-effect profile, as reported in the clinical trials, subsequent publications, and in my clinical experience, is quite tolerable for most patients, and as a result most patients are completing their treatments. One of the biggest hurdles to treatment is obtaining insurance approval, as the cost of the drug is high.

In my clinical practice, teprotumumab has surpassed other medical therapeutic options, including oral and intravenous corticosteroid, in reducing proptosis and decreasing steatoblepharon, including in patients many years out from active thyroid eye disease. The proptosis reduction is as effective or more effective than surgical orbital decompression and eliminates the risk of post-decompression diplopia. The response to teprotumumab has been rapid in cases of compressive optic neuropathy, in my experience, making it possible in many cases to forego surgical decompression or long-term corticosteroid use. In my experience, diplopia is more likely to resolve after teprotumumab treatment in those with less restrictive extraocular motility patterns. It is yet to be determined if strabismus surgery outcomes will be better in those who have received teprotumumab, as the extraocular muscles have been shown to significantly decrease in size with the drug. Upper eyelid retraction persists in many patients who have received the drug, and surgery to address this problem will likely continue to be needed for many patients.

What's New in Orbital and Adnexal Cancers?

Bita Esmaeli MD FACS

The availability of targeted drugs and immunotherapy options has significantly changed the oncologic care for locally advanced and/or metastatic periocular cancers; many cases that would historically be treated with orbital exenteration can now be treated with a combination of drug therapy and eye-sparing surgery. In this section, specific patient cases and indications unique to orbital oncology will be presented and discussed.

New Instrumentation in Orbital Surgery

Edward J Wladis MD

- I. Rapid Evolution of Orbital Surgery
 - A. Smaller incisions
 - B. Safer dissection
 - C. Less morbidity, faster recovery, improved safety
 - D. Cross-pollination with other fields (otolaryngology, neurosurgery, dentistry, general surgery)
- II. Transethmoidal Approach (With Video)^{1,2}
 - A. Endoscopic approach, open medial wall of orbit.
 - B. Dissect periorbita.
 - C. Retract medial rectus, allowing complete access to the orbit.
 - D. Several advantages
 1. Well-suited for medial orbital lesions, as no need to cross optic nerve
 2. No external incision
 3. Avoids requirement for craniotomy, diminishes morbidity
 4. Faster recovery
- III. Piezoelectric Saws
 - A. Vibrate at 20-30 kHz
 1. Selective for mineralized tissue
 2. Spares soft tissue
 - B. Self-irrigating, leaving one hand free for dissection or retraction
 - C. Long history in other fields (otology, neurosurgery, hand surgery, dentistry)
 - D. Initial description in orbital surgery in 2013³
 1. Gentler on soft tissue
 2. No postoperative complications
 3. Rapid healing
 4. Used in several settings since initial description with excellent results
- IV. Ultrasonic Devices
 - A. Long track record in neurosurgery
 - B. Features improve margin of safety.
 1. Constantly aspirate, dissect, and irrigate.
 2. Frequency is selective for tissue with high water content, low collagen content.
 3. Relatively spare vasculature
 - C. Cavitron ultrasonic surgical aspirator (CUSA)

Initial description in orbital surgery in 2014⁴

 1. Decreased blood loss
 2. No complications
 - D. Sonopet Ultrasonic Aspirator
 1. Successfully used for bone removal in orbital decompression⁵
 - a. Gentler to surrounding structures, decreased risk of thermal damage
 - b. Comparable results to conventional drilling
 2. Recent use with infiltrative soft tissue masses⁶
 - a. Improved visualization, as compared to conventional approaches
 - b. Intraoperative precision
 - c. Minimal bleeding

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Custom 3-D Implants: Tips for Getting Started

Nicholas R Mahoney MD

I. Indications and Principles for Implant Placement

- A. Orbital implants are used to restore (or augment) internal and external orbital anatomy, shape, contour, and volume.
- B. Desirable (“ideal”) implant characteristics:
 1. Biocompatible
 2. Low morbidity at any donor site
 3. Structurally supportive
 4. Moldable to the orbital contour
 5. Unlikely to create undesirable local adherence (eg, adherence to the orbital contents or periorbital soft tissues)
 6. Stability; retains position and continues to provide support over time

II. Types of Orbital Implants

- A. Choice of implant is determined by surgeon preference, which often depends on surgeon specialty and geography of practice.
 1. Porous polyethylene with or without embedded titanium has become common among all specialties in the United States.
 2. Oculofacial surgeons have typically endorsed use of more nylon sheets and absorbable plates.
 3. Plastic and otolaryngology head and neck surgery (OHNS) facial plastic surgeons have traditionally preferred uncovered titanium.^{5,6}
 4. Internationally, surgery is more often done by oral maxillofacial surgeons, and absorbable plates and bone grafting is more common.⁷
- B. Autografts
 1. More commonly used internationally⁵
 2. Split-thickness calvarial grafts (can be harvested at the time of surgery if extensive mid-facial trauma), iliac crest, and rib are common sources.
- C. Allografts
 1. Metallic
 - a. Titanium is mainstay for screw manufacture and mesh plate design.
 - b. Used since the 1960s
 - c. Good strength and excellent shape retention
 - d. Low profile
 - e. Visible on subsequent radiographs

- f. High strain tolerance that can be increased with oxygen and by soaking in acid⁸
 - g. Strength can be varied by “condensing” titanium in the posterior orbit, improving strength on load-bearing but small elements (eg, the posterior ledge of an orbital floor fracture).
2. Porous
 - a. Hydroxyapatite, porous polyethylene (PP)
 - b. Biocompatible, well tolerated
 - c. Used since 1980s
 - d. Pores allow for fibrovascular ingrowth to limit encapsulation and prevent migration, extrusion, and infection.
 - e. Pore size can be varied, with small pore size facing orbit to limit adherence and facilitate implant removal if necessary, and large pore against orbital floor to increase adherence and reduce movement.^{3,9}
 3. Porous-metallic hybrid
 - a. Commonly used
 - b. “PPTe”: Titanium mesh embedded between 2 layers of PP (eg, Medpor Titan, Styker; Synpor Titanium Reinforced, Synthes)
 - c. Adds additional implant shape stability to PP
 4. Nonmetallic, nonporous
 - a. Examples: nylon sheets (Supramid), silicone sheets, sterilized x-ray film¹⁰
 - b. Inert and cost-effective and can mold to the orbital floor well
 - c. Migration and extrusion can be decreased with screw fixation or by deflecting a small tab into the maxillary sinus.¹¹
 5. Absorbable materials
 - a. Degrade by hydrolysis over varying amounts of time
 - b. Can be molded to desired shape as the materials relax when heated
 - c. Various iterations in animal models have demonstrated bony encapsulation.
 - d. Often cause local tissue inflammation
 - e. Newer devices aim to replace screws with absorbable pins that are set with an ultrasonic vibration (SonicWeld, KLS Martin).

- f. Examples
 - i. Polydioxanone (PDS): very flexible, thin, smooth sheet, degrades in 6 months
 - ii. Poly-L-lactide (PLLA): degrades over 3-5 years, also used to make absorbable screws (Rapidsorb, Synthes)
 - iii. Poly-D,L-lactic acid (PDLLA) (Resorb-X KLS Martin)
 - iv. Polyglycolide (PGA) copolymers (eg, polylactic acid/PGA, also known as polyglactin 910 found in Vicryl suture; PLLA/PGA [Lactosorb, Zimmer Biomet])

III. Patient Specific Implants (PSIs)

- A. The term “patient-specific implant” can refer to:
 - 1. Implants that are custom designed for a specific patient *or*
 - 2. Commercially available implants available in different sizes that are selected specifically for a patient based on their bony anatomy
- B. Advances in 3-D modeling, computer-assisted design, rapid prototyping, and 3-D printing have led to proliferation of PSI options.
- C. Implants can be directly “printed” in various materials from commercial partners: PP, polyether ether ketone (PEEK) and titanium.

IV. Concepts, Workflows, and Techniques Important to PSI Design and Implementation

- A. Concept: Virtual modeling
 - 1. High-quality CT scan (<1 mm axial slice thicknesses) → Bony anatomy is extracted using a technique called “segmentation” based on CT Hounsfield units → Virtual model of bony anatomy is created.
 - 2. *Smoothing* and *interpolation* can be used to improve fidelity, as thin orbital bones may not appear completely; this can be done by standard computer-aided design (CAD) programs (eg, MeshLab) or using *auto-segmentation* algorithms in medical CAD programs (eg, iPlanENT from Brainlab, Materialise).
 - 3. In cases of unilateral pathology such as trauma, *mirroring* can be used to create a target model based on the unaffected side.
- B. Workflow: 3-D printed mold for surgeon implant bending
 - 1. Once a virtual model of the bony anatomy is created, a target mold can be 3-D printed and a generic titanium or PP implant can be manually shaped to fit the mold by the surgeon.
 - 2. Commercial medical device manufacturers can produce institution-approved sterilizable molds (usually in clear acrylic) and assist in the design process.

C. Workflow: Virtual implant fitting

1. A digital representation of the various standardized, commercially available implants can be superimposed onto the virtual target model.
2. *Logical operations* can quickly help in customizing a prefabricated implant by identifying unnecessary portions of the implant (typically areas where bone is intact) for quick intraoperative trimming.⁶
3. These commercially available products come in several sizes and can be trimmed as needed, thus still aiming to provide a “patient-specific” solution.

D. Workflow: Vendor design and commercial 3-D printed PSI

The process of *virtual modeling* and design of the implant is provided by an implant vendor and then typically adjusted via conference call between the surgeon and the implant company with regard to the following:

1. Decisions for locations of osteotomies or drill holes on the implant: Location of screws, which can be intentionally placed in an area that has good bone stock for screw purchase and also avoiding areas like the infraorbital nerve
2. Need for *cutting guides* and *drill guides* for osteotomies and drill holes, respectively. This involves printing a second, temporary implant that acts as a “stencil” with obvious interfacing with intact bone elements.

E. Technique: Intraoperative and postoperative assessment

1. *Intraoperative navigation systems* are not necessary for PSI placement but can be useful for the workflow of implant design and placement.
2. Stereotactic navigation systems can show the location of instrumentation relative to the patient’s CT or MRI and to virtual models.

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The Orbital Approach to Managing the Neurotrophic Cornea

Michael T Yen MD

- I. Normal Corneal Innervation From Trigeminal Nerve
 - A. Initiates blink reflex
 - B. Maintains corneal epithelial integrity
 - C. Stimulates tear production
- II. Neurotrophic Keratopathy
 - A. Persistent, nonhealing epithelial defects
 - B. Corneal ulcers
 - C. Corneal thinning and perforation
- III. Many Etiologies of Neurotrophic Keratopathy
- IV. Conventional treatments do not restore corneal sensation.
 - A. Medical
 - B. Surgical
- V. Corneal neurotization is the only disease-modifying treatment to improve corneal sensation.
 - A. Nerve transfer
 - B. Nerve grafts
 - C. Review of current literature

- VI. Review of Surgical Procedure
 - A. Identifying the donor nerve
 - B. Coaptation of nerve graft
 - C. Separation of fascicles

Selected Readings

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Corneal Neurotization: Breaking the Barriers

Alon Kahana MD PhD

- I. Goal of Corneal Neurotization (CN)
- II. Indications for CN
- III. Barriers to Establishing a CN Practice
 - A. Referrals by cornea and comprehensive
 - B. Turf overlap
 - C. Role of plastic surgery and ENT
 - D. Technique and tools
- IV. Possible Solutions: Establish and Grow a CN Practice

Managing the Lower Lid in Facial Nerve Palsy

Elizabeth A Bradley MD

- I. Effect of Facial Nerve Disorders on Lower Eyelid
 - A. Retraction
 1. No laxity
 2. Lid descends inferiorly
 - B. Ectropion
 1. With laxity, medial and/or lateral
 2. Lid everts
 - C. Steatoblepharon
 - D. Synkinesis
- II. Management of Lower Eyelid in Facial Nerve Palsy: Indications for Treatment
 - A. Ocular exposure
 - B. Tearing
 - C. Blurred vision
 - D. Symmetry/cosmesis
 - E. Contact lens fit
- III. Lower Eyelid Malposition: Management Options
 - A. Lower eyelid retractor recession
 - B. Spacer graft
 - C. Lower eyelid sling
 - D. Canthopexy
 - E. Midface suspension
- IV. Lower Eyelid Retractor Recession
 - A. Gives 1-2 mm vertical elevation
 - B. Technique
 1. Transconjunctival approach
 2. Cautery dissection
 3. Recess retractors into fornix
 4. Spacer graft optional
 5. Add midface lift as needed
 6. Frost suture for adults
- V. Spacer Graft
 - A. Helpful in atrophic lid
 - B. Gives 2+ mm vertical elevation
 - C. Technique
 1. Transconjunctival approach
 2. Incise 1-2 mm inferior to lower border of tarsus
 3. Cautery dissection
 4. Recess retractors into fornix
 5. Hard palate vs. Alloderm
 6. Conjunctival closure 6-0 plain gut
- VI. Tendon Sling
 - A. Gives 3+ mm vertical lift
 - B. Technique
 1. Gullwing incision at medial canthus
 2. Pretarsal tunnel
 3. Pass thru drill hole in lateral rim
 4. Tendon sling vs. suture
- VII. Lateral Canthopexy for Paralytic Ectropion
 - A. Paralytic ectropion easier to fix than lower lid retraction
 - B. Lateral canthopexy/tarsal strip procedure usually sufficient
 - C. Can add tarsal rotational sutures if needed (5-0 chromic)
- VIII. Lateral Canthopexy and Tarsorrhaphy Limitations
 - A. Lateral canthopexy useful for ectropion
 - B. Does not vertically elevate a retracted lower eyelid
 - C. Lateral tarsorrhaphy affects peripheral vision, poor cosmesis
 - D. Hard palate graft and/or tendon sling better for eyelid retraction
- IX. Synkinesis: Lower Lid in Elevated Position in Repose
 - A. Lower eyelid in elevated position due to increased orbicularis tone
 - B. May affect reading vision
 - C. Typically manage with botulinum toxin
 - D. Could consider orbicularis myectomy or neurectomy facial nerve
- X. Lower Eyelid Fat Prolapse With Orbicularis Weakness
- XI. Managing the Lower Eyelid in Facial Nerve Paresis: Summary
 - A. Age is a major determinant of lower eyelid findings in facial nerve palsy.
 - B. Lateral canthopexy is appropriate for ectropion.
 - C. Eyelid retraction repair can be graded based on severity.
 1. Lower lid retractor recession if mild
 2. Tendon sling if moderate-severe
 - D. Fat prolapse can be a manifestation of orbicularis weakness.

Management of Synkinesis With Neurotoxin

Mark J Lucarelli MD FACS

- I. Overview
 - A. Synkinesis basics and background
 - B. Case examples
 - C. Treatment strategies
 - D. Suggestions for getting started
- II. Basics and Background
 - A. Incidence: 9%-55%
 - B. More proximal lesion → higher incidence and more severity (primate model) (Yamada et al. *Laryngoscope* 2010.)
 - C. Poor response to direct early stimulation → synkinesis developing in 78% vs. 19% (Celik, et al. *Eur Neurol.* 2000.)
 - D. Common facial findings
 1. Dynamic facial asymmetry
 2. Eyelid aperture narrowing
 3. Limited oral commissure excursion
 4. Smile dysfunction
 5. Platysma activation
 6. Increased resting tone of involved muscles
 7. Deepening of nasolabial fold
 - E. Treatment with neurotoxin
 1. Botulinum first reported for synkinesis in 1991 (Roggenkamper P, et al.)
 2. Duration of improvement: 3-6 months
 3. Mean duration: 4 months (Toffola, et al. *Disability and Rehab.* 2010.)
 4. Placebo-controlled RCT supporting botulinum (Borodic, et al. *Plast Reconstr Surg.* 2005.)
 - a. Botulinum vs. saline injections
 - b. 0-6 scale by expert (0 = no synkinesis; 6 = very severe)
 - c. Post-injection: 0.5 ± 1.1 vs. 4.4 ± 1.4 ($P < .001$)
 - d. Patient-reported quality of life, social functioning, and synkinesis all improved with botulinum toxin ($P < .5$).
- B. Toxin usually after 6 months of physiotherapy
- C. Timing and pattern of injections are based on highly detailed evaluation by therapist; SAQ, Sunnybrook Facial Grading System (FGS) scores.
- D. Treatment goals, personalized and specific
 1. Diminish synkinesis
 2. Improve normal movement by relaxing counterproductive co-contraction
 3. Improve patient comfort by reducing muscle contraction
 4. Assist motor control/learning; toxin = adjunct for “simplifying” the synkinetic problem
- E. Generally avoid decreasing normal function on the unaffected side to “even things out.” Patient needs the unaffected side as a model for learning. Poor motion of synkinetic side is usually *not* from flaccid paralysis.
- F. Small doses (<1 unit to 2.5 units) onabotulinumtoxinA or incobotulinumtoxinA at key sites
- G. Targets
 1. *Almost always:* platysma, orbicularis oculi, mentalis, corrugator
 2. *Usually/Often:* frontalis, buccinator, depressor anguli oris, l. l. alaeque nasi, depressor septi nasi
 3. *Sometimes:* depressor labii inferioris, orbicularis oris
 4. *Avoid:* zygomatic major, zygomatic minor, levator anguli oris, levator labii superioris
- H. Results (Wei LA, et al. *Ophthalmic Plast Reconstr Surg.* 2016.)
 1. 42 patients; 9:1 F:M ratio
 2. Mean follow-up: 5.5 years
 3. Mean total dose of botulinum toxin to all facial muscles administered per session: 54 units (range 31-108 units)
 4. FGS scores showed a statistically significant improvement, from a mean of 52 preinjection to 66 postinjection (range 40-88) ($P < .0001$).
 5. SAQ scores showed a statistically significant improvement, from a mean of 66.6 preinjection to 45.0 postinjection ($P < .0001$).
- III. UW-Madison Treatment Strategies: General Considerations
 - A. Treatment in conjunction with neuromuscular retraining physiotherapy

IV. Getting Started . . .

- A. A physiotherapist familiar with facial synkinesis is most helpful.
- B. Low doses of neurotoxin are key.
- C. Usually 1.25 units or 2.5 units onabotulinumtoxinA or incobotulinumtoxinA toxin/site
- D. 1.25 units x 1-2 sites for buccinator
- E. Keep lagophthalmos and dry eye in mind when considering periocular sites.
- F. Easiest starting targets: Lateral orbicularis oculi, corrugator, mentalis, platysma
- G. *Avoid* midfacial paralysis. (Improving smile is often the primary motivator.)
- H. Botulinum toxin is a potent modality in treatment of facial synkinesis. It improves hypertonicity, spasms, social interaction, and self-confidence with a high degree of patient satisfaction.

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PPP: Pandemonium in the Practice of Plastics

Robert G Fante MD FACS and Linda Harrison PhD

- I. Learning Objectives and Synopsis
 - A. Be a great communicator.
 1. Establish rapport with patients prior to a problem, and keep it.
 2. Clear documentation of exams, treatment discussions, consents
 - B. Get expert help early.
 1. Anticipate potential problems preoperatively.
 2. Obtain consults or referrals quickly when things go south.
- II. Case 1: Asking for Help – Before, During, and After
 - A. Patient
 1. 78-year-old widower
 2. Lives alone
 - B. First visit
 1. Found to have right orbital advanced squamous cell carcinoma (SCCA) on initial exam by our insured oculofacial plastic surgeon: proven by biopsy
 2. Ocular history: anophthalmic right socket s/p knife trauma as child
 3. Medical history: AAA s/p endovascular repair, PE on warfarin, HTN
 4. CT obtained, exenteration surgery recommended
 5. No record of discussion of other treatment alternatives such as radiotherapy (XRT) ± molecular targeted therapy (eg, cetuximab) or carboplatin or 5-fluorouracil or paclitaxel chemotherapy
 - C. Exenteration about 4 weeks later
 1. Exenteration of right orbit and split-thickness skin graft from right thigh to right orbit (3-hour surgery) in an ASC
 2. Complicated by ~500 cc bleeding, no comment about bone integrity
 3. Return to OR same day for bleeding in PACU within an hour of original surgery
 4. Controlled again, but surgeon worried about further bleeding, and again no comment about bone integrity or any other issues
 5. Transferred to community hospital at approx. 1730
 - D. Course after exenteration
 1. Community hospital, day 1
 - a. Developed confusion and CSF rhinorrhea
 - b. Found to have pneumocephalus, subdural and subarachnoid hematoma, orbital bone defects
 2. Stabilized with craniotomy and subdural drain by local neurosurgeon and transferred to local university hospital
 3. Inpatient at local university hospital for 3 weeks
 4. Skilled nursing facility for 6 weeks
 - E. Subsequent management of CSF leaks at local university hospital
 1. Repair of bony orbital defects and CSF leaks - ENT & Neurosurgery
 - a. Small defect at superior orbital fissure (lateral orbital wall), “with brain visibly pulsating” through the defect, successfully repaired
 - b. Another defect at inferior orbital fissure (orbital floor) “with CSF leak” into maxillary sinus, also repaired
 - c. Neither surgeon was critical of our surgeon’s care at subsequent depositions.
 2. Confusion toxic/metabolic encephalopathy after surgery above. Several days later, MRI showed right anterior temporal lobe CVA.
 3. Two months postop, patient developed MRSA at right orbit and required additional surgery.
 - F. Subsequent management—SCCA recurrence
 1. A cervical flap was used to reconstruct his socket after MRSA infection.
 2. Cancer recurrence - ENT comment: “Patient may have been a candidate for XRT given the type & size of the cancer, but stroke took away that option.”
 - G. Malpractice claim filed
 1. According to defense counsel, at his deposition, patient was personable, with a good sense of humor, and “does not appear to be suffering from any mental issues.”
 2. He is 79 years old. As a consequence of this course of treatment, he complains of being unable to drive, go to the gym or church, and taking much longer to do the things he wants to do.
 3. Initial demand was for \$1M.

H. Preop CT imaging

1. Originally read:
 - a. Mass in anterior right orbit
 - b. “Intact bony margins”
2. Our surgeon said that the CTs had been seen but wasn’t sure where. There is no documentation in the patient’s chart of the CTs.
3. What do you see in the images?

I. Radiologists

1. Dr X (who originally read): no preexisting bony orbital defects
2. Dr. Y (neuroradiologist): extremely thin bones in the orbital area
3. Dr. Z (neuroradiologist): There was a congenital bone defect bilaterally before the surgery, and CSF leak was not caused by the surgery.

J. Plaintiff expert: Ophthalmologist and plastic surgeon

Critical of surgical technique to achieve hemostasis, that our surgeon caused perforation at the ethmoid/greater wing of sphenoid bones and failed to recognize and repair the perforations, of failure to obtain clear tumor margins

K. Intraoperative management

1. Our surgeon testified at deposition that excessive force was not applied and that there must have been some abnormality with the bones.
2. Our surgeon made no comment in the operative report regarding the orbital bones or about whether the orbital area had been examined once hemostasis had been obtained.
3. (The next surgeon reported visible, pulsating brain through the bony hole – shouldn’t our surgeon have noticed this?)

L. Defense experts: Oculofacial plastic surgeons

1. Dr. A: No deviation from SOC
2. Dr. B: Surgery should have been at hospital, but perforation is uncommon.

M. Other issues

1. Informed consent
 - a. In deposition, our surgeon testified a full informed consent discussion had taken place but didn’t mention bone fracture, since it is rare.
 - b. The record only states: “...extensive conversation with pt and daughter and pics of patients s/p exenteration shown to pt.”
 - c. Consent note for preop biopsy was more complete!

2. Choice of ASC vs. Hospital

- a. Our surgeon testified that an ASC was appropriate since a transfusion or other major complication was not expected.
- b. Our surgeon owns approximately 2% of the ASC.

3. Anticoagulation

- a. Our surgeon relied on PCP to make decision about warfarin.
- b. PCP did not discuss directly with our surgeon.
 - i. PCP staff called surgeon’s staff to tell them not to stop warfarin and also faxed written directions.
 - ii. The medical record was not documented with the PCP’s instructions.
 - iii. PCP was not named as a defendant.

4. Our surgeon’s experience with exenteration

- a. Had performed 2 prior to this case
- b. Spoke effectively about surgical details at deposition

5. Clear cancer margins?

- a. Our surgeon testified that there was only cancer at the inferior margin toward the cheek; believed that the tumor did not extend superiorly and that surgery would have removed all of the orbital tissue.
- b. Final pathology found positive posterior and superior margins.
- c. “Suggestion of perineural invasion is present.”

N. Ultimate disposition

1. Original demand was for \$1M, reduced to \$599K.
2. Initial OMIC offer was for \$99K.
3. Defense counsel estimated 65% chance of defense verdict at trial.
4. Plaintiff verdict was estimated to be \$1M.
5. Settlement range was \$250-\$500K; ultimately settled for \$425,000.

III. What Can We Learn From This Case to Keep Ourselves Out of Trouble?

A. Communication

1. Document your discussions with patient about alternatives, anticoagulation, procedure-specific risks, likelihood of more surgery, etc.

2. Explain the details to the patient/family when the going gets rough. Help them to see that you truly care and are trying your best to get a good outcome.
 - a. Saying nothing or minimizing real problems will cause loss of trust.
 - b. Be more afraid of losing their trust than about what lawyers might think.
 - c. It is good to say, "I'm sorry that this is harder than we hoped it would be."
- B. Get help
1. Have a personal discussion of anticoagulation with internist or cardiologist and document the plan.
 2. Anticipate need for additional expertise with unusual cases. Use a hospital and alert colleagues that you might need their help (optimize success, enhance professional relationships, learn from them).
 3. Consider preemptive referral to a local, experienced peer. You can still assist in your patient's surgery and gain more experience.
- IV. Case 2: Communication: With the Patient and With Your Staff
- 60-year-old woman from England presented seeking cosmetic improvement minimal documentation in chart. Five weeks later in the office: upper and lower blepharoplasty, forehead lift, and facelift performed by our insured oculoplastic surgeon. Minimal documentation of office surgery.
- A. Postop Day 1
1. Patient seen at home on POD1 by nurse for drain removal.
 - a. Vision noted to be equally blurry from both eyes
 - b. No record of instructions on what to do if vision worsened
 2. No contact from the surgeon
- B. Postop Day 2
1. Patient seen at home on POD2 by a different nurse for "severe" swelling and blurry vision OS, can only see "at the periphery"
 2. VA, motility, and pupils not recorded
 3. The surgeon was contacted and photo sent, but no intervention other than more ointment from the nurse
 4. No record that the surgeon contacted the patient over the next 5 days
 5. Husband emailed but surgeon took no action.
- C. Postop day 7
1. First office visit with surgeon
 2. Vision OS: count fingers
 3. Motility: "normal"
 4. Face and forehead healing well
 5. Minimal documentation
 6. Referred to a retina specialist for same-day evaluation to "rule out retinal changes"
- D. Retina consult 6 days after onset of visual loss OS
1. Exam: optic neuropathy OS and 4-mm exophthalmos OS
 2. Retina ordered an orbit CT that showed left retrobulbar hemorrhage.
- E. Postop days ~10-20
1. Patient returned to England and did not follow up with surgeon.
 2. Selfies at home suggest evolving left orbital hemorrhage and motility deficit.
- F. Malpractice claim: negligent blepharoplasty resulting in blindness
1. Defense expert: Surgeon should have examined patient when visual loss first reported.
 2. OMIC expert: Preop evaluation and postop care were far below SOC.
 3. Surgeon consented to pretrial settlement; settled for \$350,000.
- G. Other issues
1. Documentation
 - a. No report of procedure
 - b. No postop discharge note
 - c. No postop instructions
 2. Postop communication with nurses
 - a. POD1 note: RN took photos to office to review with surgeon.
 - b. No documentation of that discussion
 - c. What was the surgeon's impression and plan?
 3. Postop communication with patient
 - a. Insured did not check on patient after RN's report of "severe" swelling OS.
 - b. Patient's husband emailed photo to insured on Saturday (POD #4).
 - c. Concerned about "red blob" and "is there anything to do?"
 - d. Insured asked husband to do vision test: showed loss of vision.
 - e. Insured didn't respond for 2 days (!)

- V. What Can we Learn From This Case to Keep Ourselves Out of Trouble?
- A. Act early to help and get help.
1. If possible and within SOC, fix the problem early and actively help the patient.
 2. Keep your friends close and your “enemies” closer. See your problem patient often and make them feel like a VIP.
 3. Show empathy and say you’re sorry that things are working out this way. Make them feel that you are the ally in their battle for a good result.
- B. Record keeping: Document your exams, your discussions with patient before and after surgery, your surgery, your decisions.
- C. Delegation
1. Anyone acting under your authority will be held to the same standard as you are (techs, nurses, receptionists, assistants, employed optometrists).
 2. Keep lines of communication open.
 3. Have a very low threshold for checking things for yourself.

- D. On-call and follow-up care
1. Make sure that everyone involved in the patient’s postsurgical care will act promptly and appropriately.
 2. Sign out or provide standing instructions to your on-call physician group.
 3. Make sure that the team can reach you (or someone with equivalent expertise) for questions or rapid decisions.

VI. Summary

- A. Be a great communicator.
1. Establish rapport with patients prior to a problem, and keep it.
 2. Clear documentation of exams, treatment discussions, consents
- B. Get expert help early
1. Anticipate potential problems preoperatively.
 2. Obtain consults or referrals quickly when things go south.

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Revance: C

Solta: C

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Allergan: C

Galderma: C

Lutronic Laser: L

Skin Ceuticals: C

Stroma: O

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None

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