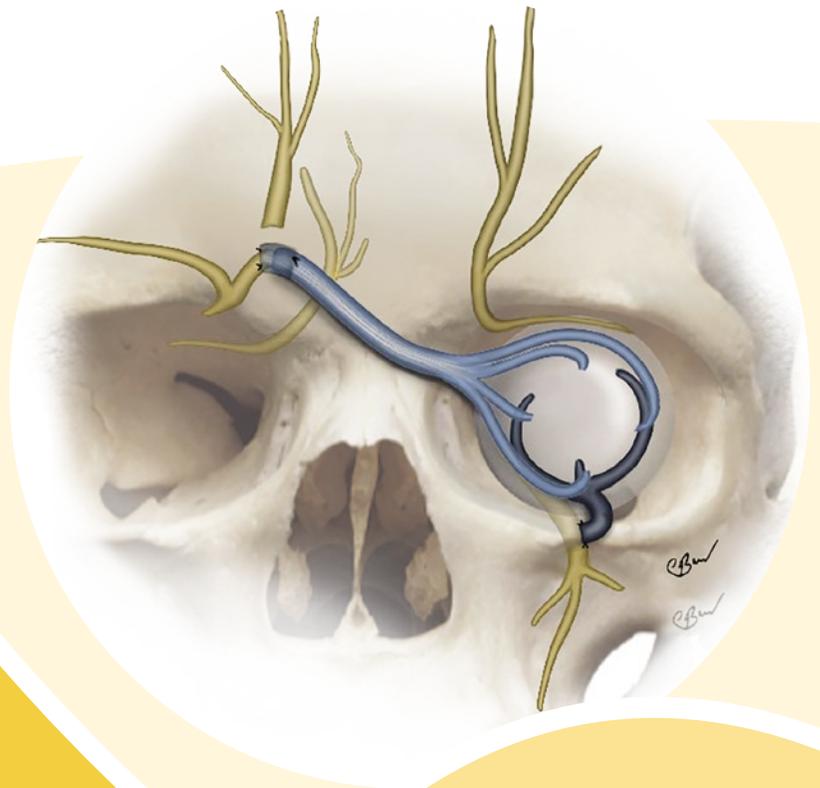




AMERICAN ACADEMY  
OF OPHTHALMOLOGY®



# Oculofacial Plastic Surgery 2023

Out With the New, In With  
the Old? Oculofacial  
Plastics Debates

**Subspecialty Day | AAO 2023**

San Francisco | Nov 4



# Oculofacial Plastic Surgery 2023

Out With the New,  
In With the Old?  
Oculofacial Plastics  
Debates

## Program Directors

Cat Burkat MD FACS and Steven M Couch MD

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



Moscone Center  
San Francisco, California  
Saturday, Nov. 4, 2023

Presented by:  
The American Academy of Ophthalmology

Supported by an unrestricted educational grant from  
Horizon Therapeutics and Viridian Therapeutics



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Steven M Couch MD  
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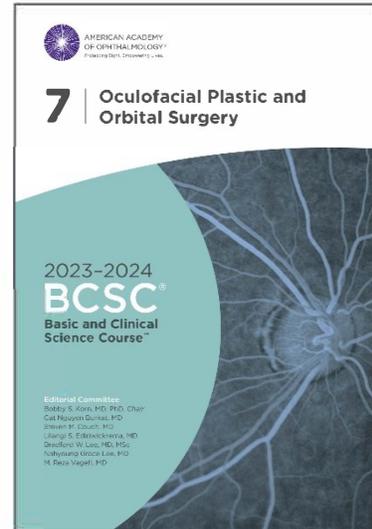


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Covering all subspecialties, the BCSC books are an invaluable resource not just for residents but also for practicing ophthalmologists.

The BCSC books are authored and revised by expert ophthalmic subspecialists, ensuring that the information presented is accurate, up-to-date, and authoritative. Please join us in thanking these volunteers for their hard work and commitment to education.



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# Oculofacial Plastic Surgery Subspecialty Day 2023 Program 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 San Francisco and Oculofacial Plastic Surgery 2023: Out With the New, In With the Old? Oculofacial Plastics Debates.



**Cat Burkat MD FACS**  
Program Director

None



**Steven M Couch MD**  
Program Director

Horizon Therapeutics Plc: S  
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Allergan, Inc.: C  
Aura Biosciences, Inc.: C  
Chengdu Kanghong: S  
Cognition Therapeutics: C  
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Genentech: C,S,L  
Greybug: S  
Iveric Bio: C  
JAMA Network: C  
Janssen Pharmaceuticals, Inc.: S  
Luxa: C | NGM: S  
Novartis Pharma AG: C  
Opthea: C  
Quark Pharmaceuticals: C  
Regeneron Pharmaceuticals, Inc.: C,S  
Santen, Inc.: C  
Spring Vision: S  
Stealth Biotherapeutics: S  
Taylor & Francis (CRC Press): P  
Unity: C  
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**Beth Wilson**  
None

# Oculofacial Plastic Surgery 2023 Contents

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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.

## Oculofacial Plastic Surgery Subspecialty Day 2023 Learning Objectives

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

- Improve the quality and safety of surgeries of the orbit, eyelid, and lacrimal system and be familiar with the various standard and high-tech modalities available
- Distinguish preferences in nonsurgical and surgical aesthetic facial rejuvenation
- Describe pitfalls in the treatment of challenging conditions or patients
- Analyze the benefits and risk profile of more trending therapies, such as teprotumumab, vismodegib, and oxymetazoline, as more experience has been gained with these medications
- Discuss updates on corneal neurotization surgery to enhance treatment of the neurotrophic cornea, as well as on trending medications, such as thyroid biologic agents and oxymetazoline

## Oculofacial Plastic Surgery Subspecialty Day 2023 Target Audience

The intended audience is oculofacial plastic surgeons and comprehensive ophthalmologists of all levels performing basic or complex orbit, eyelid, and/or lacrimal surgery, as well as physicians in training.

## Teaching at a Live Activity

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

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## Subspecialty Day 2023 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, Ocular Oncology and Pathology, Refractive Surgery, Retina (Day 1)

The Academy designates this Other (blended live and enduring material) activity for a maximum of *12 AMA PRA Category 1 Credits*<sup>™</sup>. 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)

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For Subspecialty Day 2023, you can claim CME credit multiple times, up to the 12-credit maximum per day, through March 29, 2024. You can claim some in 2023 and some in 2024, 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.

You can view content in the virtual meeting through March 1, 2024.

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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 2023.

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Send your questions about CME credit reporting to [cme@ao.org](mailto:cme@ao.org). For Continuing Certification questions, contact the American Board of Ophthalmology at [MOC@abpo.org](mailto:MOC@abpo.org).

# Faculty



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**Steven M Couch MD**  
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**Tamara R Fountain MD**  
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**Philip L Custer MD**  
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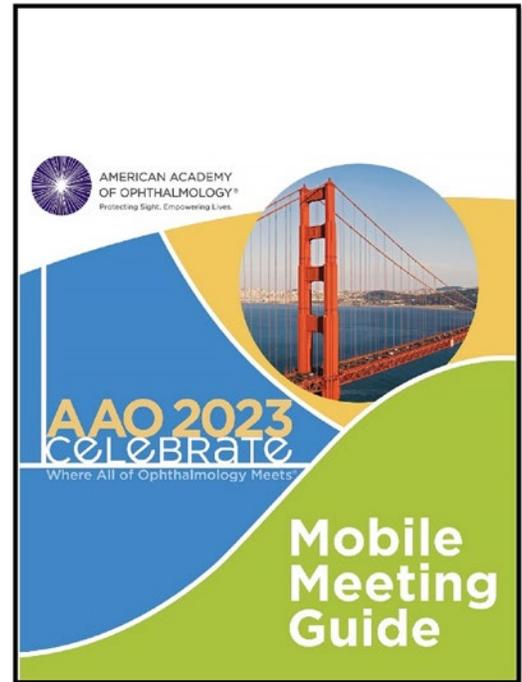


**Peter J Timoney MBBCh**  
Lexington, KY

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- Select “Current Session”
- Select “Interact with this session (live)” to open a new window
- Choose “Ask a Question”



# Oculofacial Plastic Surgery Subspecialty Day 2023: Out With the New, In With the Old? Oculofacial Plastics Debates

## SATURDAY, NOV. 4, 2023

7:00 AM CONTINENTAL BREAKFAST

8:00 AM Welcome and Introductions  
Cat Burkat MD FACS  
Steven M Couch MD

### Section I: Old School vs. New School

Moderators: Cat Burkat MD FACS and Tamara R Fountain MD

#### Frontalis Suspension Surgery

8:05 AM	Frontalis Suspension: Silicone Sling and Tutoplast Fascia Lata	John D Ng MD	1
8:11 AM	Frontalis Suspension: Supramid Brow Sling Ptosis Repair	Matthew G Vicinanza MD	2
8:17 AM	Frontalis Suspension: Fascia Lata	Robert C Kersten MD	3
8:23 AM	Frontalis Suspension: Frontalis Muscle	Richard C Allen MD PhD	4
8:29 AM	Q&A		

#### Posterior Lamellar Reconstruction

8:34 AM	Tarsal Free Graft	Erin Shriver MD	5
8:40 AM	Dermal Collagen Implant	Don O Kikkawa MD	6
8:46 AM	Q&A		

#### Tarsoconjunctival Flap Reconstruction

8:51 AM	Late Division	Peter J Timoney MBChB	7
8:57 AM	Hughes Flap-Early Division	Diego Strianese MD PhD	8
9:03 AM	Q&A		

#### Orbit and Lacrimal

9:08 AM	Transantral Decompression	Stuart R Seiff MD	9
9:14 AM	Dacryoscintigraphy for Persistent Epiphora	Robert C Kersten MD	10
9:20 AM	Q&A		
9:30 AM	REFRESHMENT BREAK		

### Section II: High-Tech vs. Low-Tech

Moderators: Cat Burkat MD FACS and Tamara R Fountain MD

#### Orbital Fracture Repair

10:00 AM	Standard Nylon Foil Implants	Hui Bae Harold Lee MD	11
10:06 AM	Customized Patient-Specific Implants	Nicholas R Mahoney MD	12
10:12 AM	Q&A		

**Forehead Lifting Fixation**

10:17 AM	Endotine Implants	Evan H Black MD	13
10:23 AM	Temporal Subcutaneous Lift	Grant H Moore MD	15
10:29 AM	Bone Tunnel and Screws	Kristin J Tarbet MD	17
10:35 AM	Q&A		

**Anophthalmos: Porous vs. Nonporous**

10:40 AM	Porous Orbital Implants	Christina H Choe MD	18
10:46 AM	Nonporous Silicone Orbital Implants	David R Jordan MD	19
10:52 AM	Q&A		

**Orbital Surgery**

10:57 AM	Virtual Reality Orbital Approach	Van Ann Q Tran MD	20
11:03 AM	Craniotomy	M Reza Vagefi MD	21
11:09 AM	Q&A		
11:17 AM	United for Sight: A Vision for Effective Advocacy	John Bryan Holds MD	22

**Section III: Eyelid Finesse—Success With More or Less**

Moderators: Cat Burkat MD FACS and Van Ann Q Tran MD

**Upper Blepharoplasty: Orbicularis-Sparing vs. Orbicularis Resection Flap**

11:22 AM	Orbicularis Muscle Resection	Cat Burkat MD FACS	24
11:28 AM	Orbicularis Muscle Preservation	Ron W Pelton MD PhD	25
11:34 AM	Q&A		

**Postblepharoplasty Sulcus Hollowing**

11:39 AM	Correction With Fillers	Sandy X Zhang-Nunes MD	26
11:45 AM	Fat Repositioning or Fat Grafting	Kenneth E Morgenstern MD	27
11:51 AM	Q&A		

**Malar Festoons**

11:56 AM	Initial Experience and Results With Lymphatic Massage	Shubhra Goel MD	28
12:02 PM	Thermomechanical Device-Aided Liquid Tetracycline Delivery for Management of Festoons	Cat Burkat MD FACS	29
12:08 PM	Q&A		
12:16 PM	LUNCH		

**Section IV: Marketing Your Brand—Ways of Yesterday vs. Path of the Future**

Moderators: Shubhra Goel MD and Van Ann Q Tran MD

1:31 PM	Not Your Father's Marketing: How Branding Has Changed Over the Years, and Lessons Learned From Job Changes	Kathryn D Winkler MD	30
1:36 PM	Ways of Now: How Social Media Changed My Practice	Maryam Nazemzadeh MD	31
1:41 PM	Marketing and Outreach Under the Sun(shine Act)	Jill S Melicher Larson MD	32
1:46 PM	What Can ChatGPT Do to Revolutionize Your Oculofacial Practice?	Bobby S Korn MD PhD FACS	33
1:52 PM	Q&A		

**Section V: What I Used to Do vs. What I Do Now—Surgical Technique Evolution**

Moderators: Seanna R Grob MD and Steven M Couch MD

2:08 PM	Changing How We Approach Acute Invasive Fungal Rhino-orbital Sinusitis	M Reza Vagefi MD	34
2:15 PM	Evolution of Tarsal Stabilization in Entropion and Tarsal Ectropion	Michael Edward Migliori MD	35
2:22 PM	Hydrogen Peroxide for Hemostasis	Cameron Nabavi MD	37
2:29 PM	Posterior Approach Ptosis Surgery	Vikram D Durairaj MD	39
2:36 PM	Evolution From Patient Care to Caring for the Patient	Jeffrey A Nerad MD	40
2:43 PM	Let's Go With the Swing!	Geoffrey E Rose FRCOphth	41
2:55 PM	Q&A		
3:05 PM	REFRESHMENT BREAK		

**Section VI: Boutique Medicine—Are They Still Hot, or Not?**

Moderators: Shubhra Goel MD and Steven M Couch MD

3:35 PM	Teprotumumab	Catherine J Hwang MD	42
3:41 PM	Tocilizumab and Upcoming Biologics	Stuart R Seiff MD	43
3:47 PM	Steroids + Radiotherapy	Michael Kazim MD	44
3:53 PM	Q&A		
4:01 PM	Vismodegib vs. Excision	Andrea N Kossler MD	45
4:07 PM	5-Fluorouracil for Conjunctival and Fornix Scarring	Alon Kahana MD PhD	47
4:13 PM	Ophthalmic Oxymetazoline	Kenneth V Cahill MD FACS	48
4:19 PM	Corneal Neurotization	Michael T Yen MD	49
4:25 PM	Q&A		

**Section VII: Reconstruction Time Machine—Favored or Forgotten Flaps**

Moderators: Shubhra Goel MD, Steven M Couch MD, and Cat Burkat MD

4:33 PM	Bucket Beard	Jill Annette Foster MD FACS	50
4:40 PM	Tarsal Switch	Alon Kahana MD PhD	52
4:47 PM	Eschew the Hughes, and Choose the Hewes	Andrew R Harrison MD	53
4:54 PM	Rethinking the Tarsoconjunctival Flap: A Novel Technique to Preserve Central Lashes and Avoid Skin Graft in Large Lower Eyelid Mohs Defects	Ronald Mancini MD	54
5:01 PM	Combination Glabellar and Y-to-V Island Pedicle Flap	Christina H Choe MD	55
5:08 PM	Sliding Tarsoconjunctival Flap for Margin Defects	Philip L Custer MD	56
5:15 PM	Q&A		
5:24 PM	Closing Remarks	Cat Burkat MD FACS Steven M Couch MD	
5:25 PM	ADJOURN		



# Frontalis Suspension: Silicone Sling and Tutoplast Fascia Lata

*John D Ng MD*

## I. Silicone Frontalis Sling

A. Technique: Open pretarsal fixation, single central pentagon, single suprabrow stab incision

### B. Advantages

1. Easy to perform, minimal scarring, forms lid crease, and prevents lash ptosis
2. Elastic with ability to close eyelids
3. Easy to adjust or remove if needed

### C. Disadvantages

1. Less tensile strength
2. Variable longevity
3. Exposure/granuloma formation

### D. My indications

1. Sling in  $\leq 3$ -year-olds
2. Poor eye protective mechanisms

## II. Tutoplast Fascia Lata (Or Autogenous Fascia Lata)

### A. Technique: Open pretarsal fixation

1. Single central pentagon with single suprabrow stab incision (initial procedures)
2. Double pentagon with 3 suprabrow incisions (Reoperations or very tight lids—severe blepharophimosis)

### B. Advantages

1. Stronger material
2. Less likely to develop granuloma or exposure
3. Double pentagon allows tailoring contour for patients with nonuniform frontalis contraction.

### C. Disadvantages

1. Slightly longer procedure
2. Nonelastic
3. Possibly extra forehead scar

## III. Summary

Both the silicone and frontalis sling procedures, whether the single or double pentagon technique, provide reliable lid elevation with good contour. Silicone provides elasticity and ease of adjustment. Fascia lata provides better tensile strength and possibly better longevity. Having multiple techniques in your armamentarium allows you to tailor your procedure to the specific presentation of your patient.

# Frontalis Suspension: Supramid Brow Sling Ptosis Repair

## What's Old Is Still What's Needed

*Matthew G Vicinanza MD*

### I. Brow Sling Options

- A. Fascia lata, banked or autogenous
- B. Silicone rod
- C. Silicone bands
- D. Expanded polytetrafluoroethylene (ePTFE)
- E. Nonabsorbable sutures (eg, nylon [Supramid])
- F. Frontalis flap advancement

### II. Patient Selection

- A. Congenital ptosis with low levator function below age 6 years old. Temporary procedure before autogenous fascia lata repair.
- B. Congenital ptosis with partial response to anterior levator resection
- C. Adult-onset ptosis with poor levator function
  - 1. Myasthenia gravis
  - 2. Chronic progressive external ophthalmoplegia (CPEO)
  - 3. Traumatic ptosis with poor levator function
  - 4. Third nerve palsy
- D. Blepharospasm with poor medical control
- E. Apraxia of eyelid opening with good brow function

### III. Advantages

- A. Good, minimally invasive, fast recovery procedure for infants with profound ptosis
- B. Good temporizing procedure while awaiting more permanent fascia lata for older children
- C. Very reversible, and ideal procedure to test “dryness” toleration in adult paralytic or traumatic ptosis, often before more permanent/invasive procedure
- D. Low risk of infection or rejection
- E. Ease of surgical learning curve

### IV. Disadvantages

- A. Often not as permanent
- B. Not adjustable

### V. Video presentation



# Frontalis Suspension: Frontalis Muscle

## Frontalis Flap Surgery

**Richard C Allen MD PhD**

### I. Traditional Frontalis Suspension: Timing of Intervention

- A. Early (before 4 years of age)
  - 1. Silicone
  - 2. Gore-Tex
  - 3. Et cetera
- B. Late (after 4 years of age)
  - 1. Autologous fascia

### II. Risks of Traditional Frontalis Suspension

- A. Foreign body
  - 1. Extrusion
  - 2. Infection
  - 3. Availability
- B. Autologous fascia
  - 1. Harvesting
  - 2. Potential leg problems

### III. Frontalis Flap

- A. Early or late
- B. No foreign body issues
- C. No harvesting of tissue
- D. No donor site issues

### IV. Risks of Frontalis Flap

- A. Eyelid pop
- B. Lid crease formation
- C. Durability

### V. Remedies for Risks

- A. Include levator in the surgery
- B. Incorporate levator in eyelid incision closure

### Selected Readings

1. Diab MM, Abd-Elaziz K, Allen RC. Combined levator and frontalis muscle advancement flaps for recurrent severe congenital ptosis. *Eye* 2023; 37:1100-1106.
2. Medel R, Molina S, Vasquez LM, Visa J, Wert A, Wolley-Dod C. Frontalis muscle flap versus maximal anterior levator resection as first option for patient with severe congenital ptosis. *Ophthalmic Plast Reconstr Surg*. 2018; 34:565-569.
3. Medel R, Vasquez L, Wolley-Dod C. Early frontalis flap surgery as first option congenital ptosis with poor levator function. *Orbit* 2014; 33(3):164-168.

# Tarsal Free Graft

## For Posterior Lamellar Reconstruction

**Erin M Shriver MD**

### I. Indications

- A. Repair of upper or lower eyelid defects typically involving the eyelid margin
- B. Harvest location can be ipsilateral or contralateral.
- C. Can be used alone for up to 50% of the eyelid margin or as part of a composite graft
- D. Provides posterior lamellar support and mucous membrane lining
- E. Advantages
  1. Minimal postoperative inflammation
  2. Smooth surface for cornea
  3. Free tarsal graft remains the same thickness as when harvested
  4. No obstruction of visual axis
  5. One stage only

### II. Technique

- A. Topical 4% lidocaine to anesthetize the conjunctiva prior to local injection
- B. 4-0 silk (2 lid margin passes to stabilize eyelid eversion medially and laterally)
- C. Medium Desmarres chalazion clamp; keep closed and rotate the 4-0 silk suture around the knob.
- D. Mark 4 mm superior to the lid margin and length of the defect with bipolar cautery.
- E. 15 Bard-Parker blade to make an incision through the conjunctiva and tarsal plate
- F. Westcott scissors (or hot temp cautery) to dissect tarsal graft from overlying levator aponeurosis and conjunctiva and Mueller muscle superiorly
- G. Can harvest a “fringe” of conjunctiva (for mucocutaneous junction eyelid margin reconstruction or a longer fringe, can reconstruct larger vertical defects)
- H. Judicious cautery to minimize retraction
  - I. Store in a saline-soaked gauze until ready to suture into place.
  - J. Suture into place with 5-0 Vicryl lamellar passes horizontally and 6-0 or 7-0 Vicryl near the margin and distally.
  - K. Vertical mattress sutures to evert and elevate the medial and lateral edges of the free tarsal graft/ eyelid margin junction

- L. Typically reconstruct with vascularized anterior lamellae such as a myocutaneous flap, but case series demonstrate can place full-thickness skin grafts directly onto free tarsal grafts.
- M. Important to adhere the free tarsal graft to the anterior lamellae with quilting sutures, bolsters, etc.
- N. Create horizontal stability with a tight lid from lateral tarsal strip, canthopexy, etc.
- O. Consider vertical anchor/suspension with small lateral tarsorrhaphy or medial canthopexy/ tarsorrhaphy (permanent or temporary).
- P. Immobilize with a pressure patch postoperatively.
- Q. Per AAO, consider CPT 15120 (split-thickness autograft, face, scalp, eyelids ...; first 100 square centimeters or less) or 15260 (full-thickness graft, free, including direct closure of donor site, nose, ears, eyelids ... and/or lips; 20 square centimeters or less)

### III. Potential Complications

- A. Retraction of the donor eyelid
- B. Notching of the donor eyelid
- C. Lack of superior/posterior vector force as would be present in a tarsoconjunctival flap

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# Dermal Collagen Implant For Lid Retraction

**Don O Kikkawa MD**

## I. Why Does Post-blepharoplasty Lid Retraction Occur?

- A. Too much soft tissue volume removed
- B. Fibrosis and contraction of lid architecture
- C. Negative vector
- D. Lid laxity

## II. How to Correct It?

- A. Avoidance is worth a pound of cure.
- B. Vertical support of lid
  - 1. Add volume
  - 2. Recession of lid retractors and scar tissue release
  - 3. Add structural support
    - a. Not a spacer graft (Nothing is wrong with the posterior lamella.)
    - b. Internal splinting with ability to lengthen the lid
      - i. crosslinked porcine acellular dermis
      - ii. other options
  - 4. Support the midface
  - 5. Horizontal lid tightening if necessary

## Selected Readings

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# Late Division

## “How Long Is Long?” Delayed Hughes Tarsconjunctival Flap Takedown

**Peter J Timoney MBBCh**

- I. Epidemiological Data
  - A. Incidence of cardiovascular disease in U.S. population
  - B. Incidence of blood thinner use in U.S. population
  - C. Incidence of smoking in U.S. population
- II. Advantages of a Tarsconjunctival (TC) Flap
  - A. Ease of reconstruction of posterior lamella
  - B. Lower eyelid support, maintain lower eyelid position
  - C. Suitable for a wide range of defect sizes
  - D. Provides a lower eyelid with lined conjunctiva
- III. Disadvantages of a TC Flap
  - A. Two-stage procedure
  - B. Renders patient monocular
  - C. Interferes with medical management of corneal/IOP/retinal issues
- IV. Modify Width of TC Flap
  - A. Patient requiring daily/frequent corneal/IOP/retinal evaluation and management
  - B. Monocular patient
- V. Timing and Extent of TC Flap Division
  - A. True vs. modified TC flap
  - B. Full-thickness skin graft (FTSG) vs. advancement flap
  - C. Whole vs. partial division
- VI. Possible Complications With Early TC Flap Division
  - A. Lower eyelid malposition
  - B. FTSG ischemia
  - C. TC flap dehiscence
  - D. Further eyelid reconstruction
- VII. Possible Advantages to “Late” TC Flap Division
  - A. Reinforces lower eyelid functional position; counteracts downward gravitational pull from edema and scar tissue
  - B. Increases FTSG viability
- VIII. Successful Outcome
  - A. Functional
  - B. Aesthetic



# Transantral Decompression For Thyroid Eye Disease

**Stuart R Seiff MD**

The transantral approach is one of the original techniques for orbital decompression in thyroid eye disease. It provides a traditional approach to the maxillary sinus and thus to the ethmoids. It is most valuable in cases of extreme proptosis, as it does not require working under a tight protruding globe and gives direct visibility to the orbital apex in cases of compressive optic neuropathy. This is far superior to a transconjunctival approach in such cases and yields better access to the orbital apex than endoscopic approaches. It regularly provides 3-5 mm of proptosis reduction.

A modified transantral orbital decompression has been described, where the anterior inferior periorbital is preserved as the periorbital relaxation occurs posteriorly. This preserves the anterior suspensory ligaments of the globe (Lockwood ligament) and periorbital. Avoiding this area minimizes postoperative diplopia and inferior globe dystopia. This procedure still provides large amounts of proptosis reduction.

The approach is begun with a sublabial incision and then elevation of tissue off the anterior maxillary face. The maxilla is opened with an osteotome below the infraorbital nerve. The bony maxillary face is removed with rongeurs to allow access. Sinus mucosa is removed. The orbital floor is preserved at this point, and the medial ethmoid sinuses are opened. An ethmoidectomy is performed with pituitary forceps up to the level of the ethmoid vessels. Then the floor is opened medially to the infraorbital nerve. The floor is removed, and then the medial wall is removed. The periorbital is opened with a 12 blade in the posterior third. This continues to provide support for the globe and muscle insertions. The fat is encouraged to prolapse into the ethmoids and maxillary sinus. The sublabial incision is closed with a 3-0 chromic suture.

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# Standard Nylon Foil Implants

Hui Bae Harold Lee MD

## I. Standard Nylon Foil Implant

- A. Safe, cost-effective implant choice for orbital fracture repair
- B. Low rates of implant complication, including orbital adherence syndrome, lid retraction, and double vision
- C. Forgiving surgery

## II. National Health-Care Costs Increasing

- A. In 2021, U.S. health-care spending grew 2.7%, to reach \$4.3 trillion, slower than the increase of 10.3% in 2020.
- B. Throughout the 30-year period (1989-2019) examined by this study, device spending as a share of total national health expenditures varied somewhat from year to year. It started at 5.7% and ended at 5.2%, with a range from 6.3% to 5.1%.

## III. Conclusion

Nylon implants provide effective results without the cost of other implant choices, especially patient-specific implants.

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# Endotine Implants

## Bioabsorbable Soft Tissue Fixation Devices in Endoscopic Forehead Lifting

**Evan H Black MD**

### Abstract

#### Purpose

To assess the efficacy and rates of inflammatory cyst formation with the use of 2 different biodegradable multipoint fixation devices, Endotine versus Ultratine, for endoscopic forehead elevation.

#### Methods

The charts of 138 patients who underwent endoscopic forehead elevation by the same surgeon (EHB) were reviewed retrospectively. Data regarding patient demographics, type of biodegradable fixation device, loss of fixation in the immediate and late postoperative period, inflammatory cyst formation of the fixation device, additional complications, and reoperation status were collected from the charts. Patients implanted with Endotine and Ultratine were compared postoperatively for early and late loss of elevation (efficacy), inflammatory cyst formation, additional complications, and reoperation rates.

#### Results

Of the 276 fixation devices implanted (117 Endotine and 159 Ultratine), 11 inflammatory cysts were found, all of them in the Ultratine group ( $P = .0037$ ). Four patients required reoperation due to early loss of fixation. Three of these cases were in the Endotine group, and 1 case was observed in the Ultratine group ( $P = .18$ ). A total of 4 patients had late loss of fixation, all of them in the Ultratine group ( $P = .08$ ). Scalp hypoesthesia and/or dysesthesia beyond the sixth postoperative month was observed in 3.62% of the cases. Postsurgical neuralgia was observed in 2.17%, and focal alopecia was seen in 1.44%.

#### Conclusions

The presence of inflammatory cysts with the implantation of the Ultratine device is statistically higher than with Endotine. No statistically significant difference was found in either early or late fixation loss between the 2 groups.

### Outline

- I. Options for Endoscopic Forehead Fixation
  - A. Bioabsorbable fixation devices<sup>1-3</sup>
  - B. Cortical bone tunnel/suture
  - C. Fixation screws
  - D. Barbed suture
  - E. Tissue glue<sup>7</sup>
  - F. K wire<sup>9</sup>

### II. Bioabsorbable Device Composition

- A. Endotine fixation device is composed of a poly-L-lactic acid and polyglycolic acid polymer blend.
- B. Ultratine consists of the same materials but in a different proportion, resulting in more aggressive, faster absorption and weaker fixation.<sup>10</sup>
- C. The Ultratine implant results in a higher rate of reoperation and complications of cyst formation at the implant site, so we do not recommend this version (these are not available in Europe).<sup>10</sup>

### III. Advantages of Bioabsorbable Fixation Devices

- A. Strength
- B. Absorbability
- C. Ease and speed of placement with experience
- D. Small incision placement
- E. Adjustability
- F. Multipoint fixation for exceptional contouring
- G. Predictable and consistent results<sup>1-4</sup>
- H. Improved fixation allows for correction of difficult asymmetry and can be useful in facial nerve palsy.<sup>6</sup>

### IV. Disadvantages of Bioabsorbable Fixation Devices

- A. Cost
- B. Palpability: Being able to palpate the device is the most common complaint we receive after endoforehead lifting.
- C. Potential for untoward reactions; more often seen with Ultratine<sup>10</sup>
- D. Learning curve for proper placement

### V. Advantages of Bioabsorbable Implants Over Other Methods

- A. Single-point fixation can cause a peaked brow contour or “surprised look.”
- B. Cortical bone tunnel creation is higher risk for deeper penetration into frontal bone.
- C. Endotine bioabsorbable implants are placed high in the forehead where there is little to no kinetic force on the device. Transbleph devices, subbrow fixation sutures, and other types of fixation to the midforehead or subbrow tissue experience significant movement and thus may lose fixation.

- D. Tissue glues are difficult to adjust and may be irregular and unreliable.
- E. Nonabsorbable screws may need removal.

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# Temporal Subcutaneous Lift

## Low Tech, High Satisfaction

**Grant H Moore MD**

### I. Introduction

When approaching rejuvenation of the periorbital area, the upper eyelid and eyebrow are often considered as a single aesthetic unit. There are several approaches to brow lifting, including the coronal, pretrichial, direct, endoscopic, and internal. Required equipment for the aforementioned techniques can range from simple “low-tech” machines to “high-tech” power tools and endoscopic imaging systems.

The lateral subcutaneous brow lift (LSBL) is an additional “low-tech” approach that can help improve hooding at the lateral brow-eyelid junction.<sup>1-4</sup> The LSBL incorporates the power of excisional techniques with an incision that is hidden behind the hairline.

### II. Patient Evaluation and Selection

Developing one’s own algorithm, or “brow-gorithm,” for brow lift selection can help to optimize postoperative results and patient satisfaction. The lateral subcutaneous brow lift is optimal for older, female patients with lateral hooding secondary to involutional tissue laxity and descent of the eyebrow. The lateral subcutaneous brow lift is usually not a stand-alone procedure unless upper eyelid blepharoplasty has already been performed.

### III. Exam Findings of Note

- A. Brow position in relation to the orbital rim: Does the brow fall below the rim medially and laterally? How far below the rim does the brow fall?
- B. Frontalis function: Any findings concerning for decreased function or paralysis?
- C. Forehead skin and tissue: Are there any traumatic or surgical scars? Is the subcutaneous tissue thick or attenuated?
- D. Bony anatomy: How prominent is the bone underlying the brow? Deep set eyes?
- E. Hairline: Has the hairline receded? How much of the incision can be made posterior to the hairline?

### IV. Surgical Technique

- A. Mark midline, conjoint tendon, and incision (1-2 cm posterior to hairline, ~5.5 cm length).
- B. Perform upper eyelid blepharoplasty first.
- C. Inject tumescent local anesthetic.
- D. Initial incision—ideally, posterior to hairline

### E. Initial dissection

1. Perform sharp dissection with curved Stevens 1 cm anterior to incision.
2. Visualize fat deep and superficial to the plane of dissection.

### F. Adjust bed and surgeon height to optimize angle of dissection.

### G. Bluntly tunnel with Metzenbaum scissors in subcutaneous plane to level of superior orbital rim.

### H. Use finger sweep to break up superficial adhesions.

### I. Check dissection cavities, equalize as necessary.

### J. Measure tissue excision

1. Push back edge anterior
2. Pull front edge posterior
3. Mark overlap with skin marker.

### K. Excise tissue, always from posterior edge.

### L. Close skin with staples.

### M. Postoperative care

1. Headwrap (Coban) for 24-48 hours
2. Antibiotic ointment, cephalexin 500 mg q.i.d. for 7 days, acetaminophen PRN

### V. Potential Complications

- A. Minor hair loss
- B. Necrosis and epithelial sloughing
- C. Incision step-off’s
- D. Change of hairline shape
- E. Under- or overcorrection
- F. Hematoma
- G. Facial nerve weakness

### VI. Conclusion

The lateral subcutaneous brow lift can help to improve hooding at the lateral, eyebrow-eyelid junction without the need for additional endoscopic imaging or other electric instruments. With understanding of and familiarity with the associated anatomy, this procedure can play an important role in the oculofacial plastics surgeon’s “brow-gorithm.”

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# Porous Orbital Implants

**Christina H Choe MD**

- I. History of Porous Orbital Implants After Enucleation and Evisceration
  - A. Hydroxyapatite
  - B. Synthetic options
    - 1. Synthetic hydroxyapatite
    - 2. Porous polyethylene
    - 3. Aluminum oxide
  - C. Pegging
- II. Tips on Surgical Technique
  - A. Wrapping
  - B. Insertion within muscle cone
  - C. Insertion of muscles
- III. Pros and Cons of Porous vs. Smooth Orbital Implants
  - A. Exposure
  - B. Migration
  - C. Infection
  - D. Cost

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# Nonporous Silicone Orbital Implants

*David R Jordan MD*

## **Porous Orbital Implants: Is There Any Advantage? Is It Time to Close This Chapter?**

Although the use of porous orbital implants following enucleation and evisceration has been tried and discarded over several decades, a new era in anophthalmic socket surgery began with the introduction of coralline hydroxyapatite (HA) by Dr. A Perry. The HA implant represented a new generation of buried spherical implant, with an interconnecting system of pores that allowed host fibrovascular ingrowth. By drilling into the HA implant and inserting a peg, the orbital implant could be directly coupled to the overlying prosthetic eye, producing life-like movement of the prosthesis. Although HA implants significantly raised the cost of surgery, the proposed advantages of a lower migration rate, lower extrusion rate, resistance to infection, and enhanced motility were used to justify the added expense.

Unfortunately, there has never been any scientific proof of these advantages, apart from motility. With respect to enhanced motility, peg placement has been shown to improve horizontal gaze movements in the artificial eye. There is also a more life-like movement to the prosthesis because of the fine darting eye movements seen during conversation. However, without the peg in place, there is no proven motility advantage of porous over nonporous implants.

If there is no plan to peg, I prefer a nonporous implant (sphere or mounded). Nonporous spherical implants can be used efficiently and effectively during a primary procedure such as enucleation or evisceration; the surgical techniques required can be mastered by most ophthalmic surgeons. Motility results are equal to that of nonpegged porous implants. Nonporous implants are inexpensive and are associated with a low incidence of complications.

During enucleation, it is important that they be placed within a normal anatomic position and attached directly (or through a wrap) to the extraocular muscles to ensure stability in their position.

# Virtual Reality Orbital Approach

**Ann Q Tran MD, Kevin Heinze MD, Sudarshan Srivatsan MD, Dan Lee MD, Sruti Akella MD, and Pete Setabutr MD**

- I. Introduction
  - A. Current educational tools in oculoplastic surgery
  - B. Use of virtual reality (VR) models in other subspecialties
  - C. Use of 3-D models for patient care and surgical planning
- II. Background Objectives
  - A. How VR can be incorporated for surgical planning
  - B. How VR can be incorporated in patient care
  - C. How VR can be incorporated in resident education
- III. Current VR Models
  - A. ImmersiveTouch software, HIPPA compliant, patient specific
  - B. Use of Oculus VR headset
- IV. Case Presentation: Surgical Planning
  - A. Example case of a police officer with an infected Medpor orbital floor implant and complete blowout fracture
  - B. 3-D reconstruction used intraoperatively to mold the autologous rib as a plate
  - C. Use of VR model to assess the anatomy intraoperatively prior to the case
- V. Use of VR in Patient Care
  - A. In neurosurgery, prospective studies on the use of VR simulation in preop clinic to improve patient education
  - B. Preliminary results on how this can be incorporated in oculoplastic clinic
- VI. Use of VR in Resident Education
  - A. Single-day wet labs
  - B. Before the case
- VII. Future Uses
  - A. More 3-D planning.
  - B. Advances in tool simulation

# Craniotomy

## A Proven Approach to the Deep Orbit and Skull Base: The Frontotemporal Orbitozygomatic Craniotomy

**M Reza Vagefi MD**

- I. Introduction
  - A. Boney anatomy
  - B. Frontotemporal orbitozygomatic (FTOZ) craniotomy
- II. Utility of FTOZ in Orbital Surgery
  - A. Apical tumors
  - B. Tumors of the sphenoid wing
- III. Study of FTOZ Craniotomy for Spheno-orbital Meningioma Resection
  - A. Resection outcomes
  - B. Proptosis outcomes
  - C. Visual acuity outcomes
- IV. Conclusions

### Selected Readings

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# United for Sight: A Vision for Effective Advocacy

## Oculofacial Plastic Surgery Subspecialty Day 2023

*John Bryan Holds MD*

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- **Increasing** patient access to treatment and care by reducing prior authorization and step therapy burdens

Academy member support of OPHTHPAC makes all this possible. Your support provides OPHTHPAC with the resources needed to engage and educate Congress on our issues, helping advance ophthalmology's federal priorities. Your support also ensures that we have a voice in helping shape the policies and regulations governing the care we provide. Academy member support of OPHTHPAC is the driving factor behind our advocacy push, and we ask that you get engaged to help strengthen our efforts and make sure that the ophthalmology specialty has a seat at the table for the critical decisions being made that affect our ability to care for our patients.

At the Academy's annual Mid-Year Forum, the Academy and the American Society of Ophthalmic Plastic and Reconstructive Surgery ensure a strong presence of oculofacial plastic surgery specialists to support ophthalmology's priorities. As part of this year's meeting, the American Society of Ophthalmic Plastic and Reconstructive Surgery supported participation of fellowship trainees via the Academy's Advocacy Ambassador Program. During Congressional Advocacy Day, they visited Members of Congress and their key health care staff to discuss ophthalmology priorities. The American Society of Ophthalmic Plastic and Reconstructive Surgery remains a crucial partner with the Academy in its ongoing federal and state advocacy initiatives.

### Surgical Scope Fund (SSF) for State Advocacy

The Surgical Scope Fund works in partnership with state ophthalmic societies to protect patient safety from dangerous optometric surgery proposals through advocacy. The Fund's mission is to ensure surgery by surgeons, and since its inception, it has helped 43 state/territorial ophthalmology societies reject optometric scope-of-practice expansions into surgery.

Support for the Surgical Scope Fund from ophthalmic interest societies like the American Society of Ophthalmic Plastic and Reconstructive Surgery makes our advocacy efforts pos-

Surgical Scope Fund	OPHTHPAC®	State EyePAC
To protect patient safety by defeating optometric <i>surgical</i> 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 Individual, practice, corporate, and organization	Contributions: Personal contributions are limited to \$5,000. Corporate contributions are confidential.	Contribution limits vary based on state regulations.
Contributions are 100% confidential.	Personal contributions of \$199 or less and all corporate contributions are confidential. Personal contributions of \$200 and above are public record.	Contributions are on the public record depending upon state statutes.

sible. These efforts include research, lobbyists, political organization, polling, advertising, social media, digital communications, and grassroots mobilization. However, the number of states facing aggressive optometric surgery legislation each year has grown exponentially. And with organized optometry’s vast wealth of resources, these advocacy initiatives are becoming more intense— and more expensive. That’s why ophthalmologists must join together and donate to the Surgical Scope Fund to fight for patient safety.

The Academy’s Secretariat for State Affairs thanks the American Society of Ophthalmic Plastic and Reconstructive Surgery for its ongoing commitment to the Surgical Scope Fund. The American Society of Ophthalmic Plastic and Reconstructive Surgery’s support for the Surgical Scope Fund is essential to fighting for patient safety and quality eye care!

**State Eye PAC**

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.

**Support Your Colleagues Who Are Working on Your Behalf**

Two Academy committees made up of your ophthalmology colleagues are working hard on your behalf. 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 used to protect Surgery by Surgeons during scope battles at the state level.

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# Orbicularis Muscle Preservation

**Ron W Pelton MD PhD**

## Introduction

Upper blepharoplasty can involve removal of both the skin and, in some cases, a portion of the preseptal orbicularis oculi muscle. Some surgeons believe that preservation of the orbicularis results in faster recovery and better aesthetic outcomes. However, another important outcome of muscle-sparing upper blepharoplasty is preservation of lid function. Preservation of the preseptal orbicularis can substantially reduce issues related to lagophthalmos, corneal exposure, and dry eye disease. This presentation will discuss muscle-sparing blepharoplasty technique and outcomes.

## Selected Readings

1. Kiang L, Deptula P, Mazhar M, Murariu D, Parsa FD. Muscle-sparing blepharoplasty: a prospective left-right comparative study. *Arch Plast Surg*. 2014; 41(5):576-583.
2. Saadat D, Dresner SC. Safety of blepharoplasty in patients with preoperative dry eyes. *Arch Facial Plast Surg*. 2004; 6(2):101-104.
3. Mohammed M. Impact of orbicularis oculi muscle strip excision during upper lid blepharoplasty on tear film breakup time and postoperative dry eye symptoms. *Al-Azhar Med J*. 2018; 47(3):539-549.
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5. Hoorntje LE, van der Lei B, Stollenwerck GA, Kon M. Resecting orbicularis oculi muscle in upper eyelid blepharoplasty—a review of the literature. *J Plast Reconstr Aesthet Surg*. 2010; 63(5):787-792.

# Correction With Fillers

## Superior Sulcus Fillers for Superior Orbital Hollowing

***Sandy Zhang-Nunes MD***

Just as superior sulcus fullness is key sign of youth, superior sulcus hollowing is a key sign of aging. But it is often neglected in facial rejuvenation. Fillers are a good option for filling the superior sulcus to provide facial balance for those who want to maintain their youthful appearance.

- Care must be taken to stay below the orbicularis oculi muscle, and it is ideal to stay anterior to the orbital septum.
- A cannula is preferred in my hands for maximal safety and to minimize bruising.
- The approach should be orthogonal to the supraorbital and supratrochlear vessels with a cannula to reduce the risk of blindness and other ischemic complications.
- Soft hyaluronic acid fillers are safer in this region to minimize bumps and to allow for reversibility.
- Filling a small amount at a time is ideal to prevent overfilling, edema, and other potential long-term side effects.

Videos and patient examples will be shared during the lecture.

# Fat Repositioning or Fat Grafting

## Dermis Fat Grafting for the Hollowed Sulcus

**Kenneth Morgenstern MD**

There are multiple etiologies to the hollowed superior sulcus. Trauma and surgery are the most common. While there are multiple ways of dealing with this, sometimes the old ways remain the most reliable. Dermis fat grafting is an easy and reliable way of addressing this issue.

- I. Introduction: Etiology
- II. Techniques
  - A. Globe reposition
  - B. Filler
  - C. Free fat
  - D. Dermis fat
- III. Technique for Dermis Fat
- IV. Before and After
- V. Risks and Benefits

### Selected Readings

1. Shore JW, McCord CD Jr, Bergin DJ, Dittmar SJ, Maiorca JP, Burks WR. Management of complications following dermis-fat grafting for anophthalmic socket reconstruction. *Ophthalmology* 1985; 92(10):1342-1350.
2. Bonavolontà G, Tranfa F, Salicone A, Strianese D. Orbital dermis-fat graft using periumbilical tissue. *Plast Reconstr Surg*. 2000; 105(1):23-26.
3. Inchingolo F, Tatullo M, Pacifici A, et al. Use of dermal-fat grafts in the post-oncological reconstructive surgery of atrophies in the zygomatic region: clinical evaluations in the patients undergone to previous radiation therapy. *Head Face Med*. 2012; 8:33.





# Not Your Father's Marketing: How Branding Has Changed Over the Years, and Lessons Learned From Job Changes

*Kathryn Winkler MD*

## I. Strategies

- A. Traditional long-standing marketing strategies:  
“Boots on the ground,” face-to-face introductions, word-of-mouth, patient referrals, and traditional media, print ads and radio, were effective and remain a valid form of marketing.
- B. The proliferation of online content marketing and subsequent marketing channels has naturally changed the landscape.
- C. Traditional media still works, but newer strategies are increasingly important.
  - 1. Organic search is now a critical component of marketing.
  - 2. Targeted social media ads

## II. Brand

A seamless brand experience across multiple channels is integral to a smooth customer experience.

- A. Website: Making your website more visible with sound yet simple SEO strategies
  - 1. Beyond a pretty, usable website, you also need to make sure it's easily read by search engines—targeted keywords, thoughtful organization (H1, H2, etc. tags), and structured data will all help you appear in top positions on search engine results pages (SERP).
  - 2. Further, frequently updated content provides a boost for search results.
  - 3. This doesn't necessarily have to be full-scale copy changes or a continually updated blog; it can be small changes (updates) and posting positive reviews.
- B. How your EMR system can aid your marketing
  - 1. Patients rightfully expect a thoughtfully curated patient portal (not just an email contact form) that offers online bill pay and follow-up surveys, and these can also provide valuable feedback.
  - 2. Surveys can be particularly powerful—they provide important data to measure how your marketing strategies are working.
- C. Google reviews are not to be ignored.
  - 1. Lost stars equal lost revenue.

## 2. How to improve Google reviews

- a. Ask directly
- b. Have physical takeaways for known satisfied patients
- c. Follow-up EMR surveys with a prompt to Google reviews
- d. Use a dedicated service.

## III. How to Get There

- A. Hire a marketing company
- B. Social media help
- C. You can do it solo if you have the knowledge, but your time is valuable.
- D. Online channels are an efficient use of marketing spend, but if you're green, traditional ways of establishing yourself still work—get out there and shake hands.

## IV. Lessons Learned From a Mismanaged Google Profile

- A. Physicians may not have full control of their unique online profile, and this can cause significant disruption when changing practices or locations, especially when transferring outside the original system.
- B. My Google profile was effectively “owned” by the hospital system I worked at previously.
  - 1. Searching my name, practice, hours, etc., revealed the prior location.
  - 2. Included the all-too-important rich snippets, the pop-up and picture that appears in the upper right-hand corner, which made it difficult for potential patients to find necessary, current data.
  - 3. Recovering ownership of my Google profile took about 1 year, the help of an attorney, and frequent check-ups to be sure changes were consistently reflecting my current status.
  - 4. Before starting with any practice, claim your own Google Business profile page and do not allow your new practice to claim or manage it for you.
  - 5. Once your online identity has been established, it can take years for it to properly reflect your current status.
  - 6. Managing from the beginning is best.



# Marketing and Outreach Under the Sun(shine Act) And the Anti-Kickback Statute and the Stark Law

**Jill Melicher MD**

*We want our brand to be seen where our doctors and patients are ... over and over again.*

## I. Components of a Successful Marketing Program

### A. Identify your areas of focus and spend.

#### 1. Four Pillars

- a. Physician outreach
- b. Digital marketing
- c. Direct-to-consumer marketing
- d. Brand management

### B. Perform lead source tracking.

### C. Compile monthly metrics, analyze the data, and identify opportunities for improvement.

## II. Laws That Influence How You Market Your Practice

### A. Sunshine Act

Signed into U.S. law in 2010, the Sunshine Act was designed to increase transparency around financial relationships between physicians, teaching hospitals, and manufacturers of drugs, medical devices, and biologics.

### B. Anti-Kickback Statute (AKS)

Signed into U.S. law in 1972 as an amendment to the Social Security Act, the AKS prohibits the knowing and willful payment of remuneration to induce patient referrals or business of any kind for services payable by federal health-care programs.

### C. Stark Law (Physician Self-Referral Law)

Signed into U.S. law in 1989, the Stark Law prohibits physicians from referring patients to receive “designated health services,” payable by CMS, from entities with which the physician or an immediate family member has a financial relationship.

## III. The Importance of a Compliance Program

You must develop a robust compliance program in your practice and educate your employees and physicians on the laws that influence marketing. Track and meticulously document every dollar spent on practice marketing to avoid pitfalls. Rulings in recent years have increased the need for greater awareness and education and the use of caution when marketing your practice.

# What Can ChatGPT Do to Revolutionize Your Oculofacial Practice?

*Bobby Korn MD PhD FACS*



- I. Introduction: Generative AI vs. Traditional Search
- II. Applications of ChatGPT in Your Oculofacial Practice
  - A. Clinical care
  - B. Administrative
  - C. Marketing
- III. Limitations
- IV. Future Directions

# Changing How We Approach Acute Invasive Fungal Rhino-orbital Sinusitis

**M Reza Vagefi MD**

- I. Introduction
  - A. Acute invasive fungal rhino-orbital sinusitis
  - B. Three-pronged treatment approach
- II. Treatment of the Orbit
  - A. Exenteration
  - B. Local antifungal therapy: Transcutaneous retrobulbar amphotericin B (TRAMB)
- III. Study of a Modified Treatment Ladder Algorithm Using TRAMB
  - A. Visual acuity outcomes
  - B. Relative risk for exenteration
  - C. Relative risk for death
- IV. Conclusions

- 2. Hirabayashi KE, Idowu OO, Kalin-Hajdu E, et al. Invasive fungal sinusitis: risk factors for visual acuity outcomes and mortality. *Ophthalmic Plast Reconstr Surg.* 2019; 35(6):535-542.
- 3. Hirabayashi KE, Kalin-Hajdu E, Brodie FL, Kersten RC, Russell MS, Vagefi MR. Retrobulbar injection of amphotericin B for orbital mucormycosis. *Ophthalmic Plast Reconstr Surg.* 2017; 33(4):e94-e97.
- 4. Idowu OO, Soderlund KA, Laguna B, et al. Magnetic resonance imaging prognostic findings for visual and mortality outcomes in acute invasive fungal rhinosinusitis. *Ophthalmology* 2022; 129(11):1313-1322.
- 5. Kalin-Hajdu E, Hirabayashi KE, Vagefi MR, Kersten RC. Invasive fungal sinusitis: treatment of the orbit. *Curr Opin Ophthalmol.* 2017; 28(5):522-533.
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## Selected Readings

- 1. Ashraf DC, Idowu OO, Hirabayashi KE, et al. Outcomes of a modified treatment ladder algorithm using retrobulbar amphotericin B for invasive fungal rhino-orbital sinusitis. *Am J Ophthalmol.* 2022; 237:299-309.

# Evolution of Tarsal Stabilization in Entropion and Tarsal Ectropion

**Michael E Migliori MD**

The proper position of the lower eyelid is maintained by both the integrity of the medial and lateral canthal tendons and the stabilization of the tarsus through the attachment of the lower lid retractors to the inferior tarsal border and surrounding tissue. These attachments create 3-point fixation of the tarsus to provide eyelid stability.

Loss of horizontal tension may cause the lower lid to sag, but loss of fixation along the inferior tarsal border may allow the tarsus to rotate around its horizontal axis.

Both involutional lower lid entropion and tarsal ectropion are characterized by varying degrees of horizontal laxity and tarsal rotation. The only difference between the two is whether the eyelid turns inward or the eyelid everts.

Kakizaki demonstrated that the lower eyelid retractors comprise 2 layers. The posterior layer includes the smooth muscle fibers and attaches to the anterior, inferior, and posterior surface of the lower tarsal plate. The main role of this posterior layer is to pull the lower eyelid inferoposteriorly. The anterior layer mainly comprises the thin anterior part of the capsulopalpebral fascia from Lockwood ligament. The anterior layer attaches to the subcutaneous tissue rather than the tarsus.

Successful repair of these eyelid malpositions requires addressing horizontal laxity and stabilizing the tarsus. Several techniques have been described for these conditions. Since both tarsal ectropion and involutional entropion have similar anatomic features, it makes sense that they should require similar anatomic repair.

This presentation will describe a single technique effective in repairing both tarsal ectropion and involutional entropion.

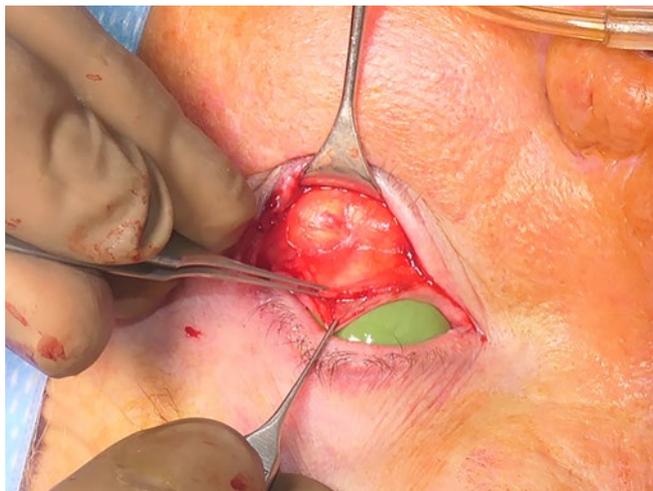


Figure 1

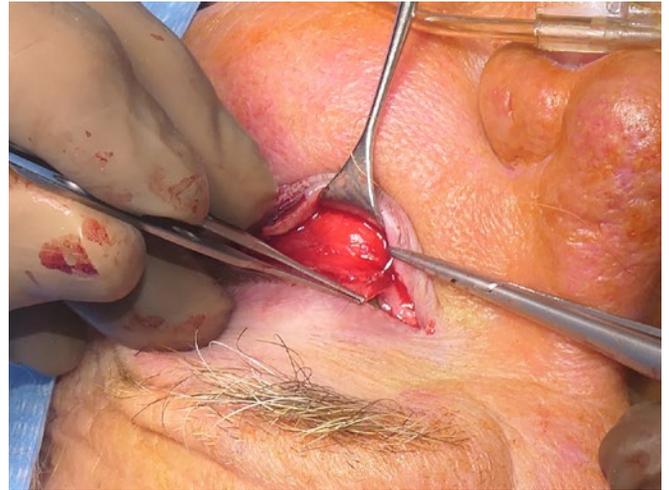


Figure 2



Figure 3



Figure 4

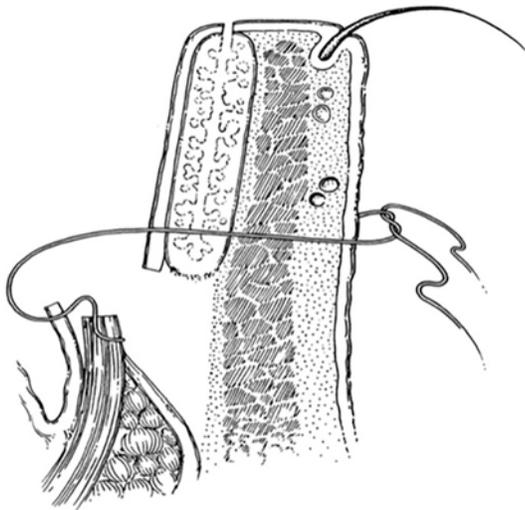


Figure 5

### Selected Readings

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2. Wesley RE. Tarsal ectropion from detachment of the lower eyelid retractors. *Am J Ophthalmol.* 1982; 93(4):491-495.
3. Wang D, Deng W, Shinder R. Tarsal ectropion repair with modified Bick eyelid tightening and inverting sutures. *Ophthalmic Plast Reconstr Surg.* 2002; 38(6):602-605.
4. Ghafouri RH, Allard FD, Migliori ME, Freitag SK. Lower eyelid involutional ectropion repair with lateral tarsal strip and internal retractor reattachment with full-thickness eyelid sutures. *Ophthalmic Plast Reconstr Surg.* 2014; 30(5):424-426.
5. Athavale DD, O'Donnell BA. Lower eyelid entropion repair with retractor mobilization and insertion onto the anterior surface of the tarsal plate. *Orbit* 2018; 37(2):121-124.
6. Dresner SC, Karesh JW. Transconjunctival entropion repair. *Arch Ophthalmol.* 1993; 111(8):1144-1148.
7. Erb MH, Uzcategui N, Dresner SC. Efficacy and complications of the transconjunctival entropion repair for lower eyelid involutional entropion. *Ophthalmology* 2006; 113(12):2351-2356.

# Hydrogen Peroxide for Hemostasis

**Cameron Nabavi MD**

## I. Background

- A. Orbital surgery has inherent challenges due to limited visualization and obscured access to deeper compartments.
- B. Hemostasis can be problematic in these locations that are difficult to view and access.
- C. Hydrogen peroxide is believed to facilitate hemostasis by regulating contractility and barrier function of endothelial cells, activating platelet aggregation and stimulating platelet-derived growth factor activation.
- D. Hydrogen peroxide has been utilized in neurosurgical, otolaryngological, and dermatological procedures.

## II. Methods

- A. Dilute hydrogen peroxide (3% diluted 1:1 with normal saline) was used in orbital cases burdened by stubborn bleeding not controlled in a timely fashion by traditional methods.
- B. 5 mL of 1.5% hydrogen peroxide was placed into orbital space of concern, allowed to effervesce for 10-15 seconds, then briskly irrigated with 50 mL normal saline.
- C. Care was taken to protect the cornea and to irrigate thoroughly with BSS.

## III. Results

### A. Case 1

1. A 44-year-old male with headaches and V1 neuralgia with an intraosseous lesion consistent with intraosseous hemangioma
2. Lid crease approach anterior orbitotomy to the superior orbital rim
3. The lesion was identified and excised with the assistance of an ultrasonic bone aspirator.
4. Once resected, significant intraosseous bleeding was seen.
5. One round of application allowed for hemostasis and permitted safe completion of the procedure.
6. No complications were seen in the 12 months after surgery.

### B. Case 2

1. A 47-year-old female patient with Graves ophthalmopathy underwent a 3-wall orbital decompression. During lateral wall decompression with an ultrasonic bone aspirator.

2. Any arterial bleeding seen from the wound bed was addressed with bone wax. Diffuse bleeding was seen from what appeared to be the bony perforating blood vessels and was not amenable to bone wax.
3. 5 mL of 1.5% hydrogen peroxide was irrigated for 10-15 seconds, allowing for effervescence, followed by 50 mL of normal saline irrigation—for 3 rounds.
4. Bleeding after this application was minimal, allowing for conclusion of the surgery.
5. No resulting complications were noted at 9-month postoperative visit.

### C. Case 3

1. An 85-year-old male with a history of multiple myeloma presented with new proptosis and diplopia.
2. Orbital imaging showed a bony lesion of the superior orbital rim and roof.
3. Anterior orbitotomy allowed for exposure and removal of the tumor.
4. The wound bed had diffuse, nonfocal bleeding, making hemostasis via traditional methods challenging.
5. 5 mL of 1.5% hydrogen peroxide was irrigated for 15 seconds, followed by 50 mL of normal saline irrigation; this controlled the bleeding, allowing surgical intervention to proceed.
6. No corneal complications or other issues were seen up to 6 months postoperatively.

## IV. Discussion

- A. In each of the 3 cases, hydrogen peroxide application allowed for hemostasis and safe resumption of surgery.
- B. No complications from hydrogen peroxide were seen, including optic neuropathy, corneal keratopathy, or skin breakdown.
- C. Hydrogen peroxide application can be considered a useful tool to allow for hemostasis in challenging orbital cases where exposure can be challenging and views can limit full hemostasis via traditional modalities.

## Selected Readings

1. Canoso RT, Rodvien R, Scoon K, Levine PH. Hydrogen peroxide and platelet function. *Blood* 1974; 43(5):645-656.

2. Pignatelli P, Pulcinelli FM, Lenti L, Gazzaniga PP, Violi F. Hydrogen peroxide is involved in collagen-induced platelet activation. *Blood* 1998; 91(2):484-490.
3. Epstein JA. Hydrogen peroxide for hemostasis. *Neurosurgery* 1987; 20:63.
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5. Altun H, Hancı D, Kumral TL, Uyar Y. The hemostatic efficacy of hydrogen peroxide irrigation to control intraoperative bleeding in adenoidectomy. *Turk Arch Otorhinolaryngol.* 2018; 56(4):193-198.
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7. Baumann LS, Blauvelt A, Draelos ZD, et al. Safety and efficacy of hydrogen peroxide topical solution, 40% (w/w), in patients with seborrheic keratoses: results from 2 identical, randomized, double-blind, placebo-controlled, Phase 3 studies (A-101-SEBK-301/302). *J Am Acad Dermatol.* 2018; 79(5):869-877.
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9. Mut M, Yemisci M, Gursoy-Ozdemir Y, Ture U. Hydrogen peroxide-induced stroke: elucidation of the mechanism in vivo. *J Neurosurg.* 2009; 110(1):94-100.
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# Posterior Approach Ptosis Surgery

***Vikram D Durairaj MD***

- I. Traditional Approach to Posterior Ptosis Repair
  - A. Review of literature and technique
- II. Evolution of Technique
  - A. Review of literature
- III. My Technique
  - A. Surgical video
  - B. Results

# Evolution From Patient Care to Caring for the Patient

*Jeffrey Nerad MD*

## **Career Overview—Transitioning From Technical Excellence to Patient Care Excellence**

This is a reflection of my 40-year career in practicing oculofacial plastic surgery, especially examining the transitions in my career that emphasized acquiring knowledge, moving to using the knowledge (... patient care) to finally putting it together—still learning and still providing excellent medical care, but now able to enjoy my patients and practice in a complete way (... caring for patients).

Each career is different, and no doubt my career has been different than yours will be. My hope is that you become aware of the possibilities for fulfillment in all stages of your career. We are in the world too short a time and we work way too many hours to not enjoy opportunities for fulfillment from our practices and patients. Understanding your position and potential at each phase of your career can be a great gift to you and your patients.

# Let's Go With the Swing!

**Geoffrey E Rose FRCOphth**

During my specialist training in the late 1980s and early consultancy in the 1990s, almost all retrobulbar masses were operated through a lateral osteotomy approach, with free removal of bone and later refixation using stainless-steel wire through pre-drilled holes. This technique did provide a fairly “panoramic” view of the retrobulbar space, but it could lead to various complications, such as malposition of the lateral rim, ischemic osteonecrosis, restrictive adhesions between the lateral rectus and orbital wall, or intraoperative dissemination of malignancy into the temporalis fossa.

With experience, I came to recognize that free removal of the lateral bone was unnecessary, and that an outward swing of the bone on a temporalis flap was much quicker, provided an equally good intraoperative view, and was without risk of osteonecrosis—and without risk of accidentally dropping the bone fragment onto the floor during surgery! With time it also became evident that, despite having lateral osteotomy, most masses were, in effect, being removed through a relatively restricted route below the lateral rectus; as this pathway is the widest intermuscular space, and most lesions lie lateral or inferior to the optic nerve, there did not appear to be a great advantage for bone-swinging lateral orbitotomy over the lower lid swinging flap.

It is now evident that there are 2 types of lower-lid swinging flap—the “high flap” and the “low flap.” These have completely different indications, and recognition of the 2 approaches is imperative in avoiding various complications, such as conjunctivo-orbital fistulae. Recognition of these 2 types of lower-lid swinging flap has resulted in my shifting from 2-3 lateral osteotomies performed weekly to about 3-4 annually in recent years.

My early concern that removal of retrobulbar masses through a lower-lid swinging flap might have a higher incidence of visual loss—due to a greater manipulation of tissues—has not been proven valid. Likewise, although intact removal of lacrimal gland tumors without lateral osteotomy is somewhat more difficult to perform, it is possible, and probably reduces the risk of intraoperative dissemination of malignancy into the temporalis fossa.

# Teprotumumab

**Catherine J Hwang MD**

- I. FDA Approved Indications for Teprotumumab
- II. Review of Data From Published Studies
  - A. Phase 2 (TED01RV study)
  - B. Phase 3 OPTIC trial (HZNP-TEP-301)
  - C. OPTIC X
- III. Cole Eye Experience
- IV. Potential Side Effects
- V. Patients Who May Benefit From Teprotumumab

## Selected Readings

1. Smith TJ, Kahaly GJ, Ezra DG, et al. Teprotumumab for thyroid-associated ophthalmopathy. *N Engl J Med.* 2017; 376(18):1748-1761.
2. Douglas RS, Kahaly GJ, Patel A, et al. Teprotumumab for the treatment of active thyroid eye disease. *N Engl J Med.* 2020; 382(4):341-352.
3. Douglas RS, Kahaly GJ, Ugradar S, et al. Teprotumumab efficacy, safety, and durability in longer-duration thyroid eye disease and re-treatment: OPTIC-X study. *Ophthalmology* 2022; 129(4):438-449.
4. Hwang CJ, Nichols EE, Chon BH, Perry JD. Bilateral dysthyroid compressive optic neuropathy responsive to teprotumumab. *Eur J Ophthalmol.* 2022; 32(3):NP46-NP49.

# Tocilizumab and Upcoming Biologics

## The Use of Tocilizumab and Upcoming Biologics in the Treatment of Thyroid-Associated Orbitopathy

**Stuart R Seiff MD**

The success of teprotumumab has generated much enthusiasm for the use of new biologic agents in the management of thyroid-associated orbitopathy (TAO).

Tocilizumab (Actemra, Genentech; South San Francisco) is an IL-6 inhibitor that has been approved for use by the USFDA for rheumatoid arthritis, giant cell arteritis, and (emergency use) severe COVID infection. In 2014 Morieras et al described the off-label use in patients with thyroid eye disease. The patients in the study showed substantial decrease in clinical activity scores (CAS) with monthly IV infusions of 8 mg/kg over 4-5 months.

Subsequent studies, including a randomized controlled study, have supported the early report. Patients in these series have shown decrease in CAS, thyroid-stimulating immunoglobulin (TSI) level, proptosis, periocular inflammation and edema, and myopathy (diplopia)—all similar to the results with teprotumumab. Patients tolerate the medication extremely well. Infusion reactions and side effects are few if patients are properly screened before treatment. Tocilizumab should be avoided in patients with potential latent infections such as tuberculosis or hepatitis, liver disease, elevated cholesterol, recent carcinomas, or platelet abnormalities. It seems that the short course of this drug does not otherwise produce significant side effects.

It is interesting to note that post-treatment recurrence of TAO and CAS elevation are rare compared to what we see with teprotumumab. This is likely due to a difference in the mechanisms of action of the 2 drugs. Teprotumumab physically occupies the ILGF1/TSI receptor site, which blocks the binding of TSI. It seems to be effective only while bound. On the other hand, tocilizumab inhibits IL-6 binding and “resets” the overall immune response. This reduces the amount of circulating TSI, and thus the TAO inflammatory cascade. A direct correlation is seen between TSI levels and CAS.

In our practice we tend to select patients for treatment with tocilizumab vs. teprotumumab based on patient comorbidities and the treatment protocols.

Other IL-6 inhibitors are being developed as well.

Various other agents have been explored for use in the management of TAO. Rituximab, a B-cell-targeting anti-CD-20 agent primarily used to treat lymphoproliferative disease, has demonstrated variable success. When used in patients with a somewhat longer duration of disease, rituximab demonstrated no additional benefit over placebo. However, there appears to be more benefit when patients are treated earlier in their course.

Further targeted therapies under investigation include secukimumab (NCT04737330) and vunakizumab (also known as SHR-1314, NCT05394857), which are both subcutaneously administered anti-IL-17a monoclonal antibodies. IL-17, similar to IL-6, plays a pro-inflammatory role in TAO pathogenesis, and IL-17 targeting drugs are already known to be effective in treating other systemic inflammatory conditions such as psoriasis.

Alternatively, batoclimab (also referred to as RVT-1401 or IMVT-1401), a fully human monoclonal antibody directed against the neonatal immunoglobulin Fc receptor (FcRn), proposes a different mechanism that may help control inflammation in TAO. The FcRn recycles and therefore prolongs the half-life of IgG antibodies, including those directed against the thyrotropin receptor in TAO. As such, blocking FcRn could allow for greater clearance of IgG antibodies from the blood, ultimately reducing auto-inflammatory signaling in TAO. Studies have produced variable results.

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# Steroids and Radiotherapy

*Michael Kazim MD*

## I. Thyroid Eye Disease (TED) Natural History

### A. Anticipated duration of disease

1. 1 year nonsmoker
2. 2-3 years smoker

### B. Predictors of worse disease severity

1. Older age
2. Male gender
3. Smoker
4. Sleep apnea
5. Dermopathy
6. Diabetic
7. Elevated TSH levels
8. Rapid progression of disease
9. Early motility deficit

## II. Disease Modification vs. Modulation

### A. Modulation = disease suppression

### B. Modification = early disease cessation

## III. Steroid Therapy Alone

### A. Efficacy: Excellent response rate with high clinical activity score (CAS)

### B. Durability: 30%-40% relapse rate = disease modulation

### C. Adverse events

## IV. Steroid + Radiotherapy

### A. Best used for moderately severe to severe TED

1. Steroid-responsive compressive optic neuropathy
2. Rapidly progressive TED
3. Early motility deficit
4. Not helpful for mild, moderate, or inactive disease

### B. Effect on duration of disease

1. Disease cessation in 3 months: disease modification
2. Relapse rate <10%

### C. Side effect profile: Favorable without insulin-dependent diabetes mellitus or poorly controlled hypertension

## V. Proposal for Novel Metrics of Drug Efficacy

# Vismodegib vs. Excision

**Andrea Lora Kossler MD**

- I. Basal Cell Carcinoma (BCC)
  - A. Represents up to 96% of eyelid malignancies
  - B. Complete excision is considered the therapeutic mainstay.
  - C. Advanced periocular and orbital disease may require orbital exenteration.
  - D. Globe-sparing surgery for orbital BCC has shown poor efficacy with high recurrence rates.
- II. Hedgehog Pathway Inhibitors (HPIs)
  - A. In 2012 HPIs were approved by the FDA to treat locally advanced BCC.
  - B. HPIs include vismodegib (Erivedge, GDC-0449, Genentech; South San Francisco, CA) and sonidegib (Odomzo, LDE225, Novartis; San Carlos, CA).
  - C. HPIs inhibit the smoothed protein (SMO) in the dysregulated sonic hedgehog (Shh) pathway most frequently responsible for BCC development.
  - D. Clinical response rates for advanced BCCs in all anatomic locations were promising; the initial study showed 43% of patients had a significant clinical response to treatment.<sup>1</sup>
  - E. Yet resistance and recurrence rates were concerning.
  - F. Secondary resistance rates (regrowth of tumor after initial shrinkage while on maintenance therapy) of up to 21%<sup>2,3</sup>
  - G. HPIs have been used to treat periorbital and orbital BCC, with clinical efficacy rates ranging from 75% to 100% for partial or complete response.
  - H. In a study of 21 patients with multimodal drug use (based on clinical response), 8 patients stopped medical treatment without planned excision following a complete response. Of these, 3 (37.5%) developed recurrence manifesting a median of 8 months following cessation.<sup>4</sup>
  - I. While initial clinical response rates support the use of HPIs to treat orbital and periorbital locally advanced BCC, the risk of resistance and recurrence necessitates further investigation for guidance around treatment best practices.
- III. Long-term Analysis of HPI Resistance and Recurrence: Retrospective Study
  - A. Purpose: To report our long-term response, resistance, and recurrence rates treating patients with HPI therapy for advanced periorbital and orbital BCC
- B. Methods
  1. All patients treated with HPIs for locally advanced periorbital or orbital BCC between January 1, 2010, and November 31, 2018, at a single institution were included.
  2. Primary outcomes included clinical response, resistance, recurrence, time to events, and total treatment time.
- C. Results
  1. Twenty-one patients were evaluated.
  2. Fifteen received monotherapy; 4, neoadjuvant therapy; and 3, adjuvant treatment.
  3. Median treatment length and follow-up time were 12 (interquartile range [IQR]: 7-16.5) and 36 (IQR: 17-53.5) months.
  4. Fourteen patients (66.7%) responded partially or wholly.
  5. Twelve patients (54.5%) developed resistance, recurrence, or both—all within the monotherapy group (80.0%, 12/15).
- D. Discussion
  1. This long-term analysis further supports the efficacy of vismodegib for periorbital and orbital BCCs.
  2. However, resistance rates (31.6%) and recurrence (42.1%) rates are high—with a median time to resistance/recurrence of 12 months.
  3. The rates of resistance and recurrence in the monotherapy cohort argue against its use as a first-line paradigm. Eighty percent of patients in the monotherapy group (12/15) developed either resistance or recurrence.
  4. Complete clinical and radiological response does not guarantee a histologic cure, and recurrence often develops in the first year after drug cessation.
  5. Four patients were treated with neoadjuvant HPI (median: 7 months of therapy). All were disease-free, with no history of resistance or recurrence after over 2 years of follow-up.  
  
Kahana et al<sup>5</sup> reported that vismodegib preserved globe and visual function in 34 patients with extensive periocular BCC. Of the 27 patients who underwent neoadjuvant therapy to surgical excision, 33% had histologic evidence of residual disease in the surgical specimen.

## E. Conclusions

1. HPIs are effective in managing advanced orbital and periorbital BCC. However, when used as monotherapy, the rates of resistance and recurrence are concerning.
2. Patients treated with HPI monotherapy should be educated about the risk of recurrence, possible need for surgical excision, and the importance of long-term follow-up even when a complete initial response is seen.
3. Until more studies are available regarding the role of HPIs for orbital and periorbital BCC, neoadjuvant therapy should be considered to avoid exenteration or significant morbidity. Complete surgical excision should be performed when possible.

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# 5-Fluorouracil for Conjunctival and Fornix Scarring

**Alon Kahana MD PhD**

## I. Indications

- A. Stevens-Johnson syndrome
- B. Ocular cicatricial pemphigoid
- C. Trauma
- D. Anophthalmic socket

## II. Mechanism

- A. Fibroblast proliferation
- B. Collagen crosslinking

## III. Safety

- A. 50 years experience, primarily with glaucoma surgery
- B. *Not* an alkylating agent

## IV. Technique

- A. Deep orbit injection
- B. Subtenon injection
- C. Subconjunctival injection
- D. Frequency: every 2-4 weeks
- E. Dosing: 50 mg/mL

## V. Outcomes

- A. Remodeled scars
- B. Improved success of grafting procedures

# Ophthalmic Oxymetazoline

*Kenneth V Cahill MD FACS*

## The Basics

- FDA approved for treatment of acquired blepharoptosis in adults (13 years old and older)
- For use 1 time per day
- It may result in under- and overcorrections.
- Hering phenomenon may be elicited.
- Compensatory brow elevations may or may not be eliminated.
- It has value as a therapeutic modality.
- It is also useful for diagnostic purposes and preoperative ptosis surgery planning.
- May be used in place of phenylephrine 2.5% for assessing myogenic ptosis

## Advantages

No pupil dilation, so the results can be better assessed by the patient. Lasts longer, so patients can have a prolonged trial.

## Disadvantages

The maximum effect from oxymetazoline on the upper lid may not occur for up to 2 hours. In practice, I find that it takes a strong effect within 15 to 20 minutes. This is longer than the 5 to 10 minutes that are required for phenylephrine 2.5% to take effect. I find that it is still feasible to work this into an efficient office routine. Many studies have been performed to validate the effect of phenylephrine 2.5% in the preoperative testing of ptosis patients. These clinical validations have not been published for oxymetazoline.

## Other Tips

- The use of oxymetazoline for a week or 2 permits better assessment of possible changes due to Hering phenomenon, brow overaction, impact on dry eyes, loss of pinhole effect, and impact on light sensitivity.
- Although the recommended dosage is 1 drop/day, some patients have found that a second drop during the day may be beneficial.
- Patients recovering from eyelid surgery who exhibit eyelid swelling, and ptosis may benefit from the temporary use of oxymetazoline.
- Patients who develop ptosis as a complication of onabotulinumtoxinA treatment of eyelids do not usually respond very well to oxymetazoline. However, sometimes they note a small improvement, which is helpful as they wait for spontaneous improvement as the botulinum toxin wears off.
- Oxymetazoline does not usually provide a noticeable improvement in keeping the eyelids open from benign essential blepharospasm.
- Oxymetazoline does not seem to help patients with ptosis resulting from myasthenia gravis.
- Severe congenital ptosis or other myogenic forms of ptosis in adults do not usually benefit much from oxymetazoline. It is not approved for children less than 13 years old.
- Patients with reading gaze ptosis as described by Mike Patipa and others usually have significant improvement from oxymetazoline.

# Corneal Neurotization

**Michael T Yen MD**

- I. Overview of Neurotrophic Keratopathy
- II. History of Corneal Neurotization
- III. Scientific Basis of Corneal Neurotization
- IV. Approaches to Corneal Neurotization
  - A. Donor nerve selection
    - 1. Supraorbital
    - 2. Supratrochlear
    - 3. Infraorbital
    - 4. Ipsilateral vs. contralateral
  - B. Coaptation technique
    - 1. End-to-end coaptation
    - 2. End-to-side coaptation
  - C. Nerve transfer vs. nerve graft
    - 1. Autograft
    - 2. Allograft
  - D. Distribution of fascicles
- V. Results From the Medical Literature

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# Bucket-Beard

## A Modification to the Cutler-Beard Procedure

*Jill A Foster MD FACS, Thabit Odat MD, Kenneth Cahill MD, Cameron Nabavi MD, and Craig Czyn MD*

### Introduction

Reconstruction of large upper eyelid defects is technically challenging and requires meticulous attention to restore the upper eyelid's unique anatomy and physiology. Traditionally these defects are reconstructed using adjacent myocutaneous flaps combined with either conjunctival flap or free tarsoconjunctival grafts from contralateral upper eyelids.<sup>1-4</sup> Procedures such as the Mustardé switch flap<sup>5</sup> and the Cutler-Beard procedure<sup>6</sup> have been used to address these large defects.

The Cutler-Beard flap has the most versatility in compensating for larger defects in the upper eyelid. While this technique is a key tool for large upper eyelid reconstruction, immobility of the reconstructed upper eyelid, lagophthalmos, upper eyelid retraction, and entropion are reported complications. Another serious but usually overlooked complication is the exuberant vellus hair at the new upper eyelid margin that may come into contact with the ocular surface. Modifications to try to overcome these complications have been reported, such as secondary placement of an autologous tarsoconjunctival graft.<sup>7</sup>

In this study we are reporting a new modification to the Cutler-Beard procedure. This bucket handle flap technique<sup>8</sup> decreases the risk of the above-mentioned complications, and we have labeled it the "Bucket-Beard" procedure.

### Surgical Procedure

A Cutler-Beard flap is fashioned beginning 4 mm below the lower lid margin and goes through a full-thickness eyelid. Medial and lateral relaxing incisions are made to allow the flap to be slid superiorly under the eyelid margin bridge. The residual margin of upper lid conjunctiva is separated from levator aponeurosis. The Cutler-Beard flap conjunctiva and orbicularis are pulled superiorly, and if necessary for greater upward mobility, the lower eyelid epithelium is recessed away from the orbicularis. The edge of the Cutler-Beard flap is sutured to this superior conjunctiva and any remaining Müller muscle using interrupted 6.0 Vicryl sutures. Suture knots are tied on the anterior surface. This joined flap is then sutured to the remaining edge of upper lid tarsus medially and laterally using interrupted 6.0 Vicryl sutures or to the reflected periosteal flap(s) if the defect also involves the canthal area(s) and there is no remaining tarsal plate. A support tissue to replace the tarsal plate is placed on top of the conjunctiva. This might be autogenous auricular cartilage or preserved graft material that is fashioned and trimmed to fit the tarsal defect in the upper eyelid. It is sutured to the partial-thickness native tarsus medially and laterally, and along the inferior edge to the orbicularis muscle exposed by elevation of the skin from the Cutler-Beard flap (Figure 1).

A bipedicle flap of skin and orbicularis muscle is marked and created superiorly. It is undermined and separated from adjacent tissue and reflected downward. The skin is sutured to the skin of the Cutler-Beard flap with interrupted and running 6/0 plain gut sutures. It is sutured to the remaining skin of the lateral canthus and medial upper lid with interrupted and 6/0 plain gut sutures (Figure 2).

The defect is measured, and a skin graft is harvested from behind the ear or from the supraclavicular area. It is placed in the defect below the brow. It is sutured in place using interrupted and running 6-0 plain gut sutures (Figure 3).

The patients' superior and inferior eyelids are usually separated from each other at 6-12 weeks postoperatively.



Figure 1. The Cutler-Beard flap epithelium can be seen just above the lower eyelid lashes. The tarsal replacement graft is sutured in just above the Cutler-Beard epithelium and anterior to the Cutler-Beard flap conjunctiva.



Figure 2. A bipedicle flap is created below the brow and reflected downward over the top of the tarsal replacement, and the bipedicle flap skin is sutured to the skin of the Cutler-Beard flap.



Figure 3. Full-thickness skin graft is placed in the defect below the brow and sutured.

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# Rethinking the Tarsconjunctival Flap: A Novel Technique to Preserve Central Lashes and Avoid Skin Graft in Large Lower Eyelid Mohs Defects

*Ronald Mancini MD*

Large lower eyelid defects, typically encompassing greater than 50% full-thickness eyelid margin, often necessitate a Hughes tarsconjunctival advancement flap from the upper eyelid for reconstruction. Although often resulting in excellent functionality, aesthetically the results can be disappointing as the area of the large tarsconjunctival flap is a non-lash bearing area and often located in the central eyelid.

Here I describe a modification to a traditional Hughes tarsconjunctival flap that displaces the tarsconjunctival flap laterally and spares the central eyelid lashes. Absence of lashes is less obvious laterally as opposed to being centrally positioned. Additionally, traditional tarsal conjunctival flaps often necessitate full-thickness skin grafting for anterior lamellar reconstruction. With the presented modification, full-thickness skin grafting can be avoided by advancing in a semicircular advancement flap of skin with the transposition.

# Combination Glabellar and V-to-Y Island Pedicle Flap

**Christina H Choe MD**

## Introduction

A paramedian flap is a popular reconstruction technique for large medial canthal defects. This powerful reconstruction technique is unfortunately also associated with significant patient morbidity, including numbness, significant postoperative wound care, need for a second surgery, and a potentially psychologically offensive appearance between surgeries. Local regional flaps are another alternative for reconstructing the medial canthus. A combination V-to-Y flap following the nasofacial sulcus combined with a glabellar flap is a type of local regional flap that can be used to reconstruct large medial canthal defects and is associated with a more rapid return to normal appearance.

## Methods

This retrospective case series details my experience utilizing the combination of these 2 popular flaps as an alternative to paramedian flaps for Mohs reconstruction.

## Results

This series of 6 patients ranged in age from 45 to 88 years. Two cases were due to squamous cell carcinoma and 4 due to basal cell carcinoma. The defect size ranged from 2.3 to 7.2 sq cm, with the longest limb of the defect ranging from 1.9 to 3.0 cm. Follow-up ranged from 1 week to 5 months postoperative.

Complications included 1 case of necrosis in a smoker, 1 case of medial canthal web, and 1 case of suture abscess that resolved with oral antibiotics. Overall patient satisfaction with the reconstructive result was very high.

## Conclusions

Combining V-to-Y and glabellar rotational flaps is an effective way to reconstruct large medial canthal defects spanning the upper and lower eyelids, with good aesthetic results and less morbidity than paramedian flaps.

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# Sliding TARSOCONJUNCTIVAL Flap for Margin Defects

Philip L Custer MD

## Introduction

The sliding tarsal flap for lower eyelid reconstruction has received limited attention in the literature. The procedure was first reported by DeSousa<sup>1</sup> in 2007, when he described a group of 12 patients. Subsequently, Custer<sup>2,3</sup> published a series of 39 patients.

## Patient Selection

The sliding tarsal flap can be used to repair relatively shallow defects of the lower eyelid margin. Ideally the edges of the defect should be sloping. There should be sufficient horizontal laxity to shorten the lid by 50% of the defect width, although the technique can be combined with lateral canthotomy and cantholysis (such as in a semicircular flap) for larger wounds.

## Surgical Procedure

A flap is developed from the remaining tarsus within the defect. The flap is based either medially or laterally, usually on the side of the defect where there is the smoothest transition between the remaining tarsus and intact lid margin and the most gradual slope of the defect. An incision begins near the center of the defect and is angled to extend underneath the tarsus to be mobilized. A triangle of redundant conjunctiva and lid retractors can be excised underneath this flap. This triangle is closed with a single 6-0 polyglactin suture. The tarsal flap is advanced above the top edge of the remaining tarsus in the adjacent half of the defect, until the flap tip is flush with the intact lid margin. If needed the flap tip can be slightly trimmed to match the wound edge. The tarsal edges are sutured with 6-0 polyglactin,

avoiding exposure of the suture on the conjunctival surface. In patients with a stiff or vertically wide tarsus, a very small ( $\leq 1$  mm) incision can be created in the inferior base of the flap to facilitate rotation. The distal end of the tarsal flap is sutured to the adjacent margin with a 7-0 chromic suture.

As mobilization of the tarsal flap shortens the defect by approximately 50%, there is usually horizontal skin laxity inferior to the wound. In many patients this allows creation of a rhomboid skin flap to repair the skin defect. The rhomboid flap has the advantage of strengthening the horizontal wound closure. If necessary, this flap can be augmented with a skin graft. In a minority of cases a skin graft can be used to replace the entire anterior lamella. The mobilized or grafted skin should extend all the way to the lid margin, covering the entire anterior surface of the tarsal flap. The superior edge of the tarsal flap can be left uncovered.

Topical antibiotic ointment is applied until the wound has healed and the margin epithelialized (2-4 weeks). There is often marginal erythema and some irregularity for 6 weeks after surgery, and patients are informed it can take 3-4 months to achieve the final cosmetic result.

## Complications

Significant complications are uncommon. Mild irregularity of the margin can persist. Occasionally conjunctival migration will cause erythema of the posterior margin. This can be treated with light cautery. Other observed complications include pyogenic granuloma formation and trichiasis at the junction of the reconstructed eyelid.

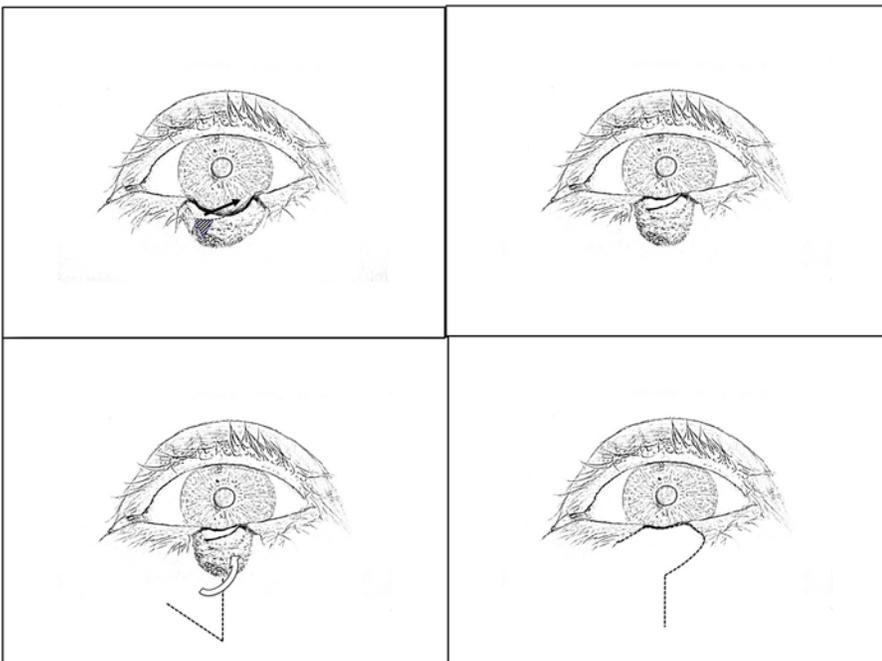


Figure 1

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